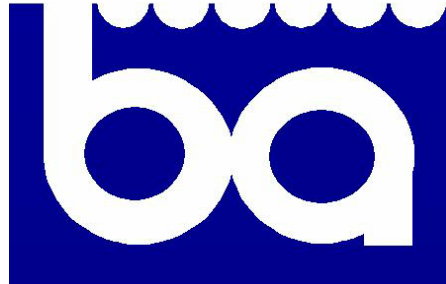




TCEQ TNi Accredited



Bio-Aquatic Testing

2501 Mayes Rd
Suite 100
Carrollton, TX 75006
(972) 242-7750

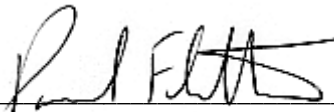
X4 Environmental

X4 JH2000

48 Hour Acute *Mysidopsis bahia* Toxicity Test
and
96-Hour Acute *Menidia beryllina* Toxicity Test

Using:
X4 JH2000
#2 Fuel Oil
X4 JH2000 / #2 Fuel Oil Mixture

Prepared by:


Vice President

July 10, 2018

Date

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
TOXICITY TEST REPORT <i>Mysidopsis bahia</i>	4-5
TOXICITY TEST REPORT <i>Menidia beryllina</i>	6-7
TOXICITY TEST SUMMARIES X4 JH2000 #2 Fuel Oil X4 JH2000 / #2 Fuel Oil Mixture	Appendix A
WATER CHEMISTRY X4 JH2000 #2 Fuel Oil X4 JH2000 / #2 Fuel Oil Mixture	Appendix B
STATISTICS X4 JH2000 #2 Fuel Oil X4 JH2000 / #2 Fuel Oil Mixture	Appendix C
REFERENCE TOXICANTS	Appendix D
LITERATURE REFERENCES	Appendix E
FUEL OIL ANALYSIS	Appendix F

BIO-AQUATIC TESTING, INC.

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

EXECUTIVE SUMMARY

Bio-Aquatic Testing Inc., located at 2501 Mayes Rd. Suite 100, Carrollton, Texas 75006 was contracted by X4 Environmental to test the toxicity of their product, X4 JH2000. Bio-Aquatic Testing used the Environmental Protection Agency (EPA) protocol listed in 40 CFR Chapter 1 (7-1-99) Pt. 300 Appendix C, Item 3.0. Revised Standard Dispersant Toxicity Test.

Test protocols call for testing the toxicity of the X4 JH2000 product, #2 Fuel Oil, and X4 JH2000 / fuel oil mix. The marine invertebrate species, *Mysidopsis bahia* (*Americamysis bahia*) and the marine vertebrate species, *Menidia beryllina* were used in the tests. The test duration using *M. bahia* and *M. beryllina* was 48 hours and 96 hours, respectively.

A summary of all the LC₅₀ values is given below:

MATERIAL TESTED	SPECIES	LC50 (ppm)	Least to Most Toxic
X4 JH2000	<i>Menidia beryllina</i>	145.89	1
	<i>Mysidopsis bahia</i>	40.26	2
No. 2 Fuel Oil	<i>Menidia beryllina</i>	18.82	4
	<i>Mysidopsis bahia</i>	1.49	6
X4 JH2000 & No. 2 Fuel Oil	<i>Menidia beryllina</i>	18.59	3
	<i>Mysidopsis bahia</i>	2.07	5
Reference Toxicant: (Sodium Laurel Sulfate)	<i>Menidia beryllina</i>	4.64	
	<i>Mysidopsis bahia</i>	8.42	

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: (972) 242-7750

Fax: (972) 242-7749

TOXICITY TEST REPORT - 96 Hour Acute – *Menidia beryllina*

Client: X4 Environmental

Sample: X4 JH2000 , #2 Fuel Oil, and X4 JH2000/ #2 Fuel Oil

SAMPLE PREPARATION:

Exploratory tests were conducted on X4 JH2000 to determine a final definitive test dilution series. In all tests involving the product, “neat” product was used. For the #2 fuel oil stock solution, 0.55 ml of #2 fuel oil was diluted into 550 ml of synthetic saltwater. The 1000 ppm #2 fuel oil / X4 JH2000 mix was made in the same manner as the #2 fuel oil stock solution with the ratio of product to oil being 1:10 (.5 ml #2 fuel oil to .05 ml of product into 550 ml). A gastight™ syringe was used to introduce the #2 fuel oil into stock solution flasks. Dilutions of product only were made at concentrations of 10 ppm, 100 ppm, 250 ppm, 500 ppm, and 1000 ppm. A stock solution of 10000 ppm was created for the product only test. Stock solutions were capped and vigorously shaken on an orbital shaker at 150 rpm for 5 minutes. Serial dilutions were made from the product / #2 fuel oil stock solution and #2 fuel oil only stock solution at concentrations of 1 ppm, 2.5 ppm, 5 ppm, 10 ppm and 50 ppm. Total volume of each dilution made was 2000 ml.

TEST PROCEDURES:

Menidia beryllina

A test control, using untreated synthetic seawater ran concurrently with the test. The volume for each of the replicates was 1000 ml.

The 96-hour acute *Menidia beryllina* survival test, using the product only, was initiated at 1546 hours on June 29, 2018. The 96-hour acute *Menidia beryllina* survival test using #2 fuel oil was initiated at 1352 hours on June 29, 2018. The 96-hour acute *Menidia beryllina* survival test using #2 fuel oil and product mix was initiated 1600 at hours on June 29, 2018.

Tests were set up with 1-liter Pyrex™ beakers containing 1000 ml of test solution. Each concentration included two replicates. Ten organisms were placed in each replicate according to protocol. Test organisms were seven day old juveniles. Surviving juveniles in each test chamber were fed freshly hatched brine shrimp after dead organisms and debris were removed from each test container. Daily chemical parameters were analyzed from a replicate of each dilution. Test solutions were kept at 25° +/- 1°C with no unacceptable deviations. Tests ran for 96 hours after which final survival data were collected.

The test using X4 JH2000 only ended at 1040 hours on July 3, 2018. The test using #2 fuel oil was ended at 1044 hours on July 3, 2018. The test using the product and #2 fuel oil mix was ended at 1049 hours on July 3, 2018.

TEST RESULTS: The Environmental Protection Agency's Trimmed Spearman-Kärber statistical program was used to analyze all data.

The 48-hour LC₅₀ (concentration at which 50% mortality is expected to occur) for X4 JH2000, *Mysidopsis bahia* survival data, was calculated by the Spearman-Kärber program, as 40.26 ppm.

LC₅₀: 40.26 ppm
95% Lower Confidence Limit: 31.13 ppm
95% Upper Confidence Limit: 52.05 ppm

The 48-hour LC₅₀ (concentration at which 50% mortality is expected to occur) for the #2 fuel oil, *Mysidopsis bahia* survival data, was calculated by the Spearman-Kärber program, as 1.49 ppm.

LC₅₀: 1.49 ppm
95% Lower Confidence Limit: 1.33 ppm
95% Upper Confidence Limit: 1.67 ppm

The 48-hour LC₅₀ (concentration at which 50% mortality is expected to occur) for the X4 JH2000 and #2 fuel oil mix, *Mysidopsis bahia* survival, data was calculated by the Spearman-Kärber program, as 2.07 ppm.

LC₅₀: 2.07 ppm
95% Lower Confidence Limit: 1.65 ppm
95% Upper Confidence Limit: 2.60 ppm

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: (972) 242-7750

Fax: (972) 242-7749

TOXICITY TEST REPORT - 96 Hour Acute – *Menidia beryllina*

Client: X4 Environmental

Sample: X4 JH2000 , #2 Fuel Oil, and X4 JH2000/ #2 Fuel Oil

SAMPLE PREPARATION:

Exploratory tests were conducted on X4 JH2000 to determine a final definitive test dilution series. In all tests involving the product, “neat” product was used. For the #2 fuel oil stock solution, 0.55 ml of #2 fuel oil was diluted into 550 ml of synthetic saltwater. The 1000 ppm #2 fuel oil / X4 JH2000 mix was made in the same manner as the #2 fuel oil stock solution with the ratio of product to oil being 1:10 (.5 ml #2 fuel oil to .05 ml of product into 550 ml). A gastight™ syringe was used to introduce the #2 fuel oil into stock solution flasks. Dilutions of product only were made at concentrations of 10 ppm, 100 ppm, 250 ppm, 500 ppm, and 1000 ppm. A stock solution of 10000 ppm was created for the product only test. Stock solutions were capped and vigorously shaken on an orbital shaker at 150 rpm for 5 minutes. Serial dilutions were made from the product / #2 fuel oil stock solution and #2 fuel oil only stock solution at concentrations of 1 ppm, 2.5 ppm, 5 ppm, 10 ppm and 50 ppm. Total volume of each dilution made was 2000 ml.

TEST PROCEDURES:

Menidia beryllina

A test control, using untreated synthetic seawater ran concurrently with the test. The volume for each of the replicates was 1000 ml.

