

2016-2017 Permit Year

Ventura Countywide Stormwater Quality

Management Program Annual Report

Attachment D1 Monitoring Appendices H - L



Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura

Ventura County Watershed Protection District

Appendix H. RWQCB Permission of Toxicity Species Substitution



California Regional Water Quality Control Board

Los Angeles Region

Recipient of the 2001 Environmental Leadership Award from Keep California Beautiful



Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Arnold Schwarzenegger

Governor

October 28, 2009

Ms. Norma Camacho, Director Ventura County Watershed Protection District 800 South Victoria Ave., L#1600 Ventura, CA 93009-1600 Certified Mail Return Receipt Requested Claim No. 7009 0820 0001 6811 7509

SUBJECT: TOXICITY TEST SPECIES SUBSTITUTION, VENTURA COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE (MS4) PERMIT (BOARD ORDER No. 09-0057; NPDES No. CAS004002)

Dear Ms. Camacho:

On October 14, 2009, the Regional Board staff received a request from the Ventura County Watershed Protection District (County) to substitute topsmelt, *Atherinops affinis*, with the inland silverside, *Menidia beryllina*, due to the unavailability of topsmelt from the supplier. After consultation with US EPA staff, Regional Board staff denied the request. On October 15, 2009, the Regional Board received an e-mail from the County, titled "Notification of toxicity exception - (species unavailable) Ventura County MS4 NPDES Permit Order No. 09-0057 (Monitoring Program)". The County's e-mail communication was submitted pursuant to requirements in subparts D.5 and D.8(b) of the Ventura County MS4 Permit's Monitoring Program (Monitoring Program), which requires an explanation of the circumstance with documentation when toxicity tests cannot be performed to comply with the requirements of this permit, and written authorization from the Regional Board Executive Officer to substitute test species.

In order to evaluate the appropriateness of substituting topsmelt, Atherinops affinis, with the inland silverside, Menidia beryllina, in toxicity testing at mass emissions stations in the future, the Regional Board requires the County to conduct comparative static renewal toxicity tests on both species as follows. During the next storm event of this permit year (2009-10) and the first storm event of next permit year (2010-11), the County shall conduct toxicity tests on both topsmelt, Atherinops affinis, and the inland silverside, Menidia beryllina, along with giant kelp, Macrocystis pyrifera, and the purple sea urchin, Strongylocentrotus purpuratus, pursuant to subpart D.8(a) of the Monitoring Program. The County shall submit the results of the comparative toxicity tests as part of its reporting requirements.

RECEIVED

NOV 5 2009

California Environmental Protection Agency

In the event that topsmelt, *Atherinops affinis*, is unavailable for testing during future sampling events conducted under the Monitoring Program, the County shall follow the protocol set forth in subpart D.5 of the Monitoring Program. The County shall notify the Regional Board by phone and e-mail as soon as possible if a test species is unavailable. Notification shall be sent directly to me as well as Tracy Woods, Stormwater Permitting Unit, with a copy to Renee Purdy, Chief, Regional Programs Section. The County shall submit to the Regional Board documentation of species unavailability from both the County's contract lab and the contract lab's supplier at least 48 hours prior to the planned sampling event to provide adequate time for my staff to evaluate any request for species substitution. Any approval or denial of a request for species substitution must be authorized pursuant to subpart D.8(b) of the Monitoring Program.

If you have any questions, please contact me at (213) 576-6605, or Renee Purdy at (213) 576-6783.

Sincerely,

Tracy J. Egoscue, Executive Officer

cc: Mr. Bruce Fujimoto, Division of Water Quality, State Water Resources Control Board

Mr. Gerhardt Hubner, Ventura County Watershed Protection District

Mr. Arne Anselm, Ventura County Watershed Protection District

Appendix I. Aquatic Toxicity Testing Lab Results



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receving Waters to West Coast Estuarine Organisms*, EPA/821/R-02-014. Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

ME-VR2

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.344

CHRONIC TOPSMELT SURVIVAL AND GROWTH BIOASSAY

Survival

NOEC = 100.00

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Biomass

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Yours yery truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 10:07 (p 1 of 2)

Test Code:

VCF1016.344t | 03-3725-6130

	melt 7-d Survival and (Aquatic Bioassay & Consulting Labs, Inc.								
Batch ID:	09-9580-3918	Test Type:	Growth-Surviva	al (7d)		An	alyst:	Joe Freas			
Start Date:	28 Oct-16 13:58	Protocol:	EPA/600/R-95	/136 (1995)		Dil	uent:	Laboratory Sea	water		
Ending Date	: 04 Nov-16 12:00	Species:	Atherinops affi	nis		Bri	ine:	Not Applicable			
Duration:	6d 22h	Source:	Aquatic Biosys	tems, CO		Ag	e:				
Sample ID:	18-0695-0563	Code:	VCF1016.344			Cli	ent:	/CWPD			
Sample Date	: 28 Oct-16 07:20	Material:	Sample Water			Pro	oject:	2016/17-1 (Wet	:)		
Receipt Date	: 28 Oct-16 09:47	Source:	Bioassay Repo	ort							
Sample Age	: 7h	Station:	ME-VR2								
Multiple Con	nparison Summary										
Analysis ID	Endpoint	Comr	Comparison Method				LOEL	TOEL	TU	PMS	iD.
	3 7d Survival Rate		Steel Many-One Rank Sum Test				> 100	n/a	1	8.2%	
	Mean Dry Biomass-mg		Dunnett Multiple Comparison Test				> 100	n/a	1	14.9	
Point Estima	te Summary										
Analysis ID	Endpoint	Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	TU	
10-9246-6424	7d Survival Rate	Linear	r Interpolation (I	CPIN)		EC5	>100	n/a	n/a	<1	
						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	
						EC50	>100	n/a	n/a	<1	
19-8021-9560	Mean Dry Biomass-mg	Linear	Interpolation (I	CPIN)		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 Accepta	bility				TAC	Limits					
Analysis ID	Endpoint	Attrib	ute	Test Stat		Upper	Overla	p Decision			
06-5968-5653	7d Survival Rate		I Decn	_							_
		Contro	n izesh	1	0.8	>>	Yes	Passes Ad	cceptibility C	riteria	
10-9246-6424	7d Survival Rate		ol Resp	1	0.8 0.8	>> >>	Yes Yes		cceptibility C		
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CETIS Summary Report

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12.5

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Report Date:

02 Dec-16 10:07 (p 2 of 2)

Test Code:

VCF1016.344t | 03-3725-6130

Pacific Topsn	nelt 7-d Surviv	al and Grov	vth Test				Aquatic Bioassay & Consulting Labs, Inc.
7d Survival R	ate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	1.0000	1,0000	1.0000	
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	
25		1.0000	1.0000	1.0000	1.0000	1.0000	
50		1.0000	1.0000	1.0000	0.8000	1.0000	
100		1.0000	1.0000	1.0000	1.0000	1.0000	
Mean Dry Bio	mass-mg Deta	nil					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	2.012	1.792	1.992	2.26	2.058	
6.25		1.932	1.962	2.02	1.964	1.952	
12.5		2.338	2.494	2.034	2.156	2.052	
25		2.594	2.31	2.55	2.056	2.344	
50		2.296	2.546	2.538	2.15	2.07	
100		2.796	2.56	2.596	2.48	2.022	
7d Survival Ra	ate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	

Report Date:

02 Dec-16 10:05 (p 1 of 4)

Test Code:

VCF1016.344t | 03-3725-6130

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Pacific Topsn	neit 7-a s	Survival	and Grov	tn lest							Aquatic	Bioassay &	Consultin	ig Labs, i
Analysis ID:	06-596			dpoint:	7d Surv	∕ival Rat	te				TIS Version		1.9.2	
Analyzed:	02 Dec	-16 10:04	An	alysis:	Nonpar	ametric	-Control	vs T	Treatments	Offi	cial Result	s: Yes		
Batch ID:	09-9580	-3918	Te	st Type:	Growth	-Surviva	ıl (7d)			Analyst: Joe Freas				
Start Date:	28 Oct-1	6 13:58	Pro	tocol:	EPA/60	0/R-95/	136 (19	95)		Diluent: Laboratory Seawater				
Ending Date:	04 Nov-	16 12:00	Sp	ecies:	Atherin	ops affir	nis			Brine: Not Applicable				
Duration:	6d 22h		So	urce:	Aquatio	Biosys	tems, C	0		Age):			
Sample ID:	18-0695	-0563	Co	de:	VCF10	16.344				Clie	ent: VC	WPD		
Sample Date:	28 Oct-1	6 07:20	Ma	terial:	Sample	Water				Pro	ject: 20	16/17-1 (We	et)	
Receipt Date:		6 09:47	So	urce:	Bioassa	ay Repo	rt							
Sample Age:	7h		Sta	tion:	ME-VR	2								
Data Transfor	m		Alt Hyp							NOEL	LOEL	TOEL	TU	PMSE
Angular (Corre	ected)		C > T							100	> 100	n/a	1	8.20%
Steel Many-O	ne Rank	Sum Tes	t											
Control	vs C	onc-%		Test S	tat Cr	itical	Ties	DF	P-Type	P-Value	Decision	n(a:5%)		
Negative Conti	rol 6	25		27.5	16		1	8	Asymp	0.8333	Non-Sigr	nificant Effec	ct	
	13	2.5		27.5	16		1	8	Asymp	0.8333	Non-Sigr	nificant Effec	ct	
	2	5		27.5	16		1	8	Asymp	0.8333	Non-Sigr	nificant Effec	ct	
	50)		25	16		1	8	Asymp	0.6353	_	nificant Effec		
	10	00		27.5	16		1	8	Asymp	0.8333	Non-Sigr	nificant Effec	ct	
Test Acceptab	oility Crit	eria	TAC	_imits										
Attribute	Te	st Stat	Lower	Upper	Ov	erlap	Decis	ion						
Control Resp	1		8.0	>>	Ye	s	Passe	s Ac	ceptibility C	riteria				
ANOVA Table														
Source	Su	m Squar	es	Mean	Square		DF		F Stat	P-Value	Decision	ι(α:5%)		
Between	0.0	094513		0.0018	903		5		1	0.4389	Non-Sigr	ificant Effec	t	
Error	0.0	453663					0.4							
		70000		0.0018	903		24							
Total	0.0	548176		0.0018	903		29							
				0.0018	903									
Distributional		548176		0.0018	903		29	tat	Critical	P-Value	Decision	n(α:1%)		
Distributional Attribute	Tests Te	548176	ality of V				29	tat	Critical 3.895	P-Value 3.3E-04		ı(α:1%) Variances		
Distributional Attribute Variances	Tests Te	st vene Equ d Levene	Equality	ariance T of Variar	est nce Test		29 Test S	tat				Variances		
Distributional Attribute Variances Variances	Tests Te	st vene Equ d Levene derson-D	Equality arling A2	ariance T of Variar Normalit	est nce Test		29 Test S 7.111	tat	3.895 4.248 3.878	3.3E-04 0.4457 <1.0E-37	Unequal Equal Va Non-Norr	Variances riances mal Distribut		
Distributional Attribute Variances Variances Distribution	Tests Te Le An D'/	st vene Equ d Levene derson-D	Equality arling A2 Curtosis 1	ariance T of Variar Normalit est	est nce Test		7.111 1 7.95 4.912	tat	3.895 4.248 3.878 2.576	3.3E-04 0.4457 <1.0E-37 9.0E-07	Unequal Equal Va Non-Norr Non-Norr	Variances riances mal Distribut mal Distribut	ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution	Tests Te Le Mo An D'A	st vene Equ d Levene derson-D Agostino k	Equality arling A2 Kurtosis T Skewness	ariance T of Variar Normalit est s Test	est nce Test y Test		7.111 1 7.95 4.912 5.58	tat	3.895 4.248 3.878 2.576 2.576	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37	Unequal Equal Va Non-Norr Non-Norr Non-Norr	Variances riances mal Distribut mal Distribut mal Distribut	ion ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution	Tests Te Le Mo An D'/ D'/ D'/	st vene Equ d Levene derson-D Agostino I	Equality arling A2 Kurtosis T Skewness Pearson I	ariance T of Variar Normalit est s Test (2 Omnit	est nce Test y Test		7.111 1 7.95 4.912 5.58 55.27		3.895 4.248 3.878 2.576 2.576 9.21	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37	Unequal Equal Va Non-Norr Non-Norr Non-Norr	Variances riances mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution	Tests Te Le Mo An D'/ D'/ Ko	st vene Equ d Levene derson-D Agostino k Agostino S Agostino-I	Equality arling A2 Kurtosis T Skewness Pearson I Smirnov	ariance T of Variar Normalit est : Test : C Omnik D Test	est nce Test y Test ous Test		7.111 1 7.95 4.912 5.58 55.27 0.4667		3.895 4.248 3.878 2.576 2.576 9.21 0.1853	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr	Variances riances riances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution	Tests Te Le Mo An D'/ D'/ Ko	st vene Equ d Levene derson-D Agostino I	Equality arling A2 Kurtosis T Skewness Pearson I Smirnov	ariance T of Variar Normalit est : Test : C Omnik D Test	est nce Test y Test ous Test		7.111 1 7.95 4.912 5.58 55.27		3.895 4.248 3.878 2.576 2.576 9.21	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr	Variances riances mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	Tests Te Le Mo An D'/ D'/ C'/ Ko Sh	st vene Equ d Levene derson-D Agostino I Agostino-I Imogorov apiro-Will	Equality arling A2 Kurtosis T Skewness Pearson I Smirnov	ariance T of Variar Normalit est : Test : C Omnik D Test	est nce Test y Test ous Test		7.111 1 7.95 4.912 5.58 55.27 0.4667		3.895 4.248 3.878 2.576 2.576 9.21 0.1853	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr	Variances riances riances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Ad Survival Ra	Tests Te Le Mo An D'/ D'/ Ko Sh ate Sumr	st vene Equ d Levene derson-D gostino k gostino-K gostino-I lmogorov apiro-Will nary de	Equality arling A2 Curtosis T Skewness Pearson I Smirnov C W Norn	ariance T of Variar Normalit est Test (2 Omnit D Test nality Tes	est nce Test y Test ous Test t	% LCL	7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063	CL	3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19 6.2E-10	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr	Variances riances mal Distribut mal Distribut mal Distribut mal Distribut nal Distribut nal Distribut mal Distribut Std Err	ion ion ion ion ion	
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Vd Survival Ra Conc-%	Tests Te Le: Mo An D'A D'A Ko Sh	st vene Equ d Levene derson-D gostino i gostino-i mogorov apiro-Will nary de	Equality arling A2 Kurtosis T Skewness Pearson I Smirnov K W Norn Count	ariance T of Variar Normalit est Test C2 Omnit D Test hality Tes Mean 1.0000	est nce Test y Test bus Test t 95	% LCL	7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063	CL	3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr 1.0000	Variances riances mal Distribut Std Err 0.0000	cion cion cion cion cion cv%	0.00%
Attribute Variances Variances Distribution	Tests Te Le Mo An D'/ D'/ Ko Sh ate Sumr	st vene Equ d Levene derson-D Agostino A Agostino-F Imogorov apiro-Will nary de	Equality arling A2 Kurtosis T Skewness Pearson I -Smirnov K W Norn Count	ariance T of Variar Normalit Test C2 Omnit D Test hality Tes Mean 1,0000 1,0000	est nce Test y Test bus Test 1.0 1.0	% LCL 0000	7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063 95% U 1.0000 1.0000	CL	3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000 1.0000	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000 1.0000	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr 1.0000	Variances riances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0000 0.0000	cion cion cion cion cion cev% 0.00%	0.00% 0.00%
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Conc-% Distribution Distribution	Tests Te Le Mo An D'/ D'/ Ko Sh ate Sumr	st vene Equ d Levene derson-D Agostino I Agostino-I Imogorov apiro-Will nary de	Equality arling A2 Kurtosis 7 Skewness Pearson I -Smirnov W Norn Count 5	ariance T of Variar Normalit est Test (2 Omnib D Test hality Tes Mean 1.0000 1.0000 1.0000	est nce Test y Test bus Test t 95° 1.0 1.0 1.0	% LCL	7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063 95% U 1.0000 1.0000	CL	3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000 1.0000 1.0000	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000 1.0000 1.0000	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr 1.0000 1.0000	Variances riances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0000 0.0000 0.0000	cion cion cion cion cion cion cion cion	0.00% 0.00% 0.00%
Total Distributional Attribute Variances Variances Distribution	Tests Te Le Mo An D'/ D'/ Ko Sh ate Sumr	st vene Equ d Levene derson-D Agostino I Agostino-I Imogorov apiro-Will nary de	Equality arling A2 Kurtosis 7 Skewness Pearson I Smirnov W Norn Count 5	ariance T of Variar Normalit est Test (2 Omnit D Test hality Tes Mean 1.0000 1.0000 1.0000 1.0000	est nce Test y Test bus Test 1.0 1.0 1.0 1.0	% LCL 10000 10000 10000 10000	7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063 95% U 1.0000 1.0000 1.0000	CL	3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000 1.0000 1.0000	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000 1.0000 1.0000 1.0000	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr 1.0000 1.0000 1.0000	Variances riances riances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0000 0.0000 0.0000 0.0000	cion cion cion cion con cv% 0.00% 0.00% 0.00%	0.00% 0.00% 0.00%
Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Conc-% Distribution Distribution	Tests Te Le Mo An D'/ D'/ Ko Sh ate Sumr	st vene Equ d Levene derson-D Agostino I Agostino-I Imogorov apiro-Will nary de	Equality arling A2 Kurtosis 7 Skewness Pearson I -Smirnov W Norn Count 5	ariance T of Variar Normalit est Test (2 Omnib D Test hality Tes Mean 1.0000 1.0000 1.0000	est nce Test y Test t 95' 1.0 1.0 1.0 0.8	% LCL	7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063 95% U 1.0000 1.0000	CL	3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000 1.0000 1.0000	3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000 1.0000 1.0000	Unequal Equal Va Non-Norr Non-Norr Non-Norr Non-Norr Non-Norr 1.0000 1.0000	Variances riances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0000 0.0000 0.0000	cion cion cion cion cion cion cion cion	0.00% 0.00% 0.00%

Report Date: Test Code: 02 Dec-16 10:05 (p 2 of 4)

VCF1016.344t | 03-3725-6130

Pacific	Topsmelt 7-d	Survival and	Growth Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 06-5968-5653 **Analyzed:** 02 Dec-16 10:04

Endpoint: 7d Survival Rate

Analysis:

CETIS Version: Official Results:

CETISv1.9.2 Yes

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	1.345	1.345	1.346	1.345	1.345	1,345	0	0.00%	0.00%
6.25		5	1,345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
12.5		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
25		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
50		5	1.298	1.165	1.43	1.345	1_107	1.345	0.04763	8.21%	3.54%
100		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%

Nonparametric-Control vs Treatments

7d Survival Rate Detail

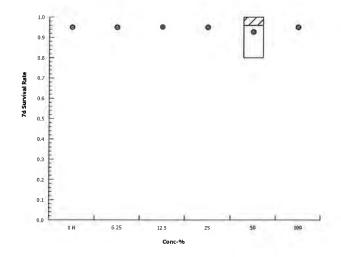
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	1.0000	1.0000	1_0000	1_0000	1.0000	
6.25		1,0000	1.0000	1.0000	1.0000	1,0000	
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	
25		1.0000	1.0000	1,0000	1,0000	1.0000	
50		1.0000	1.0000	1.0000	0.8000	1.0000	
100		1.0000	1_0000	1,0000	1.0000	1.0000	

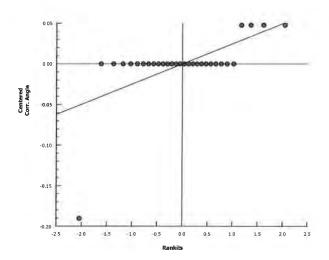
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.345	1.345	1.345	1.345	1_345
6.25		1.345	1.345	1.345	1.345	1.345
12.5		1.345	1.345	1.345	1.345	1,345
25		1.345	1.345	1.345	1.345	1.345
50		1.345	1.345	1.345	1.107	1.345
100		1.345	1.345	1.345	1.345	1.345

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	5/5	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	4/5	5/5
100		5/5	5/5	5/5	5/5	5/5





Report Date:

02 Dec-16 10:05 (p 3 of 4)

Test Code:

VCF1016_344t | 03-3725-6130

	elt 7-d Survival a	and Growth Tes			Aquatio	Bioassay 8	Consultin	g Labs, Ir			
Analysis ID:	00-7729-3231	Endpoint	:: Me	an Dry Bion	nass-mg		CET	ΓIS Versio	n: CETISv	1.9,2	
Analyzed:	02 Dec-16 10:03	Analysis:	Pai	rametric-Co	ntrol vs Tre	atments	Offi	cial Resul	ts: Yes		
Batch ID:	09-9580-3918	Test Type	e: Gro	owth-Surviva	al (7d)		Ana	ılyst: Jo	e Freas		
Start Date:	28 Oct-16 13:58	Protocol:		A/600/R-95	` '				aboratory Sea	awater	
Ending Date:	04 Nov-16 12:00	Species:		erinops affi	` '		Brine: Not Applicable				
	6d 22h	Source:		uatic Biosys			Age		ot i ippiioabio		
Sample ID:	18-0695-0563	Code:	VC	F1016.344			Clie		CWPD		
-	28 Oct-16 07:20	Material:		mple Water)16/17-1 (We	.4)	
-	28 Oct-16 09:47	Source:		assay Repo			F10,	1001. 20	110/1/-1 (446	:()	
Sample Age: 1		Station:		-VR2	<i>,</i> 10						
Data Transforn							NOFI	LOF	TOF	71.	D.1.0.
Untransformed		Alt Hyp C > T					NOEL 100	> 100	n/a	TU 1	14.90°
		0 - 1					100	7100	11/4	1	14.90
Dunnett Multip	ole Comparison 1	est									
Control v			t Stat			F P-Type	P-Value	Decisio	n(α:5%)		
Negative Contro		0.44		2,362	0.301 8	CDF	0.6706		nificant Effec		
	12.5	-1.5		2.362	0.301 8	CDF	0.9963		nificant Effec		
	25	-2.7		2.362	0.301 8	CDF	0.9999	_	nificant Effec		
	50	-2.3		2,362	0.301 8	CDF	0.9998	_	nificant Effec		
	100	-3.60	68 	2.362	0.301 8	CDF	1.0000	Non-Sig	nificant Effec	t	
Test Acceptabi	lity Criteria	TAC Limits									
Attribute	Test Stat I	Lower Upp	er	Overlap	Decision						
Control Resp	2.023	0.85 >>		Yes	Passes Acceptibility Criteria						
ANOVA Table											
0											
Source	Sum Square	es Mea	n Sau	are	DF	F Stat	P-Value	Decision	n(a:5%)		
	1.04398		n Squ 8796	are	DF 5	F Stat 5.13	P-Value 0.0024	Decision Significa			
Between		0.20				F Stat 5.13	P-Value 0.0024		n(α:5%) nt Effect		
Between Error	1.04398	0.20	8796		5						
Between Error Fotal	1.04398 0.976819 2.0208	0.20	8796		5 24						
Between Error Fotal Distributional T	1.04398 0.976819 2.0208	0.20	8796		5 24 29	5.13	0.0024	Significa	nt Effect		
Between Error Fotal Distributional T Attribute	1.04398 0.976819 2.0208 Tests	0.20 0.04	8796 07008		5 24 29 Test Stat	5.13 Critical	0.0024 P-Value	Significa Decision	nt Effect n(α:1%)		
Between Error Fotal Distributional T Attribute /ariances	1.04398 0.976819 2.0208 Fests Test Bartlett Equa	0.20 0.04 ality of Variance	8796 07008 Test		5 24 29 Test Stat 11.18	5.13 Critical 15.09	0.0024 P-Value 0.0480	Significa Decision Equal Va	nt Effect n(α:1%) ariances		
Between Error Fotal Distributional T Attribute Fariances Fariances	1.04398 0.976819 2.0208 Fests Test Bartlett Equa	0.20 0.04 ality of Variance ality of Variance	8796 07008 Test Test		5 24 29 Test Stat 11.18 1.52	5.13 Critical 15.09 3.895	0.0024 P-Value 0.0480 0.2209	Decision Equal Va	nt Effect n(α:1%) ariances ariances		
Between Error Fotal Distributional T Attribute Variances Variances Variances	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene	0.20 0.04 ality of Variance ality of Variance Equality of Vari	8796 07008 Test Test ance 1	Fest	5 24 29 Test Stat 11.18 1.52 1.449	5.13 Critical 15.09 3.895 4.248	0.0024 P-Value 0.0480 0.2209 0.2548	Decision Equal Va Equal Va	nt Effect n(α:1%) priances priances priances		
Between Error Fotal Distributional T Attribute Variances Variances Variances Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Da	0.20 0.04 ality of Variance ality of Variance Equality of Vari arling A2 Norma	8796 07008 Test Test ance 1	Fest	5 24 29 Test Stat 11.18 1.52 1.449 0.4769	5.13 Critical 15.09 3.895 4.248 3.878	P-Value 0.0480 0.2209 0.2548 0.2418	Decision Equal Va Equal Va Normal I	nt Effect n(α:1%) ariances ariances Distribution		
Between Error Total Distributional T Attribute Variances Variances Variances Distribution Distribution	1.04398 0.976819 2.0208 Test Bartlett Equate Levene Equate Mod Levene Anderson-Da D'Agostino K	0.20 0.04 ality of Variance ality of Variance Equality of Vari arling A2 Norma Curtosis Test	8796 07008 Test Test ance 1	Fest	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603	5.13 Critical 15.09 3.895 4.248 3.878 2.576	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453	Decision Equal Va Equal Va Rormal I Normal I	n(α:1%) ariances ariances ariances Distribution		
Between Error Total Distributional T Attribute Variances Variances Variances Distribution Distribution Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equa Levene Equa Mod Levene Anderson-Da D'Agostino K D'Agostino S	0.20 0.04 ality of Variance ality of Variance Equality of Vari arling A2 Norma curtosis Test skewness Test	8796 07008 Test Test ance 1 lity Te	Fest st	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954	Decision Equal Va Equal Va Normal I Normal I	n(α:1%) ariances ariances Distribution Distribution		
Between Error Total Distributional T Attribute Variances Variances Variances Distribution Distribution Distribution Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Date D'Agostino S D'Agostino-F	0.20 0.04 ality of Variance ality of Variance Equality of Variarling A2 Norma Curtosis Test Skewness Test Pearson K2 Omr	Test Test ance lity Te	Fest st	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203	Decision Equal Va Equal Va Normal I Normal I Normal I	n(α:1%) ariances ariances ariances Distribution Distribution Distribution		
Between Error Total Distributional T Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadostino K D'Agostino S D'Agostino-F Kolmogorov-	0.20 0.04 ality of Variance ality of Variance Equality of Variarling A2 Norma furtosis Test kewness Test Pearson K2 Omr Smirnov D Test	Test Test ance lity Te	Fest st	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576	Decision Equal Va Equal Va Rormal I Normal I Normal I Normal I	n(α:1%) ariances ariances ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution		
Between Error Total Distributional T Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	1.04398 0.976819 2.0208 Test Test Bartlett Equal Levene Equal Mod Levene Anderson-Day D'Agostino K D'Agostino-F Kolmogorov-Shapiro-Wilk	0.20 0.04 ality of Variance ality of Variance Equality of Variance Equality of Variarling A2 Norma Curtosis Test Skewness Test Pearson K2 Omr Smirnov D Test W Normality Te	Test Test ance lity Te	Fest st	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203	Decision Equal Va Equal Va Rormal I Normal I Normal I Normal I	n(α:1%) ariances ariances ariances Distribution Distribution Distribution		
Between Error Fotal Distributional T Attribute Variances Variances Variances Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadreson-Dadreson-Dadreson-Formation Sold D'Agostino Sold D'Agostino Sold D'Agostino-Formation Sold Barbiro-Wilk	0.20 0.04 ality of Variance ality of Variance Equality of Variance Equality of Variance Equality of Variance Expenses Test Expenses Test Pearson K2 Omr Smirnov D Test W Normality Te	Test Test ance lity Te	Fest st	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369 0.9629	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576 0.3657	Decision Equal Va Equal Va Normal I Normal I Normal I Normal I	n(α:1%) ariances ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	CV0/	9/ 544
Between Error Fotal Distributional T Attribute Variances Variances Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Da D'Agostino K D'Agostino-F Kolmogorov-Shapiro-Wilk ass-mg Summar Code C	0.20 0.04 ality of Variance ality of Variance Equality of Variance Experience Experience W Normality To	Test Test ance lity Te	Fest st	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369 0.9629	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576 0.3657	Decision Equal Va Equal Va Normal I Normal I Normal I Normal I	nt Effect n(a:1%) ariances ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	CV%	%Effect
Between Error Fotal Distributional T Attribute Variances Variances Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Da D'Agostino K D'Agostino-F Kolmogorov-Shapiro-Wilk ass-mg Summar Code C	0.20 0.04 ality of Variance ality of Variance Equality of Variance Evariance Eva	Test Test ance lity Te	Fest st 95% LCL 1.815	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369 0.9629 95% UCL 2.23	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 2.012	0.0024 P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576 0.3657 Min 1,792	Decision Equal Va Equal Va Rormal I Normal I Normal I Normal I Normal I Normal I	nt Effect n(a:1%) ariances ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Std Err 0.07478	8.27%	0.00%
Between Error Fotal Distributional T Attribute Variances Variances Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Da D'Agostino K D'Agostino-F Kolmogorov-Shapiro-Wilk ass-mg Summar Code Code Code Code Code Code Code Code	0.20 0.04 ality of Variance ality of Variance Equality of Variance Equality of Variance Equality of Variance Extension Test Skewness Test Pearson K2 Omr Smirnov D Test W Normality Toy Count Mean 2.023	Test Test ance lity Te	Fest st 95% LCL 1,815 1,925	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369 0.9629 95% UCL 2.23 2.007	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 2.012 1.962	0.0024 P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576 0.3657 Min 1,792 1,932	Decision Equal Va Equal Va Rormal I Normal I Normal I Normal I Normal I 2 2.26 2.02	nt Effect n(a:1%) ariances ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Oistribution Oistribution Oistribution Oistribution Oistribution	8.27% 1.67%	0.00% 2.81%
Between Error Fotal Distributional T Attribute Variances Variances Distribution	1.04398 0.976819 2.0208 Test Test Bartlett Equal Levene Equal Mod Levene Anderson-Da D'Agostino K D'Agostino-F Kolmogorov-Shapiro-Wilk ass-mg Summar Code N 5	0.20 0.04 ality of Variance ality of Variance Equality of Variance Equality of Variance Equality of Variarling A2 Norma Curtosis Test Skewness Test Pearson K2 Omr Smirnov D Test W Normality To W Normality To W Normality To Y Count Mean 2.023	Test Test ance lity Te	Fest st 95% LCL 1.815 1.925 1.97	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369 0.9629 95% UCL 2.23 2.007 2.46	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 2.012 1.962 2.156	0.0024 P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576 0.3657 Min 1,792 1,932 2,034	Decision Equal Va Equal Va Equal Va Normal I Normal I Normal I Normal I 2 Normal I 2 2.26 2.02 2.494	nt Effect n(a:1%) ariances ariances Distribution Distribution Distribution Distribution Distribution Oistribution Oistribution Oistribution Oistribution Oistribution Oistribution Oistribution Oistribution	8.27% 1.67% 8.91%	0.00% 2.81% -9.49%
Source Between Error Total Distributional T Attribute Variances Variances Variances Distribution	1.04398 0.976819 2.0208 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Da D'Agostino K D'Agostino-F Kolmogorov-Shapiro-Wilk ass-mg Summar Code Code Code Code Code Code Code Code	0.20 0.04 ality of Variance ality of Variance Equality of Variance Equality of Variance Equality of Variance Extension Test Skewness Test Pearson K2 Omr Smirnov D Test W Normality To W Normality To 2.023 1.966 2.218	Test Test ance lity Te	Fest st 95% LCL 1,815 1,925	5 24 29 Test Stat 11.18 1.52 1.449 0.4769 0.4603 1.046 1.307 0.1369 0.9629 95% UCL 2.23 2.007	5.13 Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 2.012 1.962	0.0024 P-Value 0.0480 0.2209 0.2548 0.2418 0.6453 0.2954 0.5203 0.1576 0.3657 Min 1,792 1,932	Decision Equal Va Equal Va Rormal I Normal I Normal I Normal I Normal I 2 2.26 2.02	nt Effect n(a:1%) ariances ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Oistribution Oistribution Oistribution Oistribution Oistribution	8.27% 1.67%	0.00% 2.81%

Report Date:

02 Dec-16 10:05 (p 4 of 4) VCF1016 344t | 03-3725-6130

Test Code:

Aquatic Bioassay & Consulting Labs, Inc.

Pacific Topsmelt 7-d Survival and Growth Test								
Analysis ID:	00-7729-3231	Endpoint:						

00-7729-3231	Endpoint:	Mean Dry Biomass-mg
02 Dec-16 10:03	Analysis:	Parametric-Control vs Treatments

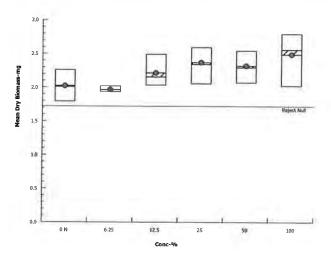
CETIS Version: CETISv1.9.2 Official Results: Yes

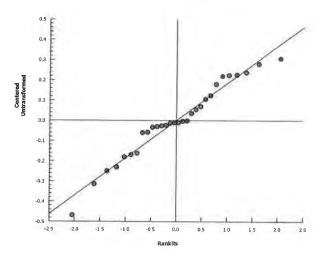
Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	2.012	1.792	1.992	2.26	2.058	
6.25		1.932	1.962	2.02	1.964	1.952	
12.5		2.338	2.494	2.034	2.156	2.052	
25		2.594	2.31	2.55	2.056	2.344	
50		2.296	2.546	2.538	2.15	2.07	
100		2.796	2.56	2.596	2.48	2.022	

Graphics

Analyzed:





Report Date: Test Code: 02 Dec-16 10:06 (p 1 of 4) VCF1016.344t | 03-3725-6130

Pacific Topsmelt 7-d Survival and Growth Test	Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 10-9246-6424 Endpoint: 7d Survival Rate CETIS Version: CETISv1.9.2

Analyzed: 02 Dec-16 10:04 Analysis: Linear Interpolation (ICPIN) Official Results: Yes

Batch ID: 09-9580-3918 Test Type: Growth-Survival (7d) Analyst: Joe Freas

Start Date: 28 Oct-16 13:58 Protocol: EPA/600/R-95/136 (1995) Diluent: Laboratory Seawater

Ending Date:04 Nov-16 12:00Species:Atherinops affinisBrine:Not ApplicableDuration:6d 22hSource:Aquatic Biosystems, COAge:

Sample Date: 28 Oct-16 07:20 Material: Sample Water Project: 2016/17-1 (Wet)

Receipt Date: 28 Oct-16 09:47 Source: Bioassay Report Sample Age: 7h Station: ME-VR2

Test Stat Lower

0.8

TAC Limits

Upper

>>

Linear Interpolation Options

Test Acceptability Criteria

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

Decision

Passes Acceptibility Criteria

Attribute

Control Resp

Point E	stimates					
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	n/a	n/a	<1	n/a	n/a
EC10	>100	n/a	n/a	<1	n/a	n/a
EC15	>100	n/a	n/a	<1	n/a	n/a
EC20	>100	n/a	n/a	<1	n/a	n/a
EC25	>100	n/a	n/a	<1	n/a	n/a
EC40	>100	n/a	n/a	<1	n/a	n/a
EC50	>100	n/a	n/a	<1	n/a	n/a

Overlap

Yes

7d Survival Rate Summary			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	В
0	N	5	1.0000	1.0000	1_0000	0.0000	0.0000	0.00%	0.0%	25	25
6.25		5	1.0000	1.0000	1_0000	0.0000	0.0000	0.00%	0.0%	25	25
12.5		5	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	25	25
25		5	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	25	25
50		5	0.9600	0.8000	1.0000	0.0400	0.0894	9.32%	4.0%	24	25
100		5	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	25	25

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000
25		1,0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	0,8000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	5/5	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	4/5	5/5
100		5/5	5/5	5/5	5/5	5/5

Report Date:

02 Dec-16 10:06 (p 2 of 4)

Test Code:

VCF1016.344t | 03-3725-6130

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

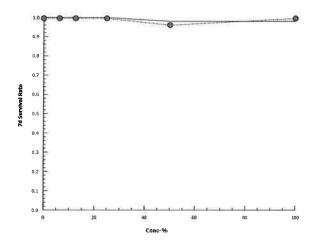
Analysis ID: Analyzed:

10-9246-6424 02 Dec-16 10:04 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



Report Date:

02 Dec-16 10:06 (p 3 of 4)

Test Code:	VCF1016.344t 03-3725-6	13
		_

Pacific Topsr	nelt 7-d Survival and	Growth Test		Aquatic Bioassay & Consulting Labs, Inc.				
Analysis ID:	19-8021-9560	Endpoint:	Mean Dry Biomass-mg	CETIS Ver	sion: CETISv1.9.2			
Analyzed:	02 Dec-16 10:04	Analysis:	Linear Interpolation (ICPIN)	Official Re	sults: Yes			
Batch ID:	09-9580-3918	Test Type:	Growth-Survival (7d)	Analyst:	Joe Freas			
Start Date:	28 Oct-16 13:58	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Laboratory Seawater			
Ending Date:	04 Nov-16 12:00	Species:	Atherinops affinis	Brine:	Not Applicable			
Duration:	6d 22h	Source:	Aquatic Biosystems, CO	Age:				
Sample ID:	18-0695-0563	Code:	VCF1016.344	Client:	VCWPD			
Sample Date:	28 Oct-16 07:20	Material:	Sample Water	Project:	2016/17-1 (Wet)			
Receipt Date:	28 Oct-16 09:47	Source:	Bioassay Report					
Sample Age:	7h	Station:	ME-VR2					

X Tran	sform	Y Transform	See	d	Resamples	Exp 95% CL	Method	
Linear		Linear	1686824		280	Yes	Two-Point Interpolation	
Test A	cceptabil	lity Criteria	TAC L	imits				
Attribu	te	Test Stat	Lower	Upper	Overlap	Decision		
Control	Resp	2.023	0.85	>>	Yes	Passes Accept	ibility Criteria	
Point E	Stimates	3						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL		
IC5	>100	n/a	n/a	<1	n/a	n/a		
IC10	>100	n/a	n/a	<1	n/a	n/a		
IC15	>100	n/a	n/a	<1	n/a	n/a		
IC20	>100	n/a	n/a	<1	n/a	n/a		
IC25	>100	n/a	n/a	<1	n/a	n/a		
IC40	>100	n/a	n/a	<1	n/a	n/a		
IC50	>100	n/a	n/a	<1	n/a	n/a		

Mean Dry Bio	mass-mg Sum	ss-mg Summary Calculate					riate			
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	N	5	2.023	1.792	2.26	0.07478	0.1672	8.27%	0.0%	
6.25		5	1.966	1.932	2.02	0.01464	0.03274	1.67%	2.81%	
12.5		5	2.215	2.034	2,494	0.08826	0.1973	8.91%	-9.49%	
25		5	2.371	2.056	2.594	0.09629	0.2153	9.08%	-17.2%	
50		5	2.32	2.07	2.546	0.09762	0.2183	9.41%	-14,69%	
100		5	2.491	2_022	2.796	0.1282	0.2867	11,51%	-23.14%	

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	2.012	1.792	1.992	2.26	2.058	
6,25		1.932	1.962	2.02	1.964	1.952	
12.5		2.338	2.494	2.034	2.156	2.052	
25		2.594	2.31	2.55	2.056	2.344	
50		2,296	2.546	2.538	2.15	2.07	
100		2.796	2.56	2.596	2.48	2.022	

Report Date:

02 Dec-16 10:06 (p 4 of 4)

Test Code:

VCF1016.344t | 03-3725-6130

Pacific Topsmelt 7-d Survival and Growth Test

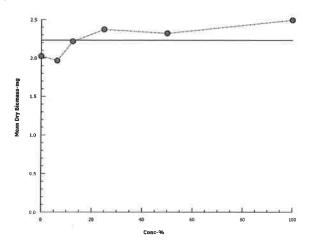
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

19-8021-9560 02 Dec-16 10:04

Endpoint: Mean Dry Biomass-mg Analysis: Linear Interpolation (ICPIN) **CETIS Version:** Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

02 Dec-16 10:06 (p 1 of 2)

Test Code: VCF1016.344t | 03-3725-6130

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 09-9580-3918 Start Date: 28 Oct-16 13:58

Test Type: Growth-Survival (7d)

Protocol: EPA/600/R-95/136 (1995)

Analyst: Diluent:

Joe Freas

Ending Date: 04 Nov-16 12:00

Species:

Atherinops affinis

Brine:

Laboratory Seawater

Duration:

6d 22h

Source: Code:

Aquatic Biosystems, CO

Age:

Not Applicable

Sample ID: 18-0695-0563 Sample Date: 28 Oct-16 07:20

Material:

VCF1016.344

Client:

VCWPD

Receipt Date: 28 Oct-16 09:47

Source: Station:

Sample Water Bioassay Report

ME-VR2

Project:

2016/17-1 (Wet)

Dissolved Oxygen-mg/L

Sample Age: 7h

D10001104 0X	, g										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.1	6.797	7.403	6.7	7,6	0.1282	0.3625	5.11%	0
6.25		8	6.888	6.774	7.001	6_7	7.1	0.04795	0.1356	1.97%	0
12.5		8	6.875	6.535	7.215	6.3	7.6	0.1436	0.4062	5_91%	0
25		8	6.775	6.479	7.071	6.3	7.3	0.125	0.3536	5.22%	0
50		8	6.7	6.295	7.105	6.3	7.6	0.1711	0.484	7.22%	0
100		8	6.275	5.582	6.968	5.2	7.2	0.2932	0.8294	13.22%	0
Overall		48	6.769	6.618	6.919	5.2	7.6	0.07474	0.5178	7.65%	0 (0%)

р	H-	Uı	nits
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Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.3	7.191	7.409	7	7.4	0.04629	0.1309	1.79%	0
6.25		8	7.625	7.501	7.749	7.4	7.8	0.05261	0.1488	1.95%	0
12.5		8	7.625	7.493	7.757	7.4	7.8	0.0559	0.1581	2.07%	0
25		8	7.7	7.566	7.834	7.5	7.9	0.05669	0.1604	2.08%	0
50		8	7.738	7.604	7.871	7.5	7.9	0.0565	0.1598	2.07%	0
100		8	7.763	7.637	7.888	7.5	7.9	0.05324	0.1506	1.94%	0
Overall		48	7.625	7.563	7.687	7	7.9	0.03058	0.2119	2.78%	0 (0%)

Salinity-ppt

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	25	25	25	25	25	0	0	0.0%	0
6.25		8	25	25	25	25	25	0	0	0.0%	0
12.5		8	25	25	25	25	25	0	0	0.0%	0
25		8	25	25	25	25	25	0	0	0.0%	0
50		8	25	25	25	25	25	0	0	0.0%	0
100		8	25	25	25	25	25	0	0	0.0%	0
Overall		48	25	25	25	25	25	0	0	0.00%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	21	21	21	21	21	0	0	0.0%	0
6.25		8	21	21	21	21	21	0	0	0.0%	0
12.5		8	21	21	21	21	21	0	0	0.0%	0
25		8	21	21	21	21	21	0	0	0.0%	0
50		8	21	21	21	21	21	0	0	0.0%	0
100		8	21	21	21	21	21	0	0	0.0%	0
Overall		48	21	21	21	21	21	0	0	0.00%	0 (0%)

Report Date: Test Code:

02 Dec-16 10:06 (p 2 of 2) VCF1016.344t | 03-3725-6130

Pacific Topsm	elt 7-d Surviv	Aquati	Aquatic Bioassay & Consulting Labs, Inc.						
Dissolved Oxy	gen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	6.7	6.8	7.2	7.6	7.1	6.7	7.1	7.6
6.25		7	6.8	6.9	7.1	6.8	6.8	6.7	7
12,5		7	6.9	6.5	7.6	6.8	6.7	7.2	6.3
25		7.1	6.8	6.4	7.3	6.8	6.5	7	6.3
50		7.2	6.8	6.3	7.6	6.7	6.3	6.4	6.3
100		7.1	6.4	5.8	7.2	7.2	5.2	5.3	6
pH-Units									
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	7.3	7.3	7.4	7.4	7	7.3	7.3	7.4
6.25		7.7	7.8	7.7	7.4	7.5	7.6	7.5	7.8
12.5		7.8	7.8	7.7	7.4	7.7	7.6	7.4	7.6
25		7.8	7.9	7.7	7.5	7.7	7.6	7.5	7.9
50		7.8	7.9	7.8	7.9	7.5	7.8	7.7	7.5
100		7.9	7.9	7.8	7.5	7.9	7,8	7.7	7.6
Salinity-ppt									
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	25	25	25	25	25	25	25	25
6.25		25	25	25	25	25	25	25	25
12.5		25	25	25	25	25	25	25	25
25		25	25	25	25	25	25	25	25
50		25	25	25	25	25	25	25	25
100		25	25	25	25	25	25	25	25
Temperature-°(
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	21	21	21	21	21	21	21	21
5.25		21	21	21	21	21	21	21	21
12.5		21	21	21	21	21	21	21	21
25		21	21	21	21	21	21	21	21
50		21	21	21	21	21	21	21	21
100		21	21	21	21	21	21	21	21



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receving Waters to West Coast Estuarine Organisms, EPA/821/R-02-014. Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

ME-CC

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.352

CHRONIC TOPSMELT SURVIVAL AND GROWTH BIOASSAY

Survival

NOEC = 100.00

TUc = 1.00

IC25 = >100.00 %

IC50 =>100.00 %

Biomass

NOEC = 100.00 %

TUc 1.00

IC25 =>100.00 %

IC50 =>100.00 %

Yours yeary truly,

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 11:16 (p 1 of 2)

Test Code: VCF1016.352t | 07-0211-7974

Pacific Topsr	melt 7-d Survival ar	nd Growth Test					Aquat	tic Bioassay &	Consulting	Labs,		
Batch ID:	11-9003-1853	Test Type:	Growth-Surviv	al (7d)		An	alyst:	Joe Freas				
Start Date:	28 Oct-16 14:14	Protocol:	EPA/600/R-95				-	Laboratory Sea	water			
	04 Nov-16 13:15	Species:	Atherinops affi	, ,				Not Applicable	•			
Duration:	6d 23h	Source:	Aquatic Biosys			Ag						
Sample ID:	18-0481-5018	Code:	VCF1016.352			Cli	ent:	VCWPD				
Sample Date:	28 Oct-16 09:00	Material:	Sample Water			Pre	oject:	2016/17-1 (Wet	t)			
Receipt Date:	: 28 Oct-16 10:05	Source:	Bioassay Repo	ort			•		•			
Sample Age:		Station:	ME-CC									
Multiple Com	parison Summary											
Analysis ID	Endpoint	Comp	parison Method			NOEL	LOEL	TOEL	TU	PMS		
19-4489-1575	7d Survival Rate	Steel	Many-One Ran	k Sum Test		100	> 100	n/a	1	8.2%		
19-5200-9131	Mean Dry Biomass	-mg Dunn	ett Multiple Com	parison Tes	t	100	> 100	n/a	1	16.5%		
Point Estimat	e Summary											
Analysis ID	Endpoint	Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	TU		
05-3617-7006	7d Survival Rate	Linea	r Interpolation (I	CPIN)		EC5	>100	n/a	n/a	<1		
						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		
						EC50	>100	n/a	n/a	<1		
03-1527-6458	Mean Dry Biomass	-mg Linea	Interpolation (I	CPIN)		IC5	37.58	24.53	n/a	2.661		
						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 Acceptat	_					Limits						
	7d Survival Rate	Attrib	ute ol Resp	Test Stat		Upper >>	Overla	·	annetihilit	-141-		
	7d Survival Rate		•	1	0.8		Yes		cceptibility C			
	Mean Dry Biomass-		ol Resp ol Resp	2,104	0.8 0.85	>> >>	Yes		cceptibility C			
	Mean Dry Biomass-	•	ol Resp	2.104	0.85		Yes Yes		cceptibility C			
7d Survival R		-riig Contin	n Nesp	2.104	0,05	>>	165	rasses At	cceptibility C	пепа		
o our vivar ixe	-	ount Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	%Effe		
Conc-%	oout o	ount moun		00,000=		ITIUA				0.00%		
	N 5			1.0000	1.0000	1.0000	0.0000	0.0000	0.00%			
)			1.0000						0.00% 0.00%	0.00%		
) 5.25	N 5	1.0000	1.0000 1.0000	1.0000	1.0000	1.0000	0.0000	0.0000				
) 6.25 12.5	N 5	1.0000 1.0000	1.0000 1.0000 0 0.8489	1.0000 1.0000	1.0000 1.0000	1.0000 1.0000	0.0000	0.0000 0.0894	0.00%	0.00%		
0 6.25 12.5 25	N 5 5 5	1.0000 1.0000 0.9600	1.0000 1.0000 0 0.8489 0 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 0.8000	1.0000 1.0000 1.0000	0.0000 0.0000 0.0400	0.0000 0.0894 0.0000	0.00% 9.32%	0.00% 4.00%		
0 5.25 12.5 25	N 5 5 5 5	1.0000 1.0000 0.9600 1.0000	1.0000 1.0000 0 0.8489 0 1.0000	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 0.8000 1.0000	1.0000 1.0000 1.0000 1.0000	0.0000 0.0000 0.0400 0.0000	0.0000 0.0894 0.0000 0.0000	0.00% 9.32% 0.00%	0.00% 4.00% 0.00%		
0 6.25 12.5 25 50	N 5 5 5 5 5	1.0000 1.0000 0.9600 1.0000 1.0000	1.0000 1.0000 0 0.8489 0 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 0.8000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000	0.0000 0.0000 0.0400 0.0000 0.0000	0.0000 0.0894 0.0000 0.0000	0.00% 9.32% 0.00% 0.00%	0.00% 4.00% 0.00% 0.00%		
0 5.25 12.5 25 50 100 Mean Dry Bio r	N 5 5 5 5 5 5 mass-mg Summary Code Co	1.0000 1,0000 0.9600 1.0000 1.0000 7	1.0000 1.0000 0 8489 1.0000 1.0000 1.0000 95% LCL	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 0.8000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	0.0000 0.0000 0.0400 0.0000 0.0000	0 0.0000 0 0.0894 0 0.0000 0 0.0000 0 0.0000	0.00% 9.32% 0.00% 0.00%	0.00% 4.00% 0.00% 0.00%		
0 6.25 12.5 25 50 100 Mean Dry Bio r Conc- %	N 5 5 5 5 5 5 mass-mg Summary Code Co	1.0000 1.0000 1.0000 1.0000 1.0000 7	1.0000 1.0000 0 1.0000 0 8489 1.0000 1.0000 1.0000 95% LCL 1.894	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 2.313	1.0000 1.0000 0.8000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Max 2.224	0.0000 0.0000 0.0400 0.0000 0.0000	0 0.0000 0 0.0894 0 0.0000 0 0.0000 0 0.0000 r Std Dev	0.00% 9.32% 0.00% 0.00% 0.00%	0.00% 4.00% 0.00% 0.00%		
5.25 6.25 12.5 50 100 Mean Dry Bior Conc-% 5.25	N 5 5 5 5 5 mass-mg Summary Code Ce N 5	1.0000 1.0000 0.9600 1.0000 1.0000 7 ount Mean 2,104 2.294	1.0000 1.0000 0 8489 1.0000 1.0000 1.0000 95% LCL	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 2.313 2.646	1.0000 1.0000 0.8000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Max 2.224 2.608	0.0000 0.0000 0.0400 0.0000 0.0000 0.0000	0 0.0000 0 0.0894 0 0.0000 0 0.0000 0 0.0000 r Std Dev	0.00% 9.32% 0.00% 0.00% 0.00%	0.00% 4.00% 0.00% 0.00% 0.00%		
0 6.25 12.5 25 50 100 Mean Dry Bior Conc-% 0 6.25	N 5 5 5 5 5 mass-mg Summary Code Co N 5 5 5	1.0000 1.0000 0.9600 1.0000 1.0000 7 ount Mean 2.104 2.294 2.173	1.0000 1.0000 0.8489 1.0000 1.0000 1.0000 95% LCL 1.894 1.941 1.995	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 2.313 2.646 2.351	1.0000 1.0000 0.8000 1.0000 1.0000 1.0000 Min 1.808 1.946 1.978	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Max 2.224 2.608 2.322	0.0000 0.0400 0.0000 0.0000 0.0000 Std Er 0.0754 0.1269	0 0.0000 0 0.0894 0 0.0000 0 0.0000 0 0.0000 r Std Dev 0 0.1686 0 0.2837 14 0.1432	0.00% 9.32% 0.00% 0.00% 0.00% CV% 8.02% 12.37% 6.59%	0.00% 4.00% 0.00% 0.00% 0.00% %Effe		
0 3.25 12.5 25 50 100 Mean Dry Bior Conc-% 0 3.25 12.5	N 5 5 5 5 5 mass-mg Summary Code Co N 5 5 5 5	1.0000 1.0000 0.9600 1.0000 1.0000 7 ount Mean 2.104 2.294 2.173 2.39	1.0000 1.0000 0.8489 1.0000 1.0000 1.0000 95% LCL 1.894 1.941 1.995 2.018	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 2.313 2.646 2.351 2.763	1.0000 1.0000 0.8000 1.0000 1.0000 1.0000 Min 1.808 1.946 1.978 2.15	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Max 2.224 2.608 2.322 2.896	0.0000 0.0400 0.0000 0.0000 0.0000 Std Er 0.0754 0.1269 0.0640 0.1343	0 0.0000 0 0.0894 0 0.0000 0 0.0000 0 0.0000 r Std Dev 0 0.1686 0 0.2837 14 0.1432 0 0.3002	0.00% 9.32% 0.00% 0.00% 0.00% CV% 8.02% 12.37% 6.59% 12.56%	0.00% 4.00% 0.00% 0.00% 0.00% -9.03%		
Conc-% 0 6.25 12.5 50 100 Mean Dry Bior Conc-% 0 6.25 12.5 25 50 100	N 5 5 5 5 5 mass-mg Summary Code Co N 5 5 5	1.0000 1.0000 0.9600 1.0000 1.0000 7 ount Mean 2.104 2.294 2.173	1.0000 1.0000 0.8489 1.0000 1.0000 1.0000 95% LCL 1.894 1.941 1.995	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 2.313 2.646 2.351	1.0000 1.0000 0.8000 1.0000 1.0000 1.0000 Min 1.808 1.946 1.978	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Max 2.224 2.608 2.322	0.0000 0.0400 0.0000 0.0000 0.0000 Std Er 0.0754 0.1269	0 0.0000 0 0.0894 0 0.0000 0 0.0000 0 0.0000 r Std Dev 0 0.1686 0 0.2837 14 0.1432 0 0.3002	0.00% 9.32% 0.00% 0.00% 0.00% CV% 8.02% 12.37% 6.59%	0.00% 4.00% 0.00% 0.00% 0.00% **Effe 0.00% -9.03% -3.29%		



CETIS Summary Report

100

Report Date:

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Test Code:

VCF1016.352t | 07-0211-7974

Pacific Topsn	nelt 7-d Surviv	/al and Grov		Aquatic Bioassay & Consulting Labs, Inc.			
7d Survival R	ate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	1,0000	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	
12.5		1.0000	1_0000	1.0000	1.0000	0.8000	
25		1.0000	1.0000	1.0000	1.0000	1.0000	
50		1.0000	1.0000	1.0000	1.0000	1.0000	
100		1.0000	1.0000	1.0000	1.0000	1.0000	
Mean Dry Bio	mass-mg Deta	ail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	1.808	2.152	2.194	2.224	2.14	
6.25		1.946	2.608	2.562	2.14	2.212	
12.5		2.322	2.236	2.258	1.978	2.07	
25		2.426	2.896	2.222	2.15	2.258	
50		2.08	1.878	2_172	2.072	1.698	
100		2.282	2.098	2.032	2.234	1.63	
7d Survival Ra	ate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	5/5	5/5	5/5	5/5	5/5	
6.25		5/5	5/5	5/5	5/5	5/5	
12.5		5/5	5/5	5/5	5/5	4/5	
25		5/5	5/5	5/5	5/5	5/5	
50		5/5	5/5	5/5	5/5	5/5	

5/5

5/5

5/5

5/5

5/5

Report Date:

02 Dec-16 11:14 (p 1 of 4)

Test Code: VCF1016.352t | 07-0211-7974

Danific Tanan												
racinc ropsn	melt 7-d Survi	val and Gr	owth Test						Aqua	tic Bioassay 8	Consultir	ıg Labs, I
Analysis ID: Analyzed:	19-4489-157 02 Dec-16 1		Endpoint: Analysis:	7d Survival R Nonparametri		vs T	reatments		ΓIS Vers cial Res		1.9.2	
Batch ID:	11-9003-1853	,	Test Type:	Growth-Surviv	val (7d)			Ana	ılyst:	Joe Freas		
Start Date:	28 Oct-16 14:	14 F	Protocol:	EPA/600/R-9	5/136 (199	95)		Diluent: Laboratory Seawater				
Ending Date:	04 Nov-16 13	:15 \$	Species:	Atherinops af		,		Brine: Not Applicable				
Duration:	6d 23h		Source:	Aquatic Biosy	stems, CC)		Age	je:			
Sample ID:	18-0481-5018	(Code:	VCF1016.352				Clie	nt:	VCWPD		
Sample Date:	28 Oct-16 09:	00 I	Material:	Sample Wate	Γ			Pro	ject:	2016/17-1 (We	et)	
Receipt Date:	28 Oct-16 10:	05 \$	Source:	Bioassay Rep	ort							
Sample Age:	5h		Station:	ME-CC								
Data Transfor	'm	Alt Hy	'p					NOEL	LOEL	TOEL	TU	PMS
Angular (Corre	ected)	C > T						100	> 100	n/a	1	8,20%
Steel Many-O	ne Rank Sum	Test										
Control	vs Conc-9	6	Test S	stat Critical	Ties	DF	P-Type	P-Value	Decis	ion(α:5%)		
Negative Contr	rol 6.25		27.5	16	1	8	Asymp	0,8333	Non-S	ignificant Effec	ct	
	12.5		25	16	1	8	Asymp	0.6353	Non-S	ignificant Effec	ct	
	25		27.5	16	1	8	Asymp	0.8333	Non-S	ignificant Effec	ct	
	50		27.5	16	1	8	Asymp	0.8333	Non-S	ignificant Effec	ct	
	100		27.5	16	1	8	Asymp	0.8333	Non-S	significant Effect	ct	
Test Acceptab	oility Criteria	TA	C Limits									
Attribute	Test Sta	t Lower		Overlap	Decision	on						
Control Resp	1			Passes	s Acc	ceptibility C	riteria					
ANOVA Table												
Source	Sum Sq	uares	Mean	Square	DF		F Stat	P-Value	Decis	ion(α:5%)		
	Sum Sq 0.00945		Mean 0.0018		DF 5		F Stat	P-Value 0.4389		ion(α:5%) ignificant Effec	ot .	
Between		13		3903							et	
Between Error	0.00945	13 63	0.0018	3903	5						ot	
Between Error Fotal	0.00945 0.04536 0.05481	13 63	0.0018	3903	5 24						ot .	
Between Error Total Distributional	0.00945 0.04536 0.05481	13 63	0.0018	3903	5 24 29	at			Non-S		ot	
Between Error Fotal Distributional Attribute	0.00945 0.04536 0.05481 Tests	13 63 76	0.0018	9903 9903	5 24 29	_	1	0.4389	Non-S	ignificant Effec	xt	
Between Error Fotal Distributional Attribute Variances	0.00945 0.04536 0.05481 Tests Test Levene	13 63 76 Equality of	0.0018 0.0018	9903 9903 est	5 24 29 Test St		1 Critical	0.4389 P-Value	Decisi Unequ	ignificant Effection	ct .	
Between Error Fotal Distributional Attribute Variances Variances	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev	13 63 76 Equality of ene Equal	0.0018 0.0018 Variance T ity of Variar	est nce Test	5 24 29 Test St 7.111		Critical 3.895 4.248	P-Value 3.3E-04 0.4457	Decisi Unequ Equal	ignificant Effection ion(α:1%) ial Variances Variances		
Between Error Fotal Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev Anderso	13 63 76 Equality of ene Equal	0.0018 0.0018 Variance T ity of Variar A2 Normalit	est nce Test	5 24 29 Test St 7.111		Critical 3.895	0.4389 P-Value 3.3E-04	Decisi Unequ Equal Non-N	ignificant Effection ion(α:1%) al Variances	ion	
Between Error Fotal Distributional Attribute Variances Variances Distribution Distribution	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev Anderso D'Agosti	13 63 76 Equality of ene Equal n-Darling <i>I</i>	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test	est nce Test	5 24 29 Test St 7.111 1 7.95		Critical 3.895 4.248 3.878 2.576	P-Value 3.3E-04 0.4457 <1.0E-37	Decisi Unequ Equal Non-N Non-N	ignificant Effection(α:1%) Ial Variances Variances ormal Distribut	cion cion	
Between Error Fotal Distributional Attribute Variances Variances Distribution Distribution Distribution	0.00945 0.04536 0.05481 Tests Test Levene Mod Lev Anderso D'Agosti D'Agosti	Equality of ene Equal n-Darling Ano Kurtosis	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test	est nce Test y Test	5 24 29 Test St 7.111 1 7.95 4.912		Critical 3.895 4.248 3.878 2.576	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37	Decisi Unequ Equal Non-N Non-N	ignificant Effection(α:1%) lal Variances Variances ormal Distribut ormal Distribut	cion cion cion	
Between Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution	0.00945 0.04536 0.05481 Tests Levene I Mod Lev Anderso D'Agosti D'Agosti	13 63 76 Equality of ene Equal n-Darling A no Kurtosis no Skewne no-Pearso	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test ess Test n K2 Omnit	est nce Test y Test	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27		Critical 3.895 4.248 3.878 2.576 2.576 9.21	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37	Decisi Unequ Equal Non-N Non-N Non-N	ignificant Effection(α:1%) Ial Variances Variances ormal Distribut ormal Distribut ormal Distribut	ion ion ion ion	
Between Error Fotal Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution	0.00945 0.04536 0.05481 Tests Levene I Mod Lev Anderso D'Agosti D'Agosti C'Agosti Kolmogo	Equality of ene Equal n-Darling / no Kurtosis no Skewne no-Pearso prov-Smirn	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test ess Test n K2 Omnit	est nce Test y Test	5 24 29 Test St 7.111 1 7.95 4.912 5.58		Critical 3.895 4.248 3.878 2.576	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37	Decisi Unequ Equal Non-N Non-N Non-N Non-N	ignificant Effection(α:1%) lal Variances Variances ormal Distribut ormal Distribut	tion ion ion ion ion	
Between Error Fotal Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.00945 0.04536 0.05481 Tests Test Levene Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of ene Equal n-Darling / no Kurtosis no Skewne no-Pearso prov-Smirn	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test ess Test n K2 Omnit ov D Test	est nce Test y Test	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667		Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19	Decisi Unequ Equal Non-N Non-N Non-N Non-N	ion(α:1%) Ial Variances Variances ormal Distribut ormal Distribut ormal Distribut	tion ion ion ion ion	
Between Error Fotal Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Test Levene Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of ene Equal n-Darling / no Kurtosis no Skewne no-Pearso prov-Smirn	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test ess Test n K2 Omnit ov D Test	est nce Test y Test	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063		Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 <1.0E-37 6.1E-19	Decisi Unequ Equal Non-N Non-N Non-N Non-N	ion(α:1%) Ial Variances Variances ormal Distribut ormal Distribut ormal Distribut	tion ion ion ion ion	%Effec
Between Error Fotal Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Levene I Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of rene Equal n-Darling A no Kurtosis no Skewne no-Pearson orov-Smirne Wilk W No	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test ess Test on K2 Omnit ov D Test ormality Tes	est nce Test y Test t	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063	CL	Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 6.1E-19 6.2E-10	Decisi Unequ Equal Non-N Non-N Non-N Non-N Non-N	ignificant Effection(α:1%) Ial Variances Variances ormal Distribut ormal Distribut ormal Distribut ormal Distribut ormal Distribut ormal Distribut	ion ion ion ion ion	%Effect
Between Error Fotal Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of ene Equal n-Darling A no Kurtosis no Skewne no-Pearson vorov-Smirne Wilk W No	0.0018 0.0018 Variance T ity of Variar A2 Normalit is Test ess Test in K2 Omnit ov D Test ormality Tes	est nce Test y Test 95% LCL 1.0000	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063	CL	Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 6.1E-19 6.2E-10	Decisi Unequ Equal Non-N Non-N Non-N Non-N	ignificant Effection(α:1%) Ial Variances Variances ormal Distribut	cion cion cion cion cion cion	
Between Error Fotal Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of ene Equal n-Darling Ano Kurtosis no Skewne no-Pearson orov-Smirne Wilk W No	0.0018 0.0018 Variance T ity of Variar A2 Normalit is Test ess Test in K2 Omnit ov D Test ov D Test ormality Tes Mean 1.0000	est nce Test y Test 95% LCL 1.0000 1.0000	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063	DL.	Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000	Decisi Uneque Equal Non-N Non-N Non-N Non-N Non-N Non-N Non-N 1.0000	ignificant Effection(α:1%) Ial Variances Variances Ormal Distribut	cion cion cion cion cion con	0.00%
Between Error Total Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of ene Equal n-Darling Ano Kurtosis no Skewneno-Pearson orov-Smirne Wilk W No	0.0018 0.0018 Variance T ity of Variar A2 Normalit s Test ess Test n K2 Omnit ov D Test	est nce Test y Test t 95% LCL 1.0000 1.0000 0.8489	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063 95% UC 1.0000 1.0000	CL	Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000 1.0000	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000 1.0000	Decisi Uneque Equal Non-N Non-N Non-N Non-N Non-N 1.0000 1.0000	ignificant Effection(α:1%) Ial Variances Variances Ormal Distribut Std Err 0.0000 0.0000 0.0400	cion cion cion cion cion con CV% 0.00% 0.00%	0.00% 0.00%
Source Between Error Total Distributional Attribute Variances Variances Distribution	0.00945 0.04536 0.05481 Tests Test Levene I Mod Lev Anderso D'Agosti D'Agosti Kolmogo Shapiro-	Equality of ene Equal n-Darling Ano Kurtosis no Skewneno-Pearson orov-Smirne Wilk W No	0.0018 0.0018 Variance T ity of Variar A2 Normalit is Test is Test in K2 Omnit ov D Test irmality Tes Mean 1.0000 1.0000 0.9600	9903 9903 est nce Test y Test t 95% LCL 1.0000 1.0000 0.8489 1.0000	5 24 29 Test St 7.111 1 7.95 4.912 5.58 55.27 0.4667 0.4063 95% UC 1.0000 1.0000 1.0000 1.0000	CL	Critical 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.0000 1.0000 1.0000	P-Value 3.3E-04 0.4457 <1.0E-37 9.0E-07 <1.0E-37 6.1E-19 6.2E-10 Min 1.0000 1.0000 0.8000	Decisi Uneque Equal Non-N Non-N Non-N Non-N 1.0000 1.0000	ignificant Effection(α:1%) lai Variances Variances Ormal Distribut Std Err 0.0000 0.0000 0.0400 0.0000	cion cion cion cion cion cion cov 0.00% 0.00% 9.32%	0.00% 4.00%

Report Date:

02 Dec-16 11:14 (p 2 of 4)

Test Code:

VCF1016.352t | 07-0211-7974

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-4489-1575 Analyzed: 02 Dec-16 11:13

7d Survival Rate Endpoint: Analysis: Nonparametric-Control vs Treatments

Official Results:

CETIS Version:	CETISv1,9.2
Official Popultor	Von

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
6.25		5	1.345	1.345	1.346	1.345	1,345	1.345	0	0.00%	0.00%
12.5		5	1.298	1.165	1.43	1.345	1.107	1.345	0.04763	8.21%	3.54%
25		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
50		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	0.00%
100		5	1.345	1.345	1.346	1.345	1_345	1.345	0	0.00%	0.00%

7d Survival Rate Detail

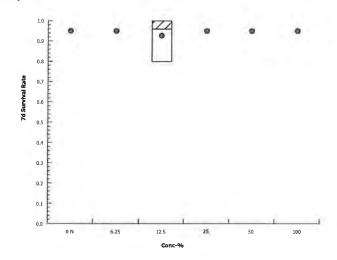
Сопс-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	
12.5		1.0000	1.0000	1.0000	1.0000	0.8000	
25		1.0000	1.0000	1.0000	1.0000	1.0000	
50		1_0000	10000	1.0000	1.0000	1.0000	
100		1.0000	1.0000	1.0000	1.0000	1.0000	

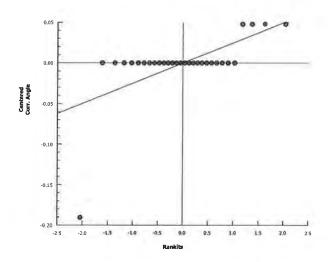
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.345	1.345	1.345	1.345	1.345
6.25		1.345	1.345	1.345	1.345	1.345
12.5		1.345	1.345	1.345	1.345	1.107
25		1.345	1.345	1.345	1.345	1.345
50		1.345	1.345	1.345	1.345	1.345
100		1.345	1.345	1.345	1.345	1.345

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	5/5	5/5	5/5	5/5	5/5	
6.25		5/5	5/5	5/5	5/5	5/5	
12.5		5/5	5/5	5/5	5/5	4/5	
25		5/5	5/5	5/5	5/5	5/5	
50		5/5	5/5	5/5	5/5	5/5	
100		5/5	5/5	5/5	5/5	5/5	





Report Date:

02 Dec-16 11:14 (p 3 of 4)

Test Code:

