



August 17, 2016

Dr. Thant Zin Win, D.V.M., M.P.H., Chief
County of Los Angeles-ACWMD
Environmental Toxicology Laboratory
11012 Garfield Avenue-Bldg. B
South Gate, CA 90280

Dear Dr. Win:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* EPA-821-R-02-013. Results were as follows:

CLIENT:	County of Los Angeles
SAMPLE I.D.:	ME00005946 Ballona Creek MES (S01)
DATE RECEIVED:	29 July- 2016
ABC LAB. NO.:	CLA0716.299

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

IWC = 100.00%

TST RESULT

SURVIVAL = PASS % EFFECT = 5.00 %

*REPRODUCTION = PASS % EFFECT = -16.91 %

* Passes permit TIE limitation of $\geq 50\%$ effect

Yours very truly,

Scott Johnson
Laboratory Director

*Note: The chronic survival TST analysis is not available for ceriodaphnia dubia, see CETIS report using TST-Welch's t Test

TST Summary Sheet

Lab Name	Aquatic Bioassay and Consulting Labs	Client Name	County of Los Angeles
Test ID	ME00005946	Test Species	<i>C. dubia</i> (water flea)
Test Date	7/29/2016	Test Type	Chronic
Test Duration	7 days	Endpoint	Reproduction
Critical Conc.	100%		

Statistic	Control	Critical Concentration
Mean of Raw Data	24.25	28.35
Mean used in Calculation (non-transformed)	24.25	28.35
Variance used in Calculation (non-transformed)	12.934	79.503
Standard Deviation of Raw Data	3.596	8.916
CV of Raw Data	0.148	0.315
n	20	20

Mean % Effect at Critical Conc.

-16.91

Calculated t-value	Degrees of Freedom	Table t-value	Percent Difference
4.8788	22	0.8583	

Results

Pass Sample is Non-toxic

Raw Data

Control Data		Critical Concentration Data	
No. of Organisms Exposed or Counted	Response (Final Count, Weight, Length, etc.)	No. of Organisms Exposed or Counted	Response (Final Count, Weight, Length, etc.)
1	28	1	0
1	27	1	27
1	25	1	18
1	23	1	22
1	30	1	27
1	26	1	27
1	24	1	25
1	21	1	30
1	24	1	26
1	18	1	28
1	25	1	34
1	19	1	33
1	19	1	26
1	20	1	30
1	23	1	41
1	30	1	41
1	29	1	32
1	25	1	35
1	23	1	27
1	26	1	38

CETIS Summary Report

Report Date: 16 Aug-16 15:49 (p 1 of 2)

Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 03-2710-1531 Test Type: Reproduction-Survival (7d)
Start Date: 29 Jul-16 15:54 Protocol: EPA/821/R-02-013 (2002)
Ending Date: 05 Aug-16 14:10 Species: Ceriodaphnia dubia
Duration: 6d 22h Source: Aquatic Biosystems, CO

Analyst:
Diluent: Laboratory Water
Brine: Not Applicable
Age:

Sample ID: 12-9669-1380 Code: CLA0716.299
Sample Date: 28 Jul-16 12:08 Material: Sample Water
Receive Date: 29 Jul-16 13:20 Source: Bioassay Report
Sample Age: 28h (3.8 °C) Station: ME00005946

Client: County of Los Angeles
Project:

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-9219-9360	7d Survival Rate	100	>100	NA	27.0%	1	TST-Welch's t Test
02-1508-8882	Reproduction	100	>100	NA	7.37%	1	TST-Welch's t Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
06-6821-2390	7d Survival Rate	EC5	100	33.33	N/A	1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
08-0979-8241	Reproduction	EC50	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		IC5	>100	N/A	N/A	<1	
		IC10	>100	N/A	N/A	<1	
		IC15	>100	N/A	N/A	<1	
		IC20	>100	N/A	N/A	<1	
		IC25	>100	N/A	N/A	<1	
		IC40	>100	N/A	N/A	<1	
		IC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
06-6821-2390	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
20-9219-9360	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
02-1508-8882	Reproduction	Control Resp	24.25	15 - NL	Yes	Passes Acceptability Criteria
08-0979-8241	Reproduction	Control Resp	24.25	15 - NL	Yes	Passes Acceptability Criteria
02-1508-8882	Reproduction	PMSD	0.07372	0.13 - 0.47	Yes	Below Acceptability Criteria