The 96-hour acute *Menidia beryllina* survival test, using the product only, was initiated at 1546 hours on June 29, 2018. The 96-hour acute *Menidia beryllina* survival test using #2 fuel oil was initiated at 1352 hours on June 29, 2018. The 96-hour acute *Menidia beryllina* survival test using #2 fuel oil and product mix was initiated 1600 at hours on June 29, 2018.

Tests were set up with 1-liter Pyrex™ beakers containing 1000 ml of test solution. Each concentration included two replicates. Ten organisms were placed in each replicate according to protocol. Test organisms were seven day old juveniles. Surviving juveniles in each test chamber were fed freshly hatched brine shrimp after dead organisms and debris were removed from each test container. Daily chemical parameters were analyzed from a replicate of each dilution. Test solutions were kept at 25° +/- 1°C with no unacceptable deviations. Tests ran for 96 hours after which final survival data were collected.

The test using X4 JH2000 only ended at 1040 hours on July 3, 2018. The test using #2 fuel oil was ended at 1044 hours on July 3, 2018. The test using the product and #2 fuel oil mix was ended at 1049 hours on July 3, 2018.

TEST RESULTS: The Environmental Protection Agency's Trimmed Spearman-Kärber statistical program was used to analyze all data.

The 96-hour LC₅₀ (concentration at which 50% mortality is expected to occur) for X4 JH2000, *Menidia beryllina* survival data, was calculated by the Spearman-Kärber program, as 145.89 ppm.

LC₅₀: 145.89 ppm
95% Lower Confidence Limit: 124.71 ppm
95% Upper Confidence Limit: 170.67 ppm

The 96-hour LC₅₀ (concentration at which 50% mortality is expected to occur) for the #2 Fuel Oil, *Menidia beryllina* survival data, was calculated by the Spearman-Kärber program, as 18.82 ppm.

LC₅₀: 18.82 ppm
95% Lower Confidence Limit: 15.54 ppm
95% Upper Confidence Limit: 22.79 ppm

The 96-hour LC₅₀ (concentration at which 50% mortality is expected to occur) for ELMN8+ / #2 Fuel Oil Mix, *Menidia beryllina* survival, data was calculated by the Spearman-Kärber program, as 18.59 ppm.

LC₅₀: 18.59 ppm
95% Lower Confidence Limit: 15.53 ppm
95% Upper Confidence Limit: 22.27 ppm

APPENDIX A

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Americamysis bahia*

Client: X4 Environmental X4 JH2000

Permit Number:

Sample Type:

Receiving Water Name:

Outfall Name: Product

Lab ID: 70095

Test Temperature (oC): 25 ± 1

Photo Period: 16 hours light
8 hours dark

Begin Date: 6/29/2018

End Date: 7/1/2018

Test Start Time: 15:40

Test End Time: 11:45

SURVIVAL

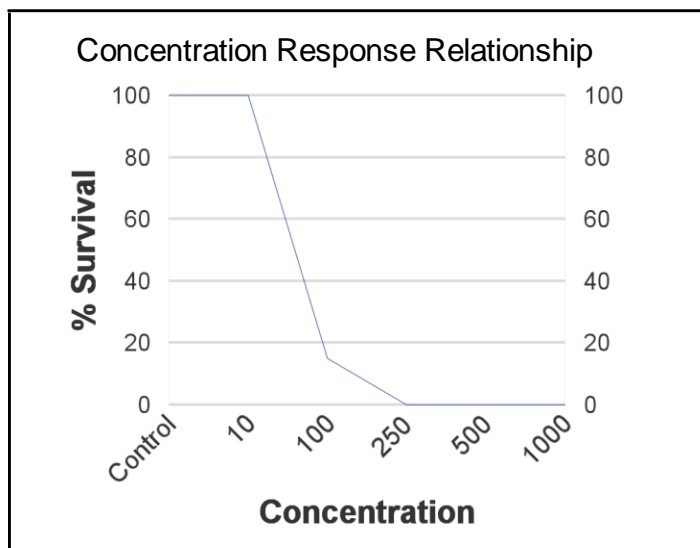
Effluent
Con.

Number Of Alive Per Replicate

Avg%
Surv.

	6/29					6/30					7/1					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Control	10	10				10	10				10	10				100.0%
10	10	10				10	10				10	10				100.0%
100	10	10				4	5				1	2				15.0%
250	10	10				0	0				0	0				0.0%
500	10	10				0	0				0	0				0.0%
1000	10	10				0	0				0	0				0.0%

*spilled cup



BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 48 Hr Acute

Client: X4 Environmental - X4 JH2000 Lab ID: 70095

Outfall: Product

TEST INSTRUCTIONS: no changeout, do chems

LC50 = 40,260
CL = 31.13 - 52.05

Culture No. : MC-17-1913 ⁷⁰⁶ RANDOMIZATION:

Units	No. Surviving Organisms, 0 Hrs.				No. Surviving Organisms, 24 Hrs.				No. Surviving Organisms, 48 Hrs.			
	A	B	C	D	A	B	C	D	A	B	C	D
Concentration	A	B	C	D	A	B	C	D	A	B	C	D
Control	10	10	10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10	10	10	10
100	10	10	10	10	4 6	5 5	10	10	1	2	3	10
250	10	10	10	10	0 10	0 10	10	10	0	0	10	10
500	10	10	10	10	0 10	0 10	10	10	0	0	10	10
1000	10	10	10	10	0 10	0 10	10	10	0	0	10	10
Date/Time	1540 6-29-18				1130 6-30-18				1145 7-1-18			
Technician	AB				PT				PT			

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 48 Hr Acute

Client: X4 Environmental - X4 JH2000

Lab ID: 70095

Outfall: Product

Test Temperatures

	0Hr	24Hr		48Hr
	new	old / new		old
Control	25.5	27	NA	27
10	/	/	/	/
100	/	/	/	/
250	/	/	/	/
500	/	/	/	/
1000	/	/	/	/
	/	/	/	/
	/	/	/	/
TIME/DATE TECH	1540 6-29-18 DB	1130 6-28-18 ST	7-1-18 1145 DT	
IR GUN ID #	010	06	06	

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC

TOXICITY TEST

96 Hr Acute *Menidia beryllina*

Client: Environmental JH2000

Lab ID: 70095

Permit Number:

Test Temperature (oC): 25 ± 1

Outfall Name: Product

Sample Type:

Photo Period: 16 Hours Light
8 Hours Dark

Receiving Water Name:

Test Start Time:

Test End Time:

Begin Date: 6/29/2018

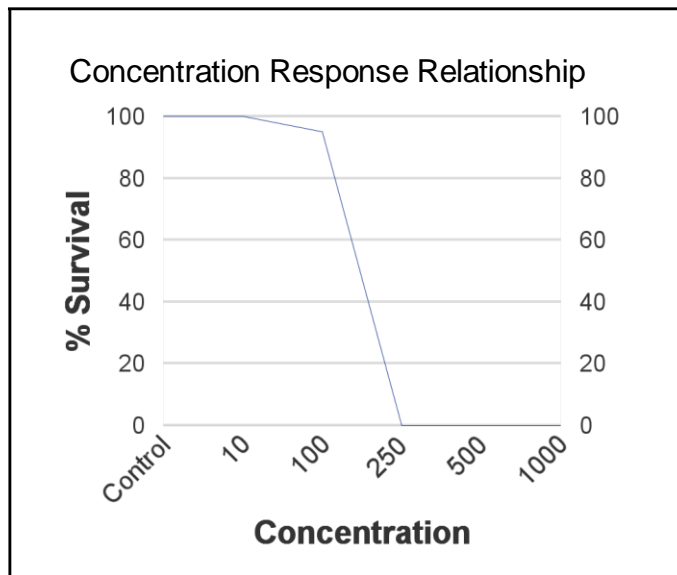
End Date: 7/3/2018

SURVIVAL

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
Control	A	10	10	10	10	10	100.0%
	B	10	10	10	10	10	
	C						
	D						
	E						
10	A	10	10	10	10	10	100.0%
	B	10	10	10	10	10	
	C						
	D						
	E						
100	A	10	10	10	10	10	95.0%
	B	10	10	10	10	9	
	C						
	D						
	E						
250	A	10	0	0	0	0	0.0%
	B	10	0	0	0	0	
	C						
	D						
	E						

BIO-AQUATIC TESTING, INC.

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
500	A	10	0	0	0	0	0.0%
	B	10	0	0	0	0	
	C						
	D						
	E						
1000	A	10	0	0	0	0	0.0%
	B	10	0	0	0	0	
	C						
	D						
	E						
	A						
	B						
	C						
	D						
	E						



BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: X4 Environmental- X4 JH2000 Lab ID: **70095**

Outfall: Product

TEST INSTRUCTIONS: no changeout, do chems LC50 = 145.89
CL = 124.71 - 170.67

Culture No. : MN-18-173

RANDOMIZATION:

Units: ppm No. Surviving Organisms, 0 Hrs. No. Surviving Organisms, 24 Hrs. No. Surviving Organisms, 48 Hrs. No. Surviving Organisms, 72 Hrs. No. Surviving Organisms, 96 Hrs.