VCF1016.352t | 07-0211-7974

Pacific Topsm	elt 7-d Surviv	al and Gro	owth Test					Aquatic	Bioassay &	Consultin	g Labs, In	
Analysis ID: Analyzed:	19-5200-9131 02 Dec-16 11		-	Mean Dry Bion Parametric-Co	_	atments		ΓIS Versior icial Result		1.9.2		
Batch ID:	11-9003-1853	Т	est Type: 0	Growth-Surviva	al (7d)		Ana	ılyst: Jo	e Freas			
Start Date:	28 Oct-16 14:1	4 P	rotocol: E	PA/600/R-95	(136 (1995)		Dilu	ıent: La	boratory Sea	awater		
Ending Date:	04 Nov-16 13:	15 S	pecies: A	Atherinops affi	nis		Brin					
Duration:	6d 23h	s	ource: A	Aquatic Biosys	tems, CO		Age:					
Sample ID:	18-0481-5018	C	ode: V	/CF1016.352			Clie	ent: VC	WPD			
Sample Date:	28 Oct-16 09:0	0 N	laterial: S	Sample Water			Pro	ject: 20	16/17-1 (We	et)		
Receipt Date:	28 Oct-16 10:0	5 S	ource: E	Bioassay Repo	ort							
Sample Age:	5h	s		/IE-CC								
Data Transform	n	Alt Hy	р				NOEL	LOEL	TOEL	TU	PMSD	
Untransformed		C > T					100	> 100	n/a	1	16.46%	
Dunnett Multip	le Compariso	n Test										
Control v)	Test Sta	at Critical		P-Type	P-Value	Decisio				
Negative Contro	ol 6.25		-1.296	2.362	0.346 8	CDF	0.9929	Non-Sigi	nificant Effec	at		
	12.5		-0.4719	2.362	0,346 8	CDF	0.9361	Non-Sigi	nificant Effec	t		
	25		-1.956	2.362	0.346 8	CDF	0.9992	Non-Sigr	nificant Effec	t		
	50		0.8429	2.362	0.346 8	CDF	0.4912	Non-Sigr	nificant Effec	t		
	100		0.3301	2.362	0.346 8	CDF	0.7181	Non-Sigr	nificant Effec	et .		
Test Acceptabi	ility Criteria	TAC	Limits									
Attribute	Test Sta	t Lower	Upper	Overlap	Decision							
Control Resp	2.104	0.85	>>	Yes	Passes A	cceptibility	Criteria					
ANOVA Table												
Source	Sum Sq	uares	Mean S	quare	DF	F Stat	P-Value	Decision	η(α:5%)			
Between	0.587249		0.11745		5	2.185	0.0895	Non-Sigr	nificant Effec	t		
Error	1.29012		0.05375	48	24							
Total	1.87736				29							
Distributional 1	Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decision	η(α:1%)			
√ariances			Variance Tes		3.125	15.09	0.6807	Equal Va	riances			
√ariances	Levene E	quality of '	Variance Tes	st	0.7754	3.895	0.5770	Equal Va	ıriances			
Variances	Mod Leve	ene Equalit	ty of Varianc	e Test	0.4776	4.248	0.7883	Equal Va	riances			
Distribution			2 Normality	Test	0.2563	3.878	0.7502	Normal D	Distribution			
Distribution	•	o Kurtosis			0.1932	2.576	0.8468	Normal D	Distribution			
Distribution	•	o Skewne			0.1079	2.576	0.9141		Distribution			
Distribution	•		K2 Omnibu	s Test	0.04895	9.21	0.9758		Distribution			
Distribution	-	rov-Smirno			0.1337	0.1853	0.1821		Distribution			
Distribution	Shapiro-V	Vilk W Nor	rmality Test		0.9856	0.9031	0.9463	Normal E	Distribution			
Mean Dry Biom	ass-mg Sumi	mary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
)	N	5	2.104	1.894	2,313	2.152	1.808	2.224	0.0754	8.02%	0.00%	
3.25		5	2.294	1.941	2 646	2.212	1.946	2.608	0.1269	12.37%	-9.03%	
12.5		5	2.173	1.995	2.351	2.236	1.978	2,322	0.06404	6.59%	-3.29%	
25		5	2.39	2.018	2.763	2.258	2.15	2.896	0.1343	12.56%	-13.63%	
50		5	1.98	1.743	2.217	2.072	1.698	2.172	0.08522	9.62%	5.88%	
100		5	2.055	1.735	2.376	2.098	1.63	2.282	0.1154	12.56%	2.30%	

Report Date:

02 Dec-16 11:14 (p 4 of 4)

Test Code:

VCF1016.352t | 07-0211-7974

Pacific Topsmelt 7-d Survival and Growth Test

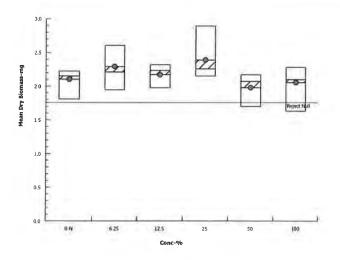
Aquatic Bioas	say & Consul	ting Labs, Inc.
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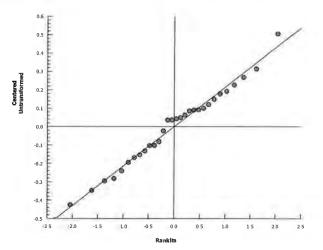
Analysis ID:	19-5200-9131	Endpoint:	Mean Dry Biomass-mg
Analyzed:	02 Dec-16 11:13	Analysis:	Parametric-Control vs Treatments

CETIS Version: CETISv1.9.2
Official Results: Yes

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	1.808	2.152	2.194	2,224	2.14
6,25		1.946	2.608	2.562	2.14	2.212
12.5		2.322	2.236	2.258	1.978	2.07
25		2.426	2.896	2.222	2.15	2.258
50		2.08	1.878	2.172	2.072	1.698
100		2.282	2.098	2.032	2.234	1.63





Report Date:

02 Dec-16 11:15 (p 1 of 4)

Test Code:

VCF1016.352t | 07-0211-7974

Pacific	C Topsn	nelt 7-d Survival	and Grow	th Test						Aqua	tic Bi	oassay &	Consul	ting Labs, I
Analys Analyz		05-3617-7006 02 Dec-16 11:1		dpoint: alysis:	7d Survival Rat)			TIS Vers icial Res		CETISv ² Yes	1.9.2	
Batch		11-9003-1853			Growth-Surviva		,							
Start D		28 Oct-16 14:14		otocol:	EPA/600/R-95/					alyst:	Joe F			
		04 Nov-16 13:15		ecies:	Atherinops affir	` '				uent:		ratory Sea	water	
⊏⊓umç Duratio		6d 23h	-	urce:	Aquatic Biosys				Bri Age		NOT A	pplicable		
Sample Sample		18-0481-5018 28 Oct-16 09:00	Co	ae: terial:	VCF1016.352 Sample Water						VCW	PD '17-1 (We	١١	
•		28 Oct-16 10:05		urce:	Bioassay Repo	rt			FIC	gect.	2010/	17-1 (VVE	.)	
	e Age:			tion:	ME-CC	11.								
		olation Options												
X Tran		Y Transform	See	ed	Resamples	Exp 95%	CL	Method						
Linear	0.0	Linear	0	,u	280	Yes	-	Two-Poir	nt Inter	polation				
Test A	ccental	oility Criteria												
Attribu	•	Test Stat	TACL		r Overlap	Decision								
Control		1	0.8	Uppe >>	Yes	Passes A	ccent	bility Crite	ria					
	Estimate													
Level	% %	95% LCL	95% UCL	. TU	95% LCL	95% UCL								
EC5	>100	n/a	n/a	<1	n/a	n/a								
EC10	>100	n/a	n/a	<1	n/a	n/a								
EC15	>100	n/a	n/a	<1	n/a	n/a								
EC20	>100	n/a	n/a	<1	n/a	n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40	>100	n/a	n/a	<1	n/a	n/a								
EC50	>100	n/a	n/a	<1	n/a	n/a								
7d Sur	vival Ra	ate Summary				Calcu	lated	Variate(A	/B)					
Conc-%	6	Code	Count	Mean	Min	Max	Std	Err St	d Dev	CV%		%Effect	A	В
)		N	5	1,0000	1,0000	1.0000	0.00	0.0	0000	0.00%)	0.0%	25	25
3.25			5	1,0000	1,0000	1.0000	0.00	0.0	0000	0.00%	•	0.0%	25	25
12.5			5	0.9600	0.8000	1.0000	0.04	0.0	0894	9,32%	,	4.0%	24	25
25			5	1.0000	1.0000	1.0000	0.00	0.0	0000	0.00%)	0.0%	25	25
50			5	1.0000		1.0000	0.00	0.0	0000	0.00%)	0.0%	25	25
00			5	1.0000	1.0000	1,0000	0.00	0.0	0000	0.00%		0.0%	25	25
'd Surv	vival Ra	ite Detail												
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep	5						
)		N	1.0000	1,0000	1.0000	1.0000	1_00	00						
3.25			1.0000	1.0000	1.0000	1.0000	1.00	00						
2.5			1.0000	1.0000	1.0000	1.0000	0.80	00						
25			1,0000	1.0000	1.0000	1,0000	1.00	00						
60			1.0000	1.0000		1.0000	1.00							
00			1.0000	1.0000		1.0000	1.00							
d Surv	/ival Ra	te Binomials												
onc-%	, 0	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep	5						
		N	5/5	5/5	5/5	5/5	5/5							
.25			5/5	5/5	5/5	5/5	5/5							
2.5			5/5	5/5	5/5	5/5	4/5							
25			5/5	5/5	5/5	5/5	5/5							
			5/5	5/5	5/5	5/5	5/5							
0														



Report Date:

02 Dec-16 11:15 (p 2 of 4)

Test Code:

VCF1016,352t | 07-0211-7974

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

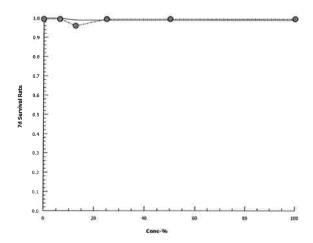
Analysis ID: Analyzed:

05-3617-7006 02 Dec-16 11:13 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1,9,2

Official Results: Yes



Report Date:

02 Dec-16 11:15 (p 3 of 4)

Test Code: VCF1016.352t | 07-0211-7974

Analysi Analyze	is ID:	02 1527 6450					_			_		
Allalyze		03-1527-6458 02 Dec-16 11:1		ipoint: ilysis:	Mean Dry Bion Linear Interpola	•	l)			ETIS Vers	_	CETISv1.9.2 Yes
Batch II	D:	11-9003-1853	Tes	t Type:	Growth-Surviva	al (7d)			Αı	nalyst:	Joe F	reas
Start Da	ate:	28 Oct-16 14:14	Pro	tocol:	EPA/600/R-95/	/136 (1995)			Di	luent:	Labor	ratory Seawater
Ending	Date:	04 Nov-16 13:15	5 Spe	cies:	Atherinops affin	nis			Br	rine:	Not A	pplicable
Duratio	n:	6d 23h	Sou	rce:	Aquatic Biosys	tems, CO			Αg	ge:		
Sample	ID:	18-0481-5018	Cod	le:	VCF1016.352				CI	ient:	VCW	PD
Sample	Date:	28 Oct-16 09:00	Mat	erial:	Sample Water				Pr	oject:	2016/	17-1 (Wet)
Receipt	t Date:	28 Oct-16 10:05	Sou	rce:	Bioassay Repo	ort						
Sample	Age:	5h	Stat	ion:	ME-CC							
Linear I	Interpo	lation Options										
X Trans	form	Y Transform	See	d	Resamples	Exp 95%	CL	Metho	od			
Linear		Linear	0		280	Yes		Two-F	Point Inte	rpolation		
Test Ac	ceptab	ility Criteria	TAC L	imits								
Attribut	e	Test Stat		Uppe	r Overlap	Decision						
Control	Resp	2.104	0.85	>>	Yes	Passes A	cceptil	bility C	riteria			
Point E	stimate	es										
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL						
C5	37.58	24.53	n/a	2.661	n/a	4.076						
C10	>100	n/a	n/a	<1	n/a	n/a						
C15	>100	n/a	n/a	<1	n/a	n/a						
C20	>100	n/a	n/a	<1	n/a	n/a						
C25	>100	n/a	n/a	<1	n/a	n/a						
C40	>100	n/a	n/a	<1	n/a	n/a						
C50	>100	n/a	n/a	<1	n/a	n/a						
Mean D	ry Bion	nass-mg Summ	ary			Cal	culate	d Vari	ate			
Conc-%		Code	Count	Mean	Min	Max	Std	Err	Std Dev	v CV%		%Effect
)		N	5	2.104	1.808	2.224	0.07	54	0.1686	8.02%	b f	0.0%
3.25			5	2.294	1.946	2.608	0.12	69	0.2837	12.37	% .	-9.03%
2.5			5	2.173	1.978	2.322	0.06	404	0.1432	6.59%	, .	-3.29%
25			5	2,39	2.15	2.896	0.13	43	0.3002	12.56	% .	-13.63%
50			5	1.98	1.698	2.172	0.08	522	0.1906	9.62%	5	5,88%
00			5	2.055	1.63	2.282	0.11	54	0.2582	12,56	% :	2.3%
lean Dr	ry Bion	nass-mg Detail										
Conc-%		Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep					
)		N	1.808	2.152	2.194	2.224	2,14					
3.25			1.946	2.608	2.562	2.14	2.212	2				
12.5			2.322	2.236	2.258	1.978	2.07					
25			2.426	2.896	2.222	2.15	2,258	3				
50			2.08	1.878	2.172	2.072	1.698	3				

Report Date:

02 Dec-16 11:15 (p 4 of 4)

Test Code:

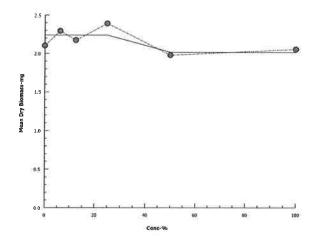
VCF1016.352t | 07-0211-7974

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 03-1527-6458 02 Dec-16 11:13 **Endpoint:** Mean Dry Biomass-mg **Analysis:** Linear Interpolation (ICPIN)

CETIS Version: CETISv1.9.2
Official Results: Yes



CETIS Measurement Report

Report Date:

02 Dec-16 11:15 (p 1 of 2)

Test Code:

VCF1016.352t | 07-0211-7974

Pacific	Topsmelt 7-d	Survival and	Growth Test
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Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 11-9003-1853 Start Date: 28 Oct-16 14:14 Test Type: Growth-Survival (7d)

Protocol: EPA/600/R-95/136 (1995)

Joe Freas

Ending Date: 04 Nov-16 13:15

Species:

Atherinops affinis

Analyst: Diluent: Brine:

Laboratory Seawater

Duration:

Sample ID:

6d 23h

Source:

Aquatic Biosystems, CO

Age:

Not Applicable

18-0481-5018

Code:

Client:

VCWPD

Sample Date: 28 Oct-16 09:00 Receipt Date: 28 Oct-16 10:05 Material: Source:

Sample Water Bioassay Report

VCF1016.352

Project:

2016/17-1 (Wet)

Sample Age: 5h

ME-CC Station:

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	6.975	6.615	7.335	6.2	7.6	0.1521	0.4301	6.17%	0
6.25		8	6.3	5.682	6.918	5.2	7.1	0.2612	0.7387	11.73%	0
12.5		8	6.525	5.857	7_193	5.4	7.8	0.2827	0.7996	12.25%	0
25		8	6,512	5.889	7.136	5.4	7.5	0.2635	0.7453	11.44%	0
50		8	6.5	6.008	6.992	5.7	7.3	0.2079	0.588	9.05%	0
100		8	6.213	5.566	6.859	5.4	7.3	0.2735	0.7736	12.45%	0
Overall		48	6.504	6.302	6.707	5.2	7.8	0.1007	0.6977	10.73%	0 (0%)

р	Н	-L	Jn	iit	s

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.3	7.191	7.409	7	7.4	0.04629	0.1309	1.79%	0
6.25		8	7.75	7.602	7.898	7.5	8	0.06268	0.1773	2.29%	0
12.5		8	7.763	7.637	7.888	7.5	7.9	0.05324	0.1506	1.94%	0
25		8	7.763	7.637	7,888	7.5	7.9	0.05324	0.1506	1.94%	0
50		8	7.788	7.683	7.892	7.6	7.9	0.04407	0.1246	1.6%	0
100		8	7.813	7.691	7.934	7.6	8	0.05154	0.1458	1.87%	0
Overall		48	7.696	7.63	7.762	7	8	0.03288	0.2278	2.96%	0 (0%)

Salinity-ppt

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	25	25	25	25	25	0	0	0.0%	0
6.25		8	25	25	25	25	25	0	0	0.0%	0
12.5		8	25	25	25	25	25	0	0	0.0%	0
25		8	25	25	25	25	25	0	0	0.0%	0
50		8	25	25	25	25	25	0	0	0.0%	0
100		8	25	25	25	25	25	0	0	0.0%	0
Overall		48	25	25	25	25	25	0	0	0.00%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	21	21	21	21	21	0	0	0.0%	0
6,25		8	21	21	21	21	21	0	0	0.0%	0
12.5		8	21	21	21	21	21	0	0	0.0%	0
25		8	21	21	21	21	21	0	0	0.0%	0
50		8	21	21	21	21	21	0	0	0.0%	0
100		8	21	21	21	21	21	0	0	0.0%	0
Overall		48	21	21	21	21	21	0	0	0.00%	0 (0%)

Report Date:

02 Dec-16 11:15 (p 2 of 2) 07-0211-7974

Test Code:	VCF1016.352t	0
		_

Pacific Topsm	elt 7-d Surviv	al and Gr	owth Test					Aquatic Bioassay & Consulting Labs, Inc		
Dissolved Oxy	/gen-mg/L									
Conc-%	Code	1	2	3	4	5	6	7	8	
0	N	6.2	6.8	7.2	7.6	7.1	7.2	7,1	6.6	
6.25		7.1	6.8	6.5	6.9	6.7	5.9	5.3	5.2	
12.5		7	6.8	6.6	7.8	6.6	6.6	5.4	5.4	
25		7	6.9	6.6	7.5	6.6	6.7	5.4	5.4	
50		7.1	6.3	6.6	7.3	6.8	6.5	5.7	5.7	
100		7.1	5.5	6.2	7.3	6.8	6	5.4	5.4	
pH-Units										
Conc-%	Code	1	2	3	4	5	6	7	8	
0	N	7.3	7.3	7.4	7.4	7	7.3	7.3	7.4	
6.25		7.8	7.9	7.8	7.5	7.8	7.7	7.5	8	
12.5		7.9	7.9	7.8	7.6	7.8	7.7	7.5	7.9	
25		7.9	7.9	7.8	7.6	7.8	7.7	7.5	7.9	
50		7.9	7.9	7.8	7.6	7.8	7.8	7.6	7.9	
100		7.9	7.9	7.8	7.6	7.9	7.8	7.6	8	
Salinity-ppt										
Conc-%	Code	1	2	3	4	5	6	7	8	
0	N	25	25	25	25	25	25	25	25	
6.25		25	25	25	25	25	25	25	25	
12.5		25	25	25	25	25	25	25	25	
25		25	25	25	25	25	25	25	25	
50		25	25	25	25	25	25	25	25	
100		25	25	25	25	25	25	25	25	
Temperature-°(C									
Conc-%	Code	1	2	3	4	5	6	7	8	
0	N	21	21	21	21	21	21	21	21	
6.25		21	21	21	21	21	21	21	21	
12.5		21	21	21	21	21	21	21	21	
25		21	21	21	21	21	21	21	21	
50		21	21	21	21	21	21	21	21	
100		21	21	21	21	21	21	21	21	



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-OJA

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.345

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

SURVIVAL

NOEC =

100.00 %

TUc =

1.00

EC25 =

>100.00 %

EC50 =

>100.00 %

BIOMASS

NOEC =

100.00 %

TUc =

1.00

IC25 =

>100.00 %

IC50 =

>100.00 %

Your yery truly.

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 11:51 (p 1 of 2)

Test Code: VCF1016.345f | 00-9771-0895

rathead with	athead Minnow 7-d Larval Survival and Growth Test						Aquatic Bioassay & Consulting Labs, Inc.					
Batch ID:	16-1889-4412	Test Type:	Growth-Surviva	al (7d)		Ana	alyst: Joe	Freas				
Start Date:	28 Oct-16 14:30	Protocol:	EPA/821/R-02-	-013 (2002)		Dili	uent: Lab	oratory Wat	ег			
Ending Date:	04 Nov-16 12:30	Species:	Pimephales pro	omelas		Bri	ne: Not	Applicable				
Duration:	6d 22h	Source:	Aquatic Biosys	tems, CO		Age) :					
Sample ID:	19-4412-3607	Code:	VCF1016.345			Clie	ent: VC	NPD				
Sample Date:	: 28 Oct-16 04:20	Material:	Sample Water			Pro	ject: 201	6/17-1 (Wet)			
	: 28 Oct-16 09:47	Source:	Bioassay Repo	ort			•					
Sample Age:		Station:	MO-OJA									
Multiple Com	parison Summary											
Analysis ID	Endpoint	Comr	oarison Method			NOEL	LOEL	TOEL	TU	PMSE	o v	
	7d Survival Rate	-	ett Multiple Com		t	100	> 100	n/a	1	7.72%	6	
09-4359-6039	Mean Dry Biomass-m		ett Multiple Com			100	> 100	n/a	1	12.1%		
Point Estimat	te Summary											
Analysis ID	Endpoint	Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	TU	V	
09-2414-2240	7d Survival Rate	Linea	r Interpolation (I	CPIN)		EC5	>100	n/a	n/a	<1		
						EC10	>100	n/a	n/a	<1		
						EC15	>100	n/a	n/a	<1		
						EC20	>100	n/a	n/a	<1	V	
						EC25	>100	n/a	n/a	<1	V	
						EC40	>100	n/a	n/a	<1		
						EC50	>100	n/a	n/a	<1	,	
05-8228-9073	Mean Dry Biomass-m	g Linear	r Interpolation (I	CPIN)		IC5	54.88	31.32	74_69	1.822	_	
	•			,		IC10	73.74	49.45	94.35	1,356	V	
						IC15	92.59	72.31	n/a	1.08	V	
						IC20	>100	n/a	n/a	<1	V	
						IC25	>100	n/a	n/a	<1	V	
						IC40	>100	n/a	n/a	<1	V	
						IC50	>100	n/a	n/a	<1	√	
Test Acceptal	bility				TAC	Limits						
Analysis ID	Endpoint	Attrib	ute	Test Stat		Upper	Overlap	Decision				
	7d Survival Rate	Contro	ol Resp	1	0.8	>>						
					0.0		Yes	Passes Ad	ceptibility C	riteria		
10-0012-0424	7d Survival Rate	Contro	ol Resp	1	0.8	>>	Yes Yes		cceptibility C			
	7d Survival Rate Mean Dry Biomass-m		ol Resp	1 0.377				Passes Ad	ceptibility C	riteria		
05-8228-9073	7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m	g Contro	· ·	1 0.377 0.377	8.0	>>	Yes	Passes Ad Passes Ad		riteria riteria		
05-8228-9073 09-4359-6039	Mean Dry Biomass-m Mean Dry Biomass-m	g Contro	ol Resp ol Resp		0.8 0.25	>> >>	Yes Yes	Passes Ad Passes Ad	cceptibility C	riteria riteria		
05-8228-9073	Mean Dry Biomass-m Mean Dry Biomass-m	g Contro g Contro	ol Resp ol Resp ol Resp		0.8 0.25	>> >>	Yes Yes	Passes Ad Passes Ad	cceptibility C	riteria riteria	ect	
05-8228-9073 09-4359-6039 7d Survival R Conc-%	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary	g Contro g Contro int Mean 1,000	ol Resp ol Resp ol Resp 95% LCL 0 1.0000	0.377 95% UCL 1.0000	0.8 0.25 0.25 Min 1.0000	>> >> >> Max	Yes Yes Yes Yes Std Err 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C CV%	riteria riteria riteria %Effe 0.00%	5	
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou	g Contro g Contro int Mean 1,000 0,950	95% LCL 0 1.0000 0 0.8484	95% UCL 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667	>> >> >> Max 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0319	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638	cceptibility Cceptibility Cceptibility Cceptibility Cceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	riteria riteria riteria %Effe 0.00% 5.00%		
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou	g Contro g Contro int Mean 1 0000 0.9500 0.9333	95% LCL 0 1.0000 0 0.8484 3 0.8467	95% UCL 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.8667	>> >> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes O.0000 0.0319 0.0272	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544	cceptibility Cceptibility Cceptibility Cceptibility Cceptibility Cceptibility C	"iteria riteria riteria %Effe 0.00% 5.00% 6.67%		
05-8228-9073 09-4359-6039 7 d Survival R Conc-% 0 6.25 12.5 25	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4	g Contro g Contro int Mean 1 0000 0 9500 0 9333 0 9833	95% LCL 0 1.0000 0 0.8484 3 0.8467 3 0.9303	95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.8667 0.9333	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544 0.0333	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39%	"iteria riteria "Effe 0.00% 5.00% 6.67% 1.67%		
05-8228-9073 09-4359-6039 7 d Survival R Conc-% 0 6.25 12.5 25	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4	g Contro g Contro int Mean 1 0000 0.9500 0.9333	95% LCL 0 1.0000 0 0.8484 3 0.8467 3 0.9303	95% UCL 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.8667	>> >> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes O.0000 0.0319 0.0272	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544	cceptibility Cceptibility Cceptibility Cceptibility Cceptibility Cceptibility C	"iteria riteria riteria %Effe 0.00% 5.00% 6.67%		
05-8228-9073 09-4359-6039 7d Survival R Conc-%	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4	g Contro g Contro int Mean 1 0000 0 9500 0 9333 0 9833	95% LCL 0 1.0000 0 0.8484 3 0.9303 0 0.8484	95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.8667 0.9333	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544 0.0333	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39%	"iteria riteria "Effe 0.00% 5.00% 6.67% 1.67%		
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4	g Contro g Contro int Mean 1,0000 0,9500 0,933 0,983 0,9500	95% LCL 0 1.0000 0 0.8484 3 0.9303 0 0.8484	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.8667 0.9333 0.8667	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544 0.0333 0.0638	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00%		
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50 100	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4 4 4 4	g Contro g Contro int Mean 1,000 0,950 0,933 0,983 0,985 0,966	95% LCL 0 1.0000 0 0.8484 3 0.9303 0 0.8484	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.9333 0.8667 0.9333	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544 0.0333 0.0638	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00%		
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50 100 Mean Dry Bio	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4 4 4 4 mass-mg Summary	g Contro g Contro int Mean 1,000 0,950 0,933 0,983 0,950 0,966	95% LCL 0 1.0000 0 0.8484 3 0.8467 3 0.9303 0 0.8484 7 0.9054	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 1.0000 0.8667 0.9333 0.8667 0.9333	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319 0.0193	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544 0.0333 0.0638 0.0385	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72% 3.98%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00% 3.33%	ct	
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50 100 Mean Dry Bio Conc-%	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4 4 4 mass-mg Summary Code Cou	g Contro g Contro int Mean 1,000 0,950 0,933 0,983 0,950 0,966	95% LCL 0. 0.8484 3. 0.8467 3. 0.9303 0. 0.8484 7. 0.9054 95% LCL 0.3157	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL	0.8 0.25 0.25 Min 1.0000 0.8667 0.9333 0.8667 0.9333	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319 0.0193 Std Err	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0638 0.0544 0.0333 0.0638 0.0385	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72% 3.98%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00% 3.33%	ect	
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50 100 Mean Dry Bio Conc-% 0 6.25	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4 4 4 mass-mg Summary Code Cou N 4	g Contro g Contro int Mean 1.0000 0.9500 0.9333 0.9833 0.9850 0.9667	95% LCL 0.3157 2.0396	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.4383	0.8 0.25 0.25 Min 1.0000 0.8667 0.9333 0.8667 0.9333 Min 0.334	>> >> >> >>	Yes Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319 0.0193 Std Err 0.01926	Passes Ad Passes Ad Passes Ad Passes Ad 0.0000 0.0638 0.0544 0.0333 0.0638 0.0385	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72% 3.98%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00% 3.33% %Effe 0.00%	ect	
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50	Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4 4 4 mass-mg Summary Code Cou N 4 4	g Contro g Contro mt Mean 1,000 0,950 0,933 0,983 0,950 0,966 mt Mean 0,377 0,4392	95% LCL 95% LCL 0 1.0000 0 0.8484 3 0.8467 3 0.9303 0 0.8484 7 0.9054 95% LCL 0.3157 2 0.396	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.4383 0.4824	0.8 0.25 0.25 0.25 Min 1.0000 0.8667 0.9333 0.8667 0.9333 Min 0.334 0.4067	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319 0.0193 Std Err 0.01926 0.01357	Passes Ad Passes Ad Passes Ad Passes Ad 0.0000 0.0638 0.0544 0.0333 0.0638 0.0385 Std Dev 0.03853 0.02715	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72% 3.98% CV%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00% 3.33% %Effe 0.00% -16.49	ct	
05-8228-9073 09-4359-6039 7d Survival R Conc-% 0 6.25 12.5 25 50 100 Mean Dry Bio Conc-% 0 6.25	Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Cou N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	g Contro g Contro 1.000 0.950 0.933 0.983 0.950 0.966 int Mean 0.377 0.4392 0.4392	95% LCL 0 1.0000 0 0.8484 3 0.8467 3 0.9303 0 0.8484 7 0.9054 95% LCL 0.3157 2 0.396 2 0.4006 0.4057	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.4383 0.4824 0.4778	0.8 0.25 0.25 1.0000 0.8667 0.9333 0.8667 0.9333 Min 0.334 0.4067 0.4127	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Yes Std Err 0.0000 0.0319 0.0272 0.0167 0.0319 0.0193 Std Err 0.01926 0.01357 0.01212	Passes Ad Passes Ad Passes Ad Passes Ad 0.0000 0.0638 0.0544 0.0333 0.0638 0.0385 Std Dev 0.03853 0.02715 0.02425	cceptibility C cceptibility C cceptibility C CV% 0.00% 6.72% 5.83% 3.39% 6.72% 3.98% CV% 10.22% 6.18% 5.52%	%Effe 0.00% 5.00% 6.67% 1.67% 5.00% 3.33% %Effe 0.00% -16.49 -16.49	ect	



CETIS Summary Report

100

Report Date: Test Code: 02 Dec-16 11:51 (p 2 of 2)

VCF1016.345f | 00-9771-0895

Fathead Minn	ow 7-d Larval	Survival an	d Growth T	est		Aquatic Bioassay & Consulting Labs, Inc.
7d Survival Ra	ate Detail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	1.0000	1.0000	
6.25		0.8667	0.9333	1.0000	1.0000	
12.5		1.0000	0.8667	0.9333	0.9333	
25		1.0000	1.0000	0.9333	1.0000	
50		0.9333	0.8667	1.0000	1.0000	
100		0.9333	1.0000	1.0000	0.9333	
Mean Dry Bior	mass-mg Deta	it				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.334	0.362	0.4247	0.3873	
6.25		0.4067	0.4653	0.4273	0.4573	
12.5		0.468	0.4273	0.4127	0,4487	
25		0.426	0.472	0.4873	0.4307	
50		0.4147	0.3913	0.4347	0.4053	
100		0.3527	0.34	0.3787	0.348	
7d Survival Ra	te Binomials					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	15/15	15/15	15/15	15/15	
6.25		13/15	14/15	15/15	15/15	
12.5		15/15	13/15	14/15	14/15	
25		15/15	15/15	14/15	15/15	
50		14/15	13/15	15/15	15/15	

14/15

15/15

15/15

14/15

Report Date:

02 Dec-16 11:48 (p 1 of 4)

Test Code:

VCF1016,345f | 00-9771-0895

Fathead Minnow 7-d Larval Survival and Growth Test							Aquatic Bioassay & Consulting Labs, Inc.				
Analysis ID:	18-8012-0424	Er	ndpoint: 7	d Survival Ra	te		CET	'IS Versior	ı: CETISv	1.9.2	
Analyzed:	02 Dec-16 11:	45 A r	nalysis: F	Parametric-Co	ntrol vs Trea	atments	Offi	cial Result	s: Yes		
Batch ID:	16-1889-4412	Te	est Type: (Growth-Surviva	al (7d)		Ana	lyst: Jo	e Freas		
Start Date:	28 Oct-16 14:30	0 P r	otocol: E	EPA/821/R-02	-013 (2002)		Dilu		boratory Wa	ater	
Ending Date:	04 Nov-16 12:3	0 Sp	oecies: F	Pimephales pr	omelas		Brin	ie: No	t Applicable	!	
Duration:	6d 22h	Sc	ource: A	Aquatic Biosys	tems, CO		Age				
Sample ID:	19-4412-3607	Co	ode: \	/CF1016.345			Clie	nt: VC	WPD		
Sample Date:	28 Oct-16 04:20	O Ma	aterial: S	Sample Water			Proj	ect: 20	16/17-1 (We	et)	
Receipt Date:	28 Oct-16 09:47	7 S o	ource: E	Bioassay Repo	ort						
Sample Age:	10h	Sta	ation: N	MO-OJA							
Data Transfori	m	Alt Hyp	1				NOEL	LOEL	TOEL	TU	PMSC
Angular (Corre	cted)	C > T					100	> 100	n/a	1	7.72%
Dunnett Multip	ole Compariso	n Test									
Control v	s Conc-%		Test St	at Critical	MSD DE	F P-Type	P-Value	Decision	n(α:5%)		
Negative Contr	ol 6.25		1.488	2.407	0.152 6	CDF	0.2318	Non-Sigr	nificant Effec	ct	
	12.5		2.009	2.407	0.152 6	CDF	0_1026	Non-Sigr	nificant Effec	ct	
	25		0.5212	2.407	0.152 6	CDF	0.6383	Non-Sigr	nificant Effec	ct	
	50		1.488	2.407	0.152 6	CDF	0.2318	Non-Sigr	nificant Effec	ct	
	100		1.042	2.407	0.152 6	CDF	0.4033	Non-Sigr	nificant Effec	ct	
Test Acceptab	ility Criteria	TAC	Limits								
Attribute	Test Stat		Upper	Overlap	Decision						
Control Resp	1	0.8	>>	Yes	Passes A	cceptibility	Criteria				
		0.0									
ANOVA Table											
	Sum Squ		Mean S	quare	DF	F Stat	P-Value	Decision	η(α:5%)		
Source		ares							n(α:5%) nificant Effec	et	
Source Between	Sum Squ	ares	Mean S	133	DF	F Stat	P-Value		<u> </u>	et	
Source Between Error	Sum Squ 0.042716	ares	Mean S 0.00854	133	DF 5	F Stat	P-Value		<u> </u>	ct	
Source Between Error Total	Sum Squ 0.0427164 0.143677 0.186393	ares	Mean S 0.00854	133	DF 5 18	F Stat	P-Value		<u> </u>	ct	
Source Between Error Total Distributional	Sum Squ 0.0427164 0.143677 0.186393	ares	Mean S 0.00854	133	DF 5 18	F Stat 1.07	P-Value		nificant Effec	ct	
Source Between Error Total Distributional	Sum Squ 0.0427164 0.143677 0.186393 Tests	ares4	Mean S 0.00854	33 321	DF 5 18 23	F Stat 1.07	P-Value 0.4091	Non-Sigr	nificant Effect	ct	
Source Between Error Total Distributional Attribute Variances	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed	ares 4 quality of V	Mean S 0.00854 0.00798	33 321 st	DF 5 18 23 Test Stat	F Stat 1.07 Critical	P-Value 0.4091 P-Value	Non-Sigr	n(α:1%) Iriances	ct	
Source Between Error Total Distributional Attribute Variances Variances	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve	ares 4 quality of V ne Equality	Mean S 0.00854 0.00798	st se Test	DF 5 18 23 Test Stat 2.934	F Stat 1.07 Critical 4.248	P-Value 0.4091 P-Value 0.0415	Non-Sigr Decisior Equal Va Equal Va	n(α:1%) Iriances	ct	
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.042716- 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson-	ares 4 quality of V ne Equality	Mean S 0.00854 0.00798 Variance Teal y of Variance	st se Test	DF 5 18 23 Test Stat 2.934 2.033	F Stat 1.07 Critical 4.248 4.248	P-Value 0.4091 P-Value 0.0415 0.1222	Decisior Equal Va Equal Va Normal D	nificant Effect n(α:1%) nriances nriances	ct	
Between Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution	Sum Squ 0.042716 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine	ares 4 quality of V ne Equality -Darling A2	Mean S 0.00854 0.00798 /ariance Tea y of Variance Normality Test	st se Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534	F Stat 1.07 Critical 4.248 4.248 3.878	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753	Decisior Equal Va Equal Va Normal D	nificant Effection (α:1%) Irriances Irriances Distribution	ot .	
Between Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes	Mean S 0.00854 0.00798 /ariance Tea y of Variance Normality Test	st ce Test Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178	F Stat 1.07 Critical 4.248 4.248 3.878 2.576	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367	Decisior Equal Va Equal Va Normal D Normal D	n(α:1%) uriances uriances Distribution Distribution	ot	
Between Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine D'Agostine	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes	Mean S 0.00854 0.00798 Variance Test Some Some Some Some Some Some Some Some	st ce Test Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737	Decisior Equal Va Equal Va Normal E Normal E Normal E	n(α:1%) Iriances Iriances Distribution Distribution	ot	
Between Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine C'Agostine Kolmogore	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov	Mean S 0.00854 0.00798 Variance Test Some Some Some Some Some Some Some Some	st ce Test Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E	n(α:1%) priances	ct	
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine C'Agostine Kolmogore Shapiro-W	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov	Mean S 0.00854 0.00798 Variance Tect y of Variance Normality Test ss Test K2 Omnibut y D Test	st ce Test Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2317	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E	n(α:1%) riances riances Distribution Distribution Distribution Distribution Distribution	ct	
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine C'Agostine Kolmogore Shapiro-W	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov	Mean S 0.00854 0.00798 Variance Tect y of Variance Normality Test ss Test K2 Omnibut y D Test	st ce Test Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426 0.9497	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2317	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E	n(α:1%) riances riances Distribution Distribution Distribution Distribution Distribution	ct	%Effec
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Edited Mod Leve Anderson-D'Agostine D'Agostine D'Agostine Kolmogore Shapiro-W te Summary	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov Vilk W Norr	Mean S 0.00854 0.00798 Variance Test Of Variance Normality Test So Test K2 Omnibut V D Test mality Test	st ce Test Test	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426 0.9497	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2317 0.2675	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E Normal E	n(α:1%) uriances uriances Distribution Distribution Distribution Distribution Distribution Distribution		%Effec 0.00%
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine D'Agostine Kolmogore Shapiro-W te Summary Code	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov Vilk W Norr	Mean S 0.00854 0.00798 Variance Test Soft Variance Normality Test Soft Test A Domnibut O D Test mality Test Mean	st se Test Test us Test 95% LCL	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426 0.9497 95% UCL	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2317 0.2675	Decision Equal Va Equal Va Normal D Normal D Normal D Normal D	n(α:1%) Iriances Iriances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	CV%	
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine D'Agostine Kolmogore Shapiro-W te Summary Code	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov Vilk W Norr	Mean S 0.00854 0.00798 Variance Test of Variance Normality Test is Test K2 Omnibut v D Test mality Test Mean 1.0000	st se Test Test 95% LCL 1.0000	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426 0.9497 95% UCL 1.0000	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2317 0.2675 Min 1.0000	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E Normal E Normal E	n(α:1%) Irriances Irriances Distribution Distribution Distribution Distribution Distribution Stribution Stribution	CV% 0.00%	
ANOVA Table Source Between Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Conc-% 0 6.25 12.5	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine D'Agostine Kolmogore Shapiro-W te Summary Code	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov Vilk W Norr	Mean S 0.00854 0.00798 /ariance Tea y of Variance Normality Test ss Test K2 Omnibut D Test mality Test mality Test Mean 1.0000 0.9500	95% LCL 1.0000 0.8484	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426 0.9497 95% UCL 1.0000 1.0000	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000 0.9667	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2675 Min 1.0000 0.8667	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E Normal E 1.0000 1.0000	n(α:1%) Irriances Irriances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Oistribution Oistribution Oistribution Oistribution	CV% 0.00% 6.72%	0.00% 5.00%
Between Error Total Distributional Attribute Variances Variances Distribution	Sum Squ 0.0427164 0.143677 0.186393 Tests Test Levene Ed Mod Leve Anderson- D'Agostine D'Agostine D'Agostine Kolmogore Shapiro-W te Summary Code	quality of V ne Equality -Darling A2 o Kurtosis o Skewnes o-Pearson ov-Smirnov Vilk W Norr Count 4 4 4	Mean S 0.00854 0.00798 /ariance Tea y of Variance Normality Test s Test K2 Omnibut D Test mality Test mality Test Mean 1.0000 0.9500 0.9333	95% LCL 1.0000 0.8484 0.8467	DF 5 18 23 Test Stat 2.934 2.033 0.4534 0.6178 0.8542 1.111 0.1426 0.9497 95% UCL 1.0000 1.0000 1.0000	F Stat 1.07 Critical 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000 0.9667 0.9333	P-Value 0.4091 P-Value 0.0415 0.1222 0.2753 0.5367 0.3930 0.5737 0.2317 0.2675 Min 1.0000 0.8667 0.8667	Decision Equal Va Equal Va Normal E Normal E Normal E Normal E Normal E 1.0000 1.0000 1.0000	n(a:1%) Irriances Irriances Distribution	CV% 0.00% 6.72% 5.83%	0.00% 5.00% 6.67%

Report Date:

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Test Code:

VCF1016.345f | 00-9771-0895

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, In-		Aquatic	Bioassay	&	Consulting	Labs,	Inc
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Analysis ID:	18-8012-0424	Endpoint:	7d Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	02 Dec-16 11:45	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Ang	jular (Corre	cted) Trans	formed S	Sum	mary
_			_		

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.441	1.441	1_442	1.441	1.441	1.441	0	0.00%	0.00%
6.25		4	1.347	1.16	1.535	1.375	1.197	1.441	0.05894	8.75%	6.52%
12.5		4	1.314	1.155	1.473	1.31	1.197	1.441	0.04995	7.60%	8.81%
25		4	1,408	1.304	1.513	1.441	1.31	1.441	0.03292	4.68%	2.28%
50		4	1.347	1.16	1.535	1.375	1.197	1.441	0.05894	8.75%	6.52%
100		4	1.375	1.254	1.496	1.375	1.31	1.441	0.03802	5.53%	4.57%

7d Survival Rate Detail

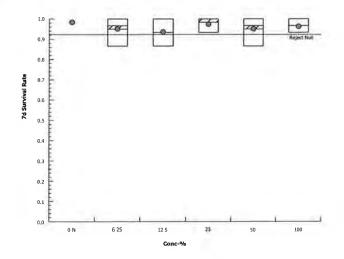
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
6.25		0.8667	0.9333	1.0000	1.0000
12.5		1.0000	0.8667	0.9333	0.9333
25		1,0000	1.0000	0.9333	1.0000
50		0.9333	0.8667	1.0000	1.0000
100		0.9333	1.0000	1.0000	0.9333

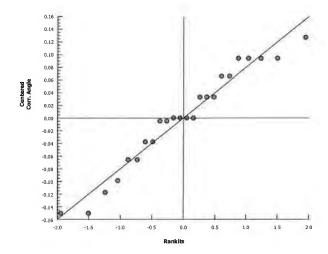
Angular (Corrected) Transformed Detail

Code	Rep 1	Rep 2	Rep 3	Rep 4
N	1.441	1.441	1.441	1.441
	1_197	1.31	1.441	1 441
	1.441	1.197	1.31	1.31
	1.441	1.441	1.31	1.441
	1.31	1.197	1.441	1.441
	1.31	1.441	1.441	1.31
		N 1.441 1_197 1.441 1.441 1.31	N 1.441 1.441 1.197 1.31 1.441 1.197 1.441 1.441 1.31 1.197	N 1.441 1.441 1.441 1.197 1.31 1.441 1.441 1.197 1.31 1.441 1.441 1.31 1.31 1.197 1.441

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
6.25		13/15	14/15	15/15	15/15
12.5		15/15	13/15	14/15	14/15
25		15/15	15/15	14/15	15/15
50		14/15	13/15	15/15	15/15
100		14/15	15/15	15/15	14/15





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Test Code:

VCF1016.345f | 00-9771-0895

Fathead Minnow	v 7-d Larval S	Survival an	d Growth	Test				Aquatic	Bioassay &	Consultin	g Labs, Ind
Analysis ID: 0	9-4359-6039	En	dpoint: N	Mean Dry Bion	nass-mg		CET	ΓIS Versior	: CETISv1	1.9.2	
Analyzed: 0	2 Dec-16 11:	45 A n	alysis: F	Parametric-Co	ntrol vs Trea	tments	Offi	cial Result	s: Yes		
Batch ID: 16	5-1889-4412	Te	st Type: 0	Growth-Surviva	al (7d)		Ana	lyst: Jo	e Freas		
Start Date: 28	3 Oct-16 14:30) Pro	otocol: E	PA/821/R-02-	-013 (2002)		Dilu	rent: La	boratory Wat	ter	
Ending Date: 04	Nov-16 12:3	0 S p	ecies: F	oimephales pro	omelas		Brir	ne: No	t Applicable		
Duration: 6d	22h	So	urce: A	Aquatic Biosys	tems, CO		Age	:			
Sample ID: 19	9-4412-3607	Co	de: V	/CF1016.345			Clie	ent: VC	WPD		
Sample Date: 28	3 Oct-16 04:20) Ma	iterial: S	Sample Water			Pro	ject: 20	16/17-1 (Wet	t)	
Receipt Date: 28	Oct-16 09:47	7 So	urce: E	Bioassay Repo	ort					,	
Sample Age: 10				/IO-OJA							
Data Transform		Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T					100	> 100	n/a	1	12.14%
Dunnett Multiple	Comparison	n Test									
Control vs	Conc-%		Test Sta	at Critical	MSD DE	P-Type	P-Value	Decisio	n(a:5%)		
Negative Control	6.25		-3.269	2.407	0.046 6	CDF	1.0000	Non-Sigi	nificant Effect	t	
	12.5		-3.269	2.407	0.046 6	CDF	1,0000	Non-Sigi	nificant Effect	t	
	25		-4.049	2.407	0.046 6	CDF	1,0000	Non-Sigi	nificant Effect	t	
	50		-1.814	2.407	0.046 6	CDF	0.9984	Non-Sigi	nificant Effect	t	
	100		1.165	2.407	0.046 6	CDF	0.3512	Non-Sign	nificant Effect	t	
Test Acceptabilit	ty Criteria	TAC	Limits								
Attribute	Test Stat		Upper	Overlap	Decision						
Control Resp	ontrol Resp 0.377 0.25 >> Yes					cceptibility	Criteria				
ANOVA Table											
Source	Sum Squ	ares	Mean S	quare	DF	F Stat	P-Value	Decision	n(α:5%)		
Between	0.0309244	4	0,00618	49	5	8.549	2.7E-04	Significa	nt Effect		
Error	0.013022	2	0.00072	35	18						
Total	0.0439466	3			23						
Distributional Te	ests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(a:1%)		
Variances	Bartlett Ed	quality of V	ariance Tes	st	2.555	15.09	0.7682	Equal Va	riances		
Variances	Levene E	quality of V	ariance Tes	st	1.426	4.248	0.2626	Equal Va	riances		
Variances	Mod Leve	ne Equality	of Varianc	e Test	1.374	4.248	0.2801	Equal Va	riances		
Distribution	Anderson-	-Darling A2	Normality	Test	0.3123	3.878	0.5763	Normal D	Distribution		
Distribution	D'Agostine	o Kurtosis ⁻	Test		1.109	2.576	0.2676	Normal D	Distribution		
Distribution	D'Agostine	o Skewnes	s Test		0.3259	2.576	0.7445	Normal E	Distribution		
Distribution	D'Agostin	o-Pearson	K2 Omnibu	ıs Test	1.335	9.21	0.5129	Normal D	Distribution		
Distribution	Kolmogor	ov-Smirnov	D Test		0.1087	0.2056	0.6800	Normal D	Distribution		
Distribution	Shapiro-W	Vilk W Norn	mality Test		0.9743	0.884	0.7729	Normal D	Distribution		
Mean Dry Bioma	ss-mg Sumn	nary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.377	0.3157	0.4383	0.3747	0.334	0.4247	0.01926	10.22%	0.00%
6.25		4	0.4392	0.396	0.4824	0.4423	0.4067	0.4653	0.01357	6.18%	-16.49%
12.5		4	0.4392	0.4006	0.4778	0.438	0.4127	0.468	0.01212	5.52%	-16.49%
25		4	0.454	0.4057	0.5023	0.4513	0.426	0.4873	0.01518	6.69%	-20,42%
50		4	0.4115	0.3826	0.4404	0.41	0.3913	0.4347	0.00909	4.42%	-9.15%
100		4	0.2549	0 2202	0.2015	0.2502	0.24	0.3797	0.006364	4 710/	E 990/



5.88%

0.008364 4.71%

0.3815

0.3503

0.34

0.3787

0.3548

0,3282

100

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Test Code:

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Fathead Minnow	7-d Larval Survival	and Growth Test
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Aquatic Bioassay & Consulting Labs, Inc.
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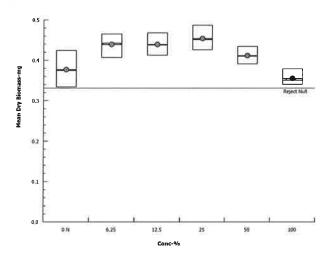
Analysis ID: 09-4359-6039 Endpoint: Mean Dry Biomass	-mg
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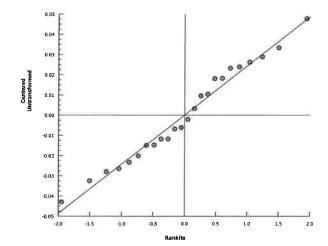
CETIS Version: CETISv1.9.2

Analyzed: 02 Dec-16 11:45 Analysis: Parametric-Control vs Treatments Official Results: Yes

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.334	0.362	0.4247	0.3873
6.25		0.4067	0.4653	0.4273	0.4573
12.5		0.468	0.4273	0.4127	0.4487
25		0.426	0.472	0.4873	0.4307
50		0.4147	0.3913	0.4347	0.4053
100		0.3527	0.34	0.3787	0.348





Report Date:

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Test Code: VCF1016 345f | 00-9771-0895

Fathea	d Minno	w 7-d Larval S	urvival and	d Growt	h Test						Aquat	ic Bi	oassay &	Consu	lting La	bs, Inc.
Analys Analyz		09-2414-2240 02 Dec-16 11:4		lpoint: llysis:	7d Survival Rat Linear Interpola)		CETIS Version: CETISv1.9.2 Official Results: Yes							
Batch I	ID:	16-1889-4412	Tes	t Type:	Growth-Surviva	Growth-Survival (7d)				Analyst: Joe Freas						
Start D	ate:	28 Oct-16 14:30		tocol:	EPA/821/R-02-013 (2002)				1	Diluent: Laboratory Water						
Ending	Date:	04 Nov-16 12:30	O Spe	cies:	Pimephales pro	melas			-	3rine	:	Not A	pplicable			
Duratio	on: (6d 22h	Sou	ırce:	Aquatic Biosyst	tems, CO				Age:						
Sample		19-4412-3607	Cod	le:	VCF1016.345					Client	-	VCW				
-		28 Oct-16 04:20		erial:	Sample Water				- 1	Proje	ct:	2016/	17-1 (Wet	()		
		28 Oct-16 09:47		ırce:	Bioassay Repo	rt										
Sample	e Age:	10h	Sta	tion:	MO-OJA											
Linear	Interpol	ation Options														
X Trans	sform	Y Transform		d	Resamples	Exp 95%	CL	Metho								
Linear		Linear	0		280	Yes		Two-F	Point In	terpo	lation					
Test Ad	cceptabi	lity Criteria	TAC L	imits.												
Attribu	te	Test Stat	Lower	Uppe	r Overlap	Decision										
Control	Resp	1	0.8	>>	Yes	Passes A	ccepti	bility Cr	riteria							
Point E	stimate	s														
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL										
EC5	>100	n/a	n/a	<1	n/a	n/a										
EC10	>100	n/a	n/a	<1	n/a	n/a										
EC15	>100	n/a	n/a	<1	n/a	n/a										
EC20	>100	n/a	n/a	<1	n/a	n/a										
EC25	>100	n/a	n/a	<1	n/a	n/a										
EC40	>100	n/a	n/a	<1	n/a	n/a										
EC50	>100	n/a	n/a	<1	n/a	n/a										
		te Summary						Variate	• '							
Conc-%	6	Code	Count	Mean		Max	Std		Std D		CV%		%Effect	Α	В	
0 6.25		N	4	1.0000 0.9500		1.0000 1.0000	0.00		0.000		0.00% 6.72%		0.0% 5.0%	60 57	6	
12.5			4 4	0.9333		1.0000	0.03		0.054		5.83%		5.0% 6.67%	56	6	
25			4	0.9833		1.0000	0.02		0.033		3.39%		1.67%	59	6	
50			4	0.9500		1.0000	0.03		0.063		6.72%		5.0%	57	6	
100			4	0.966		1.0000	0.01		0.038		3.98%		3.33%	58	6	
7d Surv	vival Ra	te Detail														
Conc-%		Code	Rep 1	Rep 2	Rep 3	Rep 4										
0		N	1.0000	1.0000		1.0000										
6.25		-	0.8667	0.9333		1.0000										
12.5			1.0000	0.8667		0.9333										
25			1.0000	1.0000		1.0000										
50			0.9333	0.8667		1.0000										
100			0.9333	1.0000		0.9333										
7d Surv	/ival Rat	te Binomials														
Conc-%		Code	Rep 1	Rep 2	Rep 3	Rep 4										
0		N	15/15	15/15	15/15	15/15										
6.25			13/15	14/15	15/15	15/15										
12.5			15/15	13/15	14/15	14/15										
25			15/15	15/15	14/15	15/15										
50			14/15	13/15	15/15	15/15										
100			14/15	15/15	15/15	14/15										

Report Date:

02 Dec-16 11:49 (p 2 of 4)

Test Code:

VCF1016.345f | 00-9771-0895

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 02 Dec-16 11:45

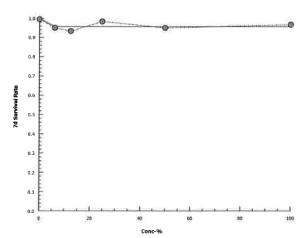
09-2414-2240

Endpoint: 7d Survival Rate Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2



Report Date:

02 Dec-16 11:49 (p 3 of 4)

Test Code: VCF1016.345f | 00-9771-0895

												1000		
Fathea	d Minn	ow 7-d Larval S	urvival and	l Growt	th Test				Aqua	itic Bi	oassay & Consul	ting Labs, Inc		
Analys Analyz		05-8228-9073 02 Dec-16 11:4		lpoint: lysis:	Mean Dry Bion Linear Interpol	-)		CETIS Vers		CETISv1.9.2 Yes			
Batch	ın.	16-1889-4412	Tes	t Type	Growth-Surviva	al (7d)			Analyst: Joe Freas					
Start D		28 Oct-16 14:30		tocol:	EPA/821/R-02				Diluent:		ratory Water			
		04 Nov-16 12:30		cies:	Pimephales pr	` ,			Brine:		Applicable			
Duratio		6d 22h		rce:	Aquatic Biosys				Age:					
Sample	e ID:	19-4412-3607	Cod	le:	VCF1016.345			(Client:	VCW	'PD			
Sampl	e Date:	28 Oct-16 04:20	Mat	erial:	Sample Water			F	Project:	2016	/17-1 (Wet)			
Receip	t Date:	28 Oct-16 09:47	Sou	rce:	Bioassay Repo	ort								
Sample	e Age:	10h	Stat	ion:	MO-OJA									
Linear	Interpo	lation Options												
X Tran	sform	Y Transform	See	d	Resamples	Exp 95%	CL Met	hod						
Linear		Linear	0		280	Yes	Two	-Point In	terpolation					
Test A	cceptab	ility Criteria	TAC L	imits										
Attribu	te	Test Stat	Lower	Uppe	r Overlap	Decision								
Control	Resp	0.377	0.25	>>	Yes	Passes A	cceptibility	Criteria						
Point E	Estimate	es												
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL								
C5	54.88	31.32	74.69	1.822		3.193								
IC10	73.74	49.45	94.35	1.356	1.06	2.022								
C15	92.59	72.31	n/a	1.08	n/a	1.383								
C20	>100	n/a	n/a	<1	n/a	n/a								
C25	>100	n/a	n/a	<1	n/a	n/a								
IC40	>100	n/a	n/a	<1	n/a	n/a								
C50	>100	n/a	n/a	<1	n/a	n/a								
Viean [Ory Bion	nass-mg Summ	ary			Cal	culated Va	riate						
Conc-%	6	Code	Count	Mean		Max	Std Err	Std D			%Effect			
)		N	4	0.377	0.334	0.4247	0.01926	0.038	53 10,22	2%	0.0%			
3.25			4	0.439	2 0.4067	0.4653	0.01357	0.027	15 6.18%	%	-16.49%			
2.5			4	0.439	2 0.4127	0.468	0.01212	0.0242	25 5.52%	6	-16.49%			
25			4	0.454	0.426	0.4873	0.01518	0.0303	35 6.69%	6	-20.42%			
50			4	0.411	5 0.3913	0.4347	0.00909	0.018			-9.15%			
100			4	0.354	8 0,34	0.3787	0.008364	0.0167	73 4.719	6	5.88%			
Vlean D	ry Bion	nass-mg Detail												
Conc-%	6	Code	Rep 1	Rep 2		Rep 4								
)		N	0.334	0.362		0.3873								
5.25			0.4067	0.465		0.4573								
12.5			0.468	0.427	3 0.4127	0.4487								
25			0.426	0.472	0,4873	0.4307								
50			0.4147	0.391	3 0.4347	0.4053								
100			0.3527	0.34	0.3787	0,348								

Report Date:

02 Dec-16 11:49 (p 4 of 4)

Test Code:

VCF1016.345f | 00-9771-0895

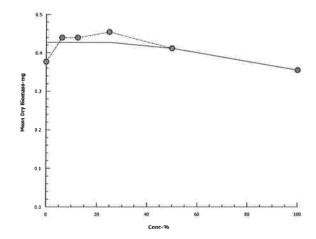
Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-4 Analyzed: 02

05-8228-9073 02 Dec-16 11:45 **Endpoint:** Mean Dry Biomass-mg **Analysis:** Linear Interpolation (ICPIN)

CETIS Version: Official Results: CETISv1.9.2



CETIS Measurement Report

Report Date:

02 Dec-16 11:49 (p 1 of 2)

Test Code:

VCF1016,345f | 00-9771-0895

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	16-1889-4412
Start Date:	28 Oct-16 14:30

Test Type: Growth-Survival (7d) Protocol: EPA/821/R-02-013 (2002) Analyst: Diluent:

Joe Freas Laboratory Water

Duration:

Ending Date: 04 Nov-16 12:30 6d 22h

Species: Source:

Pimephales promelas Aquatic Biosystems, CO

Brine:

Not Applicable

Age:

Sample ID: Sample Date: 28 Oct-16 04:20

19-4412-3607 Code: Material: VCF1016.345 Sample Water Client: Project: VCWPD 2016/17-1 (Wet)

Receipt Date: 28 Oct-16 09:47

Source:

Bioassay Report

Sample Age: 10h

Station:

MO-OJA

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62.25	60.72	63.78	61	65	0.6478	1.832	2.94%	0
100		8	103	103	103	103	103	0	0	0.0%	0
Overall		16	82.62	71.39	93.86	61	103	5.27	21.08	25.51%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	329.2	321	337.5	319	348	3,509	9.925	3.01%	0
6.25		8	322	310.1	333.9	312	347	5.043	14.26	4.43%	0
12.5		8	314.9	308.7	321	308	326	2.594	7.338	2.33%	0
25		8	305.6	299.7	311.5	300	318	2.485	7.029	2.3%	0
50		8	281.5	270.8	292.2	253	297	4.543	12.85	4.57%	0
100		8	250.6	246	255.2	242	258	1.945	5.502	2.2%	0
Overall		48	300.6	292.3	309	242	348	4.167	28.87	9.60%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.738	7.571	7.904	7.5	8.1	0.07055	0.1996	2.58%	0
6.25		8	6.962	6.581	7.344	6.3	7.6	0.1614	0.4565	6.56%	0
12.5		8	7.425	7.221	7.629	7.1	7.8	0.08609	0.2435	3.28%	0
25		8	6.75	6.116	7.384	5.3	7.5	0.2679	0.7578	11.23%	0
50		8	5.812	4.91	6.715	4.6	7.5	0.3815	1.079	18.56%	0
100		8	6.588	5.292	7.883	4.9	9.8	0.5479	1.55	23.52%	0
Overall		48	6.879	6.582	7.177	4.6	9.8	0.1479	1.025	14.90%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5.77%	0
100		8	105	105	105	105	105	0	0	0.0%	0
Overall		16	97.38	92.78	102	86	105	2.158	8.632	8.87%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7,825	7.685	7.965	7.5	8	0.05901	0.1669	2.13%	0
6.25		8	7.762	7.622	7.903	7.6	8.1	0.05957	0.1685	2.17%	0
12.5		8	7.7	7.574	7.826	7.5	8	0.05345	0.1512	1.96%	0
25		8	7.587	7.45	7.725	7.4	7.9	0.05806	0.1642	2.16%	0
50		8	7.413	7.268	7.557	7.2	7.7	0.06105	0.1727	2.33%	0
100		8	7.175	6.987	7.363	6.9	7.6	0.07962	0.2252	3.14%	0
Overall		48	7.577	7.496	7.659	6.9	8.1	0.04052	0.2808	3.71%	0 (0%)

Report Date: Test Code: 02 Dec-16 11:49 (p 2 of 2) VCF1016.345f | 00-9771-0895

Fathead Minno	ow 7-d Larval	Survival a	nd Growth	Test				Aquatic	Bioassay &	Consultin	g Labs, Inc.
Temperature-°	С										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Cour
0	N	8	24	24	24	24	24	0	0	0.0%	0
6.25		8	24	24	24	24	24	0	0	0.0%	0
12.5		8	24	24	24	24	24	0	0	0.0%	0
25		8	24	24	24	24	24	0	0	0.0%	0
50		8	24	24	24	24	24	0	0	0.0%	0
100		8	24	24	24	24	24	0	0	0.0%	0
Overall		48	24	24	24	24	24	0	0	0.00%	0 (0%)
Alkalinity (CaC	_										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	63	61	61	61	61	61	65	65		
100		103	103	103	103	103	103	103	103		
Conductivity-µ	mhos										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	336	320	319	326	324	325	336	348		
6.25		321	312	313	312	313	316	342	347		
12.5		321	316	308	309	308	309	322	326		
25		311	303	300	300	300	301	312	318		
50		283	280	283	281	284	291	297	253		
100		247	242	249	248	253	250	258	258		
Dissolved Oxy	gen-mg/L										
Conc-%	Code	11	2	3	4	5	6	7	8		
0	N	7.6	7.6	7.8	7.9	7.6	7.8	7.5	8.1		
6.25		7.6	6.5	6.3	7.1	7.1	7.5	6.9	6.7		
12.5		7.6	7_1	7.5	7.6	7.2	7.8	7.4	7.2		
25		7.5	5.3	6.8	7.4	6.8	7.5	6.5	6.2		
50		7.5	4.8	5.7	7.2	6	5.8	4.9	4.6		
100		7.4	9.8	6.1	4.9	6.7	5.6	6.9	5.3		
Hardness (CaC	O3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	96	86	86	86	86	86	96	96		
100		105	105	105	105	105	105	105	105		
pH-Units											
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	8	7.9	7.8	7.9	7.7	7.8	7.5	8		
6.25		7.6	7.9	7.8	7_7	7.7	7.7	8.1	7.6		
12.5		7.5	7.8	7.7	7.7	7.6	7.7	8	7.6		
25		7.4	7.7	7.6	7.6	7.5	7_6	7.9	7_4		
50		7.3	7.3	7.5	7.6	7.3	7.4	7.7	7.2		
100		6.9	7.6	7	7.3	7.2	7.3	7,1	7		
Temperature-°(
Conc-%	Code	_ 1	2	3	4	5	6	7	8		
)	N	24	24	24	24	24	24	24	24		
6.25		24	24	24	24	24	24	24	24		
12.5		24	24	24	24	24	24	24	24		
25		24	24	24	24	24	24	24	24		
50		24	24	24	24	24	24	24	24		
100		24	24	24	24	24	24	24	24		





December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-MEI

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.346

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

SURVIVAL

NOEC =

100.00 %

TUc =

1.00

EC25 =

>100.00 %

EC50 =

>100.00 %

BIOMASS

NOEC =

100.00 %

TUc =

1.00

IC25 =

>100.00 %

IC50 =

>100.00 %

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 13:32 (p 1 of 2)

Test Code:

VCF1016 346f | 08-4676-9043

						Acceptio Diagnose 9 Computing Labor tra							
Fathead Minr	now 7-d Larval Surviva	I and Growt	h Test			Aquatic Bioassay & Consulting Labs, Inc.							
Batch ID:	04-2638-6326	Test Type:	Growth-Surviva	al (7d)		An	alyst: J	oe Freas					
Start Date:	28 Oct-16 14:48	Protocol:	EPA/821/R-02	-013 (2002)		Dil	uent: L	aboratory Wat	er				
Ending Date:	04 Nov-16 12:53	Species:	Pimephales pre	omelas		Bri	ne: N	ot Applicable					
Duration:	6d 22h	Source:	Aquatic Biosys	tems, CO		Ag	e:						
Sample ID:	16-6561-3735	Code:	: VCF1016.346			Cli	ent: V	CWPD					
Sample Date:	28 Oct-16 05:55	Material:	ial: Sample Water			Pro	oject: 2	016/17-1 (Wet	t)				
Receipt Date:	28 Oct-16 09:47	Source:	Bioassay Repo										
Sample Age:	9h	Station:	on: MO-MEI										
Multiple Com	parison Summary												
Analysis ID	Endpoint	Comp	Comparison Method				LOEL	TOEL	TU	PMS)		
13-9578-2049	7d Survival Rate	Steel	Steel Many-One Rank Sum Test				> 100	n/a	1	10.9%	ó		
05-7252-2639	Mean Dry Biomass-mg) Dunne	Dunnett Multiple Comparison Test				> 100	n/a	1	19.8%	ó —		
Point Estimat	te Summary												
Analysis ID	Endpoint		Estimate Meth			Level	%	95% LCL	95% UCL		_		
01-3322-5108	7d Survival Rate	Linea	Interpolation (I	CPIN)		EC5	98	n/a	n/a	1.02			
						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	,		
						EC50	>100	n/a	n/a	<1	_		
17-3306-9037	Mean Dry Biomass-mg	Linear	Interpolation (I	CPIN)		IC5	80.72	51.13	n/a	1.239			
						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	,		
Tact Accomtal	silitu				TAC	Limits							
			Attribute Test Stat										
Analysis ID	Endpoint			Test Stat	Lower	Upper	Overla						
Analysis ID 01-3322-5108	Endpoint 7d Survival Rate	Contro	ol Resp	0.9667	Lower 0.8	>>	Yes	Passes A	cceptibility C				
Analysis ID 01-3322-5108 13-9578-2049	Endpoint 7d Survival Rate 7d Survival Rate	Contro Contro	ol Resp ol Resp	0.9667 0.9667	0.8 0.8	>>	Yes Yes	Passes A	cceptibility C	riteria			
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg	Contro Contro Contro	ol Resp ol Resp ol Resp	0.9667 0.9667 0.3555	0.8 0.8 0.25	>> >> >>	Yes Yes Yes	Passes Ad Passes Ad Passes Ad	cceptibility C	riteria riteria			
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg	Contro Contro Contro	ol Resp ol Resp	0.9667 0.9667	0.8 0.8	>>	Yes Yes	Passes Ad Passes Ad Passes Ad	cceptibility C	riteria riteria			
01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary	Contro Contro Contro	ol Resp ol Resp ol Resp ol Resp	0.9667 0.9667 0.3555 0.3555	0.8 0.8 0.25 0.25	>> >> >> >>	Yes Yes Yes Yes	Passes An Passes An Passes An Passes An	cceptibility C cceptibility C cceptibility C	riteria riteria riteria			
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R: Conc-%	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour	Contro Contro Contro Contro	ol Resp ol Resp ol Resp ol Resp 95% LCL	0.9667 0.9667 0.3555 0.3555	0.8 0.8 0.25 0.25	>> >> >> >>	Yes Yes Yes Yes	Passes Ar Passes Ar Passes Ar Passes Ar Std Dev	cceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria %Effe			
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour	Contro Contro Contro Mean 0.966	ol Resp ol Resp ol Resp ol Resp ol Resp 95% LCL 7 0.8606	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000	0.8 0.8 0.25 0.25 0.25	>> >> >> >> Max	Yes Yes Yes Yes Yes Yes Yes	Passes Ar Passes Ar Passes Ar Passes Ar Std Dev 0.0667	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria %Effe 0.00%	,		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival Race Conc-% 0 5.25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg Ate Summary Code Cour N 4 4	Contro Contro Contro Mean 0.966 0.933	of Resp of Resp of Resp of Resp of Resp 95% LCL 7 0.8606 3 0.7212	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333	>> >> >> >> Max 1.0000 1.0000	Yes Yes Yes Yes Yes O.0333	Passes Ad Passes Ad Passes Ad Passes Ad Std Dev 0.0667 0.1333	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	riteria riteria riteria %Effe 0.00% 3.45%	,		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival Racconc-% 0 6.25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour	Contro Contro Contro Mean 0.966 0.933 0.983	95% LCL 7 0.8606 3 0.7212 3 0.9303	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333 0.9333	>> >> >> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes Yes Yes O.0333 O.0667 O.0167	Passes Ad Passes Ad Passes Ad Passes Ad Std Dev 0.0667 0.1333 0.0333	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	criteria criteria criteria %Effe 0.00% 3.45% -1.72%	6		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival Racconc-% 0 6.25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4	Contro Contro Contro Mean 0.966 0.933	95% LCL 7 0.8606 3 0.7212 3 0.9303 0 0.8970	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333	>> >> >> >> Max 1.0000 1.0000	Yes Yes Yes Yes Yes O.0333	Passes Ad Passes Ad Passes Ad Passes Ad Std Dev 0.0667 0.1333	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	riteria riteria riteria %Effe 0.00% 3.45%	6		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival Ra Conc-% 0 6.25 12.5	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4	Contro Contro Contro Mean 0.966 0.933 0.983 0.9500	95% LCL 7 0.8606 3 0.7212 3 0.9303 0 0.9054	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333 0.9333	>> >> >> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes Yes Yes O.0333 O.0667 O.0167	Passes Ar Passes Ar Passes Ar Passes Ar Std Dev 0.0667 0.1333 0.0333 0.0333	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	%Effe 0.00% 3.45% -1.72%	6		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R: Conc-% 0 6.25 12.5 25 50 100	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg Tode Cour N 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Mean 0.966 0.933 0.983 0.950 0.966	95% LCL 7 0.8606 3 0.7212 3 0.9303 0 0.9054	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333 0.9333 0.9333	>> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Yes Yes O.0333 O.0667 O.0167 O.0167 O.0193	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar Std Dev 0.0667 0.1333 0.0333 0.0333 0.0385	cceptibility Ccceptibility Cccceptibility Cccceptibility Cccceptibility Ccceptibility Cccceptibility Cc	%Effe 0.00% 3.45% -1.72% 0.00%	6		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R: Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4 4 4 4 4 4 4 6 mass-mg Summary Code Cour	Contro Contro Contro Mean 0.966 0.933 0.983 0.950 0.966 0.916	95% LCL 7 0.8606 3 0.7212 3 0.9303 0 0.9054	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000 0.9697	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333 0.9333 0.9333	>> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Yes Std Err 0.0333 0.0667 0.0167 0.0193 0.0167 Std Err	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar Std Dev 0.0667 0.1333 0.0333 0.0333 0.0385	cceptibility Ccceptibility Cccceptibility Cccceptibility Cccceptibility Ccceptibility Cccceptibility Cc	%Effe 0.00% 3.45% -1.72% 0.00%	6		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4 4 4 4 4 7 mass-mg Summary Code Cour	Contro Contro Contro Contro Mean 0.966 0.933 0.983 0.950 0.966 0.916 Mean 0.3556	95% LCL 7 0.8606 3 0.7212 3 0.9303 0 0.8970 7 0.9054 7 0.8636	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000 0.9697 95% UCL 0.4236	0.8 0.8 0.25 0.25 0.25 Min 0.8667 0.7333 0.9333 0.9333 0.9333 0.8667	>> >> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 0.9333 Max 0.4193	Yes Yes Yes Yes Std Err 0.0333 0.0667 0.0167 0.0193 0.0167 Std Err 0.0214	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar 0.0667 0.1333 0.0333 0.0333 0.0333 0.0333 Std Dev	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	%Effe 0.00% 3.45% -1.72% 0.00% 5.17% %Effe 0.00%	ct		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival Ra Conc-% 0 3.25 12.5 25 50 100 Mean Dry Bior Conc-% 0 3.25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Contro Mean 0.966 0.933 0.983 0.950 0.966 0.916 Mean 0.3558 0.435	95% LCL 7 0.8606 8 0.7212 9 0.8970 9 0.8636 9 0.8636 9 0.8636	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000 0.9697 95% UCL 0.4236 0.5366	0.8 0.25 0.25 Min 0.8667 0.7333 0.9333 0.9333 0.9333 0.9333 0.9333	>> >> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 0.9333 Max 0.4193 0.5	Yes Yes Yes Yes Std Err 0.0333 0.0667 0.0167 0.0167 Std Err 0.0214 0.03193	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar Std Dev 0.0667 0.1333 0.0333 0.0333 0.0333 Std Dev 0.04281 0.06385	CCCEPTIBILITY CCCCEPTIBILITY CCCCCEPTIBILITY CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	%Effe 0.00% 3.45% -1.72% 0.00% 5.17% %Effe 0.00% -22.36	ct		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R: Conc-% 0 6.25 12.5 25 50 100 Mean Dry Bior Conc-% 0 6.25 12.5 25 12.5 25 12.5 25 12.5	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Contro Mean 0.966 0.933 0.983 0.950 0.966 0.916 Mean 0.3555 0.435 0.455	95% LCL 7 0.8606 8 0.7212 9 0.8970 9 0.8636 9 0.8636 9 0.8636	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000 0.9697 95% UCL 0.4236 0.5366 0.5259	Min 0.33 0.354 0.4153	>> >> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 0.9333 Max 0.4193 0.5 0.5093	Yes Yes Yes Yes Std Err 0.0333 0.0667 0.0167 0.0167 Std Err 0.0214 0.03193 0.02207	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar 0.0667 0.1333 0.0333 0.0333 0.0333 0.0333 0.0385 0.0333	CV% 6.90% 14.29% 3.39% 3.51% 3.98% 3.64% CV% 12.04% 14.68% 9.69%	%Effe 0.00% 3.45% -1.72% 0.00% 5.17% %Effe 0.00% -22.36 -28.18	ct		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R: Conc-% 0 6.25 12.5 25 50 100 Mean Dry Biol Conc-% 0 3.25 12.5 25 25 25 25 25 25 25 25 25 25 25 25 25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Mean 0.966 0.933 0.950 0.966 0.916 0.916 0.435 0.435 0.435	95% LCL 7 0.8606 8 0.7212 9 0.8970 9 0.8636 9 0.8636 9 0.8874 9 0.3334 9 0.3854 9 0.4167	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000 0.9697 95% UCL 0.4236 0.5366 0.5259 0.4567	Min 0.33 0.9333 0.9333 0.9333 0.9333 0.94153	>> >> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 0.9333 Max 0.4193 0.5 0.5093 0.448	Yes Yes Yes Yes Yes Std Err 0.0333 0.0667 0.0167 0.0167 0.0167 Std Err 0.0214 0.03193 0.02207 0.00628	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar 0.0667 0.1333 0.0333 0.0333 0.0385 0.0333 Std Dev 0.04281 0.06385 0.04414 3 0.01257	CV% 6.90% 14.29% 3.39% 3.51% 3.98% 3.64% CV% 12.04% 14.68% 9.69% 2.88%	%Effe 0.00% 3.45% -1.72% 0.00% 5.17% %Effe 0.00% -22.36 -28.18 -22.83	ct %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%		
Analysis ID 01-3322-5108 13-9578-2049 05-7252-2639 17-3306-9037 7d Survival R: Conc-% 0 6.25 12.5 25 50 100	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cour N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Contro Mean 0.966 0.933 0.983 0.950 0.966 0.916 Mean 0.3555 0.435 0.455	95% LCL 7 0.8606 8 0.7212 9 0.8970 9 0.8636 9 0.8636 9 0.8636 9 0.8636	0.9667 0.9667 0.3555 0.3555 95% UCL 1.0000 1.0000 1.0000 1.0000 0.9697 95% UCL 0.4236 0.5366 0.5259	Min 0.33 0.354 0.4153	>> >> >> >> >> Max 1.0000 1.0000 1.0000 1.0000 0.9333 Max 0.4193 0.5 0.5093	Yes Yes Yes Yes Std Err 0.0333 0.0667 0.0167 0.0167 Std Err 0.0214 0.03193 0.02207	Passes Ar Passes Ar Passes Ar Passes Ar Passes Ar Dev 0.0667 0.1333 0.0333 0.0333 0.0333 0.0385 0.0333 Std Dev 0.04281 0.06385 0.04414 3 0.01257 0.03212	CV% 6.90% 14.29% 3.39% 3.51% 3.98% 3.64% CV% 12.04% 14.68% 9.69%	%Effe 0.00% 3.45% -1.72% 0.00% 5.17% %Effe 0.00% -22.36 -28.18	ct %%		



