



COOPER TIRE & RUBBER COMPANY
3500 Washington Rd. • Texarkana, AR 71854 • Phone (870) 773-4502

June 14, 2013

Arkansas Department of Environmental Quality
Water Division - Enforcement Branch
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

RE: Cooper Tire & Rubber Company – AFIN: 46-00005 - NPDES Permit Number AR0038822
Discharge Number TX1-B

Dear Sir or Madam:

The above-referenced permit requires Cooper Tire & Rubber Company Texarkana, Arkansas plant to complete routine bio-monitoring sampling at Outfall 001. The permit requires reporting the Lethal No Observed Effluent Concentration (NOEC) for *Pimephales promela*. During the sampling events for the reporting period, the facility reported the required survival rate for *P. promela* at the 100% concentration level. Enclosed is the Discharge Monitoring Reports for the reporting period as required by the discharge permit AR0038822.

Respectfully,



J. Scott Cole
Plant Manager

Encl.



Bio-Aquatic Testing, Inc.



Ana-Lab
Cooper Tire & Rubber Co.
OUTFALL NPDES 001

48 Hr Acute Biomonitoring Report

51570

Daphnia pulex
Pimephales promelas

May 18, 2013

Approved by: Chris Robason
Chris Robason,
President

Bio-Aquatic Testing, Inc. • 2501 Mayes Rd. Ste. 100 • Carrollton, Texas • 75006

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Unless otherwise noted in the body of the report, all data reported in this document are in compliance with current TNI standards and apply only to the samples referenced within. This report document may not be edited or reproduced in part or in full by any other entity, unless Bio-Aquatic Testing, Inc. issues written approval.

*HAND-WRITTEN RAW DATA TABLES ARE AVAILABLE UPON REQUEST

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100
Carrollton, Texas 75006
Tel: (972) 242-7750
Fax: (972) 242-7749

TOXICITY TEST REPORT - 48 Hr Acute

Client:	Ana-Lab	Sample:	NPDES 001
Facility:	Cooper Tire & Rubber Co.	Laboratory Number:	51570
Permit No.	AR0038822	Date:	May 18, 2013

Daphnia pulex and *Pimephales promelas* passed survival testing requirements.

SAMPLE COLLECTION: Composite effluent samples from Ana-Lab, Cooper Tire & Rubber Co., were received on May 18, 2013 and May 19, 2013. Effluent samples were collected from Outfall NPDES 001 by facility personnel.

The effluent samples were analyzed for total residual chlorine using the Hanna Ion Specific Meter #193711 and contained <0.10 mg/L and <0.10 mg/L, respectively. Effluent and laboratory dilution water pH, temperature, and dissolved oxygen data were collected daily.

TEST PROCEDURES:

Daphnia pulex

EPA METHOD: 2021

The 48 Hr Acute *Daphnia pulex* test was initiated at 17:20 hours on May 18, 2013. Five effluent concentrations of 32%, 42%, 56%, 75%, and 100% were prepared utilizing synthetic water. The test was set up with 30mL plastic cups containing 20mL of test solution. Each concentration or control consisted of five replicate cups with eight organisms each, giving a total of 40 (forty) per treatment. The control was conducted concurrently with the test. Test organisms were less than 24-hour old laboratory cultured neonates. Organisms were introduced into the test solutions using a blocking design. Food consisting of a half-milliliter suspension of the green algae, *Selenastrum capricornutum*, and YTC was added to the test solutions each day. The test proceeded for 48 hours. Data on survival was collected daily and water quality parameters were recorded after each 24-hour period. The test was renewed daily with newly prepared solutions. The test ended at 17:00 hours on May 20, 2013. Survival data was statistically ($p=0.05$) analyzed according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL:

Daphnia pulex

The *Daphnia pulex* survival data failed Shapiro Wilk's test for normality at the 0.01 (0.900) alpha level after the arc sine (square root (Y)) transformation. Bartlett's test for homogeneity is sensitive to non-normal data and should not be performed if data fails Shapiro Wilk's test. The non-parametric Steel's Many-One Rank test performed on *Daphnia pulex* survival data demonstrated no statistically significant differences between the control and any of the effluent concentrations tested.

LOEC: Not Calculable (Q)

NOEC: 100% Effluent

TEST PROCEDURES:

Pimephales promelas

EPA METHOD: 2000

The 48 Hr Acute *Pimephales promelas* test was initiated at 15:05 hours on May 18, 2013. Five effluent concentrations of 32%, 42%, 56%, 75%, and 100% were prepared utilizing synthetic water. The test was set up with 450mL plastic cups containing 250mL of test solution as test chambers. Each concentration or control consisted of five replicate chambers containing eight organisms each, giving a total of 40 (forty) per treatment. The control was conducted concurrently with the test. Test organisms were laboratory cultured *P. promelas* five days old, and all larvae used in each test are hatched within 24 hours of each other. The number of surviving larvae and water quality parameters were recorded after each 24 hour period. The test was renewed daily with fresh solutions. Surviving larvae in each test chamber were fed freshly hatched brine shrimp two times per day. The test proceeded for 48 hours. The test ended at 14:55 hours on May 20, 2013. Survival was statistically ($p=0.05$) analyzed according to EPA procedures to determine the Lowest Observable Effect Concentration (LOEC) and the No Observable Effect Concentration (NOEC).

