



## TCEQ REPORTING

PERMIT NO: TX0055735

### 24 Hour Acute Bio-monitoring Report

TPDES Permit Number 11593-001

*Ceriodaphnia dubia*  
*Pimephales promelas*

July 1, 2018 through December 31, 2018

Test date: August 21, 2018

Mike McMahon, Operations Superintendent

**DMR Copy of Record**

**Permit**

<b>Permit #:</b>	<b>TX0055735</b>	<b>Permittee:</b>	TROPHY CLUB MUD 1	<b>Facility:</b>	TROPHY CLUB MUD 1
<b>Major:</b>	Yes	<b>Permittee Address:</b>	100 MUNICIPAL DRIVE TROPHY CLUB, TX 76262	<b>Facility Location:</b>	100 MUNICIPAL DRIVE ROANOKE, TX 76262
<b>Permitted Feature:</b>	TXA External Outfall	<b>Discharge:</b>	<b>TXA-S</b> 24-HOUR ACUTE FRESHWATER - 001		

**Report Dates & Status**

<b>Monitoring Period:</b>	<b>From 01/01/18 to 06/30/18</b>	<b>DMR Due Date:</b>	<b>07/20/18</b>	<b>Status:</b>	<b>NetDMR Validated</b>
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**Considerations for Form Completion**

(PASS = 0, FAIL = 1) REPORT PASS AS "0" AND FAIL AS "1" IN CONCENTRATION ABOVE.

**Principal Executive Officer**

<b>First Name:</b>	Mike	<b>Title:</b>	Superintendent	<b>Telephone:</b>	682-831-4689
<b>Last Name:</b>	McMahon				

**No Data Indicator (NODI)**

Form NODI: --

Code	Parameter Name	Monitoring Location	Season #	Param. NODI	Quantity or Loading					Quality or Concentration					# of Ex.	Frequency of Analysis	Sample Type					
					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3				Value 3	Units			
22415	Whole effluent toxicity - retest #1	1 - Effluent Gross	0	--	Sample						=	0						9A - pass=0,fail=1	09/99 - See Permit	CP - COMPOS		
					Permit Req.																	9A - pass=0,fail=1
					Value NODI																	
22416	Whole effluent toxicity - retest #2	1 - Effluent Gross	0	--	Sample						=	0						9A - pass=0,fail=1	09/99 - See Permit	CP - COMPOS		
					Permit Req.																	9A - pass=0,fail=1
					Value NODI																	
TIE3D	LC50 Pass/Fail Static 24Hr Acute D. Pulex	1 - Effluent Gross	0	--	Sample						=	0						9A - pass=0,fail=1	01/6M - Once Every 6 Months	CP - COMPOS		
					Permit Req.																	9A - pass=0,fail=1
					Value NODI																	
TIE6C	LC50 Pass/Fail Static 24Hr Acute Pimphales	1 - Effluent Gross	0	--	Sample						=	0						9A - pass=0,fail=1	01/6M - Once Every 6 Months	CP - COMPOS		
					Permit Req.																	9A - pass=0,fail=1
					Value NODI																	

**Submission Note**

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

**Edit Check Errors**

No errors.

**Comments**

**Attachments**

Name	Type	Size
TrophyClubAcute.pdf	pdf	829567

**Report Last Saved By**

**TROPHY CLUB MUD 1**

User: MMCMAHON@TCMUD.ORG  
 Name: Mike McMahon  
 E-Mail: mmcmahon@tcmud.org  
 Date/Time: 2018-09-05 11:15 (Time Zone: -05:00)

**Report Last Signed By**

User: MMCMAHON@TCMUD.ORG  
 Name: Mike McMahon  
 E-Mail: mmcmahon@tcmud.org  
 Date/Time: 2018-09-05 11:16 (Time Zone: -05:00)

**TROPHY CLUB MUNICIPAL UTILITY DISTRICT NO.1 WWTF  
OUTFALL 001**

24-Hour Acute Biomonitoring Report  
TPDES Permit Number 11593-001

*Ceriodaphnia dubia*  
*Pimephales promelas*

August 21, 2018

Reviewed by: \_\_\_\_\_



Trevor Burton, QA/QC Officer  
Huther & Associates, Inc.  
1156 North Bonnie Brae  
Denton, Texas 76201  
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24-HOUR ACUTE TOXICITY TEST REPORT

Client ..... Trophy Club MUD No. 1 WWTF Laboratory I.D..... 28797
Permit No..... TPDES 11593-001 Begin Date..... August 21, 2018
Sample..... Outfall 001

Results: Pass Ceriodaphnia dubia and Pimephales promelas survival at the 100% effluent concentration.