CETIS Summary Report

Report Date:

02 Dec-16 13:32 (p 2 of 2)

Test Code:

VCF1016.346f | 08-4676-9043

Fathead Minn	ow 7-d Larval	Survival an	d Growth T	est		Aquatic Bioassay & Consulting Labs, Inc.
7d Survival R	ate Detail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	0.8667	1.0000	
6.25		0.7333	1.0000	1.0000	1.0000	
12.5		1.0000	1.0000	1.0000	0.9333	
25		1.0000	0.9333	0.9333	0.9333	
50		0.9333	1.0000	1.0000	0.9333	
100		0.9333	0.9333	0.8667	0.9333	
Mean Dry Bio	mass-mg Deta	ail				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.332	0.33	0.3407	0.4193	
6.25		0.354	0.4687	0.5	0.4173	
12.5		0.424	0.474	0.5093	0.4153	
25		0.4193	0.4433	0.436	0.448	
50		0.422	0.4427	0.4853	0.4133	
100		0.3407	0.4233	0.4027	0.394	
7d Survival Ra	ate Binomials					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	15/15	15/15	13/15	15/15	
6.25		11/15	15/15	15/15	15/15	
12.5		15/15	15/15	15/15	14/15	
25		15/15	14/15	14/15	14/15	
50		14/15	15/15	15/15	14/15	
100		14/15	14/15	13/15	14/15	

Report Date:

02 Dec-16 13:30 (p 1 of 4)

Test Code:

VCF1016.346f | 08-4676-9043

ratnead Minnow	7-d Larval Surviv	al and Growt	h Test					Aquatic	Bioassay &	Consulting	g Labs, In
Analysis ID: 13	3-9578-2049	Endpoint:	7d Survival Ra	ite			CET	'IS Versior	ı: CETISv	1.9.2	
Analyzed: 02	2 Dec-16 13:29	Analysis:	Nonparametric	c-Contro	l vs 1	Freatments	Offic	cial Result	s: Yes		
Batch ID: 04-	2638-6326	Test Type:	Growth-Surviv	al (7d)			Ana	lyst: Jo	e Freas		
Start Date: 28	Oct-16 14:48	Protocol:	EPA/821/R-02	-013 (20	02)		Dilu	•	boratory Wa	iter	
Ending Date: 04	Nov-16 12:53	Species:	Pimephales pr				Brine: Not Applicable				
-	22h	Source:	Aquatic Biosys		0		Age				
Sample ID: 16-	6561-3735	Code:	VCF1016.346				Clie	nt: VC	WPD		
Sample Date: 28		Material:	Sample Water				Proi	ect: 20	16/17-1 (We	et)	
Receipt Date: 28		Source:	Bioassay Repo				•		`	,	
Sample Age: 9h		Station:	MO-MEI								
Data Transform	Alt	Нур					NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected							100	> 100	n/a	1	10.87%
Steel Many-One F	Rank Sum Test										
Control vs	Conc-%	Test S	Stat Critical	Ties	DF	P-Type	P-Value	Decisio	η(α:5%)		
Negative Control	6.25	17.5	10	1	6	Asymp	0.7867	Non-Sigi	nificant Effec	ct	
	12.5	18.5	10	1	6	Asymp	0.8729	_	nificant Effec		
	25	15.5	10	1	6	Asymp	0.5438	Non-Sign	nificant Effec	ct	
	50	17	10	1	6	Asymp	0.7334	Non-Sign	nificant Effec	ct	
	100	13.5	10	1	6	Asymp	0.2853	Non-Sigi	nificant Effec	ct	
Test Acceptability	Criteria .	TAC Limits									
Attribute	Test Stat Lov		overlap	Decis	ion						
Control Resp	0.9667 0.8	>>	Yes	Passe	es Ac	ceptibility C	riteria				
ANOVA Table								= =			
Source	Sum Squares	Mean	Square	DF		F Stat	P-Value	Decision	n(a:5%)		
Between	0.0390211	0.0078		5		0.6224	0.6846		nificant Effec	et	
Error	0.0000211		30 12	•		0.022	0.0010	rion oig.	mount Ende		
	0.225686	0.012	5381	18							
	0.225686 0.264707	0.012	5381	18 23		-					
Total	0.264707	0.012	5381			-					
Total Distributional Tes	0.264707	0.012	5381		Stat	Critical	P-Value	Decision	n(α:1%)		
Total Distributional Tes Attribute	0.264707 ets Test			23	Stat	Critical	P-Value 0.1778	Decisior Equal Va	<u> </u>		
Total Distributional Tes Attribute /ariances	0.264707 its Test Bartlett Equality	of Variance T	est	23 Test 5	Stat				riances		
Total Distributional Tes Attribute Variances Variances	0.264707 Its Test Bartlett Equality Levene Equality	of Variance T	est est	23 Test \$ 7.63		15.09	0.1778 0.0670	Equal Va	riances riances		
Total Distributional Tes Attribute Variances Variances Variances	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq	of Variance T of Variance T uality of Varial	est est nce Test	7.63 2.525 0.288		15.09 4.248 4.248	0.1778 0.0670 0.9131	Equal Va Equal Va Equal Va	riances riances	tion	
Total Distributional Tes Attribute Variances Variances Variances Distribution	0.264707 Its Test Bartlett Equality Levene Equality	of Variance T r of Variance T uality of Varia ng A2 Normalit	est est nce Test	7.63 2.525		15.09 4.248	0.1778 0.0670	Equal Va Equal Va Equal Va Non-Non	riances riances riances	tion	
Total Distributional Tes Attribute Variances Variances Variances Distribution Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir	of Variance T r of Variance T uality of Varia ng A2 Normalit osis Test	est est nce Test	7.63 2.525 0.288 1.231		15.09 4.248 4.248 3.878	0.1778 0.0670 0.9131 0.0031	Equal Va Equal Va Equal Va Non-Nori Normal D	riances riances riances riances		
Total Distributional Tes Attribute Variances Variances Variances Distribution Distribution Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt	of Variance To of Variance To uality of Variang A2 Normality osis Test	est est nce Test y Test	7.63 2.525 0.288 1.231 2.293		15.09 4.248 4.248 3.878 2.576	0.1778 0.0670 0.9131 0.0031 0.0219	Equal Va Equal Va Equal Va Non-Non Normal D	riances riances riances mal Distribut Distribution	tion	
Total Distributional Tes Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Skev	of Variance T of Variance T uality of Varia og A2 Normalit osis Test wness Test rson K2 Omnil	est est nce Test y Test	7.63 2.525 0.288 1.231 2.293 2.997	7	15.09 4.248 4.248 3.878 2.576 2.576	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027	Equal Va Equal Va Equal Va Non-Norr Non-Norr Non-Norr	riances riances riances riances mal Distribut Distribution mal Distribut	tion tion	
Total Distributional Tes Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.264707 Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Sker	of Variance T of Variance T uality of Varian og A2 Normalit osis Test wness Test rson K2 Omnil	est est nce Test y Test ous Test	7.63 2.525 0.288 1.231 2.293 2.997 14.24	7	15.09 4.248 4.248 3.878 2.576 2.576 9.21	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04	Equal Va Equal Va Equal Va Non-Nor Normal I Non-Nor Non-Nor	riances riances riances riances mal Distribut Distribution mal Distribut mal Distribut	tion tion tion	
Total Distributional Tes Attribute /ariances /ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Sker D'Agostino-Pea Kolmogorov-Sm Shapiro-Wilk W	of Variance T of Variance T uality of Varian og A2 Normalit osis Test wness Test rson K2 Omnil	est est nce Test y Test ous Test	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2368	7	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012	Equal Va Equal Va Equal Va Non-Nor Normal I Non-Nor Non-Nor	rriances rriances rriances rriances mal Distribut mal Distribut mal Distribut	tion tion tion	
Total Distributional Test Attribute Variances Variances Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Sker D'Agostino-Pea Kolmogorov-Sm Shapiro-Wilk W	of Variance T of Variance T uality of Varian of A2 Normalit osis Test wness Test rson K2 Omnil nirnov D Test Normality Tes	est est nce Test y Test ous Test	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2368 0.8493	7 9 3	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012	Equal Va Equal Va Equal Va Non-Nor Normal I Non-Nor Non-Nor	rriances rriances rriances rriances mal Distribut mal Distribut mal Distribut	tion tion tion	%Effect
Total Distributional Test Attribute Variances Variances Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Skev D'Agostino-Peal Kolmogorov-Sm Shapiro-Wilk W	of Variance T of Variance T uality of Varian of A2 Normalit osis Test wness Test rson K2 Omnil nirnov D Test Normality Tes	est fest nce Test y Test ous Test	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2368 0.8493	7 9 3 JCL	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012 0.0021	Equal Va Equal Va Equal Va Non-Norn Non-Norn Non-Norn Non-Norn Non-Norn	riances riances riances mal Distribut Distribution mal Distribut mal Distribut mal Distribut	tion ion ion ion	%Effect
Total Distributional Test Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Variances Conc-%	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Sket D'Agostino-Peal Kolmogorov-Sm Shapiro-Wilk W Summary Code Cou	of Variance T of Variance T uality of Varian g A2 Normalit osis Test wness Test rson K2 Omnil nirnov D Test Normality Tes	est fest fest ficest fice Test y Test bus Test 95% LCL 7 0.8606	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2369 0.8490	7 9 3 JCL	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012 0.0021	Equal Va Equal Va Equal Va Non-Norr Non-Norr Non-Norr Non-Norr	rriances rriances rriances mal Distribut Distribution mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut	tion tion tion tion CV%	
Total Distributional Test Attribute Variances Variances Distribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Sket D'Agostino-Pea Kolmogorov-Sm Shapiro-Wilk W Summary Code Cou	of Variance T of Variance T uality of Varian g A2 Normalit osis Test wness Test rson K2 Omnil nirnov D Test Normality Tes nt Mean 0.9667	est fest fest force Test y Test ous Test 95% LCL 7 0.8606 3 0.7212	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2368 0.8493 95% L	77 33 JCL))	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012 0.0021 Min 0.8667	Equal Va Equal Va Equal Va Non-Norn Non-Norn Non-Norn Non-Norn Max	rriances rriances rriances rriances mal Distribut Distribution mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0333	ction ction ction ction CV%	0.00%
Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Variances Conc-% 0.3.25	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Skev D'Agostino-Pea Kolmogorov-Sm Shapiro-Wilk W Summary Code Cou N 4 4	of Variance T of Variance T uality of Varian g A2 Normalit osis Test wness Test rson K2 Omnil airnov D Test Normality Tes unt 0.9667 0.9333	est Fest Fest Fest Fest Fest Fest Fest F	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2368 0.8493 95% L 1.0000 1.0000	77 33 JCL))	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000 1.0000	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012 0.0021 Min 0.8667 0.7333	Equal Va Equal Va Equal Va Non-Norn Non-Norn Non-Norn Non-Norn Max 1.0000	rriances rriances rriances rriances mal Distribut Distribution mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0333 0.0667	ction ction ction ction CV% 6.90% 14.29%	0.00% 3.45%
Total Distributional Test Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Oistribution Oistribution	0.264707 Its Test Bartlett Equality Levene Equality Mod Levene Eq Anderson-Darlir D'Agostino Kurt D'Agostino Sker D'Agostino-Pea Kolmogorov-Sm Shapiro-Wilk W Summary Code Cou N 4 4 4	of Variance T of Variance T uality of Varian g A2 Normalit osis Test wness Test rson K2 Omnil irnov D Test Normality Tes mt Mean 0.9667 0.9333 0.9833	est rest rest rest rest rest rest rest r	7.63 2.525 0.288 1.231 2.293 2.997 14.24 0.2368 0.8493 95% L 1.0000 1.0000	77 33 JCL))	15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000 1.0000 1.0000	0.1778 0.0670 0.9131 0.0031 0.0219 0.0027 8.1E-04 0.0012 0.0021 Min 0.8667 0.7333 0.9333	Equal Va Equal Va Equal Va Non-Norn Non-Norn Non-Norn Non-Norn Max 1.0000 1.0000	riances iriances iriances mal Distribut Distribution mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0333 0.0667 0.0167	CV% 6.90% 14.29% 3.39%	3.45% -1.72%

Report Date:

02 Dec-16 13:30 (p 2 of 4)

Test Code:

VCF1016.346f | 08-4676-9043

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-9578-2049 Analyzed:

02 Dec-16 13:29 Analysis:

Endpoint: 7d Survival Rate

Nonparametric-Control vs Treatments

CETIS Version: Official Results:

CETISv1.9.2

Yes

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.38	1.186	1.575	1_441	1.197	1.441	0.06108	8.85%	0.00%
6.25		4	1.338	1.009	1.667	1.441	1.028	1,441	0.1033	15.44%	3.06%
12.5		4	1.408	1.304	1.513	1.441	1.31	1.441	0.03292	4.68%	-2.04%
25		4	1,343	1,238	1.447	1.31	1.31	1.441	0.03292	4.90%	2.73%
50		4	1.375	1.254	1.496	1,375	1.31	1.441	0.03802	5.53%	0.35%
100		4	1_281	1.192	1.371	1.31	1.197	1.31	0_02816	4 39%	7.16%

7d Survival Rate Detail

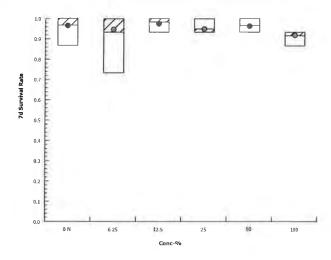
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	0.8667	1.0000	
6,25		0.7333	1.0000	1.0000	1.0000	
12.5		1.0000	1.0000	1.0000	0.9333	
25		1.0000	0.9333	0.9333	0.9333	
50		0.9333	1.0000	1.0000	0.9333	
100		0.9333	0.9333	0.8667	0.9333	

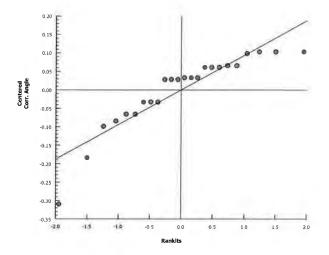
Angular (Corrected) Transformed Detail

Code	Rep 1	Rep 2	Rep 3	Rep 4	
N	1.441	1.441	1.197	1.441	
	1.028	1.441	1.441	1,441	
	1.441	1.441	1.441	1.31	
	1.441	1.31	1.31	1.31	
	1.31	1.441	1.441	1.31	
	1.31	1.31	1.197	1.31	
		N 1.441 1.028 1.441 1.441 1.31	N 1.441 1.441 1.028 1.441 1.441 1.441 1.441 1.31 1.31 1.441	N 1.441 1.441 1.197 1.028 1.441 1.441 1.441 1.441 1.441 1.441 1.31 1.31 1.31 1.441 1.441	N 1.441 1.441 1.197 1.441 1.028 1.441 1.441 1.441 1.441 1.441 1.441 1.31 1.441 1.31 1.31 1.31 1.31 1.441 1.441 1.31

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	13/15	15/15
6.25		11/15	15/15	15/15	15/15
12,5		15/15	15/15	15/15	14/15
25		15/15	14/15	14/15	14/15
50		14/15	15/15	15/15	14/15
100		14/15	14/15	13/15	14/15





Report Date:

02 Dec-16 13:31 (p 3 of 4) CF1016.346f | 08-4676-9043

Test Code:	VCF1016.346f 08-4676-9

Fathead Minne	ow 7	-d Larval S	urvival a	nd Growt	n Test				Aquatic	Bioassay &	Consulting	g Labs, In
Analysis ID: Analyzed:		7252-2639 Dec-16 13:2		ndpoint: nalysis:	Mean Dry Bior Parametric-Co	_	atments		ΓIS Versior cial Result		.9,2	
Batch ID:	04-2	638-6326	Te	st Type:	Growth-Surviv	al (7d)		Ana	ılyst: Jo	e Freas		
Start Date:	28 C	oct-16 14:48	B Pr	otocol:	EPA/821/R-02	-013 (2002)		Dilu	ient: La	boratory Wat	er	
Ending Date:	04 N	lov-16 12:50	3 S p	ecies:	Pimephales pi	omelas		Brin	ne: No	t Applicable		
Duration:	6d 2	22h	Sc	ource:	Aquatic Biosys	stems, CO		Age);			
Sample ID:	16-6	561-3735	Co	ode:	VCF1016.346			Clie	ent: VC	CWPD		
Sample Date:	28 C	ct-16 05:55	Ma	aterial:	Sample Water			Pro	ject: 20	16/17-1 (Wet	<u>:</u>)	
Receipt Date:	28 C	ct-16 09:47	' Sc	ource:	Bioassay Rep	ort						
Sample Age:	9h		St	ation:	MO-MEI							
Data Transforr	m		Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD
Untransformed			C > T					100	> 100	n/a	1	19,83%
Dunnett Multip	ole C	omparisor	Test									
Control v	/S	Conc-%		Test S	tat Critical	MSD D	F P-Type	P-Value	Decisio	n(α:5%)		
Negative Contr	ol	6.25		-2.715	2.407	0.070 6	CDF	0.9999	Non-Sign	nificant Effect	t	
		12.5		-3.421	2.407	0.070 6	CDF	1.0000	Non-Sign	nificant Effect	t	
		25		-2.772	2.407	0.070 6	CDF	0.9999	_	nificant Effect		
		50		-2.914	2.407	0.070 6	CDF	0.9999	Non-Sigi	nificant Effect	t	
		100		-1.184	2.407	0.070 6	CDF	0.9896	Non-Sigr	nificant Effect	t	
Гest Acceptab	ility	Criteria	TAC	Limits								
Attribute		Test Stat	Lower	Upper		Decision						
Control Resp		0.3555	0.25	>>	Yes	Passes A	cceptibility	Criteria				
ANOVA Table												
Source		Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decision	n(α:5%)		
Between		0.0290114		0.0058	3023	5	3.384	0.0249	Significa	nt Effect		
Error		0.0308641		0.0017	147	18						
Гotal		0.0598755				23						
Distributional [*]	Test	S										
Attribute		Test				Test Stat	Critical	P-Value	Decision	n(α:1%)		
/ariances		Bartlett Eq	uality of V	ariance T	est	5.727	15.09	0.3337	Equal Va			
/ariances		Levene Ed	uality of V	ariance T	est	1.913	4.248	0.1421	Equal Va	ariances		
/ariances		Mod Lever	ne Equality	of Variar	ice Test	1.18	4.248	0.3574	Equal Va	riances		
Distribution		Anderson-	Darling A2	Normalit	y Test	0.2768	3.878	0.6835	Normal E	Distribution		
Distribution		D'Agostino	Kurtosis	Test		0.004255	2.576	0.9966	Normal E	Distribution		
Distribution		D'Agostino	Skewnes	s Test		0,08876	2.576	0.9293	Normal E	Distribution		
Distribution		D'Agostino	-Pearson	K2 Omnik	ous Test	0.007897	9.21	0.9961	Normal E	Distribution		
Distribution		Kolmogoro	v-Smirnov	D Test		0.1156	0.2056	0.5657	Normal D	Distribution		
Distribution		Shapiro-W	ilk W Norr	nality Tes	t	0.9752	0.884	0.7935	Normal E	Distribution		
lean Dry Bion	nass	-mg Summ	агу									
Conc-%		Code	Count	Mean	95% LCL		Median	Min	Max	Std Err	CV%	%Effect
		N	4	0.3555		0.4236	0.3363	0.33	0.4193	0.0214	12.04%	0.00%
5.25			4	0.435	0.3334	0.5366	0.443	0.354	0.5	0.03193	14.68%	-22.36%
2.5			4	0.4557	0.3854	0.5259	0.449	0.4153	0.5093	0.02207	9.69%	-28.18%
25			4	0.4367	0.4167	0.4567	0.4397	0.4193	0.448	0.006283	2.88%	-22.83%
50			4	0.4408	0.3897	0.4919	0,4323	0.4133	0.4853	0.01606	7.29%	-24.00%
00				0.0000	0.0044	0 4400	0.0000	0.0407	0.4000	0.04704	0.000/	0.750/

9.03%

-9.75%

0.3902

0.3341

100

0.4462

0.3983

0.3407

0.4233

0.01761

Report Date:

02 Dec-16 13:31 (p 4 of 4)

Test Code:

VCF1016.346f | 08-4676-9043

Fathead N	Minnow:	7-d Lar	val Surviv	al and	Growth	Test
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Aquatic Bioassay & Consulting Labs, Inc.

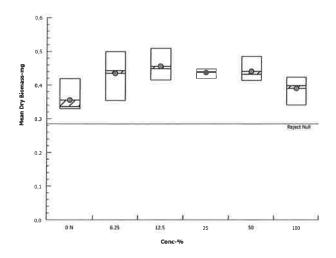
Analysis ID:	05-7252-2639
Analyzed:	02 Dec-16 13:29

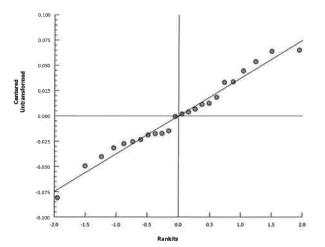
Endpoint: Mean Dry Biomass-mg **Analysis:** Parametric-Control vs Treatments

CETIS Version: CETISv1.9.2
Official Results: Yes

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.332	0.33	0.3407	0.4193
6.25		0.354	0.4687	0.5	0.4173
12.5		0.424	0.474	0,5093	0.4153
25		0.4193	0.4433	0.436	0.448
50		0.422	0.4427	0.4853	0.4133
100		0.3407	0.4233	0.4027	0.394





Report Date:

02 Dec-16 13:31 (p 1 of 4)

Test Code:

VCF1016.346f | 08-4676-9043

Fathea	d Minn	ow 7-d Larval S	urvival and	Growt	h Test				Aqua	tic Bi	oassay &	Consult	ing Labs, In
Analys Analyz		01-3322-5108 02 Dec-16 13:2		lpoint: llysis:	7d Survival Rat Linear Interpola)		CETIS Vers		CETISv1 Yes	.9.2	
Batch I	ID:	04-2638-6326	Tes	t Type:	Growth-Surviva	ıl (7 d)		į.	Analyst:	Joe F	reas		
Start D	ate:	28 Oct-16 14:48	Pro	tocol:	EPA/821/R-02-	013 (2002)			Diluent:	Labo	ratory Wat	er	
Ending	Date:	04 Nov-16 12:53	S Spe	cies:	Pimephales pro	melas		E	Brine:	Not A	pplicable		
Duratio	on:	6d 22h	Sou	irce:	Aquatic Biosyst	tems, CO		-	\ge:				
Sample	e ID:	16-6561-3735	Cod	le:	VCF1016.346			(Client:	VCW	PD		
•		28 Oct-16 05:55		erial:	Sample Water			F	Project:	2016/	/17-1 (Wet)	
•		28 Oct-16 09:47		irce:	Bioassay Repo	rt							
Sample	e Age:	9h	Stat	tion:	MO-MEI								
inear	Interpo	olation Options											
K Trans	sform	Y Transform		d	Resamples	Exp 95%		thod					
inear		Linear	0		280	Yes	Two	o-Point In	terpolation				
Test Ad	cceptat	oility Criteria	TAC L	imits									
Attribu	te	Test Stat	Lower	Uppe	r Overlap	Decision							
Control	Resp	0.9667	0.8	>>	Yes	Passes A	cceptibility	Criteria					
Point E	stimat	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
C5	98	n/a	n/a	1.02	n/a	n/a							
EC10	>100	n/a	n/a	<1	n/a	n/a							
C15	>100	n/a	n/a	<1	n/a	n/a							
C20	>100		n/a	<1	n/a	n/a							
EC25	>100		n/a	<1	n/a	n/a							
EC40	>100		n/a	<1	n/a	n/a							
EC50	>100	n/a	n/a	<1	n/a	n/a							
7d Sur	vival Ra	ate Summary				Calcu	lated Vari	ate(A/B)					
Conc-%	6	Code	Count	Mean		Max	Std Err	Std D			%Effect	Α	В
)		N	4	0.966		1_0000	0.0333	0.0667			0.0%	58	60
5.25			4	0.933		1.0000	0.0667	0.1333			3.45%	56	60
12.5			4	0.983		1.0000	0.0167	0.0333			-1.72%	59	60
25			4	0.950		1.0000	0.0167	0.0333			1.72%	57	60 60
00			4	0.966		1.0000 0.9333	0.0192 0.0167	0.0385 0.0333			0.0% 5.17%	58 55	60
			4	0.910	0.0007	0.9333	0.0107	0.033	3.047	0	3.17 /6	33	
		ate Detail											
Conc-%	6	Code	Rep 1	Rep 2		Rep 4							
		N	1.0000	1.0000		1.0000							
3.25			0.7333	1.0000		1.0000							
2.5			1.0000	1.0000		0.9333							
25			1.0000	0.9333		0.9333							
50			0.9333	1.0000		0.9333							
00			0.9333	0.933	3 0.8667	0.9333							
		ate Binomials											
onc-%	6	Code	Rep 1	Rep 2		Rep 4							
)		N	15/15	15/15	13/15	15/15							
5.25			11/15	15/15	15/15	15/15							
2.5			15/15	15/15	15/15	14/15							
25			15/15	14/15	14/15	14/15							
50			14/15	15/15	15/15	14/15							
100			14/15	14/15	13/15	14/15							

Report Date:

02 Dec-16 13:31 (p 2 of 4)

Test Code:

VCF1016.346f | 08-4676-9043

Aquatic Bioassay & Consulting Labs, Inc.

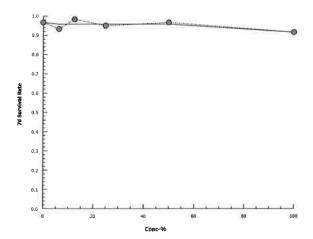
Analysis ID: Analyzed:

01-3322-5108 02 Dec-16 13:29 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 E: Yes



Report Date:

02 Dec-16 13:31 (p 3 of 4)

Test Code:	VCF1016.346f (08-4676-	.91
A All a Diss			

Fathead Minn	ow 7-d Larval Survi	val and Growt	h Test		Aqu	atic Bioassay & Consulting Labs, Inc.
Analysis ID: Analyzed:	17-3306-9037 02 Dec-16 13:29	Endpoint: Analysis:	Mean Dry Biomass-mg Linear Interpolation (ICPIN)		CETIS Ver	rsion: CETISv1.9.2 psults: Yes
Batch ID:	04-2638-6326	Test Type:	Growth-Survival (7d)		Analyst:	Joe Freas
Start Date:	28 Oct-16 14:48	Protocol:	EPA/821/R-02-013 (2002)		Diluent:	Laboratory Water
Ending Date:	04 Nov-16 12:53	Species:	Pimephales promelas		Brine:	Not Applicable
Duration:	6d 22h	Source:	Aquatic Biosystems, CO		Age:	
Sample ID:	16-6561-3735	Code:	VCF1016.346		Client:	VCWPD
Sample Date:	28 Oct-16 05:55	Material:	Sample Water		Project:	2016/17-1 (Wet)
Receipt Date:	28 Oct-16 09:47	Source:	Bioassay Report			
Sample Age:	9h	Station:	MO-MEI			
Linear Interpo	lation Options					
X Transform	Y Transform	Seed	Resamples Exp 95% CL	Method		

Linear	Linear	0	28	30	Yes	Two-Point Interpolation	
Test Acceptab	ility Criteria	TAC L	imits				
Attribute	Test Stat	Lower	Upper	Overlap	Decision		
Control Resp	0.3555	0.25	>>	Yes	Passes Acce	otibility Criteria	
Point Estimate	es						
Level %	95% LCL	95% UCL	TU	95% LCL	95% UCL		

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL	
IC5	80.72	51.13	n/a	1.239	n/a	1.956	
IC10	>100	n/a	n/a	<1	n/a	n/a	
IC15	>100	n/a	n/a	<1	n/a	n/a	
IC20	>100	n/a	n/a	<1	n/a	n/a	
IC25	>100	n/a	n/a	<1	n/a	n/a	
IC40	>100	n/a	n/a	<1	n/a	n/a	
IC50	>100	n/a	n/a	<1	n/a	n/a	

Mean Dry Bio	mass-mg Sum	ımary			Ca	alculated Va	riate			
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	N	4	0.3555	0.33	0.4193	0.0214	0.04281	12.04%	0.0%	
6.25		4	0.435	0.354	0.5	0.03193	0.06385	14.68%	-22.36%	
12.5		4	0.4557	0.4153	0.5093	0.02207	0.04414	9.69%	-28.18%	
25		4	0.4367	0.4193	0.448	0.006283	0.01257	2.88%	-22.83%	
50		4	0.4408	0,4133	0.4853	0.01606	0.03212	7.29%	-24.0%	
100		4	0.3902	0.3407	0.4233	0.01761	0.03522	9.03%	-9.75%	

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.332	0.33	0.3407	0,4193
6 25		0.354	0.4687	0.5	0.4173
12.5		0.424	0.474	0.5093	0.4153
25		0.4193	0.4433	0.436	0.448
50		0.422	0.4427	0.4853	0.4133
100		0,3407	0.4233	0.4027	0.394



Report Date:

02 Dec-16 13:31 (p 4 of 4)

Test Code:

VCF1016.346f | 08-4676-9043

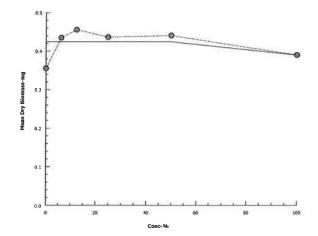
Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 17-3306-9037 02 Dec-16 13:29 Endpoint: Mean Dry Biomass-mg

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results: CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

02 Dec-16 13:31 (p 1 of 2)

Test Code:

VCF1016.346f | 08-4676-9043

Batch ID: 04-2638-6326 Test Type: Growth-Survival (7d) Start Date: 28 Oct-16 14:48 Protocol: EPA/821/R-02-013 (2002) Ending Date: 04 Nov-16 12:53 Species: Pimephales promelas Duration: 6d 22h Source: Aquatic Biosystems, CO Sample ID: 16-6561-3735 Code: VCF1016.346 Sample Date: 28 Oct-16 05:55 Material: Sample Water		Diluent: L Brine: N Age: Client: V	oe Freas aboratory Wa ot Applicable CWPD 016/17-1 (We		
Ending Date: 04 Nov-16 12:53 Species: Pimephales promelas Duration: 6d 22h Source: Aquatic Biosystems, CO Sample ID: 16-6561-3735 Code: VCF1016.346		Brine: N Age: Client: V	ot Applicable		
Duration: 6d 22h Source: Aquatic Biosystems, CO Sample ID: 16-6561-3735 Code: VCF1016.346		Age: Client: V	CWPD		
Sample ID: 16-6561-3735 Code: VCF1016.346		Client: V			
•				0	
Sample Date: 28 Oct-16 05:55 Material: Sample Water		Project: 2	016/17-1 (We	13	
				et)	
Receipt Date: 28 Oct-16 09:47 Source: Bioassay Report					
Sample Age: 9h Station: MO-MEI					
Alkalinity (CaCO3)-mg/L					
Conc-% Code Count Mean 95% LCL 95% UCL Min	Max	Std Err	Std Dev	CV%	QA Coun
0 N 8 73.5 59.49 87.51 61	95	5.925	16.76	22.8%	0
100 8 80 80 80 80	80	0	0	0.0%	0
Overall 16 76.75 70.39 83.11 61	95	2,983	11.93	15.54%	0 (0%)
Conductivity-µmhos					
Conc-% Code Count Mean 95% LCL 95% UCL Min	Max	Std Err	Std Dev	CV%	QA Coun
0 N 8 329.2 321 337.5 319	348	3.509	9.925	3.01%	0
6.25 8 314 307 321 304	328	2.964	8.384	2.67%	0
12.5 8 308.8 302.8 314.7 302	321	2.505	7.086	2.3%	0
25 8 291,2 286.2 296,3 286	301	2.153	6.089	2.09%	0
50 8 259.2 255.5 263 254	266	1.601	4.528	1.75%	0
100 8 192.5 189.6 195.4 186	198	1,239	3.505	1.82%	0
Overall 48 282.5 268.9 296.1 186	348	6.747	46.74	16,55%	0 (0%)
Dissolved Oxygen-mg/L					
Conc-% Code Count Mean 95% LCL 95% UCL Min	Max	Std Err	Std Dev	CV%	QA Count
0 N 8 7.738 7.571 7.904 7.5	8.1	0.07055	0.1996	2.58%	0
6.25 8 7.562 7.348 7.777 7.2	7.9	0.09051	0.256	3.39%	0
12.5 8 7.488 7.271 7.704 7.2	7.9	0.09149	0.2588	3.46%	0
25 8 7.425 7.1 7.75 6,7	7.9	0.1373	0.3882	5.23%	0
50 8 6.95 6.587 7.313 6.2	7.4	0.1535	0.4342	6.25%	0
100 8 6.9 5.884 7.916 4.3	8	0.4297	1.215	17.61%	0
Overall 48 7.344 7.161 7.526 4.3	8.1	0.09075	0.6287	8.56%	0 (0%)
Hardness (CaCO3)-mg/L					
Conc-% Code Count Mean 95% LCL 95% UCL Min	Max	Std Err	Std Dev	CV%	QA Count
0 N 8 89.75 85.42 94.08 86	96	1.83	5.175	5.77%	0
100 8 90 90 90 90	90	0	0	0.0%	0
Overall 16 89.88 87.99 91.76 86	96	0.8845	3.538	3.94%	0 (0%)
pH-Units					
Conc-% Code Count Mean 95% LCL 95% UCL Min	Max	Std Err	Std Dev	CV%	QA Count
0 N 8 7.8 7.633 7.967 7.5	8	0.07071	0.2	2.56%	0
6.25 8 7.387 7.185 7.59 7	7.7	0.08543	0.2416	3.27%	0
12.5 8 7.45 7.332 7.568 7.2	7.6	0.05	0.1414	1.9%	0
25 8 7.438 7.329 7.546 7.2	7.6	0.04605	0.1302	1.75%	0
	7.5	0.05324	0.1506	2.05%	0
	7.4	0.06105	0.1727	2.4%	0
Overall 48 7.438 7.365 7.51 7	8	0.03605	0.2498	3.36%	0 (0%)



Report Date: Test Code: 02 Dec-16 13:31 (p 2 of 2) VCF1016.346f | 08-4676-9043

Fathead Minnov	v 7-d Larval	Survival a	nd Growth	Test				Aquatic	0.01249 0.03531 0.15% 0 0 0 0.0% 0 0.0625 0.1768 0.73% 0 0.03751 0.1061 0.44% 0 0 0 0.0% 0 0 0 0.0% 0 0.01215 0.08419 0.35% 0 (0%) 7 8 95 95 80 80 7 8 336 348				
Temperature-°C													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Coun		
0	N	8	24.01	23.98	24.04	24	24.1	0.01249	0.03531	0.15%	0		
6.25		8	24	24	24	24	24		0	0.0%	0		
12.5		8	24.06	23.91	24.21	24	24.5				0		
25		8	24.04	23.95	24.13	24	24.3	0.03751	0,1061		0		
50		8	24	24	24	24	24						
100		8	24	24	24	24	24						
Overall		48	24.02	23.99	24.04	24	24.5	0.01215	0.08419	0.35%	0 (0%)		
Alkalinity (CaCO	3)-mg/L												
Conc-%	Code	1	2	3	4	5	6						
0	N	63	61	61	61	61	91	95	95				
100		80	80	80	80	80	80	80	80				
Conductivity-µm	ihos												
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	336	320	319	326	324	325	336	348				
6.25		321	313	309	308	308	304	321	328				
12.5		313	306	302	302	302	309	315	321				
25		296	289	286	287	286	287	298	301				
50		263	257	254	256	255	259	264	266				
100		195	191	186	192	191	194	193	198				
Dissolved Oxyge	en-mg/L												
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	7.6	7.6	7.8	7.9	7.6	7.8	7.5	8.1				
6.25		7.7	7.5	7.9	7.8	7.6	7.6	7.2	7.2				
12.5		7.6	7.3	7.3	7.9	7.5	7.8	7.2	7.3				
25		7.5	6.7	7.5	7.9	7.3	7.8	7.1	7.6				
50		7.3	7	6.5	6.2	7.4	6.8	7	7.4				
100		6.7	4.3	8	7.3	7.7	7.1	7.9	6.2				
Hardness (CaCO)3)-ma/L	0.7	4.0		7.0			7.5	0,2				
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	96	86	86	86	86	86	96	96				
100		90	90	90	90	90	90	90	90				
pH-Units													
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	8	7.9	7.8	7.9	7.5	7.8	7.5	8				
6.25		7.4	7,3	7.6	7	7.5	7.5	7.7	7.1				
12.5		7.4	7.3	7.6	7.5	7.5	7.5	7.6	7.2				
25		7.4	7.3	7.5	7.5	7.5	7.5	7.6	7.2				
50		7.3	7.2	7.4	7.5	7.5	7.4	7.5	7.1				
100		7	7	7.4	7.4	7	7.2	7.3	7.2				
Temperature-°C													
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	24	24	24.1	24	24	24	24	24				
3.25		24	24	24	24	24	24	24	24				
12.5		24	24	24	24	24	24	24	24.5				
25		24	24	24	24	24.3	24	24	24.5				
50		24	24	24	24	24.5	24	24	24				
100		24	24	24	24	24	24	24	24				





December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-OXN

DATE RECEIVED:

10/28/2016

ABC LAB, NO.:

VCF1016.354

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

SURVIVAL

NOEC = 100.00 %

TUc = 1.00

EC25 = >100.00 %

EC50 = >100.00 %

BIOMASS

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Yours/very truly.

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 14:10 (p 1 of 2)

Test Code:

VCF1016.354f | 05-4896-7054

Fathead Minn	ow 7-d Larval	Survival and	Growt	h Test				Aquati	c Bioassay &	Consulting	Labs, I	ıc.
Batch ID:	10-5334-5667	Test	Type:	Growth-Surviva	al (7d)		An	alyst:	Joe Freas			
Start Date:	28 Oct-16 15:	00 Prote	ocol:	EPA/821/R-02-	-013 (2002)		Dil	uent: L	aboratory Wat	er		
Ending Date:	04 Nov-16 13:	:00 Spec	ies:	Pimephales pro	omelas		Bri	ine: N	Not Applicable			
Duration:	6d 22h	Sour	ce:	Aquatic Biosys	tems, CO		Ag	e:				
Sample ID:	00-1380-6250	Code) :	VCF1016.354			Cli	ent: \	/CWPD			
Sample Date:	28 Oct-16 07:	15 Mate	rial:	Sample Water			Pro	oject: 2	2016/17-1 (Wet)		
Receipt Date:	28 Oct-16 10:0	05 Sour	ce:	Bioassay Repo	ort							
Sample Age:	8h	Stati	on:	MO-OXN								
Multiple Com	parison Sumn	nary										
Analysis ID	Endpoint						NOEL	LOEL	TOEL	TU	PMSE	
20-2673-0564	7d Survival Ra	ate	Steel I	Many-One Rank	Sum Test		100	> 100	n/a	1	9.53%	
15-4019-8941	Mean Dry Bior	mass-mg	Dunne	ett Multiple Com	parison Tes	t	100	> 100	n/a	1	16.7%	
oint Estimat	e Summary											
	ample ID: 00-1380-6250 Code: VCF1016.354 ample Date: 28 Oct-16 07:15 Material: Sample Water eccipt Date: 28 Oct-16 10:05 Source: Bioassay Report ample Age: 8h Station: MO-OXN Ultiple Comparison Summary							%	95% LCL	95% UCL	TU	✓
00-2725-5678	2725-5678 7d Survival Rate Linear Interpolation						EC5	>100	n/a	n/a	<1	
							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	√
							EC50	>100	n/a	n/a	<1	✓
3-4338-2798	4338-2798 Mean Dry Biomass-mg Linear Interpolation (ICPIN)						IC5	74.95	17.49	88.28	1,334	\checkmark
							IC10	99.9	41.35	n/a	1.001	√
						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 -1	√ /
							IC50	>100	n/a	n/a	<1	√
•			A Marite -	ıto.	Tost Stat		Limits	0	n Desisie			
	<u> </u>	nto.					Upper >>	Overla Yes	<u> </u>	anntikilit. C	eitorio.	_
				•			>> >>	Yes Yes		cceptibility C		
				•		0.8	>>	Yes		cceptibility C		
	-	•				0.25	>>	Yes		cceptibility C		
7d Survival Ra			John		0.0110	0.20		, 03	. 40000 /10	- Sopiality O		_
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Eri	Std Dev	CV%	%Effe	ct
)	N	4	0.9667		1.0000	0.9333	1.0000	0.0193		3.98%	0.00%	
5.25		4	0,9833	0.9303	1.0000	0.9333	1.0000	0.0167	0.0333	3.39%	-1.72%)
2.5		4	0.9500		1.0000	0.8667	1.0000	0.0319		6.72%	1.72%	
25		4	0.9500	0.8484	1.0000	0.8667	1,0000	0.0319	0.0638	6.72%	1.72%	
0		4	0.9667	0.9054	1.0000	0.9333	1.0000	0.0193		3.98%	0.00%	
00		4	0.9500	0.8484	1.0000	0.8667	1.0000	0.0319		6.72%	1.72%	
lean Dry Bior	nass-mg Sum	mary										
Conc-%	Code		Mean	95% LCL	95% UCL	Min	Max	Std Err		CV%	%Effe	_
	N		0.3443		0.3784	0.318	0.37	0.0107		6.22%	0.00%	
.25			0.4227		0.4575	0.404	0.454	0.01094		5.18%	-22.75	
2.5			0.4348		0.5114	0.3647	0.4693	0.0240		11.07%	-26.28	
.5			0.421	0.3633	0.4787	0.374	0.458	0.01814		8.62%	-22.27	
50			0.4082		0.4834	0.36	0.4713	0.0236		11.59%	-18.54	
100		4	0.3655	0.3519	0.3791	0.3533	0.3733	0.00427	72 0.008544	2.34%	-6.15%	ı

CETIS Summary Report

Report Date: Test Code: 02 Dec-16 14:10 (p 2 of 2)

VCF1016.354f | 05-4896-7054

Fathead Minn	ow 7-d Larval	Survival an	d Growth T	est		Aquatic Bioassay & Consulting Labs, Inc.
7d Survival R	ate Detail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.9333	1.0000	0.9333	1.0000	
6.25		1.0000	1.0000	0.9333	1.0000	
12.5		1.0000	0.8667	0.9333	1.0000	
25		1.0000	0.8667	1.0000	0.9333	
50		1.0000	0.9333	1.0000	0.9333	
100		1.0000	0.9333	0.8667	1.0000	
Mean Dry Bio	mass-mg Deta	nil				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.3413	0.37	0.318	0.348	
6.25		0.454	0.4127	0,404	0.42	
12.5		0.4427	0.3647	0.4627	0.4693	
25		0.4387	0.374	0.458	0.4133	
50		0.36	0.3887	0.4713	0.4127	
100		0.3673	0.3733	0.3533	0.368	
7d Survival Ra	ate Binomials					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	14/15	15/15	14/15	15/15	
6.25		15/15	15/15	14/15	15/15	
12.5		15/15	13/15	14/15	15/15	
25		15/15	13/15	15/15	14/15	
50		15/15	14/15	15/15	14/15	
100		15/15	14/15	13/15	15/15	

Report Date:

02 Dec-16 14:08 (p 1 of 4)

Test Code: VCF1016.354f | 05-4896-7054

ratileau Willillow	v 7-d Larval S	uivivai a	ilu Giowi	n rest				Aquatic	Divassay G	Consultin	g Labs, in
•	20-2673-0564 02 Dec-16 14:0		ndpoint: nalysis:	7d Survival Ra Nonparametric		Treatments				1.9.2	
Batch ID: 10	0-5334-5667	Te	est Type:	Growth-Surviva	al (7d)		Ana	alvst: Jo	e Freas		
	3 Oct-16 15:00		rotocol:	EPA/821/R-02		·		-		ter	
Ending Date: 04			pecies:	Pimephales pr	• .				-		
•	d 22h		ource:	Aquatic Biosys			Analyst: Joe Freas Diluent: Laboratory Water Brine: Not Applicable Age: Client: VCWPD Project: 2016/17-1 (Wet) NOEL LOEL TOEL TU 100 > 100 n/a 1 P-Value Decision(α:5%) 0.9516 Non-Significant Effect 0.7334 Non-Significant Effect 0.8333 Non-Significant Effect 0.8333 Non-Significant Effect 0.7334 Non-Significant Effect volume Significant Effect volume				
Sample ID: 00	0-1380-6250	C	ode:	VCF1016.354			Clie	ent: VC	:WPD		
Sample Date: 28			aterial:	Sample Water						it)	
Receipt Date: 28			ource:	Bioassay Repo			110	,,cot. 20	10/1/ / (110	,	
Sample Age: 8h			tation:	MO-OXN	,,,						
Data Transform		Alt Hyp					NOEL	LOEL	TOEL	TH	PMSD
Angular (Correcte	ed)	C > T	,								9.53%
											-
Steel Many-One		ISL	Tool 6	tet Critical	Ties D	E D Time	D Value	Daninin	-/-·EU/)		
Control vs	Conc-%		Test S			F P-Type					
Negative Control	6.25 12,5		20 17	10 10	3 6			_			
	25		17	10	3 6	Asymp		_			
	50 50		18	10	3 6	Asymp		•			
					3 6	Asymp		_			
	100		17	10	3 6	Asymp	0.7334	Non-Sigi	nificant Effec	T.	
Test Acceptabilit	ty Criteria	TAC	Limits								
Attribute	Test Stat	Lower	Upper		Decision						
Attribute Control Resp	Test Stat 0.9667	Lower 0.8	Upper >>	Yes		n Acceptibility C	Criteria				
Control Resp							Criteria				
	0.9667	0.8	>>	Yes				Decision	n(α:5%)		
Control Resp ANOVA Table Source		0.8	>>	Yes Square	Passes /	Acceptibility C	P-Value		<u> </u>	ıt.	
Control Resp ANOVA Table Source Between	0.9667 Sum Squa 0.0120792	0.8	>> Mean 0.0024	Yes Square	Passes A DF 5	Acceptibility C	P-Value		<u> </u>	rt	
Control Resp ANOVA Table Source	0.9667 Sum Squa	0.8	>> Mean	Yes Square	Passes A	Acceptibility C	P-Value		<u> </u>	rt	
Control Resp ANOVA Table Source Between Error	0.9667 Sum Squa 0.0120792 0,172774 0,184853	0.8	>> Mean 0.0024	Yes Square	DF 5 18	Acceptibility C	P-Value		<u> </u>	ıt.	
Control Resp ANOVA Table Source Between Error Total Distributional Te	0.9667 Sum Squa 0.0120792 0,172774 0,184853	0.8	>> Mean 0.0024	Yes Square	DF 5 18 23	Acceptibility C	P-Value 0.9335	Non-Sigr	nificant Effec	ıt.	
Control Resp ANOVA Table Source Between Fror Total Distributional Te	0.9667 Sum Squa 0.0120792 0,172774 0,184853 ests Test	0.8	>> Mean 0.0024 0.0095	Yes Square 1158 5985	DF 5 18 23	F Stat 0.2517	P-Value 0.9335	Non-Sigr	nificant Effec	ıt.	
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute Variances	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq	0.8 ares uality of \	>> Mean 0.0024 0.0095	Yes Square 1158 5985	DF 5 18 23 Test Stat 1.855	F Stat 0.2517 Critical 15.09	P-Value 0.9335 P-Value 0.8689	Non-Sign Decision Equal Va	nificant Effection	ıt .	
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute Variances Variances	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq	0.8 ares uality of \ uality of \	Mean 0.0024 0.0095 /ariance T	Yes Square 1158 5985 est	DF 5 18 23 Test Stat 1.855 1.214	F Stat 0.2517 Critical 15.09 4.248	P-Value 0.9335 P-Value 0.8689 0.3424	Decision Equal Va	nificant Effection (α:1%) ariances ariances	ot .	
ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances /ariances /ariances	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq Levene Eq Mod Lever	0.8 ares uality of \ uality of \ ne Equalit	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar	Yes Square 1158 5985 est est nce Test	DF 5 18 23 Test Stat 1.855 1.214 1.047	F Stat 0.2517 Critical 15.09 4.248 4.248	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212	Decisior Equal Va Equal Va Equal Va	nificant Effection (α:1%) ariances ariances ariances		
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute /ariances /ariances /ariances /ariances /ariances Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq Levene Eq Mod Lever Anderson-	uality of \uality of \ne Equalit	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar 2 Normalit	Yes Square 1158 5985 est est nce Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031	Decision Equal Va Equal Va Ron-Nor	n(α:1%) ariances ariances ariances mal Distribut		
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute /ariances /ariances /ariances Distribution Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq Levene Eq Mod Lever Anderson- D'Agostino	uality of \uality of \	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar 2 Normalit Test	Yes Square 1158 5985 est est nce Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576	Decisior Equal Va Equal Va Ron-Norn Normal E	n(α:1%) ariances ariances ariances mal Distribut		
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute /ariances /ariances /ariances Distribution Distribution Distribution Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq Levene Eq Mod Lever Anderson- D'Agostino D'Agostino	uality of \uality of \	Mean 0.0024 0.0095 /ariance T /ariance T y of Varian 2 Normalit Test ss Test	Yes Square 1158 5985 est est nce Test y Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171	Decision Equal Va Equal Va Non-Norn Normal D	n(α:1%) ariances ariances ariances mal Distribut Distribution		
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute Variances Variances Oistribution Distribution Distribution Distribution Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq Levene Eq Mod Lever Anderson- D'Agostino D'Agostino	uality of \uality of \	Mean 0.0024 0.0095 /ariance T /ariance T y of Varian 2 Normalit Test ss Test K2 Omnit	Yes Square 1158 5985 est est nce Test y Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000	Decision Equal Va Equal Va Ron-Norn Normal E Normal E	n(α:1%) ariances ariances ariances mal Distribution Distribution Distribution		
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 ests Test Bartlett Eq Levene Eq Mod Lever Anderson- D'Agostino D'Agostino	uality of \ uality of \ uality of \ ne Equalit Darling A: Kurtosis Skewnes -Pearson v-Smirno	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnik v D Test	Yes Square 1158 5985 est fest fince Test fy Test bus Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212	Decision Equal Va Equal Va Ron-Norr Normal E Normal E Normal E	n(α:1%) ariances ariances ariances mal Distribution Distribution Distribution Distribution Distribution	ion	
ANOVA Table Source Between Error Total Distributional Te Attribute /ariances /ariances /ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 Pasts Test Bartlett Eq Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W	uality of \ uality of \ uality of \ ne Equalit Darling A: Kurtosis Skewnes -Pearson v-Smirno	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnik v D Test	Yes Square 1158 5985 est fest fince Test fy Test bus Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212	Decision Equal Va Equal Va Ron-Norr Normal E Normal E Normal E	n(α:1%) ariances ariances ariances mal Distribution Distribution Distribution Distribution Distribution	ion	
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute Variances Variances Variances Distribution Total	0.9667 Sum Squa 0.0120792 0.172774 0.184853 Sts Test Bartlett Eq Levene Eq Mod Leven Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W	uality of \ uality of \ uality of \ ne Equalit Darling A: Kurtosis Skewnes -Pearson v-Smirno ilk W Nor	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnit v D Test mality Tes	Yes Square 1158 5985 est est rest y Test bus Test	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193 0.8703	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212 0.0053	Decision Equal Va Equal Va Non-Norn Normal E Normal E Normal E Normal E	n(α:1%) riances riances riances mal Distribution Distribution Distribution Distribution mal Distribution	ion	%Effect
Control Resp ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances /ariances /ariances Distribution	0.9667 Sum Squa 0.0120792 0,172774 0,184853 Sts Test Bartlett Eq Levene Eq Mod Leven Anderson- D'Agostino D'Agostino D'Agostino Colmogoro Shapiro-W Summary Code	uality of \uality of \	Mean 0.0024 0.0095 /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnit v D Test mality Tes	Yes Square 1158 5985 est est rest y Test bus Test t 95% LCL	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193 0.8703	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212 0.0053	Decision Equal Va Equal Va Non-Norn Normal E Normal E Normal E Normal E	n(α:1%) Irriances I	ion ion CV%	%Effec
Control Resp ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances /ariances /ariances Distribution	0.9667 Sum Squa 0.0120792 0.172774 0.184853 Sts Test Bartlett Eq Levene Eq Mod Leven Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W	uality of Nuality of N	/ariance T /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnit v D Test mality Tes Mean 0.9667	Yes Square 1158 5985 est est est y Test bus Test 11 11 11 11 11 11 11 11 11 11 11 11 1	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193 0.8703 95% UCL 1.0000	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.9667	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212 0.0053 Min 0.9333	Decision Equal Va Equal Va Ron-Normal E Normal E Normal E Normal E Normal E Non-Normal E Non-Normal E Non-Normal E	n(α:1%) Irriances I	ion CV% 3.98%	0.00%
ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances /ariances /ariances /bistribution Distribution	0.9667 Sum Squa 0.0120792 0,172774 0,184853 Sts Test Bartlett Eq Levene Eq Mod Leven Anderson- D'Agostino D'Agostino D'Agostino Colmogoro Shapiro-W Summary Code	uality of \uality of \underset{\underset} of \underset	/ariance T /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnit v D Test mality Tes Mean 0.9667 0.9833	Yes Square 1158 5985 est est est est y Test bus Test 1 95% LCL 0.9054 0.9303	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193 0.8703 95% UCL 1.0000 1.0000	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.9667 1.0000	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212 0.0053 Min 0.9333 0.9333	Decision Equal Va Equal Va Ron-Norm Normal E Normal E Normal E Normal E Normal E 1.0000 1.0000	n(α:1%) Irriances I	ion CV% 3.98% 3.39%	0.00% -1.72%
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute /ariances /ariances /ariances /istribution Distribution Distribution Distribution Distribution Distribution Distribution Conc-% 0 3.25 2.5	0.9667 Sum Squa 0.0120792 0,172774 0,184853 Sts Test Bartlett Eq Levene Eq Mod Leven Anderson- D'Agostino D'Agostino D'Agostino Colmogoro Shapiro-W Summary Code	uality of Nuality of N	/ariance T /ariance T /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnit v D Test mality Tes Mean 0.9667 0.9833 0.9500	Yes Square 1158 5985 est est est est y Test Dus Test 11 12 13 14 15 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	Passes A DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193 0.8703 95% UCL 1.0000 1.0000 1.0000 1.0000	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.9667 1.0000 0.9667	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212 0.0053 Min 0.9333 0.9333 0.8667	Decision Equal Va Equal Va Ron-Norm Normal E Normal E Normal E Normal E Normal E 1.0000 1.0000	n(a:1%) nriances nriances nriances nriances nriances mal Distribution Distribution Distribution Distribution Distribution Oistribution	ion CV% 3.98% 3.39% 6.72%	0.00% -1.72% 1.72%
Control Resp ANOVA Table Source Between Error Total Distributional Te Attribute /ariances /ariances /ariances /bistribution Distribution Distribution Distribution Distribution Distribution Distribution Conc-% 0 3.25	0.9667 Sum Squa 0.0120792 0,172774 0,184853 Sts Test Bartlett Eq Levene Eq Mod Leven Anderson- D'Agostino D'Agostino D'Agostino Colmogoro Shapiro-W Summary Code	uality of \uality of \underset{\underset} of \underset	/ariance T /ariance T /ariance T y of Variar 2 Normalit Test ss Test K2 Omnit v D Test mality Tes Mean 0.9667 0.9833	Yes Square 158 5985 est est est nce Test y Test t 95% LCL 7 0.9054 6 0.9303 0.8484 0.8484	DF 5 18 23 Test Stat 1.855 1.214 1.047 1.229 1.899 1.001 4.606 0.193 0.8703 95% UCL 1.0000 1.0000	F Stat 0.2517 Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.9667 1.0000	P-Value 0.9335 P-Value 0.8689 0.3424 0.4212 0.0031 0.0576 0.3171 0.1000 0.0212 0.0053 Min 0.9333 0.9333	Decision Equal Va Equal Va Ron-Norm Normal E Normal E Normal E Normal E Normal E 1.0000 1.0000	n(α:1%) Irriances I	ion CV% 3.98% 3.39%	0.00% -1.72%

Report Date:

02 Dec-16 14:08 (p 2 of 4)

Test Code: VCF1016.354f | 05-4896-7054

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 20-2673-0564 Endpoint: 7d Survival Rate CETIS Version: CETISv1 9.2

Analyzed: 02 Dec-16 14:06 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Angular	(Corrected)	Transformed	Summary
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0-4-										
Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
N	4	1 375	1.254	1.496	1.375	1,31	1,441	0.03802	5.53%	0.00%
	4	1.408	1.304	1.513	1.441	1.31	1.441	0.03292	4.68%	-2.39%
	4	1.347	1.16	1.535	1.375	1.197	1.441	0.05894	8.75%	2.05%
	4	1.347	1.16	1.535	1.375	1.197	1.441	0.05894	8.75%	2.05%
	4	1.375	1.254	1.496	1,375	1.31	1.441	0.03802	5.53%	0.00%
	4	1.347	1.16	1.535	1,375	1.197	1.441	0.05894	8.75%	2.05%
			N 4 1.375 4 1.408 4 1.347 4 1.347 4 1.375	N 4 1.375 1.254 4 1.408 1.304 4 1.347 1.16 4 1.347 1.16 4 1.375 1.254	N 4 1.375 1.254 1.496 4 1.408 1.304 1.513 4 1.347 1.16 1.535 4 1.347 1.16 1.535 4 1.375 1.254 1.496	N 4 1.375 1.254 1.496 1.375 4 1.408 1.304 1.513 1.441 4 1.347 1.16 1.535 1.375 4 1.347 1.16 1.535 1.375 4 1.375 1.254 1.496 1.375	N 4 1.375 1.254 1.496 1.375 1.31 4 1.408 1.304 1.513 1.441 1.31 4 1.347 1.16 1.535 1.375 1.197 4 1.347 1.16 1.535 1.375 1.197 4 1.375 1.254 1.496 1.375 1.31	N 4 1.375 1.254 1.496 1.375 1.31 1.441 4 1.408 1.304 1.513 1.441 1.31 1.441 4 1.347 1.16 1.535 1.375 1.197 1.441 4 1.347 1.16 1.535 1.375 1.197 1.441 4 1.375 1.254 1.496 1.375 1.31 1.441	N 4 1.375 1.254 1.496 1.375 1.31 1.441 0.03802 4 1.408 1.304 1.513 1.441 1.31 1.441 0.03292 4 1.347 1.16 1.535 1.375 1.197 1.441 0.05894 4 1.347 1.16 1.535 1.375 1.197 1.441 0.05894 4 1.375 1.254 1.496 1.375 1.31 1.441 0.03802	N 4 1.375 1.254 1.496 1.375 1.31 1.441 0.03802 5.53% 4 1.408 1.304 1.513 1.441 1.31 1.441 0.03292 4.68% 4 1.347 1.16 1.535 1.375 1.197 1.441 0.05894 8.75% 4 1.347 1.16 1.535 1.375 1.197 1.441 0.05894 8.75% 4 1.375 1.254 1.496 1,375 1.31 1.441 0.03802 5.53%

7d Survival Rate Detail

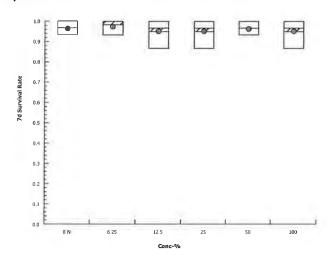
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.9333	1.0000	0.9333	1.0000
6.25		1.0000	1.0000	0.9333	1.0000
12.5		1.0000	0.8667	0.9333	1.0000
25		1.0000	0.8667	1.0000	0.9333
50		1.0000	0.9333	1.0000	0.9333
100		1.0000	0.9333	0.8667	1.0000

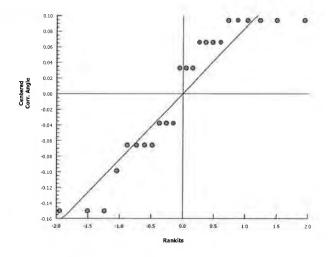
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.31	1.441	1,31	1.441	
6.25		1.441	1.441	1.31	1.441	
12.5		1_441	1.197	1.31	1.441	
25		1.441	1.197	1.441	1.31	
50		1.441	1.31	1.441	1.31	
100		1.441	1.31	1.197	1.441	

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	14/15	15/15	14/15	15/15
6.25		15/15	15/15	14/15	15/15
12.5		15/15	13/15	14/15	15/15
25		15/15	13/15	15/15	14/15
50		15/15	14/15	15/15	14/15
100		15/15	14/15	13/15	15/15





Report Date:

02 Dec-16 14:08 (p 3 of 4)

Test Code: VCF1016,354f | 05-4896-7054

Fathead Minn	ow 7	-d Larval S	urvival an	d Growt	h Test			Aquatic	Bioassay &	Consultin	g Labs, Ind		
Analysis ID: Analyzed:		1019-8941 Dec-16 14:0		dpoint: alysis:	Mean Dry Bio Parametric-C	_	atments		TIS Versior icial Result		1.9.2		
Batch ID:	10-5	334-5667	Te	st Type:	Growth-Surviv	/al (7d)		Ana	alyst: Jo	e Freas			
Start Date:	28 O	ct-16 15:00	Pre	otocol:	EPA/821/R-02	2-013 (2002)		Dilu	uent: La	boratory Wa	ter		
Ending Date:	04 N	ov-16 13:00	Sp Sp	ecies:	Pimephales p	romelas		Bri	ne: No	t Applicable			
Duration:	6d 2	2h	So	urce:	Aquatic Biosy	stems, CO		Age	: :				
Sample ID:	00-1	380-6250	Co	de:	VCF1016.354			Client: VCWPD					
Sample Date:	28 O	ct-16 07:15	Ma	terial:	Sample Wate	r		Pro	ject: 20	16/17-1 (We	t)		
Receipt Date:	28 O	ct-16 10:05	So	urce:	Bioassay Rep	ort							
Sample Age:	8h		Sta	tion:	MO-OXN								
Data Transfor	m		Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD	
Untransformed	i		C > T					100	> 100	n/a	1	16.74%	
Dunnett Multi	ple C	omparison	Test										
Control	vs	Conc-%		Test S	Stat Critical	MSD DI	F P-Type	P-Value	Decisio	η(α:5%)			
Negative Contr	rol	6,25		-3,271	2.407	0.058 6	CDF	1.0000	Non-Sigi	nificant Effec	t		
		12.5		-3.78	2.407	0.058 6	CDF	1.0000	Non-Sigi	nificant Effec	t		
		25		-3.202	2.407	0.058 6	CDF	1.0000	_	nificant Effec			
	50		-2.666	2.407	0.058 6	CDF	0.9999	Non-Sigi	nificant Effec	t			
		100		-0.884	2,407	0.058 6	CDF	0.9765	Non-Sign	nificant Effec	t		
Test Acceptab	oility (Criteria	TAC	Limits									
Attribute		Test Stat Lower Upper Overlap Decision											
Control Resp		0.3443	0.25	>>	Yes	Passes A	cceptibility	Criteria					
ANOVA Table													
Source		Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decision	n(a:5%)			
Between		0.0260873		0,0052	2175	5	4.55	0.0074	Significa	nt Effect			
Error		0.0206401		0.0011	1467	18							
Total		0,0467274				23							
Distributional	Tests	5											
Attribute		Test				Test Stat	Critical	P-Value	Decision	η(α:1%)			
√ariances		Bartlett Eq	uality of Va	ariance T	est	8.059	15.09	0.1530	Equal Va	riances			
/ariances		Levene Eq	uality of V	ariance T	est	1.606	4.248	0.2091	Equal Va	ıriances			
√ariances		Mod Lever	ne Equality	of Varia	nce Test	1.01	4.248	0.4405	Equal Va	ıriances			
Distribution		Anderson-	Darling A2	Normalit	y Test	0.3245	3.878	0.5425	Normal D	Distribution			
Distribution		D'Agostino	Kurtosis 1	Test		0.7882	2.576	0.4306	Normal E	Distribution			
Distribution		D'Agostino	Skewness	s Test		0.6958	2.576	0.4865	Normal D	Distribution			
Distribution		D'Agostino	-Pearson I	<2 Omnil	ous Test	1,105	9.21	0.5754	Normal E	Distribution			
Distribution		Kolmogoro	v-Smirnov	D Test		0.1052	0.2056	0.7406	Normal E	Distribution			
Distribution	Shapiro-Wilk W Normality Test 0.9771 0.884				0.884	0.8363	Normal E	Distribution					
Mean Dry Bion	nass-	mg Summ	ary										
Conc-%		Code	Count	Mean	95% LCL			Min	Max	Std Err	CV%	%Effect	
)		N	4	0_3443		0_3784	0.3447	0.318	0.37	0.0107	6.22%	0.00%	
5.25			4	0.4227		0.4575	0.4163	0.404	0.454	0.01094	5.18%	-22.75%	
12.5			4	0.4348	0.3582	0.5114	0.4527	0.3647	0.4693	0.02407	11.07%	-26.28%	
25 50			4	0.421 0.4082	0.3633	0.4787 0.4834	0.426 0.4007	0.374 0.36	0.458 0.4713	0.01814 0.02365	8.62% 11.59%	-22.27% -18.54%	

-6.15%

0.004272 2.34%

0.3655

0.3519

100

0.3791

0.3677

0.3533

0.3733

Report Date:

02 Dec-16 14:08 (p 4 of 4)

Test Code:

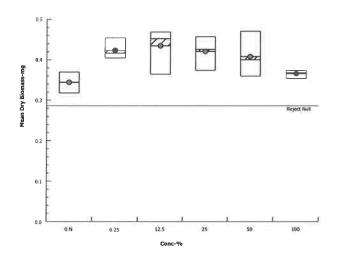
VCF1016.354f | 05-4896-7054

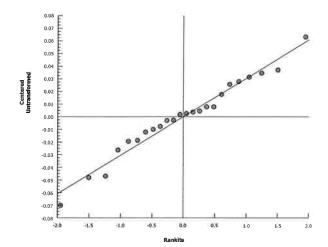
Fathead Minnov	v 7-d L	.arval Su	ırvival a	and G	3rowth 1	[est
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Aquatic Bioassay & Consulting Labs, In	Aquatic Bioassay & Co	onsulting Labs,	inc.
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Analysis ID:	15-4019-8941	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1.9.2
Analyzed:	02 Dec 16 14:07	Analysis:	Parametric Control ve Treatmente	Official Populto:	Voc

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3413	0.37	0.318	0.348
6.25		0.454	0.4127	0.404	0.42
12.5		0.4427	0.3647	0.4627	0.4693
25		0.4387	0.374	0.458	0.4133
50		0.36	0.3887	0.4713	0.4127
100		0.3673	0.3733	0.3533	0.368





Report Date:

02 Dec-16 14:09 (p 1 of 4)

Test Code:

VCF1016.354f | 05-4896-7054

Fathea	ad Minn	ow 7-d Larval S	urvival an	d Growl	h Test					Aq	uatic	Bioassay &	Consu	ılting Labs, l
Analys	is ID:	00-2725-5678	End	dpoint:	7d Survival Rat				С	ETIS V	ersion	: CETISv	1.9.2	
Analyz	ed:	02 Dec-16 14:0	7 Ana	alysis:	Linear Interpola	ition (ICPIN)		0	fficial F	Result	s: Yes		
Batch	ID:	10-5334-5667	Tes	t Type:	Growth-Surviva	I (7d)			Α	nalyst:	Joe	e Freas		
Start D	ate:	28 Oct-16 15:00	Pro	tocol:	EPA/821/R-02-	013 (2002)			D	iluent:	Lal	boratory Wa	ter	
Ending	g Date:	04 Nov-16 13:00	Spe	ecies:	Pimephales pro	melas			В	rine:	No	t Applicable		
Duratio	on:	6d 22h	So	ırce:	Aquatic Biosyst	ems, CO			Α	ge:				
Sample	e ID:	00-1380-6250	Co	de:	VCF1016.354				С	lient:	VC	WPD		
Sample	e Date:	28 Oct-16 07:15	Mat	terial:	Sample Water				Р	roject:	20	16/17-1 (We	t)	
Receip	t Date:	28 Oct-16 10:05	Sou	ırce:	Bioassay Repo	rt								
Sample	e Age:	8h	Sta	tion:	MO-OXN									
Linear	Interpo	lation Options												
X Tran	sform	Y Transform		d	Resamples	Exp 95%	CL	Metho						
Linear		Linear	0		280	Yes		Two-P	oint Int	erpolation	on			
Test A	cceptab	oility Criteria	TAC L	imits										
Attribu	ite	Test Stat	Lower	Uppe	r Overlap	Decision								
Control	Resp	0.9667	0.8	>>	Yes	Passes A	ccepti	bility Cri	iteria					
Point E	Estimate	es												
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL								
EC5	>100	n/a	n/a	<1	n/a	n/a								
EC10	>100	n/a	n/a	<1	n/a	n/a								
EC15	>100	n/a	n/a	<1	n/a	n/a								
EC20	>100	n/a	n/a	<1	n/a	n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40	>100	n/a	n/a	<1	n/a	n/a								
EC50	>100	n/a	n/a	<1	n/a	n/a								
7d Sur	vival Ra	ate Summary				Calcu	lated	Variate	(A/B)					
Conc-%	6	Code	Count	Mean		Max	Std		Std De			%Effect	Α	В
)		N	4	0.966		1.0000	0.01		0.0385		98%	0.0%	58	60
6.25			4	0.983		1.0000	0.01		0.0333		39%	-1,72%	59	60
12.5			4	0.950		1.0000	0.03		0.0638		2%	1.72%	57	60
25			4	0.950		1.0000	0.03		0.0638		2%	1.72%	57	60
50			4	0.966		1.0000	0.01		0.0385		8%	0.0%	58	60
100			4	0.950	0 0.8667	1_0000	0.03	19	0.0638	6.7	2%	1.72%	57	60
		ate Detail												
Conc-%	<u> </u>	Code	Rep 1	Rep 2		Rep 4								
)		N	0.9333	1.000		1.0000								
3.25			1.0000	1.000	0.9333	1.0000								
2.5			1.0000	0.866	7 0.9333	1.0000								
25			1.0000	0.866	7 1.0000	0.9333								
50			1.0000	0.933	3 1.0000	0.9333								
100			1.0000	0.933	3 0.8667	1,0000								
'd Sur	vival Ra	ite Binomials												
Conc-%	6	Code	Rep 1	Rep 2		Rep 4								
)		N	14/15	15/15	14/15	15/15								
5.25			15/15	15/15	14/15	15/15								
			15/15	13/15	14/15	15/15								
12.5			AFIAE	13/15	15/15	14/15								
			15/15	13/13	13/13	17/13								
12.5 25 50			15/15	14/15	15/15	14/15								

Report Date:

02 Dec-16 14:09 (p 2 of 4)

Test Code:

VCF1016.354f | 05-4896-7054

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

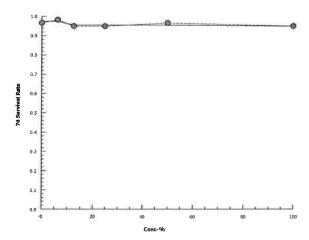
Analysis ID: Analyzed:

00-2725-5678 02 Dec-16 14:07 Endpoint: 7d Survival Rate Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results: CETISv1.9.2

Yes



Report Date:

02 Dec-16 14:09 (p 3 of 4)

Test Code:

VCF1016.354f | 05-4896-7054

								168	it Code:	V	UF 1016.334	H US-4896-7US
Fathead I	Minno	ow 7-d Larval Si	urvival and	Growt	th Test				Aquatio	: Bioass	ay & Consu	Iting Labs, Inc
Analysis	ID:	13-4338-2798	End	point:	Mean Dry Bion	nass-mg			TIS Versio		TISv1.9.2	
Analyzed	:	02 Dec-16 14:0	7 Ana	lysis:	Linear Interpola	ation (ICPIN)	Off	cial Resul	ts: Yes	S	
Batch ID:		10-5334-5667	Tes	t Type:	Growth-Surviva	al (7d)		Ana	alyst: Jo	oe Freas	i	
Start Date	e:	28 Oct-16 15:00	Pro	tocol:	EPA/821/R-02-	-013 (2002)		Dilu	ient: La	aborator	y Water	
Ending D	ate:	04 Nov-16 13:00	Spe	cies:	Pimephales pro	omelas		Bri	ne: N	ot Applic	able	
Duration:		6d 22h	Sou	rce:	Aquatic Biosys	tems, CO		Age) :			
Sample II	D:	00-1380-6250	Cod	le:	VCF1016.354			Clie	ent: V	CWPD		
Sample D	ate:	28 Oct-16 07:15	Mat	erial:	Sample Water			Pro	ject: 20	016/17-1	(Wet)	
Receipt D	ate:	28 Oct-16 10:05	Sou	rce:	Bioassay Repo	ort						
Sample A	\ge:	8h	Stat	ion:	MO-OXN							
Linear Int	terpol	lation Options										
X Transfo	orm	Y Transform		d	Resamples	Exp 95%						
Linear		Linear	0		280	Yes	Two	-Point Inter	polation			
Test Acce	eptab	ility Criteria	TAC L	imits								
Attribute		Test Stat		Uppe		Decision						
Control Re	esp	0,3443	0.25	>>	Yes	Passes A	cceptibility (Criteria				
Point Esti	imate	es										
	%	95% LCL	95% UCL		95% LCL							
	74.95	17.49	88.28	1.334		5.717						
	9.9	41.35	n/a	1.001	n/a	2.418						
	>100	n/a	n/a	<1	n/a	n/a						
	>100	n/a n/a	n/a n/a	<1 <1	n/a	n/a n/a						
	>100 >100	n/a	n/a n/a	<1	n/a n/a	n/a n/a						
	100	n/a	n/a	<1	n/a	n/a						
					11/4							
-	Bion	nass-mg Summ	-	-			culated Va		6 1407			
Conc-%		Code	Count	Mean		Max	Std Err	Std Dev	CV%	%Ef		
)		N	4	0.344		0.37	0.0107	0.02141	6.22%	0.0%		
3.25 12.5			4	0.422		0.454 0.4693	0.01094 0.02407	0.02189	5.18%	-22.7 -26.2		
12.5 25			4	0.434		0.4693		0.04813	11.07% 8.62%			
50			4	0.408	0.374 2 0.36	0.456	0.01814 0.02365	0.03628 0.0473	11.59%	-22.2 -18.5		
100			4	0.365		0.4713	0.02303			-6.15		
	Di	D-4-il	-	0.505	0.0000	0.3733	0.004272	0.000544	2.5470	-0.10	J 70	
•	Rion	nass-mg Detail	Don 4	Bon 2	Don 2	Don 4						
Conc-%		CodeN	Rep 1 0.3413	Rep 2 0.37	Rep 3 0.318	Rep 4 0.348						
5.25		14	0.454	0.412		0.42						
12.5			0.434	0.364		0.4693						
25			0.4387	0.374		0.4133						
50			0.36	0.388		0,4127						
100			0.3673	0.373	3 0,3533	0.368						

Report Date:

02 Dec-16 14:09 (p 4 of 4)

Test Code:

VCF1016.354f | 05-4896-7054

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

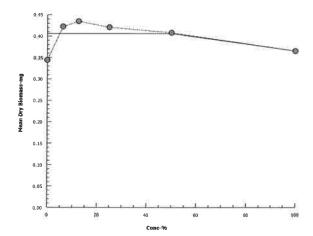
Analysis ID: Analyzed:

13-4338-2798 02 Dec-16 14:07 Endpoint: Mean Dry Biomass-mg

Analysis: Linear Interpolation (ICPIN)

CETIS Version: (Conficial Results:)

CETISv1.9.2



CETIS Measurement Report

Report Date:

02 Dec-16 14:09 (p 1 of 2)

Test Code:

VCF1016.354f | 05-4896-7054

Fathead Minn	ow 7-d Larval	Surviva	I and Grow		Aquatic Bioassay & Consulting Labs, Inc.						
Batch ID: Start Date: Ending Date: Duration:	10-5334-5667 28 Oct-16 15: 04 Nov-16 13 6d 22h	00	Test Type: Protocol: Species: Source:	Growth-Surviv EPA/821/R-02 Pimephales p Aquatic Biosy	2-013 (2002) romelas)		Diluent:	Joe Freas Laboratory Wa Not Applicable		
Sample ID: Sample Date: Receipt Date: Sample Age:	28 Oct-16 10:	15	Code: Material: Source: Station:	VCF1016.354 Sample Wate Bioassay Rep MO-OXN	r				VCWPD 2016/17-1 (We	et)	
Alkalinity (Ca											
Conc-%	Code	Coun	t Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count
0	N	8	62.25	60.72	63.78	61	65	0.6478		2.94%	0
100		1	38	00.72	00.70	38	38	0.0470	0	0.0%	0
Overall		9	59.56	53.2	65.91	38	65	2.754	8.263	13.87%	0 (0%)
Conductivity-	umhos										- (0,0)
Conc-%	Code	Count	t Mean	95% LCL	95% UCL	Min	Max	Std En	r Std Dev	CV%	QA Coun
0	N	8	329.2	321	337.5	319	348	3.509	9.925	3.01%	0
6.25	14	8	314	306.7	321.3	305	324	3.094	8.751	2.79%	0
12.5		8	313.2	287.8	338.7	297	387	10.78	30.48	9.73%	0
25		8	282	275.4	288.6	274	293	2.797	7.91	2.81%	0
50		8	235.9	229.6	242.1	226	249	2.635	7.453	3.16%	0
100		8	148.1	141.7	154.6	139	160	2.728	7.717	5.21%	0
Overall		48	270.4	251.6	289.2	139	387	9.34	64.71	23.93%	0 (0%)
Dissolved Oxy	/gen_mg/l										• (5.5)
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.738	7.571	7.904	7.5	8.1	0.0705		2.58%	0
6.25		8	7.637	7.423	7.852	7.2	8	0.0905		3.35%	0
12.5		8	7.5	7.352	7.648	7.2	7.8	0.0626		2.36%	0
25		8	7.613	7.392	7.833	7.3	8	0.0934		3.47%	0
50		8	15.2	-3.99	34.39	6.4	72	8.115	22.95	151.0%	0
100		8	6.525	5.257	7.793	4	7.9	0.5361	1.516	23.24%	0
Overall		48	8.702	5.984	11.42	4	72	1.351	9.361	107.60%	0 (0%)
Hardness (Cat	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5.77%	0
100		1	60			60	60	0	0	0.0%	0
Overall		9	86.44	77.96	94.93	60	96	3.678	11.04	12.77%	0 (0%)
pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.763	7.608	7.917	7.5	8	0.06529	0.1847	2.38%	0
6.25		8	7.512	7.408	7.617	7.3	7.7	0.04407	7 0.1246	1.66%	0
12.5		8	7.513	7.399	7.626	7.4	7.8	0.04795	0.1356	1.81%	0
25		8	7.475	7.388	7.562	7.3	7.6	0.0366	0.1035	1.39%	0
50		8	7.475	7.401	7.549	7.3	7.6	0.03134	0.08864	1.19%	0
100		8	7.325	7.142	7.508	7	7.6	0.07734	0.2188	2.99%	0
Overall		40	7.54	7 454	7 566	7	0	0.00704	0.4007	2 E70/	0 (00/)



2.57%

0 (0%)

0.02781

0,1927

Overall

7.566

48

7.51

7.454

Report Date: Test Code: 02 Dec-16 14:09 (p 2 of 2) VCF1016.354f | 05-4896-7054

Fathead Minne	ow 7-d Larval	Survival a	nd Growth	Test				Aquatic	Bioassay &	Consulting	g Labs, Inc
Temperature-°	С										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Cou
0	N	8	24.25	23.8	24.7	24	25.5	0.189	0.5345	2.2%	0
6.25		8	24.1	23,86	24.34	24	24,8	0.1	0.2828	1.17%	0
12.5		8	24.24	23.74	24,73	24	25.7	0.2104	0.5951	2.46%	0
25		8	24_01	23.98	24.04	24	24.1	0.01249	0.03531	0,15%	0
50		8	21.6	15.65	27.55	4	24.8	2.516	7.117	32.95%	0
100		8	24.08	23.95	24.2	24	24.4	0.05261	0.1488	0_62%	0
Overall		48	23.71	22.86	24.56	4	25.7	0.4226	2.928	12,35%	0 (0%)
Alkalinity (CaC	O3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	63	61	61	61	61	61	65	65		
100		38									
Conductivity-µ	mhos										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	336	320	319	326	324	325	336	348		
6.25		321	308	305	305	306	319	324	324		
12.5		387	300	300	298	297	299	310	315		
25		292	278	276	276	274	278	289	293		
50		226	233	232	233	234	235	245	249		
100		139	142	143	148	145	149	159	160		
Dissolved Oxy	gen-mg/l	133	142	143	140	145	143	139	100		
	Code	1	2	2	4	5	6	7	0		
Conc-%	N	7.6	7.6	7.8	7.9	7.6	7.8	7.5	8.1	_	
6.25	IN.	7.6									
			7.5	7.9	8	7.5	7.8	7.2	7.6		
12.5		7.6	7.6	7.8	7.2	7.4	7.4	7.5	7.5		
25		7.6	7.3	7.8	8	7.3	7.9	7.5	7.5		
50		7.4	7.3	7.4	7.2	6.7	6.4	72	7.2		
100		7.5	6_9	4.3	7.7	4	7.1	6.8	7.9		
Hardness (CaC	_										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	96	86	86	86	86	86	96	96		
100		60									
pH-Units			_		_			_			
Conc-%	Code	1	2	3 7.0	4	5	6 7.0	7	8		
0	N	8	7.9	7.8	7.9	7.5	7.8	7.5	7.7		
6.25		7.5	7.6	7.6	7.5	7.4	7.5	7.3	7.7		
12,5		7.4	7.6	7.5	7.5	7.4	7.5	7.4	7.8		
25		7.5	7.6	7.5	7.5	7.4	7.6	7.3	7.4		
50		7.5	7.5	7.5	7.5	7.5	7.4	7.6	7.3		
100		7.2	7.2	7.5	7.3	7.6	7	7.6	7.2		
Temperature-°(
Conc-%	Code	1	2	3	4	5	6	7	8		
)	N	24	24	24.5	25.5	24	24	24	24		
6.25		24	24.8	24	24	24	24	24	24		
12.5		24	24	24	24	24	24	24.2	25.7		
25		24	24	24	24_1	24	24	24	24		
50		24	24.8	24	24	24	24	24	4		
		24	24	24.4	24	24	24	24.2	24		





December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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*. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-SPA

DATE RECEIVED:

10/28/2016

ABC LAB, NO.:

VCF1016.360

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

SURVIVAL

NOEC = 100.00 %

TUc = 1.00

EC25 = >100.00 %

EC50 = >100.00 %

BIOMASS

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 14:31 (p 1 of 2)

Test Code:

VCF1016.360f | 16-4345-1343

Fathead Minr	now 7-d Larval Surviv	al and Growt	h Test				Aquati	c Bioassay &	Consulting	Labs, I	inc
Batch ID:	10-7564-6951	Test Type:	Growth-Surviva	al (7d)		Ana	alyst: J	oe Freas			
Start Date:	28 Oct-16 15:17	Protocol:	EPA/821/R-02	-013 (2002)		Dili	uent: L	aboratory Wat	er		
Ending Date:	04 Nov-16 13:20	Species:	Pimephales pr	omelas		Bri	ne: N	lot Applicable			
Duration:	6d 22h	Source:	Aquatic Biosys	tems, CO		Age	e:				
Sample ID:	19-4634-1801	Code:	VCF1016.360			Client: VCWPD					
Sample Date:	28 Oct-16 06:15	Material:	Sample Water			Pro	ject: 2	016/17-1 (Wet)		
Receipt Date:	28 Oct-16 12:10	Source:	Bioassay Repo	ort							
Sample Age:	9h	Station:	MO-SPA								
Multiple Com	parison Summary										
Analysis ID	Endpoint		parison Method			NOEL	LOEL	TOEL	TU	PMS	o √
07-3151-8235	7d Survival Rate	Dunn	ett Multiple Com	parison Tes	t	100	> 100	n/a	1	9.84%	6
05-4536-6022	Mean Dry Biomass-m	g Steel	Many-One Rank	Sum Test		100	> 100	n/a	1	39.3%	6
Point Estimat	e Summary										
Analysis ID	Endpoint	Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	TU	√
14-8867-4415	7d Survival Rate	Linea	r Interpolation (I	CPIN)		EC5	>100	n/a	n/a	<1	
						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	✓
						EC50	>100	n/a	n/a	<1	✓
08-3259-7460	Mean Dry Biomass-me	g Linea	Interpolation (I	CPIN)		IC5	39.1	13.91	n/a	2.557	· _/
						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 Acceptat	oility				TAC	Limits					
Analysis ID		Attrib	ute	Test Stat	Lower	Upper	Overla	Decision			
	Endpoint										
07-3151-8235	7d Survival Rate		ol Resp	0.9667	0.8	>>	Yes		cceptibility C		
07-3151-8235 14-8867-4415	7d Survival Rate 7d Survival Rate	Contro	ol Resp ol Resp	0.9667 0.9667	0.8	>> >>	Yes Yes	Passes Ad	ceptibility C	riteria	
07-3151-8235 14-8867-4415 05-4536-6022	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mo	Contro Contro Contro	ol Resp ol Resp	0.9667 0.3443	0.8 0.25		Yes Yes	Passes Ad Passes Ad	cceptibility C	riteria riteria	
07-3151-8235 14-8867-4415 05-4536-6022	7d Survival Rate 7d Survival Rate	Contro Contro Contro	ol Resp	0.9667	0.8	>>	Yes	Passes Ad Passes Ad	ceptibility C	riteria riteria	
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mo Mean Dry Biomass-mo ate Summary	Contro Contro G Contro	ol Resp ol Resp ol Resp	0.9667 0.3443 0.3443	0.8 0.25 0.25	>> >> >>	Yes Yes Yes	Passes Ad Passes Ad Passes Ad	cceptibility C cceptibility C cceptibility C	riteria riteria riteria	
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-%	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mo Mean Dry Biomass-mo ate Summary Code Cou	Contro Contro G Contro Contro	ol Resp ol Resp ol Resp 95% LCL	0.9667 0.3443 0.3443 95% UCL	0.8 0.25 0.25 Min	>> >> >> Max	Yes Yes Yes	Passes Ad Passes Ad Passes Ad Std Dev	eceptibility Coceptibility Coceptibility Coceptibility Coceptibility C	riteria riteria riteria %Effe	_
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-%	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou	Contro Contro Contro Contro Contro Mean 0.966	ol Resp ol Resp ol Resp 95% LCL 7 0.9054	0.9667 0.3443 0.3443 95% UCL 1.0000	0.8 0.25 0.25 Min 0.9333	>> >> >> Max	Yes Yes Yes Std Err 0.0193	Passes Ad Passes Ad Passes Ad Std Dev 0.0385	cceptibility C cceptibility C cceptibility C cceptibility C CV%	riteria riteria riteria %Effe 0.00%	ó
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mode Mean Dry Biomass-mode Code Code Code Code A 4 4	Contro Contro Contro Contro Mean 0.9667 0.9833	95% LCL 0.9054 0.9303	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333	>> >> >> Max 1.0000 1.0000	Yes Yes Yes Std Err 0.0193 0.0167	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333	cceptibility C cceptibility C cceptibility C CV% 3.98% 3.39%	criteria criteria criteria %Effe 0.00% -1.72%	6 %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4	Contro Co	95% LCL 7 0.9054 3 0.9054	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333	>> >> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0193 0.0167 0.0193	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333 0.0385	cceptibility C cceptibility C cceptibility C CV% 3.98% 3.39% 3.98%	criteria criteria criteria %Effe 0.00% -1.72% 0.00%	% %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 2.5	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4	Contro Contro Contro Contro Mean 0.966 0.983 0.966 0.933	95% LCL 7 0.9054 8 0.9054 9 0.8467	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333 0.0385 0.0544	cceptibility C cceptibility C cceptibility C CV% 3.98% 3.39% 3.98% 5.83%	######################################	% %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 50	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4	Contro Contro Contro Contro Mean 0.966 0.983 0.966 0.933 0.933	95% LCL 7 0.9054 8 0.9054 8 0.8467 8 0.8467	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333 0.0385 0.0544 0.0544	cceptibility C cceptibility C cceptibility C CV% 3.98% 3.39% 3.98% 5.83% 5.83%	######################################	% %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 6.25 12.5 25 60	7d Survival Rate 7d Survival Rate Mean Dry Biomass-months Mean Dry Biomass-months ate Summary Code Cou N 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Mean 0.966 0.983 0.966 0.933	95% LCL 7 0.9054 8 0.9054 8 0.8467 9 0.8467	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333 0.0385 0.0544	cceptibility C cceptibility C cceptibility C CV% 3.98% 3.39% 3.98% 5.83%	######################################	% %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 25 50 100	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 4 mass-mg Summary	Contro Contro G Contro Mean 0.966 0.983 0.966 0.933 0.933	95% LCL 7 0.9054 8 0.9303 7 0.9054 8 0.8467 8 0.8467 8 0.7833	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000	>>> >>> 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0277	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333 0.0385 0.0544 0.0544 0.0943	cceptibility C cceptibility C cceptibility C CV% 3.98% 3.39% 3.98% 5.83% 5.83% 10.10%	%Effe 0.00% -1.72% 0.00% 3.45% 3.45% 3.45%	% , , ,
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 12.5 100 Mean Dry Bior	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 7 mass-mg Summary Code Coul	Contro G Contro G Contro Mean 0.966 0.983 0.933 0.933 0.933	95% LCL 7 0.9054 8 0.9303 7 0.9054 8 0.8467 8 0.7833	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0471 Std Err	Passes Ad Passes Ad Passes Ad Std Dev 0.0385 0.0333 0.0385 0.0544 0.0544 0.0943	cceptibility C cceptibility C cceptibility C cceptibility C 3.98% 3.98% 3.99% 5.83% 5.83% 10.10%	######################################	% % %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 15 100 Mean Dry Bior	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 4 4 7 mass-mg Summary Code Coui N 3	Contro G Contro G Contro Mean 0.9667 0.9833 0.9333 0.9333 0.9333	95% LCL 7 0.9054 8 0.9303 7 0.9054 8 0.8467 8 0.7833 95% LCL 8 0.3103	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.3784	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000 Min 0.318	>> >> >> >>	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0471 Std Err 0.0107	Passes Ad Passes Ad Passes Ad Passes Ad 0.0385 0.0333 0.0385 0.0544 0.0544 0.0943 Std Dev 0.02141	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 3.98% 3.98% 5.83% 5.83% 10.10% CV% 6.22%	%Effe 0.00% -1.72% 0.00% 3.45% 3.45% %Effe 0.00%	%
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 25 100 Wean Dry Bior Conc-%	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 4 4 7 mass-mg Summary Code Cou N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Contro Contro Contro Mean 0.966 0.9833 0.9333 0.9333 0.9333 0.9333	95% LCL 7 0.9054 8 0.9054 8 0.8467 9 0.7833 95% LCL 9 0.3103 9 0.3658	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.3784 0.4982	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000 Min 0.318 0.3953	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0471 Std Err 0.0107 0.02079	Passes Ad Passes Ad Passes Ad Passes Ad 0.0385 0.0333 0.0385 0.0544 0.0544 0.0943 Std Dev 0.02141 0.004158	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 3.98% 3.98% 5.83% 5.83% 10.10% CV% 6.22% 9.62%	%Effe 0.00% -1.72% 0.00% 3.45% 3.45% %Effe 0.00% -25.46	66 66 66 67 67 68 68 68 68 68 68 68 68 68 68 68 68 68
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 25 100 Wean Dry Bior Conc-% 0 3.25 2.5 2.5 2.5 2.5 2.5 2.5 2.5	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 4 7 mass-mg Summary Code Cou N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Co	95% LCL 7 0.9054 8 0.9054 8 0.8467 9 0.8467 9 0.7833 95% LCL 8 0.3103 0.3658 9 0.3789	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.3784 0.4982 0.4628	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000 Min 0.318 0.3953 0.3987	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0471 Std Err 0.0107 0.02079 0.01319	Passes Ad Passes Ad Passes Ad Passes Ad O.0385 0.0333 0.0385 0.0544 0.0943 Std Dev 0.02141 0.04158 0.02638	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 3.98% 3.98% 5.83% 5.83% 10.10% CV% 6.22% 9.62% 6.27%	%Effe 0.00% -1.72% 0.00% 3.45% 3.45% %Effe 0.00% -25.46 -22.22	66666666666666666666666666666666666666
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 3.25 12.5 25 100 Mean Dry Bion Conc-% 0 3.25 12.5 25 26 12.5 27 28 28 28 28	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Co	95% LCL 7 0.9054 8 0.9054 8 0.8467 8 0.8467 9 0.7833 95% LCL 8 0.3103 0.3658 8 0.3789 8 0.3589	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.3784 0.4982 0.4628 0.4398	0.8 0.25 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000 Min 0.318 0.3953 0.3987 0.3673	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0471 Std Err 0.0107 0.02079 0.01319 0.0127	Passes Ad Passes Ad Passes Ad Passes Ad Dev 0.0385 0.0333 0.0385 0.0544 0.0943 Std Dev 0.02141 0.04158 0.02638 0.02541	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 3.98% 3.98% 5.83% 5.83% 10.10% CV% 6.22% 9.62% 6.27% 6.36%	%Effe 0.00% -1.72% 0.00% 3.45% 3.45% %Effe 0.00% -25.46 -22.22 -15.97	% % % % % sect % % % % % % % % % % % % % % % % % % %
07-3151-8235 14-8867-4415 05-4536-6022 08-3259-7460 7d Survival Ra Conc-% 0 6.25 12.5 25 100 Mean Dry Bior Conc-% 0 6.25 12.5	7d Survival Rate 7d Survival Rate Mean Dry Biomass-mg Mean Dry Biomass-mg ate Summary Code Cou N 4 4 4 4 4 4 4 7 mass-mg Summary Code Cou N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Co	95% LCL 7 0.9054 8 0.9054 8 0.8467 8 0.8467 8 0.7833 95% LCL 8 0.3103 0.3658 8 0.3789 8 0.3589 9 0.2919	0.9667 0.3443 0.3443 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 0.3784 0.4982 0.4628	0.8 0.25 0.25 Min 0.9333 0.9333 0.9333 0.8667 0.8667 0.8000 Min 0.318 0.3953 0.3987	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Err 0.0193 0.0167 0.0193 0.0272 0.0272 0.0471 Std Err 0.0107 0.02079 0.01319	Passes Ad Passes Ad Passes Ad Passes Ad Dev 0.0385 0.0333 0.0385 0.0544 0.0943 Std Dev 0.02141 0.04158 0.02638 0.02541	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 3.98% 3.98% 5.83% 5.83% 10.10% CV% 6.22% 9.62% 6.27%	%Effe 0.00% -1.72% 0.00% 3.45% 3.45% %Effe 0.00% -25.46 -22.22	% % % \$ \$ \$ \$ \$ \$ %



CETIS Summary Report

Report Date:

02 Dec-16 14:31 (p 2 of 2)

Test Code:

VCF1016.360f | 16-4345-1343

Aquatic	Bioassay	&	Consulting	Labs,	Inc.
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7d Survival R	ate Detail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.9333	1.0000	0.9333	1_0000	
6.25		1.0000	0.9333	1.0000	1.0000	
12.5		1.0000	0.9333	0.9333	1.0000	
25		0.8667	0.9333	0.9333	1,0000	
50		0.8667	1.0000	0.9333	0.9333	
100		0.9333	0.8000	1.0000	1.0000	

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.3413	0.37	0.318	0.348	
6.25		0.3953	0.3967	0.4687	0.4673	
12.5		0.4047	0.3987	0.4227	0.4573	
25		0.3673	0.3907	0.4173	0.422	
50		0.3153	0.3693	0.328	0.3987	
100		0.2753	0.2327	0.3547	0.636	

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	14/15	15/15	14/15	15/15
6.25		15/15	14/15	15/15	15/15
12.5		15/15	14/15	14/15	15/15
25		13/15	14/15	14/15	15/15
50		13/15	15/15	14/15	14/15
100		14/15	12/15	15/15	15/15

Report Date:

02 Dec-16 14:28 (p 1 of 4)

Test Code: VCF1016,360f | 16-4345-1343

7-d Larval Su 3151-8235 Dec-16 14:2' 7564-6951 Oct-16 15:17 Nov-16 13:20 22h 1634-1801 Oct-16 06:15	End 7 And Tes Pro	dpoint: 7 alysis: F st Type: 0 ptocol: E	7d Survival Rat Parametric-Cor Growth-Surviva EPA/821/R-02-	ntrol vs Trea al (7d)	itments	Offic	IS Version			
Dec-16 14:2' 2564-6951 Dct-16 15:17 Nov-16 13:20 22h	7 And Tes Pro	alysis: F st Type: C otocol: E	Parametric-Cor Growth-Surviva	ntrol vs Trea al (7d)	itments	Offic	cial Resul	ts: Yes	.3.2	
7564-6951 Oct-16 15:17 Nov-16 13:20 22h	Tes Pro Spe	st Type: Cotocol: E	Growth-Surviva	al (7d)	iamonto					
Oct-16 15:17 Nov-16 13:20 22h 634-1801	Pro Spe	otocol: E				Ana	iyst: Jo	be Freas		
Nov-16 13:20 22h 1634-1801	Spe		:PA/821/R-02-	111 3 (2)11121		D.I.				
22h 634-1801		ecies: F	S. 1 1					aboratory Wate	ər	
634-1801	Soi		Pimephales pro			Brin		ot Applicable		
		urce: A	Aquatic Biosyst	tems, CO		Age				
)ct-16 06:15	Cod		/CF1016.360			Clie	-	CWPD		
	Mat	terial: S	Sample Water			Proj	ect: 20	016/17-1 (Wet))	
Oct-16 12:10	Soi	urce: B	Bioassay Repo	rt						
	Sta	ition: N	IO-SPA							
	Alt Hyp					NOEL	LOEL	TOEL	TU	PMSI
	C > T					100	> 100	n/a	1	9.84%
omparison	Test									
Conc-%		Test Sta	at Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
		0			CDF		_			
							-			
							-			
100		0.7113	2.407	0.171 6	CDF	0.5528	-			
Criteria	TACI	imite								
			Overlap	Decision						
0.9667	0.8	>>	Yes		cceptibility	Criteria				
Sum Squa	res	Mean S	guare	DF	F Stat	P-Value	Decisio	n(a:5%)		
0.0313942				5	0.6198					
0.182339		0.01012	99	18			ŭ			
0.213733				23						
s										
Test				Test Stat	Critical	P-Value	Decisio	n(a:1%)		
Bartlett Equ	uality of Va	ariance Tes	st	2.921	15.09	0.7122				
	-						•			
•	-									
	_	•								
_										
•			s Test							
			- 1001							
				0.9519	0.884	0.2982				
ummary										
	_	Maar	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effec
-	Count	wean								
Code	Count 4	Mean 0.9667			0.9667	0.9333				
Code	4	0.9667	0.9054	1.0000	0.9667	0.9333	1.0000	0.0192	3.98%	0.00%
Code	4 4	0.9667 0.9833	0.9054 0.9303	1.0000 1.0000	1.0000	0.9333	1.0000 1.0000	0.0192 0.0167	3.98% 3.39%	0.00% -1.72%
Code N	4	0.9667	0.9054	1.0000			1.0000	0.0192	3.98%	
	Conc-% 6.25 12.5 25 50 100 Criteria Test Stat 0.9667 Sum Squa 0.0313942 0.182339 0.213733 ss Test Bartlett Equ Levene Equ Mod Levene Anderson-E D'Agostino D'Agostino D'Agostino-Kolmogorov	C > T Comparison Test Conc-% 6.25 12.5 25 50 100 Criteria TAC L Test Stat Lower 0.9667 0.8 Sum Squares 0.0313942 0.182339 0.213733 cs Test Bartlett Equality of Value Equality of Value Equality of Value Equality of Value Equality Anderson-Darling A2 D'Agostino Kurtosis T D'Agostino Skewness D'Agostino-Pearson Micolmogorov-Smirnov	C > T	C > T	C > T	C > T	C > T 100	C > T	C > T	C > T 100

10.10%

3.45%

100

1.0000

0.9667

0.9333

0.7833

0.8000

1.0000

0.0471

Report Date:

02 Dec-16 14:28 (p 2 of 4)

Test Code:

VCF1016.360f | 16-4345-1343

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-3151-8235 Analyzed: 02 Dec-16 14:27 Endpoint: 7d Survival Rate

Analysis:

CETIS Version: Official Results:

CETISv1.9.2 Yes

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.375	1.254	1_496	1.375	1.31	1,441	0.03802	5,53%	0,00%
6.25		4	1.408	1.304	1.513	1.441	1.31	1.441	0.03292	4.68%	-2.39%
12.5		4	1.375	1.254	1.496	1.375	1.31	1.441	0.03802	5.53%	0.00%
25		4	1_314	1.155	1.473	1.31	1.197	1.441	0.04995	7.60%	4.44%
50		4	1.314	1.155	1.473	1.31	1.197	1.441	0.04995	7.60%	4.44%
100		4	1.325	1.074	1.576	1.375	1.107	1.441	0.07893	11.92%	3.68%

Parametric-Control vs Treatments

7d Survival Rate Detail

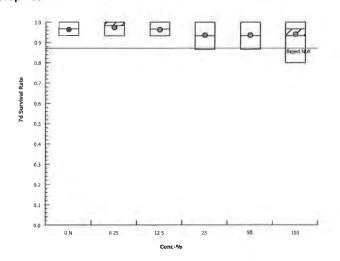
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0_9333	1.0000	0.9333	1.0000	
6.25		1.0000	0.9333	1.0000	1.0000	
12.5		1.0000	0.9333	0.9333	1.0000	
25		0.8667	0.9333	0.9333	1.0000	
50		0.8667	1.0000	0.9333	0.9333	
100		0.9333	0.8000	1.0000	1.0000	

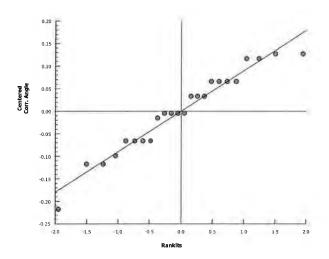
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.31	1.441	1.31	1.441	
6.25		1.441	1.31	1.441	1.441	
12.5		1.441	1.31	1.31	1.441	
25		1.197	1.31	1.31	1.441	
50		1.197	1.441	1.31	1.31	
100		1.31	1.107	1.441	1.441	

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	14/15	15/15	14/15	15/15
6.25		15/15	14/15	15/15	15/15
12.5		15/15	14/15	14/15	15/15
25		13/15	14/15	14/15	15/15
50		13/15	15/15	14/15	14/15
100		14/15	12/15	15/15	15/15





Report Date:

02 Dec-16 14:29 (p 3 of 4)

Test Code:

VCF1016.360f | 16-4345-1343

Fathead Wilni	iow 7-d Larval Sur	vival and Growt	h Test					Aquatic	Bioassay &	Consulting	g Labs, In
Analysis ID:	05-4536-6022	Endpoint:	Mean Dry Bion	nass-mg			CET	'IS Versio	n: CETISv	1.9.2	
Analyzed:	02 Dec-16 14:27	Analysis:	Nonparametric	-Control	vs T	reatments	Offic	cial Result	ts: Yes		
Batch ID:	10-7564-6951	Test Type:	Growth-Surviva	al (7d)			Ana	lvst: Jo	e Freas		
Start Date:	28 Oct-16 15:17	Protocol:	EPA/821/R-02	• ,	02)		Dilu	•	boratory Wa	ter	
	04 Nov-16 13:20	Species:	Pimephales pr	•	,		Brin		ot Applicable		
Duration:	6d 22h	Source:	Aquatic Biosys		0		Age		х. фр		
Sample ID:	19-4634-1801	Code:	VCF1016.360				Clie	_	CWPD		
•	28 Oct-16 06:15	Material:	Sample Water				Proj	ect: 20	16/17-1 (We	t)	
•	28 Oct-16 12:10	Source:	Bioassay Repo	ort							
Sample Age:	9h	Station:	MO-SPA								
Data Transfor	m A	Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD
Untransformed	l (C > T					100	> 100	n/a	1	39.29%
Steel Many-O	ne Rank Sum Test										
	vs Conc-%	Test S	Stat Critical	Ties	DF	P-Type	P-Value	Decisio	n(a:5%)		
Negative Contr		26	10	0	6	Asymp	0.9999		nificant Effec	t	
	12.5	26	10	0	6	Asymp	0.9999	Non-Sig	nificant Effec	t	
	25	25	10	0	6	Asymp	0.9997	_	nificant Effec		
	50	18	10	0	6	Asymp	0.8333	Non-Sig	nificant Effec	t	
	100	17	10	0	6	Asymp	0.7334	Non-Sig	nificant Effec	t	
Test Acceptab	oility Criteria	TAC Limits									
Attribute	Test Stat L	ower Uppe	r Overlap	Decis	ion						
Control Resp		0.25 >>	Yes			ceptibility C	riteria				
ANOVA Table											
	Cum Caune	a Maan	Causes	DF		F Stat	D Value	Desista	a/av E9/ \		
Source Between	Sum Square	s wear	Square	UF.		r Stat	P-Value	Decision	n(a:5%)		
	0.0250442	0.005	1690		_			Non Cia	nificant Effec	4	
	0.0258442	0.005		5		0.8182	0.5524	Non-Sig	nificant Effec	t	
Error	0.113708	0.005 0.006		5 18				Non-Sig	nificant Effec	t	
Error Fotal	0.113708 0.139552			5				Non-Sigi	nificant Effec	t	
Error Fotal Distributional	0.113708 0.139552 Tests			5 18 23		0.8182	0.5524			t	
Error Fotal Distributional Attribute	0.113708 0.139552 Tests Test	0.006	3171	5 18 23 Test S	tat	0.8182 Critical	0.5524 P-Value	Decisio	n(α:1%)	t	
Error Fotal Distributional Attribute Variances	0.113708 0.139552 Tests Test Bartlett Equa	0.006	3171 est	5 18 23 Test S 21.82	tat	0.8182 Critical 15.09	0.5524 P-Value 5.7E-04	Decisio Unequal	n(α:1%) Variances	t	
Error Fotal Distributional Attribute Variances	0.113708 0.139552 Tests Test Bartlett Equalevene Equalevene Equalement	0.006 lity of Variance T lity of Variance T	est	5 18 23 Test S 21.82 4.34	tat	0.8182 Critical 15.09 4.248	P-Value 5.7E-04 0.0091	Decisio Unequal Unequal	n(α:1%) Variances Variances	t	
Error Total Distributional Attribute Variances Variances Variances	0.113708 0.139552 Tests Test Bartlett Equa Levene Equa Mod Levene	0.006 lity of Variance T lity of Variance T Equality of Varia	Gest Fest nce Test	5 18 23 Test S 21.82 4.34 2.036	tat	Critical 15.09 4.248 4.248	P-Value 5.7E-04 0.0091 0.1218	Decision Unequal Unequal Equal Va	n(α:1%) Variances Variances ariances		
Error Total Distributional Attribute Variances Variances Variances Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Da	0.006 lity of Variance T lity of Variance T Equality of Varia ırling A2 Normalit	Gest Fest nce Test	5 18 23 Test S 21.82 4.34 2.036 1.845	tat	Critical 15.09 4.248 4.248 3.878	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37	Decision Unequal Unequal Equal Va Non-Nor	n(α:1%) Variances Variances ariances mal Distribut	ion	
Error Total Distributional Attribute Variances Variances Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equa Levene Equa Mod Levene Anderson-Da D'Agostino K	0.0063 lity of Variance T lity of Variance T Equality of Varian Irling A2 Normalit urtosis Test	Gest Fest nce Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664	itat	Critical 15.09 4.248 4.248 3.878 2.576	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04	Decision Unequal Unequal Equal Va Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut	ion	
Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equa Levene Equa Mod Levene Anderson-Da D'Agostino K D'Agostino S	0.0063 lity of Variance T lity of Variance T Equality of Varian Irling A2 Normalit urtosis Test kewness Test	est Test nce Test y Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44	itat	Critical 15.09 4.248 4.248 3.878 2.576 2.576	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04	Decision Unequal Unequal Equal Va Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut	ion ion ion	
Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equa Levene Equa Mod Levene Anderson-Da D'Agostino K D'Agostino S D'Agostino-P	0.0063 lity of Variance T lity of Variance T Equality of Varia Irling A2 Normalit urtosis Test kewness Test earson K2 Omnil	est Test nce Test y Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25		Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut	ion ion ion	
Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dastino Koragostino Sol'Agostino-Polito Kolmogorov-	0.006: lity of Variance T lity of Variance T Equality of Varia rling A2 Normalit urtosis Test kewness Test earson K2 Omnil Smirnov D Test	Test Test Test Test Ty Test Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177		Critical 15.09 4.248 4.248 3.878 2.576 9.21 0.2056	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion	
Error Fotal Distributional Attribute /ariances /ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dastino Koragostino Sol'Agostino-Polito Kolmogorov-	0.0063 lity of Variance T lity of Variance T Equality of Varia Irling A2 Normalit urtosis Test kewness Test earson K2 Omnil	Test Test Test Test Ty Test Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25		Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut	ion ion ion ion	
Error Fotal Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dastino Koragostino Sol'Agostino-Polito Kolmogorov-	0.006: lity of Variance Tality of Variance Tequality of Variance Iequality of Variance Iequality of Variance Iequality Test Wearson K2 Omnilest Wearson K2 Test Wearson K2 Omnilest Wearson K2 Test Wearson K2 Test	Test Test Test Test Ty Test Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177		Critical 15.09 4.248 4.248 3.878 2.576 9.21 0.2056	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion	
Error Total Distributional Attribute Variances Variances Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Kolmogorov-Shapiro-Wilk mass-mg Summar	0.006: lity of Variance Tality of Variance Tequality of Variance Iequality of Variance Iequality of Variance Iequality Test Wearson K2 Omnilest Wearson K2 Test Wearson K2 Omnilest Wearson K2 Test Wearson K2 Test	Test Test Test Test Ty Test Test	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177 0.7771		Critical 15.09 4.248 4.248 3.878 2.576 9.21 0.2056	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion	%Effect
Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Conc-%	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Kolmogorov-Kolmogorov-Shapiro-Wilk	0.006: lity of Variance Tality of Variance Tequality of Variance Tequality of Variance Tequality of Variance Text Rewness Test Rewness Test Rearson K2 Omnil Smirnov D Test W Normality Test W Normality Test Person Mean	Gest Fest Fest Fince Test Fry Test Fous Test Fig. 195% LCL	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177 0.7771	, CL	Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046 1.3E-04	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion ion	%Effect
Error Total Distributional Attribute Variances Variances Distribution Conc-%	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Kolmogorov-Shapiro-Wilk mass-mg Summar Code Colleges	0.006: lity of Variance Tality of Variance Tequality of Variance Tequality of Variance Tequality of Variance Text Rewness Test Rewness Test Rearson K2 Omnil Smirnov D Test W Normality Test W Normality Test Person Mean	Gest Fest Fest Fince Test Fry Test Fous Test Fig. 195% LCL	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177 0.7771	, CL	Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046 1.3E-04	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut	ion ion ion ion ion ion	0.00%
Error Total Distributional Attribute Variances Variances Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dar D'Agostino Kolmogorov-Shapiro-Wilk mass-mg Summar Code Control Code Code Code Code Code Code Code Code	lity of Variance Tality of Variance Tellity of Variance Tequality of Variance Tequality of Variance Tequality of Variance Tequality and the Variance Test Rearson K2 Omnil Smirnov D Test W Normality Test W Norma	Gest Gest Gest Ince Test By Test Dus Test 95% LCL 3 0.3103 0.3658	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177 0.7771	CL.	Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.3447	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046 1.3E-04 Min 0.318	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor Max 0.37	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Mal Distribut Mal Distribut Mal Distribut	ion ion ion ion ion ion on CV%	0.00% -25.46%
Error Total Distributional Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Conc-% 0 3.25 12.5	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dar D'Agostino K D'Agostino-P Kolmogorov-Shapiro-Wilk mass-mg Summar Code Con N 4	lity of Variance Tality of Variance Tality of Variance Tequality of Variance Tequality of Variance Tequality of Variance Tequality and the Variance Test Rewness	Sest Fest Fest Fest Fest Fest Fest Fest F	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177 0.7771 95% U 0.3784 0.4982	CL	Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.3447 0.432	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046 1.3E-04 Min 0.318 0.3953	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor On-Nor 0.37 0.4687	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0107 0.02079	ion ion ion ion ion on CV% 6.22% 9.62%	0.00% -25.46% -22.22%
Error Total Distributional Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.113708 0.139552 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dar D'Agostino K D'Agostino-P Kolmogorov-Shapiro-Wilk mass-mg Summar Code Control Code Code Code Code Code Code Code Code	lity of Variance Tality of Variance Tality of Variance Tequality of Variance Tequality of Variance Tequality of Variance Tequality According A2 Normality Test W Normality Test	95% LCL 95% LCL 3 0.3103 0.3658 3 0.3789 3 0.3589	5 18 23 Test S 21.82 4.34 2.036 1.845 3.664 3.44 25.25 0.2177 0.7771 95% U 0.3784 0.4982 0.4628	, CL :	Critical 15.09 4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 0.3447 0.432 0.4137	P-Value 5.7E-04 0.0091 0.1218 <1.0E-37 2.5E-04 5.8E-04 3.3E-06 0.0046 1.3E-04 Min 0.318 0.3953 0.3987	Decision Unequal Unequal Equal Va Non-Nor Non-Nor Non-Nor Non-Nor Non-Nor 0.37 0.4687 0.4573	n(α:1%) Variances Variances ariances mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut mal Distribut Std Err 0.0107 0.02079 0.01319	CV% 6.22% 9.62% 6.27%	

Report Date:

02 Dec-16 14:29 (p 4 of 4)

Test Code:

VCF1016.360f | 16-4345-1343

Aquatic Bioassay & Consulting Labs, Inc.

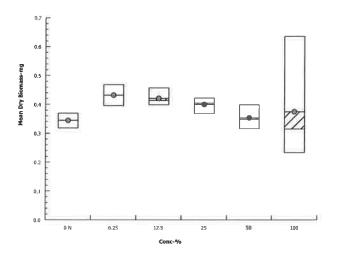
Analysis ID: Analyzed: 02 Dec-16 14:27

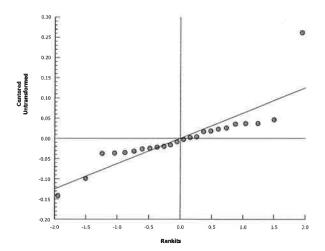
05-4536-6022 Analysis:

Endpoint: Mean Dry Biomass-mg Nonparametric-Control vs Treatments **CETIS Version:** Official Results: CETISv1.9.2

Mean Dry Biomass-mg Detail

• •					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	0.3413	0.37	0.318	0.348
6.25		0.3953	0.3967	0.4687	0.4673
12.5		0.4047	0.3987	0.4227	0.4573
25		0.3673	0.3907	0.4173	0.422
50		0.3153	0.3693	0.328	0.3987
100		0.2753	0.2327	0.3547	0.636





Report Date:

02 Dec-16 14:29 (p 1 of 4)

Test Code:

VCF1016,360f | 16-4345-1343

Fathea	ad Minn	ow 7-d Larval S	urvival an	d Grow	th Test					Aqua	tic Bi	oassay &	Consul	ting Labs, In
Analys Analyz		14-8867-4415 02 Dec-16 14:2		dpoint: alysis:	7d Survival Rat Linear Interpola)			TIS Vers icial Res		CETISv Yes	1.9.2	
Batch	ID:	10-7564-6951	Tes	st Type:	Growth-Surviva	al (7d)			An	alyst:	Joe F	reas		
Start C	Date:	28 Oct-16 15:17		tocol:	EPA/821/R-02-						Labor	atory Wa	ter	
Ending	g Date:	04 Nov-16 13:20) Spe	ecies:	Pimephales pro	omelas			Bri	ne:	Not A	pplicable		
Duration	_	6d 22h	-	urce:	Aquatic Biosystems, CO				Age					
Sampl	e ID:	19-4634-1801	Cor	de:	VCF1016,360				Clic	ent:	VCW	PD		
Sampl	e Date:	28 Oct-16 06:15	Ma	terial:	Sample Water				Pro	ject:	2016/	17-1 (We	t)	
Receip	ot Date:	28 Oct-16 12:10	Sou	urce:	Bioassay Repo	rt						·		
Sampl	e Age:	9h	Sta	tion:	MO-SPA									
Linear	Interpo	lation Options												
X Tran	sform	Y Transform	n See	d	Resamples	Exp 95%	CL	Method						
Linear		Linear	141	6828	280	Yes		Two-Poir	nt Inter	polation				
Test A	cceptat	oility Criteria	TAC L	imits.										
Attribu	ıte	Test Stat	Lower	Uppe	r Overlap	Decision								
Control	l Resp	0.9667	0.8	>>	Yes	Passes A	cceptib	ility Crite	ria					
Point E	Estimat	es												
Level	%	95% LCL	95% UCL		95% LCL	95% UCL								
EC5	>100	n/a	n/a	<1	n/a	n/a								
EC10	>100	n/a	n/a	<1	n/a	n/a								
EC15	>100	n/a	n/a	<1	n/a	n/a								
EC20	>100	n/a	n/a	<1	n/a	n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40	>100	n/a	n/a	<1	n/a	n/a								
EC50	>100	n/a	n/a	<1	n/a	n/a								
7d Sur	vival Ra	ite Summary				Calcu	lated \	/ariate(A	/B)					
Conc-%	%	Code	Count	Mean		Max	Std E		d Dev			%Effect	Α	В
0 6.25		N	4	0.966		1.0000	0.019		0385	3,98%		0.0%	58	60
			4	0.983		1.0000		-	0333	3.39%		-1.72%	59	60
12.5 25			4	0.966		1.0000	0.019		0385	3.98%		0.0%	58	60
25 50			4	0.933		1.0000 1.0000	0.027		0544	5.83%		3.45% 3.45%	56 56	60
100			4	0.933		1.0000	0.027		0544 0943	5.83% 10.10		3.45% 3.45%	56	60 60
		(B ()		0.900	0.0000	1.0000	0.047	1 0.0	J34J	10.10	70	3.4376	30	00
		te Detail Code	Don 4	Don 2	Den 2	Don 4								
Conc-%	0	N	Rep 1	Rep 2		Rep 4								
		IN	0.9333	1.0000		1.0000								
25			1.0000	0.9333		1.0000								
2.5			1.0000	0.9333		1.0000								
25			0.8667	0.9333		1.0000								
0			0.8667	1.0000		0.9333								
00			0.9333	0.8000	1.0000	1.0000								
		te Binomials												
Conc-%	6	Code	Rep 1	Rep 2		Rep 4								
)		N	14/15	15/15	14/15	15/15								
3.25			15/15	14/15	15/15	15/15								
2.5			15/15	14/15	14/15	15/15								
25			13/15	14/15	14/15	15/15								
			13/15	15/15	14/15	14/15								
00 00			14/15	12/15	15/15									



Report Date:

02 Dec-16 14:29 (p 2 of 4)

Test Code:

VCF1016.360f | 16-4345-1343

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

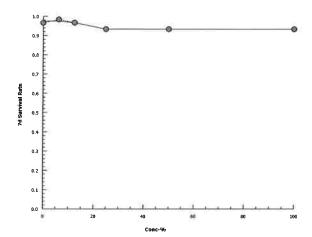
Analysis ID: Analyzed:

14-8867-4415 02 Dec-16 14:27 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: CE
Official Results: Ye

CETISv1.9.2



Report Date:

02 Dec-16 14:29 (p 3 of 4)

Test Code:

VCF1016.360f | 16-4345-1343

									168	it Code:		VCF1016.360f	10-4345-1343		
Fathe	ad Minn	ow 7-d Larval S	Survival an	d Grow	th Test					Aquat	ic Bi	oassay & Consultii	ng Labs, Inc.		
Analys		08-3259-7460		dpoint:	•	•				TIS Versi		CETISv1.9.2			
Analyz	zed:	02 Dec-16 14:	27 A na	alysis:	Linear Interpol	ation (ICPIN	1)		Off	icial Res	ults:	Yes			
Batch	ID:	10-7564-6951	Tes	t Type:	Growth-Surviva	al (7d)			Ana	Analyst: Joe Freas					
Start [Date:	28 Oct-16 15:17	⁷ Pro	tocol:	EPA/821/R-02	-013 (2002)			Dilu	uent:	Labo	ratory Water			
Endin	g Date:	04 Nov-16 13:20	0 Sp e	cies:	Pimephales pr	omelas			Bri	ne:	Not A	Applicable			
Durati	on:	6d 22h	Sou	ırce:	Aquatic Biosys	stems, CO			Age) :					
Sampl	le ID:	19-4634-1801	Cod	de:	VCF1016.360				Clie	ent:	vcw	'PD			
		28 Oct-16 06:15		erial:	Sample Water				Pro	ject:	2016	/17-1 (Wet)			
•		28 Oct-16 12:10		ırce:	Bioassay Repo	ort									
Sampl	e Age:	9h	Sta	tion:	MO-SPA										
Linear	Interpo	lation Options													
X Tran	sform	Y Transform	n See	d	Resamples	Exp 95%	CL	Method							
Linear					280	Yes		Two-Po	int Inter	polation					
Test A	cceptat	oility Criteria	TAC L	imits											
Attribu	ite	Test Stat	Lower	Uppe	r Overlap	Decision									
Contro	l Resp	0.3443	0.25	>>	Yes	Passes A	ccepti	bility Crite	eria						
Point E	Estimate	es													
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL									
IC5	39.1	13.91	n/a	2.557	n/a	7.19									
IC10	>100	n/a	n/a	<1	n/a	n/a									
IC15	>100	n/a	n/a	<1	n/a	n/a									
IC20	>100	n/a	n/a	<1	n/a	n/a									
IC25 IC40	>100 >100	n/a n/a	n/a n/a	<1 <1	n/a n/a	n/a n/a									
C50	>100	n/a	n/a	<1	n/a	n/a n/a									
				-	II/a										
		nass-mg Summ	_					ed Variat							
Conc-%	%	Code	Count	Mean	Min	Max	Std		td Dev	CV%		%Effect			
) 3,25		N	4	0.3443		0,37	0.01		.02141	6.22%		0.0%			
12.5			4	0.432	0.3953 3 0.3987	0.4687	0.02		.04158	9.62%		-25.46%			
25			4	0.4200		0.4573 0.422	0.01		.02638 .02541	6.27% 6.36%		-22.22% -15.97%			
50			4	0.3528		0.422	0.01		.03828	10.85%		-13.97% -2.47%			
100			4	0.3747		0.636	0.09		1814	48.42%		-8.81%			
Vlean D	Ory Bion	nass-mg Detail													
Conc-%		Code	Rep 1	Rep 2	Rep 3	Rep 4									
)		N	0.3413	0.37	0.318	0_348									
25			0.3953	0.3967	0.4687	0.4673									
12.5			0.4047	0.3987	0.4227	0.4573									
25			0.3673	0.3907	0.4173	0.422									
50			0.3153	0.3693	0.328	0.3987									
00			0.2753	0.2327	0.3547	0.636									

Report Date:

02 Dec-16 14:29 (p 4 of 4)

Test Code:

VCF1016.360f | 16-4345-1343

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

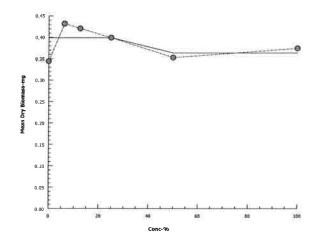
Analysis ID: Analyzed:

08-3259-7460 02 Dec-16 14:27 Endpoint: Mean Dry Biomass-mg Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results: CETISv1.9.2

Yes



CETIS Measurement Report

Report Date:

02 Dec-16 14:29 (p 1 of 2)

Test Code:

VCF1016.360f | 16-4345-1343

Fathead Minnow 7-d Larval Survival and Growth Tes

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 10-7564-6951 Test Type: Growth-Survival (7d) Start Date: 28 Oct-16 15:17 EPA/821/R-02-013 (2002) Protocol:

Ending Date: 04 Nov-16 13:20 Species: Pimephales promelas **Duration:** 6d 22h Source: Aquatic Biosystems, CO Diluent: Brine:

Analyst:

Joe Freas Laboratory Water

Not Applicable

Age:

19-4634-1801 Sample ID: Code: VCF1016.360 Client: **VCWPD**

Sample Date: 28 Oct-16 06:15 Material: Sample Water Project: 2016/17-1 (Wet) Receipt Date: 28 Oct-16 12:10 Source: Bioassay Report

Station: MO-SPA Sample Age: 9h

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62.25	60.72	63.78	61	65	0.6478	1.832	2.94%	0
100		1	135			135	135	0	0	0.0%	0
Overall		9	70.33	51_65	89.02	61	135	8.103	24.31	34.56%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	366.8	279.1	454.4	319	625	37.05	104.8	28,58%	0
6.25		8	342.1	333.8	350.4	335	360	3.512	9.935	2.9%	0
12.5		8	369	361.6	376.4	360	381	3.14	8.88	2.41%	0
25		8	413.5	408.9	418.1	407	425	1.955	5.529	1.34%	0
50		8	505.9	502.6	509.2	501	512	1.394	3.944	0.78%	0
100		8	689.1	682.3	696	675	699	2.906	8.219	1.19%	0
Overall		48	447.7	410.5	485	319	699	18.51	128.2	28.64%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.738	7.571	7.904	7.5	8.1	0.07055	0.1996	2.58%	0
6.25		8	7.512	7.198	7.827	6.8	7.9	0.1329	0.3758	5.0%	0
12.5		8	6.587	5.968	7.207	5.4	7.6	0.2622	0.7415	11_26%	0
25		8	7.075	6.62	7.53	6	7.5	0.1925	0.5445	7.7%	0
50		8	6.513	5.909	7.116	5.1	7.4	0.2553	0.722	11.09%	0
100		8	6.025	4.843	7,207	4.3	7.5	0.4999	1.414	23.47%	0
Overall		48	6.908	6.635	7,182	4.3	8.1	0.1361	0.943	13.65%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5,77%	0
100		1	232			232	232	0	0	0.0%	0
Overall		9	105.6	68.92	142.2	86	232	15.89	47.66	45.15%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.95	7.745	8.155	7.5	8,3	0.0866	0.2449	3.08%	0
6.25		8	7,425	7.154	7.696	7	8.1	0.1146	0.324	4.36%	0
12.5		8	7.35	7.183	7.517	7.2	7.8	0,07071	0.2	2.72%	0
25		8	7.4	7.3	7.5	7.2	7.6	0.04226	0.1195	1.62%	0
50		8	7.275	7.178	7.372	7.1	7.4	0.04119	0.1165	1.6%	0
100		8	7.125	7.066	7.184	7	7.2	0.025	0.07071	0.99%	0
Overall		48	7.421	7.328	7.514	7	8.3	0.04622	0.3202	4.32%	0 (0%)

Report Date: Test Code: 02 Dec-16 14:29 (p 2 of 2) VCF1016.360f | 16-4345-1343

Fother d Minney 7 d Loryal Commission of County Took	Associal Diseases 0. Occasible at the first
Fathead Minnow 7-d Larval Survival and Growth Test	Aquatic Bioassay & Consulting Labs, Inc.

Temperature-	C.										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Coun
0	N	8	24.1	23.86	24.34	24	24.8	0.1	0.2828	1.17%	0
6.25		8	24.09	23.91	24.26	24	24.6	0.07425	0.21	0.87%	0
12.5		8	24.08	23.9	24.25	24	24.6	0.075	0.2121	0.88%	0
25		8	24.06	23.91	24.21	24	24.5	0.0625	0.1768	0.73%	0
50		8	24.05	23.93	24.17	24	24.4	0.05	0.1414	0.59%	0
100		8	24.04	23.95	24.13	24	24.3	0.03751	0.1061	0.44%	0
Overall		48	24.07	24.01	24.12	24	24.8	0.02699	0_187	0.78%	0 (0%)
Alkalinity (CaC	O3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	63	61	61	61	61	61	65	65		
100		135									
Conductivity-µ	ımhos										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	336	320	319	326	324	625	336	348		
6.25		360	337	336	335	339	336	338	356		
12.5		376	381	363	366	360	364	361	381		
25		417	413	410	407	410	414	412	425		
50		512	506	503	504	501	507	503	511		
100		691	685	681	697	675	694	691	699		
Dissolved Oxy	gen-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	7.6	7.6	7.8	7.9	7.6	7.8	7.5	8.1		
6.25		7.7	7.5	7.9	7.8	7.6	7.7	7.1	6.8		
12.5		7.6	5.4	6	7.4	6.1	6.6	6.6	7		
25		7.5	7.1	7.4	7.5	7.4	7.2	6.5	6		
50		73	6.6	6.4	6.2	7.4	6.3	6.8	5.1		
100		7.2	5	7.4	5.4	7_1	4_3	7.5	4.3		
Hardness (CaC	CO3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	96	86	86	86	86	86	96	96		
100		232									
pH-Units											
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	8	7.9	7.8	7.9	8.2	8.3	7.5	8		
6.25		8.1	7.5	7.5	7.5	7	7.3	7.3	7.2		
12,5		7.8	7.4	7.4	7.2	7.2	7.3	7.3	7.2		
25		7.6	7.4	7.5	7.4	7.4	7.3	7.4	7.2		
50		7.4	7.4	7.3	7,2	7.4	7.2	7.2	7,1		
100		7.2	7.2	7.2	7.1	7.1	7.1	7.1	7		
Temperature-°	С										
Conc-%	Code	1	2	3	4	5	6	7	8		
)	N	24	24	24	24	24.8	24	24	24		
6.25		24	24	24	24	24	24.6	24	24.1		
12.5		24	24.6	24	24	24	24	24	24		
25		24	24	24	24	24.5	24	24	24		
50		24	24	24	24	24	24.4	24	24		
100		24	24	24	24	24.3	24	24	24		

000-971-144-8

CETIS™ v1.9.2.3 Page DI - 79 Analyst: QA: / Attachment D Appendix I



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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:

Ventura County Flood Control

SAMPLE I.D.:

MO-VEN

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.353

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

SURVIVAL

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

REPRODUCTION

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 15:17 (p 1 of 2)

Test Code: VCF1016.353c | 13-4379-3910

Ceriodaphnia	daphnia 7-d Survival and Reproduction Test Aquatic Bioas							c Bioassay &	Consulting	Labs, i	nc
Batch ID:	02-0625-1802	Test Type	: Reproduction-	Survival (7d)		An	alyst: J	oe Freas			
Start Date:	28 Oct-16 15:10		EPA/821/R-02				_	aboratory Wat	er		
	04 Nov-16 14:15	-	Ceriodaphnia	. ,				lot Applicable	<u>.</u>		
Duration:	6d 23h	Source:	Aquatic Biosys			Age		ост приношьно			
Sample ID:	16-5076-3879	Code:	VCF1016.353			Cli	ent: V	CWPD			
•	28 Oct-16 07:55		Sample Water					016/17-1 (Wet	`		
			•			PIC	nject. 2	OTO/T/-T (VVEL)		
Sample Age:	28 Oct-16 10:05	Source: Station:	Bioassay Repo	ort							
			WO-VEN								
	parison Summa										
Analysis ID	Endpoint		parison Method		,	NOEL	LOEL	TOEL	TU	PMSE	D .
	7d Survival Rate		er Exact/Bonferro			100	> 100	n/a	1	n/a	,
10-2424-9105	Reproduction	Dunr	nett Multiple Com	iparison Les	t	100	> 100	n/a	1	33.7%	6
Point Estimat	e Summary										
Analysis ID	Endpoint		t Estimate Meth			Level	%	95% LCL	95% UCL	TU	,
14-2990-4533	7d Survival Rate	Linea	ar Interpolation (I	CPIN)		EC5	>100	n/a	n/a	<1	
						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	,
						EC50	>100	n/a	n/a	<1	,
07-9639-3459	Reproduction	Linea	r Interpolation (I	CPIN)		IC5	34.82	4.077	n/a	2.872	
	•		·	,		IC10	44.63	10.81	n/a	2.241	
						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	,
Toot Assentab	.ilit.						- 100	1174	1,, 4		
Test Acceptab		A 44:1		Took Stat		Limits	Overle	. Desision			
Analysis ID	Endpoint	Attril		Test Stat		Upper	Overla				
UU-3 139-3 123	7d Curringt Date	Cont			Λο.		Voc	Dagge A	accatibility C	ritorio	
	7d Survival Rate		•	1	0.8	>>	Yes		cceptibility C		
14-2990-4533	7d Survival Rate	Contr	rol Resp	1	8.0	>>	Yes	Passes Ad	cceptibility C	riteria	
14-2990-4533 07-9639-3459	7d Survival Rate Reproduction	Contr Contr	rol Resp rol Resp	1 33.1	0.8 15	>> >>	Yes Yes	Passes Ad Passes Ad	cceptibility C	riteria riteria	
14-2990-4533 07-9639-3459 10-2424-9105	7d Survival Rate Reproduction Reproduction	Contr Contr	rol Resp	1	8.0	>>	Yes	Passes Ad Passes Ad	cceptibility C	riteria riteria	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra	7d Survival Rate Reproduction Reproduction ate Summary	Conti Conti Conti	rol Resp rol Resp rol Resp	1 33.1 33.1	0.8 15 15	>> >> >>	Yes Yes Yes	Passes Ad Passes Ad Passes Ad	cceptibility C cceptibility C cceptibility C	riteria riteria riteria	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-%	7d Survival Rate Reproduction Reproduction ate Summary Code	Conte	rol Resp rol Resp rol Resp	1 33.1 33.1 95% UCL	0.8 15 15 Min	>> >> >>	Yes Yes Yes Std Err	Passes Ad Passes Ad Passes Ad Std Dev	ecceptibility C cceptibility C cceptibility C cceptibility C	riteria riteria riteria %Effe	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-%	7d Survival Rate Reproduction Reproduction ate Summary	Count Mear 10 1.000	rol Resp rol Resp rol Resp n 95% LCL 00 1.0000	1 33.1 33.1 95% UCL 1.0000	0.8 15 15 Min 1.0000	>> >> >> Max	Yes Yes Yes Std Err	Passes Ad Passes Ad Passes Ad Std Dev 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C CV%	riteria riteria riteria %Effe 0.00%	5
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 5.25	7d Survival Rate Reproduction Reproduction ate Summary Code	Count Mear 10 1.000 10 1.000	rol Resp rol Resp rol Resp n 95% LCL 00 1.0000 00 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000	0.8 15 15 Min 1.0000 1.0000	>> >> >> Max 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria %Effe 0.00% 0.00%	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 3.25 12.5	7d Survival Rate Reproduction Reproduction ate Summary Code	Count Mear 10 1.000 10 1.000 10 1.000	rol Resp rol Resp rol Resp n 95% LCL 00 1.0000 00 1.0000 00 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000	0.8 15 15 Min 1.0000 1.0000 1.0000	>> >> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000	cceptibility Cceptibility Cceptibility Cceptibility Cceptibility Cceptibility C	criteria criteria criteria %Effe 0.00% 0.00%	,
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 6.25 12.5	7d Survival Rate Reproduction Reproduction ate Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000	rol Resp rol Resp rol Resp n 95% LCL 00 1.0000 00 1.0000 00 1.0000 00 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 1.0000 1.0000	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00%	######################################	
14-2990-4533 27-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 3.25 12.5 25	7d Survival Rate Reproduction Reproduction ate Summary Code	Count Control Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000	rol Resp rol Resp rol Resp 1 95% LCL 10 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 15 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000	>> >> 1,0000 1,0000 1,0000 1,0000 1,0000	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00% 0.00% 0.00%	######################################	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 3.25 12.5 25	7d Survival Rate Reproduction Reproduction ate Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000	rol Resp rol Resp rol Resp 1 95% LCL 10 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 1.0000 1.0000	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00%	######################################	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 6.25 12.5 25 50	7d Survival Rate Reproduction Reproduction ate Summary Code N	Count Control Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000	rol Resp rol Resp rol Resp 1 95% LCL 10 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 15 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000	>> >> 1,0000 1,0000 1,0000 1,0000 1,0000	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00% 0.00% 0.00%	######################################	
14-2990-4533 27-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 3.25 12.5 25 50 100 Reproduction	7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 Count Mear	rol Resp rol Resp rol Resp 1 95% LCL 10 1.0000 10 1.0000 10 1.0000 10 1.0000 10 1.0000 10 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000	>> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000 Std Err	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 Std Dev	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C CV% 0.00% 0.00% 0.00% 0.00% 0.00% CO0%	######################################	
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction	7d Survival Rate Reproduction Reproduction ate Summary Code N	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 10 33.1	rol Resp rol Resp rol Resp 1 95% LCL 20 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL	0.8 15 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000 Min	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000 Std Err 3.288	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 Std Dev	cceptibility C ccepti	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% 0.00%	ect
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 3.25	7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 10 33.1 10 37.2	rol Resp rol Resp rol Resp 1 95% LCL 10 1.0000 10 1.0000 10 1.0000 10 1.0000 10 1.0000 10 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000	>> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000 Std Err	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 Std Dev	cceptibility C cceptibility C cceptibility C CV% 0.00% 0.00% 0.00% 0.00% 0.00%	######################################	ect
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 3.25 12.5	7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 10 33.1 10 37.2 10 37.2	rol Resp rol Resp rol Resp 1 95% LCL 20 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL	0.8 15 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000 Min	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000 Std Err 3.288	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 Std Dev	cceptibility C ccepti	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% 0.00%	ect
14-2990-4533 07-9639-3459 10-2424-9105 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 3.25 12.5 25	7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 10 33.1 10 37.2	rol Resp rol Resp rol Resp 1 95% LCL 20 1.0000 20 1.0000 20 1.0000 20 1.0000 20 1.0000 20 1.0000 20 25.66 29.26	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 40.54 45.14	0.8 15 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000 Min 13 23	>> >> >>	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000 Std Err 3.288 3.511	Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	cceptibility C ccepti	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% -12.39	ct 9%
	7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Mear 10 1.000 10 1.000 10 1.000 10 1.000 10 1.000 10 33.1 10 37.2 10 37.2	rol Resp rol Resp rol Resp 1 95% LCL 20 1.0000 20 1.0000 20 1.0000 20 1.0000 20 1.0000 20 1.0000 20 25.66 29.26 28.36	1 33.1 33.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 40.54 45.14 46.04	0.8 15 15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000 Min 13 23 9	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max 48 55 47	Yes Yes Yes Std Err 0.0000 0.0000 0.0000 0.0000 0.0000 Std Err 3.288 3.511 3.907	Passes Ad Passes Ad Passes Ad Passes Ad Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 10.4 11.1 12.35	cceptibility C ccepti	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% -12.39 -12.39	ect



CETIS Summary Report

Report Date:

02 Dec-16 15:17 (p 2 of 2)

Test Code: VCF1016.353c | 13-4379-3910

Aquatic Bioassay & Consulting Labs, Inc.