SURVIVAL:

Pimephales promelas

Pimephales promelas survival data failed Shapiro Wilk's test for normality at the 0.01 (0.900) alpha level after the arc sine (square root (Y)) transformation. Bartlett's test for homogeneity is sensitive to non-normal data and should not be performed if data fails Shapiro Wilk's test. The non-parametric Steel's Many-One Rank test performed on *Pimephales promelas* survival data demonstrated no statistically significant differences between the control and any of the effluent concentrations tested.

LOEC: Not Calculable (Q)

NOEC: 100% Effluent

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Daphnia pulex*

Client: Ana-Lab Cooper Tire & Rubber Co.

Permit Number: ADPCE AR0038822

Sample Type: Composite Outfall Name: NPDES 001

Receiving Water Name:

Lab ID: 51570

Test Temperature (oC): 25 ± 1

Photo Period: 16 hours light
8 hours dark

Begin Date: 5/18/2013

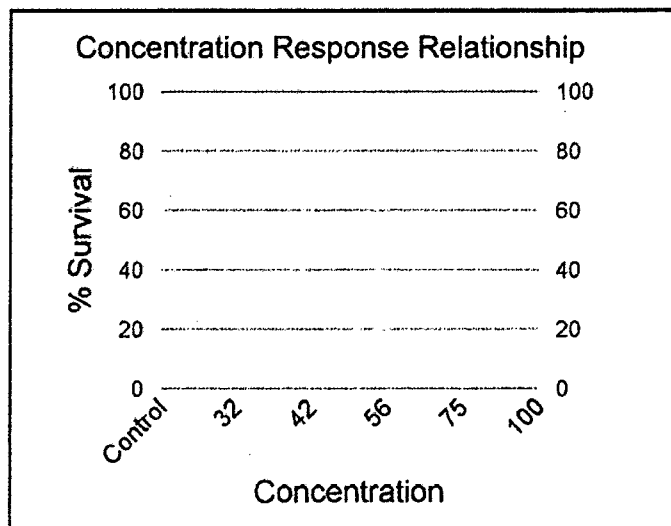
End Date: 5/20/2013

Test Start Time: Test End Time:

SURVIVAL

Effluent Con. %	Number Of Alive Per Replicate															Avg% Surv.
	5/18					5/19					5/20					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
32	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
42	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
56	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
75	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%

*spilled cup



BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Pimephales promelas*

Client: Ana-Lab Cooper Tire & Rubber Co.

Lab ID: 51570

Permit Number: ADPCE

AR0038822

Test Temperature (oC): 25 ± 1

Sample Type: Composite

Outfall Name: NPDES 001

Photo Period: 16 hours light
8 hours dark

Receiving Water Name:

Begin Date: 5/18/2013

Test Start Time:

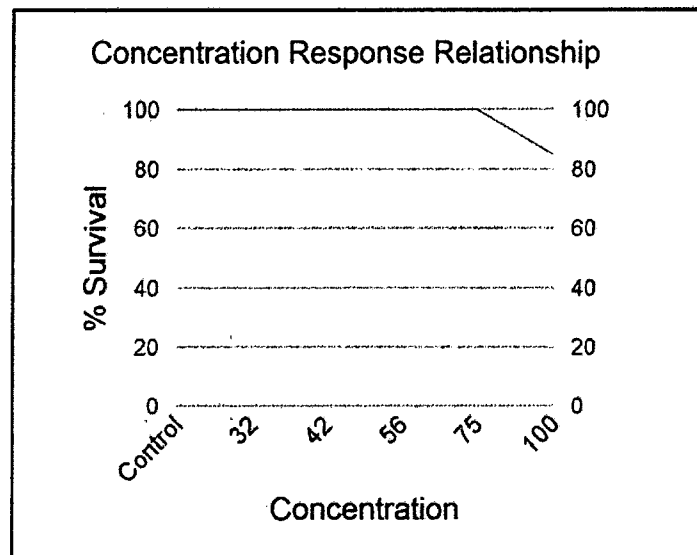
Test End Time:

End Date: 5/20/2013

SURVIVAL

Effluent Concentration %	Number Of Alive Per Replicate															Avg% Surv.
	5/18					5/19					5/20					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Control	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
32	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
42	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
56	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
75	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
100	8	8	8	8	8	8	8	8	8	8	7	7	5	7	8	85.0%

* cup spilled



APPENDIX A

STATISTICS SUMMARY

Both the lethal and sub-lethal endpoints were statistically calculated according to their respective EPA guidelines. The Chronic Freshwater organisms were calculated according to EPA-821-R-02-013, October 2002 Fourth Edition. The Chronic Marine and Estuarine organisms were calculated according to EPA-821-R-02-014, October 2002 Third Edition. The Acute Freshwater and Marine organisms were calculated according to EPA-821-R-02-012, October 2002 Fifth Edition. Listed below are the basic principles of these guidelines. If you would like a copy of the raw statistical calculations for your test then please contact us.

The chronic and acute *Pimephales promelas* and *Menidia beryllina* survival data is analyzed using Shipiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts (parametric). If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test (non-parametric) is used. The chronic *Pimephales promelas* and *Menidia beryllina* growth data is analyzed using Shipiro Wilks Test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test and Bartlett's Test then Steels Many One Test is used.