7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	20	1	1	1	1	1	0	0	0.0%	0.0%
100		20	0.95	0.8453	1	0	1	0.05	0.2236	23.54%	5.0%

Reproduction Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	20	24.25	22.57	25.93	18	30	0.8042	3.596	14.83%	0.0%
100		20	28.35	24.18	32.52	0	41	1.994	8.916	31.45%	-16.91%

CETIS Summary Report

Report Date: 16 Aug-16 15:49 (p 2 of 2)
 Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1
100		0	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	28	27	25	23	30	26	24	21	24	18
		25	19	19	20	23	30	29	25	23	26
100		0	27	18	22	27	27	25	30	26	28
		34	33	26	30	41	41	32	35	27	38

7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

Report Date: 16 Aug-16 15:49 (p 1 of 3)
Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test							Aquatic Bioassay & Consulting Labs, Inc.				
Analysis ID: 20-9219-9360		Endpoint: 7d Survival Rate					CETIS Version: CETISv1.8.7				
Analyzed: 16 Aug-16 15:48		Analysis: Parametric Bioequivalence-Two Sample					Official Results: Yes				
Data Transform		Zeta	Alt Hyp	Trials	Seed	TST b	PMSD	Test Result			
Angular (Corrected)		NA	C*b < T	NA	NA	0.75	27.0%	Passes 7d survival rate			
TST-Welch's t Test											
Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:20%)		
Negative Control		100*	9	0.861	0.023	19	<0.0001	CDF	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α:5%)			
Between	0.006853892		0.006853892		1	1	0.3236	Non-Significant Effect			
Error	0.2604479		0.006853892		38						
Total	0.2673018				39						
Distributional Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α:1%)				
Variances	Variance Ratio F			3.662E+14	3.432	<0.0001	Unequal Variances				
Variances	Mod Levene Equality of Variance			1	7.353	0.3236	Equal Variances				
Variances	Levene Equality of Variance			4.457	7.353	0.0414	Equal Variances				
Distribution	Shapiro-Wilk W Normality			0.2483	0.9236	<0.0001	Non-normal Distribution				
Distribution	Kolmogorov-Smirnov D			0.475	0.1617	<0.0001	Non-normal Distribution				
Distribution	D'Agostino Skewness			7.416	2.576	<0.0001	Non-normal Distribution				
Distribution	D'Agostino Kurtosis			5.89	2.576	<0.0001	Non-normal Distribution				
Distribution	D'Agostino-Pearson K2 Omnibus			89.69	9.21	<0.0001	Non-normal Distribution				
Distribution	Anderson-Darling A2 Normality			11.62	3.878	<0.0001	Non-normal Distribution				
7d Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	20	1	1	1	1	1	1	0	0.0%	0.0%
100		20	0.95	0.8453	1	1	0	1	0.05	23.54%	5.0%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	20	1.047	1.047	1.047	1.047	1.047	1.047	0	0.0%	0.0%
100		20	1.021	0.9662	1.076	1.047	0.5236	1.047	0.02618	11.47%	2.5%
7d Survival Rate Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1
100		0	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1
Angular (Corrected) Transformed Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1.047	1.047	1.047	1.047	1.047	1.047	1.047	1.047	1.047	1.047
100		0.5236	1.047	1.047	1.047	1.047	1.047	1.047	1.047	1.047	1.047
7d Survival Rate Binomials											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Analytical Report

Report Date: 16 Aug-16 15:49 (p 2 of 3)

Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-9219-9360

Endpoint: 7d Survival Rate

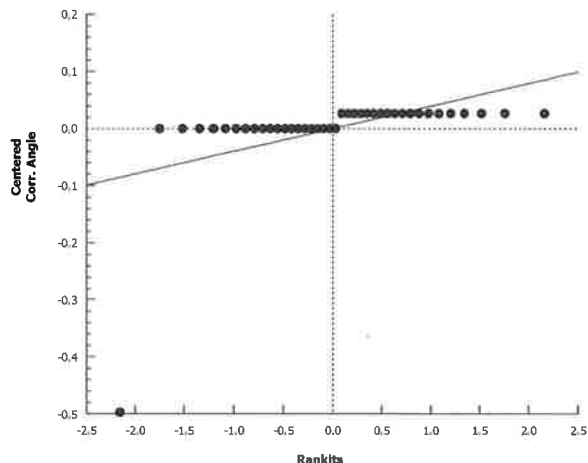
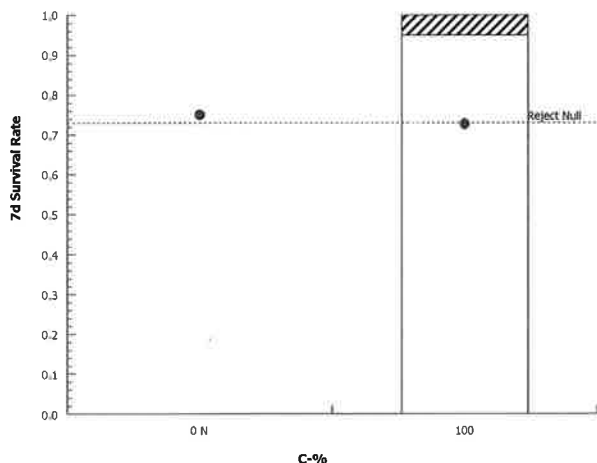
CETIS Version: CETISv1.8.7

Analyzed: 16 Aug-16 15:48

Analysis: Parametric Bioequivalence-Two Sample

Official Results: Yes

Graphics



Report Date: 16 Aug-16 15:49 (p 3 of 3)
Test Code: CLA0716.299 | 07-0753-2203

000-055-186-3

CETIS™ v1.8.7.11

Analyst: W QA: P

Report Date: 16 Aug-16 15:49 (p 1 of 2)
Test Code: CLA0716.299 | 07-0753-2203

Analysis ID: 06-6821-2390		Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.7
Analyzed: 16 Aug-16 15:48		Analysis: Linear Interpolation (ICPIN)	Official Results: Yes

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	100	33.33	N/A	1	NA	3
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	20	1	1	1	0	0	0.0%	0.0%	20	20
100		20	0.95	0	1	0.05	0.2236	23.54%	5.0%	19	20

[illegible][illegible]

Figure 1 is a line graph showing the 7-day survival rate of rainbow trout after intraperitoneal injection of 10^5 CFU of *A. salmonicida*. The x-axis represents the concentration of *A. salmonicida* in the water (C-%) from 0 to 100. The y-axis represents the 7d survival rate from 0.0 to 1.0. The survival rate is 1.0 at 0% concentration and decreases slightly to approximately 0.95 at 100% concentration.

CETIS Analytical Report

Report Date: 16 Aug-16 15:49 (p 2 of 2)

Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-0979-8241

Endpoint: Reproduction

CETIS Version: CETISv1.8.7

Analyzed: 16 Aug-16 15:48

Analysis: Linear Interpolation (ICPIN)

Official Results: Yes

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	728606	280	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>100	N/A	N/A	<1	NA	NA
IC10	>100	N/A	N/A	<1	NA	NA
IC15	>100	N/A	N/A	<1	NA	NA
IC20	>100	N/A	N/A	<1	NA	NA
IC25	>100	N/A	N/A	<1	NA	NA
IC40	>100	N/A	N/A	<1	NA	NA
IC50	>100	N/A	N/A	<1	NA	NA