Concentration	0 Hrs.				24 Hrs.				48 Hrs.				72 Hrs.				96 Hrs.			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Control	10				10	10			10	10			10	10			10	10		
10	10				10	10			10	10			10	10			10	10		
100	10				10	10			10	10			10	10			10	9		
250	10				0	0			0	0			0	0			0	0		
500	10				0	0			0	0			0	0			0	0		
1000	10				0	0			0	0			0	0			0	0		
Date/Time	6-21-18 1546 NB				6-30-18 1131 DT				7-1-18 1147 DT				7-2-18 0830 JF				7-3-18 1040 JLM			
Technician	NB				DT				DT				JF				JLM			

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: X4 Environmental- X4 JH2000

Lab ID: **70095**

Outfall: Product

Test Temperatures

	0Hr	24Hr		48Hr		72Hr		96Hr
	new	old / new		old / new		old / new		old
Control	15.5	25.2	NA	25.1	NA	25.7	NA	20
10								
100								
250						NA		
500						NA		
1000						NA		
TIME/DATE TECH	1596 OB 6-29-18	6-30-18 DT 1131		7-1-18 DT 1147		7-2-18 OB30	OF	7-3-18 1039 JLM
IR Gun #	016	016		016		016		016

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Americamysis bahia*

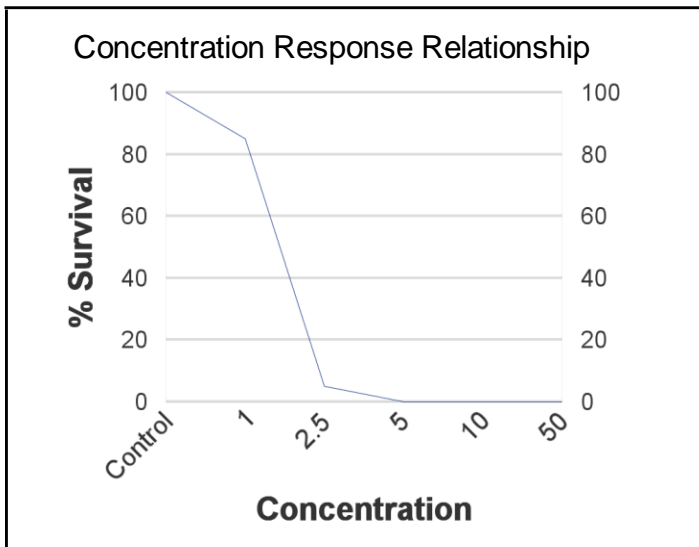
Client: X4 Environmental X4 JH2000	Lab ID: 70096
Permit Number:	Test Temperature (oC): 25 ± 1
Sample Type:	Photo Period: 16 hours light 8 hours dark
Receiving Water Name:	Begin Date: 6/29/2018
	End Date: 7/1/2018

Test Start Time: Test End Time:

SURVIVAL

Effluent Con.	Number Of Alive Per Replicate															Avg% Surv.
	6/29					6/30					7/1					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Control	10	10				10	10				10	10				100.0%
1	10	10				10	10				8	9				85.0%
2.5	10	10				9	0				1	0				5.0%
5	10	10				3	2				0	0				0.0%
10	10	10				5	0				0	0				0.0%
50	10	10				0	0				0	0				0.0%

*spilled cup



BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 48 Hr Acute

Client: X4 Environmental - X4 JH2000

Lab ID: 70096

Outfall: Fuel Oil #2

TEST INSTRUCTIONS: no changeout, do chems

LL50 = 1.49
 CL = 1.33 - 1.67

Culture No. : MY-18-173

RANDOMIZATION:

Units	No. Surviving Organisms, 0 Hrs.				No. Surviving Organisms, 24 Hrs.				No. Surviving Organisms, 48 Hrs.				
	Concentration	A	B	C	D	A	B	C	D	A	B	C	D
Control	10	10	10	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	8	9	10	10
2.5	10	10	10	10	9	10	10	10	10	10	0	10	10
5	10	10	10	10	3	10	10	10	10	0	0	10	10
10	10	10	10	10	5	10	10	10	10	0	0	10	10
50	10	10	10	10	0	0	10	10	10	0	0	10	10
Date/Time	1547 6-29-18				6:30-11				7-1-18				
Technician	JB				DT				DT				

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

2501 Mayes Road, Suite 100

Carrollton, Texas 75006

Tel: 972-242-7750

Fax: 972-242-7749

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 48 Hr Acute

Client: X4 Environmental - X4 JH2000

Lab ID: 70096

Outfall: Fuel Oil #2

Test Temperatures

	0Hr	24Hr		48Hr
	new	old / new		old
Control	23.5	23.2	NA	23.1
1	/	/	/	/
2.5	/	/	/	/
5	/	/	/	/
10	/	/	/	/
50	/	/	/	/
	/	/	/	/
	/	/	/	/
TIME/DATE TECH	6-29-18 JB 1547	6-30-18 DT 1137		7-1-18 1149 DT
IR GUN ID #	016	016		016

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC

TOXICITY TEST

96 Hr Acute *Menidia beryllina*

Client: X4 Environmental X4 JH2000

Lab ID: 70096

Permit Number:

Test Temperature (oC): 25 ± 1

Outfall Name: Fuel Oil #2

Sample Type:

Photo Period: 16 Hours Light
8 Hours Dark

Receiving Water Name:

Test Start Time: 13:52

Test End Time: 10:44

Begin Date: 6/29/2018

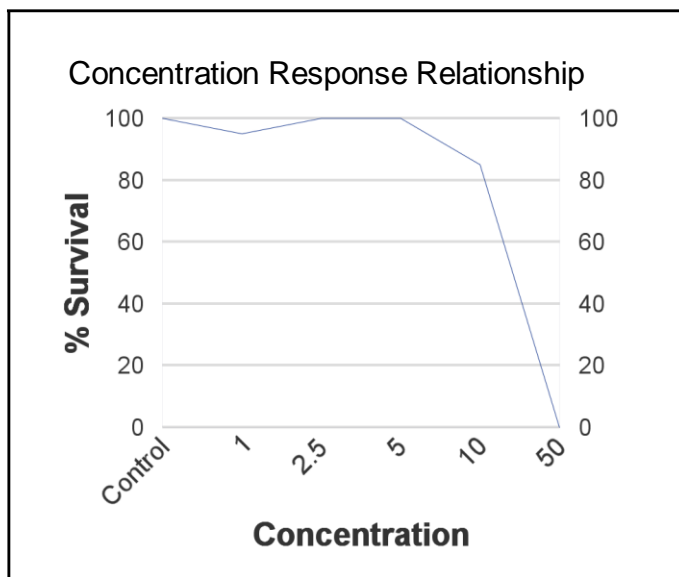
End Date: 7/3/2018

SURVIVAL

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
Control	A	10	10	10	10	10	100.0%
	B	10	10	10	10	10	
	C						
	D						
	E						
1	A	10	10	10	10	10	95.0%
	B	10	10	10	10	9	
	C						
	D						
	E						
2.5	A	10	10	10	10	10	100.0%
	B	10	10	10	10	10	
	C						
	D						
	E						
5	A	10	10	10	10	10	100.0%
	B	10	10	10	10	10	
	C						
	D						
	E						

BIO-AQUATIC TESTING, INC.

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
10	A	10	10	10	10	10	85.0%
	B	10	9	8	8	7	
	C						
	D						
	E						
	F						
50	A	10	9	0	0	0	0.0%
	B	10	8	0	0	0	
	C						
	D						
	E						
	F						
	A						
	B						
	C						
	D						
	E						
	F						



BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: X4 Environmental- X4 JH2000 Lab ID: **70096**

Outfall: Fuel Oil #2

TEST INSTRUCTIONS: no changeout, do chems LC50 = 18.82
CL = 15.54 - 22.79

Culture No. : MN-18-173

RANDOMIZATION:

Units: ppm No. Surviving Organisms, 0 Hrs. No. Surviving Organisms, 24 Hrs. No. Surviving Organisms, 48 Hrs. No. Surviving Organisms, 72 Hrs. No. Surviving Organisms, 96 Hrs.