SAMPLE COLLECTION

A composite effluent sample from Trophy Club Municipal Utility District No.1 WWTF was picked up at the facility by Huthier & Associates on August 20, 2018. The effluent sample was automatically collected and manually composited from Outfall 001 by facility personnel. Two toxicity tests were requested: a static acute 24-hour toxicity test using Ceriodaphnia dubia and a static acute 24-hour toxicity test using Pimephales promelas (Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012). The 24-hour data was extracted from the chronic toxicity test initiated on August 21, 2018.

The effluent sample was analyzed for residual chlorine (Standard Methods, 22nd Edition, 4500-Cl D) and was determined to contain <0.01 mg/L. Effluent and synthetic laboratory water hardness, alkalinity, conductivity, pH and dissolved oxygen data were analyzed and recorded.

TEST SETUP Ceriodaphnia dubia Pimephales promelas



The 24-hour C. dubia toxicity test was initiated at 1500 hours, August 21, 2018. The 24-hour P. promelas toxicity test was initiated at 1315 hours, August 21, 2018. One concentration (100% effluent) and a synthetic laboratory control water were prepared for testing. The C. dubia test was conducted using 25 mL distilled water rinsed plastic beakers containing 15 mL of solution (one organism per beaker, ten beakers per concentration). The P. promelas test was conducted using distilled water rinsed 300 mL plastic beakers containing 250 mL of test solution (five replicates per concentration, eight organisms per replicate). The C. dubia test was initiated with less than 24-hour-old neonates while the P. promelas test was initiated with less than 24-hour-old larvae.

The C. dubia test ended at 1500 hours, August 22, 2018. The P. promelas test ended at 1315 hours, August 22, 2018. Data on surviving organisms and water quality were collected. Control data met all test acceptability criteria.

RESULTS

There was greater than fifty percent survival in the 100% effluent concentration, both species tested. Based on biomonitoring requirements for Outfall 001 contained in Permit Number TPDES 11593-001 for Trophy Club Municipal Utility District No.1 WWTF, Outfall 001 passed for this testing period.

## 24-Hour *Ceriodaphnia dubia* Survival Acute Toxicity Test

CLIENT	Trophy Club MUD No.1 WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	11593-001	DATE COLLECTED	08/20/18
LAB ID #	28797	DATE RECEIVED	08/20/18
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	08/21/18 1500
TEST ORGANISM	<i>Ceriodaphnia dubia</i>	END DATE/TIME	08/22/18 1500
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Marshall Branch	LIGHT INTENSITY	50-100 ft. endl.
CONTROL WATER	Laboratory	TECHNICIAN	J. Strange

### SURVIVAL SUMMARY

% Effluent Concentration	Number Live		x % survival
	Start	24 Hour	
Control	10	10	100.0
100%	10	10	100.0

### WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
08/21/18	Start	1	7.85	7.61	7.95	8.28	TB
08/22/18	24 Hr.	1	8.00	7.94	7.45	8.23	TB

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
08/21/18	1	7.61	8.28	140	180	1086	<0.01	N/A	TB
08/21/18	Control	7.85	7.95	160	114	526	-	-	TB

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

## 24-Hour *Pimephales promelas* Survival Acute Toxicity Test

CLIENT	Trophy Club MUD No.1 WWTF	SAMPLE TYPE	24-hour Composite
TPDES #	11593-001	DATE COLLECTED	08/20/18
LAB ID #	28797	DATE RECEIVED	08/20/18
TEST TYPE	24-hour Acute	BEGIN DATE/TIME	08/21/18 1315
TEST ORGANISM	<i>Pimephales promelas</i>	END DATE/TIME	08/22/18 1315
ORGANISM AGE	< 24-hours	TEST TEMPERATURE (°C)	25 ± 1
ORGANISM SOURCE	In House	PHOTO PERIOD	16-hr. Light 8-hr. Dark
RECEIVING WATER	Marshall Branch	LIGHT INTENSITY	50-100 ft. candl.
CONTROL WATER	Laboratory	TECHNICIAN	J. Castillo