Ceriodaphnia 7-	d Survival and	Reproduction Tes	t
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7d Survival R	ate Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Deta								

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	48	31	13	41	41	22	36	34	26	39
6.25		46	38	27	26	43	23	40	55	48	26
12.5		43	46	29	25	43	47	41	9	44	45
25		34	38	35	40	19	21	22	48	48	57
50		41	22	26	26	5	28	24	16	24	36
100		26	23	41	41	33	45	42	40	39	49

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Report Date:

02 Dec-16 15:15 (p 1 of 2)

Test Code: VCF1016.353c | 13-4379-3910

Ceriodaphnia 7-d Survival and Reproduction Test								Aquatic	Bioassay &	Consultin	g Labs, Inc
Analysis ID:	10-2424-910	5 E i	ndpoint:	Reproduction			CET	ΓIS Version	n: CETISv	1.9.2	
Analyzed:	02 Dec-16 15	5:14 A i	nalysis:	Parametric-Co	ntrol vs Trea	atments	Offi	cial Result	s: Yes		
Batch ID:	02-0625-1802	Te	est Type:	Reproduction-	Survival (7d)		Ana	ılyst: Jo	e Freas		
Start Date:	28 Oct-16 15:	10 P i	rotocol:	EPA/821/R-02	-013 (2002)		Dilu	ient: La	boratory Wa	ter	
Ending Date:	04 Nov-16 14:	15 S	pecies:	Ceriodaphnia d	dubia		Brir	ne: No	t Applicable		
Duration:	6d 23h	S	ource:	Aquatic Biosys	tems, CO		Age	:			
Sample ID:	16-5076-3879	C	ode:	VCF1016.353			Clie	nt: VC	CWPD		
Sample Date:	28 Oct-16 07:	55 M	aterial:	Sample Water			Pro	ject: 20	16/17-1 (We	t)	
Receipt Date:	28 Oct-16 10:0	05 S (ource:	Bioassay Repo	ort						
Sample Age:	7h	St	tation: I	MO-VEN							
Data Transfor	m	Alt Hyp)				NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T					100	> 100	n/a	1	33.68%
Dunnett Multi	ple Compariso	on Test									
Control	vs Conc-%	6	Test St	at Critical	MSD DI	- Р-Туре	P-Value	Decision	n(α:5%)		
Negative Contr	ol 6.25		-0.842	2.289	11,15 18	CDF	0.9754	Non-Sig	nificant Effec	t	
	12.5		-0.842	2.289	11.15 18	CDF	0.9754	Non-Sigi	nificant Effec	t	
	25		-0.6366	2.289	11.15 18	CDF	0.9576		nificant Effec		
	50		1.704	2.289	11_15 18	CDF	0.1562	Non-Sigi	nificant Effec	t	
	100		-0.9857	2.289	11.15 18	CDF	0.9836	Non-Sig	nificant Effec	t	
Test Acceptab	ility Criteria	TAC	Limits								
Attribute	Test Sta	t Lower	Upper	Overlap	Decision						
Control Resp	33,1	15	>>	Yes	Passes A	cceptibility	Criteria				
ANOVA Table											
Source	Sum Sq	uares	Mean S	quare	DF	F Stat	P-Value	Decision	η(α:5%)		
Between	1250,2		250.04		5	2.109	0.0783	Non-Sigr	nificant Effec	t	
Error	6402.2		118.559	9	54						
Total	7652.4				59						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	η(α:1%)		
/ariances	Bartlett E	Equality of V	/ariance Te	st	2.146	15.09	0.8286	Equal Va	riances		
Variances	Levene E	Equality of \	/ariance Te	est	0.6609	3.377	0.6546	Equal Va	riances		
√ariances	Mod Lev	ene Equalit	y of Variand	ce Test	0.4493	3.377	0.8119	Equal Va	riances		
Distribution	Anderso	n-Darling A	2 Normality	Test	0.865	3,878	0.0263	Normal E	Distribution		
Distribution	D'Agosti	no Kurtosis	Test		0.1373	2.576	0.8908	Normal E	Distribution		
Distribution	D'Agostii	no Skewnes	ss Test		1.588	2.576	0.1123	Normal D	Distribution		
Distribution	D'Agostii	no-Pearson	K2 Omnibu	us Test	2.541	9.21	0.2807	Normal E	Distribution		
Distribution	Kolmogo	rov-Smirno	v D Test		0.1306	0.1331	0.0126	Normal E	Distribution		
Distribution	Shapiro-	Wilk W Nor	mality Test		0.9691	0.9459	0.1323	Normal E	Distribution		
Reproduction	Summary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
)	N	10	33.1	25.66	40.54	35	13	48	3.288	31.41%	0.00%
5.25		10	37.2	29.26	45.14	39	23	55	3.511	29.85%	-12.39%
12.5		10	37.2	28.36	46.04	43	9	47	3.907	33.21%	-12.39%
25		10	36.2	27.08	45.32	36.5	19	57	4.033	35.23%	-9.37%
50		10	24.8	17.73	31.87	25	5	41	3.126	39.86%	25.08%
		40	07.0	00.05	40.55	40 =	00	4.0	0.500		4.4.500/

21.60%

-14.50%

10

37.9

32.05

100

43.75

40.5

49

2.588

Report Date:

02 Dec-16 15:15 (p 2 of 2)

Test Code:

VCF1016.353c | 13-4379-3910

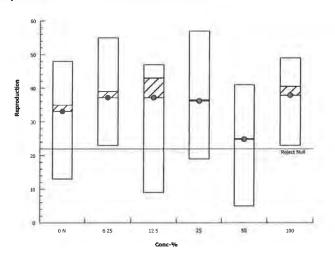
Ceriodanhnia 7-d Surv	vival and Reproduction Test
Octiodapinina r-a Out	rival and Reproduction rest

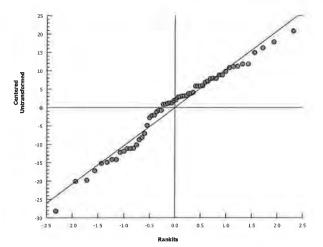
Aquatic Bioassa	y & (Consulting	Labs,	Inc.
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Analysis ID:	10-2424-9105	Endpoint:	Reproduction	CETIS Version:	CETISv1.9.2
Analyzed:	02 Dec-16 15:14	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Reproduction De	etail
-----------------	-------

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	48	31	13	41	41	22	36	34	26	39
6.25		46	38	27	26	43	23	40	55	48	26
12.5		43	46	29	25	43	47	41	9	44	45
25		34	38	35	40	19	21	22	48	48	57
50		41	22	26	26	5	28	24	16	24	36
100		26	23	41	41	33	45	42	40	39	49





Report Date:

02 Dec-16 15:15 (p 1 of 4)

Test Code:

VCF1016.353c | 13-4379-3910

Ceriod	laphnia	7-d Survival an	d Reprodu	ction T	est				Aqua	itic Bioassay	& Consultin	g Labs, In
Analys	is ID:	14-2990-4533	End	lpoint:	7d Survival Rat	е		(CETIS Vers	sion: CETIS	v1.9.2	
Analyz	ed:	02 Dec-16 15:1	4 Ana	lysis:	Linear Interpola	ition (ICPIN)		Official Res	sults: Yes		
Batch	ID:	02-0625-1802	Tes	t Type:	Reproduction-S	Survival (7d)		-	Analyst:	Joe Freas		
Start D	ate:	28 Oct-16 15:10	Pro	tocol:	EPA/821/R-02-	013 (2002)			Diluent:	Laboratory W	ater	
Ending	g Date:	04 Nov-16 14:15	Spe	cies:	Ceriodaphnia d	ubia		ŧ	Brine:	Not Applicable	е	
Duratio	on:	6d 23h	Sou	ırce:	Aquatic Biosyst	ems, CO			Age:			
Sample	e ID:	16-5076-3879	Cod	le:	VCF1016.353			(Client:	VCWPD		
		28 Oct-16 07:55		erial:	Sample Water			F	Project:	2016/17-1 (W	et)	
•		28 Oct-16 10:05	Sou	rce:	Bioassay Repo	rt						
Sample	e Age:	7h	Stat	ion:	MO-VEN							
Linear	Interpo	lation Options										
X Tran	sform	Y Transform		d	Resamples	Exp 95%		thod				
Linear		Linear	0		280	Yes	Tw	o-Point In	terpolation			
Test A	cceptab	ility Criteria	TAC L	imits								
Attribu	te	Test Stat		Uppe		Decision						
Control	Resp	1	0.8	>>	Yes	Passes A	cceptibility	/ Criteria				
Point E	stimate	es										
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL						
EC5	>100	n/a	n/a	<1	n/a	n/a						
EC10	>100	n/a	n/a	<1	n/a	n/a						
EC15	>100	n/a	n/a	<1	n/a	n/a						
EC20	>100	n/a	n/a	<1	n/a	n/a						
EC25	>100	n/a	n/a	<1	n/a	n/a						
EC40	>100	n/a	n/a	<1	n/a	n/a						
EC50	>100	n/a	n/a	<1	n/a	n/a						
7d Sur	vival Ra	ite Summary					lated Vari	iate(A/B)			-	
Conc-%	6	Code	Count	Mean		Max	Std Err	Std D				B
)		N	10	1.0000		1.0000	0.0000	0.0000			10	10
5.25			10	1.0000		1.0000	0.0000	0.0000			10	10
12.5			10	1.0000		1.0000	0.0000	0.0000			10	10
25 50			10 10	1.0000		1.0000 1.0000	0.0000	0.0000			10 10	10 10
100			10	1.0000		1.0000	0.0000	0.0000			10	10
	1	4. 5. 4. 9	10	1.0000	1.0000	1.0000	0.0000	0.0000	0.007	0.070	-10	10
		te Detail	D 4	D 0	Day 2	Day 4	D 5	D 0	D	7 De- 0	D 0	D 40
Conc-%	0	Code	Rep 1	Rep 2		Rep 4	Rep 5	Rep 6			Rep 9	Rep 10
)		N	1.0000	1.0000		1.0000	1.0000	1.0000			1.0000	1.0000
5.25			1.0000	1.0000		1.0000	1.0000	1.0000			1.0000	1.0000
12.5			1.0000	1.0000		1.0000	1.0000	1.0000			1.0000	1.0000
25			1.0000	1.0000		1.0000	1.0000	1.0000			1.0000	1.0000
00			1.0000	1.0000		1,0000	1.0000	1.0000			1.0000	1.0000
00			1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0 1.000	0 1.0000	1.0000	1.0000
		te Binomials	_	_		_	_					
onc-%	Ó	Code N	Rep 1	Rep 2		Rep 4	Rep 5	Rep 6			Rep 9	Rep 10
) : 25		IN	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
2.5			1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
2.5			1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25			1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
٠.			1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
00 00			1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1



Report Date:

02 Dec-16 15:15 (p 2 of 4)

Test Code:

VCF1016.353c | 13-4379-3910

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:

14-2990-4533

Endpoint: 7d Survival Rate

70 Sulvival Rate

CETIS Version:

CETISv1.9.2

Analyzed:

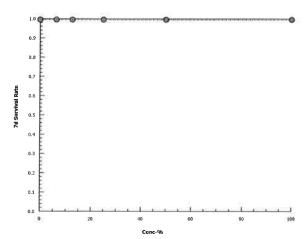
02 Dec-16 15:14

Analysis:

Linear Interpolation (ICPIN)

Official Results:

Yes



Report Date:

02 Dec-16 15:15 (p 3 of 4)

Test Code:

VCF1016.353c | 13-4379-3910

Carios	lanhnia	7-d Survival and	d Reprodu	ction T	eet				Agus	tic Ric	accay P	Consultin	a lahe in
	Ceriodaphnia 7-d Survival and Reproduction Test												y Laus, III
Analys Analyz		07-9639-3459 02 Dec-16 15:1		point: lysis:	Reproduction Linear Interpola	ation (ICPIN	1)		CETIS Vers Official Res		CETISv ² Yes	1.9.2	
Batch	ID:	02-0625-1802	Tes	t Type:	Reproduction-S	Survival (7d))	A	Analyst:	Joe Fi	reas		
Start D	ate:	28 Oct-16 15:10	Pro	tocol:	EPA/821/R-02-	-013 (2002)			Diluent:	Labora	atory Wa	ter	
Ending	Date:	04 Nov-16 14:15	Spe	cies:	Ceriodaphnia o	lubia		E	Brine:	Not A	pplicable		
Duratio	on:	6d 23h	Sou	гсе:	Aquatic Biosys	tems, CO		A	lge:				
Sampl	e ID:	16-5076-3879	Cod	le:	VCF1016.353			C	Client:	VCWF	PD		
Sampl	e Date:	28 Oct-16 07:55	Mat	erial:	Sample Water			F	Project:	2016/	17-1 (We	t)	
Receip	t Date:	28 Oct-16 10:05	Sou	rce:	Bioassay Repo	ort			-				
Sample	e Age:	7h	Stat	ion:	MO-VEN								
Linear	Interpo	olation Options											
X Tran	sform	Y Transform	See	d	Resamples	Exp 95%	CL M	lethod					
Linear		Linear	596	589	280	Yes	T	wo-Point In	terpolation				
Test A	cceptat	oility Criteria	TAC L	imits									
Attribu	te	Test Stat		Uppe	r Overlap	Decision							
Control	Resp	33.1	15	>>	Yes	Passes A	cceptibili	ty Criteria					
Point E	stimat	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
C5	34.82	4.077	n/a	2.872	n/a	24.53							
IC10	44.63	10.81	n/a	2.241	n/a	9.253							
IC15	>100	n/a	n/a	<1	n/a	n/a							
IC20	>100	n/a	n/a	<1	n/a	n/a							
IC25	>100	n/a	n/a	<1	n/a	n/a							
IC40	>100	n/a	n/a	<1	n/a	n/a							
C50	>100	n/a	n/a	<1	n/a	n/a							
Reproc	luction	Summary				Ca	lculated	Variate					
Conc-%	6	Code	Count	Mean	Min	Max	Std Er	r Std De	ev CV%	q	%Effect		
)		N	10	33.1	13	48	3.288	10.4	31.41	% (0.0%		
5.25			10	37.2	23	55	3.511	11.1	29.85	% -	12.39%		
12.5			10	37.2	9	47	3.907	12.35	33.21	% -	12.39%		
25			10	36.2	19	57	4.033	12.75	35.23	% -	9.37%		
50		-	10	24.8	5	41	3.126	9.886	39.86	% 2	25.08%		
100			10	37.9	23	49	2.588	8.185	21.60	% -	14.5%		
Reprod	luction	Detail											
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	F	Rep 8	Rep 9	Rep 10
)		N	48	31	13	41	41	22	36	3	34	26	39
3.25			46	38	27	26	43	23	40	5	55	48	26
12.5			43	46	29	25	43	47	41	9)	44	45
25			34	38	35	40	19	21	22	4	18	48	57

Report Date:

02 Dec-16 15:15 (p 4 of 4)

Test Code:

VCF1016.353c | 13-4379-3910

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

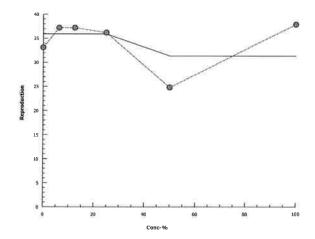
Analysis ID: Analyzed:

07-9639-3459 02 Dec-16 15:14 Endpoint: Reproduction

Analysis: Linear Interpolation (ICPIN)

CETIS Version: CE
Official Results: Yes

CETISv1.9.2 Yes



Report Date:

02 Dec-16 15:15 (p 1 of 2)

Test Code:

VCF1016.353c | 13-4379-3910

Ceriodaphnia	7-d Survi	val and	Reprodu	ıction Te	st					Ac	juatic B	Bioassay 8	Consulting	g Labs, In
Analysis ID:	00-3139-			dpoint:		Survival Ra		loo		CETIS V			1.9.2	
Analyzed:	02 Dec-			alysis:			ngency Tab			Official I				
Batch ID:	02-0625-						Survival (7d)			Analyst:		Freas		
Start Date:	28 Oct-16			otocol:			013 (2002)			Diluent:		oratory Wa		
Ending Date:		5 14:15	•	ecies:		odaphnia d				Brine:	Not	Applicable	}	
Duration:	6d 23h		50	urce:	Aqua	atic Biosys	tems, CO			Age:				
Sample ID:	16-5076-3		Co			1016.353				Client:		VPD		
Sample Date:				terial:		ple Water				Project:	201	6/17-1 (We	et)	
Receipt Date:		3 10:05		urce:		ssay Repo	rt							
Sample Age:	7h		Sta	tion:	MO-	VEN								
Data Transfor	rm	-	Alt Hyp						NOE	_ LC	EL	TOEL	TU	
Untransformed	t	(C > T						100	> 10	0	n/a	1	
Fisher Exact/	Bonferron	i-Holm T	est											
Control	vs Gr	oup		Test S	tat	P-Type	P-Value	Decision	ι(α:5%)					
Negative Cont	rol 6.2	:5		1.0000)	Exact	1.0000	Non-Sign	ificant E	ffect				
	12.	.5		1.0000)	Exact	1.0000	Non-Sign	ificant E	ffect				
	25			1.0000)	Exact	1.0000	Non-Sign						
	50			1.0000		Exact	1.0000	Non-Sign						
	100	0		1.0000)	Exact	1,0000	Non-Sign	ificant E	ffect				
Test Acceptal	bility Crite	ria	TAC	imits										
Attribute	Tes	t Stat L	.ower	Upper		Overlap	Decision							
Control Resp	1	0	8.0	>>		Yes	Passes A	cceptibility	Criteria					
Data Summar	у													
Conc-%	Cod	ie N	IR	R		NR + R	Prop NR	Prop R	%Effe	ct				
D	N		0	0		10	1	0	0.0%					
6.25			0	0		10	1	0	0_0%					
12.5			0	0		10	1	0	0.0%					
25			0	0		10	1	0	0.0%					
50			0	0		10	1	0	0.0%					
100		1	0	0		10	1	0	0.0%					
7d Survival R	ate Detail													
Conc-%	Cod		Rep 1	Rep 2		Rep 3	Rep 4	Rep 5	Rep 6		p 7	Rep 8	Rep 9	Rep 10
)	N		,0000	1.0000		1.0000	1.0000	1.0000	1.000		0000	1,0000	1.0000	1.0000
6.25			.0000	1.0000		1.0000	1.0000	1.0000	1.000		000	1.0000	1.0000	1.0000
12.5			.0000	1.0000		1.0000	1.0000	1.0000	1.000		000	1.0000	1.0000	1.0000
25			.0000	1.0000		1.0000	1.0000	1.0000	1.000		000	1.0000	1.0000	1.0000
50			.0000	1.0000		1.0000	1.0000	1_0000	1.000		000	1.0000	1.0000	1.0000
100		1	-0000	1.0000		1.0000	1.0000	1.0000	1.000	1.0	000	1.0000	1.0000	1.0000
100		ials												
	ate Binom						Don 4	Rep 5	Rep 6	Re	p 7	Rep 8	Rep 9	Rep 10
d Survival R	Cod		tep 1	Rep 2		Rep 3	Rep 4				•			
7d Survival Ra Conc-%		1	/1	1/1		1/1	1/1	1/1	1/1	1/1		1/1	1/1	1/1
7d Survival Ra Conc-% D 3.25	Cod	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
7d Survival Ra Conc-% 0 6.25 12.5	Cod	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
7d Survival Ra Conc-% 0 3.25 12.5	Cod	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

1/1

1/1

100

1/1

1/1

1/1

1/1

1/1

Report Date:

02 Dec-16 15:15 (p 2 of 2)

Test Code:

VCF1016.353c | 13-4379-3910

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:

00-3139-5123

Endpoint: 7d Survival Rate

CETIS Version: Official Results: CETISv1.9.2

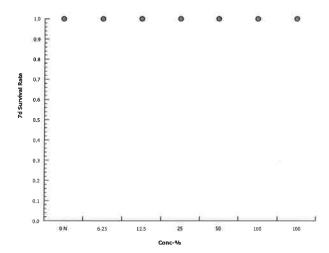
Analyzed:

02 Dec-16 15:14

Analysis:

STP 2xK Contingency Tables

Yes



CETIS Measurement Report

Report Date:

02 Dec-16 15:15 (p 1 of 2)

Test Code:

VCF1016.353c | 13-4379-3910

Ceriodaphnia 7-d Survival and Reproduction Test								Aquatic Bioassay & Consulting Labs, Inc					
Batch ID: Start Date: Ending Date: Duration:	02-0625-1802 28 Oct-16 15: 04 Nov-16 14 6d 23h	10	Test Type: Protocol: Species: Source:	EPA/821/R-02 Ceriodaphnia	Reproduction-Survival (7d) EPA/821/R-02-013 (2002) Ceriodaphnia dubia Aquatic Biosystems, CO			Diluent:	Joe Freas Laboratory Wa Not Applicable				
Sample ID:	16-5076-3879		Code:	VCF1016_353					VCWPD				
Sample Date:			Material:	Sample Wate				Project:	2016/17-1 (We	et)			
Receipt Date:		05	Source:	Bioassay Rep	ort								
Sample Age:	7h		Station:	MO-VEN									
Alkalinity (Ca	CO3)-mg/L												
Conc-%	Code	Count	t Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count		
0	N	8	62.25	60.72	63.78	61	65	0,6478	1.832	2.94%	0		
100		1	63			63	63	0	0	0.0%	0		
Overall		9	62.33	61	63_66	61	65	0.5774	1.732	2.78%	0 (0%)		
Conductivity-	µmhos												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count		
0	N	8	329.2	321	337.5	319	348	3.509	9.925	3.01%	0		
6.25		8	334,6	324.8	344.5	321	359	4.174	11.81	3.53%	0		
12.5		8	330.4	326.8	334	326	340	1.523	4.307	1.3%	0		
25		8	336,5	330.3	342.7	326	350	2.632	7.445	2.21%	0		
50		8	366,1	337.1	395.1	327	446	12.27	34.7	9.48%	0		
100		8	447.6	306.4	588.9	325	860	59.73	168.9	37.74%	0		
Overall		48	357.4	334.4	380.5	319	860	11.45	79.35	22.20%	0 (0%)		
Dissolved Oxy	/gen-mg/L												
Conc-%	Code	Count	. Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count		
0	N	8	7.863	7,525	8.2	7.3	8.6	0.1426	0.4033	5.13%	0		
6.25		8	7.388	7.093	7.682	6.8	7.8	0.1246	0.3523	4.77%	0		
12.5		8	7.237	6.883	7.592	6.7	7.7	0.1499	0.4241	5.86%	0		
25		8	6.6	5.877	7.323	4.8	7.6	0.3059	0.8652	13.11%	0		
50		8	6.25	5.342	7.158	4.1	7.6	0.3841	1.086	17.38%	0		
100		8	5.188	4.246	6.129	4.1	7.4	0.398	1.126	21.7%	0		
Overall		48	6.754	6.42	7.089	4.1	8.6	0.1663	1.152	17.06%	0 (0%)		
Hardness (Ca	CO3)-mg/L												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Eri	Std Dev	CV%	QA Count		
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5.77%	0		
100		1	121			121	121	0	0	0,0%	0		
Overall		9	93.22	84.39	102.1	86	121	3.829	11.49	12.32%	0 (0%)		
pH-Units													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
0	N	8	7.8	7.633	7.967	7.5	8	0.0707	1 0.2	2.56%	0		
6.25		8	7.925	7.765	8.085	7_6	8.2	0.06748	0,1909	2.41%	0		
12.5		8	7.825	7.678	7.972	7.6	8.1	0.06196	3 0.1753	2.24%	0		
25		8	7.75	7.609	7.891	7.5	8	0.05976	5 0.169	2.18%	0		
50		8	7.65	7.436	7.864	7.3	8.2	0.09063		3.35%	0		
100		8	7.387	7.167	7.608	7.1	7.8	0.09342	2 0.2642	3.58%	0		



3.43%

0 (0%)

0.2652

0.03827

48

7.723

7.646

7.8

7.1

8.2

Overall

Report Date: Test Code:

02 Dec-16 15:15 (p 2 of 2) VCF1016.353c | 13-4379-3910

Ceriodaphnia	7-d Survival	and Reprod	luction Tes	t				Aquatic	Bioassay &	Consultin	g Labs, Inc.
Temperature-	°C										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	24.22	23.69	24.76	24	25.8	0.225	0.6364	2.63%	0
6.25		8	24.24	23.68	24.8	24	25,9	0.2375	0.6718	2.77%	0
12.5		8	24.14	23.84	24.43	24	25	0.1238	0.3503	1.45%	0
25		8	24.12	23.86	24.39	24	24.9	0.1114	0.3151	1.31%	0
50		8	24.16	23.81	24.51	24	25.2	0.1487	0.4207	1.74%	0
100 Overall		48	24.19 24.18	23.9 24.05	24.48	24	25 25.9	0.1231	0.3482	1_44%	0 (0%)
		40	24.10	24.05	24,31	24	25.9	0.06564	0,4547	1.88%	0 (0%)
Alkalinity (CaC											
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	63	61	61	61	61	61	65	65		
100		63									
Conductivity-µ	ımhos										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	336	320	319	326	324	325	336	348		
6.25		336	321	324	332	331	332	342	359		
12.5		329	326	328	328	329	331	332	340		
25		328	336	335	326	338	339	340	350		
50		327	352	352	446	358	361	363	370		
100		325	384	387	860	399	404	408	414		
Dissolved Oxy	gen-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	7.3	7.6	7.9	7.9	8.6	8	7.5	8.1		
6.25		7.6	7.6	7.7	7.8	6.8	7.3	7	7.3		
12.5		7.6	7.6	7.7	7.6	6.8	6.7	7	6.9		
25		7.2	4.8	6.7	7.6	7.3	6.5	6.4	6.3		
50		7.6	4_1	5.7	7.3	6.4	6.1	6.8	6		
100		7.4	5.9	4.1	5.6	4.5	4.2	4.4	5.4		
Hardness (CaC	CO3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	96	86	86	86	86	86	96	96		
100		121									
pH-Units											
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	8	7.9	7.8	7.9	7.5	7.8	7.5	8		
6.25		7.7	8	7.6	7.9	8	8	8	8.2		
12.5		7.7	7.9	7.9	7.6	7.9	7.6	7.9	8.1		
25		7.7	7.9	7.6	7.7	7.5	8	7.9	7.7		
50		8.2	7.7	7.3	7.5	7.6	7.6	7.7	7.6		
100		7.8	7.5	7.1	7.1	7.2	7.3	7.7	7.4		
Temperature-°(С										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	24	24	25.8	24	24	24	24	24		
3.25		24	24	25.9	24	24	24	24	24		
12.5		24	24	25	24	24	24.1	24	24		
25		24	24.1	24	24	24.9	24	24	24		
		24.1	24	24	24	24	25.2	24	24		
50		4.74			27	27	20.2	47	4		



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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:

Ventura County Flood Control

SAMPLE I.D.:

MO-THO

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.356

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

SURVIVAL

NOEC =

100.00%

TUc =

1.00

IC25 =

>100.00 %

IC50 =

>100.00 %

REPRODUCTION

NOEC =

100.00 %

TUc =

1.00

IC25 =

>100.00 %

IC50 =

>100.00 %

Yours/very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 15:32 (p 1 of 2)

Test Code:

VCF1016.356c | 11-3451-9751

												310
Ceriodaphnia	7-d Survival ar	nd Reproductio	n Test		Aquatic Bioassay & Consulting Labs, Inc							
Batch ID:	09-2817-1817	Test Ty	pe: Reprodu	ction-S	Survival (7d)		An	alyst:	Joe Freas			
Start Date:	28 Oct-16 15:27	7 Protoco	i: EPA/821	/R-02-	-013 (2002)		Dil	uent:	Laboratory Wat	ег		
Ending Date:	04 Nov-16 14:3	0 Species	: Ceriodar	ohnia d	lubia		Bri	ine:	Not Applicable			
Duration:	6d 23h	Source	: Aquatic I	Biosys	tems, CO		Ag	e:				
Sample ID:	07-6762-5136	Code:	VCF101	6.356			Cli	ent:	VCWPD			
Sample Date:	28 Oct-16 10:10) Materia	: Sample	Water			Pro	oject:	2016/17-1 (Wet	:)		
Receipt Date:	28 Oct-16 12:10	Source:	Bioassay	/ Repo	ort							
Sample Age:	5h	Station	MO-THC)								
Multiple Com	parison Summa	ıry										
Analysis ID	Endpoint		omparison M				NOEL	LOEL		TU	PMS	D v
	7d Survival Rate		sher Exact/Bo				100	> 100	n/a	1	n/a	
01-8139-4964	Reproduction	Du	ınnett Multiple	e Com	parison Tes	t	100	> 100	n/a	1	36.2%	6 —
Point Estimat												
Analysis ID	Endpoint		int Estimate				Level	%	95% LCL		TU	
02-7699-0054	7d Survival Rate	∋ Lir	near Interpola	tion (I	CPIN)		EC5	21.88	16.25	n/a	4.571	
							EC10	>100	n/a	n/a	<1	✓
							EC15	>100	n/a	n/a	<1	V
							EC20	>100	n/a	n/a	<1	~
							EC25	>100	n/a	n/a	<1	V
							EC40	>100	n/a	n/a	<1	√
14 7700 5004	Depreduction	1 :-		tian /1/	2DINI)		EC50	>100	n/a	n/a	<1	√
14-7729-5804	Reproduction	Lir	ear Interpola	tion (IC	JPIN)		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 IC50	>100 >100	n/a n/a	n/a n/a	<1 <1	√ √
Test Acceptat	oility					TAC	Limits					
Analysis ID	Endpoint	At	tribute		Test Stat		Upper	Overla	p Decision			
02-7699-0054	7d Survival Rate	e Co	ntrol Resp		1	0.8	>>	Yes	Daccac A	naantihilitu C	ritorio	
19-5439-5624	7d Survival Rate	Ca	ntrol Resp						rasses A	cceptibility C	пспа	
01-8139-4964		; 00	nuoi Kesp		1	0.8	>>	Yes		cceptibility C		
	Reproduction		ntrol Resp		1 28.3	0.8 15	>> >>		Passes A		riteria	
14-7729-5804	•	Co	-					Yes	Passes A	cceptibility C	riteria riteria	
14-7729-5804 7d Survival Ra	Reproduction ate Summary	Co Co	ntrol Resp ntrol Resp		28.3 28.3	15 15	>> >>	Yes Yes Yes	Passes Ad Passes Ad Passes Ad	cceptibility C cceptibility C cceptibility C	riteria riteria riteria	
14-7729-5804 7d Survival Ra Conc-%	Reproduction ate Summary Code	Count Me	ntrol Resp ntrol Resp ean 95%	LCL	28.3 28.3 95% UCL	15 15 Min	>> >> Max	Yes Yes Yes Std Er	Passes Ad Passes Ad Passes Ad Tr Std Dev	cceptibility C cceptibility C cceptibility C	riteria riteria riteria %Effe	_
14-7729-5804 7d Survival Ra Conc-% 0	Reproduction ate Summary	Count Me 10 1.0	ntrol Resp ntrol Resp ean 95%	00	28.3 28.3 95% UCL 1.0000	15 15 Min 1.0000	>> >> Max	Yes Yes Yes Std Er	Passes Ad Passes Ad Passes Ad r Std Dev 0 0.0000	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria %Effe 0_00%	6
14-7729-5804 7d Survival Ra Conc-% 0 6.25	Reproduction ate Summary Code	Count Me 10 1.0 10 1.0	ntrol Resp introl Resp ean 95% 0000 1.00 0000 1.00	000	28.3 28.3 95% UCL 1.0000 1.0000	15 15 Min 1.0000 1.0000	>> >> Max 1.0000 1,0000	Yes Yes Yes O.0000 0.0000	Passes Ad Passes Ad Passes Ad Tr Std Dev 0 0.0000 0 0.0000	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria **Effe 0.00% 0.00%	6 6
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5	Reproduction ate Summary Code	Count Me 10 1.0 10 1.0 10 1.0	ntrol Resp introl Resp ean 95% 0000 1.00 0000 1.00	000 000 000	28.3 28.3 95% UCL 1.0000 1.0000	15 15 Min 1.0000 1.0000 1.0000	>> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes O.0000 0.0000 0.0000	Passes Ad Passes Ad Passes Ad Tr Std Dev 0 0.0000 0 0.0000	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria **Effe 0.00% 0.00% 0.00%	6 6
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5	Reproduction ate Summary Code	Count Me 10 1.0 10 1.0 10 0.8	ean 95% 0000 1.00 0000 1.00 0000 0.49	000 000 000 84	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000	15 15 Min 1.0000 1.0000 1.0000 0.0000	>> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Er 0.0000 0.0000 0.1333	Passes Ad Passes Ad Passes Ad Passes Ad O 0.0000 O 0.0000 O 0.0000 O 0.4216	cceptibility Ccceptibility Cccceptibility Ccccceptibility Ccccceptibility Ccccceptibility Ccccceptibility Ccccceptibility Ccccceptibility Ccccccccccccccccccccccccccccccccccccc	"iteria riteria riteria "Effe 0.00% 0.00% 0.00% 20.00%	% % %
14-7729-5804 7d Survival Ra Conc-%	Reproduction ate Summary Code	Count Me 10 1.0 10 1.0 10 0.8 10 1.0	ntrol Resp introl Resp ean 95% 0000 1.00 0000 1.00	000 000 000 084	28.3 28.3 95% UCL 1.0000 1.0000	15 15 Min 1.0000 1.0000 1.0000	>> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes O.0000 0.0000 0.0000	Passes Ad Passes	cceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility Ccceptibility C	riteria riteria riteria **Effe 0.00% 0.00% 0.00%	% % %
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5 25	Reproduction ate Summary Code N	Count Me 10 1.0 10 1.0 10 0.8 10 1.0	ean 95% 0000 1.00 0000 1.00 0000 0.49 0000 1.00	000 000 000 084	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000	15 15 Min 1.0000 1.0000 1.0000 0.0000 1.0000	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes O.0000 0.0000 0.1333 0.0000	Passes Ad Passes	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 52.70% 0.00%	%Effe 0.00% 0.00% 20.00% 0.00%	% % %
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5 25 100 Reproduction	Reproduction ate Summary Code N	Count Me 10 1.0 10 1.0 10 0.8 10 1.0	ean 95% 0000 1.00 0000 1.00 0000 0.49 0000 1.00 0000 1.00	000 000 000 084	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000	15 15 Min 1.0000 1.0000 1.0000 0.0000 1.0000	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes O.0000 0.0000 0.1333 0.0000	Passes Ad Passes	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 52.70% 0.00%	%Effe 0.00% 0.00% 20.00% 0.00%	6 6 % 6
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-%	Reproduction ate Summary Code N	Count Me 10 1.0 10 1.0 10 0.8 10 1.0 10 1.0	ean 95% 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00	000 000 000 084 000 000	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes O.0000 0.0000 0.1333 0.0000 0.0000	Passes Ad Passes	cceptibility C cceptibility C cceptibility C CV% 0.00% 0.00% 0.00% 52.70% 0.00%	%Effe 0.00% 0.00% 0.00% 0.00% 0.00%	6 6 % 6 %
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-%	Reproduction ate Summary Code N Summary Code	Count Me 10 1.0 10 1.0 10 0.8 10 1.0 10 1.0 Count Me	ean 95% 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00 1000 1.00	000 000 000 084 000 000	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL	15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Er 0.0000 0.0000 0.1333 0.0000 0.0000 Std Er	Passes Ad Passes	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% CV%	%Effe 0.00% 0.00% 0.00% 0.00% 0.00%	% % %
14-7729-5804 7d Survival Ra Conc-% 0 3.25 12.5 25 50 100 Reproduction Conc-% 0 5.25	Reproduction ate Summary Code N Summary Code	Count Me 10 1.0 10 1.0 10 0.8 10 1.0 10 1.0 Count Me 10 28.	ean 95% 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 3.0	000 000 000 084 000 000	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 34.22	15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000 Min 12	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Std Er 0.0000 0.0000 0.1333 0.0000 0.0000 Std Er 2.616	Passes Ad Passes	cceptibility Ccept	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% 0.00%	66666666666666666666666666666666666666
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25	Reproduction ate Summary Code N Summary Code	Count Me 10 1.0 10 1.0 10 0.8 10 1.0 10 1.0 Count Me 10 28. 10 35	ean 95% 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00 0000 1.00	000 000 000 084 000 000	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 34.22 42.7	15 15 Min 1.0000 1.0000 1.0000 1.0000 1.0000 Min 12 21	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Yes Std Er 0.0000 0.0000 0.1333 0.0000 0.0000 Std Er 2.616 3.406	Passes Ad Passes	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00%	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% -23.67	66666666666666666666666666666666666666
14-7729-5804 7d Survival Ra Conc-% 0 6.25 12.5 25 50	Reproduction ate Summary Code N Summary Code	Count Me 10 1.0 10 1.0 10 0.8 10 1.0 10 1.0 10 35 10 35 10 29	ean 95% 0000 1.00 0000 1.0	000 000 000 084 000 000 6 LCL 8	28.3 28.3 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 34.22 42.7 35.96	15 15 15 Min 1.0000 1.0000 0.0000 1.0000 1.0000 Min 12 21 21	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Yes Yes Yes Yes Std Er 0.0000 0.0000 0.1333 0.0000 0.0000 Std Er 2.616 3.406 2.724	Passes Ad Passes Ad Passes Ad Passes Ad T Std Dev 0 0.0000 0 0.0000 0 0.4216 0 0.0000 0 0.0000 0 0.0000 T Std Dev 8.274 10.77 8.613	cceptibility C 0.00% 0.0	%Effe 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% -23.67 -5.30%	% % % % % % % % % % % % % % % % % % %



Report Date:

02 Dec-16 15:32 (p 2 of 2)

Test Code:

VCF1016.356c | 11-3451-9751

Ceriodaphnia 7-d Surviva	I and Reproduction Tes
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Aquatic	Bioassay	&	Consulting	Labs,	inc.
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7d Survival R	ate Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1,0000	1.0000	1.0000	1.0000	1,0000	1.0000
25		0.0000	1,0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1,0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Reproduction	Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	35	12	33	26	35	20	30	34	37	21
6.25		₂ 25	30	28	55	21	48	37	29	34	43
12.5		43	21	26	28	30	27	22	30	47	24
25		47	29	41	45	21	51	27	49	47	8
50		39	40	36	35	31	49	27	47	37	50
100		43	43	46	48	42	21	36	28	42	46

7d	Sur	laviv	Rate	Binor	nials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Report Date:

02 Dec-16 15:31 (p 1 of 2)

	0- 000 to total (P	•
Test Code:	VCF1016_356c 11-345	1-

									Test	t Code:	VCF10	16_356c	11-3451-975
Ceriodaphnia	a 7-d Survival a	nd Repr	oduction T	est						Aquatic	Bioassay &	Consulti	ng Labs, Inc
Analysis ID:	01-8139-4964		Endpoint:	Re	oroduction				CET	IS Version	n: CETISv	1.9.2	
Analyzed:	02 Dec-16 15	:30	Analysis:	Par	ametric-Co	ntrol vs Ti	rea	tments	Offic	cial Resul	ts: Yes		
Batch ID:	09-2817-1817		Test Type:	Rep	oroduction-	Survival (7	7d)		Ana	lyst: Jo	e Freas		
Start Date:	28 Oct-16 15:2	7	Protocol:	EΡ	A/821/R-02	-013 (200	2)		Dilu	ent: La	aboratory Wa	ter	
Ending Date:	04 Nov-16 14:3	30	Species:	Ceriodaphnia dubia					Brin	ie: N	ot Applicable		
Duration:	6d 23h		Source:	Αqι	uatic Biosys	tems, CO)		Age	:			
Sample ID:	07-6762-5136		Code:	VC	F1016.356				Clie	nt: V	CWPD		
Sample Date:	28 Oct-16 10:1	0	Material:	Sar	nple Water				Proj	ect: 20)16/17-1 (We	t)	
Receipt Date:	28 Oct-16 12:1	0	Source:	Bio	assay Repo	ort							
Sample Age:	5h		Station:	МО	-THO								
Data Transfor	rm	Alt H	ур						NOEL	LOEL	TOEL	TU	PMSD
Untransformed	d	C > T							100	> 100	n/a	1	36.21%
Dunnett Multi	ple Compariso	n Test											
	· vs Conc-%		Test 9	Stat	Critical	MSD	DF	P-Type	P-Value	Decisio	n(α:5%)		
Negative Conti	rol 6.25		-1.497	7	2.289			CDF	0.9968		nificant Effec	t	
	12.5		-0,335	51	2.289	10.25	18	CDF	0.9141	-	nificant Effec		
	25		-1.832	2	2.289	10.25	18	CDF	0.9990	Non-Sig	nificant Effec	t	
	50		-2.413	3	2.289	10.25	18	CDF	0.9999	Non-Sig	nificant Effec	t	
	100		-2,502	2	2,289	10.25	18	CDF	0.9999	Non-Sig	nificant Effec	t	
Test Acceptat	oility Criteria	TA	C Limits										
Attribute	Test Stat			r	Overlap	Decisio	п						
Control Resp	28.3	15	>>		Yes	Passes	Ac	ceptibility	Criteria				
ANOVA Table													
Source	Sum Squ	ares	Mean	Squ	are	DF		F Stat	P-Value	Decisio	n(α:5%)		
Between	1107		221.4			5		2.21	0.0665	Non-Sig	nificant Effect		
Error	5409.6		100.17	78		54				_			
Total	6516.6					59							
Distributional	Tests												
Attribute	Test					Test Sta	at	Critical	P-Value	Decisio	n(α:1%)		
/ariances	Bartlett E	quality of	Variance T	est		5,406		15.09	0.3683	Equal Va	ariances		
Variances			Variance T			1.993		3.377	0.0943	Equal Va	ariances		
√ariances	Mod Leve	ne Equa	lity of Varia	nce ⁻	Test	0.9614		3.377	0.4497	Equal Va	ariances		
Distribution	Anderson	-Darling	A2 Normalit	у Те	st	0.2009		3.878	0.9253	Normal I	Distribution		
Bratista Cara	DIA C		·			0.405		0.570					

Reproduct	ion Si	ımmarv

Distribution

Distribution

Distribution

Distribution

Distribution

•	•										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	28.3	22.38	34.22	31.5	12	37	2.616	29.24%	0_00%
6.25		10	35	27.3	42.7	32	21	55	3.406	30.77%	-23.67%
12.5		10	29.8	23.64	35.96	27.5	21	47	2.724	28.90%	-5.30%
25		10	36.5	26.17	46.83	43	8	51	4.569	39.58%	-28.98%
50		10	39.1	33.65	44.55	38	27	50	2.41	19.49%	-38.16%
100		10	39.5	33.28	45.72	42,5	21	48	2.75	22.01%	-39.58%

0.485

1.187

1.644

0.06804

0.9878

2.576

2,576

0.1331

0.9459

9.21

0.6277

0.2353

0.4397

0.6761

0.8102

Normal Distribution

Normal Distribution

Normal Distribution

Normal Distribution

Normal Distribution

D'Agostino Kurtosis Test

D'Agostino Skewness Test

Kolmogorov-Smirnov D Test

Shapiro-Wilk W Normality Test

D'Agostino-Pearson K2 Omnibus Test

Report Date:

02 Dec-16 15:31 (p 2 of 2)

Test Code:

36

28

VCF1016.356c | 11-3451-9751

Ceriodaphnia 7-d Survival and Reproduction	Test
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Aquatic Bioassa	y & (Consulting	Labs,	Inc
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42

46

Analysis ID:	01-8139-4964	Endpoint:	Reproduction	CETIS Version:	CETISv1.9.2
Analyzed:	02 Dec-16 15:30	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Reproduction	n Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	35	12	33	26	35	20	30	34	37	21
6.25		25	30	28	55	21	48	37	29	34	43
12.5		43	21	26	28	30	27	22	30	47	24
25		47	29	41	45	21	51	27	49	47	8
50		39	40	36	35	31	49	27	47	37	50

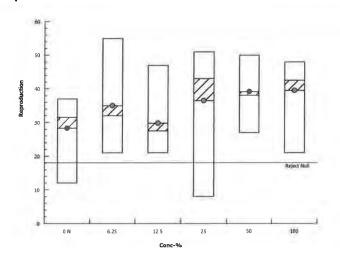
42

21

48

Graphics

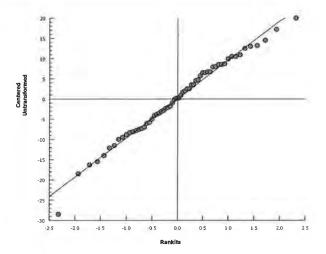
100



43

43

46



Report Date:

02 Dec-16 15:31 (p 1 of 4)

Test Code: VCF1016.356c | 11-3451-9751

									rest C	oae:	VCFIL	3006.011	11-3451-97	
Ceriod	laphnia	7-d Survival and	d Reprodu	ction T	est					Aquatic B	ioassay &	Consultin	g Labs, Inc	
Analys		02-7699-0054		lpoint:					CETIS	Version:	CETISv	1.9.2		
Analyz	ed:	02 Dec-16 15:3	0 Ana	lysis:	Linear Interpola	ation (ICPIN	1)		Officia	l Results:	Yes			
Batch	ID:	09-2817-1817	Tes	t Type:	Reproduction-S	Survival (7d)		Analys	t: Joe	Freas			
Start D	ate:	28 Oct-16 15:27	Pro	tocol:	EPA/821/R-02-	-013 (2002)			Diluent: Laboratory Water					
Ending	g Date:	04 Nov-16 14:30	Spe	cies:	Ceriodaphnia o	dubia			Brine:	Not .	Applicable			
Duratio	on:	6d 23h	Sou	ırce:	Aquatic Biosys	tems, CO			Age:					
Sample	e ID:	07-6762-5136	Cod	le:	VCF1016.356				Client:	VCV	VPD			
Sample	e Date:	28 Oct-16 10:10	Mat	erial:	Sample Water				Projec	t: 2016	6/17-1 (We	t)		
Receip	t Date:	28 Oct-16 12:10	Sou	rce:	Bioassay Repo	ort								
Sample	e Age:	5h	Stat	ion:	MO-THO									
Linear	Interpo	olation Options												
X Tran	sform	Y Transform	See	d	Resamples	Exp 95%	CL	Method						
Linear		Linear	0		280	Yes		Two-Point	Interpola	ation				
Test A	cceptat	oility Criteria	TAC L	imits										
Attribu	ite	Test Stat		Uppe	r Overlap	Decision								
Control	Resp	1	0.8	>>	Yes	Passes A	ccepti	bility Criteri	а					
Point E	Estimat	es												
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL								
EC5	21.88	16.25	n/a	4.571	n/a	6.154								
EC10	>100	n/a	n/a	<1	n/a	n/a								
EC15	>100	n/a	n/a	<1	n/a	n/a								
EC20	>100	n/a	n/a	<1	n/a	n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40	>100	n/a	n/a	<1	n/a	n/a								
EC50	>100	n/a	n/a	<1	n/a	n/a								
7d Sur	vival Ra	ate Summary				Calcu	ılated	Variate(A/I	3)					
Conc-%	6	Code	Count	Mean	Min	Max	Std	Err Std	Dev (CV%	%Effect	A	В	
)		N	10	1.000	0 1.0000	1.0000	0.00	00.00	000 (0.00%	0.0%	10	10	
3,25			10	1.000	0 1.0000	1.0000	0.00	00.00	000	0.00%	0.0%	10	10	
12.5			10	1.0000	0 1.0000	1.0000	0.00	00.00	000	0.00%	0.0%	10	10	
25			10	0.800	0.0000	1.0000	0.13	33 0.42	216	52.70%	20.0%	8	10	
50			10	1.0000	1.0000	1.0000	0.00	00.00	000 (0.00%	0.0%	10	10	
100			10	1.0000	1.0000	1.0000	0.00	0.00		0.00%	0.0%	10	10	
7d Sur	vival Ra	ate Detail												
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep	5 Rep	6 F	Rep 7	Rep 8	Rep 9	Rep 10	
)		N	1.0000	1.0000	1.0000	1.0000	1.00	00 1.00	000 1	.0000	1,0000	1.0000	1.0000	
3.25			1.0000	1.0000	1.0000	1.0000	1.00	00 1.00	000 1	.0000	1.0000	1.0000	1.0000	
12.5			1,0000	1,0000		1.0000	1.00			.0000	1.0000	1.0000	1.0000	
12.0											1.0000		0.0000	
			0.0000	1.0000	J 1.0000	1.0000	1.00	UU 1.UL	,00	.0000	1.0000	1.0000	0.0000	
25 50			0.0000 1.0000	1,0000		1.0000 1.0000	1.00			.0000	1.0000	1.0000 1.0000	1.0000	

7d Survival	Rate	Binomials
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Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1



Report Date:

02 Dec-16 15:31 (p 2 of 4)

Test Code:

VCF1016.356c | 11-3451-9751

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

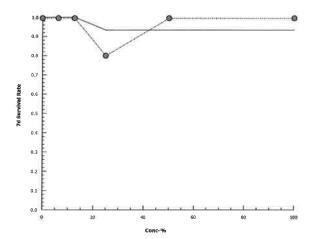
Analysis ID: Analyzed: 02-7699-0054 02 Dec-16 15:30 Endpoint: 7

7d Survival Rate

Linear Interpolation (ICPIN)

CETIS Version: CET Official Results: Yes

CETISv1.9.2



Report Date:

02 Dec-16 15:31 (p 3 of 4)

Test Code:

VCF1016.356c | 11-3451-9751

									rest Code:		VCFIUI	0.0000	11-3451-973	
Cerio	aphnia	7-d Survival an	d Reprodu	ction T	est				Aqua	atic Bioas	say & C	onsultin	g Labs, Inc	
Analys	sis ID:	14-7729-5804	End	lpoint:	Reproduction				CETIS Vers	sion: C	ETISv1.9	9.2		
Analyz	zed:	02 Dec-16 15:3	30 Ana	lysis:	Linear Interpola	ation (ICPI	IN)		Official Results: Yes					
Batch	ID:	09-2817-1817	Tes	t Type:	Reproduction-S	Survival (7	d)		Analyst:	Joe Frea	as			
Start D	Date:	28 Oct-16 15:27	Pro	tocol:	EPA/821/R-02-	-013 (2002	2)		Diluent:	Laborato	ry Water			
Ending	g Date:	04 Nov-16 14:30	Spe	cies:	Ceriodaphnia d	dubia			Brine:	Not Appl	licable			
Durati	on:	6d 23h	Sou	ırce:	Aquatic Biosys	tems, CO			Age:					
Sampl	e ID:	07-6762-5136	Cod	le:	VCF1016.356				Client:	VCWPD				
Sampl	e Date:	28 Oct-16 10:10	Mat	erial:	Sample Water				Project:	2016/17-	-1 (Wet)			
Receip	ot Date:	28 Oct-16 12:10	Sou	rce:	Bioassay Repo	ort								
Sampl	e Age:	5h	Stat	ion:	MO-THO									
Linear	Interpo	olation Options												
X Tran	sform	Y Transform	See	d	Resamples	Exp 95	% CL	Method						
Linear		Linear	0		280	Yes		Two-Point I	nterpolation					
Test A	cceptat	oility Criteria	TAC L	imits										
Attribu	ite	Test Stat		Uppe	r Overlap	Decisio	n							
Control	Resp	28.3	15	>>	Yes	Passes /	Acceptib	oility Criteria						
Point E	Estimat	es												
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UC	L							
IC5	>100	n/a	n/a	<1	n/a	n/a								
IC10	>100	n/a	n/a	<1	n/a	n/a								
IC15	>100	n/a	n/a	<1	n/a	n/a								
IC20	>100	n/a	n/a	<1	n/a	n/a								
IC25	>100	n/a	n/a	<1	n/a	n/a								
IC40	>100	n/a	n/a	<1	n/a	n/a								
IC50	>100	n/a	n/a	<1	n/a	n/a								
Reprod	duction	Summary				C	alculate	d Variate						
Conc-%	6	Code	Count	Mean	Min	Max	Std E	Err Std [Dev CV%	%E	ffect			
)		N	10	28.3	12	37	2.616	8.274	29.24	1% 0.0	%			
3.25			10	35	21	55	3.406	3 10.77	30,77	7% -23	.67%			
12.5			10	29.8	21	47	2.724	4 8.613	3 28.90)% -5.3	3%			
25			10	36.5	8	51	4.569	14.45	39.58	3% -28	.98%			
50			10	39.1	27	50	2.41	7.622			.16%			
100			10	39.5	21	48	2.75	8.695	22.01	-39	.58%			
Reprod	luction	Detail												
Conc-%	6	Code	Rep 1	Rep 2		Rep 4	Rep			-		Rep 9	Rep 10	
)		N	35	12	33	26	35	20	30	34		37	21	
3.25			25	30	28	55	21	48	37	29	;	34	43	
12.5			43	21	26	28	30	27	22	30	•	47	24	
25			47	29	41	45	21	51	27	49	•	47	8	
-0			20	40	20	25	0.4	40	0.7	47		~~		

Report Date:

02 Dec-16 15:31 (p 4 of 4)

Test Code:

VCF1016.356c | 11-3451-9751

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

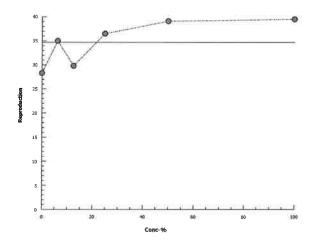
Analysis ID: Analyzed:

14-7729-5804 02 Dec-16 15:30 Endpoint: Reproduction

Analysis: Linear Interpolation (ICPIN)

CETIS Version: CET Official Results: Yes

CETISv1.9.2



Report Date:

02 Dec-16 15:31 (p 1 of 2)

Test Code:

VCF1016.356c | 11-3451-9751

Ceriodaphnia	7-d Survival a	ınd Repro	duction Te	est					Aqu	uatic Bi	oassay 8	Consulting	g Labs, In
Analysis ID: Analyzed:	19-5439-5624 02 Dec-16 15		ndpoint: nalysis:	7d Surviv	al Rate Contingen	cy Tables			ETIS Ve		CETIS\ Yes	1.9.2	
Batch ID:	09-2817-1817	Т	est Type:	Reproduc	tion-Surviv	/al (7d)		-	nalyst:	Joe F	reas		
Start Date:	28 Oct-16 15:2	27 P	rotocol:	EPA/821	/R-02-013	(2002)			Diluent:	Labo	ratory Wa	iter	
Ending Date:	04 Nov-16 14:	30 S	pecies:	Ceriodap	hnia dubia			E	Brine:	Not A	Applicable		
Duration:	6d 23h	S	ource:	Aquatic E	siosystems	, co		-	\ge:				
Sample ID:	07-6762-5136	С	ode:	VCF1016	.356			(lient:	VCW	/PD		
•	28 Oct-16 10:1		laterial:	Sample V				F	roject:	2016	/17-1 (We	et)	
	28 Oct-16 12:1		ource:	Bioassay	Report								
Sample Age:	5h	S	tation:	мо-тно									
Data Transfor	m	Alt Hy	0					NOEL	LO	EL	TOEL	ΤU	
Untransformed		C > T						100	> 100)	n/a	1	
Fisher Exact/I	Bonferroni-Ho	lm Test											
Control	vs Group		Test S	Stat P-Ty	pe P-V	/alue I	Decision	(α:5%)					
Negative Conti	rol 6.25		1.000		t 1.0	000 I	Non-Sign	ificant E	fect				
	12.5		1.000) Exa	t 1.0		Non-Sign						
	25		0.236				Non-Sign						
	50		1.000				Non-Sign						
	100		1.000) Exac	t 1.0	000	Non-Sign	ificant Et	fect				
Test Acceptab	oility Criteria	TAC	Limits										
Attribute	Test Sta	t Lower	Upper	Ove	rlap De	cision							
Control Resp	1	0.8	>>	Yes	Pas	sses Acc	eptibility (Criteria					
Data Summar	у												
Conc-%	Code	NR	R	NR ·	R Pro	p NR I	Prop R	%Effe	ct				
0	N	10	0	10	1	()	0.0%					
6,25		10	0	10	1	()	0.0%					
12.5		10	0	10	1	(0.0%					
25		8	2	10	0.8)_2	20.0%					
50		10	0	10	1	(0.0%					
100		10	0	10	1	()	0.0%					
7d Survival Ra	ate Detail												
Conc-%	Code	Rep 1	Rep 2				Rep 5	Rep 6	Rep		Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000				.0000	1.0000			1.0000	1.0000	1.0000
6.25		1.0000	1.0000				.0000	1.0000			1,0000	1.0000	1.0000
12.5		1_0000	1.0000				.0000	1.0000			1.0000	1.0000	1.0000
25		0.0000	1.0000				.0000	1.0000			1.0000	1.0000	0.0000
50		1_0000	1.0000				.0000	1.0000			1.0000	1.0000	1.0000
100		1.0000	1.0000	1.00	00 1.00	000 1	.0000	1.0000	1.00	000	1.0000	1.0000	1.0000
7d Survival Ra	ate Binomials												
Conc-%	Code	Rep 1	Rep 2				Rep 5	Rep 6	Rep		Rep 8	Rep 9	Rep 10
)	N	1/1	1/1	1/1	1/1		/1	1/1	1/1		1/1	1/1	1/1
			4.14	1/1	1/1	1	/1	1/1	1/1		1/1	1/1	1/1
		1/1	1/1		17 1	'							
		1/1 1/1	1/1	1/1	1/1		/1	1/1	1/1		1/1	1/1	1/1
6.25 12.5 25						1					1/1 1/1		1/1 0/1

1/1

1/1

1/1

1/1

1/1

1/1

1/1

100

1/1

1/1

1/1

Report Date:

02 Dec-16 15:31 (p 2 of 2)

Test Code:

VCF1016.356c | 11-3451-9751

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

19-5439-5624 02 Dec-16 15:30

Endpoint: Analysis:

7d Survival Rate

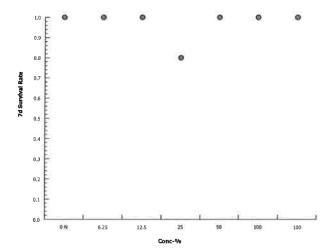
STP 2xK Contingency Tables

CETIS Version:

CETISv1.9.2

Official Results:

Yes



CETIS Measurement Report

Report Date:

02 Dec-16 15:31 (p 1 of 2)

Test Code:

VCF1016.356c | 11-3451-9751

Ceriodaphnia	7-d Survival an	ıd Repi	oduction To	est				Aqua	tic Bioassay 8	Consulting	g Labs, Inc.
Batch ID:	09-2817-1817		Test Type:	: Reproduction-Survival (7d)				Analyst: Joe Freas			
Start Date:	28 Oct-16 15:27		Protocol:	EPA/821/R-02-013 (2002)				Diluent:	Laboratory Wa	iter	
Ending Date:	04 Nov-16 14:30	0	Species:	Ceriodaphnia	dubia			Brine:	Not Applicable	!	
Duration:	ion: 6d 23h		Source:	Aquatic Biosystems, CO			Age:				
Sample ID:	07-6762-5136 Code :			VCF1016.356				Client: VCWPD			
Sample Date:	28 Oct-16 10:10)	Material:	Sample Water	r			Project:	2016/17-1 (We	et)	
Receipt Date:	28 Oct-16 12:10)	Source:	Bioassay Rep	ort						
Sample Age:	5h		Station:	MO-THO							
Alkalinity (Ca	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count
0	N	8	62,25	60.72	63.78	61	65	0.6478	1.832	2.94%	0
100		1	383			383	383	0	0	0.0%	0
Overall		9	97,89	15.69	180.1	61	383	35.64	106.9	109.20%	0 (0%)
Conductivity-	µmhos										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count
0	N	8	329.2	321	337.5	319	348	3.509	9.925	3,01%	0
6.25		8	453	436.7	469.3	441	499	6.889	19.49	4.3%	0
12.5		8	575.5	552.5	598.5	559	643	9.723	27.5	4.78%	0
25		8	828.1	822	834.2	817	841	2.587	7.318	0.88%	0
50		8	1306	1292	1319	1282	1332	5.58	15,78	1,21%	0
100		8	2216	2191	2241	2149	2247	10.54	29.82	1.35%	0
Overall		48	951.3	761.2	1141	319	2247	94.53	654.9	68.84%	0 (0%)
Dissolved Oxy	ygen-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count
0	N	8	7.7	7.351	8.049	7	8.5	0.1476	0.4175	5.42%	0
6.25		8	7.425	7.181	7.669	7	7.7	0.1031	0.2915	3.93%	0
12.5		8	7.412	7.174	7.651	7.1	7,8	0.1008	0.285	3.85%	0
25		8	7.463	7.191	7.734	7	7,9	0.1149	0.3249	4.35%	0
50		8	7.275	6.856	7.694	6.4	7.8	0.177	0.5007	6.88%	0
100		8	6.725	6.061	7.389	4.9	7.5	0.2808	0.7942	11.81%	0
Overall		48	7.333	7.177	7.49	4.9	8.5	0,0776	6 0.5381	7.34%	0 (0%)
Hardness (Ca	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count
0	N	8	91	86.53	95.47	86	96	1.89	5.345	5.87%	0
100		1	235			235	235	0	0	0.0%	0
Overall		9	107	69.9	144.1	86	235	16.09	48.26	45.10%	0 (0%)
pH-Units											
Conc-%	Code	Count		95% LCL	95% UCL	Min	Max	Std En		CV%	QA Count
0	N	8	7.838	7.601	8.074	7.5	8.3	0.0998		3.61%	0
6.25		8	7.675	7.492	7.858	7.4	8	0.0773		2.85%	0
12.5		8	7.675	7.515	7.835	7.5	7.9	0.0674		2.49%	0
25		8	7,65	7.483	7.817	7.5	8	0.0707		2.61%	0
50		8	7.737	7.59	7.885	7.5	8	0.0625		2.29%	0
100		8	7,712	7.51	7.915	7.5	8	0.0854	3 0.2416	3.13%	0
		40									



2.83%

0 (0%)

48

7.715

7.651

Overall

7.778

7.4

8.3

0.03151

0.2183

Report Date:

02 Dec-16 15:31 (p 2 of 2)

Test Code:	VCF1016.356c 11-3451-9751
Aquatic E	Bioassay & Consulting Labs, Inc.

Ceriodaphnia	7-d Survival	and Reprod	luction Tes	t				Aquatic	Bioassay &	Consultin	g Labs, Inc.
Temperature-	C,C										
Conc-%	Code	Count	Mean	95% LCL		Min	Max	Std Err	Std Dev	CV%	QA Coun
0	N	8	24.19	23.74	24.63	24	25.5	0.1875	0.5303	2.19%	0
6.25		8	24.19	23.74	24.63	24	25.5	0.1875	0.5303	2.19%	0
12.5		8	24.12	23.83	24.42	24	25	0.125	0.3536	1.47%	0
25		8	24.1	23.86	24.34	24	24.8	0.1	0.2828	1.17%	0
50		8	24.1	23.86	24.34	24	24.8	0.1	0.2828	1.17%	0
100 Overall		8 48	24.1 24.13	23.86 24.02	24.34	24	24.8 25.5	0.1 0.05395	0.2828 0.3738	1.17% 1.55%	0 (0%)
Alkalinity (CaC	`()3)_ma/l	40	24.13	24.02	24.24	24	25.5	0.05595	0.3736	1.5576	0 (0%)
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	63	61	61	61	61	61	65	65		
100	14	383	01	01	01	01	01	00	03		
Conductivity-µ	ımhoe	363									
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	336	320	319	326	324	325	336	348		
6.25	14	444	442	441	453	499	325 441	447	346 457		
12.5		643	568	563	566	569	559	570	566		
25		831	828	833	829	823	817				
50								823	841		
100		1308 2229	1294 2217	1320 2230	1299 2204	1312 2227	1282 2149	1298 2228	1332 2247		
Dissolved Oxy	gen-mg/l	2229	2211	2230	2204	2221	2149	2220	2241		
Conc-%	Code	1	2	2	4	5	6	7	8		
0	N	7.6	7.6	3 7.8	8.5	7.8	7.8	7	7.5		
6.25	N	7.6	7.7	7.7	7.5	7.0	7.3	7.6	7.3		
12.5		7.6 7.4	7.5	7.6	7.3 7.7	7.8	7.1	7.1	7.1		
25		7.3	7.5 7.5	7.7	7.1	7.4	7.1	7.1	7.1		
50		7.5 7.5	7.5 7.5	7.3	7.5	7.6	6.6	6.4	7.8		
100		6.8	7.3	7.3 7.1	6.5	6.9	7.5	4.9	6.9		
Hardness (CaC	CO3)-ma/l	0.0	1.2	7.1	0.3	0.9	7.5	4.5	0,9		
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	96	96	96	86	86	86	86	96		
100	.,	235	30	50	00	00	00	00	30		
pH-Units											
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	8	8.3	8.1	7.8	7.7	7.5	7.8	7.5		
6.25		8	8	7.6	7.7	7.6	7.4	7.5	7.6		
12.5		7.5	7.9	7.5	7.9	7.9	7.5	7.6	7.6		
25		8	7.9	7.5	7.5	7.5	7.5	7.6	7.7		
50		8	7.9	7.9	7.7	7.7	7,5	7.6	7.6		
100		8	8	7.5	7.5	7.6	7.5	7.6	8		
Temperature-°	С										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	24	25.5	24	24	24	24	24	24		
6.25		24	25.5	24	24	24	24	24	24		
12.5		24	24	25	24	24	24	24	24		
25		24	24.8	24	24	24	24	24	24		
50		24	24.8	24	24	24	24	24	24		
100		24	24.8	24	24	24	24	24	24		



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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:

Ventura County Flood Control

SAMPLE I.D.:

MO-SIM

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.358

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

SURVIVAL

NOEC =

100.00 %

TUc =

1.00

IC25 =

>100.00 %

IC50 =

>100.00 %

REPRODUCTION

NOEC =

100.00 %

TUc =

1.00

IC25 =

>100.00 %

IC50 =

>100.00 %

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 15:43 (p 1 of 2)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia	7-d Survival an	d Reproduction	ı Test					Aqua	tic Bioassay &	Consulting	Labs,	Inc
Batch ID:	18-9751-6973	Test Ty	De : Repro	oduction-	Survival (7d)		An	alyst:	Joe Freas			_
Start Date:	28 Oct-16 15:42	Protoco	I: EPA/	821/R-02	-013 (2002)		Dil	uent:	Laboratory Wat	er		
Ending Date:	04 Nov-16 14:50	Species	: Cerio	daphnia d	dubia		Br	ine:	Not Applicable			
Duration:	6d 23h	Source:	Aquat	tic Biosys	tems, CO		Ag	e:				
Sample ID:	05-6824-5735	Code:	VCF1	016.358			Cli	ent:	VCWPD			
Sample Date:	28 Oct-16 09:10	Material Material	: Samp	le Water			Pro	oject:	2016/17-1 (Wet	:)		
Receipt Date:	28 Oct-16 12:10	Source:	Bioas	say Repo	ort							
Sample Age:	7h	Station:	MO-S	IM								
Multiple Com	parison Summa	ry										
Analysis ID	Endpoint		mparison				NOEL	LOEL		TU	PMSI	D `
	7d Survival Rate	Fis	her Exact	/Bonferro	ni-Holm Tes	st	100	> 100	n/a	1	n/a	
19-4416-0542	Reproduction	Du	nnett Mult	tiple Com	parison Tes	t	100	> 100	n/a	1	45.4%	6
Point Estimat	e Summary											
Analysis ID	Endpoint		int Estima				Level	%	95% LCL	95% UCL		`
11-6865-9956	7d Survival Rate	: Lin	ear Interp	olation (I	CPIN)		EC5	5.208	2.232	n/a	19,2	,
							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	
							EC50	>100	n/a	n/a	<1	
07-0048-3056	Reproduction	Lin	ear Interp	olation (I	CPIN)		IC5	>100	n/a	n/a	<1	
							IC10	>100	n/a	n/a	<1	_
							IC15	>100	n/a	n/a	<1	V
							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 Acceptab	oility					TAC	Limits					
Analysis ID	Endpoint		ribute		Test Stat		Upper	Overla	ap Decision			
	7d Survival Rate	Со	ntrol Resp		1	8.0	>>	Yes		cceptibility C		
21-0084-7307	7d Survival Rate 7d Survival Rate	Co	ntrol Resp)	1	8.0	>> >>	Yes Yes	Passes Ad	ceptibility C	riteria	
21-0084-7307 07-0048-3056	7d Survival Rate 7d Survival Rate Reproduction	Co Co Co	ntrol Resp ntrol Resp	•	1 28.1	0.8 15		Yes Yes	Passes Ad		riteria	
21-0084-7307 07-0048-3056	7d Survival Rate 7d Survival Rate Reproduction	Co Co Co	ntrol Resp	•	1	8.0	>>	Yes	Passes Ad Passes Ad	ceptibility C	riteria riteria	
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary	Con Con Con	ntrol Resp ntrol Resp ntrol Resp		1 28.1 28.1	0.8 15 15	>> >> >>	Yes Yes Yes	Passes Ad Passes Ad Passes Ad	cceptibility C cceptibility C cceptibility C	riteria riteria riteria	
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-%	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code	Count Me	ntrol Resp ntrol Resp ntrol Resp an 9	5% LCL	1 28.1 28.1 95% UCL	0.8 15 15 Min	>> >> >> Max	Yes Yes Yes	Passes Ad Passes Ad Passes Ad	ecceptibility Cocceptibility Cocceptibility Cocceptibility Cocceptibility C	riteria riteria riteria %Effe	_
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-%	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary	Count Me	ntrol Resp ntrol Resp ntrol Resp an 9:	5% LCL	1 28.1 28.1 95% UCL 1.0000	0.8 15 15 Min 1.0000	>> >> >> Max	Yes Yes Yes Std Ei	Passes Ad Passes Ad Passes Ad Tr Std Dev 0 0.0000	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C CV%	riteria riteria riteria MEffe	6
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code	Count Me 10 1.0 10 0.9	ntrol Resp ntrol Resp ntrol Resp an 9: 000 1	5% LCL .0000	1 28.1 28.1 95% UCL 1.0000 1.0000	0.8 15 15 Min 1.0000 0.0000	>> >> >> Max 1.0000 1,0000	Yes Yes Yes Std Ei 0.0000 0.1000	Passes Ad Passes	cceptibility Cceptibility Cceptibility Cceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	riteria riteria riteria **Effe 0.00% 10.00	% %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25 12.5	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code	Count Me 10 1.0 10 0.9 10 0.8	an 9: 000 1 000 0	5% LCL .0000 .6738 .4984	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 0.0000	>> >> >> Max 1.0000 1,0000 1.0000	Yes Yes Yes Std Ei 0.0000 0.1000 0.1333	Passes Ad Passes	cceptibility C cceptibility C cceptibility C CV% 0.00% 35.14% 52.70%	riteria riteria riteria **Effe 0.00% 10.00% 20.00%	% % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc- % 0 6.25 12.5	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code	Count Me 10 1.00 10 0.89 10 1.00	an 9: 000 1 000 0. 000 1	5% LCL ,0000 .6738 .4984	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 0.0000 0.0000 1.0000	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes O.0000 0.1000 0.1333 0.0000	Passes Ad Passes	cceptibility Cceptibility Cceptibility Cceptibility Cceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	"iteria riteria riteria "Effe 0.00% 10.00% 20.00% 0.00%	% % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25 12.5 25	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code	Count Me 10 1.0 10 0.8 10 1.0 10 1.0 10 1.0	ntrol Resp ntrol Resp ntrol Resp 2000 1 2000 0 2000 0 3000 1	5% LCL .0000 .6738 .4984 .0000	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 15 15 15 Min 1.0000 0.0000 0.0000 1.0000 1.0000	>> >> >> Max 1.0000 1,0000 1.0000	Yes Yes Yes O.0000 0.1000 0.1333 0.0000 0.0000	Passes Ad Passes	cceptibility C cceptibility C cceptibility C CV% 0.00% 35.14% 52.70% 0.00% 0.00%	%Effe 0.00% 10.00% 20.00% 0.00%	% % % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25 12.5 25 50	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N	Count Me 10 1.0 10 0.8 10 1.0 10 1.0 10 1.0	ntrol Resp ntrol Resp ntrol Resp 2000 1 2000 0 2000 0 3000 1	5% LCL ,0000 .6738 .4984	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 0.0000 0.0000 1.0000	>> >> >> 1.0000 1,0000 1,0000 1,0000 1,0000	Yes Yes Yes O.0000 0.1000 0.1333 0.0000	Passes Ad Passes	cceptibility Cceptibility Cceptibility Cceptibility Cceptibility CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	"iteria riteria riteria "Effe 0.00% 10.00% 20.00% 0.00%	% % % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 5.25 12.5 25 50 100 Reproduction	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N	Count Me 10 1.0 10 0.8 10 1.0 10 1.0 10 1.0	an 9: 000 1 000 0 000 1 000 1 000 1	5% LCL .0000 .6738 .4984 .0000	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 15 15 15 Min 1.0000 0.0000 1.0000 1.0000 1.0000	>>> >>> 1.0000 1,0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Ei 0.0000 0.1000 0.1333 0.0000 0.0000 0.0000	Passes Ad Passes	cceptibility C cceptibility C cceptibility C CV% 0.00% 35.14% 52.70% 0.00% 0.00%	%Effe 0.00% 10.00% 20.00% 0.00% 0.00% 0.00%	% % % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Me 10 1.0 10 0.9 10 1.0 10 1.0 10 1.0 10 1.0 10 Me Count Me	an 9: 000 1 000 0 000 1 000 1 000 1 000 1	5% LCL .0000 .6738 .4984 .0000 .0000	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 15 15 Min 1.0000 0.0000 1.0000 1.0000 1.0000	>> >> >>	Yes Yes Yes Std Ei 0.0000 0.1000 0.1333 0.0000 0.0000 0.0000 Std Er	Passes Ad Passes	cceptibility Coceptibility Coc	%Effe 0.00% 10.00% 20.00% 0.00% 0.00%	% % % %
21-0084-7307 77-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 3.25 12.5 25 50 100 Reproduction Conc-%	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N	Count Me 10 1.00 10 0.9 10 1.00 10 1.00 10 1.00 10 1.00 10 1.00 10 1.00	an 9: 000 1 000 0 000 1 000 1 000 1 000 1 000 1	5% LCL .0000 .6738 .4984 .0000 .0000 .0000	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 36.68	0.8 15 15 Min 1.0000 0.0000 1.0000 1.0000 1.0000 Min 7	>> >> >>	Yes Yes Yes Std Ei 0.0000 0.1000 0.1333 0.0000 0.0000 0.0000 Std Er 3.793	Passes Ad Passes	cceptibility Coceptibility Coc	%Effe 0.00% 10.00% 20.00% 0.00% 0.00% %Effe 0.00%	% % % % % % % % % % % % % % % % % % %
21-0084-7307 77-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25 12.5 25 100 Reproduction Conc-% 0 6.25	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Me 10 1.00 10 0.9 10 1.00 10 1.00 10 1.00 10 28. 10 28. 10 26.	an 9: 000 1. 000 0. 000 1. 000 1. 000 1. 000 1. 000 1. 000 1. 000 1. 000 1.	5% LCL .0000 .6738 .4984 .0000 .0000 .0000	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 36.68 37.4	0.8 15 15 15 Min 1.0000 0.0000 1.0000 1.0000 1.0000 Min 7	>> >> >>	Yes Yes Yes Std Ei 0.0000 0.1000 0.1333 0.0000 0.0000 0.0000 Std Er 3.793 4.731	Passes Ad Passes Ad Passes Ad Passes Ad 0 0.0000 0 0.3162 0 0.4216 0 0.0000 0 0.0000 0 0.0000 1 1.99 14.96	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% CV% 42.69% 56.03%	%Effe 0.00% 10.00% 20.00% 0.00% 0.00% %Effe 0.00% 4.98%	% % % % % % % % % % % % % % % % % % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Me 10 1.00 10 0.81 10 1.00 10 1.00 10 28. 10 26. 10 21	an 9: 000 1. 000 0. 000 1. 000 1. 000 1. 000 1. 000 1. 000 1. 000 1. 000 1.	5% LCL .0000 .6738 .4984 .0000 .0000 .0000 .5% LCL 9.52 6 0.49	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 36.68 37.4 31.51	0.8 15 15 15 Min 1.0000 0.0000 1.0000 1.0000 1.0000 Min 7 0	>> >> >>	Yes Yes Yes Yes 0.0000 0.1000 0.1333 0.0000 0.0000 0.0000 Std Er 3.793 4.731 4.645	Passes Ad Passes	cceptibility C cceptibility C cceptibility C CV% 0.00% 35.14% 52.70% 0.00% 0.00% 0.00% 42.69% 56.03% 69.95%	%Effe 0.00% 10.00% 20.00% 0.00% 0.00% %Effe 0.00% 4.98% 25.27	% % % % % % % % % % % % % % % % % % %
21-0084-7307 07-0048-3056 19-4416-0542 7d Survival Ra Conc-% 0 3.25 12.5 25	7d Survival Rate 7d Survival Rate Reproduction Reproduction ate Summary Code N Summary Code	Count Me 10 1.00 10 0.9 10 1.00 10 1.00 10 1.00 10 28. 10 28. 10 26.	an 99 000 1 000 0 000 1 000 1 000 1 000 1 000 1 000 1 000 3	5% LCL .0000 .6738 .4984 .0000 .0000 .0000	1 28.1 28.1 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 36.68 37.4	0.8 15 15 15 Min 1.0000 0.0000 1.0000 1.0000 1.0000 Min 7	>> >> >>	Yes Yes Yes Std Ei 0.0000 0.1000 0.1333 0.0000 0.0000 0.0000 Std Er 3.793 4.731	Passes Ad Passes Ad Passes Ad Passes Ad 0 0.0000 0 0.3162 0 0.4216 0 0.0000 0 0.0000 0 0.0000 1 1.99 14.96	cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C cceptibility C 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% CV% 42.69% 56.03%	%Effe 0.00% 10.00% 20.00% 0.00% 0.00% %Effe 0.00% 4.98%	% % % % % % % % % % % % % % % % % % %

Report Date:

02 Dec-16 15:43 (p 2 of 2)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia 7-	d Survival and	Reproduction	Test
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Aquatic Bioassay & Consulting Labs, Inc.