Reproduction Summary

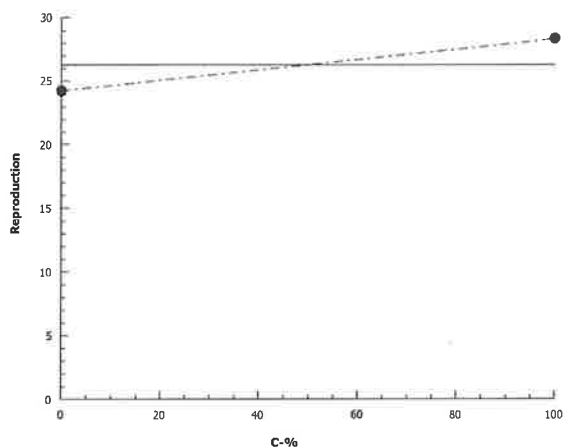
Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	20	24.25	18	30	0.8042	3.596	14.83%	0.0%
100		20	28.35	0	41	1.994	8.916	31.45%	-16.91%

Reproduction Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Negative Control	28	27	25	23	30	26	24	21	24	18
		25	19	19	20	23	30	29	25	23	26
100		0	27	18	22	27	27	25	30	26	28
		34	33	26	30	41	41	32	35	27	38

Graphics



CETIS Measurement Report

Report Date: 16 Aug-16 15:49 (p 1 of 2)
Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	03-2710-1531	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	29 Jul-16 15:54	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water
Ending Date:	05 Aug-16 14:10	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	6d 22h	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	12-9669-1380	Code:	CLA0716.299	Client:	County of Los Angeles
Sample Date:	28 Jul-16 12:08	Material:	Sample Water	Project:	
Receive Date:	29 Jul-16 13:20	Source:	Bioassay Report		
Sample Age:	28h (3.8 °C)	Station:	ME00005946		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	67.88	66.58	69.17	66	69	0.5489	1.553	2.29%	0
100		8	112	112	112	112	112	0	0	0.0%	0
Overall		16	89.94			66	112				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	336.8	331.1	342.4	330	348	2.396	6.777	2.01%	0
100		8	1214	1204	1225	1195	1238	4.422	12.51	1.03%	0
Overall		16	775.4			330	1238				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	7.375	7.038	7.712	6.9	8.1	0.1424	0.4027	5.46%	0
100		8	7.163	5.666	8.659	4.8	10	0.633	1.79	25.0%	0
Overall		16	7.269			4.8	10				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	91.13	88.96	93.29	88	93	0.9149	2.588	2.84%	0
100		8	215	215	215	215	215	0	0	0.0%	0
Overall		16	153.1			88	215				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	8.088	7.974	8.201	7.8	8.2	0.04795	0.1356	1.68%	0
100		8	7.825	7.617	8.033	7.5	8.3	0.08814	0.2493	3.19%	0
Overall		16	7.956			7.5	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	24.01	23.98	24.04	24	24.1	0.01249	0.03531	0.15%	0
100		8	24.11	23.96	24.26	24	24.4	0.06391	0.1808	0.75%	0
Overall		16	24.06			24	24.4				0 (0%)

CETIS Measurement Report

Report Date: 16 Aug-16 15:49 (p 2 of 2)

Test Code: CLA0716.299 | 07-0753-2203

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO₃)-mg/L

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	69	69	69	69	69	66	66	66
100		112	112	112	112	112	112	112	112

Conductivity-µmhos

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	335	344	330	334	341	348	330	332
100		1210	1195	1206	1219	1238	1210	1215	1220

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	8.1	7.6	7.4	7.1	7.5	6.9	7.5	6.9
100		10	9.5	7.5	6.7	4.8	5.7	6.3	6.8

Hardness (CaCO₃)-mg/L

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	93	93	93	93	93	88	88	88
100		215	215	215	215	215	215	215	215

pH-Units

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	8.2	8	7.8	8.1	8.2	8.1	8.2	8.1
100		8.3	8	7.9	7.8	7.5	7.6	7.7	7.8

Temperature-°C

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	24	24.1	24	24	24	24	24	24
100		24	24.4	24.4	24	24	24.1	24	24