Concentration	No. Surviving Organisms, 0 Hrs.				No. Surviving Organisms, 24 Hrs.				No. Surviving Organisms, 48 Hrs.				No. Surviving Organisms, 72 Hrs.				No. Surviving Organisms, 96 Hrs.			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Control	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10
2.5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	9	10	10	10	8	10	10	10	8	10	10	10	7	10	10
50	10	10	10	10	9	8	10	10	9	8	10	10	0	0	10	10	0	0	10	10
Date/Time	1352 6-29-18				1139 6-30-18				1152 7-1-18				0832 7-2-18				1044 7-3-18			
Technician	NB				BT				DT				OF				JLM			

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: X4 Environmental- X4 JH2000 Lab ID: **70096**

Outfall: Fuel Oil #2

Test Temperatures

	0Hr	24Hr		48Hr		72Hr		96Hr
	new	old / new		old / new		old / new		old
Control	25.5	25.2	NA	25.1	NA	25.4	NA	25.9
1	/	/	/	/	/	/	/	/
2.5	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/
50	/	/	/	/	/	NA	/	/
	/	/	/	/	/	/	/	/
	/	/	/	/	/	/	/	/
TIME/DATE TECH	1352 6-29-18 JB	6-30-18 DT 1139		7-1-18 DT 1152		7-2-18 0832 JF		7-3-18 1044 JLM
IR Gun #	016	016		016		016		016

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Americamysis bahia*

Client: X4 Environmental X4 JH2000

Permit Number:

Sample Type:

Receiving Water Name:

Outfall Name: Product + Fuel Oil #2

Lab ID: 70097

Test Temperature (oC): 25 ± 1

Photo Period: 16 hours light
8 hours dark

Begin Date: 6/29/2018

End Date: 7/1/2018

Test Start Time: Test End Time:

SURVIVAL

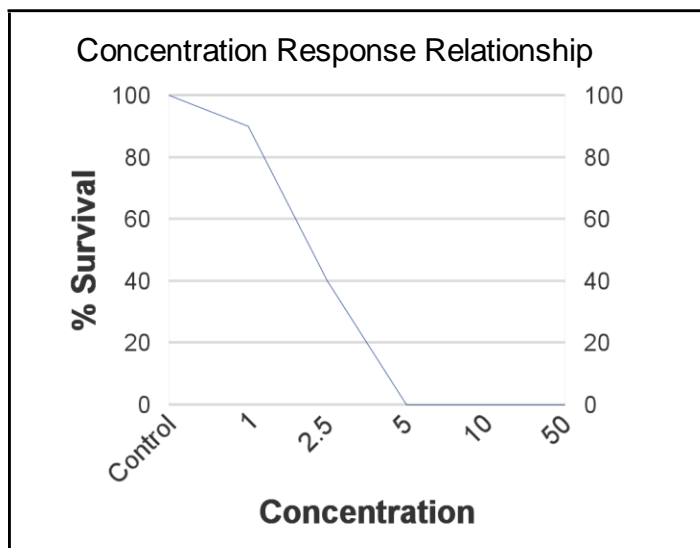
Effluent
Con.

Number Of Alive Per Replicate

Avg%
Surv.

Effluent Con.	Number Of Alive Per Replicate															Avg% Surv.
	6/29					6/30					7/1					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Control	10	10				10	10				10	10				100.0%
1	10	10				10	10				10	8				90.0%
2.5	10	10				9	0				8	0				40.0%
5	10	10				0	0				0	0				0.0%
10	10	10				0	0				0	0				0.0%
50	10	10				0	0				0	0				0.0%

*spilled cup



BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 48 Hr Acute

Client: X4 Environmental - X4 JH2000

Lab ID: 70097

Outfall: Product + Fuel Oil #2

TEST INSTRUCTIONS: No changeout, Do chems

LC50 = 2.07
Cb = 1.45 - 2.60

Culture No. : MV-F6173

RANDOMIZATION:

Units	No. Surviving Organisms, 0 Hrs.				No. Surviving Organisms, 24 Hrs.				No. Surviving Organisms, 48 Hrs.				
	Concentration	A	B	C	D	A	B	C	D	A	B	C	D
Control	10	10	10	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	10	8	10	10
2.5	10	10	10	10	9	0	10	10	10	8	0	10	10
5	10	10	10	10	6	0	10	10	10	0	0	10	10
10	10	10	10	10	0	0	10	10	10	0	0	10	10
50	10	10	10	10	0	0	10	10	10	0	0	10	10
Date/Time	1555 6-29-18				1143 6-30-18				1200 7-1-18				
Technician	RB				DT				DT				

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 48 Hr Acute

Client: X4 Environmental - X4 JH2000

Lab ID: 70097

Outfall: Product + Fuel Oil #2

Test Temperatures

	0Hr	24Hr		48Hr
	new	old / new		old
	Control	25.5	25.1	NA
1	/	/	/	/
2.5	/	/	/	/
5	/	/	/	/
10	/	/	/	/
50	/	/	/	/
	/	/	/	/
	/	/	/	/
TIME/DATE TECH	1553 NB 6-21-18	1143 6-20-18	DT	1200 7-1-18 DT
IR GUN ID #	014	016		016

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC

TOXICITY TEST

96 Hr Acute *Menidia beryllina*

Client: X4 Environmental X4 JH2000

Lab ID: 70097

Permit Number:

Test Temperature (oC): 25 ± 1

Outfall Name: Product + Fuel Oil #2 Sample Type:

Photo Period: 16 Hours Light
8 Hours Dark

Receiving Water Name:

Test Start Time:

Test End Time:

Begin Date: 6/29/2018

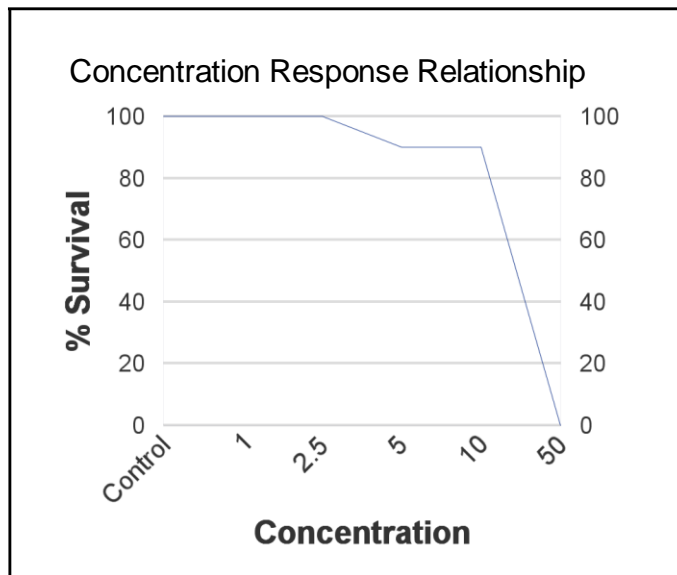
End Date: 7/3/2018

SURVIVAL

Effluent Concentration	Number Of Alive					Avg% Surv.
	6/29	6/30	7/1	7/2	7/3	
Control	A	10	10	10	10	100.0%
	B	10	10	10	10	
	C					
	D					
	E					
1	A	10	10	10	10	100.0%
	B	10	10	10	10	
	C					
	D					
	E					
2.5	A	10	10	10	10	100.0%
	B	10	10	10	10	
	C					
	D					
	E					
5	A	10	10	10	9	90.0%
	B	10	10	9	9	
	C					
	D					
	E					

BIO-AQUATIC TESTING, INC.

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
10	A	10	10	10	10	10	90.0%
	B	10	10	8	8	8	
	C						
	D						
	E						
	F						
50	A	10	5	0	0	0	0.0%
	B	10	4	0	0	0	
	C						
	D						
	E						
	F						
	A						
	B						
	C						
	D						
	E						
	F						



BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: X4 Environmental- X4 JH2000 Lab ID: **70097**

Outfall: Product + Fuel Oil #2

TEST INSTRUCTIONS: No changeout, Do chems LC50 = 18.59
CL = 15.53 - 22.27

Culture No. : MN-18-173

RANDOMIZATION:

Concentration	No. Surviving Organisms, 0 Hrs.				No. Surviving Organisms, 24 Hrs.				No. Surviving Organisms, 48 Hrs.				No. Surviving Organisms, 72 Hrs.				No. Surviving Organisms, 96 Hrs.			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Control	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
2.5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
5	10	10	10	10	10	10	10	10	10	9	10	10	9	9	10	10	9	9	10	10
10	10	10	10	10	10	10	10	10	10	8	10	10	10	8	10	10	10	8	10	10
50	10	10	10	10	5	4	10	10	0	0	10	10	0	0	10	10	0	0	10	10
Date/Time	1600 6-29-18				1146 6-30-18				7-1-18 1204				7-2-18 0835				7-3-18 1049			
Technician	JB				JT				JT				JF				JLM			

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: X4 Environmental- X4 JH2000

Lab ID: **70097**

Outfall: Product + Fuel Oil #2

Test Temperatures

	0Hr	24Hr		48Hr		72Hr		96Hr
	new	old / new		old / new		old / new		old
Control	25.5	25.2	NA	25.1	NA	25.3	NA	26.0
1	/	/	/	/	/	/	/	/
2.5	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/
50	/	/	/	/	/	NA	/	/
	/	/	/	/	/	/	/	/
	/	/	/	/	/	/	/	/
TIME/DATE TECH	6-29-18 1600 JB	6-30-18 05/7/196		7-1-18 05/1201		7-2-18 0835 JF		7-3-18 1049 JMM
IR Gun #	016	016		016		016		016

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

24 Hr Acute

Americamysis bahia

Lab ID: 70072

Client: X4 Environmental X4 JH2000

Test Temperature (oC): 25 ± 1

Permit Number:

Photo Period: 16 hours light
8 hours dark

Sample Type:

Outfall Name: Product

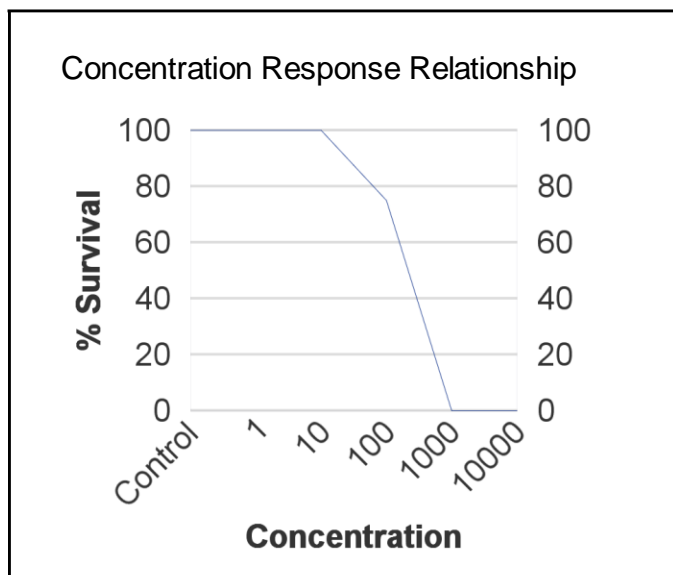
Receiving Water Name:

Begin Date: 6/22/2018

End Date: 6/23/2018

Test Start Time: Test End Time:

Effluent Concentration	SURVIVAL										Avg% Surv.
	Number Of Alive Per Replicate					Number Of Alive Per Replicate					
	6/22					6/23					
	A	B	C	D	E	A	B	C	D	E	
Control	10	10				10	10				100.0%
1	10	10				10	10				100.0%
10	10	10				10	10				100.0%
100	10	10				7	8				75.0%
1000	10	10				0	0				0.0%
10000	10	10				0	0				0.0%



BIO-AQUATIC TESTING, INC.

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

24 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia 24 Hr Acute

Client: X4 Environmental _ X4 JH2000

Outfall Name Product Lab ID: 70072
 Sample Type _____

TEST INSTRUCTIONS:
 Rangefinder, no chems LC50 = 177.83
 95%CL = 113.85 - 217.75

Date Test Started: 6-22-18 Time: 1100 Technician: _____
 Date Test Ended: 6-23-18 Time: 0805 Technician: JF
 Culture No. : M4-18-166

Concentration	No. Surviving Organisms, 0 Hrs.					No. Surviving Organisms, 24 Hrs.				
	A	B	C	D	E	A	B	C	D	E
Control	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10	10
100	10	10	10	10	10	7 ₃	8 ₂	10	10	10
1000	10	10	10	10	10	0 ₁₀	0 ₁₀	10	10	10
10000	10	10	10	10	10	0 ₁₀	0 ₁₀	10	10	10

Test Temperatures

	0Hr		24Hr	
	new	old	new	old
Control	20.5	26.0	20.5	26.0
1	 	 	 	
10	 	 	 	
100	 	 	 	
1000	 	 	 	
10000	 	 	 	
	 	 	 	
	 	 	 	
IR GUN ID #	002		004	

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable s;

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Menidia beryllina*

Client: X4 Environmental X4 JH2000

Lab ID: 70072

Permit Number:

Test Temperature (oC): 25 ± 1

Sample Type:

Outfall Name: Product

Photo Period: 16 hours light
8 hours dark

Receiving Water Name:

Begin Date: 6/22/2018

Test Start Time:

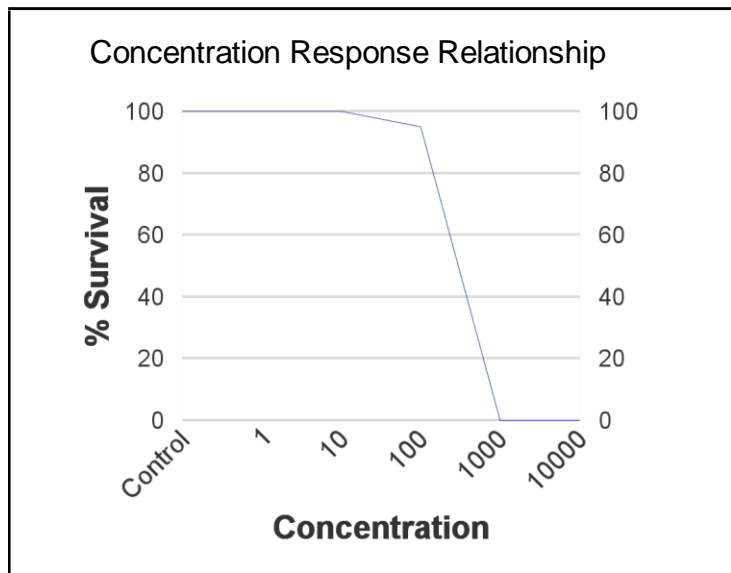
Test End Time:

End Date: 6/24/2018

SURVIVAL

Effluent Concentration	Number Of Alive Per Replicate															Avg% Surv.
	6/22					6/23					6/24					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
Control	10	10				10	10				10	10				100.0%
1	10	10				10	10				10	10				100.0%
10	10	10				10	10				10	10				100.0%
100	10	10				9	10				9	10				95.0%
1000	10	10				0	0				0	0				0.0%
10000	10	10				0	0				0	0				0.0%

* spilled cup



BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 48 Hr Acute

Client: X4 Environmental- X4 JH2000 Lab ID: 70072

Outfall: Product

TEST INSTRUCTIONS: Rangefinder, no chems

LC50 = 281.84
 95% CL = 225.18 - 352.75

RANDOMIZATION:

Culture No. : MN-146-166

Units	No. Surviving Organisms, 0 Hrs.				No. Surviving Organisms, 24 Hrs.				No. Surviving Organisms, 48 Hrs.			
Concentration	A	B	C	D	A	B	C	D	A	B	C	D
Control	10	10	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10	10	10	10
100	10	10	10	10	9	10	10	10	9	10	10	10
1000	10	10	10	10	0	0	10	10	0	0	10	10
10000	10	10	10	10	0	0	10	10	0	0	10	10
Date/Time	6-22-18 1105				6-23-18 0810				6-24-18 1017			
Technician	JMY				JK				JLM			

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 48 Hr Acute

Client: X4 Environmental- X4 JH2000 Lab ID: 70072

Outfall: Product

Test Temperatures

	0Hr	24Hr		48Hr
	new	old / new		old
Control	26.5	26.5	NA	26.5
1	/	/	/	/
10	/	/	/	/
100	/	/	/	/
1000	/	/	/	/
10000	/	/	/	/
	/	/	/	/
	/	/	/	/
TIME/DATE TECH	6-22-18 1105	6-23-18 0810 J6	6-24-18 1017 JUM	
IR GUN ID #	002	001	004	

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

APPENDIX B

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

48 Hr Acute

Americamysis bahia

Client: X4 Environmental

Lab ID: 70095

Facility: X4 JH2000

Dilution Water(s):

Outfall: Product

Test Begin Date: June 29, 2018

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	10	100	250	500	1000		
DT	6/29	Start		pH	7.9	8.0	8.0	8.0	8.0	8.1		
		25 ± 1		DO (mg/L)	7.0	7.1	7.1	7.1	7.1	7.0		
		JLM		6/30	24 Hr		pH	8.1	8.0	8.0	DEAD	DEAD
25 ± 1	DO (mg/L)		7.6		7.7		7.7	DEAD	DEAD	DEAD		
Renew	pH											
				DO (mg/L)								
JLM	7/1	48 Hr		pH	8.1	8.1	8.1	DEAD	DEAD	DEAD		
		25 ± 1		DO (mg/L)	7.4	7.4	7.4	DEAD	DEAD	DEAD		
		Renew		pH								
				DO (mg/L)								
DT	7/2	72 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
JLM	7/3	96 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/4	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/5	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/6	168 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

96 Hr Acute

Menidia beryllina

Client: X4 Environmental

Lab Number: 70095

Facility: X4 JH2000

Dilution Water(s):

Outfall: Product

Test Begin Date: June 29, 2018

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	10	100	250	500	1000		
DT	6/29	Start		pH	7.9	8.0	8.0	8.0	8.0	8.1		
		25 ± 1		DO (mg/L)	7.0	7.1	7.1	7.1	7.1	7.0		
		24 Hr										
JLM	6/30	25 ± 1		pH	8.2	8.1	8.0	DEAD	DEAD	DEAD		
		Renew		DO (mg/L)	7.7	7.7	7.7	DEAD	DEAD	DEAD		
JLM	7/1	48 Hr		pH	8.1	8.1	8.1	DEAD	DEAD	DEAD		
		25 ± 1		DO (mg/L)	7.5	7.6	7.6	DEAD	DEAD	DEAD		
		Renew										
DT	7/2	72 Hr		pH	8.1	8.1	8.1	DEAD	DEAD	DEAD		
		25 ± 1		DO (mg/L)	7.4	7.5	7.4	DEAD	DEAD	DEAD		
		Renew										
JLM	7/3	96 Hr		pH	8.0	8.0	8.0	DEAD	DEAD	DEAD		
		25 ± 1		DO (mg/L)	7.3	7.3	7.2	DEAD	DEAD	DEAD		
		Renew										
	7/4	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew										
	7/5	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew										
	7/6	168 Hr		pH								
		25 ± 1		DO (mg/L)								