7d Survival Ra	te Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1,0000
6.25		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1,0000
12.5		0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Reproduction	Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	39	38	26	36	33	9	7	27	25	41
6.25		0	24	22	41	16	52	18	25	27	42
12.5		0	21	10	34	8	13	49	33	16	26
25		39	43	47	48	53	42	35	21	37	54
50		28	16	37	46	43	26	40	54	24	25
100		43	49	34	31	28	23	18	45	46	39
7d Survival Ra	te Binomials										

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		0/1	1/1_	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Report Date:

02 Dec-16 15:41 (p 1 of 2)

Test Code:

VCF1016 358c | 12-2877-3973

							1 05	t Code:	VCFI	010 2200 1	2-2011-35
Ceriodaphnia	7-d Survival ar	nd Reprod	duction Te	est				Aquatic	Bioassay 8	Consulting	g Labs, In
Analysis ID:	19-4416-0542	E	ndpoint:	Reproduction			CE	TIS Version	n: CETISv	1.9.2	
Analyzed:	02 Dec-16 15:4	40 A	nalysis:	Parametric-Co	ontrol vs Trea	atments	Off	icial Result	ts: Yes		
Batch ID:	18-9751-6973	Te	est Type:	Reproduction-	Survival (7d)		Ana	alyst: Jo	e Freas		
Start Date:	28 Oct-16 15:42		rotocol:	EPA/821/R-02	-013 (2002)				boratory Wa	ater	
Ending Date:	04 Nov-16 14:5	0 S I	pecies:	Ceriodaphnia	dubia		Bri	ne: No	ot Applicable	•	
_	6d 23h		ource:	Aquatic Biosys	stems, CO		Age) :			
Sample ID:	05-6824-5735	C	ode:	VCF1016.358			Clie	ent: VO	CWPD		
Sample Date:	28 Oct-16 09:10) м	aterial:	Sample Water			Pro	ject: 20	16/17-1 (We	et)	
	28 Oct-16 12:10		ource:	Bioassay Rep	ort			•	,	•	
Sample Age:			tation:	MO-SIM							
Data Transform	n	Alt Hyp)				NOEL	LOEL	TOEL	TU	PMSE
Untransformed		C > T					100	> 100	n/a	1	45.36
Dunnett Multip	ole Comparisor	n Test									
	s Conc-%		Test S	Stat Critical	MSD DE	P-Type	P-Value	Decisio	n(α:5%)		
Negative Contro			0.251	5 2.289	12.75 18		0.7481		nificant Effe	ct	
3	12.5		1.275	2.289	12.75 18	CDF	0.2991	_	nificant Effe		
	25		-2.479		12.75 18		0.9999		nificant Effe		
	50		-1.042		12.75 18		0.9861	•	nificant Effe		
	100		-1.347		12.75 18		0.9947	•	nificant Effe		
Test Acceptabi	ility Criteria	TAC	Limits								
Attribute	Test Stat		Upper	Overlap	Decision						
Control Resp	28.1	15	>>	Yes	Passes A	cceptibility	Criteria				
ANOVA Table											
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decision	n(α:5%)		
Between	2750.4		550.08		5	3.549	0.0076		int Effect		
Error	8369.2		154.98	35	54						
Total	11119.6				59						
Distributional 1	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Bartlett Ed	uality of \	/ariance T	est	2.594	15.09	0.7623	Equal Va	ariances		
√ariances	Levene Ed	quality of \	/ariance T	est	0.5396	3.377	0.7454	Equal Va	ariances		
√ariances	Mod Leve	ne Equalit	v of Varia	nce Test	0.4643	3.377	0.8011	Equal Va	ariances		
Distribution	Anderson-		-		0.2864	3.878	0.6533		Distribution		
Distribution	D'Agostino	•		-	0,4016	2.576	0.6880		Distribution		
Distribution	D'Agostino				0.1281	2.576	0.8981		Distribution		
Distribution	D'Agostino			ous Test	0.1777	9.21	0.9150		Distribution		
Distribution	Kolmogoro				0.06092	0.1331	0.8556		Distribution		
Distribution	Shapiro-W			st	0.9869	0.9459	0.7657		Distribution		
Reproduction \$	Summary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effec
)	N	10	28.1	19.52	36.68	30	7	41	3.793	42.69%	0.00%
5.25		10	26.7	16	37.4	24.5	0	52	4.731	56.03%	4.98%
12.5		10	21	10.49	31.51	18.5	0	49	4.645	69.95%	25.27%
25		10	41.9	34.94	48.86	42.5	21	54	3.075	23.21%	-49.119
50		10	33.9	25.39	42.41	32.5	16	54	3.764	35.11%	-20.649
							4.0				

29.50%

-26.69%

10

35.6

28.09

100

43.11

36.5

18

49

3.321

Report Date:

02 Dec-16 15:41 (p 2 of 2)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia 7-d Survival and Reproduction Test

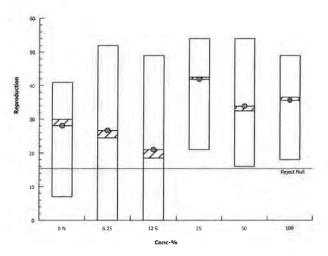
Aquatic Bioassay & Consulting Labs, Inc.

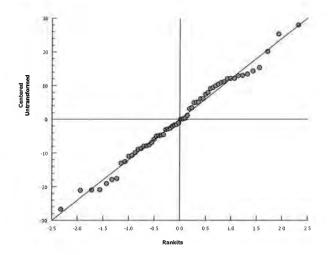
Analysis ID:	19-4416-0542
Analyzed:	02 Dec-16 15:40

Reproduction Analysis: Parametric-Control vs Treatments **CETIS Version:** Official Results: CETISv1.9.2 Yes

Re	pr	od	uc	tio	n De	etail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	39	38	26	36	33	9	7	27	25	41
6.25		0	24	22	41	16	52	18	25	27	42
12.5		0	21	10	34	8	13	49	33	16	26
25		39	43	47	48	53	42	35	21	37	54
50		28	16	37	46	43	26	40	54	24	25
100		43	49	34	31	28	23	18	45	46	39





Report Date:

02 Dec-16 15:41 (p 1 of 4)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriod	aphnia	7-d Survival an	d Reprodu	ction T	est					Aqı	ıatic E	Bioassay 8	Consultin	g Labs, Ind
Analys	is ID:	11-6865-9956	End	point:	7d Survival Rat	te			C	ETIS Ve	rsion:	CETIS	1.9.2	
Analyz	ed:	02 Dec-16 15:4	10 Ana	lysis:	Linear Interpola	ation (ICPIN)		С	fficial R	esults	: Yes		
Batch I	ID:	18-9751-6973	Tes	t Type:	Reproduction-S	Survival (7d)			A	nalyst:	Joe	Freas		
Start D	ate:	28 Oct-16 15:42	Pro	tocol:	EPA/821/R-02-	013 (2002)			D	iluent:	Lab	oratory Wa	ater	
Ending	Date:	04 Nov-16 14:50) Spe	cies:	Ceriodaphnia d	ubia			В	rine:	Not	Applicable	:	
Duratio	on:	6d 23h	Sou	rce:	Aquatic Biosyst	tems, CO			A	ge:				
Sample	e ID:	05-6824-5735	Cod	le:	VCF1016,358				С	lient:	VCV	NPD		
•		28 Oct-16 09:10		erial:	Sample Water				P	roject:	201	6/17-1 (We	et)	
•		28 Oct-16 12:10		rce:	Bioassay Repo	rt								
Sample	e Age:	7h	Stat	ion:	MO-SIM									
Linear	Interpo	lation Options												
X Trans	sform	Y Transform	See	d	Resamples	Exp 95%	CL	Meth	od					
Linear		Linear	0		280	Yes		Two-l	Point Int	erpolatio	n			
Test Ad	ceptab	oility Criteria	TAC L	imits										
Attribu	te	Test Stat	Lower	Uppe	r Overlap	Decision								
Control	Resp	1	0.8	>>	Yes	Passes A	ccept	ibility C	riteria					
Point E	stimat	es												
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL								
EC5	5.208	2.232	n/a	19.2	n/a	44.8								
EC10	>100	n/a	n/a	<1	n/a	n/a								
EC15	>100	n/a	n/a	<1	n/a	n/a								
EC20	>100	n/a	n/a	<1	n/a	n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40	>100	n/a	n/a	<1	n/a	n/a								
EC50	>100	n/a	n/a	<1	n/a	n/a								
7d Surv	vival Ra	ate Summary				Calcu	lated	Variat	e(A/B)					
Conc-%	6	Code	Count	Mean		Max	Std		Std De			%Effect	Α	В
0		N	10	1.000		1.0000	0.00		0.0000			0.0%	10	10
6.25			10	0.900		1,0000	0.10		0.3162			10.0%	9	10
12.5			10	0.800		1.0000	0.13		0.4216			20.0%	8	10
25			10	1.0000		1.0000	0.00		0.0000			0.0%	10	10
50 100			10 10	1.0000		1.0000 1.0000	0.00		0.0000			0.0% 0.0%	10 10	10 10
	de ed De	ta Datail	10	1.000	1.0000	1.0000	0.00		0.0000	0.00		0.070	10	
		ate Detail	D 4	D 0	D 0	D 4	Б	-	D 0	D	-	D 0	D 0	D 40
Conc-%	0	Code N	Rep 1 1.0000	1.0000		Rep 4 1.0000	1.00		Rep 6	1.00		Rep 8	Rep 9	Rep 10
		IN							1.0000					1.0000
3.25			0.0000	1.0000		1.0000	1.00					1.0000	1.0000	1.0000
12.5			0.0000	1.0000		1.0000	0.00		1.0000			1.0000	1.0000	1.0000
25			1.0000	1.0000		1.0000	1.00		1.0000			1.0000	1.0000	1.0000
50 100			1.0000	1.0000		1.0000	1.00		1.0000			1.0000	1.0000	1.0000
			1.0000	1.0000	1.0000	1.0000	1.00		1.0000	1.00	,UU	1.0000	1.0000	1.0000
		ite Binomials												
Conc-%	Ď	Code	Rep 1	Rep 2		Rep 4	Rep	5	Rep 6	Rep	7	Rep 8	Rep 9	Rep 10
)		N	1/1	1/1	1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1
3.25			0/1	1/1	1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1
12.5			0/1	1/1	1/1	1/1	0/1		1/1	1/1		1/1	1/1	1/1
25			1/1	1/1	1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1
50			1/1	1/1	1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1
100			1/1	1/1	1/1	1/1	1/1		1/1	1/1		1/1	1/1	1/1



Report Date:

02 Dec-16 15:41 (p 2 of 4)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

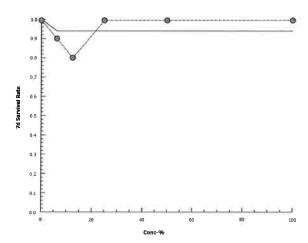
Analysis ID: Analyzed: 11-6865-9956 02 Dec-16 15:40 Endpoint: 7d Survival Rate

Analysis: Line

Linear Interpolation (ICPIN)

CETIS Version:
Official Results:

CETISv1.9.2 Yes



Report Date:

02 Dec-16 15:41 (p 3 of 4)

Test Code:

VCF1016.358c | 12-2877-3973

									Test Cou	e.	VOFTU	10.3366	12-2011-391
Cerio	laphnia	7-d Survival an	ıd Reprodu	ction T	est				Aq	uatic B	ioassay &	Consultin	g Labs, Inc
Analys	sis ID:	07-0048-3056	End	dpoint:	Reproduction				CETIS Ve	rsion:	CETISv	1.9.2	
Analyz	ed:	02 Dec-16 15:4	40 Ana	alysis:	Linear Interpol	ation (ICPIN	۷)		Official R	esults:	Yes		
Batch	ID:	18-9751-6973	Tes	t Type:	Reproduction-S	Survival (7d)		Analyst:	Joe I	Freas		
Start D	Date:	28 Oct-16 15:42	2 Pro	tocol:	EPA/821/R-02	-013 (2002)			Diluent:	Labo	ratory Wa	ter	
Ending	g Date:	04 Nov-16 14:50) Spe	ecies:	Ceriodaphnia d	dubia			Brine:	Not A	Applicable		
Duratio	on:	6d 23h	Sou	лсе:	Aquatic Biosys	tems, CO			Age:				
Sampl	e ID:	05-6824-5735	Cod	de:	VCF1016.358				Client:	VCW	/PD		
Sampl	e Date:	28 Oct-16 09:10) Mat	erial:	Sample Water				Project:	2016	/17-1 (We	t)	
Receip	t Date:	28 Oct-16 12:10	Sou	ırce:	Bioassay Repo	ort							
Sampl	e Age:	7h	Sta	tion:	MO-SIM								
Linear	Interpo	lation Options											
X Tran	sform	Y Transform		d	Resamples	Exp 95%		Method					
Linear		Linear	0		280	Yes		Γwo-Point I	nterpolatio	n			
Test A	cceptat	oility Criteria	TAC L	imits.									
Attribu	te	Test Stat	Lower	Uppe	r Overlap	Decision							
Control	Resp	28.1	15	>>	Yes	Passes A	cceptibi	lity Criteria					
Point E	Estimat	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
IC5	>100	n/a	n/a	<1	n/a	n/a							
IC10	>100	n/a	n/a	<1	n/a	n/a							
IC15	>100	n/a	n/a	<1	n/a	n/a							
IC20	>100	n/a	n/a	<1	n/a	n/a							
C25	>100	n/a	n/a	<1	n/a	n/a							
C40	>100	n/a	n/a	<1	n/a	n/a							
IC50	>100	n/a	n/a	<1	n/a	n/a							
Reproc	duction	Summary				Ca	lculated	l Variate					
Conc-%	6	Code	Count	Mean	Min	Max	Std E	rr Std [Dev CV	%	%Effect		
)		N	10	28.1	7	41	3.793	11,99	42.6	69%	0.0%		
5.25			10	26.7	0	52	4.731	14.96	56.0	03%	4.98%		
12.5			10	21	0	49	4,645	14.69	69.9	95%	25.27%		
25			10	41.9	21	54	3.075	9.723	3 23.2	21%	-49.11%		
50			10	33.9	16	54	3.764	11.9	35.1	11%	-20.64%		
100			10	35.6	18	49	3.321	10.5	29.	50%	-26.69%		
Reprod	luction	Detail											
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep (6 Rep	7	Rep 8	Rep 9	Rep 10
)		N	39	38	26	36	33	9	7		27	25	41
5.25			0	24	22	41	16	52	18		25	27	42
12.5			0	21	10	34	8	13	49		33	16	26
25			39	43	47	48	53	42	35		21	37	54
50			28	16	37	46	43	26	40		54	24	25
00			43	49	34	31	28	23	18		45	46	39
									. 3		-		

Report Date:

02 Dec-16 15:41 (p 4 of 4)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

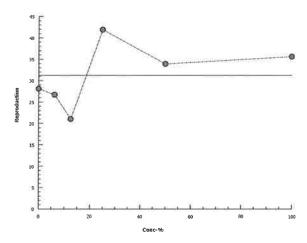
Analysis ID: Analyzed:

07-0048-3056 02 Dec-16 15:40 Endpoint: Reproduction

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



Report Date:

02 Dec-16 15:41 (p 1 of 2)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia	7-d Survival ar	nd Repr	oduction Te	st				Aqua	tic Bioassay	& Consultin	g Labs, In
Analysis ID:	21-0084-7307		Endpoint:	7d Survival Ra	ate		CE	TIS Vers	ion: CETIS	v1.9,2	
Analyzed:	02 Dec-16 15:	40	Analysis:	STP 2xK Con	tingency Tab	les	Of	icial Res	sults: Yes		
Batch ID:	18-9751-6973		Test Type:	Reproduction-	Survival (7d))	An	alyst:	Joe Freas		
Start Date:	28 Oct-16 15:42	2	Protocol:	EPA/821/R-02	2-013 (2002)		Dil	uent:	Laboratory W	ater	
Ending Date:	04 Nov-16 14:5	0	Species:	Ceriodaphnia	dubia		Bri	ne:	Not Applicable	е	
Duration:	6d 23h		Source:	Aquatic Biosy	stems, CO		Ag	e:			
Sample ID:	05-6824-5735		Code:	VCF1016.358			Cli	ent:	VCWPD		
Sample Date:	28 Oct-16 09:10)	Material:	Sample Wate	r		Pro	oject:	2016/17-1 (W	et)	
Receipt Date:	28 Oct-16 12:10)	Source:	Bioassay Rep	ort						
Sample Age:	7h		Station:	MO-SIM							
Data Transfor	m	Alt H	ур				NOEL	LOEL	- TOEL	TU	
Untransformed	d	C > T					100	> 100	n/a	1	
Fisher Exact/I	Bonferroni-Holr	n Test									
Control	vs Group		Test S	tat P-Type	P-Value	Decision	η(α:5%)				
Negative Conti	rol 6,25		0.5000	Exact	1.0000	Non-Sigr	nificant Effe	ct			
	12.5		0,2368	Exact	1,0000	Non-Sigr	nificant Effe	ct			
	25		1,0000	Exact	1.0000	Non-Sigr	nificant Effe	ct			
	50		1.0000	Exact	1.0000	Non-Sigr	nificant Effe	ct			
	100		1.0000	Exact	1.0000	Non-Sigr	nificant Effe	ct			
Test Acceptab	oility Criteria	TA	C Limits								
Attribute	Test Stat	Lowe	r Upper	Overlap	Decision						
Control Resp	1	0.8	>>	Yes	Passes A	cceptibility	Criteria				
Data Summar	у										
Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect				
0	N	10	0	10	1	0	0.0%				
6.25		9	1	10	0.9	0.1	10.0%				
12.5		8	2	10	0.8	0,2	20.0%				
25		10	0	10	1	0	0.0%				
50		10	0	10	1	0	0.0%				
100		10	0	10	1	0	0.0%				
7d Survival Ra	ate Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7		Rep 9	Rep 10
0	N	1,0000			1.0000	1.0000	1.0000	1,000	0 1,0000	1.0000	1.0000
6.25		0.0000	1.0000	1,0000	1.0000	1.0000	1.0000	1.000	0 1.0000	1.0000	1.0000
		0.0000	1.0000	1,0000							
12.5		0.0000			1.0000	0.0000	1.0000	1.000	0 1.0000	1.0000	1.0000
			1.0000	1.0000				1.000 1.000		1.0000 1.0000	1.0000 1.0000
25		0.0000	1.0000 1.0000	1.0000 1.0000	1.0000	0.0000	1.0000		0 1.0000		
12.5 25 50 100		0.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000	0.0000 1.0000	1.0000 1.0000	1.000	0 1.0000 0 1.0000	1.0000	1.0000
25 50 100	ate Binomials	0.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000	0.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.000 1.000	0 1.0000 0 1.0000	1.0000 1 ₋ 0000	1.0000 1.0000
25 50 100 7d Survival Ra	ate Binomials Code	0.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000	0.0000 1.0000 1.0000	1.0000 1.0000 1.0000	1.000 1.000	0 1.0000 0 1.0000 0 1.0000	1.0000 1 ₋ 0000	1.0000 1.0000
25 50 100 7d Survival Ra Conc-%		0.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	0.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.000 1.000 1_000	0 1.0000 0 1.0000 0 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000
25 50 100 7d Survival Ra Conc-%	Code	0.0000 1,0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 Rep 2	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	0.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.000 1.000 1.000 Rep 7	0 1.0000 0 1.0000 0 1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 Rep 10
25 50 100 7d Survival Ra Conc-% 0 5.25	Code	0.0000 1.0000 1.0000 1.0000 Rep 1	1.0000 1.0000 1.0000 1.0000 Rep 2	1.0000 1.0000 1.0000 1.0000 Rep 3	1.0000 1.0000 1.0000 1.0000 Rep 4	0.0000 1.0000 1.0000 1.0000 Rep 5	1.0000 1.0000 1.0000 1.0000 Rep 6	1.000 1.000 1.000 Rep 7	0 1.0000 0 1.0000 0 1.0000 7 Rep 8 1/1 1/1	1.0000 1.0000 1.0000 Rep 9	1.0000 1.0000 1.0000 Rep 10 1/1
25 50 100 7d Survival Ra Conc-% 0 5.25 12.5	Code	0.0000 1.0000 1.0000 1.0000 Rep 1 1/1 0/1	1.0000 1.0000 1.0000 1.0000 1.0000 Rep 2 1/1 1/1	1.0000 1.0000 1.0000 1.0000 Rep 3 1/1 1/1	1.0000 1.0000 1.0000 1.0000 Rep 4 1/1 1/1	0,0000 1.0000 1.0000 1.0000 Rep 5 1/1 1/1 0/1	1.0000 1.0000 1.0000 1.0000 Rep 6 1/1 1/1	1.000 1.000 1_000 1_000 Rep 7 1/1 1/1	0 1.0000 0 1.0000 0 1.0000 7 Rep 8 1/1 1/1	1.0000 1.0000 1.0000 Rep 9 1/1 1/1	1.0000 1.0000 1.0000 Rep 10 1/1 1/1
25 50 100 7d Survival Ra Conc-% 0 5.25	Code	0.0000 1.0000 1.0000 1.0000 Rep 1	1.0000 1.0000 1.0000 1.0000 1.0000 Rep 2	1.0000 1.0000 1.0000 1.0000 Rep 3	1.0000 1.0000 1.0000 1.0000 Rep 4	0.0000 1.0000 1.0000 1.0000 Pep 5	1.0000 1.0000 1.0000 1.0000 Rep 6	1.000 1.000 1_000 Rep 7 1/1	0 1.0000 0 1.0000 0 1.0000 7 Rep 8 1/1 1/1	1.0000 1.0000 1.0000 Rep 9	1.0000 1.0000 1.0000 Rep 10 1/1

Report Date:

02 Dec-16 15:41 (p 2 of 2)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia	ı 7-d Survival	and Reprod	luction Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 21-0084-7307 Analyzed:

02 Dec-16 15:40

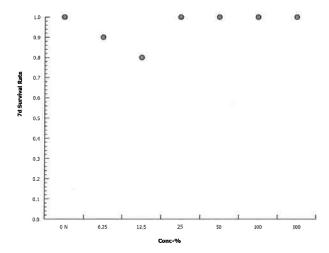
Endpoint: 7d Survival Rate Analysis:

STP 2xK Contingency Tables

CETIS Version: Official Results:

CETISv1.9.2

Yes



CETIS Measurement Report

Report Date:

06 Dec-16 15:48 (p 1 of 2)

Test Code:

VCF1016.358c | 12-2877-3973

Ceriodaphnia	7-d Survival a	nd Repr	oduction T	est				Aquatic Bioassay & Consulting Lal			
Batch ID: Start Date: Ending Date: Duration:	18-9751-6973 28 Oct-16 15:4 04 Nov-16 14:6 6d 23h	12 50	Test Type: Protocol: Species: Source:	Reproduction- EPA/821/R-02 Ceriodaphnia Aquatic Biosys	?-013 (2002) dubia			Analyst: Joe Freas Diluent: Laboratory Water Brine: Not Applicable Age:			
Sample ID:	05-6824-5735		Code:	VCF1016.358					CWPD		
Sample Date:	28 Oct-16 09:1	10	Material:	Sample Water	Г			Project: 2	016/17-1 (We	et)	
Receipt Date:	28 Oct-16 12:1	10	Source:	Bioassay Rep	ort						
Sample Age:	7h		Station:	MO-SIM							
Alkalinity (Ca	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62.25	60.72	63.78	61	65	0.6478	1.832	2.94%	0
100		1	75			75	75	0	0	0.0%	0
Overall		9	63.67	60 14	67.19	61	75	1.528	4.583	7.20%	0 (0%)
Conductivity-	µmhos										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	329.2	321	337.5	319	348	3.509	9.925	3.01%	0
6.25		8	385.2	366.6	403.9	361	428	7.892	22,32	5.79%	0
12.5		8	372.2	366	378.5	360	385	2.664	7.536	2.02%	0
25		8	421.6	415.5	427.8	415	436	2.598	7.347	1.74%	0
50		8	481.5	391.8	571.2	217	536	37.95	107.3	22.29%	0
100		8	708.8	700.5	717	694	725	3.468	9.809	1.38%	0
Overall		48	449.8	411.1	488.5	217	725	19.24	133.3	29.63%	0 (0%)
Dissolved Ox	ygen-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.738	7.571	7.904	7.5	8.1	0.07055	0.1996	2.58%	0
6.25		8	7.388	7.096	7.679	6.9	7.8	0.1231	0.3482	4.71%	0
12.5		8	7.4	7.1	7.7	7	7.8	0.1268	0.3586	4.85%	0
25		8	7.05	6.621	7.479	6.3	7.8	0.1813	0.5127	7.27%	0
50		8	6.6	5.655	7.545	4.4	8	0.3996	1.13	17.12%	0
100		8	6.263	5.147	7.378	4.1	8.6	0.4717	1.334	21.3%	0
Overall		48	7.073	6.814	7.332	4.1	8.6	0.1289	0.8932	12.63%	0 (0%)
Hardness (Ca	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5.77%	0
100		1	213			213	213	0	0	0.0%	0
Overall		9	103.4	71.65	135.2	86	213	13.79	41.37	39.99%	0 (0%)
pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.722	8.003	7.5	8	0.05957	0.1685	2.14%	0
6.25		8	8.212	8.13	8.295	8.1	8.4	0.03504	0.0991	1.21%	0
12,5		8	8.075	7.898	8.252	7.8	8.4	0.075	0.2121	2.63%	0
25		8	7.95	7.841	8.059	7.7	8.1	0.04629	0_1309	1.65%	0
50		8	7.8	7.633	7.967	7.4	8	0.07071	0.2	2.56%	0
100		8	7.55	7.395	7.705	7.2	7.8	0.06547	0.1852	2.45%	0



3.37%

0.2664

0.03846

0 (0%)

48

Overall

7.986

7.831

7.908

7.2

8.4

Report Date: Test Code: 06 Dec-16 15:48 (p 2 of 2) VCF1016.358c | 12-2877-3973

Ceriodaphnia	7-d Survival	and Reprod	uction Tes	t				Aquatic	Bioassay &	Consultin	g Labs, Inc.
Temperature-°	C										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Coun
0	N	8	24.29	23.82	24.76	24	25.5	0.1995	0.5643	2.32%	0
6.25		8	24.28	23.84	24.71	24	25.4	0.182	0.5148	2.12%	0
12.5		8	24.3	23.83	24.77	24	25.6	0.1991	0.5632	2.32%	0
25		8	24.25	23.88	24.62	24	25.3	0.1581	0.4472	1.84%	0
50		8	24.18	23.86	24.49	24	25.1	0.1346	0.3808	1.58%	0
100		8	24.16	23.84	24.48	24	25.1	0.1362	0.3852	1.59%	0 (20()
Overall		48	24.24	24.11	24.37	24	25.6	0.06623	0.4589	1.89%	0 (0%)
Alkalinity (CaC	O3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	63	61	61	61	61	61	65	65		
100		75									
Conductivity-µ	ımhos										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	336	320	319	326	324	325	336	348		
6.25		361	390	365	393	363	388	394	428		
12.5		375	368	360	369	371	371	379	385		
25		422	416	419	416	420	415	429	436		
50		514	512	507	514	217	532	520	536		
100		699	694	709	703	713	714	713	725		
Dissolved Oxy	gen-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	7.6	7.6	7.8	7.9	7.6	7.8	7.5	8.1		
6.25		7.7	7.3	7.8	7.8	7.3	7	6.9	7.3		
12.5		7.7	7.6	7.8	7.8	7.1	7	7.2	7		
25		7.8	7.2	7.7	7	6.3	6.6	6.8	7		
50		8	4.4	6.9	7.4	6.5	5.6	7.2	6.8		
100		8.6	6.8	6.9	4.1	5	6.1	6.3	6.3		
Hardness (CaC	O3)-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	96	86	86	86	86	86	96	96		
100		213									
pH-Units											
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	8	7.9	7.8	7.9	7.8	7.5	8	8		
6.25		8.2	8.4	8.1	8.3	8.2	8.2	8.1	8.2		
12.5		8.4	7.9	8.1	8	8.2	8.3	7.8	7.9		
25		8	8.1	8.1	8	7.9	7.9	7.7	7.9		
50		8	7.9	7.9	7.8	7.9	7.6	7.4	7.9		
100		7.7	7.8	7.4	7.6	7.2	7.5	7.6	7.6		
Temperature-°(
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	24	24.8	24	24	24	24	25.5	24		
6.25		24	24	24.7	24	24	24.1	25.4	24		
12.5		24	24	24.6	24	24.1	24.1	25,6	24		
25		24.2	24.1	24	24.4	24	24	25.3	24		
50		24	24.2	24	24	24	24.1	25.1	24		
100		24	24	24	24	24	24.2	25.1	24		





December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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:

Ventura County Flood Control

SAMPLE I.D.:

MO-FIL

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.359

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

SURVIVAL

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

REPRODUCTION

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Yours/very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 15:53 (p 1 of 2)

Test Code:

VCF1016.359c | 02-5347-3858

Ceriodaphnia	a 7-d Survival a	and Reproduct	ion Tes	t				Aquat	ic Bioassay &	Consulting	Labs, i	nc.
Batch ID:	03-7860-2979	Test T	Type: R	Reproduction-S	Survival (7d)		An	alyst:	Joe Freas			
Start Date:	28 Oct-16 14:	55 Proto	col: E	PA/821/R-02-	-013 (2002)		Dil	uent:	Laboratory Wat	ег		
Ending Date:	04 Nov-16 15:	:15 Spec i	ies: C	Ceriodaphnia d	lubia		Bri	ne:	Not Applicable			
Duration:	7d 0h	Source	ce: A	quatic Biosys	tems, CO		Ag	e:				
Sample ID:	16-2920-7886	Code	: V	/CF1016.359			Cli	ent:	VCWPD			
Sample Date:	: 28 Oct-16 07:	00 Mater	rial: S	ample Water			Pro	oject:	2016/17-1 (Wet)		
Receipt Date	: 28 Oct-16 12:	10 Source	ce: B	Bioassay Repo	ort							
Sample Age:	8h	Statio	on: N	10-FIL								
Multiple Com	parison Sumn	nary										
Analysis ID	Endpoint			rison Method			NOEL	LOEL		TU	PMSC) √
	7d Survival Ra			xact/Bonferro			100	> 100	n/a	1	n/a	
08-7371-7914	Reproduction		Dunnett	Multiple Com	parison Tes	t	100	> 100	n/a	1	30.4%	,
Point Estimat	te Summary											
Analysis ID	Endpoint			stimate Meth			Level	%	95% LCL	95% UCL	TU	✓
02-6445-4257	7d Survival Ra	ate	Linear Ir	nterpolation (I	CPIN)		EC5	10.42	8.333	n/a	9.6	
							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	√
							EC50	>100	n/a	n/a	<1	✓
02-9158-3674	Reproduction		Linear Ir	nterpolation (IC	CPIN)		IC5	8.274	2.379	n/a	12.09	√
							IC10	10.3	4.759	n/a	9.711	√
							IC15	12.32	7.858	n/a	8.116	√
							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 Acceptal	_						Limits					
Analysis ID	Endpoint		Attribute		Test Stat		Upper	Overla	•			_
	7d Survival Ra		Control F	•	1	0.8	>>	Yes		ceptibility C		
	7d Survival Ra		Control F	•	1	0.8	>>	Yes	Passes Ad	cceptibility C		
02-9158-3674	Reproduction		Control F	Resn							ritoria	
08-73/1-7914				•	39.7	15	>>	Yes		ceptibility C		
	Reproduction		Control F	•	39.7	15 15	>> >>	Yes Yes		cceptibility C		
7d Survival R	Reproduction ate Summary	(Control F	Resp	39.7	15	>>	Yes	Passes Ad	cceptibility C	riteria	
7d Survival R	Reproduction ate Summary Code	Count I	Control F Mean	Resp	39.7 95% UCL	15 Min	>> Max	Yes Std Er	Passes Ad	cceptibility C	riteria %Effe	
7d Survival R Conc-%	Reproduction ate Summary	Count 1	Control F Mean 1.0000	95% LCL 1.0000	39.7 95% UCL 1.0000	15 Min 1.0000	>> Max 1.0000	Yes Std Er 0.0000	Passes Address	CV% 0.00%	%Effe	
7d Survival R Conc-% 0 6.25	Reproduction ate Summary Code	Count I 10 10	Mean 1.0000	95% LCL 1.0000 1.0000	39.7 95% UCL 1_0000 1.0000	Min 1.0000 1.0000	Max 1.0000 1.0000	Std Er 0.0000 0.0000	Passes Ad Dev 0.0000 0.0000	CV% 0.00%	%Effe 0.00% 0.00%	
7d Survival R Conc-% 0 6.25 12.5	Reproduction ate Summary Code	Count 10 10 10 10	Mean 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544	39.7 95% UCL 1.0000 1.0000 1.0000	Min 1.0000 1.0000 0.0000	Max 1.0000 1.0000 1.0000	Yes Std Er 0.0000 0.0000 0.1528	Passes Ad Dev 0.0000 0.0000 0.4830	CV% 0.00% 0.00% 69.01%	%Effe 0.00% 0.00% 30.00%	%
7d Survival R Conc-% 0 3.25 12.5	Reproduction ate Summary Code	Count 10 10 10 10 10 10	Mean 1.0000 1.0000 0.7000 1.0000	95% LCL 1.0000 1.0000 0.3544 1.0000	95% UCL 1_0000 1.0000 1.0000 1.0000	Min 1.0000 1.0000 0.0000 1.0000	Max 1.0000 1.0000 1.0000 1.0000	Std Er 0.0000 0.0000 0.1528 0.0000	Passes Ad Dev 0.0000 0.0000 0.4830 0.0000	CV% 0.00% 0.00% 69.01% 0.00%	%Effe 0.00% 0.00% 30.00% 0.00%	%
7d Survival R Conc-% 0 6.25 12.5 25	Reproduction ate Summary Code	Count I 10 10 10 10 10 10 10 10 10 10 10	Mean 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544	39.7 95% UCL 1.0000 1.0000 1.0000	Min 1.0000 1.0000 0.0000	Max 1.0000 1.0000 1.0000	Yes Std Er 0.0000 0.0000 0.1528	Passes Ad Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	CV% 0.00% 0.00% 69.01%	%Effe 0.00% 0.00% 30.00%	%
7d Survival R Conc-% 0 6.25 12.5 25 50	Reproduction ate Summary Code N	Count I 10 10 10 10 10 10 10 10 10 10 10	Mean 1.0000 1.0000 0.7000 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000	95% UCL 1_0000 1.0000 1_0000 1_0000 1_0000	Min 1.0000 1.0000 0.0000 1.0000 1.0000	Max 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Std Er 0.0000 0.0000 0.1528 0.0000 0.0000	Passes Ad Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	CV% 0.00% 0.00% 69.01% 0.00% 0.00%	%Effe 0.00% 0.00% 30.00% 0.00%	%
7d Survival R Conc-% 0 3.25 12.5 25 50 100	Reproduction ate Summary Code N	Count I 10 10 10 10 10 10 10 10 10 10 10 10 10	Mean 1.0000 1.0000 0.7000 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000	95% UCL 1_0000 1.0000 1_0000 1_0000 1_0000	Min 1.0000 1.0000 0.0000 1.0000 1.0000	Max 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Std Er 0.0000 0.0000 0.1528 0.0000 0.0000	Passes Ad Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	CV% 0.00% 0.00% 69.01% 0.00% 0.00%	%Effe 0.00% 0.00% 30.00% 0.00%	%
7d Survival R Conc-% 0 3.25 12.5 25 50 100 Reproduction Conc-%	Reproduction ate Summary Code N	Count II 10 10 10 10 10 10 10 10 10	Mean 1.0000 1.0000 0.7000 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000	39.7 95% UCL 1_0000 1.0000 1.0000 1.0000 1.0000	Min 1.0000 1.0000 0.0000 1.0000 1.0000 1.0000	Max 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Std Er 0.0000 0.0000 0.1528 0.0000 0.00000 0.00000	Passes Ad Dev 0.00000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	CV% 0.00% 0.00% 69.01% 0.00% 0.00% 0.00%	%Effe 0.00% 0.00% 30.00% 0.00% 0.00%	%
7d Survival R Conc-% 0 5.25 12.5 25 50 100 Reproduction Conc-%	Reproduction ate Summary Code N Summary Code	Count II 10 10 10 10 10 10 10 10 10	Mean 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000 1.0000	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL	Min 1.0000 1.0000 0.0000 1.0000 1.0000 Min	Max 1.0000 1.0000 1.0000 1.0000 1.0000 Max	Yes Std Er 0.0000 0.0000 0.1528 0.0000 0.0000 0.0000	Passes Ad Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	CV% 0.00% 0.00% 69.01% 0.00% 0.00% 0.00%	%Effe 0.00% 0.00% 30.00% 0.00% 0.00%	%
7d Survival R Conc-% 0 5.25 12.5 25 50 100 Reproduction Conc-%	Reproduction ate Summary Code N Summary Code	Count II 10 10 10 10 10 10 10 10 10	Mean 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000 1.0000 1.0000 31.444	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 47.96	Min 1.0000 1.0000 0.0000 1.0000 1.0000 1.0000 Min 20	Max 1.0000 1.0000 1.0000 1.0000 1.0000 Max 55	Yes Std Er 0.0000 0.0000 0.1528 0.0000 0.0000 0.0000 Std Er 3.652	Passes Ad Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 r Std Dev 11.55	CV% 0.00% 0.00% 69.01% 0.00% 0.00% 0.00% CV% 29.09%	%Effe 0.00% 0.00% 30.00% 0.00% 0.00% %Effe 0.00% -5.54%	ct_
7d Survival R Conc-% 0 6.25 12.5 25 50 100 Reproduction Conc-% 0 6.25	Reproduction ate Summary Code N Summary Code	Count 10 10 10 10 10 10 10 1	Mean 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Mean 39.7	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000 1.0000 1.0000 31.44 35.25	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 47.96 48.55	Min 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Min 20 26	Max 1.0000 1.0000 1.0000 1.0000 1.0000 Max 55 53	Yes Std Er 0.0000 0.0000 0.1528 0.0000 0.0000 0.0000 Std Er 3.652 2.942	Passes Ad T Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 T Std Dev 11.55 9.303	CV% 0.00% 0.00% 69.01% 0.00% 0.00% 0.00% 0.00% 0.00% 29.09% 22.20%	%Effe 0.00% 0.00% 30.00% 0.00% 0.00% .000% .5.54% 55.92%	ct %
7d Survival R	Reproduction ate Summary Code N Summary Code	Count 10 10 10 10 10 10 10 1	Mean 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Mean 39.7 41.9	95% LCL 1.0000 1.0000 0.3544 1.0000 1.0000 1.0000 31.44 35.25 7.789	95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 47.96 48.55 27.21	Min 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Min 20 26 5	Max 1.0000 1.0000 1.0000 1.0000 1.0000 Max 55 53 43	Std Er 0.0000 0.0000 0.1528 0.0000 0.0000 0.0000 Std Er 3.652 2.942 4.293	Passes Ad T Std Dev 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 T Std Dev 11.55 9.303 13.57	CV% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 0.00% 29.09% 22.20% 77.57%	%Effe 0.00% 0.00% 30.00% 0.00% 0.00% %Effe 0.00% -5.54%	ct_ %



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Report Date: Test Code: 02 Dec-16 15:53 (p 2 of 2) VCF1016.359c | 02-5347-3858

Ceriodaphnia 7-d Survival and Reproduction Test

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Aquatic Bioassay & Consulting Labs, Inc.

7d Survival R	ate Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12,5		1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	0.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1:0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Reproduction	Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	43	35	55	20	20	44	41	48	46	45
6.25		26	44	29	44	34	48	47	52	53	42
12.5		11	9	36	17	11	5	7	29	7	43
25		49	33	32	52	59	32	33	29	23	41
50		27	31	26	31	33	46	46	55	48	55
100		14	36	39	50	42	50	43	37	49	64
7d Survival Ra	ate Binomials										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Report Date:

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Test Code:

VCF1016.359c | 02-5347-3858

Concapiana /-0	d Survival and Re	production Te	est				Aquatic	Bioassay &	Consultin	g Labs, In
Analysis ID: 08	3-7371-7914	Endpoint:	Reproduction			CET	ΓIS Version	n: CETISv	1.9.2	
Analyzed: 02	2 Dec-16 15:50	Analysis:	Parametric-Co	ontrol vs Trea	atments	Offi	cial Result	s: Yes		
Batch ID: 03-	-7860-2979	Test Type:	Reproduction-	Survival (7d)		Ana	lyst: Jo	e Freas		
Start Date: 28	Oct-16 14:55	Protocol:	EPA/821/R-02	-013 (2002)			-	boratory Wat	ter	
Ending Date: 04	Nov-16 15:15	Species:	Ceriodaphnia	dubia		Brin	ne: No	ot Applicable		
_	0h	Source:	Aquatic Biosys	stems, CO		Age		''		
Sample ID: 16-	-2920-7886	Code:	VCF1016.359		-	Clie	nt: VC	CWPD		
Sample Date: 28	Oct-16 07:00	Material:	Sample Water			Pro	ject: 20	16/17-1 (Wei	t)	
Receipt Date: 28	Oct-16 12:10	Source:	Bioassay Repo	ort		•	•	,	,	
Sample Age: 8h		Station:	MO-FIL							
Data Transform	Alt	Нур				NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C >					100	> 100	n/a	1	30.41%
Dunnett Multiple	Comparison Test									
Control vs	Conc-%	Test S	Stat Critical	MSD DE	P-Type	P-Value	Decision	n(a:5%)		
Negative Control	6.25	-0.417		12.07 18		0.9284		nificant Effect		
	12.5*	4.21	2.289	12.07 18		2.3E-04	Significa		•	
	25	0.265		12.07 18		0.7428	•	nificant Effect	+	
	50	-0.018		12.07 18		0.8389	•	nificant Effect		
	100	-0 ₋ 512		12.07 18		0.9425	_	nificant Effect		
Foot Assemblish		0.012	2.200	12.07 10	ODI	0.5425	14011-Olgi	illicant Enco		
Test Acceptability		TAC Limits	. 0 . 1							
Attribute	Test Stat Low			Decision		•				
Control Resp	39.7 15	>>	Yes	Passes A	cceptibility	Criteria				
ANOVA Table										
	Sum Squares	Mean	Square	DF	F Stat	P-Value	Decision	n(α:5%)		
Source	Sum Squares 4492.8	Mean 898.56		DF 5	F Stat 6.463	P-Value 8.9E-05	Decision Significal			
Source Between			3							
Source Between Error	4492.8	898.56	3	5						
Source Between Error Fotal	4492.8 7507.6 12000.4	898.56	3	5 54						
Source Between Error Fotal Distributional Tes	4492.8 7507.6 12000.4	898.56	3	5 54	6.463			nt Effect		
Source Between Error Fotal Distributional Tes Attribute	4492.8 7507.6 12000.4	898.56 139.03	6 3	5 54 59	6.463	8.9E-05	Significal	nt Effect		
Source Between Error Total Distributional Tes Attribute /ariances	4492.8 7507.6 12000.4 sts	898.56 139.03 of Variance T	est	5 54 59 Test Stat	6.463 Critical	8.9E-05	Signification Si	nt Effect n(α:1%) uriances		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances	4492.8 7507.6 12000.4 sts Test Bartlett Equality	898.56 139.03 of Variance T of Variance T	est	5 54 59 Test Stat 1.417	6.463 Critical 15.09	8.9E-05 P-Value 0.9224	Signification Si	nt Effect n(α:1%) nriances nriances		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality	898.56 139.03 of Variance T of Variance T uality of Variar	est est est nce Test	5 54 59 Test Stat 1.417 0.4087	6.463 Critical 15.09 3.377	8.9E-05 P-Value 0.9224 0.8407	Decision Equal Va Equal Va Equal Va	nt Effect n(α:1%) nriances nriances		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution	4492.8 7507.6 12000.4 sts Test Bartlett Equality Levene Equality Mod Levene Equ	898.56 139.03 of Variance T of Variance T uality of Variar g A2 Normalit	est est est nce Test	5 54 59 Test Stat 1.417 0.4087 0.2027	6.463 Critical 15.09 3.377 3.377 3.878	P-Value 0.9224 0.8407 0.9600 0.5800	Decision Equal Va Equal Va Royanal Ca	nt Effect n(α:1%) nriances nriances nriances		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equality Anderson-Darlin D'Agostino Kurto	898.56 139.03 of Variance T of Variance T uality of Variar g A2 Normalit	est est est nce Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701	Critical 15.09 3.377 3.878 2.576	P-Value 0.9224 0.8407 0.9600 0.5800 0.7113	Decision Equal Va Equal Va Equal Va Normal D	nt Effect n(a:1%) riances riances riances Distribution Distribution		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution Distribution Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equality Anderson-Darlin D'Agostino Kurto D'Agostino Skev	of Variance T of Variance T uality of Varian g A2 Normalit osis Test	est est est nce Test y Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311	6.463 Critical 15.09 3.377 3.377 3.878 2.576 2.576	P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530	Decision Equal Va Equal Va Normal D Normal D	nt Effect n(a:1%) nriances nriances priances Distribution		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution Distribution Distribution Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equality Anderson-Darlin D'Agostino Kurto D'Agostino Skev D'Agostino-Pear	of Variance T of Variance T uality of Variar g A2 Normalit osis Test wness Test	est est est nce Test y Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589	6.463 Critical 15.09 3.377 3.377 3.878 2.576 2.576 9.21	P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322	Decision Equal Va Equal Va Equal Va Normal D Normal D Normal D	nt Effect n(a:1%) ariances ariances briances Distribution Distribution Distribution		
Source Between Error Fotal Distributional Tes Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equality Anderson-Darlin D'Agostino Kurto D'Agostino Skev	of Variance T of Variance T uality of Variar g A2 Normalit posis Test wness Test son K2 Omnit irnov D Test	est est est nce Test y Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404	6.463 Critical 15.09 3.377 3.377 3.878 2.576 2.576	P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530	Decision Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	nt Effect n(a:1%) ariances ariances bistribution Distribution Distribution		
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equalit	of Variance T of Variance T uality of Variar g A2 Normalit posis Test wness Test son K2 Omnit irnov D Test	est est est nce Test y Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404 0.09743	6.463 Critical 15.09 3.377 3.878 2.576 2.576 9.21 0.1331	8.9E-05 P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596	Decision Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	n(a:1%) riances riances riances Distribution Distribution Distribution Distribution Distribution		
Source Between Error Fotal Distributional Tes Attribute Variances Variances Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equalit	of Variance T of Variance T uality of Variar g A2 Normalit posis Test wness Test son K2 Omnit irnov D Test Normality Tes	est est est nce Test y Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404 0.09743	6.463 Critical 15.09 3.377 3.878 2.576 2.576 9.21 0.1331	8.9E-05 P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596	Decision Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	n(a:1%) riances riances riances Distribution Distribution Distribution Distribution Distribution	CV%	%Effect
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equ Anderson-Darlin D'Agostino Kurto D'Agostino Skev D'Agostino-Pear Kolmogorov-Sm Shapiro-Wilk W	of Variance T of Variance T uality of Variar g A2 Normalit posis Test wness Test son K2 Omnit irnov D Test Normality Tes	est est est nce Test y Test ous Test	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404 0.09743 0.9897	Critical 15.09 3.377 3.878 2.576 2.576 9.21 0.1331 0.9459	P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596 0.8931	Decision Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D	nt Effect n(a:1%) nriances nriances priances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	CV% 29.09%	%Effect 0.00%
Source Between Error Fotal Distributional Tes Attribute /ariances /ariances /ariances Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equalit	of Variance T of Variance T of Variance T uality of Variar g A2 Normalit osis Test vness Test rson K2 Omnit irnov D Test Normality Tes	est est est nce Test y Test bus Test t 95% LCL	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404 0.09743 0.9897	Critical 15.09 3.377 3.377 3.878 2.576 2.576 9.21 0.1331 0.9459	P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596 0.8931	Decision Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D	n(a:1%) nriances nriances priances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution		
Source Between Error Fotal Distributional Tes Attribute Variances Variances Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equalit	of Variance T of Variance T of Variance T uality of Varian g A2 Normalit osis Test vness Test son K2 Omnit irnov D Test Normality Tes nt Mean 39.7	est est est rest nce Test y Test bus Test ### ### ############################	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404 0.09743 0.9897 95% UCL 47.96	Critical 15.09 3.377 3.377 3.878 2.576 2.576 9.21 0.1331 0.9459 Median 43.5	8.9E-05 P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596 0.8931 Min 20	Decision Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D	nt Effect n(a:1%) rriances rriances rriances Distribution Distribution Distribution Distribution Distribution Std Err 3.652	29.09%	0.00%
Between Error Total Distributional Tes Attribute Variances Variances Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equalit	of Variance T of Variance T of Variance T uality of Varian g A2 Normalit osis Test vness Test vness Test son K2 Omnit irnov D Test Normality Tes mt Mean 39.7 41.9 17.5	est eest eest nee Test y Test ous Test et 95% LCL 31.44 35.25 7.789	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.0589 0.1404 0.09743 0.9897 95% UCL 47.96 48.55 27.21	Critical 15.09 3.377 3.878 2.576 2.576 9.21 0.1331 0.9459 Median 43.5 44 11	8.9E-05 P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596 0.8931 Min 20 26 5	Decision Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D S Max	nt Effect n(a:1%) rriances rriances rriances Distribution Distribution Distribution Distribution Std Err 3.652 2.942 4.293	29.09% 22.20% 77.57%	0.00% -5.54% 55.92%
ANOVA Table Source Between Error Total Distributional Tes Attribute Variances Variances Variances Distribution	4492.8 7507.6 12000.4 Sts Test Bartlett Equality Levene Equality Mod Levene Equalit	of Variance T of Variance T of Variance T uality of Varian g A2 Normalit osis Test vness Test vness Test son K2 Omnit irnov D Test Normality Tes nt Mean 39.7 41.9	est eest eest nee Test y Test bus Test et 95% LCL 31.44 35.25	5 54 59 Test Stat 1.417 0.4087 0.2027 0.311 0.3701 0.0589 0.1404 0.09743 0.9897 95% UCL 47.96 48.55	Critical 15.09 3.377 3.878 2.576 2.576 9.21 0.1331 0.9459 Median 43.5 44	8.9E-05 P-Value 0.9224 0.8407 0.9600 0.5800 0.7113 0.9530 0.9322 0.1596 0.8931 Min 20 26	Decision Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D Normal D	nt Effect n(a:1%) rriances rriances rriances Distribution Distribution Distribution Distribution Std Err 3.652 2.942	29.09% 22.20%	0.00% -5.54%

Report Date:

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Test Code:

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Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay	&	Consulting	Labs,	Inc.
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Analysis ID:	08-7371-7914	Endpoint:	Reproduction	CETIS Version:	CETISv1.9.2
Analyzed:	02 Dec-16 15:50	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Reproduction	n Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	43	35	55	20	20	44	41	48	46	45
6.25		26	44	29	44	34	48	47	52	53	42
12.5		11	9	36	17	11	5	7	29	7	43
25		49	33	32	52	59	32	33	29	23	41
50		27	31	26	31	33	46	46	55	48	55

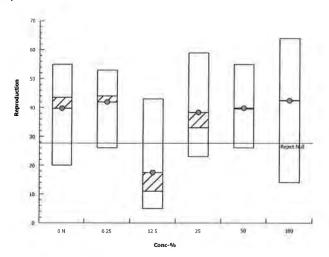
42

50

50

Graphics

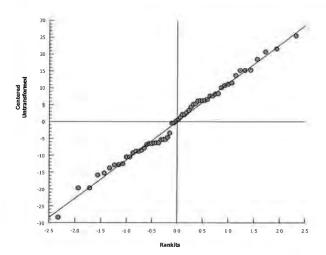
100



14

36

39



37

Report Date: Test Code: 02 Dec-16 15:51 (p 1 of 4)

VCF1016.359c | 02-5347-3858 Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc. Analysis ID: 02-6445-4257 Endpoint: 7d Survival Rate **CETIS Version:** CETISv1.9.2 Analyzed: 02 Dec-16 15:50 Analysis: Linear Interpolation (ICPIN) Official Results: Yes Batch ID: 03-7860-2979 Test Type: Reproduction-Survival (7d) Analyst: Joe Freas Start Date: 28 Oct-16 14:55 Protocol: EPA/821/R-02-013 (2002) Diluent: Laboratory Water Species: Ending Date: 04 Nov-16 15:15 Brine: Not Applicable Ceriodaphnia dubia Duration: 7d 0h Source: Aquatic Biosystems, CO Age: Code: Sample ID: 16-2920-7886 VCF1016,359 Client: **VCWPD** Sample Date: 28 Oct-16 07:00 Material: Sample Water Project: 2016/17-1 (Wet) Receipt Date: 28 Oct-16 12:10 Source: Bioassay Report Station: MO-FIL Sample Age: 8h **Linear Interpolation Options** X Transform Y Transform Seed Resamples Exp 95% CL Method Two-Point Interpolation Linear O 280 Linear Yes **Test Acceptability Criteria TAC Limits Attribute** Test Stat Lower Upper Overlap Decision Control Resp 1 0.8 >> Yes Passes Acceptibility Criteria **Point Estimates** Level % 95% LCL 95% UCL TU 95% LCL 95% UCL EC5 10.42 8.333 9.6 n/a n/a 12 >100 EC10 n/a n/a <1 n/a n/a EC15 >100 <1 n/a n/a n/a n/a EC20 >100 n/a <1 n/a n/a n/a EC25 >100 <1 n/a n/a n/a n/a EC40 >100 <1 n/a n/a n/a n/a EC50 >100 n/a n/a <1 n/a n/a 7d Survival Rate Summary Calculated Variate(A/B) Min Std Err Std Dev CV% %Effect В Conc-% Code Count Mean Max Α 10 0 N 10 1.0000 1.0000 1.0000 0.0000 0.0000 0.00% 0.0% 10 6.25 10 1.0000 1.0000 1.0000 0.0000 0.0000 0.00% 0.0% 10 10 10 0.7000 0.0000 1.0000 0.1528 0.4830 69.01% 30.0% 7 10 12.5 25 10 1,0000 1.0000 1.0000 0.0000 0.0000 0.00% 0.0% 10 10 1.0000 0.0000 0.0% 10 10 50 10 1.0000 1.0000 0.0000 0.00% 10 1.0000 1.0000 1.0000 0.0000 0.0000 0.00% 0.0% 10 10 100 7d Survival Rate Detail Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 0 N 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 6.25 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 0.0000 1.0000 1.0000 0.0000 1.0000 0.0000 1.0000 1.0000 1.0000 12.5 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 25 1,0000 50 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1,0000 1.0000 1.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 7d Survival Rate Binomials Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 0 N 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 6.25 1/1 1/1 1/1 1/1 1/1 0/1 0/1 1/1 0/1 1/1 12.5 1/1 1/1 1/1 1/1 1/1 25 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 50 1/1 1/1 1/1 1/1 100 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/1

Report Date:

02 Dec-16 15:51 (p 2 of 4)

Test Code:

VCF1016.359c | 02-5347-3858

Ceriodaphnia 7-d Survival and Reproduction Test

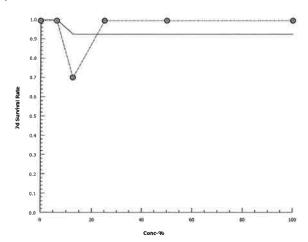
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 02-6445-4257 02 Dec-16 15:50 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version:
Official Results:

CETISv1.9.2 Yes



Report Date:

02 Dec-16 15:51 (p 3 of 4)

Test Code:

VCF1016.359c | 02-5347-3858

									lest (Code:	VCF10	16.359c 0	2-5347-385
Ceriod	Ceriodaphnia 7-d Survival and Reproductio				est					Aquatic	Bioassay &	Consulting	g Labs, Inc
Analys	is ID: 0	2-9158-3674	Enc	lpoint:	Reproduction				CETIS	S Version	ı: CETISv1	1.9.2	
Analyz	ed: 0	2 Dec-16 15:		lysis:	Linear Interpola	ation (ICPIN)		Offici	al Result	s: Yes		
Batch I	I D : 03	-7860-2979	Tes	t Type:	Reproduction-S	Survival (7d)	1		Analy	st: Jo	e Freas		
Start D	ate: 28	Oct-16 14:55	5 Pro	tocol:	EPA/821/R-02	-013 (2002)			Dilue		boratory Wat	ter	
Ending	Date : 04	Nov-16 15:1	5 Spe	cies:	Ceriodaphnia d	lubia			Brine	: No	t Applicable		
Duratio	on: 7d	0h	Sou	ırce:	Aquatic Biosys	tems, CO			Age:				
Sample	e ID: 16	-2920-7886	Cod	le:	VCF1016.359				Client	t: VC	WPD		
Sample	e Date: 28	Oct-16 07:00) Mat	erial:	Sample Water				Proje	ct: 20	16/17-1 (Wei	t)	
Receip	t Date: 28	Oct-16 12:10) Sou	ırce:	Bioassay Repo	ort							
Sample	e Age: 8h		Stat	tion:	MO-FIL								
Linear	Interpolat	ion Options											
X Trans	sform	Y Transforn		d	Resamples	Exp 95%		Method					
Linear		Linear	0		280	Yes		Two-Point	Interpo	lation			
Test Ac	cceptabilit	y Criteria	TAC L	imits									
Attribu		Test Stat		Uppe	r Overlap	Decision							
Control	Resp	39.7	15	>>	Yes	Passes A	cceptib	ility Criteria	а				
Point E	stimates												
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
IC5	8.274	2.379	n/a	12.09		42.03							
IC10	10.3	4.759	n/a	9.711		21.01							
IC15	12.32	7.858	n/a	8.116		12.73							
IC20 IC25	>100 >100	n/a n/a	n/a n/a	<1 <1	n/a n/a	n/a n/a							
IC40	>100	n/a	n/a n/a	<1	n/a	n/a							
IC50	>100	n/a	n/a	<1	n/a	n/a							
	luction Su						lculato	d Variate					
Conc-%		Code	Count	Mean	Min	Max	Std E		Dev	CV%	%Effect		
0	0	N	10	39.7	20	55	3.652			29.09%	0.0%		
6.25			10	41.9	26	53	2.942			22.20%	-5.54%		
12.5			10	17.5	5	43	4.293			77.57%	55.92%		
25			10	38.3	23	59	3.642			30.07%	3.53%		
50			10	39.8	26	55	3.593	3 11.3	36	28.54%	-0.25%		
100			10	42.4	14	64	4.102	12.9	97	30.59%	-6.8%		
Reprod	luction De	tail											
Conc-%	, o	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep	5 Rep	6	Rep 7	Rep 8	Rep 9	Rep 10
0		N	43	35	55	20	20	44		41	48	46	45
6.25			26	44	29	44	34	48		47	52	53	42
12.5			11	9	36	17	11	5		7	29	7	43
25			49	33	32	52	59	32		33	29	23	41
50			27	31	26	31	33	46		46	55	48	55
100			14	36	39	50	42	50		43	37	49	64

Report Date:

02 Dec-16 15:51 (p 4 of 4)

Test Code:

VCF1016.359c | 02-5347-3858

Ceriodaphnia 7-d Survival and Reproduction Test

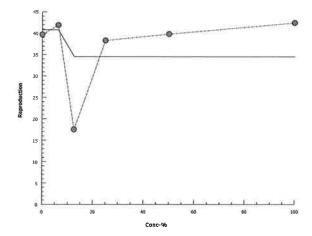
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

02-9158-3674 02 Dec-16 15:50 Endpoint: Reproduction

Analysis: Linear Interpolation (ICPIN) **CETIS Version:**

CETISv1.9.2 Official Results: Yes



Report Date:

02 Dec-16 15:52 (p 1 of 2)

Test Code:

VCF1016,359c | 02-5347-3858

Ceriodaphnia 7-d	Survival an	d Reprodu	ction Test					Aquatic	Bioassay &	Consulting	g Labs, Ind
Analysis ID: 10-	-7654-8429	End	•	d Survival Ra			CE.	ΓIS Version	: CETISv	1,9,2	
Analyzed: 02	Dec-16 15:5	0 Ana	l ysis: S	TP 2xK Conti	ingency Tab	les	Off	cial Result	s: Yes		
Batch ID: 03-7	7860-2979	Tes	t Type: R	eproduction-S	Survival (7d)		Ana	ılyst: Jo	e Freas		
Start Date: 28 (Oct-16 14:55	Pro	tocol: E	PA/821/R-02-	-013 (2002)		Dilu	ient: La	boratory Wa	ter	
Ending Date: 04 N	Nov-16 15:15	S Spe	cies: C	eriodaphnia d	dubia		Brit	ne: No	t Applicable		
Duration: 7d	0h	Sou	ırce: A	quatic Biosys	items, CO		Age) :			
Sample ID: 16-2	2920-7886	Cod	le: V	CF1016.359			Clie	ent: VC	WPD		
Sample Date: 28 (Oct-16 07:00	Mat	erial: S	ample Water			Pro	ject: 20	16/17-1 (We	et)	
Receipt Date: 28 (Oct-16 12:10	Sou	ırce: B	ioassay Repo	ort						
Sample Age: 8h		Stat	ion: N	IO-FIL							
Data Transform		Alt Hyp					NOEL	LOEL	TOEL	TU	
Untransformed		C > T					100	> 100	n/a	1	
Fisher Exact/Bonf	erroni-Holm	ı Test									
Control vs	Group			t P-Type	P-Value	Decision					
Negative Control	6.25		1.0000	Exact	1.0000	_	ificant Effec				
	12.5		0.1053	Exact	0.5263	_	ificant Effe				
	25		1.0000	Exact	1.0000	_	ificant Effe				
	50		1.0000	Exact	1.0000	_	ificant Effe				
	100		1.0000	Exact	1.0000	Non-Sign	ificant Effec	ot			
Test Acceptability	Criteria	TAC L	imits								
Attribute	Test Stat		Upper	Overlap	Decision						
Control Resp	1	0.8	>>	Yes	Passes A	cceptibility	Criteria				
Data Summary											
Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect				
0	N	10	0	10	1	0	0.0%				
6.25		10	0	10	1	0	0.0%				
12.5		7	3	10	0_7	0.3	30.0%				
25		10	0	10	1	0	0.0%				
50		10	0	10	1	0	0.0%				
100		10	0	10	1	0	0.0%				
7d Survival Rate D	Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1_0000	1.0000	1.0000	1_0000
6.25		1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1_0000	1.0000
12,5		1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	0.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1,0000	1.0000
50		1.0000	1.0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1_0000
4.00		1.0000	1.0000	1.0000	1,0000	1.0000	1.0000	1_0000	1.0000	1.0000	1.0000
100											
	Binomials										
7d Survival Rate B	Binomials Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
7d Survival Rate B Conc-%		Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	1/1
7d Survival Rate B Conc-%	Code										
7d Survival Rate B Conc-% O 3 25	Code	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
7d Survival Rate B Conc-% 0 6 25 12.5	Code	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 7d Survival Rate B Conc-% 0 6 25 12.5 25	Code	1/1 1/1 1/1	1/1 1/1 0/1	1/1 1/1 1/1	1/1 1/1 1/1	1/1 1/1 0/1	1/1 1/1 1/1	1/1 1/1 0/1	1/1 1/1 1/1	1/1 1/1 1/1	1/1 1/1 1/1

Report Date:

02 Dec-16 15:52 (p 2 of 2)

Test Code:

VCF1016.359c | 02-5347-3858

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

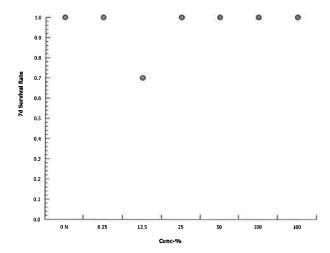
Analysis ID: 10-7654-8429 Analyzed: 02 Dec-16 15:50

Endpoint: 7d Survival Rate Analysis:

STP 2xK Contingency Tables

CETIS Version: Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

06 Dec-16 15:50 (p 1 of 2)

Test Code:

VCF1016,359c | 02-5347-3858

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	03-7860-2979	Test Type:	Reproduction-Survival (7d)	Analyst:	Joe Freas
Start Date: 2	28 Oct-16 14:55	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water
Ending Date: (04 Nov-16 15:15	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration: 7	7d Oh	Source:	Aquatic Biosystems, CO	Age:	

Sample ID: 16-2920-7886 Code: VCF1016.359 Client:

VCWPD Sample Date: 28 Oct-16 07:00 Material: Sample Water Project: 2016/17-1 (Wet) Bioassay Report