### SURVIVAL SUMMARY

% Effluent Conc.	Number Live Per Rep										x % survival
	Start					24-Hours					
	a	b	c	d	e	a	b	c	d	e	
Control	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

### WET CHEMISTRY MEASUREMENTS

Date	Time	Samp. No.	pH of Solution		DO (mg/L) of Solution		Analyst
			Con	100%	Con	100%	
08/21/18	Start	1	7.85	7.61	7.95	8.28	TB
08/22/18	24 Hr.	1	7.69	8.01	7.56	7.77	TB

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
08/21/18	1	7.61	8.28	140	180	1086	<0.01	N/A	TB
08/21/18	Control	7.85	7.95	160	114	526	-	-	TB

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

**APPENDIX A:  
RAW DATA**



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

CLIENT Trophy Club  
 OUTFALL 001  
 LAB ID # 28297

START DATE/TIME 8-21-18 JS 1500  
 END DATE/TIME 8-28-18 MH 1500

Con

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/22	A	A	A	A	A	A	A	A	A	A	MH	1500
8/23	A	A	A	A	A	A	A	A	A	A	MH	1545
8/24	A	A	A	A	A	A	A	A	A	A	JS	1100
8/25	3	3	5	4	2	3	3	5	2	2	MH	1345
8/26	10	6	7	A	8	A	9	A	A	9	MH	1300
8/27	A	A	A	6	A	7	A	11	8	A	TB	1530
8/28	13	13	12	13	12	14	13	13	12	12	MH	1500
	26	22	24	23	22	24	25	29	22	23		

$\bar{x}$  # Young w/o Dead = 24.0 CV% = 9.21  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00

32

Date	Rep1	Rep2	Rep3	Rep4	Rep5	Rep6	Rep7	Rep8	Rep9	Rep10	Analyst	Time
8/22	A	A	A	A	A	A	A	A	A	A	MH	1500
8/23	A	A	A	A	A	A	A	A	A	A	MH	1545
8/24	A	A	A	A	A	A	A	A	A	A	JS	1100
8/25	3	3	3	3	5	3	5	3	2	2	MH	1345
8/26	9	A	8	A	A	A	7	A	7	7	MH	1300
8/27	A	11	A	8	8	6	A	9	A	A	TB	1530
8/28	13	12	13	14	14	14	14	13	14	13	MH	1500
	25	26	24	25	27	23	26	25	23	22		

$\bar{x}$  # Young w/o Dead = 24.6 CV% = 6.41  
 $\bar{x}$  # 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
8/22	A	A	A	A	A	A	A	A	A	A	MH	1500
8/23	A	A	A	A	A	A	A	A	A	A	MH	1545
8/24	A	A	A	A	A	A	A	A	A	A	JS	1100
8/25	3	2	4	3	5	3	4	5	5	2	MH	1345
8/26	11	7	A	6	A	A	10	A	10	A	MH	1300
8/27	A	A	10	A	7	8	A	6	A	9	TB	1530
8/28	12	14	14	14	13	14	12	13	13	14	MH	1500
	26	23	28	23	25	26	24	28	28	25		

$\bar{x}$  # Young w/o Dead = 25.3 CV% = 6.98  
 $\bar{x}$  # 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
8/22	A	A	A	A	A	A	A	A	A	A	MH	1500
8/23	A	A	A	A	A	A	A	A	A	A	MH	1545
8/24	A	A	A	A	A	A	A	A	A	A	JS	1100
8/25	4	2	3	4	3	2	3	5	5	2	MH	1345
8/26	A	8	A	8	A	A	A	A	11	7	MH	1300
8/27	8	A	6	A	7	7	9	10	A	A	TB	1530
8/28	13	13	13	14	14	13	12	13	12	14	MH	1500
	25	23	22	26	24	22	24	28	28	23		

$\bar{x}$  # Young w/o Dead = 24.5 CV% = 9.08  
 $\bar{x}$  # Young w/Dead = CV% =  
 $\bar{x}$  % Survival = 100 CV% = 0.00



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

CLIENT/FACILITY: Trophy Club DATE/TIME STARTED: 8-21-18 JAC 1315  
 OUTFALL #: 001 PROJECT #: 28797 DATE/TIME ENDED: 8-28-18 TG 1315  
 ORGANISM ID#: PP0-18-232