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

48 Hr Acute

Americamysis bahia

Client: X4 Environmental

Lab ID: 70096

Facility: X4 JH2000

Dilution Water(s):

Outfall: Fuel Oil #2

Test Begin Date: June 29, 2018

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	1	2.5	5	10	50		
DT	6/29	Start		pH	7.9	8.0	8.0	8.0	8.0	7.9		
		25 ± 1		DO (mg/L)	7.0	7.1	7.1	7.2	7.2	7.1		
		JLM		6/30	24 Hr		pH	8.0	8.1	8.1	8.0	DEAD
25 ± 1	DO (mg/L)		7.6		7.7		7.7	7.7	DEAD	DEAD		
Renew	pH											
				DO (mg/L)								
JLM	7/1	48 Hr		pH	8.0	8.1	8.1	DEAD	DEAD	DEAD		
		25 ± 1		DO (mg/L)	7.6	7.8	7.8	DEAD	DEAD	DEAD		
		Renew		pH								
				DO (mg/L)								
	7/2	72 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/3	96 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/4	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/5	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								
	7/6	168 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
				DO (mg/L)								

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

96 Hr Acute

Menidia beryllina

Client: X4 Environmental

Lab Number: 70096

Facility: X4 JH2000

Dilution Water(s):

Outfall: Fuel Oil #2

Test Begin Date: June 29, 2018

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	1	2.5	5	10	50		
DT	6/29	Start		pH	7.9	8.0	8.0	8.0	8.0	7.9		
		25 ± 1		DO (mg/L)	7.0	7.1	7.1	7.2	7.2	7.1		
		24 Hr										
JLM	6/30	25 ± 1		pH	8.0	8.0	8.0	8.0	8.1	8.0		
		24 Hr		DO (mg/L)	7.6	7.2	7.2	7.1	7.1	7.1		
		25 ± 1										
JLM	7/1	Renew		pH								
		48 Hr		DO (mg/L)								
		25 ± 1										
JLM	7/1	Renew		pH	8.1	8.1	8.1	8.1	8.1	DEAD		
		25 ± 1		DO (mg/L)	7.4	7.4	7.4	7.5	7.5	DEAD		
		24 Hr										
DT	7/2	Renew		pH								
		72 Hr		DO (mg/L)								
		25 ± 1										
JLM	7/3	Renew		pH	8.0	8.1	8.1	8.1	8.1	DEAD		
		96 Hr		DO (mg/L)	7.5	7.5	7.2	7.6	7.6	DEAD		
		25 ± 1										
JLM	7/3	Renew		pH								
		96 Hr		DO (mg/L)								
		25 ± 1										
	7/4	Renew		pH	8.1	8.1	8.1	8.1	8.1	DEAD		
		120 Hr		DO (mg/L)	7.4	7.4	7.4	7.4	7.4	DEAD		
		25 ± 1										
	7/5	Renew		pH								
		144 Hr		DO (mg/L)								
		25 ± 1										
	7/6	Renew		pH								
		168 Hr		DO (mg/L)								
		25 ± 1										

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

48 Hr Acute

Americamysis bahia

Client: X4 Environmental

Lab ID: 70097

Facility: X4 JH2000

Dilution Water(s):

Outfall: Product + Fuel Oil #2

Test Begin Date: June 29, 2018

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration							
					Control	1	2.5	5	10	50		
DT	6/29	Start		pH	7.9	7.9	7.9	8.0	8.0	8.0		
		25 ± 1		DO (mg/L)	7.0	7.3	7.3	7.2	7.2	7.2		
		24 Hr		pH	7.8	7.8	7.8	DEAD	DEAD	DEAD		
JLM	6/30	25 ± 1		DO (mg/L)	7.6	7.4	7.4	DEAD	DEAD	DEAD		
		Renew		pH								
				DO (mg/L)								
JLM	7/1	48 Hr		pH	8.1	8.1	8.1	DEAD	DEAD	DEAD		
		25 ± 1		DO (mg/L)	7.4	7.2	7.2	DEAD	DEAD	DEAD		
		Renew		pH								
	7/2	72 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
	7/3	96 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
	7/4	120 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
	7/5	144 Hr		pH								
		25 ± 1		DO (mg/L)								
		Renew		pH								
	7/6	168 Hr		pH								
		25 ± 1		DO (mg/L)								

BIO-AQUATIC TESTING, INC.

pH, Dissolved Oxygen

96 Hr Acute

Menidia beryllina

Client: X4 Environmental

Lab Number: 70097

Facility: X4 JH2000

Dilution Water(s):

Outfall: Product + Fuel Oil #2

Test Begin Date: June 29, 2018

NR indicates that the test is non-renewal.

ANALYST	DATE	TIME	SX#	UNIT	Concentration								
					Control	1	2.5	5	10	50			
DT	6/29	Start		pH	7.9	7.9	7.9	8.0	8.0	8.0			
		25 ± 1		DO (mg/L)	7.0	7.3	7.3	7.2	7.2	7.2			
		24 Hr											
JLM	6/30	25 ± 1		pH	8.0	8.0	8.0	8.0	8.0	8.0			
		25 ± 1		DO (mg/L)	7.5	7.5	7.5	7.4	7.4	7.4			
		Renew											
JLM	7/1	48 Hr		pH	8.1	8.1	8.1	8.1	8.1	DEAD			
		25 ± 1		DO (mg/L)	8.4	7.2	7.2	7.2	7.4	DEAD			
		Renew											
DT	7/2	72 Hr		pH	7.9	7.9	7.9	7.9	7.9	DEAD			
		25 ± 1		DO (mg/L)	7.5	7.5	7.4	7.3	7.3	DEAD			
		Renew											
JLM	7/3	96 Hr		pH	8.0	8.0	7.9	7.9	7.8	DEAD			
		25 ± 1		DO (mg/L)	7.5	7.5	7.4	7.4	7.2	DEAD			
		Renew											
	7/4	120 Hr		pH									
		25 ± 1		DO (mg/L)									
		Renew											
	7/5	144 Hr		pH									
		25 ± 1		DO (mg/L)									
		Renew											
	7/6	168 Hr		pH									
		25 ± 1		DO (mg/L)									

APPENDIX C

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.

The acute *Menidia beryllina* survival data is analyzed using the Shapiro-Wilk's test for normality and Bartlett's Test for homogeneity. If the data passes both tests (parametric), then the data is run through ANOVA and Dunnett's. If the data fails either test, then Steel's Many-One Rank test is used, unless the degrees of freedom are not appropriate. The Trimmed Spearman-Kärber method is used to calculate the LC50.

The acute *Mysidopsis bahia* survival data is analyzed using the Shapiro-Wilk's test for normality and Bartlett's Test for homogeneity. If the data passes both tests (parametric), then the data is run through ANOVA and Dunnett's. If the data fails either test, then Steel's Many-One Rank test is used, unless the degrees of freedom are not appropriate. The Trimmed Spearman-Kärber method is used to calculate the LC50.

DATE: 6/19/18 TEST NUMBER: 70095 DURATION: 96 h
 TOXICANT : X4 JH2000
 SPECIES: Menidia beryllina'

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
	.00	20	0
	10.00	20	0
	100.00	20	1
	250.00	20	20
	500.00	20	20
	1000.00	20	20

SPEARMAN-KÄRBER TRIM: .00%

SPEARMAN-KÄRBER ESTIMATES: LC50: 145.09
 95% LOWER CONFIDENCE: 124.71
 95% UPPER CONFIDENCE: 170.67

DATE: 06/29/1 TEST NUMBER: 70095 DURATION: 48 h
 TOXICANT : X4 JH2000
 SPECIES: Americamysis bahia

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
	.00	20	0
	10.00	20	0
	100.00	20	17
	250.00	20	20
	500.00	20	20
	1000.00	20	20

SPEARMAN-KÄRBER TRIM: .00%

SPEARMAN-KÄRBER ESTIMATES: LC50: 40.26
 95% LOWER CONFIDENCE: 31.13
 95% UPPER CONFIDENCE: 52.05

DATE: 6/29/18 TEST NUMBER: 79936 DURATION: 48 h
 TOXICANT: Fuel oil #2
 SPECIES: *Americamysis bahia*

Row	DATA: Concentration (ppm)	Number Exposed	Mortalities
	.00	20	0
	1.00	20	3
	2.50	20	19
	5.00	20	20
	10.00	20	20
	50.00	20	20

SPEARMAN-KÄRBER TRIP: 15.00%

SPEARMAN-KÄRBER ESTIMATES: LCS0: 1.49
 95% LOWER CONFIDENCE: 1.33
 95% UPPER CONFIDENCE: 1.67

DATE: 6/29/18 TEST NUMBER: 70096 DURATION: 96 h
TOXICANT : Fuel oil #2
SPECIES: Menidia beryllina

RAW DATA:	Concentration	Number	Mortalities
-----	(ppm)	Exposed	
	.00	20	0
	1.00	20	1
	2.50	20	0
	5.00	20	0
	10.00	20	3
	50.00	20	20

SPEARMAN-KÄRBER TRIM: 1.67%

SPEARMAN-KÄRBER ESTIMATES: LC50: 10.82
95% LOWER CONFIDENCE: 15.54
95% UPPER CONFIDENCE: 22.79

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KÄRBER ESTIMATION.