The chronic *Mysidopsis bahia* survival data is analyzed using Chi-square test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test or Bartlett's Test then Steels Many One Test is used. *Mysidopsis bahia* growth data is analyzed using Chi-square test and Bartlett's Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used.

The acute *Mysidopsis bahia* survival data is analyzed using Shipiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used.

The chronic *Ceriodaphnia dubia* survival data are analyzed using the Fisher's Exact Test. The chronic *Ceriodaphnia dubia* reproduction and are analyzed using the Chi-square test and Bartlett Test. If the data passes one of these tests then the data is run through ANOVA and Dunnetts. If the data fails Chi-square test and Bartlett's Test then Steels Many One Test is used.

The acute *Daphnia pulex* and *Ceriodaphnia dubia* survival data is analyzed using Shipiro Wilks Test and Bartlett's Test. If the data passes both tests then the data is run through ANOVA and Dunnetts. If the data fails Shipiro Wilks Test or Bartlett's Test then Steels Many One Test is used.

51570

Bio-Aquatic Testing, Inc.

2501 Mayes Road, Suite 100
Carrollton, TX 75006
Tel: 972-242-7750
Fax: 972-242-7749

FRESH WATER TEST SETUP FORM

Client: Ana-Lab

Permit AR0038822

Facility: Cooper Tire & Rubber Co.

Lab Number 51570

Outfall Name: NPDES 001

Number of samples 2

Dilution Water: Synthetic Lab

Receiving Water Name: _____

Dechlorinate Sample: No

Sx #	Rcvd Date	Rcvd Time	Sampling Dates		Sampling Times	
			Begin Date	End Date	Start	End
1	05/18/13	14:20	05/16/13	05/17/13	18:30	17:30
2	05/19/13	09:00	05/15/13	05/16/13	18:30	17:30

Type of Test(s)	
<u>Daphnia pulex</u>	<u>48 Hr Acute</u>
<u>Pimephales promelas</u>	<u>48 Hr Acute</u>

Start Sx # 1 Date: 5/18/2013
 Renew Sx # 2 Date: 5/19/2013
 Renew Sx # _____ Date: _____
 Renew Sx # _____ Date: _____
 Renew Sx # _____ Date: _____
 Renew Sx # _____ Date: _____
 Renew Sx # _____ Date: _____

Controls: Synthetic
 pH Match: _____
 Hardness Match: moderate

Test Start Date: 5/18/2013 Test End Date: 5/20/2013

Daphnia pulex Test Set Up: 5 Reps & 8 Organisms per Rep

Pimephales Test Set Up: 5 Reps & 8 Organism per Rep

Concentrations: 32 42 56 75 100 % LF % 100

Test Chemistry on these dilutions: 32 42 56 75 100

Samples received by:

<input checked="" type="radio"/> Greyhound	<input type="radio"/> UPS Next Day	<input type="radio"/> Delta Dash	<input type="radio"/> Delta
<input type="radio"/> Pony Express	<input type="radio"/> Client Delivered	<input type="radio"/> Southwest Airlines	<input type="radio"/> DHL
<input type="radio"/> Federal Express	<input type="radio"/> American Airlines	<input type="radio"/> Bio Pick Up	

Other: _____

BIO-AQUATIC TESTING, INC.

Hardness, Alkalinity, Residual Chlorine, Specific Conductivity, and Salinity Analysis Data

Client: Ana-Lab

Lab ID: 51570

Facility: Cooper Tire & Rubber Co.

Outfall: NPDES 001

Dilution Water(s): Synthetic Lab

Test Date: May 18, 2013

** 100 %

Effluent Sample #	Received		** Residual Cl ₂	DeChlor (ml/L)	** Ammonia mg/L	Analyst Initials	Initial Salinity	Adjusted Salinity	Temp. Received
	Date	Time							
1	5/18/13	14:20	<0.10	N/A	<0.25	JR	N/A	N/A	3.9
2	5/19/13	9:00	<0.10	N/A	<0.25	JR	N/A	N/A	3.9

Chlorine Analysis Method: Hanna Ion Specific Meter #193711 **Dechlorination Reagent:** Sodium Thiosulfate

Sample #	Received		Hardness (EDTA) As mg/L CaCO ₃		ALKALINITY TO END POINT pH 4.50 +/- 0.05 as mg/L CaCO ₃		Analyst Initials
	Date	Time	CON	100	CON	100	
	1	5/18/13	14:20	140.0	62.0	60.0	
2	5/19/13	9:00	140.0	40.0	60.0	32.0	PW/JR

Date	Sample #	Values are at Highest Dilution		Values are at 100% Dilution		Analyst	Other
		Specific Conductivity as umhos/cm	Salinity (ppt)	Residual Chlorine as mg Cl ₂ /L	1 ml 0.02N Na ₂ S ₂ O ₃ /L		
5/18	Lab H2O	365	0.2			DS	
5/19	Lab H2O	392	0.2			DS	
5/20	Lab H2O					AMC	
5/21	Lab H2O						
5/22	Lab H2O						
5/23	Lab H2O						
5/24	Lab H2O						
5/18	OUTFALL*	141	0.1	<0.10	N/A	DS	
5/19	OUTFALL*	77	0.1	<0.10	N/A	DS	
5/20	OUTFALL*					AMC	
5/21	OUTFALL*						
5/22	OUTFALL*						
5/23	OUTFALL*						
5/24	OUTFALL*						

*Conductivity is taken on the highest remaining effluent concentration used for test renewal, not necessarily 100%

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

48 Hr Acute

Daphnia pulex

Client: Ana-Lab

Lab ID: 51570

Facility: Cooper Tire & Rubber Co.