Cont.	8-22-18 JAC 1315					TG 1010					8-24-18 JAC 1025					TG 0855					8-26-18 TG 0940									
	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

Cont.	8-27-18 JAC 1015					TG 8-28-18					TG 1315					C.V. %				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	Mean Survival	C.V. %			
con	8	8	8	8	8	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	8	8	8	8	8	100.0	0.00			
42	8	8	8	8	8	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	8	8	8	8	8	100.0	0.00			
75	8	8	8	8	8	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	8	8	8	8	8	100.0	0.00			

**APPENDIX B:  
REFERENCE TOXICANTS**

**ACUTE REFERENCE TOXICANT TEST RESULTS**

SPECIES: *Ceriodaphnia dubia*

CHEMICAL: Sodium Chloride

DURATION: 48-Hours

TEST NUMBER: 8

TEST DATE: 08/02/18 -08/04/18  
1635 Hrs - 1635 Hrs

STATISTICAL METHOD: Spearman-Karber

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	6
3.0	10	8

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
2.42 g/L	2.17	2.69

**ACUTE REFERENCE TOXICANT TEST RESULTS**

SPECIES: *Pimephales promelas*

CHEMICAL: Copper Nitrate

DURATION: 48-Hours

TEST NUMBER: 8

TEST DATE: 08/02/18 - 08/04/18  
1420 Hrs - 1420 Hrs

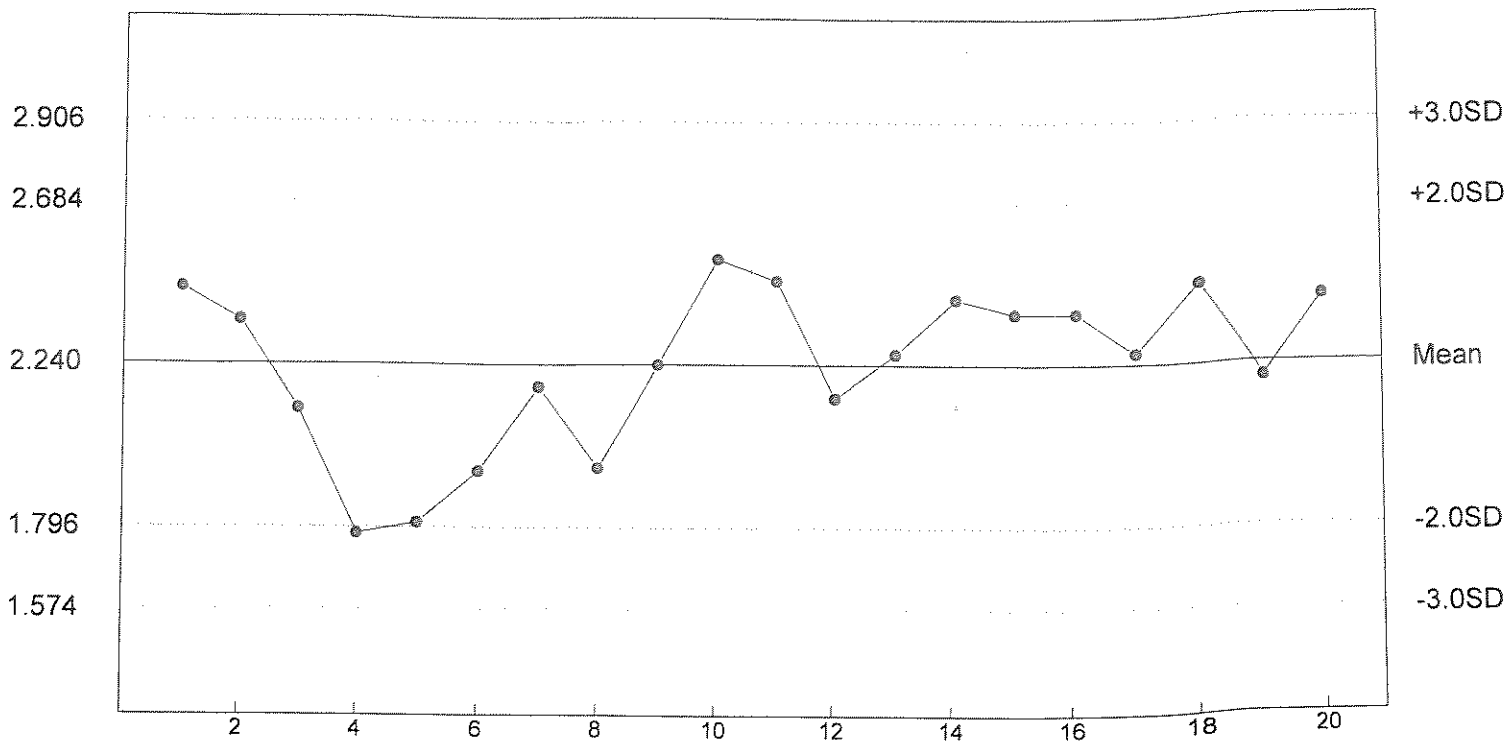
STATISTICAL METHOD: Spearman-Kärber

CONCENTRATION (ug/L)	NUMBER EXPOSED	NUMBER DEAD
25	40	0