DATE: 6/29/18 TEST NUMBER: 70027 DURATION: 96 h
 TOXICANT : EM JH2000 + fuel oil #2
 SPECIES: Americamysis bahia

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
	.00	20	0
	1.00	20	2
	2.50	20	12
	5.00	20	20
	10.00	20	20
	50.00	20	20

SPEARMAN-KARBER TRIM: 10.00%

SPEARMAN-KARBER ESTIMATES: LCS0: 2.07
 95% LOWER CONFIDENCE: 1.65
 95% UPPER CONFIDENCE: 2.60

DATE: 6/29/18 TEST NUMBER: 70097 DURATION: 96 h
TOXICANT: X4 JH2000 + fuel oil #2
SPECIES: Menidia beryllina

RAW DATA:	Concentration	Number	Mortalities
-----	(ppm)	Exposed	
	.00	20	0
	1.00	20	0
	2.50	20	0
	5.00	20	2
	10.00	20	2
	50.00	20	20

SPEARMAN-KÄRBER TRIM: .00%

SPEARMAN-KÄRBER ESTIMATES: LCS0: 18.59
95% LOWER CONFIDENCE: 15.53
95% UPPER CONFIDENCE: 22.27

DATE: 6/22/18 TEST NUMBER: 70072 DURATION: 24 h
 TOXICANT: X4 JH2000
 SPECIES: Americamysis bahia

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
	.00	20	0
	1.00	20	0
	10.00	20	0
	100.00	20	5
	1000.00	20	20
	*****	20	20

SPEARMAN-KÄRBER THIN: .00%

SPEARMAN-KÄRBER ESTIMATES: LC50: 177.83
 95% LOWER CONFIDENCE: 113.85
 95% UPPER CONFIDENCE: 277.75

DATE: 6/22/18 TEST NUMBER: 70072 DURATION: 48 h
 TOXICANT : XI JH2000
 SPECIES: *Plepidia beryllina*

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
	.00	20	0
	1.00	20	0
	10.00	20	0
	100.00	20	1
	1000.00	20	20
	*****	20	20

SPEARMAN-KÄRBER TRIM: .00%

SPEARMAN-KÄRBER ESTIMATES: LCS0: 281.84
 95% LOWER CONFIDENCE: 225.18
 95% UPPER CONFIDENCE: 352.75

APPENDIX D

Americamysis bahia

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 Seawater
CHEMICAL:	Sodium Laurel Sulfate
DURATION:	48-Hour Acute
PROJECT NUMBER:	70098
START DATE:	6/29/2018
START TIME:	16:58
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (ppm):	Con 1.25 2.5 5 10 15
DEAD PER CONCENTRATION:	0 0 0 2 26 39
TESR METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	Survival: Trimmed Spearman-Kärber
LC50:	8.42 ppm
95% LOWER CONFIDENCE LIMIT:	7.63 ppm
95% UPPER CONFIDENCE LIMIT:	9.29 ppm

DATE: 6/29/ TEST NUMBER: 70098 DURATION: 48 h
 TOXICANT : SLS
 SPECIES: Americamysis bahia

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
.....	.00	40	0
	1.25	40	0
	2.50	40	0
	5.00	40	2
	10.00	40	26
	15.00	40	39

SPEARMAN-KÄRBER TRIM: 2.50%

SPEARMAN-KÄRBER ESTIMATES: LCS0: 8.42
 95% LOWER CONFIDENCE: 7.63
 95% UPPER CONFIDENCE: 9.29

BIO-AQUATIC TESTING, INC.

TOXICITY TEST

48 Hr Acute *Americamysis bahia*

Client: Bio-Aquatic Testing, Inc. Reference Toxicity Testing
Permit Number: _____
Sample Type: _____ **Outfall Name:** SLS
Receiving Water Name: _____

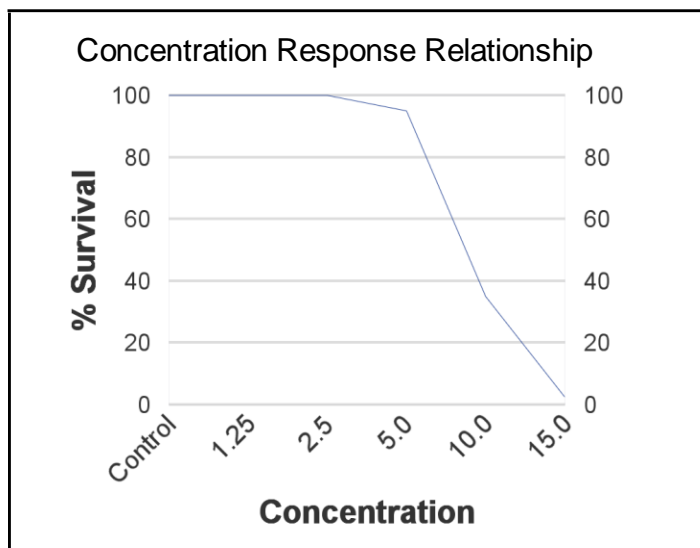
Lab ID: 70098
Test Temperature (oC): 25 ± 1
Photo Period: 16 hours light
 8 hours dark
Begin Date: 6/29/2018
End Date: 7/1/2018

Test Start Time: 16:58 Test End Time: 11:05

SURVIVAL

Effluent Con. ppm	Number Of Alive Per Replicate															Avg% Surv.
	6/29					6/30					7/1					
	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%
1.25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
2.5	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	100.0%
5.0	8	8	8	8	8	7	7	8	8	8	7	7	8	8	8	95.0%
10.0	8	8	8	8	8	7	6	7	7	6	2	4	3	2	3	35.0%
15.0	8	8	8	8	8	0	4	0	2	3	0	1	0	0	0	2.5%

*spilled cup



BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia Lab ID: **70098**

Client: Bio-Aquatic Testing, Inc. Reference Toxicity Testing Outfall: SLS

TEST INSTRUCTIONS: changeout daily, no chems
 L50 = 9.42
 CL = 7.63 - 9.29

Culture No. : MT-16-176 RANDOMIZATION: SC-5 3
 Photo Period: 16hr Light / 8hr dark

Concentration	No. Surviving Organisms, 0 Hrs.					No. Surviving Organisms, 24 Hrs.					No. Surviving Organisms, 48 Hrs.				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Control	8					8					8				
1.25 <i>ADP %</i>	8					8					8				
2.5 %	8					8					8				
5.0 %	8					7	7	8	8		7	7	8	8	
10.0 %	8					7	6	7	7	6	2	4	3	2	3
15.0 <i>✓</i> %	8					8	4	8	2	3	8	1	0	0	0
Date/Time	1658 6-29-18					1300 6-30-18					DT 7-1-18 1105				
Technician	<i>DT</i>					<i>DT</i>					<i>DT</i>				

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

48 HOUR ACUTE SURVIVAL

Organism: Americamysis bahia Lab ID: **70098**

Client: Bio-Aquatic Testing, Inc. - Reference Toxicity Testing Outfall: SLS

Test Temperatures

	0Hr	24Hr		48Hr
	new	old / new		old
Control	25.5	23.2	23.1	25.1
1.25	/	/	/	/
2.5	/	/	/	/
5.0	/	/	/	/
10.0	/	/	/	/
15.0	/	/	/	/
	/	/	/	/
	/	/	/	/
TIME/DATE TECH	6-29-18 JB 1658	6-30-18 05 1200	7-1-18 PT 1105	
IR GUN ID #	016	016	016	

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

Menidia beryllina

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 Seawater
CHEMICAL:	Sodium Laurel Sulfate
DURATION:	96-Hour Acute
PROJECT NUMBER:	70098
START DATE:	6/29/2018
START TIME:	16:45
TOTAL NUMBER EXPOSED:	40 organisms per concentration
CONCENTRATIONS (ppm):	Con 1.25 2.5 5 10 15
DEAD PER CONCENTRATION:	1 0 2 23 40 40
TESR METHODS:	As listed in EPA-821-R-02-012
STATISTICAL METHODS:	Survival: Trimmed Spearman-Kärber
LC50:	4.64 ppm
95% LOWER CONFIDENCE LIMIT:	4.13 ppm
95% UPPER CONFIDENCE LIMIT:	5.21 ppm

DATE: 6/29/10 TEST NUMBER: 70098 DURATION: 96 h
 TOXICANT : SLS
 SPECIES: Menidia beryllina

RAW DATA:	Concentration (ppm)	Number Exposed	Mortalities
	.00	40	1
	1.25	40	0
	2.50	40	2
	5.00	40	23
	10.00	40	40
	15.00	40	40

SPEARMAN-KÄRBER THIM: .00%

SPEARMAN-KÄRBER ESTIMATES: LC50: 4.64
 95% LOWER CONFIDENCE: 4.13
 95% UPPER CONFIDENCE: 5.21

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
 ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KÄRBER ESTIMATION.