Dilution Water(s): Synthetic Lab

Outfall: NPDES 001

Test Begin Date: May 18, 2013

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	32	42	56	75	100		
DS	5/18	Start	1	pH	8.4	8.4	8.3	8.2	8.1	8.0		
		25 ± 1		DO (mg/L)	8.3	8.2	8.0	7.8	7.6	7.4		
DS	5/19	24 Hr	1	pH	7.8	7.8	7.8	7.7	7.7	7.6		
		25 ± 1		DO (mg/L)	8.1	8.1	8.1	8.1	8.1	8.0		
		Renew	2	pH	8.0	8.0	8.0	7.9	7.9	7.8		
				DO (mg/L)	8.0	7.9	7.9	7.8	7.9	8.0		
AMC	5/20	48 Hr	2	pH	7.6	7.5	7.4	7.4	7.4	7.3		
		25 ± 1		DO (mg/L)	8.0	8.1	8.0	8.0	8.0	8.0		
		Renew		pH								
				DO (mg/L)								
	5/21	72 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/22	96 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/23	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/24	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/25	168 Hr		pH								
		25 ± 1		DO (mg/L)								

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

48 Hr Acute

Pimephales promelas

Client: Ana-Lab

Lab Number: 51570

Facility: Cooper Tire & Rubber Co.

Dilution Water(s): Synthetic Lab

Outfall: NPDES 001

Test Begin Date: May 18, 2013

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	32	42	56	75	100		
DS	5/18	Start	1	pH	8.4	8.4	8.3	8.2	8.1	8.0		
		25 ± 1		DO (mg/L)	8.3	8.2	8.0	7.8	7.6	7.4		
DS	5/19	24 Hr	1	pH	7.4	7.5	7.5	7.5	7.5	7.4		
		25 ± 1		DO (mg/L)	8.2	8.2	8.1	8.1	8.0	7.9		
		Renew	2	pH	8.0	8.0	8.0	7.9	7.9	7.8		
				DO (mg/L)	8.0	7.9	7.9	7.8	7.9	8.0		
AMC	5/20	48 Hr	2	pH	7.8	7.4	7.3	7.3	7.3	7.2		
		25 ± 1		DO (mg/L)	8.5	7.8	7.6	7.4	7.3	7.2		
		Renew		pH								
				DO (mg/L)								
	5/21	72 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/22	96 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/23	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/24	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	5/25	168 Hr		pH								
		25 ± 1		DO (mg/L)								

Appendix B

Daphnia pulex

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

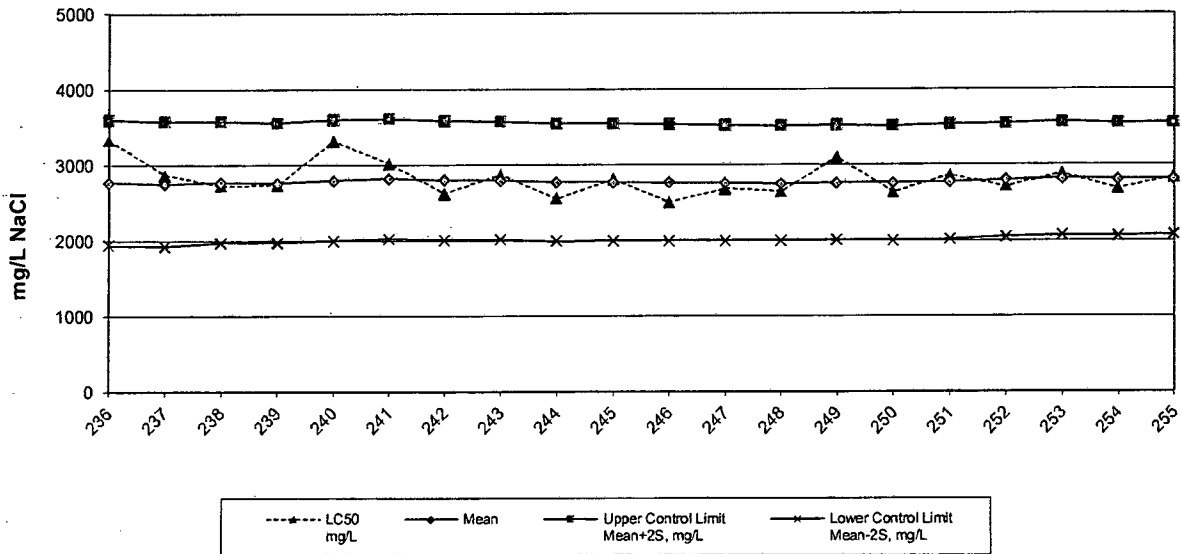
ACUTE REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater						
CHEMICAL:	Sodium Chloride						
DURATION:	48 Hour Acute						
TEST NUMBER:	255						
PROJECT NUMBER:	54051						
START DATE:	5/3/2013						
START TIME:	11:15						
TOTAL NUMBER EXPOSED:	40 organisms per concentration						
CONCENTRATIONS (mg/L):	CON	250	500	1000	2000	3000	4000
NUMBER DEAD PER CONCENTRATION:	0	0	0	0	0	23	40
TEST METHODS:	As listed in EPA-821-R-02-012						
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Karber						
LC50:	2838.21	mg/L					
95% LOWER CONFIDENCE LIMITS:	2688.53	mg/L					
95% UPPER CONFIDENCE LIMITS:	2996.22	mg/L					