50	40	0
100	40	0
200	40	6
400	40	19
800	40	31

LC50	95% LOWER CONFIDENCE LIMITS	95% UPPER CONFIDENCE LIMITS
428.09 ug/L	341.97 ug/L	535.88 ug/L

Ref. Toxicant Sodium chloride g/L

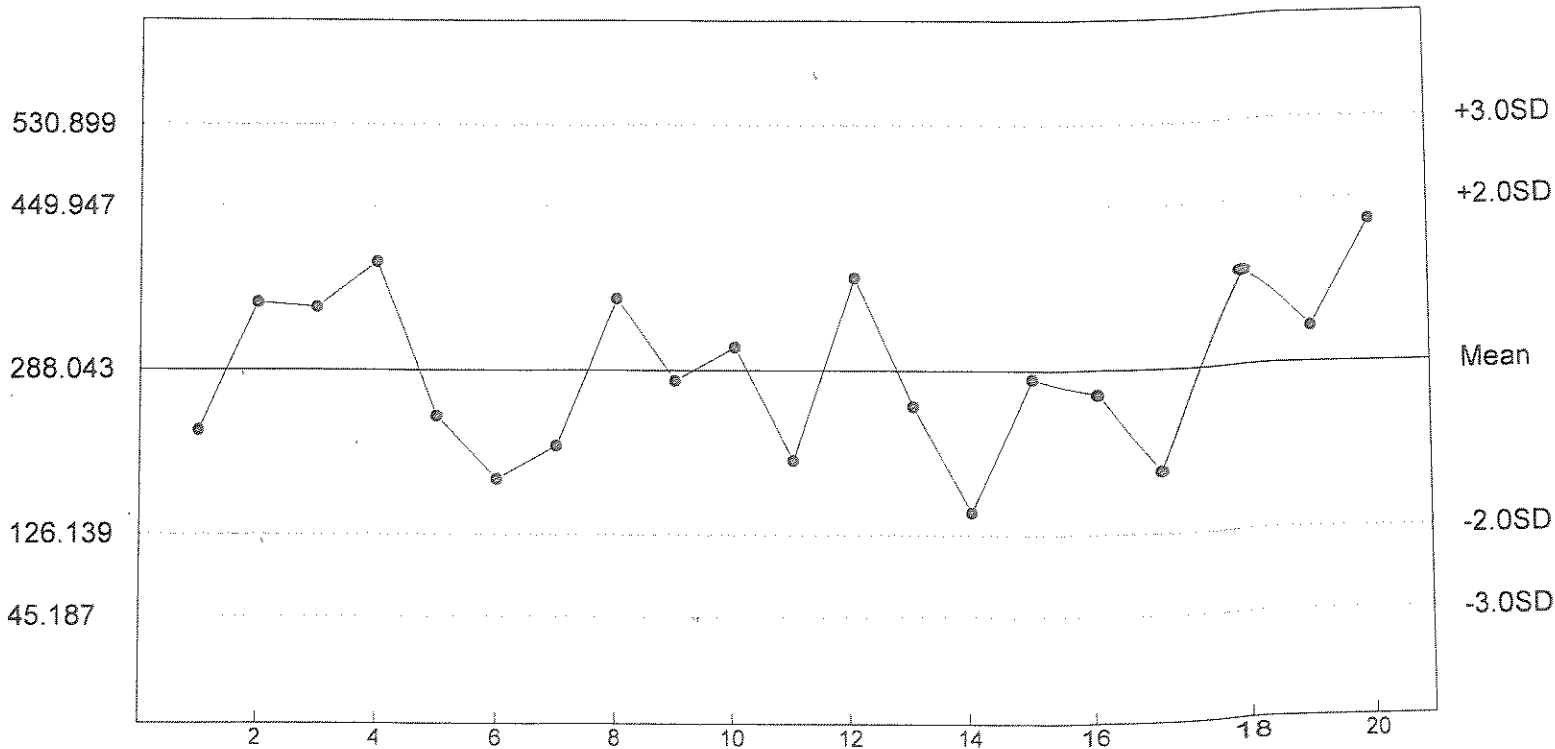
Ceriodaphnia dubia LC50



n= 20 Mean= 2.240 SD= 0.222 CV= 9.91% Min= 1.780 Max= 2.530

Ref. Toxicant Copper Nitrate ug/L

Pimephales promelas LC50



n= 20 Mean= 288.043 SD= 80.952 CV= 28.10% Min= 148.970 Max= 428.090

**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 # 28368 PROJECT NAME Trophy Club PERMIT# W900 011593-001

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	J. Richey	8/20/18 10:00AM	8/20/18 9:00AM	24	—	—	✓	1

RECEIVING WATER SAMPLES

SAMPLE IDENTIFICATION (FOR RECEIVING) H <sub>2</sub> O GRABS, GIVE NAME OF STREAM AND LOCATION	PERSON TAKING SAMPLE	DATE	TIME	# OF CONTAINERS TO BE SHIPPED	TYPE OF TEST	NAME OF RECEIVING WATER	DILUTION WATER USED FOR THIS TEST

TYPE OF TEST 7 day SFT 290K

NAME OF RECEIVING WATER Lab

DILUTION WATER USED FOR THIS TEST \_\_\_\_\_

RELINQUISHED BY: J. Richey DATE: 8/20/18 TIME: 9:40AM RECEIVED BY AT THIS DATE/TIME: Rance Jarrott 8/20/18 11400

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 Jarrott DATE: 8/20/18 TIME: 1900 SAMPLE TEMP. @ RECEIPT: 3.9°C

TABLE 2 (SHEET 1 OF 2)  
 BIOMONITORING REPORTING FORM  