BIO-AQUATIC TESTING, INC

TOXICITY TEST

96 Hr Acute *Menidia beryllina*

Client: Bio-Aquatic Testing, Inc. Reference Toxicity Testing

Lab ID: 70098

Permit Number:

Test Temperature (oC): 25 ± 1

Outfall Name: SLS

Sample Type:

Photo Period: 16 Hours Light
8 Hours Dark

Receiving Water Name:

Test Start Time:

Test End Time:

Begin Date: 6/29/2018

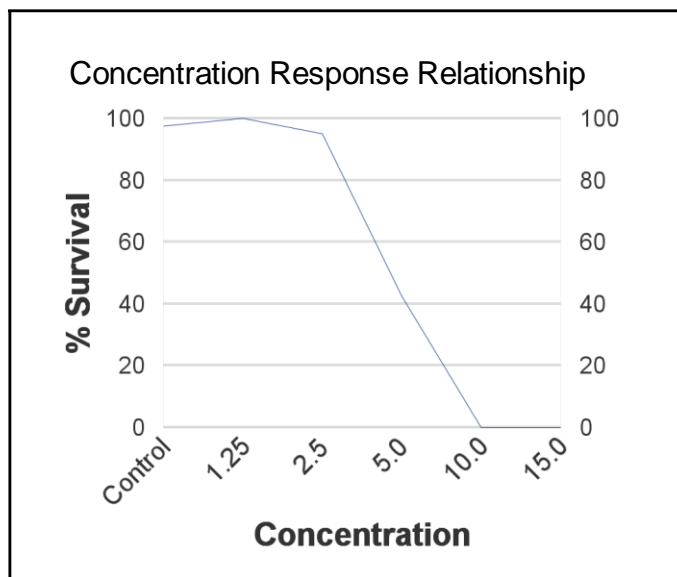
End Date: 7/3/2018

SURVIVAL

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
Control	A	8	8	8	8	7	97.5%
	B	8	8	8	8	8	
	C	8	8	8	8	8	
	D	8	8	8	8	8	
	E	8	8	8	8	8	
1.25	A	8	8	8	8	8	100.0%
	B	8	8	8	8	8	
	C	8	8	8	8	8	
	D	8	8	8	8	8	
	E	8	8	8	8	8	
2.5	A	8	8	8	8	8	95.0%
	B	8	8	8	8	8	
	C	8	8	7	7	7	
	D	8	7	7	7	7	
	E	8	8	8	8	8	
5.0	A	8	5	4	4	4	42.5%
	B	8	6	6	6	6	
	C	8	0	0	0	0	
	D	8	0	0	0	0	
	E	8	7	7	7	7	

BIO-AQUATIC TESTING, INC.

Effluent Concentration	Number Of Alive					Avg% Surv.	
	6/29	6/30	7/1	7/2	7/3		
10.0	A	8	0	0	0	0	0.0%
	B	8	0	0	0	0	
	C	8	0	0	0	0	
	D	8	0	0	0	0	
	E	8	0	0	0	0	
15.0	A	8	0	0	0	0	0.0%
	B	8	0	0	0	0	
	C	8	0	0	0	0	
	D	8	0	0	0	0	
	E	8	0	0	0	0	
	A						
	B						
	C						
	D						
	E						



BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: Bio-Aquatic Testing, Inc.- Reference Toxicity Testing Lab ID: 70098

Outfall: SLS

TEST INSTRUCTIONS:

*change out daily, no chems LC50 = 4.64
 CL = 4.13 - 5.21*

Culture No. : MN-18-173

RANDOMIZATION: SC-5 1

Dilution:		Control					1.25					2.5					5.0				
DATE/TIME/TECHNICIAN		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
0Hr	1645 6-29-18	8					8					8					8				
24Hr	1320 DT 630	8					8					8			7	8	5	6	0	0	7
48Hr	7-1-18 DT 1137	8					8					8	8	7	7	8	4	6	0	0	7
72Hr	7-2-18 DT 1025	8					8					8	8	7	7	8	4	6	1	0	7
96Hr	7-3-18 JLM/MSK	8	8	8	8	8	8					8	8	7	7	8	4	6	1	0	7

Dilution:		10.0					15.0														
DATE/TIME/TECHNICIAN		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
0Hr		8					8														
24Hr		0	0				0														
48Hr		0					0														
72Hr		0																			
96Hr																					

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

BIO-AQUATIC TESTING, INC.

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

96 HOUR ACUTE SURVIVAL

Organism: Menidia beryllina 96 Hr Acute

Client: Bio-Aquatic Testing, Inc.- Reference Toxicity Testing Lab ID: 70098

Outfall: SLS

Test Temperatures

	0Hr	24Hr		48Hr		72Hr		96Hr
	new	old / new		old / new		old / new		old
Control	25.5	25.4	25.5	25.1	25.1	25.1	25.1	26.0
1.25	/	/	/	/	/	/	/	/
2.5	/	/	/	/	/	/	/	/
5.0	/	/	/	/	/	/	/	/
10.0	/	/	/	/	/	/	/	/
15.0	/	/	/	/	/	/	/	/
	/	/	/	/	/	/	/	/
	/	/	/	/	/	/	/	/
TIME/DATE TECH	6-29-18 NB 1645	6-30-18 DT 1320		7-1-18 1157 DT		7-2-18 1057 DT		7-3-18 JLM 1056
IR Gun #	016	016		016		016		016

Lined through spaces preceded by a number represent the same number. Lined spaces without a preceding number indicate unused or not applicable spaces.

APPENDIX E

LITERATURE REFERENCES

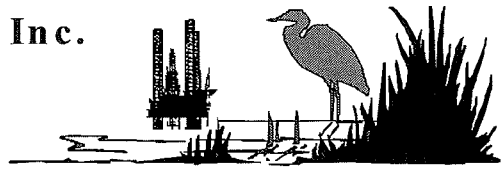
- U.S.E.P.A., 1994. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms (Second Edition) U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, Ohio.
- U.S.E.P.A., 1994. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms (Third Edition) U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, Ohio.
- U.S.E.P.A., 1991. Technical Support Document for Water Quality-Based Toxic Control, U.S. Environmental Protection Agency, EPA/505/2-90-001.
- Zarr, Jerrold, H., 1984. Biostatistical Analysis, (Second Edition). Prentice-Hall, Inc. Englewood Cliffs, New Jersey.
- Weber, C.I., (ed.) 1991. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (Fourth Edition). U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, Ohio. EPA-600/4-90-027

APPENDIX F

Enviro Sciences, Inc.

2501 Mayes Road., Suite 100
Carrollton, Texas 75006

972-242-2479 (Fax) 972-242-7749



ANALYTICAL AND RESEARCH CHEMISTS
PETROLEUM ENGINEER

MEMBERS: SPE, ASTM, NEHA, REGISTERED
ENGINEERS

FOUNDED: 1980

Analytical Report

Bio-Aquatic Testing, Inc.
2501 Mayes Rd
Carrollton, TX 75006

April 4, 2018

Diesel Sample 12/04/2017 Montecello

Collection: 12/4/2017 Date Received: 12/6/2017

<u>Analysis</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>
API Gravity	37.0	°API@ 60 °F	ASTM-D287
Water and Sediment	<0.05	%	ASTM-D1796
Cloud Point	+8	°F	ASTM-D2500
Flash Point Closed Cup	155	°F	ASTM-D56
Pour Point	-10	°F	ASTM-D97
Sulfur	<0.100	%	ASTM-D4294
Viscosity Kinematic @ 40 C	2.80	cSt	ASTM-D445
Distillation			ASTM-D86
IBP	368	°F	
10%	425	°F	
50%	525	°F	
90%	602	°F	
Final Boiling Point	654	°F	
Recovery (min 97%)	98.4	%	
Residue (max 1.5)	1.1	%	
Loss (max 1.5)	0.5	%	


Paul Fletcher, B.S.

Enviro Sciences, Inc.

2501 Mayes Road, Suite 100
 Carrollton, Texas 75006
 972-242-2479 x43
 (Fax) 972-242-7749

CHAIN OF CUSTODY RECORD


Company: Luminant Monticello SES
 Address: PO Box 1266, Mt Pleasant, TX 75455
 E-Mail: joe.griffin@luminant.com
 E-Mail: joe.henry@luminant.com

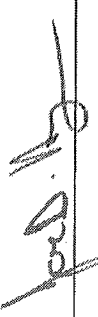

Report to: Joe Griffin
 Report to: Joe Don Henry
 Invoice to: ap.invoicing@luminant.com

Project Name/Location: #2 Fuel Oil Analysis

PO #: 491215

Project Number: MOSES GreenHouse Reporting

Sampled By:	Signature:	MSO:	Date:	Time:	Sample ID/Description	ANALYSES REQUESTED				Comments:	
						List 2 - Full Tank Analysis	BTU and Sulfur	BTU Only			
J.D. Henry		60071	12-4-17	0900	#2 Fuel Oil	X					Attn: Paul Fletcher at Enviro Sciences

Relinquished by:	Date:	Time:	Received for Enviro Sciences by:	Date:	Time:
	12-4-17	1300		12/6/17	1300