Receipt Date: 28 Oct-16 12:10 Source: Sample Age: 8h Station: MO-FIL

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	62.25	60.72	63.78	61	65	0.6478	1.832	2.94%	0
100		1	108			108	108	0	0	0.0%	0
Overall		9	67.33	55.54	79.13	61	108	5.115	15.35	22.79%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	329.2	321	337.5	319	348	3,509	9.925	3.01%	0
6.25		8	385.2	366.6	403.9	361	428	7.892	22.32	5.79%	0
12.5		8	372.2	366	378.5	360	385	2.664	7.536	2.02%	0
25		8	421.6	415.5	427.8	415	436	2.598	7.347	1.74%	0
50		8	481.5	391.8	571.2	217	536	37.95	107.3	22.29%	0
100		8	708.8	700.5	717	694	725	3.468	9.809	1.38%	0
Overall		48	449.8	411,1	488.5	217	725	19.24	133.3	29.63%	0 (0%)

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.738	7.571	7.904	7.5	8.1	0.07055	0.1996	2.58%	0
6.25		8	7.388	7.096	7.679	6.9	7.8	0.1231	0.3482	4.71%	0
12.5		8	7.4	7.1	7.7	7	7.8	0.1268	0.3586	4.85%	0
25		8	7.05	6.621	7.479	6.3	7.8	0.1813	0.5127	7.27%	0
50		8	6.6	5.655	7,545	4.4	8	0.3996	1.13	17.12%	0
100		8	6.263	5.147	7.378	4.1	8.6	0.4717	1.334	21.3%	0
Overall		48	7.073	6.814	7.332	4.1	8.6	0.1289	0.8932	12.63%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5.77%	0
100		1	250			250	250	0	0	0.0%	0
Overall		9	107_6	66.33	148.8	86	250	17.88	53.64	49.87%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.863	7.722	8.003	7.5	8	0.05957	0.1685	2.14%	0
6.25		8	8.212	8.13	8.295	8.1	8.4	0.03504	0.0991	1.21%	0
12.5		8	8.075	7.898	8.252	7.8	8.4	0.075	0.2121	2.63%	0
25		8	7.95	7.841	8.059	7.7	8.1	0.04629	0.1309	1.65%	0
50		8	7.8	7.633	7.967	7.4	8	0.07071	0.2	2.56%	0
100		8	7_55	7.395	7.705	7.2	7.8	0.06547	0.1852	2.45%	0
Overall		48	7.908	7.831	7.986	7.2	8.4	0.03846	0.2664	3.37%	0 (0%)



Report Date: Test Code: 06 Dec-16 15:50 (p 2 of 2) VCF1016 359c | 02-5347-3858

Ceriodaphnia 7-d Survival and Reproduction Test Aquatic Bioassay & Consulting Labs, Inc. Temperature-°C Conc-% Code Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% **QA Count** 0 N 8 24.29 23.82 25.5 0.1995 0.5643 24.76 24 2.32% 6.25 8 24.28 23.84 24.71 24 25.4 0.182 0.5148 2.12% 0 12.5 8 24.3 23.83 24.77 24 25.6 0.1991 0.5632 2.32% 0 8 25 24.25 23.88 24.62 24 25.3 0.1581 0.4472 1.84% 0 50 8 24.18 23.86 24.49 24 25.1 0.1346 0.3808 1.58% 0 100 8 24.16 23.84 24.48 24 25.1 0.1362 0.3852 1.59% 0 Overall 48 24.24 24.11 24.37 24 25.6 0.06623 0.4589 1.89% 0 (0%) Alkalinity (CaCO3)-mg/L Code 2 5 6 8 Conc-% 1 3 4 7 61 0 Ν 63 61 61 61 61 65 65 100 108 Conductivity-µmhos Conc-% Code 2 3 4 5 6 7 8 0 Ν 336 320 319 326 324 325 336 348 6.25 361 390 365 393 363 388 394 428 368 369 371 12.5 375 360 371 379 385 416 25 422 416 419 420 415 429 436 50 514 512 507 514 217 532 520 536 100 699 694 709 703 713 714 713 725 Dissolved Oxygen-mg/L Code 3 Conc-% 2 4 5 6 7 8 7.5 0 7.6 7.6 7.8 7.9 Ν 7.6 7.8 8.1 6.25 7.7 7.3 7.8 7.8 7.3 7 6.9 7.3 7 12.5 7.7 7.6 7.8 7.8 7.1 7.2 7 25 7.8 7.2 7.7 7 6.3 6.6 6.8 7 8 7.4 7.2 50 4.4 6.9 6.5 5.6 6.8 100 8.6 6.8 6.9 4.1 5 6.1 6.3 6.3 Hardness (CaCO3)-mg/L 2 Code 1 3 4 5 6 7 8 Conc-% 96 86 86 86 86 86 96 96 0 Ν 250 100 pH-Units Conc-% Code 1 2 3 4 5 6 7 8 8 7.9 0 7.9 7.8 7.8 7.5 8 8 Ν 8.3 8.2 6.25 8.2 8.4 8.1 8.2 8.1 8.2 12.5 8.4 7.9 8.1 8 8.2 8.3 7.8 7.9 8 8 25 8.1 8.1 7.9 7.9 7.7 7.9 50 8 7.9 7.9 7.8 7.9 7.6 7.4 7.9 7.7 100 7.8 7.4 7.6 7_2 7.5 7.6 7.6 Temperature-°C Conc-% Code 1 2 3 4 5 6 7 8 24 0 N 24.8 24 24 24 24 25.5 24 6.25 24 24 24.7 24 24 24.1 25.4 24 12.5 24 24 24.6 24 24.1 24.1 25.6 24 25 24.2 24.1 24 24.4 24 25.3 24 24 50 24 24 24.2 24 24 24.1 25.1 24



24

24

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100

24

24.2

25.1

24

24



December 6, 2016

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

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:

Ventura County Flood Control

SAMPLE I.D.:

MO-MPK

DATE RECEIVED:

10/28/2016

ABC LAB. NO.:

VCF1016.357

CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00%

IC50 = >100.00 %

Yours yery truly,

.Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

02 Dec-16 16:04 (p 1 of 1)

01110 Out	illiary itepoi	•					Te	st Code:	VCF1	016.357 11	-4467	-2589
Selenastrum	Growth Test							Aquatio	Bioassay &	Consulting	Labs,	Inc.
Batch ID:	16-5632-5481	Test Type:						•	oe Freas			
Start Date:	28 Oct-16 14:30	Protocol:			-013 (2002)				aboratory Wat	er		
Ending Date:	01 Nov-16 13:00	Species:	Selenast	rum ca	apricornutum	1	Bri	ne: N	lot Applicable			
Duration:	94h	Source:	Aquatic E	Biosys	tems, CO		Ag	9 :				
Sample iD:	14-3192-1290	Code:	VCF1016	3.357			Cli	ent: V	CWPD			
Sample Date:	28 Oct-16 08:15	Material:	Sample \	Vater			Pro	ject: 20	016/17-1 (Wet)		
Receipt Date:	28 Oct-16 12:10	Source:	Bioassay	Repo	rt							
Sample Age:	6h	Station:	MO-MPK									
Multiple Com	parison Summary	1										
Analysis ID	Endpoint	Comp	parison M	ethod			NOEL	LOEL	TOEL	TU	PMS	SD √
12-2257-0377	Cell Density	Dunne	ett Multiple	Com	parison T est	t	100	> 100	n/a	1	15.0	%
Point Estimat	e Summary											
Analysis ID	Endpoint	Point	Estimate	Meth	od		Level	%	95% LCL	95% UCL	TU	✓
19-0962-5998	Cell Density	Linea	r Interpolat	tion (I	CPIN)		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 Acceptat	oility					TAC L	imits					
Analysis ID	Endpoint	Attrib	ute		Test Stat	Lower	Upper	Overlap	Decision			
12-2257-0377	Cell Density	Contro	ol CV		0.07076	<<	0.2	Yes	Passes A	ceptibility C	riteria	
19-0962-5998	Cell Density	Contro	ol CV		0.07076	<<	0.2	Yes	Passes A	ceptibility C	riteria	
12-2257-0377	Cell Density	Contro	ol Resp		1.12E+6	1000000	>>	Yes	Passes A	ceptibility C	riteria	
19-0962-5998	Cell Density	Contro	ol Resp		1.12E+6	1000000	>>	Yes	Passes A	cceptibility C	riteria	
Cell Density S	Summary											
Conc-%	Code	Count Mean	95%	LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Ef	lect
0	N 4	4 1.122	E+6 9.95	2E+5	1.248E+6	1.036E+6	1.192E+	6 3.968E+	+4 7.935E+4	7.08%	0.00	%
6.25	4	4 1.370	E+6 1.23	3 E +6	1.508E+6	1.267E+6	1.451E+	6 4.314E+	+4 8.628E+4	6.30%	-22.1	8%
12.5	4	4 1.316	E+6 1.12	2E+6	1.511E+6	1.189E+6	1.439E+	6 6:116E+	+4 1.223E+5	9.29%	-17.3	37%
25	4	4 1.396	E+6 1.19	2E+6	1.600E+6	1.265E+6	1.512E+	6.413E+	+4 1.283E+5	9.19%	-24.4	18%
50	4	4 1.426	E+6 1.24	3E+6	1.610E+6	1.288E+6	1.565E+	5.781E+	+4 1.156E+5	8.11%	-27.2	20%
100	4	4 1.5911	E+6 1.55	7E+6	1.625E+6	1.561E+6	1.607E+	6 1.062E+	+4 2.123E+4	1,33%	-41.8	34%

Cell Density Detail	
Conc-%	

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.186E+6	1.192E+6	1.072E+6	1.036E+6
6.25		1.451E+6	1,332E+6	1,431E+6	1.267E+6
12.5		1.236E+6	1.189E+6	1.439E+6	1.401E+6
25		1.512E+6	1.500E+6	1.307E+6	1.265E+6
50		1.456E+6	1.565E+6	1.288E+6	1.397E+6
100		1.607E+6	1.561E+6	1.605E+6	1.590E+6



Report Date:

02 Dec-16 16:02 (p 1 of 2)

Test Code: VCF1016.357 | 11-4467-2589

Selenastrum G	rowth Test							Aquatic E	Bioassay &	Consultin	ig Labs, In
Analysis ID:	12-2257-0377	End	dpoint: C	ell Density			CET	S Version:	CETISv1	.9.2	
Analyzed:	02 Dec-16 16:	01 An a	alysis: P	arametric-Co	ntrol vs Trea	atments	Offic	ial Results	: Yes		
Batch ID: 1	6-5632-5481	Tes	st Type: C	ell Growth			Anal	yst: Joe	Freas		
Start Date: 2	8 Oct-16 14:30) Pro	tocol: E	PA/821/R-02-	013 (2002)		Dilue	ent: Lab	oratory Wat	er	
Ending Date: 0	1 Nov-16 13:0	0 Sp e	ecies: S	elenastrum ca	apricornutun	n	Brine	e: Not	Applicable		
Duration: 9	4h	Sou	urce: A	quatic Biosys	tems, CO		Age:				
Sample ID: 1	4-3192-1290	Cod	de: V	CF1016.357			Clier	nt: VC\	WPD		
Sample Date: 2	8 Oct-16 08:15	5 Mat	terial: S	ample Water			Proje	ect: 201	6/17-1 (Wet)	
Receipt Date: 2	8 Oct-16 12:10) Sou	urce: B	ioassay Repo	rt						
Sample Age: 6	h	Sta	tion: N	IO-MPK							
Data Transform		Alt Hyp					NOEL	LOEL	TOEL	ΤU	PMSD
Untransformed		C > T					100	> 100	n/a	1	15.05%
Dunnett Multiple	e Comparisor	ı Test									
Control vs	Conc-%		Test Sta	nt Critical	MSD DE	P-Type	P-Value	Decision	(α:5%)		
Negative Control	6.25		-3.548	2.407	2E+05 6	CDF	1_0000	Non-Signi	ficant Effect		
	12.5		-2.778	2.407	2E+05 6	CDF	0.9999	Non-Signi	ficant Effect		
	25		-3.916	2.407	2E+05 6	CDF	1.0000	-	ficant Effect		
	50		-4.351	2_407	2E+05 6	CDF	1.0000		ficant Effect		
	100		-6.694	2.407	2E+05 6	CDF	1.0000	Non-Signi	ficant Effect		
Test Acceptabili	ity Criteria	TAC L	.imits								
Attribute	Test Stat	Lower	Upper	Overlap	Decision						
Control CV	0.07076	<<	0.2	Yes	Passes A	cceptibility C	Criteria				
Control Resp	1.12E+6	1000000	>>	Yes	Passes A	cceptibility (Criteria				
ANOVA Table							====				
Source	Sum Squ	ares	Mean S	quare	DF	F Stat	P-Value	Decision(α:5%)		
Between	4.69E+11		9.379E+	10	5	9.542	1,4E-04	Significan	t Effect		
Error	1.769E+1	1	9.829E+	09	18						
Total	6.459E+1	1			23						
Distributional To	ests										
Attribute	Test				Test Stat	Critical	P-Value	Decision(α:1%)		
Variances		uality of Va			6.804	15.09	0.2356	Equal Var	iances		
Variances		quality of Va			4.605	4.248	0.0070	Unequal V	'ariances		
√ariances	Mod Leve	ne Equality	of Varianc	e Test	4.328	4.248	0.0092	Unequal V	'ariances		
Distribution	Anderson-	Darling A2	Normality ¹	Test	0.4447	3.878	0.2886	Normal Di	stribution		
Distribution	_	Kurtosis T			2.234	2.576	0.0255	Normal Di	stribution		
Distribution	•	Skewness			0.1486	2.576	0.8819	Normal Di			
Distribution	_	o-Pearson K		s Test	5.013	9.21	0.0816	Normal Di	stribution		
Distribution	_	ov-Smirnov			0.1307	0.2056	0.3548	Normal Di			
Distribution	Shapiro-W	/ilk W Norm	ality Test		0.9449	0.884	0.2094	Normal Di	stribution		
Cell Density Sur	mmary										
Conc-%	Code	Count	Mean	95% LCL			Min	Max	Std Err	CV%	%Effect
)	N	4	1.122E+			1.129E+6	1,036E+6	1,192E+6	3.968E+4	7.08%	0.00%
3.25		4		6 1.233E+6			1.267E+6				-22.18%
12.5		4		6 1.122E+6			1.189E+6				-17.37%
25		4		6 1.192E+6		1.404E+6			6.413E+4		-24.48%
50		4		6 1.243E+6					5.781E+4		-27.20%
100		4	1.591E+	6 1.557E+6	1.625E+6	1.598E+6	1.561E+6	1.60/E+6	1.062E+4	1.33%	-41.84%

Report Date:

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Test Code:

VCF1016.357 | 11-4467-2589

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	12-2257-0377
Analyzed:	02 Dec-16 16:01

7 Endpoint: Cell Density

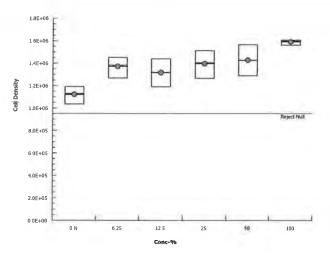
Analysis: Parametric-Control vs Treatments

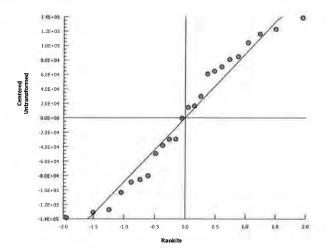
CETIS Version: Official Results:

CETISv1.9.2 Yes

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.186E+6	1.192E+6	1.072E+6	1.036E+6	
6.25		1.451E+6	1.332E+6	1.431E+6	1.267E+6	
12.5		1.236E+6	1.189E+6	1,439E+6	1.401E+6	
25		1.512E+6	1,500E+6	1.307E+6	1.265E+6	
50		1.456E+6	1.565E+6	1.288E+6	1.397E+6	
100		1.607 E+ 6	1.561E+6	1.605E+6	1.590E+6	





Report Date:

02 Dec-16 16:02 (p 1 of 2)

Test Code:

VCF1016.357 | 11-4467-2589

								- 10	est Code:		VCF 1016.357	7 11-4467-258	
Selena	astrum	Growth Test							Aqua	itic Bi	oassay & Consu	Iting Labs, Inc.	
Analys	is ID:	19-0962-5998	End	point:	Cell Density			С	ETIS Vers	sion:	CETISv1.9.2		
Analyz	ed:	02 Dec-16 16:0	2 Ana	lysis:	Linear Interpola	tion (ICPIN) Official Results: Yes							
Batch	ID:	16-5632-5481	Tes	t Type:	Cell Growth			Α	Analyst: Joe Freas				
Start E	ate:	28 Oct-16 14:30	Pro	tocol:	EPA/821/R-02-	-013 (2002)			Diluent: Laboratory Water				
Ending	Date:	01 Nov-16 13:00	Spe	cies:	Selenastrum ca	apricornutun	ricornutum Brine: Not Applicable						
Duration	on:	94h	Sou	rce:	Aquatic Biosys	tems, CO		A	ge:				
Sampl	e ID:	14-3192-1290	Cod	e:	VCF1016.357			С	lient:	VCW	/PD		
Sampl	e Date:	28 Oct-16 08:15	Mat	erial:	Sample Water			Pi	roject:	2016	/17-1 (Wet)		
			Bioassay Repo	ort									
Sampl	e Age:	6h	Stat	ion:	MO-MPK								
Linear	Interpo	lation Options											
X Tran	sform	Y Transform	See	d	Resamples	Exp 95%	CL Met	hod					
Linear		Linear	0		280	Yes	Two	-Point Inte	erpolation				
Test A	cceptat	ility Criteria	TAC L	imits									
Attribu	te	Test Stat	Lower	Upper	Overlap	Decision							
Control	CV	0.07076	<<	0.2	Yes	Passes A	cceptibility	Criteria					
Control Resp		1.12E+6	1000000	>>	Yes	Passes A	cceptibility	Criteria					
Point E	stimate	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
IC5	>100	n/a	n/a	<1	n/a	n/a							
IC10	>100	n/a	n/a	<1	n/a	n/a							
IC15	>100	n/a	n/a	<1	n/a	n/a							
IC20	>100	n/a	n/a	<1	n/a	n/a							
IC25	>100	n/a	n/a	<1	n/a	n/a							
IC40 IC50	>100 >100	n/a n/a	n/a n/a	<1 <1	n/a n/a	n/a n/a							
			11/4		πα								
	•	ummary		-			culated Va						
Conc-%	6	Code	Count	Mean	Min	Max	Std Err	Std De			%Effect		
0 6.25		N	4	1.122E		1_192E+6	3.968E+4 4.314E+4				0.0% -22.18%		
12.5			4	1.316E			6.116E+4				-17.37%		
25			4	1.396E		1.512E+6					-24.48%		
50			4		+6 1.288E+6						-27.2%		
100			4		+6 1.561E+6						-41.84%		
Cell De	nsity D	etail											
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4							
0					+6 1.072E+6	1.036E+6							
3.25			1.451E+6	1_332E	+6 1.431E+6	1.267E+6							
12.5			1.236E+6	1.189E	+6 1.439E+6	1.401E+6							
25			1.512E+6	1.500E	+6 1.307E+6	1.265E+6							
50			1.456E+6	1.565E-	+6 1.288E+6	1.397E+6							



1.607E+6 1.561E+6 1.605E+6 1.590E+6

100

Report Date:

02 Dec-16 16:02 (p 2 of 2)

Test Code:

VCF1016.357 | 11-4467-2589

Sel	lenast	rum	Growt	h T	'est
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Aquatic Bioassay & Consulting Labs, Inc.

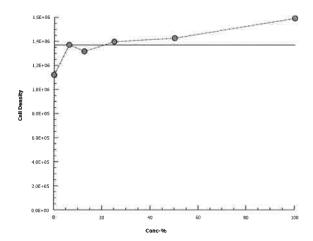
Analysis ID: Analyzed: 19-0962-5998 02 Dec-16 16:02 Endpoint: Cell Density

Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

06 Dec-16 15:55 (p 1 of 2)

Test Code:

VCF1016.357 | 11-4467-2589

lenastrum (Growth Test						Aquatic Bioassay & Consulting Labs, Inc.						
tch ID:	16-5632-5481		Test Type:	Cell Growth				Analyst: J	loe Freas				
art Date:	28 Oct-16 14:3	30	Protocol:	EPA/821/R-02	2-013 (2002)	1		Diluent: L	aboratory Wa	iter			
ding Date:	01 Nov-16 13:	00	Species:	Selenastrum d	capricornutu	m		Brine: N	lot Applicable				
ıration:	94h		Source:	Aquatic Biosy	stems, CO			Age:					
mple ID:	14-3192-1290		Code:	VCF1016.357				Client: V	/CWPD				
mple Date:	28 Oct-16 08:1	15	Material:	Sample Wate	r			Project: 2	016/17-1 (We	et)			
ceipt Date:	28 Oct-16 12:1	10	Source:	Bioassay Rep	ort								
mple Age:	6h		Station:	MO-MPK									
kalinity (CaC	CO3)-mg/L												
nc-%	Code	Count	t Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
	N	1	69			69	69	0	0	0.0%	0		
0		1	69			69	69	0	0	0.0%	0		
erall		2	69	69	69	69	69	0	0	0.00%	0 (0%)		
nductivity-µ	umhos												
nc-%	Code	Count	t Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
	N	5	450	432.2	467.8	427	463	6.419	14.35	3.19%	0		
:5		5	408.2	397.3	419.1	393	415	3.917	8,758	2.15%	0		
5		5	403.2	401.6	404.8	402	405	0.5831	1.304	0.32%	0		
		5	380.6	376.9	384.3	377	384	1.327	2.966	0.78%	0		
		5	335	332.5	337.5	333	338	0.8944	2	0.6%	0		
)		5	242.2	235.8	248.6	237	249	2.311	5.167	2.13%	0		
erall		30	369.9	344.4	395.3	237	463	12.43	68_09	18.41%	0 (0%)		
rdness (CaC	CO3)-mg/L												
nc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
	N	1	99			99	99	0	0	0.0%	0		
)		1	75			75	75	0	0	0.0%	0		
erall		2	87	-65.47	239.5	75	99	12	16.97	19.51%	0 (0%)		
-Units													
nc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
	N	5	7.62	7.416	7.824	7.4	7.8	0.07349	0.1643	2.16%	0		
5		5	7.7	7.524	7.876	7.5	7.8	0.06325	0.1414	1.84%	0		
5		5	7.7	7.504	7.896	7.5	7.9	0.07071	0.1581	2.05%	0		
		5	7.7	7.468	7.932	7.5	8	0.08367	0.1871	2.43%	0		
		5	7.76	7.371	8.149	7.5	8.3	0.14	0.313	4.03%	0		
)		5	23.66	-21	68.32	7.4	88	16.09	35.97	152.0%	0		
erall		30	10.36	4.88	15.83	7.4	88	2.678	14.67	141.60%	0 (0%)		
nperature-°	С												
nc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
	N	5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0		
5		5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0		
5		5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0		
		5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0		
		5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0		
)		5	24.04	23.97	24.11	24	24.1	0.02445	0.05468	0.23%	0		
5	N	5 5 5 5	24.04 24.04 24.04 24.04	23.97 23.97 23.97 23.97	24.11 24.11 24.11 24.11	24 24 24 24	24.1 24.1 24.1 24.1	0.02445 0.02445 0.02445 0.02445	0.05468 0.05468 0.05468 0.05468 0.05468	0.23 0.23 0.23 0.23	% % % % %		

0.21%

0 (0%)

Overall

24.06

24

24.1

0.009097 0.04983

30

24.04

24.02

CETIS Measurement Report

Report Date:

06 Dec-16 15:55 (p 2 of 2)

Test Code:

VCF1016.357 | 11-4467-2589

Selenastrum	Growth Test						Aquatic Bioassay & Consulting Labs, Inc
Alkalinity (Ca	CO3)-mg/L	0.					
Conc-%	Code	1	2	3	4	5	
0	N	69					
100		69					
Conductivity-	μmhos						
Conc-%	Code	1	2	3	4	5	
0	N	427	448	451	461	463	
6.25		393	409	412	412	415	
12.5		405	402	402	403	404	
25		382	377	378	382	384	
50		334	333	334	338	336	
100		238	237	241	246	249	
Dissolved Ox	ygen-mg/L						
Conc-%	Code	1	2	3	4	5	
0	N						
6.25							
12.5							
25							
50							
100							
Hardness (Ca	CO3)-mg/L						
	CO3)-mg/L Code	1	2	3	4	5	
Conc-%		1	2	3	4	5	
Conc-%	Code		2	3	4	5	
Conc-% 0 100	Code	99	2	3	4	5	
Conc-% 0 100 pH-Units	Code	99					
Conc-% 0 100 pH-Units Conc-%	Code N	99 75	2 2 7.7	3 3 7.5	4 7.8	5 5 7.4	
Conc-% 0 100 pH-Units Conc-%	Code N Code	99 75 1	2	3	4	5	
Conc-% 100 pH-Units Conc-% 3 25	Code N Code	99 75 1 7.7	2 7.7	3 7.5	4 7.8	5 7.4 7.5	
Conc-% 0 100 pH-Units Conc-% 0 3.25	Code N Code	99 75 1 7.7 7.8	2 7.7 7.6	3 7.5 7.8	4 7.8 7.8	5 7.4	
Conc-% 0 100 pH-Units Conc-% 0 6 25 12.5	Code N Code	99 75 1 7.7 7.8 7.9	2 7.7 7.6 7.6	3 7.5 7.8 7.8	4 7.8 7.8 7.7	5 7.4 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25	Code N Code	99 75 1 7.7 7.8 7.9 8	2 7.7 7.6 7.6 7.6	3 7.5 7.8 7.8 7.7	4 7.8 7.8 7.7 7.7	5 7.4 7.5 7.5 7.5	
Hardness (Car Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 50 100 Temperature-°	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3	2 7.7 7.6 7.6 7.6 7.6	3 7.5 7.8 7.8 7.7 7.7	7.8 7.8 7.7 7.7 7.7	5 7.4 7.5 7.5 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 50 100 Temperature-° Conc-%	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3	2 7.7 7.6 7.6 7.6 7.6	3 7.5 7.8 7.8 7.7 7.7	7.8 7.8 7.7 7.7 7.7	5 7.4 7.5 7.5 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 50	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3 88	2 7.7 7.6 7.6 7.6 7.6 7.6 7.4	3 7.5 7.8 7.8 7.7 7.7	7.8 7.8 7.7 7.7 7.7 7.7	5 7.4 7.5 7.5 7.5 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 100 Femperature-° Conc-% 0 6.25	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3 88 1 24.1 24.1	2 7.7 7.6 7.6 7.6 7.6 7.4	3 7.5 7.8 7.8 7.7 7.7 7.7 3 24.1 24.1	4 7.8 7.8 7.7 7.7 7.7 7.7 4 24 24	5 7.4 7.5 7.5 7.5 7.5 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 100 Femperature-° Conc-% 0 6.25 12.5	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3 88	2 7.7 7.6 7.6 7.6 7.6 7.4	3 7.5 7.8 7.8 7.7 7.7 7.7 3 24.1	7.8 7.8 7.7 7.7 7.7 7.7 7.7	5 7.4 7.5 7.5 7.5 7.5 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 100 Femperature-° Conc-% 0 6.25 12.5	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3 88 1 24.1 24.1	2 7.7 7.6 7.6 7.6 7.6 7.4	3 7.5 7.8 7.8 7.7 7.7 7.7 3 24.1 24.1	4 7.8 7.8 7.7 7.7 7.7 7.7 4 24 24	5 7.4 7.5 7.5 7.5 7.5 7.5 7.5	
Conc-% 0 100 pH-Units Conc-% 0 6.25 12.5 25 50 100 Temperature-° Conc-%	Code N Code N	99 75 1 7.7 7.8 7.9 8 8.3 88 1 24.1 24.1 24.1	2 7.7 7.6 7.6 7.6 7.6 7.4 2 24 24 24	3 7.5 7.8 7.8 7.7 7.7 7.7 3 24.1 24.1 24.1	4 7.8 7.8 7.7 7.7 7.7 7.7 4 24 24 24 24	5 7.4 7.5 7.5 7.5 7.5 7.5 7.5	

000-971-144-8 Ventura Countywide Stormwater Quality

Management Program 2016/17 Annual Report

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Analyst: QA Attachment D Appendix



Chain of Custody Record

Ventura County Watershed Protection District

NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season Toxicity - ABC Laboratories

Side 1 of 2

SAMPLE ID	DATE/T		Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyrifera)	Chronic toxicity - purple sea urchin (Strongylocentrotus purpuratus)	Chronic toxicity - fathead minnow (<i>Pimephales promelas</i>)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	NOTES POMPECA
ME-CC	tohalib	0900	X							2	NOTES POM C Ut Note 1, Note 2, Note 3 13.8 GZ
ME-SCR						X				1	Note 1, Note 2, Note 3
ME-VR2			X							2	Note 1, Note 2, Note 3
MO-CAM							X			2	Note 1, Note 2, Note 3
MO-OJA							X			2	Note 1, Note 2, Note 3
MO-MEI							X			2	Note 1, Note 2, Note 3
MO-VEN	10 28 15	0655- (975	5	14			X		2	Note 1, Note 2, Note 3 7.2
Relinquished	Printed Name Signature Affiliation		Jonny	, fee	-10DE Hell	1	Date/1	[in:/	0 1281	16	1055 PD7
Received	Printed Name		MA	7Wh,	19.						
	Signature	0	not	V							
	Affiliation	M	BC U	ABS.		_	Date/7	im	10%	B	20/1007



Sampling Date:

Chain of Custody Record

Ventura County Watershed Protection District NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season

Toxicity - ABC Laboratories

Project Number: 2016/17-1 (Wet)

Side 2 of 2

Sampling Team:							3			
SAMPLE ID	DATE/TIME COLLECTED	Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyrifera)	Chronic toxicity - purple sea urchin (Strongylocentrotus purpuratus)	Chronic toxicity - fathead minnow (Pimephales promelas)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	NOTES
MO-OXN	10/28/16 4015	07	5	8		X			2	Note 1, Note 2, Note 3
MO-HUE			-				Х		3	Note 1, Note 2, Note 3,Note 4
мо-тно							Х		2	Note 1, Note 2, Note 3
MO-MPK								Х	2	Note 1, Note 2, Note 3
MO-SIM							Х		2	Note 1, Note 2, Note 3
MO-FIL							Х		2	Note 1, Note 2, Note 3
MO-SPA						X	-		2	Note 1, Note 2, Note 3
Relinquished	Printed Name Signature Affiliation					Date/	Tin:			
Received	Printed Name Signature					A.				
Oah an Nicker	Affiliation 6.25	0/ 10 5	0/ 050/	′ E09/	100%	Date/				TIP if moutality > 50%
Other Notes:	Note 1: Dilutions - 6.25 Note 3: Notify District								cute	e TIE if mortality > 50%
	Note 4: If salinity >2 pp								elt :	unavailable, use <i>Hyalella</i>



Chain of Custody Record

Ventura County Watershed Protection District

NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season

Toxicity - ABC Laboratories

Side 1 of 2

Sampling Date:	10-28-16 Lara Meeke					Projec	t Numl	ber: <u>20</u>	16/	17-1 (Wet)	
Sampling Team:	Lara Meeke	CE	Scot	160	ees				_		
SAMPLE ID	DATE/TIME COLLECTED	Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyrifera)	Chronic toxicity - purple sea urchin (Strongylocentrotus purpuratus)	Chronic toxicity - fathead minnow (Pimephales promelas)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	NOTES TOMES	tudnyak 28
ME-CC		X						-	2	Note 1, Note 2, Note 3	
ME-SCR					X		- N		1	Note 1, Note 2, Note 3	
ME-VR2	10/28/16 0720	X	:34	14					2	Note 1, Note 2, Note 3 8,8° (=	2015
MO-CAM						X			-2	Note 1, Note 2, Note 3	
MO-OJA	10/28/16 0420					X			2	Note 1, Note 2, Note 3 7,3 6	(a.) = 6
MO-MEI	10/28/16 0555					Х			2	Note 1, Note 2, Note 3 8 5 2	1/1 = u
MO-VEN							X		2	Note 1, Note 2, Note 3	/ \ {
	-									R	
Relinquished	Signature 300	sa na NP	M Y	eek M	er n	Date/	Tim	10-7	28	46 9:47	
Received	Printed Name Signature	in	Wi	lu	oak	<u>e</u>	_				
	Affiliation AB	_				Date/	Tim	0-21	K-1	6 9.47	
Other Notes:	Note 1: Dilutions - 6.25%								cute	TIE if mortality > 50%	
	Note 3: Notify District w	rithin 2	4 hours	if sign	ificant	toxicity	is obs	erved.			



Chain of Custody Record

Ventura County Watershed Protection District

NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season

Toxicity - ABC Laboratories

Side 2 of 2

			4							
SAMPLE ID	DATE/TIME COLLECTED	Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyrifera)	Chronic toxicity - purple sea urchin (Strongylocentrous purpuratus)	Chronic toxicity - fathead minnow (Pimephales promelas)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	NOTES
MO-OXN						X			-	Note 1, Note 2, Note 3
MO-HUE							X		3	Note 1, Note 2, Note 3, Note 4
мо-тно	10/18/16 10:10						X		2	Note 1, Note 2, Note 3
MO-MPK	10/26/16 08:15					1		X	2	Note 1, Note 2, Note 3
MO-SIM	10/20/16 09:10						X		2	Note 1, Note 2, Note 3
MO-FIL	roleelig 01:00						X		2	Note 1, Note 2, Note 3
MO-SPA	10/28/16 06:15					X			2	Note 1, Note 2, Note 3
Relinquished	Printed Name SEA		Can	~		Date/	Tim /	0/29/	/6	l0:'50
Received		MAC	MRO	, NJ		,				
	Signature	mo	6							
	Affiliation	BC	As	5	_	Date/	Tin	10 2	X	74 / 1218
Other Notes:	Note 1: Dilutions - 6.259	% 12 5 ⁹	% 25%	50%	100%	Note	2. Ple	ace eve	cute	e TIE if mortality > 50%

NIt3

3.7



January 6, 2017

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-CAM

DATE RECEIVED:

11/21/2016

ABC LAB. NO.:

SURVIVAL

VCF1116.215

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

12.50 %

>100.00 %

TUc = 8.00 EC25 = 28.12 % EC50 = 60.00 % $BIOMASS \qquad NOEC = 25.00 \%$ TUc = 4.00 IC25 = 31.76 %

IC50 =

NOEC =

*NOTE: TIE Initiated due to <50.00% survival.

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

06 Jan-17 09:58 (p 1 of 2)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minr	now 7-d Larval Survi													
	.ov i a zartaroarti	val and Growt	h Test				Aquatio	: Bioassay &	Aquatic Bioassay & Consulting Labs, In					
Batch ID:	08-2433-2088	Test Type:	Growth-Surviv	al (7d)		An	alyst:							
Start Date:	22 Nov-16 11:23	Protocol:	EPA/821/R-02	-013 (2002)		Dil	uent: La	aboratory Wat	er					
Ending Date:	29 Nov-16 09:25	Species:	Pimephales pr	omelas		Bri	ne: N	ot Applicable						
Duration:	6d 22h	Source:	Aquatic Biosys	stems, CO		Age	e:							
Sample ID:	11-9291-7102	Code:	VCF1116.215			Clie	ent: V	CWPD						
Sample Date:	20 Nov-16 21:45	Material:	Sample Water			Pro	oject:							
Receipt Date:	21 Nov-16 08:42	Source:	Bioassay Repo	ort										
Sample Age:	38h (7.5 °C)	Station:	MO-CAM											
Multiple Com	parison Summary													
Analysis ID	Endpoint	Comp	arison Method			NOEL	LOEL	TOEL	TU	PMSI				
07-8855-2784	7d Survival Rate	Dunne	ett Multiple Com	parison Tes	t	12.5	25	17.68	8	12.5%				
05-0069-9083	Mean Dry Biomass-r	ng Dunne	ett Multiple Com	parison Tes	t	25	50	35.36	4	18.5%				
Point Estimat	e Summary													
Analysis ID	Endpoint	Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	TU				
19-5284-0586	7d Survival Rate	Linear	Interpolation (I	CPIN)		EC5	9.375	4.375	20.09	10.67				
						EC10	15.28	7.5	33,91	6,545				
						EC15	19.44	10.83	36.03	5.143				
						EC20	23.61	15.06	38.44	4.235				
						EC25	28.12	17.79	40.72	3.556				
						EC40	42.19	30.69	73.51	2.37				
						EC50	60	34.59	n/a	1.667				
04-3780-5913	Mean Dry Biomass-n	ng Linear	Interpolation (I	CPIN)		IC5	8.515	7.169	15.14	11.74				
						IC10	10.78	8.087	22.19	9.277				
						IC15	14.72	7.998	39.67	6.792				
						IC20	23.99	4.717	49.46	4.169				
						IC20 IC25	23.99 31.76	4,717 13,56	49,46 73,83	4.169 3.149				
						IC25	31.76	13.56	73.83	3.149				
						IC25 IC40	31.76 65.91	13,56 27.2	73,83 n/a	3.149 1.517				
Test Accentar	aility					IC25 IC40 IC50	31.76	13.56	73.83	3.149				
	_	Attrib	ıte	Test Stat		IC25 IC40 IC50	31.76 65.91 >100	13.56 27.2 n/a	73,83 n/a	3.149 1.517				
Analysis ID	Endpoint	Attribu		Test Stat	Lower	IC25 IC40 IC50 Limits Upper	31.76 65.91 >100 Overlap	13.56 27.2 n/a	73.83 n/a n/a	3.149 1.517				
Analysis ID 07-8855-2784	Endpoint 7d Survival Rate	Contro	l Resp	Test Stat	Lower 0.8	IC25 IC40 IC50 Limits Upper >>	31.76 65.91 >100 Overlap Yes	13.56 27.2 n/a Decision Passes Cr	73.83 n/a n/a	3.149 1.517				
Analysis ID 07-8855-2784 19-5284-0586	Endpoint 7d Survival Rate 7d Survival Rate	Contro	l Resp I Resp	1	0.8 0.8	IC25 IC40 IC50 Limits Upper >> >>	31.76 65.91 >100 Overlap Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr	73.83 n/a n/a riteria	3.149 1.517				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m	Contro Contro	l Resp I Resp I Resp	1 1 0.2653	0.8 0.8 0.25	IC25 IC40 IC50 Limits Upper >> >>	31.76 65.91 >100 Overlap Yes Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr	73.83 n/a n/a viteria iteria	3.149 1.517				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083	Endpoint 7d Survival Rate 7d Survival Rate	Contro Contro ng Contro	ol Resp ol Resp ol Resp ol Resp	1	0.8 0.8	IC25 IC40 IC50 Limits Upper >> >>	31.76 65.91 >100 Overlap Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr	73.83 n/a n/a iteria iteria iteria iteria	3.149 1.517				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m	Contro Contro ng Contro	ol Resp ol Resp ol Resp ol Resp	1 1 0.2653 0.2653	0.8 0.8 0.25 0.25	IC25 IC40 IC50 Limits Upper >> >> >>	31.76 65.91 >100 Overlap Yes Yes Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr	73.83 n/a n/a iteria iteria iteria iteria	3.149 1.517				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m	Control Control Gord Gord Gord GORD Control GORD CONTROL GORD GORD GORD GORD GORD GORD GORD GORD	ol Resp ol Resp ol Resp ol Resp	1 1 0.2653 0.2653 0.185	0.8 0.8 0.25 0.25 0.12	IC25 IC40 IC50 Limits Upper >> >> >>	31.76 65.91 >100 Overlap Yes Yes Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr	73.83 n/a n/a iteria iteria iteria iteria	3.149 1.517				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary	Control Control Gord Gord Gord GORD Control GORD CONTROL GORD GORD GORD GORD GORD GORD GORD GORD	ol Resp ol Resp ol Resp ol Resp 95% LCL	1 1 0.2653 0.2653 0.185	0.8 0.8 0.25 0.25 0.12	IC25 IC40 IC50 Limits Upper >> >> >> >>	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Passes Cr	73.83 n/a n/a riteria riteria riteria riteria riteria	3.149 1.517 <1				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m ate Summary Code Code	Control Control Gordon Gordon GORDON Control GORDON CONTROL GORDON Mean	ol Resp ol Resp ol Resp ol Resp ol Resp	1 1 0.2653 0.2653 0.185	0.8 0.8 0.25 0.25 0.12	IC25 IC40 IC50 Limits Upper >> >> >> >>	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Passes Cr Std Dev	73.83 n/a n/a riteria riteria riteria riteria riteria riteria	3.149 1.517 <1				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Code N 4	Control Control Gorg Control Gorg Control Gorg PMSD unt Mean 1.0000	ol Resp ol Resp ol Resp ol Resp ol Resp 1.0000 0.9054	1 0.2653 0.2653 0.185 95% UCL 1.0000	0.8 0.8 0.25 0.25 0.12 Min 1.0000	IC25 IC40 IC50 Limits Upper >> >> >> 0.3	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes Yes	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000	73.83 n/a n/a riteria riteria riteria riteria riteria riteria riteria 0.00%	3.149 1.517 <1 %Effe 0.00%				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Cod N 4 4	Control Contro	95% LCL 1.0000 0.9054 0.8108	1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333	IC25 IC40 IC50 Limits Upper >> >> >> 0.3	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes O.0000 0.0193	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385	73.83 n/a n/a niteria riteria riteria riteria riteria riteria riteria 3.98%	3.149 1.517 <1 %Effe 0.00% 3.33%				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25 12.5	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Coo N 4 4 4	Control Contro	95% LCL 1.0000 0.9054 0.5481	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333 0.8667	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes O.0000 0.0193 0.0385	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770	73.83 n/a n/a iteria iteria iteria iteria iteria 2 CV% 0.00% 3.98% 8.25%	%Effe 0.00% 3.33% 6.67%				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25 12.5	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Cor N 4 4 4 4 4	Contro Contro Ing Contro Ing Contro Ing PMSD Unt Mean 1.0000 0.9667 0.9333 0.7833	95% LCL 1.0000 0.8108 0.5481 0.2814	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333 0.8667 0.6667	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000 1.0000	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478	73.83 n/a n/a n/a riteria riteria riteria riteria riteria riteria 8 0.00% 3.98% 8.25% 18.87%	%Effe 0.00% 3.33% 6.67% 21.679				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Coo N 4 4 4 4 4 4	Contro Contro Ing Contro Ing Contro Ing PMSD Int Mean 1.0000 0.9667 0.9333 0.7833 0.5167	95% LCL 1.0000 0.8108 0.5481 0.2814	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333 0.8667 0.6667 0.4000	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000 1.0000 0.7333	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478	73.83 n/a n/a n/a riteria 200% 3.98% 8.25% 18.87% 28.61%	%Effe 0.00% 3.33% 6.67% 48.33°				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 0.3.25 12.5 15.00 00 Mean Dry Bior	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Coo N 4 4 4 4 4 4 4 4 7 Code Coo	Contro Contro Ing Contro Ing Contro Ing PMSD Unt Mean 1.0000 0.9667 0.9333 0.7833 0.5167 0.4333	95% LCL 1.0000 0.8108 0.5481 0.2814	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333 0.8667 0.6667 0.4000	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000 1.0000 0.7333	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739 0.0577 Std Err	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478 0.1155 Std Dev	73.83 n/a n/a n/a riteria 200% 3.98% 8.25% 18.87% 28.61%	%Effe 0.00% 3.33% 6.67% 48.33°				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25 12.5 60 100 Mean Dry Bior	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Coo N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Ing Contro Ing Contro Ing PMSD Unt Mean 1.0000 0.9667 0.9333 0.7833 0.5167 0.4333	95% LCL 1.0000 0.9054 0.2814 0.2496	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519 0.6171	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333 0.8667 0.6667 0.4000 0.3333	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000 0.7333 0.6000	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739 0.0577	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478 0.1155 Std Dev	73.83 n/a n/a n/a riteria riteria riteria riteria riteria riteria riteria 20.00% 3.98% 8.25% 18.87% 28.61% 26.65%	%Effe 0.00% 3.33% 6.67% 48.33° 56.67°				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25 12.5 60 100 Mean Dry Bior	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Coo N 4 4 4 4 4 4 4 4 7 Code Coo	Contro Contro Ing Contro Ing Contro Ing PMSD Unt Mean 1.0000 0.9667 0.9333 0.7833 0.5167 0.4333	95% LCL 1.0000 0.9054 0.2814 0.2496	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519 0.6171	0.8 0.8 0.25 0.25 0.12 Min 1.0000 0.9333 0.8667 0.6667 0.4000 0.3333	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000 0.7333 0.6000	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739 0.0577 Std Err	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478 0.1155 Std Dev 0.001264	73.83 n/a n/a n/a riteria riteria riteria riteria riteria riteria riteria 20.00% 3.98% 8.25% 18.87% 28.61% 26.65%	%Effe 0.00% 3.33% 6.67% 48.333 56.67%				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083 05-0069-9083	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Cod N 4 4 4 4 4 4 4 4 4 7 mass-mg Summary Code Cod N 4	Contro Contro Ing Contro Ing Contro Ing PMSD Int Mean 1.0000 0.9667 0.9333 0.7833 0.5167 0.4333 Int Mean 0.2653	95% LCL 1.0000 0.9054 0.2496 95% LCL 0.2452 0.2733	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519 0.6171 95% UCL 0.2854	Min 1.0000 0.3333 0.8667 0.4000 0.3333 Min 0.25	IC25 IC40 IC50 Limits Upper >> >> 0.3 Max 1.0000 1.0000 1.0000 0.7333 0.6000 Max 0.2767	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739 0.0577 Std Err 0.006318	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478 0.1155 Std Dev 0.001264	73.83 n/a n/a n/a iiteria iiteria iiteria iiteria iiteria 200% 3.98% 8.25% 18.87% 28.61% 26.65% CV% 4.76%	%Effe 0.00% 3.33% 6.67% 21.679 48.339 56.679 %Effe 0.00%				
Analysis ID 07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Code N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Contro Contro Ing Contro Ing Contro Ing PMSD Int Mean 1.0000 0.9667 0.9333 0.7833 0.5167 0.4333 Int Mean 0.2653 0.283	95% LCL 1.0000 0.9054 0.2814 0.2496 95% LCL 0.2452 0.2733 0.1847	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519 0.6171 95% UCL 0.2854 0.2927	Min 0.25 0.4000 0.3333 Min 0.25 0.2767	IC25 IC40 IC50 Limits Upper >> >> >> 0.3 Max 1.0000 1.0000 1.0000 0.7333 0.6000 Max 0.2767 0.29	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739 0.0577 Std Err 0.006318 0.003048	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478 0.1155 Std Dev 0.01264 0.006098	73.83 n/a n/a n/a iiteria iiteria iiteria iiteria iiteria 20.00% 3.98% 8.25% 18.87% 28.61% 26.65% CV% 4.76% 2.15%	%Effe 0.00% 3.33% 6.67% 48.33° 56.67° %Effe 0.00% -6.66%				
07-8855-2784 19-5284-0586 04-3780-5913 05-0069-9083 05-0069-9083 7d Survival Ra Conc-% 0 3.25 12.5 25 50	Endpoint 7d Survival Rate 7d Survival Rate Mean Dry Biomass-m Mean Dry Biomass-m Mean Dry Biomass-m Ate Summary Code Code N 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Control Contro	95% LCL 1.0000 0.9054 0.2814 0.2496 95% LCL 0.2452 0.2733 0.1847 0.1616	1 1 0.2653 0.2653 0.185 95% UCL 1.0000 1.0000 1.0000 0.7519 0.6171 95% UCL 0.2854 0.2927 0.288	Min 0.25 0.4000 0.3333 Min 0.25 0.2767 0.2007	IC25 IC40 IC50 Limits Upper >> >> 0.3 Max 1.0000 1.0000 1.0000 0.7333 0.6000 Max 0.2767 0.29 0.268	31.76 65.91 >100 Overlap Yes Yes Yes Yes Yes O.0000 0.0193 0.0385 0.0739 0.0739 0.0577 Std Err 0.0006319 0.003048 0.001624	13.56 27.2 n/a Decision Passes Cr Passes Cr Passes Cr Passes Cr Std Dev 0.0000 0.0385 0.0770 0.1478 0.1478 0.1155 Std Dev 0.001264 0.006098 0.03248	73.83 n/a n/a n/a iiteria iiteria iiteria iiteria iiteria 20.00% 3.98% 8.25% 18.87% 28.61% 26.65% CV% 4.76% 2.15% 13.74%	%Effe 0.00% 3.33% 6.67% 21.679 48.339 56.679 %Effe 0.00% -6.669 10.939				



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Report Date:

06 Jan-17 09:58 (p 2 of 2)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minno	ow 7-d Larval	Survival an	d Growth T	est		Aquatic Bioassay & Consulting Labs, Inc.
7d Survival Ra	nte Detail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	0.9333	0.9333	
12.5		0.8667	1.0000	0.8667	1.0000	
25		0.6667	1.0000	0.7333	0.7333	
50		0.4667	0.4667	0.4000	0,7333	
100		0.4000	0.4000	0.3333	0.6000	
Mean Dry Bion	nass-mg Deta	nil				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.26	0.25	0.2747	0.2767	
6.25		0.2767	0.2793	0.286	0.29	
12,5		0.2173	0.268	0.2007	0.2593	
25		0.1813	0.266	0.2087	0.2153	
50		0.156	0.1533	0.1427	0.2387	
100		0.1393	0.1413	0.1273	0.18	
7d Survival Ra	te Binomials					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	15/15	15/15	15/15	15/15	
6.25		15/15	15/15	14/15	14/15	
12.5		13/15	15/15	13/15	15/15	
25		10/15	15/15	11/15	11/15	
50		7/15	7/15	6/15	11/15	

6/15

6/15

5/15

9/15

Report Date:

06 Jan-17 09:58 (p 1 of 4)

Test Code:

VCF1116.215cf | 02-0862-2814

	7-u Larvai S	urvivai ai	nd Growth	Test				Aquatic	Dioassay o	Consulting	g Labs, I
	7-8855-2784		-	7d Survival Ra				IS Version		1.9.2	
Analyzed: 2	9 Nov-16 10:1	O Ar	nalysis:	Parametric-Co	ntrol vs Trea	itments	Offic	ial Result	s: Yes		
Batch ID: 08	-2433-2088	Te	-	Growth-Surviva			Anal	yst:			
Start Date: 22	Nov-16 11:23	3 Pr	otocol:	EPA/821/R-02	-013 (2002)		Dilu	ent: La	boratory Wa	ter	
Ending Date: 29	Nov-16 09:25	5 Sp	oecies:	Pimephales pr	omelas		Brin	e: No	t Applicable		
Duration: 6d	22h	Sc	ource:	Aquatic Biosys	tems, CO		Age:				
Sample ID: 11	-9291-7102	Co	ode:	VCF1116.215			Clie	nt: VC	:WPD		
Sample Date: 20	Nov-16 21:45	5 M a	aterial:	Sample Water			Proj	ect:			
Receipt Date: 21	Nov-16 08:42	2 Sc	ource:	Bioassay Repo	ort						
Sample Age: 38	h (7,5 °C)	St	ation:	MO-CAM							
Data Transform		Alt Hyp					NOEL	LOEL	TOEL	TU	PMS
Angular (Correcte	d)	C > T					12.5	25	17.68	8	12.52
Dunnett Multiple	Comparison	Test									
Control vs	Conc-%		Test S	tat Critical	MSD DE	P-Type	P-Value	Decision	η(α:5%)		
Negative Control	6.25		0.6827	2.407	0.232 6	CDF	0.5659	Non-Sigr	nificant Effec	et	
	12.5		1.267	2.407	0.232 6	CDF	0.3108	Non-Sigr	nificant Effec	ct .	
	25*		3.401	2.407	0.232 6	CDF	0.0066	Significa	nt Effect		
	50*		6.605	2.407	0.232 6	CDF	3.4E-05	Significa	nt Effect		
	100*		7.502	2.407	0.232 6	CDF	2.8E-05	Significa	nt Effect		
Test Acceptabilit	y Criteria	TAC	Limits								
Attribute	Test Stat	Lower	Upper	Overlap	Decision						
Control Resp	1	0.8	>>	Yes	Passes C	riteria					
ANOVA Table											
Source	Sum Squa	ares	Mean S	Square	DF	F Stat	P-Value	Decision	ι(α:5%)		
Between	1.87727		0.3754	55	5	20.18	8.3E-07	Significa	nt Effect		
	0.334956		0,0186	086	18						
Error			0,0186	086	18 23						
Error Total	0.334956 2.21223		0,0186	086							
Error Total Distributional Te	0.334956 2.21223		0,0186	086		Critical	P-Value	Decision	ι(α:1%)		
Error Total Distributional Te Attribute	0.334956 2.21223 sts	uality of V			23	Critical 4.248	P-Value 0.0324	Decisio r Equal Va			
Error Fotal Distributional Te Attribute Variances	0.334956 2.21223 sts Test		/ariance Te	est	23 Test Stat				riances		
Error Total Distributional Tes Attribute Variances Variances	0.334956 2.21223 sts Test Levene Eq Mod Lever	ne Equality	/ariance Te	est ce Test	23 Test Stat 3,15	4.248 4.248	0.0324	Equal Va Equal Va	riances		
Error Total Distributional Tes Attribute Variances Variances Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson-	ne Equality Darling A2	/ariance Te y of Varian 2 Normality	est ce Test	23 Test Stat 3.15 0.7551	4.248	0.0324 0.5934	Equal Va Equal Va Normal D	riances riances		
Error Total Distributional Tes Attribute Variances Variances Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever	ne Equality Darling A2 Kurtosis	/ariance Te y of Varian 2 Normality Test	est ce Test	23 Test Stat 3.15 0.7551 0.9198	4.248 4.248 3.878	0.0324 0.5934 0.0194	Equal Va Equal Va Normal D	riances riances Distribution		
Error Total Distributional Test Attribute Variances Variances Distribution Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino	ne Equality Darling A2 Kurtosis Skewnes	/ariance Te y of Varian ⊇ Normality Test ss Test	est ce Test Test	23 Test Stat 3.15 0.7551 0.9198 1.227	4.248 4.248 3.878 2.576	0.0324 0.5934 0.0194 0.2197	Equal Va Equal Va Normal D Normal D Normal D	riances riances distribution distribution		
Error Total Distributional Tes Attribute Variances Variances Distribution Distribution Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino	ne Equality Darling A2 o Kurtosis o Skewnes o-Pearson	/ariance Te y of Varian 2 Normality Test ss Test K2 Omnib	est ce Test Test	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01	4.248 4.248 3.878 2.576 2.576	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301	Equal Va Equal Va Normal D Normal D Normal D	riances riances distribution distribution	ion	
Error Total Distributional Test Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino	ne Equality Darling A2 Kurtosis Skewnes Pearson ov-Smirnov	/ariance Te y of Varian 2 Normality Test ss Test K2 Omnib y D Test	est ce Test Test us Test	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346	4.248 4.248 3.878 2.576 2.576 9.21	0.0324 0.5934 0.0194 0.2197 0.0190	Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances distribution distribution distribution distribution	ion	
Error Fotal Distributional Test Attribute /ariances /ariances Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W	ne Equality Darling A2 Kurtosis Skewnes Pearson ov-Smirnov	/ariance Te y of Varian 2 Normality Test ss Test K2 Omnib y D Test	est ce Test Test us Test	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083	4.248 4.248 3.878 2.576 2.576 9.21 0.2056	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084	Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances distribution distribution distribution distribution mal Distribut	ion	
Error Total Distributional Test Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W	ne Equality Darling A2 Kurtosis Skewnes Pearson ov-Smirnov	/ariance Te y of Varian 2 Normality Test ss Test K2 Omnib y D Test	est ce Test Test us Test	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083	4.248 4.248 3.878 2.576 2.576 9.21 0.2056	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084	Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances distribution distribution distribution distribution mal Distribut	ion	%Effec
Error Total Distributional Termander Variances Variances Distribution Vd Survival Rate Conc-%	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W Summary	ne Equality Darling A2 O Kurtosis O Skewnes O-Pearson OV-Smirnov	/ariance Te y of Varian 2 Normality Test es Test K2 Omnib y D Test mality Test	est ce Test Test us Test	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083 0.9029	4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084 0.0248	Equal Va Equal Va Normal E Normal E Normal E Non-Norr Normal E	riances riances bistribution bistribution bistribution bistribution nal Distribut bistribution		%Effec 0.00%
Error Total Distributional Ter Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Of Survival Rate Conc-%	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W Summary Code	ne Equality Darling A2 O Kurtosis O Skewnes O-Pearson OV-Smirnov (ilk W Norr	Variance Te y of Varian 2 Normality Test is Test K2 Omnib y D Test mality Test	est ce Test Test us Test 95% LCL	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083 0.9029 95% UCL	4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084 0.0248	Equal Va Equal Va Normal D Normal D Normal D Non-Norr Normal D	riances riances bistribution bistribution bistribution bistribution mal Distribut bistribution Std Err	CV%	
Error Total Distributional Test Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Of Survival Rate Conc-% 0 6.25	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W Summary Code	Darling A2 Darling A2 Kurtosis Skewnes Pearson V-Smirnov Count	Variance Te y of Varian 2 Normality Test ss Test K2 Omnib y D Test mality Test Mean 1.0000	est ce Test Test us Test 95% LCL 1.0000	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083 0.9029 95% UCL 1.0000	4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084 0.0248 Min 1.0000	Equal Va Equal Va Normal E Normal E Normal E Non-Norr Normal E	riances riances riances distribution distribution distribution mal Distribution distribution Std Err 0.0000	CV%	0.00%
Error Total Distributional Test Attribute Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Of Survival Rate Conc-% 0 6.25 12.5	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W Summary Code	Darling A2 Darling A2 Kurtosis Skewnes Pearson V-Smirnov filk W Norr Count 4	Variance Te y of Varian 2 Normality Test ss Test K2 Omnib y D Test mality Test Mean 1.0000 0.9667	est ce Test Test us Test 95% LCL 1.0000 0.9054	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083 0.9029 95% UCL 1.0000 1.0000	4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000 0.9667	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084 0.0248 Min 1.0000 0.9333	Equal Va Equal Va Normal E Normal E Non-Normal E Non-Normal E Max 1.0000	riances riances riances bistribution bistribution bistribution mal Distribution bistribution Std Err 0.0000 0.0192	CV% 0.00% 3.98%	0.00% 3.33% 6.67%
Distributional Test Attribute Variances Variances Distribution To Survival Rate Conc-% Distribution Distribution	0.334956 2.21223 sts Test Levene Eq Mod Lever Anderson- D'Agostino D'Agostino D'Agostino Kolmogoro Shapiro-W Summary Code	ne Equality Darling A2 b Kurtosis b Skewnes b-Pearson by-Smirnov filk W Norr Count 4 4 4	Variance Te y of Varian 2 Normality Test ss Test K2 Omnib y D Test mality Test Mean 1.0000 0.9667 0.9333	est ce Test Test us Test 95% LCL 1.0000 0.9054 0.8108	23 Test Stat 3.15 0.7551 0.9198 1.227 2.346 7.01 0.2083 0.9029 95% UCL 1.0000 1.0000 1.0000	4.248 4.248 3.878 2.576 2.576 9.21 0.2056 0.884 Median 1.0000 0.9667 0.9333	0.0324 0.5934 0.0194 0.2197 0.0190 0.0301 0.0084 0.0248 Min 1.0000 0.9333 0.8667	Equal Va Equal Va Normal E Normal E Non-Normal E Non-Normal E Max 1.0000 1.0000	riances riances riances bistribution bistribution bistribution mal Distribution bistribution Std Err 0.0000 0.0192 0.0385	CV% 0.00% 3.98% 8.25%	3.33%

Report Date:

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Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	07-8855-2784	Endpoint:	7d Survival Rate	CETIS Version:	CETISv1.9.2

Analyzed: 29 Nov-16 10:10 Analysis: Parametric-Control vs Treatments Official Results: Yes

Angular (Corrected)	Transformed Summary
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Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1,441	1_441	1.442	1.441	1.441	1.441	0	0.00%	0.00%
6.25		4	1.375	1.254	1.496	1.375	1.31	1.441	0.03802	5.53%	4.57%
12.5		4	1.319	1.095	1.544	1.319	1.197	1.441	0.07053	10.69%	8.48%
25		4	1.113	0.7609	1.466	1.028	0.9553	1.441	0.1107	19.89%	22,76%
50		4	0.8042	0.5614	1.047	0.752	0.6847	1.028	0.07631	18.98%	44.20%
100		4	0.7177	0.5318	0.9037	0.6847	0.6155	0.8861	0.05843	16.28%	50.20%

7d Survival Rate Detail

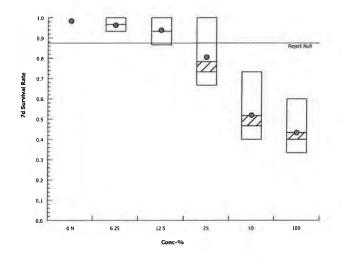
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	0.9333	0.9333	
12.5		0.8667	1.0000	0.8667	1.0000	
25		0.6667	1.0000	0,7333	0 7333	
50		0.4667	0.4667	0.4000	0.7333	
100		0.4000	0.4000	0.3333	0.6000	

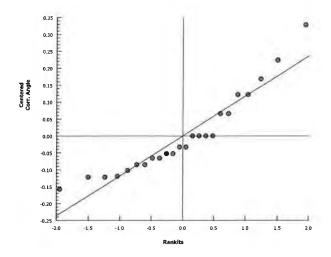
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.441	1.441	1.441	1.441	
6.25		1.441	1.441	1.31	1.31	
12.5		1.197	1,441	1.197	1_441	
25		0.9553	1.441	1.028	1.028	
50		0.752	0.752	0.6847	1.028	
100		0.6847	0.6847	0.6155	0.8861	

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
6.25		15/15	15/15	14/15	14/15
12.5		13/15	15/15	13/15	15/15
25		10/15	15/15	11/15	11/15
50		7/15	7/15	6/15	11/15
100		6/15	6/15	5/15	9/15





Report Date:

06 Jan-17 09:58 (p 3 of 4)

Test Code:

VCF1116.215cf | 02-0862-2814

	v 7-d Larval S	ourvivai a	ina Growt	ii iest				Aquatic	Bioassay &	Consum	y Labs, In		
•	05-0069-9083 05 Jan-17 11:1		ndpoint: nalysis:	Mean Dry Bior Parametric-Co	_	atments		'IS Versio cial Resul		.9.2			
Batch ID: 08	3-2433-2088	T	est Type:	Growth-Surviv	al (7d)		Ana	lyst:					
Start Date: 22	2 Nov-16 11:2	3 P	rotocol:	EPA/821/R-02	-013 (2002)		Diluent: Laboratory Water						
Ending Date: 29	9 Nov-16 09:2	5 S	pecies:	Pimephales pr	omelas		Brin	Brine: Not Applicable					
Duration: 60	d 22h	S	ource:	Aquatic Biosys	tems, CO		Age:						
Sample ID: 11	1-9291-7102	С	ode:	VCF1116.215			Clie	nt: V	CWPD				
Sample Date: 20	Nov-16 21:4	5 M	laterial:	Sample Water			Proj	ect:					
Receipt Date: 21	Nov-16 08:42	2 S	ource:	Bioassay Repo	ort								
Sample Age: 38	3h (7.5 °C)	S	tation:	MO-CAM									
Data Transform		Alt Hy	0				NOEL	LOEL	TOEL	TU	PMSD		
Untransformed		C > T					25	50	35.36	4	18_50%		
Dunnett Multiple	Comparisor	n Test											
Control vs	Conc-%		Test S	tat Critical	MSD DE	P-Type	P-Value	Decisio	n(α:5%)				
Negative Control	6.25		-0.866	3 2.407	0.049 6	CDF	0.9754	Non-Sig	nificant Effect				
	12.5		1.422	2,407	0.049 6	CDF	0.2539	•	nificant Effect				
	25		2.329	2.407	0.049 6	CDF	0.0579	Non-Sig	nificant Effect				
	50*		4.544	2.407	0.049 6	CDF	5.8E-04	Significa	int Effect				
	100*		5.802	2.407	0.049 6	CDF	6 5E-05	Significa	nt Effect				
Test Acceptabili	ty Criteria	TAC	Limits										
Attribute	Test Stat	Lower	Upper	Overlap	Decision								
Control Resp	0.2653	0.25	>>	Yes	Passes C	riteria							
PMSD	0.185	0.12	0.3	Yes	Passes C	riteria							
ANOVA Table													
Source	Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α: 5 %)				
Between	0.055457		0_0110	914	5	13.33	1.6E-05	Significa	nt Effect				
Error	0.0149723	}	0.0008	318	18								
Total	0.0704293	S			23								
Distributional Te	ests												
Attribute	Test				Test Stat	Critical	P-Value	Decisio	η(α:1%)				
√ariances	Bartlett Eq				9.876	15.09	0.0788	Equal Va					
/ariances	Levene Ed	uality of \	∕ariance T	est	2.215	4.248	0.0977	Equal Va	ariances				
/ariances	Mod Lever		-		0.7328	4.248	0.6083	Equal Va					
Distribution	Anderson-	Darling A	2 Normalit	y Test	0.6596	3.878	0.0854		Distribution				
Distribution	D'Agostino				1	2,576	0.3171		Distribution				
Distribution	D'Agostino			_	1.96	2.576	0.0499		Distribution				
Distribution	D'Agostino			ous Test	4.844	9.21	0.0887		Distribution				
Distribution	Kolmogoro				0.164	0.2056	0.0941		Distribution				
Distribution	Shapiro-W	lik W Nor	mality Tes	t	0.9327	0.884	0.1118	Normal [Distribution				
Mean Dry Bioma	•	ary											
	Code	Count	Mean	95% LCL		Median	Min	Max	Std Err	CV%	%Effect		
Conc-%	N	4	0.2653		0.2854	0.2673	0.25	0.2767	0.006319	4.76%	0.00%		
)		4	0.283	0.2733	0.2927	0.2827	0.2767	0.29	0.003049	2.15%	-6.66%		
) 5.25							0.000=	0.000	0.04004	40 740/	40.000/		
) 5.25 12.5		4	0.2363		0.288	0.2383	0.2007	0.268	0.01624	13.74%	10.93%		
0 6.25 12.5 25		4	0.2178	0.1616	0.274	0.212	0.2007	0.266	0.01624	13.74% 16.21%	10.93%		
Conc-% 0 6.25 12.5 25				0.1616									



Report Date:

06 Jan-17 09:58 (p 4 of 4)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minnov	/ 7-d	Larval	Survival	and	Growth	Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-0069-9083 05 Jan-17 11:10 Analyzed:

Endpoint: Mean Dry Biomass-mg Analysis:

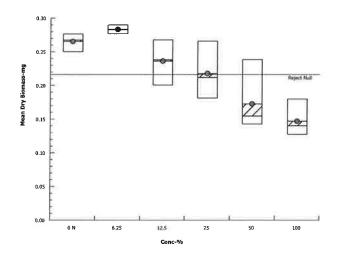
Parametric-Control vs Treatments

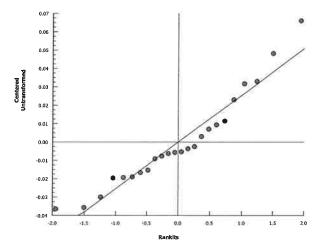
CETIS Version: Official Results:

CETISv1.9.2 Yes

Mean	Dry	Biomass-mg	Detail
------	-----	------------	--------

Code	Rep 1	Rep 2	Rep 3	Rep 4
N	0.26	0.25	0.2747	0.2767
	0.2767	0.2793	0.286	0.29
	0.2173	0.268	0.2007	0.2593
	0.1813	0.266	0.2087	0.2153
	0.156	0.1533	0.1427	0.2387
	0.1393	0.1413	0.1273	0.18
		N 0.26 0.2767 0.2173 0.1813 0.156	N 0.26 0.25 0.2767 0.2793 0.2173 0.268 0.1813 0.266 0.156 0.1533	N 0.26 0.25 0.2747 0.2767 0.2793 0.286 0.2173 0.268 0.2007 0.1813 0.266 0.2087 0.156 0.1533 0.1427





Report Date:

06 Jan-17 09:58 (p 1 of 4)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathea	nd Minn	ow 7-d Larval S	urvival and	d Growt	:h Test				Aquat	tic Bic	assay &	Consult	ing Labs, Ir
Analys		19-5284-0586			7d Survival Rat	te		C	ETIS Vers		CETISV		
Analyz		29 Nov-16 10:1		lysis:	Linear Interpola)		fficial Res		Yes		
Batch	ID:	08-2433-2088	Tes	t Type:	Growth-Surviva	i (7d)		Aı	nalyst:				
Start D		22 Nov-16 11:23		tocoi:	EPA/821/R-02-					Labora	atory Wat	er	
Ending	Date:	29 Nov-16 09:25		cies:	Pimephales pro	, ,					pplicable		
Duratio	-	6d 22h	_	rce:	Aquatic Biosyst			A	ge:		•		
Sample	e ID:	11-9291-7102	Cod	le:	VCF1116.215			CI	ient:	VCWF	PD		
Sample	e Date:	20 Nov-16 21:45	5 Mat	erial;	Sample Water			Pi	oject:				
Receip	t Date:	21 Nov-16 08:42	2 So u	rce:	Bioassay Repo	rt							
Sample	e Age:	38h (7 ₋ 5 °C)	Stat	ion:	MO-CAM								
Linear	Interpo	lation Options											
X Tran	sform	Y Transform	n See	d	Resamples	Exp 95%	CL Me	thod					
Linear		Linear	0		280	Yes	Tw	o-Point Inte	erpolation				
Test A	cceptab	ility Criteria	TAC L	imits									
Attribu	te	Test Stat		Uppe	r Overlap	Decision							
Control	Resp	1	0.8	>>	Yes	Passes C	riteria						
Point E	Stimate	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
EC5	9,375	4.375	20.09	10,67	4.978	22.86							
EC10	15.28	7.5	33.91	6.545	2.949	13.33							
EC15	19.44	10.83	36.03	5.143	2.776	9.231							
EC20	23.61	15.06	38.44	4.235	2.601	6.638							
EC25	28.12		40.72	3.556	2.455	5.621							
EC40	42.19	30.69	73.51	2.37	1.36	3.259							
EC50	60	34.59	n/a	1.667	n/a	2.891							
7d Sur	vival Ra	ite Summary				Calcu	lated Vari	ate(A/B)					
Conc-%	6	Code	Count	Mean		Max	Std Err	Std De			%Effect	A	В
)		N	4	1.0000		1,0000	0,0000	0,0000	0.00%		0.0%	60	60
5.25			4	0.9667		1.0000	0.0192	0.0385	3.98%		3.33%	58	60
12.5			4	0.9333		1.0000	0.0385	0.0770	8.25%		5.67%	56	60
25			4	0.7833		1.0000	0.0739	0.1478	18.879		21,67%	47	60
50			4	0.5167		0.7333	0.0739	0.1478	28.619		18.33%	31	60
100			4	0.4333	3 0.3333	0.6000	0.0577	0.1155	26 659	% 5	56.67%	26	60
		te Detail											
Conc-%	0	Code	Rep 1	Rep 2		Rep 4							
)		N	1.0000	1.0000		1,0000							
5.25			1.0000	1.0000		0.9333							
2.5			0.8667	1.0000		1.0000							
25			0.6667	1.0000		0.7333							
0			0.4667	0.4667		0.7333							
00			0.4000	0.4000	0.3333	0.6000							
'd Surv	/ival Ra	te Binomials											
Conc-%	, D	Code	Rep 1	Rep 2	Rep 3	Rep 4							
)		N	15/15	15/15	15/15	15/15							
3.25			15/15	15/15	14/15	14/15							
			13/15	15/15	13/15	15/15							
2.5			10/15	15/15	11/15	11/15							
12.5 25 50			10/15 7/15	15/15 7/15	11/15 6/15	11/15 11/15							



Report Date:

06 Jan-17 09:58 (p 2 of 4)

Test Code:

VCF1116,215cf | 02-0862-2814

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 19-5284-0586 **Analyzed:** 29 Nov-16 10:

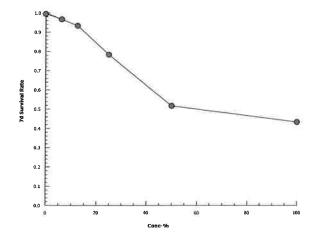
29 Nov-16 10:11 **Analysis:**

Endpoint: 7d Survival Rate

is: Linear Interpolation (ICPIN)

CETIS Version:
Official Results:

CETISv1.9.2



Report Date:

06 Jan-17 09:58 (p 3 of 4)

Test Code:

VCF1116.215cf | 02-0862-2814

								esi Code	•	VCI 1110,213	CI 02-0002-20 I
Vinnow 7-d	7-d Larval	Survival and	d Growt	h Test				Aqu	atic Bi	oassay & Consi	ılting Labs, Inc
	-3780-5913		dpoint:	•	•			ETIS Ver		CETISv1.9.2	
: 05 Ja	5 Jan-17 11:	10 Ana	alysis:	Linear Interpo	lation (ICPIN)	0	fficial Re	sults:	Yes	
08-243	2433-2088	Tes	t Type:	Growth-Surviv				nalyst:			
	Nov-16 11:2		tocol:	EPA/821/R-02	2-013 (2002)		D	iluent:	Labo	ratory Water	
ate: 29 Nov	Nov-16 09:2	5 Spe	ecies:	Pimephales p	romelas		В	rine:	Not A	Applicable	
6d 22i	22h	Sou	ırce:	Aquatic Biosys	stems, CO		Α	ge:			
	9291-7102	Cod	de:	VCF1116,215			С	lient:	VCW	'PD	
ate: 20 Nov	Nov-16 21:4	5 Mat	erial:	Sample Water	7		Р	roject:			
	Nov-16 08:4	2 So u	ırce:	Bioassay Rep	ort						
.ge: 38h (7.	1 (7.5 °C)	Stat	tion:	MO-CAM							
erpolation	on Options										
rm Y T	Y Transforr	n See	d	Resamples	Exp 95%		thod				
Line	Linear	0		280	Yes	Tw	o-Point Inte	erpolation			
ptability Cr	Criteria	TAC L	imits.								
	Test Stat	Lower	Uppe	r Overlap	Decision						
esp C	0.2653	0.25	>>	Yes	Passes C	riteria					
mates											
	95% LCL			95% LCL							
	7.169	15.14	11.74		13.95						
	8.087	22.19	9.277	4.506	12.37						
	7.998	39.67	6.792	2.521	12.5						
	4.717 13.56	49 46 73.83	4,169 3,149	2.022 1.354	21.2 7.374						
	27.2	n/a	1.517	n/a	3.676						
	n/a	n/a	<1.517	n/a	n/a						
				1174		- 1-4134					
	s-mg Sumn	_				culated V				0/ = 4	
	Code	Count	Mean	Min	Max	Std Err	Std De			%Effect	
N	N	4	0.2653		0.2767	0.006319				0.0%	
		4	0.283	0.2767 3 0.2007	0.29 0.268	0.003049 0.01624				-6.66% 10.93%	
		4	0.230		0.266	0.01624				17.9%	
		4	0.2170		0.2387	0.01700				34.92%	
		•	0.1727		0.2307					44.6%	
Biomass-m	s-ma Detail		• • • • • • • • • • • • • • • • • • • •	•	•,.•						
	Code	Rep 1	Rep 2	Rep 3	Rep 4						
	N	0.26	0.25	0.2747	0.2767						
		0.2767	0.2793		0,29						
		0.2173		0.2007	0.2593						
С		0.2767	Rep 2	0.2747 0.286 0.2007 0.2087 0.1427	Rep 4 0.2767 0.29	0.01143	0.0228	5 15,5	5%	44.6%	

Report Date:

06 Jan-17 09:58 (p 4 of 4)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minnow	7-d Larval	Survival and	Growth Test
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Aquatic Bioassay & Consulting Labs, Inc.