*CERIODAPHNIA DUBIA* SURVIVAL

Dates and Times  
 Composite Collected

	Date	Time		Date	Time
FROM:	<u>08/19/18</u>	<u>1000</u>	TO:	<u>08/20/18</u>	<u>0900</u>

Test Initiated: 1500 08/21/18 date

PERCENT SURVIVAL

TIME	0%	32%	42%	56%	75%	100%
START	100.0	N/A	N/A	N/A	N/A	100.0
24 HOUR	100.0	N/A	N/A	N/A	N/A	100.0
MEAN	100.0	N/A	N/A	N/A	N/A	100.0

Data was extracted from chronic test initiated on August 21, 2018.

1. Enter percent effluent corresponding to the LC50 below:

LC50 (*C. dubia*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable



TABLE 2 (SHEET 2 OF 2)  
 BIOMONITORING REPORTING FORM  
*PIMEPHALES PROMELAS* SURVIVAL

Dates and Times Composite Collected

	Date	Time		Date	Time
FROM:	<u>08/19/18</u>	<u>1000</u>	TO:	<u>08/20/18</u>	<u>0900</u>

Test Initiated: 1315 08/21/18 date

**PERCENT SURVIVAL**

REP	0%	6%	13%	25%	50%	100%
A	100.0	N/A	N/A	N/A	N/A	100.0
B	100.0	N/A	N/A	N/A	N/A	100.0
C	100.0	N/A	N/A	N/A	N/A	100.0
D	100.0	N/A	N/A	N/A	N/A	100.0
E	100.0	N/A	N/A	N/A	N/A	100.0
Mean	100.0	N/A	N/A	N/A	N/A	100.0

Data was extracted from chronic test initiated on August 21, 2018.

2. Enter percent effluent corresponding to the LC50 below:

LC50 (*P. promelas*) = >100% effluent

95% confidence limits: Not Applicable

Method of LC50 calculation: Not Applicable