REFERENCE TOXICANT STATISTICAL RESULTS: LC₅₀ AND CONTROL LIMITS
Daphnia pulex EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC ₅₀ mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
236	9/7/2011	49154	023007	Trimmed Spearman-Kärber	3329.2	2772.6	828.9	3601.5	1943.8
237	10/5/2011	49219	023007	Trimmed Spearman-Kärber	2868.1	2750.4	825.5	3575.9	1924.8
238	11/8/2011	49503	023007	Trimmed Spearman-Kärber	2729.7	2777.2	799.3	3576.5	1978.0
239	11/29/2011	49797	023007	Trimmed Spearman-Kärber	2741.5	2766.0	791.7	3557.7	1974.2
240	12/27/2011	50692	023007	Trimmed Spearman-Kärber	3317.2	2797.6	796.0	3593.6	2001.6
241	1/18/2012	50765	023007	Trimmed Spearman-Kärber	3015.7	2822.9	791.2	3614.1	2031.8
242	2/22/2012	50855	023007	Trimmed Spearman-Kärber	2625.3	2801.6	790.1	3591.7	2011.5
243	3/28/2012	50950	023007	Trimmed Spearman-Kärber	2871.6	2797.4	776.9	3574.2	2020.5
244	4/24/2012	51028	023007	Trimmed Spearman-Kärber	2557.9	2771.7	775.0	3546.7	1996.7
245	5/29/2012	51138	023007	Trimmed Spearman-Kärber	2813.7	2773.9	772.6	3546.5	2001.4
246	6/26/2012	51226	134905	Trimmed Spearman-Kärber	2506.6	2768.5	766.1	3534.6	2002.4
247	7/31/2012	51361	134905	Trimmed Spearman-Kärber	2686.5	2761.2	763.6	3524.8	1997.5
248	8/28/2012	51424	134905	Trimmed Spearman-Kärber	2648.1	2756.5	757.3	3513.8	1999.2
249	9/25/2012	51610	134905	Trimmed Spearman-Kärber	3095.1	2764.8	759.3	3524.0	2005.5
250	11/27/2012	52179	134905	Trimmed Spearman-Kärber	2644.3	2759.3	758.5	3517.8	2000.8
251	12/27/2012	53579	134905	Trimmed Spearman-Kärber	2862.9	2778.1	757.8	3535.8	2020.3
252	1/30/2013	53775	134905	Trimmed Spearman-Kärber	2717.9	2799.1	751.7	3550.8	2047.3
253	2/27/2013	53841	221401	Trimmed Spearman-Kärber	2887.8	2818.8	749.3	3568.1	2069.6
254	3/26/2013	53920	221401	Trimmed Spearman-Kärber	2694.4	2808.9	745.5	3554.4	2063.4
255	5/3/2013	54051	221401	Trimmed Spearman-Kärber	2838.2	2818.6	737.2	3555.8	2081.4

Daphnia pulex Acute Control Chart



Appendix B

Pimephales promelas

BIO-AQUATIC TESTING, INC.

Carrollton, TX

REFERENCE TOXICANTS

Bio-Aquatic Testing conducts reference toxicant testing monthly for organisms cultured in-house. For studies requiring purchased organisms, reference toxicant testing is performed simultaneously. Reference toxicant testing validates data and measures organism consistency. Only reagent grade chemicals are used of the following choices: sodium laurel sulfate (SLS), copper sulfate, copper chloride, potassium chloride, and sodium chloride. Organism responses are tracked with control charts for each reference toxicant/organism combination. The data are examined for sensitivity trends and to determine if results are within EPA described limits.

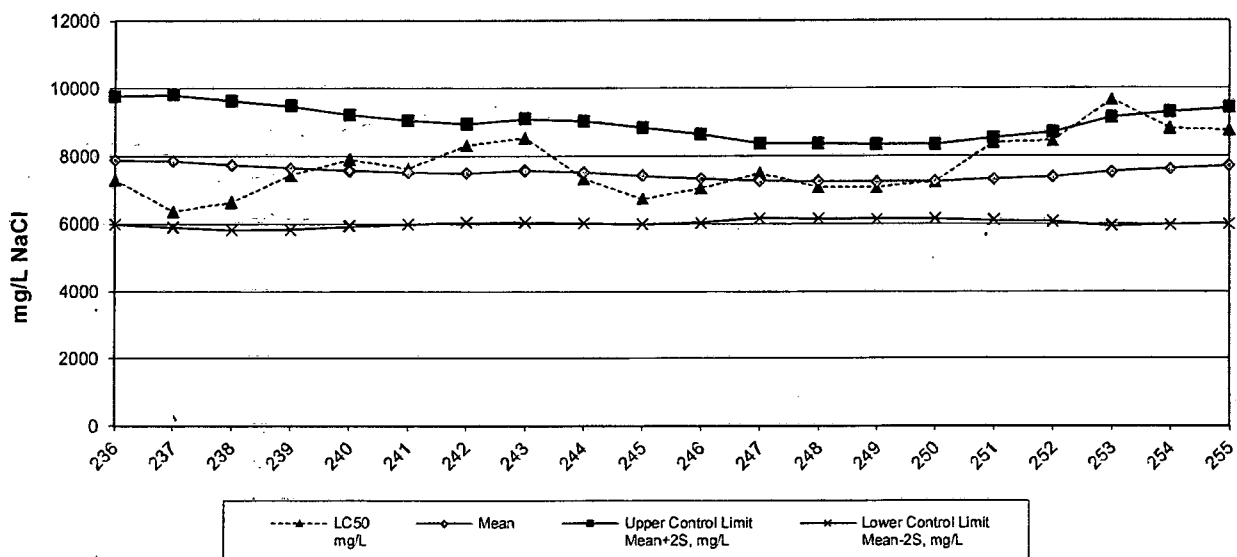
ACUTE REFERENCE TOXICANT TEST RESULTS

DILUTION WATER:	Standard Synthetic Freshwater
CHEMICAL:	Sodium Chloride
DURATION:	48 Hour Acute
TEST NUMBER:	255
PROJECT NUMBER:	54050
START DATE:	5/3/2013
START TIME:	14:30
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (mg/L):	CON 2000 4000 6000 8000 10000 12000
NUMBER DEAD PER CONCENTRATION:	0 0 0 0 8 34 40
TEST METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	SURVIVAL: Trimmed Spearman-Kärber
LC50:	8761.27 mg/L
95% LOWER CONFIDENCE LIMITS:	8421.14 mg/L
95% UPPER CONFIDENCE LIMITS:	9115.13 mg/L

REFERENCE TOXICANT STATISTICAL RESULTS: LC₅₀ AND CONTROL LIMITS
***Pimephales promelas* EXPOSED TO SODIUM CHLORIDE, 48 HOUR STATIC RENEWAL**

Test Number	Date	Project Number	Toxicant Lot Number	Statistical Method	LC ₅₀ mg/L	Mean	Twice Standard Deviation 2S	Upper Control Limit Mean+2S, mg/L	Lower Control Limit Mean-2S, mg/L
236	9/29/2011	49213	023007	Trimmed Spearman-Kärber	7315.3	7885.9	1890.0	9775.9	5996.0
237	10/26/2011	49501	023007	Trimmed Spearman-Kärber	6368.1	7863.6	1952.9	9816.4	5910.7
238	11/28/2011	49800	023007	Trimmed Spearman-Kärber	6652.4	7732.7	1906.3	9639.0	5826.4
239	12/28/2011	50693	023007	Trimmed Spearman-Kärber	7435.6	7657.2	1821.9	9479.2	5835.3
240	1/18/2012	50766	023007	Trimmed Spearman-Kärber	7918.8	7585.2	1643.7	9228.8	5941.5
241	2/23/2012	50858	023007	Trimmed Spearman-Kärber	7625.5	7523.3	1530.3	9053.6	5993.0
242	3/28/2012	50953	023007	Trimmed Spearman-Kärber	8315.7	7500.3	1463.6	8963.9	6036.7
243	4/24/2012	51029	023007	Trimmed Spearman-Kärber	8542.0	7566.2	1528.5	9094.7	6037.7
244	5/29/2012	51139	023007	Trimmed Spearman-Kärber	7334.7	7522.2	1500.3	9022.4	6021.9
245	6/26/2012	51227	134905	Trimmed Spearman-Kärber	6732.0	7423.2	1429.4	8852.5	5993.8
246	7/31/2012	51362	134905	Trimmed Spearman-Kärber	7048.6	7343.2	1315.3	8658.6	6027.9
247	8/28/2012	51423	134905	Trimmed Spearman-Kärber	7498.9	7273.3	1098.3	8371.6	6175.0
248	9/25/2012	51611	134905	Trimmed Spearman-Kärber	7081.2	7260.6	1101.1	8361.8	6159.5
249	10/31/2012	51787	134905	Trimmed Spearman-Kärber	7082.2	7244.1	1101.4	8345.6	6142.7
250	11/28/2012	52178	134905	Trimmed Spearman-Kärber	7248.8	7253.6	1098.0	8351.6	6155.6
251	12/27/2012	53578	134905	Trimmed Spearman-Kärber	8411.5	7317.2	1211.6	8528.8	6105.6
252	1/30/2013	53774	134905	Trimmed Spearman-Kärber	8457.2	7379.0	1312.9	8691.9	6066.1
253	2/27/2013	53840	221401	Trimmed Spearman-Kärber	9652.3	7536.5	1595.5	9132.0	5940.9
254	3/26/2013	53919	221401	Trimmed Spearman-Kärber	8819.2	7633.7	1661.4	9295.0	5972.3
255	5/3/2013	54050	221401	Trimmed Spearman-Kärber	8761.3	7715.1	1716.7	9431.8	5998.3

Pimephales promelas Acute Control Chart



APPENDIX C

LITERATURE REFERENCES

- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fifth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-012.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents and Receiving Water To Marine And Estuarine Organisms (Third Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-014.
- U.S.E.P.A., 2002. Short-Term Methods For Estimating The Chronic Toxicity Of Effluents And Receiving Water To Freshwater Organisms (Fourth Edition) U.S. Environmental Protection Agency, Office of Water, Washington D.C., EPA-821-R-02-013.
- U.S.E.P.A., 1991. Technical Support Document For Water Quality-Based Toxics Control, U.S. Environmental Protection Agency, EPA-505-2-90-001.
- Zarr, Jerrold, H., 1984. Biostatistical Analysis; (Second Edition). Prentice-Hall, Inc., Englewood Cliffs, N.J.

CHAIN-OF-CUSTODY SHEETS

Appendix D

Report Date: 05/29/2013 Revision 0

18 of 22

Bio-Aquatic Lab ID: 51570



BIO-AQUATIC TESTING, INC.
 2501 MAYES RD., STE. 100
 CARROLLTON, TX 75006
 PH: 972-242-7750 FAX: 972-242-7749

CHAIN OF CUSTODY

Bio Only
 No Sample Left

Lab Id: **51570**

Please Review & Complete Sections A, B, C, & D.

Sample No: **51570**

Check Sample No.: _____ First, Second, or _____ Third.

P.O. No: _____

Client: Ana-Lab
 Facility: Cooper Tire & Rubber Co.
 Permit No: AR0038822
 Outfall: NPDES 001
 Client Contact: ROY WHITE
 Client Phone: 903-984-0551

B Use area below to make changes, if the Scheduled Test(s) in "A" are incorrect:

Freshwater Species

Saltwater Species

C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	P. promelas (minnow)	Selenastrum (green algae)	M. beryllina (minnow)	Mysidopsis (shrimp)
<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour

A REVIEW SCHEDULED TEST(S):

48 Hr Acute	Daphnia pulex
48 Hr Acute	Pimephales promelas

To Ship the
1st Sample on:
5/14/2013

Concentration: 32 42 56 75 100

(For TX) Setup separate 24hr Acute Test?

Notes: 2nd Quarter Pulex
 Bi-Monthly Fathead
 Has WET Limit for Fathead Lethal

TRC = 0.00 mg/L

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Sample Time (military)		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To	From	To			
1 DUTFALL 001	E	5/16/13	5/17/13	1830	1730	Comp	Charles D. Allen Charles Allen	1
2								
3								

Relinquished By:	Date	Time	Received By:	Date	Time
2					
3			John Reed	5-18-13	1420

Bio-Aquatic Sample Login

BAT sample personnel: Yes No

Date: 5-18-13 Time: 1420 By: [Signature]

**ANALYTICAL TESTING
REQUIRED**

Check for Ammonia: Yes No
 Dechlorinate Sample: Yes No
 Dilution Water: Receiving Stream
 Synthetic Lab

Temperature:	3.9 (C)	Int. Salinity:	ppt	Adj. Salinity:	ppt
Chlorine:	60.1 mg/l	Ammonia:	40.25	Other:	
pH:	7.2	DO:	9.9 mg/l	Condition:	Good



BIO-AQUATIC TESTING, INC.
 2501 MAYES RD., STE. 100
 CARROLLTON, TX 75006
 PH: 972-242-7750 FAX: 972-242-7749

CHAIN OF CUSTODY

Please Review & Complete Sections A, B, C, & D.

Bio Only
 No Sample Left

Lab Id : **51570**

Sample No: **51570** -

Check Sample No. : First, Second, or Third.

P.O. No:

Client: Ana-Lab

Facility: Cooper Tire & Rubber Co.

Permit No: AR0038822

Outfall: NPDES 001

Client Contact: ROY WHITE

Client Phone: 903-984-0551

B Use area below to make changes, if the Scheduled Test(s) in "A" are incorrect:

Freshwater Species

Saltwater Species

C. dubia (water flea)	D. pulex (water flea)	D. magna (water flea)	P. promelas (minnow)	Selenastrum (green algae)	M. beryllina (minnow)	Mysidopsis (shrimp)
<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour	<input type="checkbox"/> Chronic <input type="checkbox"/> 96 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 24 Hour

A REVIEW SCHEDULED TEST(s):

48 Hr Acute	Daphnia pulex
48 Hr Acute	Pimephales promelas

To Ship the
1st Sample on:
5/14/2013

Concentration: 32 42 56 75 100

(For TX) Setup separate 24hr Acute Test?

Notes: 2nd Quarter Pulex
 Bi-Monthly Fathead
 Has WET Limit for Fathead Lethal

TRC = 0.02 mg/L

Sample ID or Location: (Outfall No. or Name)	Sample Type: E = Effluent RS = Rec. Stream S = Sediment	Sample Date		Sample Time (military)		Grab or Composite	Sampled By: (Sign and Print Name)	Number Of Containers Shipped
		From	To	From	To			
1 OUTFALL 001	E	5/15/13	5/16/13	1830	1730	Comp	Charles Allen	1
2								
3								

Relinquished By:	Date	Time	Received By:	Date	Time
2					
3				5/17/13	900

Bio-Aquatic Sample Login

BAT sample personnel: Yes No

Check for Ammonia: Yes No

Dechlorinate Sample: Yes No

Dilution Water: Receiving Stream Synthetic Lab

perat...: 3.9 (C) Time: 900 By: SA

Chlorine:	6.1 mg/l	Int. Salinity:	ppt	Adj. Salinity:	ppt
pH:	6.9	Ammonia:	6.5	Other:	
		DO:	4.9 mg/l	Condition:	Good

**ANALYTICAL TESTING
 REQUIRED**

REGULATORY AGENCY TABLES

Appendix E

Table 1 (Sheet 1 of 2)
BIOMONITORING REPORT

Daphnia pulex SURVIVAL TEST

Permittee: Ana-Lab - Cooper Tire & Rubber Co.
Permit No.: AR0038822
Outfall No.: NPDES 001

Dates and times FROM: 5/16/2013 @ 18:30 TO: 5/17/2013 @ 17:30
Composites were collected: FROM: 5/15/2013 @ 18:30 TO: 5/16/2013 @ 17:30

Test Initiation: Time: 17:20 Date: 5/18/2013

Dilution Water Used: Receiving Water Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Daphnia pulex*

TIME	REPLICATE	EFFLUENT CONCENTRATION (%)					
		0%	32 %	42 %	56 %	75 %	100 %
24 HOUR	A	100	100	100	100	100	100
	B	100	100	100	100	100	100
	C	100	100	100	100	100	100
	D	100	100	100	100	100	100
	E	100	100	100	100	100	100
48 HOUR	A	100	100	100	100	100	100
	B	100	100	100	100	100	100
	C	100	100	100	100	100	100
	D	100	100	100	100	100	100
	E	100	100	100	100	100	100
MEAN		100	100	100	100	100	100
CV % ¹		0.00	0.00	0.00	0.00	0.00	0.00

¹ Coefficient of Variation = (standard deviation/mean) x 100

? = cannot be calculated due to 100% mortality or lab exception

DUNNETT'S PROCEDURE OR STEEL'S MANY-ONE RANK TEST (as appropriate for Lethality)

Is the mean survival at 48 hours significantly different (p=0.05) than the control's survival for the low flow or critical dilution?

CRITICAL DILUTION (100 %): _____ YES _____ X _____ NO

If you report NO, enter a '0' on the DMR form for Parameter No. TEM3D, other wise enter a '1'.

Enter the percent effluent corresponding to each NOEC below:

NOEC SURVIVAL: 100 % Effluent (Parameter TOM3D)

LOEC SURVIVAL: Q* % Effluent (Parameter TXM3D)

Q* refers to a value that is not calculable

Prepared by: Deanna Blake

Approved by: Ch. Robison

Table 1 (Sheet 2 of 2)
BIOMONITORING REPORT

Pimephales promelas SURVIVAL TEST

Permittee: Ana-Lab - Cooper Tire & Rubber Co.
Permit No.: AR0038822
Outfall No.: NPDES 001

Dates and times FROM: 5/16/2013 @ 18:30 TO: 5/17/2013 @ 17:30
Composites were collected: FROM: 5/15/2013 @ 18:30 TO: 5/16/2013 @ 17:30

Test Initiation: Time: 15:05 Date: 5/18/2013

Dilution Water Used: Receiving Water Synthetic Dilution Water

DATA TABLE FOR SURVIVAL OF *Pimephales promelas*

TIME	REPLICATE	EFFLUENT CONCENTRATION (%)					
		0%	32 %	42 %	56 %	75 %	100 %
24 HOUR	A	100	100	100	100	100	100
	B	100	100	100	100	100	100
	C	100	100	100	100	100	100
	D	100	100	100	100	100	100
	E	100	100	100	100	100	100
48 HOUR	A	100	100	100	100	100	87.5
	B	100	100	100	100	100	87.5
	C	100	100	100	100	100	62.5
	D	100	100	100	100	100	87.5
	E	100	100	100	100	100	100
MEAN		100	100	100	100	100	85
CV % ¹		0.00	0.00	0.00	0.00	0.00	16.11

¹ Coefficient of Variation = (standard deviation/mean) x 100

?= cannot be calculated due to 100% mortality or lab exception

DUNNETT'S PROCEDURE OR STEEL'S MANY-ONE RANK TEST (as appropriate for Lethality)
Is the mean survival at 48 hours significantly different (p=0.05) than the control's survival for the low flow or critical dilution?

CRITICAL DILUTION (100 %): _____ YES _____ X _____ NO

If you report NO, enter a '0' on the DMR form for Parameter No. TEM6C, other wise enter a '1'.

Enter the percent effluent corresponding to each NOEC below:

NOEC SURVIVAL: 100 % Effluent (Parameter TOM6C)

LOEC SURVIVAL: Q* % Effluent (Parameter TXM6C)

Q* refers to a value that is not calculable

Prepared by: Deanne Blake

Approved by: Ch. Robson

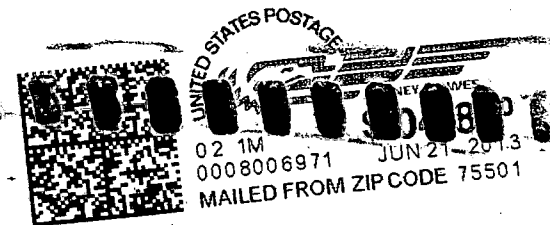


COOPER TIRE & RUBBER COMPANY
3500 Washington Road • Texarkana, AR 71854

CERTIFIED MAIL™



7011 2970 0001 7194 1057



JUN 21 2013 12:51 PM EST

ADEQ
Water Division Enforcement Branch
5301 Northshore Drive
North Little Rock AR.

72118-5317