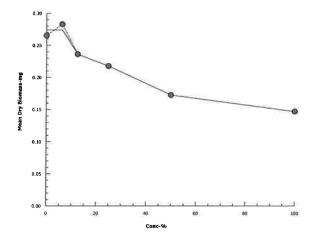
Analysis ID: Analyzed:

04-3780-5913 05 Jan-17 11:10 Endpoint: Mean Dry Biomass-mg Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

06 Jan-17 09:58 (p 1 of 2)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minr	now 7-d Larval	Surviva	l and Grow	th Test				Aquati	c Bioassay 8	Consultin	g Labs, Inc.		
Batch ID:	08-2433-2088		Test Type:	Growth-Surviv	/al (7d)			Analyst:					
Start Date:	22 Nov-16 11:	23	Protocol:	EPA/821/R-02	2-013 (2002))		Diluent: L	aboratory Wa	ater			
Ending Date:	29 Nov-16 09:	25	Species:	Pimephales p	romelas			Brine: Not Applicable					
Duration:	6d 22h		Source:	Aquatic Biosy	stems, CO			Age:					
Sample ID:	11-9291-7102		Code:	VCF1116.215 Client: VCWPD									
Sample Date:	20 Nov-16 21:	45	Material:	Sample Water	r			Project:					
Receipt Date:	21 Nov-16 08:	42	Source:	Bioassay Rep	ort								
Sample Age:	38h (7.5 °C)		Station:	MO-CAM									
Alkalinity (Ca	CO3)-mg/L												
Conc-%	Code	Coun	t Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Coun		
0	N	8	62.25	60.72	63.78	61	65	0.6478	1.832	2.94%	0		
100		1	75			75	75	0	0	0.0%	0		
Overall		9	63.67	60.14	67.19	61	75	1.528	4.583	7.20%	0 (0%)		
Conductivity-	µmhos												
Conc-%	Code	Coun	t Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
0	N	8	329.2	321	337.5	319	348	3,509	9,925	3.01%	0		
6.25		8	385.2	366.6	403.9	361	428	7.892	22.32	5.79%	0		
12.5		8	372.2	366	378.5	360	385	2.664	7.536	2.02%	0		
25		8	421.6	415.5	427.8	415	436	2.598	7.347	1.74%	0		
50		8	481.5	391.8	571.2	217	536	37.95	107.3	22.29%	0		
100		8	708.8	700.5	717	694	725	3.468	9.809	1.38%	0		
Overall		48	449.8	411.1	488.5	217	725	19.24	133.3	29.63%	0 (0%)		
Dissolved Oxy	ygen-mg/L												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
0	N	8	7.738	7,571	7.904	7.5	8,1	0.07055	0.1996	2.58%	0		
6.25		8	7.388	7.096	7.679	6.9	7.8	0.1231	0.3482	4.71%	0		
12.5		8	7.4	7.1	7.7	7	7.8	0.1268	0.3586	4.85%	0		
25		8	7.05	6.621	7.479	6.3	7.8	0.1813	0.5127	7.27%	0		
50		8	6.6	5.655	7.545	4.4	8	0.3996	1.13	17.12%	0		
100		8	6.263	5.147	7.378	4.1	8.6	0.4717	1.334	21.3%	0		
Overall		48	7.073	6.814	7.332	4.1	8.6	0.1289	0.8932	12.63%	0 (0%)		
Hardness (Ca	CO3)-mg/L												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
0	N	8	89.75	85.42	94.08	86	96	1.83	5.175	5.77%	0		
100		1	213			213	213	0	0	0.0%	0		
Overall		9	103.4	71.65	135.2	86	213	13.79	41_37	39.99%	0 (0%)		
pH-Units													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count		
0	N	8	7.863	7.722	8.003	7.5	8	0.05957	0.1685	2.14%	0		
6.25		8	8.212	8.13	8.295	8.1	8.4	0.03504	0.0991	1.21%	0		
12.5		8	8.075	7.898	8.252	7.8	8.4	0.075	0.2121	2.63%	0		
25		8	7.95	7.841	8.059	7.7	8.1	0.04629	0.1309	1.65%	0		
50		8	7,8	7.633	7.967	7.4	8	0.07071	0.2	2.56%	0		
100		8	7.55	7.395	7.705	7,2	7.8	0.06547	0.1852	2.45%	0		
		40	= 000	7.004	7.000	~ ^							



3.37%

0 (0%)

48

7.908

7.831

Overall

7.986

7.2

8.4

0.03846

0.2664

Report Date:

06 Jan-17 09:58 (p 2 of 2)

Test Code:

VCF1116.215cf | 02-0862-2814

Fathead Minn	d Minnow 7-d Larval Survival and Growth Test								Aquatic Bioassay & Consulting Labs, In				
Temperature-	°C												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Cou		
0	N	8	24.29	23.82	24.76	24	25.5	0.1995	0.5643	2.32%	0		
6.25		8	24.28	23.84	24.71	24	25.4	0.182	0.5148	2.12%	0		
12.5		8	24.3	23.83	24.77	24	25.6	0.1991	0,5632	2.32%	0		
25		8	24.25	23.88	24.62	24	25.3	0.1581	0.4472	1.84%	0		
50		8	24.18	23.86	24.49	24	25.1	0.1346	0.3808	1.58%	0		
100		8	24.16	23.84	24.48	24	25.1	0.1362	0.3852	1.59%	0		
Overall	200	48	24.24	24.11	24.37	24	25.6	0.06623	0.4589	1.89%	0 (0%)		
Alkalinity (Cat Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	63	61	61	61	61	61	65	65	_			
100	,,	75	01	01	O1	01	01	03	05				
Conductivity-	ımhoe	73											
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	336	320	319	326	324	325	336	348				
6.25		361	390	365	393	363	388	394	428				
12.5		375	368	360	369	371	371	379	385				
25		422	416	419	416	420	415	429	436				
50		514	512	507	514	217	532	520	536				
100		699	694	709	703	713	532 714	713	725				
Dissolved Oxy	raen-ma/l	099	094	709	703	713	/ 14	713	725				
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	7.6	7.6	7.8	7.9	7.6	7.8	7.5	8.1				
6.25		7.7	7.3	7.8	7.8	7.3	7	6.9	7.3				
12.5		7.7	7.6	7.8	7.8	7.1	7	7.2	7				
25		7.8	7.2	7.7	7	6.3	6.6	6.8	, 7				
50		8	4.4	6.9	7.4	6.5	5.6	7.2	6.8				
100		8.6	6.8	6.9	4,1	5	6.1	6.3	6.3				
Hardness (Ca	CO3)-ma/L	0.0	0,0	0,0	7,0		0.1	0.0	0.0				
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	96	86	86	86	86	86	96	96				
100		213											
pH-Units													
Conc-%	Code	1	2	3	4	5	6	7	8				
)	N	8	7.9	7.8	7.9	7.8	7.5	8	8				
5.25		8.2	8.4	8.1	8.3	8.2	8.2	8.1	8.2				
12.5		8.4	7.9	8.1	8	8.2	8.3	7.8	7.9				
25		8	8.1	8.1	8	7.9	7.9	7.7	7.9				
50		8	7.9	7.9	7.8	7.9	7.6	7.4	7.9				
100		7.7	7_8	7.4	7.6	7.2	7.5	7.6	7.6				
Femperature-°	С												
Conc-%	Code	1	2	3	4	5	6	7	8				
)	N	24	24.8	24	24	24	24	25.5	24				
5,25		24	24	24.7	24	24	24.1	25.4	24				
2.5		24	24	24.6	24	24.1	24.1	25.6	24				
25		24.2	24.1	24	24.4	24	24	25.3	24				
50		24	24.2	24	24	24	24.1	25.1	24				
00		24	24	24	24	24	24.2	25.1	24				





January 7, 2017

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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:

Ventura County Flood Control

SAMPLE I.D.:

MO-HUE

DATE RECEIVED:

11/21/2016

ABC LAB. NO.:

VCF1116.216

CHRONIC CERIODAPHNIA SURVIVAL & REPRODUCTION BIOASSAY

SURVIVAL	NOEC =	50.00 %
	TUc =	2.00
	IC25 =	60.53 %
	IC50 =	73.68 %
PERROPHOTION	NOEG	25.00.0/
REPRODUCTION	NOEC =	25.00 %
	TUc =	4.00
	IC25 =	37.80 %
	IC50 =	55.77 %

*NOTE: Salinity is 5g/L which is above the acceptable range for *Ceriodaphnia*.

Yoursylery truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

06 Jan-17 09:58 (p 1 of 2)

Test Code:

VCF1116.216cc | 17-2725-1188

						163	st Code.	VOFIII	0.21000 17	-2725-	110
Ceriodaphnia	7-d Survival and R	eproduction T	est				Aquati	ic Bioassay &	Consulting	Labs, I	lnc.
Batch ID:	00-8587-1102	Test Type:	Reproduction	n-Survival (7d))	An	alyst:	Joe Freas			
Start Date:	22 Nov-16 13:45	Protocol:	EPA/821/R-0	2-013 (2002)		Dil	uent: L	_aboratory Wat	er		
Ending Date:	29 Nov-16 11:45	Species:	Ceriodaphnia	dubia		Bri	ne: N	Not Applicable			
Duration:	6d 22h	Source:	Aquatic Bios	ystems, CO		Ag	e:				
Sample ID:	08-8553-6642	Code:	VCF1116.21	/CWPD							
Sample Date:	20 Nov-16 21:45	Material:	Sample Water	∍r		Pro	oject: 2	2016/17-2 (Wet)		
Receipt Date:	21 Nov-16 08:42	Source:	Bioassay Rej	port							
Sample Age:	40h	Station:	MO-HUE								
Comments:											
High Salinity 5	ppt										
Multiple Com	parison Summary										
Analysis ID	Endpoint	Comp	parison Metho	od		NOEL	LOEL	TOEL	TU	PMS	D <
13-1843-3425	7d Survival Rate	Fishe	r Exact/Bonfer	roni-Holm Tes	st	50	100	70,71	2	n/a	
09-6562-2405	Reproduction	Steel	Steel Many-One Rank Sum Test				50	35.36	4	27.0%	6 √ —
Point Estimat	e Summary										
Analysis ID	Endpoint	Point	Estimate Met	thod		Level	%	95% LCL	95% UCL	TU	√
08-0439-4297	7d Survival Rate	Linea	r Interpolation	(ICPIN)		EC5	50	2.5	52_5	2	
						EC10	52.63	5	55	1.9	
						EC15	55.26	50	57.5	1.81	
						EC20	57,89	52,94	60	1,727	
						EC25	60.53	55.88	62.5	1.652	
						EC40	68.42	64.71	70	1.462	
						EC50	73.68	70.59	75	1.357	
19-2008-7359	Reproduction	Linea	r Interpolation	(ICPIN)		IC5	23.75	2.72	28.53	4.211	✓
						IC10	27.93	5.439	32.07	3.581	√
						IC15	31.22	12.8	35.61	3.203	√
						IC20	34.51	18.6	39.43	2.898	✓
						IC25	37.8	23.16	43.22	2,645	✓
						IC40	47.68	38.68	55.39	2.097	✓
						IC50	55.77	47.31	62.82	1.793	✓
Test Acceptab	ility				TAC	Limits					
Analysis ID	Endpoint	Attrib	ute	Test Stat	Lower	Upper	Overla	p Decision			
8-0439-4297	7d Survival Rate	Contro	ol Resp	1	8.0	>>	Yes	Passes Cr	iteria		
3-1843-3425	7d Survival Rate	Contro	ol Resp	1	0.8	>>	Yes	Passes Cr	iteria		
9-6562-2405	Reproduction	n Control Resp 31.4 15 >> Yes Passes Criteria				iteria					
9-2008-7359	Reproduction	Control Resp 31.4 15				>>	Yes	Passes Cr	iteria		
9-6562-2405	Reproduction	PMSD)	0.2703	0.13	0.47	Yes	Passes Cr	iteria		

Report Date: Test Code: 06 Jan-17 09:58 (p 2 of 2) VCF1116.216cc | 17-2725-1188

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Ceriodaphnia 7	7-d Survival a	and Reprod	uction Test					Aquatic	Bioassay &	Consulting	Labs, Inc
7d Survival Ra	te Summary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
6.25		10	0.9000	0,6738	1.0000	0.0000	1,0000	0.1000	0.3162	35.14%	10.00%
12.5		10	1.0000	1_0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
25		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
50		10	1.0000	1.0000	1.0000	1,0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		10	0.0000	0.0000	0.0000	0,0000	0.0000	0.0000	0.0000		100.00%
Reproduction 9	Summary										
Сопс-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	10	31.4	26.64	36.16	23	39	2.104	6.653	21.19%	0.00%
6.25		10	31.5	24.86	38.14	12	42	2.937	9.289	29.49%	-0.32%
12.5		10	34.3	27.04	41.56	12	47	3.211	10.15	29.61%	-9.24%
25		10	30.6	22.05	39.15	0	43	3.778	11.95	39.04%	2.55%
50		10	18.3	14.02	22.58	8	26	1.892	5,982	32,69%	41,72%
100		10	0.1	-0.1262	0.3262	0	1	0.1	0.3162	316.23%	99.68%
7d Survival Rat	te Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		0.0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1,0000	1.0000	1.0000	1.0000
100		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Reproduction [Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	39	29	37	25	26	34	24	38	23	39
6.25		33	30	34	28	12	29	42	41	42	24
12.5		36	28	35	29	30	12	43	47	42	41
25		0	29	41	35	33	33	25	35	43	32
50		19	18	26	21	10	8	25	14	22	20
100		0	0	0	0	1	0	0	0	0	0
7d Survival Rat	e Binomials										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
					.,,			.,.			

0/1

0/1

0/1

0/1

0/1

0/1

0/1

0/1

0/1

0/1

100

Report Date:

06 Jan-17 09:58 (p 1 of 2)

Test Code:

VCF1116,216cc | 17-2725-1188

Ceriodaphnia 7	-d Surviva	and Repro	duction	lest

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-6562-2405 Endpoint: Reproduction **CETIS Version:** CETISv1.9.2

Analyzed: 06 Jan-17 9:45 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Batch ID: 00-8587-1102 Test Type: Reproduction-Survival (7d) Analyst: Joe Freas Start Date: 22 Nov-16 13:45 EPA/821/R-02-013 (2002) Diluent: Laboratory Water Protocol: Brine: Ending Date: 29 Nov-16 11:45 Species: Ceriodaphnia dubia Not Applicable

Duration: 6d 22h Aquatic Biosystems, CO Source: Age:

08-8553-6642 **VCWPD** Sample ID: Code: VCF1116.216 Client: Sample Date: 20 Nov-16 21:45 Material: Sample Water Project: 2016/17-2 (Wet)

Receipt Date: 21 Nov-16 08:42 Source: Bioassay Report Sample Age: 40h Station: MO-HUE

Comments:

High Salinity 5ppt

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	25	50	35.36	4	27.03%

Steel Many-One Rank Sum Test

Control vs	Conc-%	Test Stat	Critical	Ties	DF P-Type	P-Value	Decision(a:5%)
Negative Control	6.25	110.5	75	3	18 Asymp	0.9287	Non-Significant Effect
	12.5	120.5	75	1	18 Asymp	0.9913	Non-Significant Effect
	25	109	75	2	18 Asymp	0.9082	Non-Significant Effect
	50*	61	75	2	18 Asymp	0.0021	Significant Effect
	100*	55	75	0	18 Asymp	3.8E-04	Significant Effect

Test Acceptabili	ity Criteria	TAC	Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision	
Control Resp	31.4	15	>>	Yes	Passes Criteria	
PMSD	0.2703	0.13	0.47	Yes	Passes Criteria	

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	8635.53	1727.11	5	25.14	<1.0E-37	Significant Effect
Error	3710_4	68_7111	54			
Total	12345.9		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(a:1%)
Variances	Bartlett Equality of Variance Test	54.01	15.09	<1.0E-37	Unequal Variances
Variances	Levene Equality of Variance Test	2.879	3,377	0.0224	Equal Variances
Variances	Mod Levene Equality of Variance Test	2.356	3,377	0.0525	Equal Variances
Distribution	Anderson-Darling A2 Normality Test	1.361	3.878	0.0010	Non-Normal Distribution
Distribution	D'Agostino Kurtosis Test	3.14	2.576	0.0017	Non-Normal Distribution
Distribution	D'Agostino Skewness Test	3.817	2.576	1.4E-04	Non-Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus Test	24.43	9.21	5.0E-06	Non-Normal Distribution
Distribution	Kolmogorov-Smirnov D Test	0.1516	0.1331	0.0015	Non-Normal Distribution
Distribution	Shapiro-Wilk W Normality Test	0.9015	0,9459	1.5E-04	Non-Normal Distribution

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	10	31.4	26.64	36.16		23	39	2.104	21.19%	0.00%
6.25		10	31.5	24.86	38.14		12	42	2.937	29.49%	-0.32%
12.5		10	34.3	27.04	41.56		12	47	3.211	29.61%	-9.24%
25		10	30.6	22.05	39.15		0	43	3.778	39.04%	2.55%
50		10	18.3	14.02	22.58		8	26	1.892	32.69%	41.72%
100		10	0.1	-0.1262	0.3262		0	1	0.1	316,23%	99.68%

Report Date:

06 Jan-17 09:58 (p 2 of 2)

Test Code:

VCF1116.216cc | 17-2725-1188

Ceriodaphnia 7-d Survival and Reproduction Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

09-6562-2405 06 Jan-17 9:45 Endpoint: Reproduction

Analysis:

Nonparametric-Control vs Treatments

CETIS Version: Official Results: Yes

CETISv1.9.2

•	ı	ı	v	ı	a	ı	•	16
				_				

Reproduction	Reproduction Detail													
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10			
0	N	39	29	37	25	26	34	24	38	23	39			
6.25		33	30	34	28	12	29	42	41	42	24			
12.5		36	28	35	29	30	12	43	47	42	41			
25		0	29	41	35	33	33	25	35	43	32			
50		19	18	26	21	10	8	25	14	22	20			
100		0	0	0	0	1	0	0	0	0	0			

Report Date:

06 Jan-17 09:58 (p 1 of 4)

Test Code:

VCF1116,216cc | 17-2725-1188

Ceriodaphnia	7-d Survival and R	eproduction Te	est	Aqu	atic Bioassay & Consulting Labs, Inc
Analysis ID:	08-0439-4297	Endpoint:	7d Survival Rate	CETIS Ver	rsion: CETISv1.9.2
Analyzed:	06 Jan-17 9:45	Analysis:	Linear Interpolation (ICPIN)	Official Re	esults: Yes
Batch ID:	00-8587-1102	Test Type:	Reproduction-Survival (7d)	Analyst:	Joe Freas
Start Date:	22 Nov-16 13:45	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water
Ending Date:	29 Nov-16 11:45	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	6d 22h	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	08-8553-6642	Code:	VCF1116.216	Client:	VCWPD
Sample Date:	20 Nov-16 21:45	Material:	Sample Water	Project:	2016/17-2 (Wet)
Receipt Date:	21 Nov-16 08:42	Source:	Bioassay Report		
Sample Age:	40h	Station:	MO-HUE		

EC40

EC50

High Salinity 5ppt

Linear Interpolation Options

X Trans	sform	Y Transform	See	d R	esamples	Exp 95% CL	Method
Linear		Linear	0	28	30	Yes	Two-Point Interpolation
Test Ac	ceptabil	ity Criteria	TAC L	imits			
Attribu	te	Test Stat	Lower	Upper	Overlap	Decision	
Control	Resp	1	0.8	>>	Yes	Passes Criteria	
Point E	stimates	5					
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL	
EC5	50	2.5	52.5	2	1.905	40	
EC10	52.63	5	55	1.9	1,818	20	
EC15	55,26	50	57.5	1.81	1.739	2	
EC20	57.89	52.94	60	1.727	1.667	1.889	
EC25	60.53	55.88	62.5	1.652	1.6	1.789	

7d Survival Rate Summary				Calculated Variate(A/B)							
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	В
0	N	10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
6.25		10	0.9000	0.0000	1.0000	0.1000	0.3162	35.14%	10.0%	9	10
12.5		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
25		10	0.9000	0.0000	1.0000	0.1000	0.3162	35.14%	10.0%	9	10
50		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
100		10	0.0000	0.0000	0.0000	0.0000	0.0000		100.0%	0	10

1.545

1.417

7d Survival Rate Detail

68.42

73.68

64.71

70.59

70

75

1.462

1.357

1.429

1.333

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1_0000	1.0000	1,0000	1.0000	1,0000	1.0000
6,25		1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1,0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		0,0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



Report Date:

06 Jan-17 09:58 (p 2 of 4)

Test Code:

VCF1116.216cc | 17-2725-1188

Ceriodaphnia	7-d	Survival	and Re	production	Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 08-0439-4297 Analyzed: 06 Jan-17 9:45

Endpoint: 7d Survival Rate Analysis:

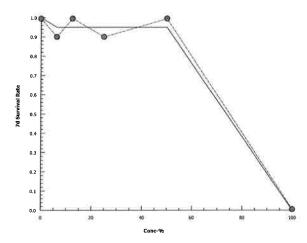
Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes

7d :	Survi	val	Rate	Bino	mials
------	-------	-----	------	------	-------

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1



Report Date:

06 Jan-17 09:58 (p 3 of 4)

Test Code:

VCF1116.216cc | 17-2725-1188

Ceriodaphnia	7-d Survival and R	eproduction To	Aquatic Bioassay & Consulting Labs, Inc.				
Analysis ID: Analyzed:	19-2008-7359 06 Jan-17 9:45	Endpoint: Analysis:	Reproduction Linear Interpolation (ICPIN)	CETIS Vei Official Re	rsion: CETISv1.9.2 esults: Yes		
Batch ID:	00-8587-1102	Test Type:	Reproduction-Survival (7d)	Analyst:	Joe Freas		
Start Date:	22 Nov-16 13:45	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	29 Nov-16 11:45	Species:	Ceriodaphnia dubia	Brine:	Not Applicable		
Duration:	6d 22h	Source:	Aquatic Biosystems, CO	Age:			
Sample ID:	08-8553-6642	Code:	VCF1116.216	Client:	VCWPD		
Sample Date:	20 Nov-16 21:45	Material:	Sample Water	Project:	2016/17-2 (Wet)		
Receipt Date:	21 Nov-16 08:42	Source:	Bioassay Report				
Sample Age:	40h	Station:	MO-HUE				

Comments:

High Salinity 5ppt

Linear Interpolation Options

47.31

62.82

1.793

1.592

X Trans	sform	Y Transform	See	d R	esamples	Exp 95% CL	Method
Linear		Linear	9479	960 280		Yes	Two-Point Interpolation
Test A	cceptabil	ity Criteria	TAC L	imits			
Attribu	te	Test Stat	Lower	Upper	Overlap	Decision	
Control	Resp	31.4	15	>>	Yes	Passes Criteria	
Point E	stimates	5					
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL	
IC5	23.75	2.72	28.53	4.211	3.505	36.77	
IC10	27.93	5.439	32.07	3.581	3.118	18.39	
IC15	31.22	12.8	35.61	3.203	2,808	7.815	
IC20	34.51	18.6	39.43	2.898	2.536	5.375	
IC25	37.8	23 16	43.22	2.645	2.314	4.318	
IC40	47,68	38.68	55.39	2.097	1.805	2.585	

Reproduction Summary				(Calculated Va	ariate				
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	N	10	31.4	23	39	2.104	6.653	21.19%	0.0%	
6.25		10	31.5	12	42	2.937	9.289	29.49%	-0.32%	
12.5		10	34.3	12	47	3.211	10.15	29.61%	-9.24%	
25		10	30.6	0	43	3.778	11.95	39.04%	2.55%	
50		10	18.3	8	26	1.892	5.982	32.69%	41.72%	
100		10	0.1	0	1	0.1	0.3162	316.20%	99.68%	

2.114

Reproduction Detail

55,77

IC50

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	39	29	37	25	26	34	24	38	23	39
6.25		33	30	34	28	12	29	42	41	42	24
12.5		36	28	35	29	30	12	43	47	42	41
25		0	29	41	35	33	33	25	35	43	32
50		19	18	26	21	10	8	25	14	22	20
100		0	0	0	0	1	0	0	0	0	0

Report Date:

06 Jan-17 09:58 (p 4 of 4)

Test Code:

VCF1116.216cc | 17-2725-1188

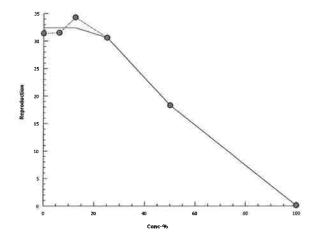
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 19-2008-7359 06 Jan-17 9:45 Endpoint: Reproduction

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



Report Date:

06 Jan-17 09:58 (p 1 of 2)

Test Code:

VCF1116.216cc | 17-2725-1188

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-1843-3425 Endpoint: 7d Survival Rate CETIS Version: CETISv1.9.2

Analyzed: 06 Jan-17 9:45 Analysis: STP 2xK Contingency Tables Official Results: Yes

Batch ID: 00-8587-1102 Test Type: Reproduction-Survival (7d) Analyst: Joe Freas Start Date: 22 Nov-16 13:45 EPA/821/R-02-013 (2002) Diluent: Protocol: Laboratory Water Ending Date: 29 Nov-16 11:45 Species: Ceriodaphnia dubia Brine: Not Applicable

Duration: 6d 22h **Source**: Aquatic Biosystems, CO **Age**:

 Sample ID:
 08-8553-6642
 Code:
 VCF1116.216
 Client:
 VCWPD

 Sample Date:
 20 Nov-16 21:45
 Material:
 Sample Water
 Project:
 2016/17-2 (Wet)

Receipt Date: 21 Nov-16 08:42 Source: Bioassay Report

Sample Age: 40h Station: MO-HUE

Comments:

High Salinity 5ppt

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	
Untransformed	C > T	50	100	70.71	2	

Fisher Exact/Bonferroni-Holm Test

Control vs	Group	Test Stat	P-Type	P-Value	Decision(a:5%)
Negative Control	6.25	0.5000	Exact	1.0000	Non-Significant Effect
	12.5	1.0000	Exact	1.0000	Non-Significant Effect
	25	0.5000	Exact	1.0000	Non-Significant Effect
	50	1.0000	Exact	1.0000	Non-Significant Effect
	100*	0,0000	Exact	2.7E-05	Significant Effect

Test Acceptabilit	y Criteria	TAC	Limits		
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control Resp	1	0.8	>>	Yes	Passes Criteria

Data Summary

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect	
0	N	10	0	10	1	0	0.0%	
6.25		9	1	10	0.9	0_1	10.0%	
12.5		10	0	10	1	0	0.0%	
25		9	1	10	0.9	0_1	10.0%	
50		10	0	10	1	0	0.0%	
100		0	10	10	0	1	100.0%	

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1,0000	1.0000	1,0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0,0000	0.0000	0.0000	0.0000

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	N	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6,25		1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

Report Date:

06 Jan-17 09:58 (p 2 of 2)

Test Code:

VCF1116.216cc | 17-2725-1188

Ceriodaphnia 7-d Survival and Reproduction Test

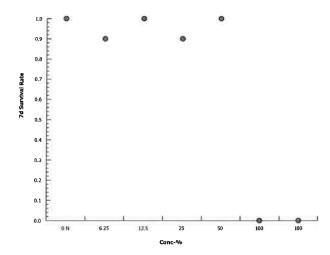
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 13-1843-3425 06 Jan-17 9:45 Endpoint: 7d Survival Rate

Analysis: STP 2xK Contingency Tables

CETIS Version: Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

06 Jan-17 09:58 (p 1 of 2)

Test Code:

VCF1116.216cc | 17-2725-1188

Ceriodaphnia	daphnia 7-d Survival and Reproduction Test							Aquatic Bioassay & Consulting Labs, Inc.						
Batch ID: Start Date: Ending Date: Duration:	00-8587-1102 22 Nov-16 13: 29 Nov-16 11: 6d 22h	45	Test Type: Protocol: Species: Source:	Reproduction- EPA/821/R-02 Ceriodaphnia Aquatic Biosy	2-013 (2002) dubia			Diluent:	Joe Freas Laboratory Wa Not Applicable					
Sample ID:	08-8553-6642		Code:	VCF1116.216					VCWPD					
•	20 Nov-16 21:		Material:	Sample Water				Project:	2016/17-2 (We	et)				
•	21 Nov-16 08:	42	Source:	Bioassay Rep	ort									
Sample Age:	40h		Station:	MO-HUE										
Comments: High Salinity 5	ppt													
Alkalinity (Ca	CO3)-mg/L													
Conc-%	Code	Coun	t Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count			
0	N	8	61.38	60.94	61.81	61	62	0.183	0.5175	0.84%	0			
100		8	224	224	224	224	224	0	0	0.0%	0			
Overall		16	142.7	97.94	187.4	61	224	20.99	83.98	58.86%	0 (0%)			
Conductivity-	µmhos													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	r Std Dev	CV%	QA Count			
0	N	8	333.4	329.1	337.6	327	343	1.802	5.097	1.53%	0			
6.25		8	820	799.5	840.5	794	864	8.689	24.58	3.0%	0			
12.5		8	1320	1302	1337	1284	1340	7.557	21.37	1.62%	0			
25		8	2306	2148	2464	1996	2445	66.8	188.9	8.19%	0			
50		8	4762	3884	5640	4352	7359	371.2	1050	22.05%	0			
100		6	8216	8139	8294	8122	8280	30.01	73.5	0.89%	0			
Overall		46	2731	1946	3516	327	8280	389.6	2642	96.74%	0 (0%)			
Dissolved Oxy	ygen-mg/L													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	Std Dev	CV%	QA Count			
0	N	8	7.925	7.554	8.296	7_6	9	0.1567	0.4432	5.59%	0			
6.25		8	8	7.725	8.275	7.7	8,6	0.1165	0.3295	4.12%	0			
12.5		8	7.988	7.696	8.279	7.6	8.6	0.1231	0.3482	4.36%	0			
25		8	7.975	7.599	8.351	7.6	8.7	0.159	0.4496	5.64%	0			
50		8	7.788	7.44	8.135	7.3	8.5	0.1469	0.4155	5.34%	0			
100		6	7.433	6.801	8.065	6.5	8.4	0.2459	0.6022	8.1%	0			
Overall		46	7.87	7.737	8.002	6.5	9	0.0658	6 0.4467	5.68%	0 (0%)			
Hardness (Ca	CO3)-mg/L													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Eri	Std Dev	CV%	QA Count			
0	N	8	89.88	87.71	92.04	88	93	0.9149	2.588	2.88%	0			
100		8	230	230	230	230	230	0	0	0.0%	0			
Overall		16	159.9	121.4	198.5	88	230	18.1	72.38	45.26%	0 (0%)			
pH-Units														
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count			
)	N	8	7.925	7.654	8.196	7.3	8.3	0.1146	0,324	4.09%	0			
3.25		8	7.363	7.135	7.59	7	7.8	0.0962	0,2722	3.7%	0			
12.5		8	7.363	7.179	7,546	7	7.7	0.07778	3 0.22	2.99%	0			
25		8	7.275	7.151	7.399	7	7.5	0.0526	0.1488	2.05%	0			
50		8	7.225	7.065	7.385	7	7.6	0.06748	0.1909	2.64%	0			
		_									_			



1.17%

4.51%

0

0 (0%)

6

46

100

Overall

7.238

7.493

7.2

8.3

0.03416

0.04919

0.08366

0.3336

7.062

7.294

7.15

7.393

Report Date:

06 Jan-17 09:58 (p 2 of 2)

Test Code:

VCF1116.216cc | 17-2725-1188

Ceriodaphnia 7-d Survival and Reproduction Test									Aquatic Bioassay & Consulting Labs, Inc.				
Temperature-	·°C												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Cour		
0	N	8	24	24	24	24	24	0	0	0.0%	0		
6.25		8	24.01	23.98	24.04	24	24.1	0.01249	0.03531	0.15%	0		
12.5		8	24.03	23.97	24.08	24	24.2	0.02499	0.07069	0.29%	0		
25		8	24.05	23.96	24.14	24	24.3	0.0378	0.1069	0.44%	0		
50		8	24.06	23.96	24.16	24	24.3	0.04199	0.1188	0.49%	0		
100		8	24.09	23,95	24.22	24	24.4	0.05806	0.1642	0.68%	0		
Overall		48	24.04	24.01	24.07	24	24.4	0.0142	0.09837	0.41%	0 (0%)		
Alkalinity (Ca	-					_		_					
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	62	62	62	61	61	61	61	61				
100		224	224	224	224	224	224	224	224				
Conductivity-	µmhos												
Conc-%	Code	_ 1	2	3	4	5	6	7	8				
0	N	329	335	334	334	336	343	329	327				
6.25		812	815	794	799	810	815	851	864				
12.5		1323	1330	1284	1288	1328	1340	1329	1335				
25		2445	2445	2404	2415	1996	2012	2354	2376				
50		4352	4356	4379	4380	4375	7359	4425	4472				
100		8280	8220	8130	8122	8279	8268						
Dissolved Ox	ygen-mg/L												
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	7.6	7.8	7.8	7.8	7.9	7.7	7.8	9				
6.25		7.8	7.7	7.7	7.7	8.2	8.6	8.2	8.1				
12.5		7.8	7.6	7.8	7.6	8.2	8.6	8.2	8.1				
25		7.6	7.7	7.6	7.6	8	8.6	8.7	8				
50		7.3	7.5	7.5	7.5	7.8	8,5	8,2	8				
100		6.5	7.4	7.4	7.5	7.4	8.4						
Hardness (Ca													
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	93	93	93	88	88	88	88	88				
100		230	230	230	230	230	230	230	230				
pH-Units													
Conc-%	Code	1	2	3	4	5	6	7	8				
0	N	7,3	7.8	8.1	8.1	7.9	8.2	7.7	8.3				
6.25		7	7.5	7.8	7.5	7	7.3	7.3	7.5				
12.5		7	7.2	7.4	7.7	7.3	7.6	7.3	7.4				
25		7	7.2	7.3	7.3	7_2	7.3	7_4	7.5				
50		7	7.1	7.1	7.2	7.2	7.2	7.4	7.6				
100		7	7.1	7.2	7.2	7.2	7.2						
Temperature-°	С												
Conc-%	Code	1	2	3	4	5	6	7	8				
)	N	24	24	24	24	24	24	24	24				
5.25		24	24	24	24.1	24	24	24	24				
12.5		24	24	24	24.2	24	24	24	24				
25		24	24.1	24	24	24.3	24	24	24				
50		24	24.2	24	24.3	24	24	24	24				





January 6, 2017

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receving Waters to West Coast Estuarine Organisms, EPA/821/R-02-014. Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-HUE

DATE RECEIVED:

11/21/2016

ABC LAB. NO.:

VCF1116.216

CHRONIC TOPSMELT SURVIVAL AND GROWTH BIOASSAY

Survival

NOEC =

100.00

TUc

1.00

IC25 = >100.00 %

IC50 =

>100.00 %

Biomass

NOEC =

100.00 %

TUc

1.00

IC25 = >100.00 %

IC50

>100.00 %

*NOTE: Topsmelt run because salinity was 5g/L.

Yours very truly,

& Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

06 Jan-17 09:57 (p 1 of 2)

Test Code:

VCF1116.216t | 13-1406-0566

Pacific Topsn	neit 7-d Survival a	and Growth Tes	it				Aquati	c Bioassay &	Bioassay & Consulting Labs				
Batch ID:	15-8612-2226	Test Type	: Growth-Surviv	al (7d)		Ana	alyst: J	oe Freas					
Start Date:	22 Nov-16 14:49	Protocol:	EPA/600/R-95	/136 (1995)		Dile	uent: L	aboratory Sea	water				
Ending Date:	29 Nov-16 12:50	Species:	Atherinops affi	inis		Bri	ne: N	lot Applicable					
Duration:	6d 22h	Source:	Aquatic Biosys	stems, CO		Age	e:						
Sample ID:	06-6695-0374	Code:	VCF1116.216			Clie	ent: V	CWPD					
Sample Date:	20 Nov-16 22:40	Material:	Sample Water	•		Pro	ject: 2	016/17-2 (Wet	:)				
Receipt Date:	21 Nov-16 08:42	Source:	Bioassay Repo	ort									
Sample Age:	40h	Station:	MO-HUE										
Multiple Com	parison Summary	/											
	Endpoint		nparison Method			NOEL	LOEL	TOEL	TU	PMS			
04-0448-8084	7d Survival Rate		el Many-One Ran			100	> 100	n/a	1	9.1%	3		
09-7666-2120	Mean Dry Biomas	ss-mg Dun	nett Multiple Com	nparison Tes	t	100	> 100	n/a	1	41.99	%		
Point Estimate	e Summary												
Analysis ID	Endpoint		nt Estimate Meth			Level	%	95% LCL	95% UCL	TU	`		
20-1446-6951	7d Survival Rate	Line	ar Interpolation (I	CPIN)		EC5	>100	n/a	n/a	<1	~		
						EC10	>100	n/a	n/a	<1	٧		
						EC15	>100	n/a	n/a	<1	٧		
						EC20	>100	n/a	n/a	<1	`		
						EC25	>100	n/a	n/a	<1	`		
						EC40	>100	n/a	n/a	<1	`		
20 1 150 1075	M D D'		1-11-1/	ODINI		EC50	>100	n/a	n/a	<1			
03-1453-1675	Mean Dry Biomas	s-mg Line	ar Interpolation (I	CPIN)		IC5	>100	n/a	n/a	<1	٧		
						IC10 IC15	>100 >100	n/a n/a	n/a n/a	<1 <1	`		
						IC20	>100	n/a	n/a	<1	٧		
						IC25	>100	n/a	n/a	<1	٧		
						IC25	>100	n/a	n/a	<1	`		
						IC50	>100	n/a	n/a	<1	· ·		
Test Acceptab	ility				TAC	Limits							
Analysis ID	Endpoint	Attri	bute	Test Stat		Upper	Overla	Decision					
04-0448-8084	7d Survival Rate	Con	trol Resp	0.96	0.8	>>	V	Passes C					
20-1446-6951					0.0		Yes	Passes C	riteria				
	7d Survival Rate		trol Resp	0.96	0.8	>>	Yes	Passes C					
03-1453-1675	7d Survival Rate Mean Dry Biomas	Cont	trol Resp trol Resp	0.9976	0.8 0.85				riteria				
		Cont s-mg Cont	•		0.8	>>	Yes	Passes C	riteria riteria				
09-7666-2120 7d Survival R a	Mean Dry Biomas Mean Dry Biomas ate Summary	Conf ss-mg Conf ss-mg Conf	trol Resp trol Resp	0.9976 0.9976	0.8 0.85 0.85	>> >> >>	Yes Yes Yes	Passes C Passes C Passes C	riteria riteria riteria				
09-7666-2120 7d Survival Ra Conc-%	Mean Dry Biomas Mean Dry Biomas ate Summary Code	Confissing Confissing Confi	trol Resp trol Resp n 95% LCL	0.9976 0.9976 95% UCL	0.8 0.85 0.85 Min	>> >> >> Max	Yes Yes Yes Std Err	Passes C Passes C Passes C	riteria riteria riteria CV%	%Effe			
09-7666-2120 7d Survival Ra Conc-% 0	Mean Dry Biomas Mean Dry Biomas ate Summary Code N	Confissing Confissing Confission	trol Resp trol Resp n 95% LCL 00 0.8489	0.9976 0.9976 95% UCL 1.0000	0.8 0.85 0.85 Min 0.8000	>> >> >> Max	Yes Yes Yes Std Err	Passes C Passes C Passes C Std Dev 0.0894	riteria riteria riteria CV% 9.32%	0.00%	%		
09-7666-2120 7d Survival Ra Conc-% 0 5.25	Mean Dry Biomas Mean Dry Biomas ate Summary Code N	Conf s-mg Conf s-mg Conf Count Mea 5 0.96 5 0.96	rol Resp rol Resp	0.9976 0.9976 95% UCL 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000	>> >> >> Max 1.0000 1.0000	Yes Yes Yes Std Err 0.0400 0.0400	Passes C Passes C Passes C Std Dev 0.0894 0.0894	cv% 9.32% 9.32%	0.00%	% %		
09-7666-2120 7d Survival Ra Conc-% 0 3.25 12.5	Mean Dry Biomas Mean Dry Biomas ate Summary Code N	Conf ss-mg Conf ss-mg Conf Count Mea 5 0.96 5 0.96 5 1.00	rol Resp rol Resp	0.9976 0.9976 95% UCL 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000	>> >> Max 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0400 0.0400 0.0400	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000	cv% 9.32% 9.32% 0.00%	0.00% 0.00% -4.17	% % '%		
09-7666-2120 7d Survival Ra Conc-% 0 3.25 12.5	Mean Dry Biomas Mean Dry Biomas ate Summary Code N	Cont Se-mg Conf Se-mg Conf Count Mea 5 0.96 5 1.00 5 1.00	rol Resp rol Resp	0.9976 0.9976 95% UCL 1.0000 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000	cv% 9.32% 9.32% 0.00% 0,00%	0.00% 0.00% -4.17 -4.17	% % '% '%		
09-7666-2120 7d Survival Ra Conc-% 0 6.25 12.5 25	Mean Dry Biomas Mean Dry Biomas Ite Summary Code N	Cont Se-mg Cont Se-mg Cont Mea 5 0.96 5 1.00 5 1.00 5 1.00 5 1.00 5 1.00 5 1.00 5 1.00 6 1.00 6	rol Resp rol Resp n 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000	0.9976 0.9976 95% UCL 1.0000 1.0000 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000 0.0000	cv% 9.32% 9.32% 9.00% 0.00% 0.00%	0.00% 0.00% -4.17% -4.17%	% % '% '%		
09-7666-2120 7d Survival Ra Conc-% 0 5.25 12.5 25 60	Mean Dry Biomas Mean Dry Biomas ate Summary Code N	Cont Se-mg Conf Se-mg Conf Se-mg Conf Count Mea 5 0.96 5 1.00 5 1.00 5 1.00 5 1.00	rol Resp rol Resp n 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000	0.9976 0.9976 95% UCL 1.0000 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000	>> >> >> Max 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000	cv% 9.32% 9.32% 0.00% 0,00%	0.00% 0.00% -4.17 -4.17	% % '% '% '%		
7d Survival Ra Conc-% 0 6.25 12.5 25 100 Mean Dry Bion	Mean Dry Biomas Mean Dry Biomas ate Summary Code N	Cont Se-mg Cont Se-mg Cont Se-mg Cont Cont Mea 5 0.96 5 1.00 5 1.00 5 1.00 5 1.00 6 1.00 6 1.0	rol Resp rol Resp	0.9976 0.9976 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000 1.0000	>> >> 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000	Passes C Passes C Passes C Std Dev 0.0894 0.0000 0.0000 0.0000 0.0000	CV% 9.32% 9.32% 0.00% 0.00% 0.00%	0.00% 0.00% -4.17° -4.17° -4.17°	% ?% ?% ?%		
09-7666-2120 7d Survival Ra Conc-% 0 6.25 12.5 60 100 Mean Dry Bion Conc-%	Mean Dry Biomas Mean Dry Biomas ate Summary Code N S R R R R R R R R R R R R	Confissing Confissing Confission	rol Resp rol Resp n 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000 00 1.0000	0.9976 0.9976 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000 1.0000	>> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000 0.0000 Std Err	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000 0.0000 Std Dev	riteria riteria riteria riteria CV% 9.32% 9.32% 0.00% 0.00% 0.00% CV%	0.00% 0.00% -4.17° -4.17° -4.17° -4.17°	% % % % %		
7d Survival Ra Conc-% 0 6.25 12.5 25 60 100 Mean Dry Bion Conc-%	Mean Dry Biomas Mean Dry Biomas ate Summary Code N ate Summary Code N ate Summary Code N ate Summary Code N	Confissing Confissing Confission	rol Resp rol Resp 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000 00 1.0000 00 0.7987	0.9976 0.9976 95% UCL 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000 1.0000 Min 0.82	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max 1.2	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000 0.0000 Std Err 0.07164	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000 0.0000 Std Dev 0.1602	riteria riteria riteria riteria riteria CV% 9.32% 9.32% 0.00% 0.00% 0.00% CV% 16.06%	0.00% 0.00% -4.17% -4.17% -4.17% %Effe 0.00%	% % % % % %		
7d Survival Ra Conc-% 0 3.25 12.5 25 60 100 Mean Dry Bion Conc-%	Mean Dry Biomas Mean Dry Biomas ate Summary Code N ate Summary Code N	Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Count Meanument Meanument Meanument Meanument Meanument Meanument Meanument Meanument	rol Resp rol Resp 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000 00 1.0000 n 95% LCL 76 0.7987 0.8366	0.9976 0.9976 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 1.196 1.603	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000 1.0000 Min 0.82 0.922	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max 1.2 1.722	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000 Std Err 0.07164 0.1381	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000 0.0000 Std Dev 0.1602 0.3088	riteria riteria riteria riteria riteria CV% 9.32% 9.32% 0.00	0.00% 0.00% -4.17° -4.17° -4.17° %Effe 0.00% -22.29	% '% '% '% '% '% '9%		
7d Survival Ra Conc-% 0 6.25 12.5 25 60 100 Mean Dry Bion Conc-% 0 6.25	Mean Dry Biomas Mean Dry Biomas Ite Summary Code N S S S Ite Summary Code N S S S S S S S S S S S S	Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Count Mean	rol Resp rol Resp m 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000 m 95% LCL 76 0.7987 0.8366 1 1.136	0.9976 0.9976 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 1.196 1.603 1.866	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000 1.0000 Min 0.82 0.922 1.234	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Max 1.2 1.722 1.976	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000 0.0000 Std Err 0.07164 0.1381 0.1315	Passes C Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000 0.0000 0.0000 Std Dev 0.1602 0.3088 0.294	riteria riteria riteria riteria riteria CV% 9.32% 9.32% 0.00	0.00% 0.00% -4.17° -4.17° -4.17° -4.17° %Effe 0.00% -22.29 -50.48	% % 2% 2% 2% 2% 2% 2% 8%		
09-7666-2120 7d Survival Ra Conc-% 0 6.25 12.5 25 50	Mean Dry Biomas Mean Dry Biomas Ite Summary Code N S Ite Summary Code N S S S S S S S S S S S S	Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Confiss-mg Count Meanument Meanument Meanument Meanument Meanument Meanument Meanument Meanument	rol Resp rol Resp m 95% LCL 00 0.8489 00 0.8489 00 1.0000 00 1.0000 00 1.0000 m 95% LCL 76 0.7987 0.8366 1 1.136 2 1.136	0.9976 0.9976 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 95% UCL 1.196 1.603	0.8 0.85 0.85 Min 0.8000 0.8000 1.0000 1.0000 1.0000 Min 0.82 0.922	>> >> >> 1.0000 1.0000 1.0000 1.0000 1.0000 Max 1.2 1.722	Yes Yes Yes Std Err 0.0400 0.0400 0.0000 0.0000 0.0000 Std Err 0.07164 0.1381	Passes C Passes C Passes C Std Dev 0.0894 0.0894 0.0000 0.0000 0.0000 Std Dev 0.1602 0.3088	riteria riteria riteria riteria riteria CV% 9.32% 9.32% 0.00	0.00% 0.00% -4.17° -4.17° -4.17° %Effe 0.00% -22.29	% % % % % % % 9 8 8 4 4		



6.25

12.5

25

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Report Date:

06 Jan-17 09:57 (p 2 of 2)

Test Code:

VCF1116.216t | 13-1406-0566

Pacific Topsn	nelt 7-d Surviv	al and Grov		Aquatic Bioassay & Consulting Labs, Inc.			
7d Survival R	ate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	0.8000	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	1.0000	0.8000	1.0000	
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	
25		1.0000	1,0000	1,0000	1,0000	1.0000	
50		1.0000	1.0000	1.0000	1.0000	1.0000	
100		1.0000	1.0000	1.0000	1.0000	1.0000	
Mean Dry Bio	mass-mg Deta	il					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	0.82	1,1	1.2	1.01	0.858	
6.25		1.044	1.138	1.722	0.922	1.274	
12.5		1.418	1.976	1.234	1.57	1.308	
25		1.224	1.24	1.968	2.138	1.692	
50		1.38	1.382	1.798	1.07	1.166	
100		1.124	1.364	1.362	1.372	1.38	
7d Survival Ra	ate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	4/5	5/5	5/5	5/5	5/5	

5/5

5/5

5/5

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Report Date:

06 Jan-17 09:57 (p 1 of 4)

Test Code:

VCF1116.216t | 13-1406-0566

Pacific Topsm	nelt 7-d Surviv	al and Gro	wth Test					Aquatio	c Bioassay 8	Consultir	ng Labs, lı		
Analysis ID: Analyzed:	04-0448-8084 06 Jan-17 9:5		ndpoint: nalysis:	7d Survival F Nonparamet		/s Treatmen		TIS Versio		/1.9.2			
Batch ID:	15-8612-2226	To	est Type:	Growth-Surv	ival (7d)		Ana	Analyst: Joe Freas					
Start Date:	22 Nov-16 14:	49 P	rotocol:	EPA/600/R-9	5/136 (199	5)	Dili	Diluent: Laboratory Seawater					
Ending Date:	29 Nov-16 12:	50 S	pecies:	Atherinops a	ffinis		Bri	Brine: Not Applicable					
Duration:	6d 22h	S	ource:	Aquatic Bios	ystems, CC)	Age	e :					
•	06-6695-0374		ode:	VCF1116.21	6		Clie	ent: V	CWPD				
Sample Date:	20 Nov-16 22:4	40 M	aterial:	Sample Wat	er		Pro	ject: 2	016/17-2 (We	et)			
·	21 Nov-16 08:4	42 S	ource:	Bioassay Re	port								
Sample Age:	40h	S1	tation:	MO-HUE									
Data Transfor		Alt Hyp)				NOEL	LOEL	TOEL	TU	PMSE		
Angular (Corre	ected)	C > T					100	> 100	n/a	1	9.10%		
Steel Many-Or	ne Rank Sum 1	Гest											
Control v	vs Conc-%)	Test S	tat Critical	Ties	DF P-Type	P-Value	Decisio	on(α:5%)				
Negative Contr	rol 6.25		27.5	16	2	8 Asymp	0.8333		gnificant Effe				
	12.5		30	16	1	8 Asymp	0.9446		nificant Effe				
	25		30	16		8 Asymp	0.9446	_	gnificant Effe				
	50		30	16		8 Asymp	0.9446	_	gnificant Effe				
	100		30	16	1	8 Asymp	0.9446	Non-Sig	nificant Effe	ct			
Test Acceptab	oility Criteria	TAC	Limits										
Attribute	Test Sta	t Lower	Upper	Overlap	Decision	n							
Control Resp	0.96	0.8	>>	Yes	Passes	Criteria							
ANOVA Table													
Source	Sum Squ	uares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)				
Between	0.015122	!1	0.0030	244	5	0.8	0.5606	Non-Sig	nificant Effe	ct			
Error	0.090732	:6	0.0037	805	24								
Total	0.105855				29								
Distributional '	Tests												
Attribute	Test				Test St	at Critical	P-Value	Decisio	n(a:1%)				
/ariances		quality of \			5.689	3.895	0.0013	Unequa	l Variances				
/ariances	Mod Leve	ene Equalit	y of Variar	ice Test	0.8	4.248	0.5640	Equal V	ariances				
Distribution		-Darling A		y Test	5.866	3.878	<1.0E-37	Non-No	rmal Distribu	tion			
Distribution	•	o Kurtosis			3.762	2.576	1.7E-04	Non-No	rmal Distribu	tion			
Distribution		io Skewnes			4,626	2.576	3.7E-06		rmal Distribu	tion			
Distribution		o-Pearson		us Test	35.55	9.21	<1.0E-37		rmal Distribu				
Distribution		ov-Smirno			0.4333	0.1853	3.4E-16		rmal Distribut				
Distribution	Shapiro-V	Vilk W Nor	mality Tes	t 	0.5454	0,9031	1,7E-08	Non-No	rmal Distribut	tion			
d Survival Ra	nte Summary												
Conc-%	Code	Count	Mean	95% LC			Min	Max	Std Err	CV%	%Effec		
	N	5	0.9600		1.0000	1.0000	0.8000	1.0000	0.0400	9.32%	0.00%		
)		5	0.9600		1,0000	1.0000	0.8000	1.0000	0.0400	9.32%	0.00%		
) 5.25						4 0000	4 0000	4 0000	0.0000	0.0007	4 4 7 0 /		
) 6.25 12.5		5	1.0000		1.0000	1.0000	1.0000	1.0000		0.00%			
) 6.25 12.5 25		5 5	1.0000	1.0000	1.0000	1,0000	1.0000	1.0000	0.0000	0.00%	-4.17% -4.17%		
) 6.25 12.5		5		1.0000									

Report Date:

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Test Code:

VCF1116.216t | 13-1406-0566

Pacific Topsmelt 7-d Survival and Growth Te	st
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: (

04-0448-8084 06 Jan-17 9:55 **Endpoint:** 7d Survival Rate **Analysis:** Nonparametric-C

Nonparametric-Control vs Treatments

CETIS Version: C Official Results: Y

CETISv1.9.2

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Angular (Corrected) Transformed Summary													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect		
0	N	5	1.298	1.165	1.43	1.345	1.107	1.345	0.04763	8.21%	0.00%		
6.25		5	1.298	1.165	1.43	1.345	1.107	1_345	0.04763	8.21%	0.00%		
12.5		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-3.67%		
25		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-3.67%		
50		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-3.67%		
100		5	1 3/15	1 3/15	1 3/16	1 3/15	1 3/15	1 3/15	Λ	0.00%	-3 67%		

7d Survival Rate Detail

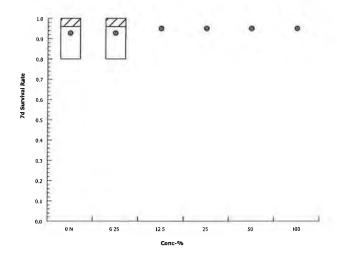
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	N	0.8000	1.0000	1.0000	1.0000	1.0000	
6.25		1.0000	1.0000	1.0000	0.8000	1.0000	
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	
25		1.0000	1.0000	1.0000	1.0000	1.0000	
50		1.0000	1.0000	1.0000	1.0000	1.0000	
100		1.0000	1.0000	1.0000	1.0000	1.0000	

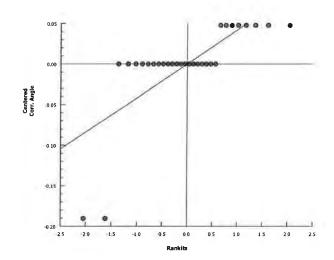
Angular (Corrected) Transformed Detail

Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		
N	1.107	1.345	1,345	1,345	1.345		
	1.345	1.345	1.345	1,107	1.345		
	1.345	1.345	1.345	1.345	1.345		
	1.345	1.345	1.345	1.345	1.345		
	1.345	1.345	1.345	1.345	1.345		
	1.345	1.345	1.345	1.345	1.345		
		N 1.107 1.345 1.345 1.345 1.345	N 1.107 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345	N 1.107 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345	N 1.107 1.345 1.345 1.345 1.345 1.345 1.345 1.107 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345 1.345	N 1.107 1.345	N 1.107 1.345

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	4/5	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	4/5	5/5
12.5		5/5	5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	5/5	5/5
100		5/5	5/5	5/5	5/5	5/5





Report Date:

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Test Code:

VCF1116.216t | 13-1406-0566

Pacific Topsn	nelt 7-d Survival a	nd Growth Te	est					Aquatic	Bioassay &	Consulting	g Labs, In
Analysis ID:	09-7666-2120	Endpoir	ıt: Me	an Dry Bion	nass-mg		CET	'IS Version	: CETISv	1.9.2	
Analyzed:	06 Jan-17 9:55	Analysis	: Par	rametric-Co	ntrol vs Trea	tments	Offic	cial Result	s: Yes		
Batch ID:	15-8612-2226	Test Typ	e: Gro	wth-Surviva	al (7d)		Ana	lyst: Jo	e Freas		
Start Date:	22 Nov-16 14:49	Protoco	i: EP	A/600/R-95/	(136 (1995)		Dilu	ent: La	boratory Sea	water	
Ending Date:	29 Nov-16 12:50	Species	: Ath	erinops affir	nis		Brin	e: No	t Applicable		
Duration:	6d 22h	Source:	Aqı	uatic Biosys	tems, CO		Age	:			
Sample ID:	06-6695-0374	Code:	VC	F1116.216			Clie	nt: VC	WPD		
Sample Date:	20 Nov-16 22:40	Material	: Sar	mple Water			Proj	ect: 20	16/17-2 (We	t)	
Receipt Date:	21 Nov-16 08:42	Source:		assay Repo	ort		_				
Sample Age:	40h	Station:	MO	-HUE							
Data Transfor	m /	Alt Hyp					NOEL	LOEL	TOEL	TU	PMSD
Untransformed	1 (C > T					100	> 100	n/a	1	41.949
Dunnett Multi	ple Comparison T	est									
	vs Conc-%		st Stat	Critical	MSD DF	P-Type	P-Value	Decision	n(a:5%)		
Negative Conti	rol 6.25	-1.	255	2.362	0.418 8	CDF	0.9920	Non-Sigr	nificant Effec	t	
	12.5	-2.	842	2.362	0.418 8	CDF	1.0000	Non-Sigr	nificant Effec	t	
	25	-3.	696	2.362	0.418 8	CDF	1.0000	Non-Sigr	nificant Effec	t	
	50	-2.	041	2.362	0.418 8	CDF	0.9994	Non-Sigr	nificant Effec	t	
	100	-1.	822	2.362	0.418 8	CDF	0.9987	Non-Sigr	nificant Effec	t	
Test Acceptab	oility Criteria	TAC Limits	3								
Attribute	Test Stat L	ower Up	per	Overlap	Decision						
Control Resp	0.9976).85 >>		Yes	Passes Cr	riteria					
ANOVA Table											
Source	Sum Square	es Me	an Squ	are	DF	F Stat	P-Value	Decision	n(a:5%)		
Between	1.27975		5595		5	3.262	0.0218	Significat			
Error	1.88333	0.0	784721								
Tatal		0.0			24	0.202	5.52.5	•			
rotai	3.16308	0,0			24 29	0.202	0.02.0				
	3.16308	0.0				0.202					
Distributional	3.16308	0.0				-	P-Value	Decision	n(α:1%)		
Distributional Attribute	3.16308 Tests Test	ality of Varianc			29	-		Decision Equal Va			
Distributional Attribute Variances	3.16308 Tests Test Bartlett Equa		e Test		29 Test Stat	Critical	P-Value		riances		
Distributional Attribute Variances Variances	3.16308 Tests Test Bartlett Equal Levene Equal	ılity of Varianc	e Test e Test		29 Test Stat 6.945	Critical 15.09	P-Value 0.2248	Equal Va	riances riances		
Distributional Attribute Variances Variances Variances	3.16308 Tests Test Bartlett Equa Levene Equa Mod Levene	ulity of Varianc	e Test e Test riance	Test	29 Test Stat 6.945 1.763	Critical 15.09 3.895	P-Value 0.2248 0.1587	Equal Va Equal Va Equal Va	riances riances		
Distributional Attribute Variances Variances Variances Variances	3.16308 Tests Test Bartlett Equa Levene Equa Mod Levene	ality of Varianc ality of Varianc Equality of Va arling A2 Norm	e Test e Test riance	Test	29 Test Stat 6.945 1.763 2.147	Critical 15.09 3.895 4.248	P-Value 0.2248 0.1587 0.1062	Equal Va Equal Va Equal Va Normal D	riances riances riances		
Distributional Attribute Variances Variances Variances Distribution Distribution	3.16308 Tests Test Bartlett Equa Levene Equa Mod Levene Anderson-Da D'Agostino K D'Agostino S	ality of Varianc ality of Varianc Equality of Va arling A2 Norm artosis Test kewness Test	e Test e Test riance ⁻ ality Te	Test	Test Stat 6.945 1.763 2.147 0.7524	Critical 15.09 3.895 4.248 3.878 2.576 2.576	P-Value 0.2248 0.1587 0.1062 0.0499	Equal Va Equal Va Equal Va Normal D	riances riances riances Distribution		
Distributional Attribute Variances Variances Variances Distribution Distribution Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Darbard D'Agostino K D'Agostino-P	ality of Varianc ality of Varianc Equality of Va arling A2 Norm artosis Test kewness Test Pearson K2 On	e Test e Test riance - ality Te	Test	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940	Equal Va Equal Va Equal Va Normal D Normal D	riances riances riances Distribution		
Distributional Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Koragostino Sol'Agostino-Polyag	ality of Varianc Equality of Va Equality of Va arling A2 Norm Curtosis Test Ekewness Test Pearson K2 On Smirnov D Te	e Test e Test riance rality Te ality Te	Test	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368	Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances riances bistribution bistribution bistribution bistribution bistribution bistribution		
Distributional Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Koragostino Sol'Agostino-Polyag	ality of Varianc ality of Varianc Equality of Va arling A2 Norm artosis Test kewness Test Pearson K2 On	e Test e Test riance rality Te ality Te	Test	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940	Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances riances Distribution Distribution Distribution Distribution		
Attribute Variances Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Koragostino Sol'Agostino-Polyag	ality of Variance ality of Variance Equality of Va arling A2 Norma curtosis Test ekewness Test dearson K2 On Smirnov D Test W Normality	e Test e Test riance rality Te ality Te	Test	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477	Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances riances bistribution bistribution bistribution bistribution bistribution bistribution		
Distributional Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Distribution Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrison Nagostino Kolmogorov-Shapiro-Wilk	ality of Variance ality of Variance Equality of Va arling A2 Norma curtosis Test ekewness Test dearson K2 On Smirnov D Test W Normality	e Test e Test riance ality Te nnibus ⁻ st Test	Test	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477	Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances riances bistribution bistribution bistribution bistribution bistribution bistribution	CV%	%Effect
Distributional Attribute Variances Variances Variances Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dadrino Kolmogorino Solamorov-Shapiro-Wilk	ality of Variance Equality of	e Test e Test riance ality Te nnibus ⁻ st Test	Test est Test	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603 0.9378	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477 0.0795	Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances riances Obstribution Obstribution Obstribution Obstribution Obstribution Obstribution Obstribution Obstribution	CV% 16.06%	%Effect
Distributional Attribute Variances Variances Variances Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Darb' D'Agostino Kolmogorov-Shapiro-Wilk mass-mg Summar Code Communication Code Code Code Code Code Code Code Code	ality of Variance ality of Variance Equality of Variance Equality of Variance Equality of Variance According A2 Normality Equality Secunt Me	e Test e Test riance ality Te nnibus st Test an	Test st Test 95% LCL	Test Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603 0.9378	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477 0.0795	Equal Va Equal Va Equal Va Normal D Normal D Normal D Normal D	riances riances riances riances Distribution		0.00%
Distributional Attribute Variances Variances Variances Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dar D'Agostino K D'Agostino-P Kolmogorov-Shapiro-Wilk mass-mg Summar Code Constantial Code Code Code Code Code Code Code Code	ality of Variance ality of Variance Equality of Variance Expenses Test E	e Test e Test riance ality Te nnibus st Test an	Test st Test 95% LCL 0.7987	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603 0.9378 95% UCL 1.196	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.01	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477 0.0795 Min 0.82	Equal Va Equal Va Normal D Normal D Normal D Normal D Normal D Normal D	riances riances riances riances riances Distribution	16.06%	0.00% -22.29%
Distributional Attribute Variances Variances Variances Distribution	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Darba D'Agostino K D'Agostino-P Kolmogorov-Shapiro-Wilk mass-mg Summar Code Construction Code Code Construction Code Construction Code Construction Code Construction Code Code Code Code Code Code Code Code	ality of Variance ality of Variance Equality of Variance Expenses Test E	e Test e Test riance ality Te nnibus st Test an 976 2 01	Test Test 95% LCL 0.7987 0.8366	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603 0.9378 95% UCL 1.196 1.603	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.01 1.138	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477 0.0795 Min 0.82 0.922	Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D Max 1.2	riances riances riances riances riances Distribution	16.06% 25.31%	0.00% -22.29% -50.48%
Total Distributional Attribute Variances Variances Variances Distribution Distribution Distribution Distribution Distribution Distribution Conc-% 0 6.25 12.5 25	3.16308 Tests Test Bartlett Equal Levene Equal Mod Levene Anderson-Dar D'Agostino K D'Agostino-P Kolmogorov-Shapiro-Wilk mass-mg Summar Code Construction Code Code Code Code Code Code Code Code	ality of Variance ality of Variance Equality of Variance Equality of Variance Equality of Variance According A2 Normality of Variance Equality of Variance E	e Test e Test riance ality Te nnibus st Test 976 2 01 52	Test 95% LCL 0.7987 0.8366 1.136	7est Stat 6.945 1.763 2.147 0.7524 0.1039 1.183 1.41 0.1603 0.9378 95% UCL 1.196 1.603 1.866	Critical 15.09 3.895 4.248 3.878 2.576 2.576 9.21 0.1853 0.9031 Median 1.01 1.138 1.418	P-Value 0.2248 0.1587 0.1062 0.0499 0.9172 0.2368 0.4940 0.0477 0.0795 Min 0.82 0.922 1.234	Equal Va Equal Va Rormal D Normal D Normal D Normal D Normal D Normal D Max 1.2 1.722 1.976	riances riances riances riances riances Distribution	16.06% 25.31% 19.59%	%Effect 0.00% -22.29% -50.48% -65.64% -36.25%

Report Date:

06 Jan-17 09:57 (p 4 of 4)

Test Code:

VCF1116.216t | 13-1406-0566

Pacific	Topsmelt 7-	d Survival an	d Growth Test
i uoiiio	1 Opoliticit 7	2 0 0 1 1 1 1 0 1 U I	d Olowell Foot

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	09-7666-2120
Analyzed:	06 Jan-17 9:55

Endpoint: Mean Dry Biomass-mg Analysis:

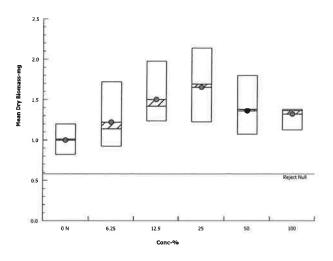
Parametric-Control vs Treatments

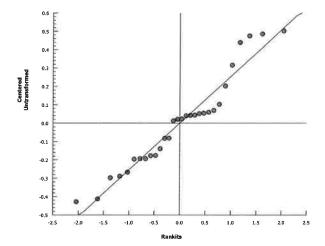
CETIS Version: Official Results: CETISv1,9.2

Yes

Mean Dry Biomass-mg Detail

•	•					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	N	0.82	1.1	1.2	1.01	0.858
6.25		1.044	1.138	1,722	0.922	1,274
12.5		1.418	1.976	1.234	1.57	1.308
25		1.224	1.24	1.968	2.138	1.692
50		1.38	1.382	1.798	1.07	1.166
100		1.124	1.364	1.362	1.372	1.38





Report Date:

06 Jan-17 09:57 (p 1 of 4)

Test Code:

VCF1116.216t | 13-1406-0566

Topsn	nelt 7-d Surviva	and Grow	th Test					Aqua	tic Bi	oassay &	Consulti	ng Labs, I
is ID:	20-1446-6951	End	lpoint:	7d Survival Rat	te		С	ETIS Vers	ion:	CETISv1	.9.2	
ed:	06 Jan-17 9:56	Ana	lysis:	Linear Interpola	ation (ICPIN)	0	fficial Res	sults:	Yes		
D:	15-8612-2226	Tes	t Type:	Growth-Surviva	al (7d)		Aı	nalyst:	Joe F	reas		
ate:	22 Nov-16 14:49	Pro	tocol:	EPA/600/R-95/	136 (1995)		Di	iluent:	Labor	atory Sea	water	
Date:	29 Nov-16 12:50) Spe	cies:	Atherinops affir	nis		В	rine:	Not A	pplicable		
n:	6d 22h	Sou	rce:	Aquatic Biosyst	tems, CO		A	ge:				
D:	06-6695-0374	Cod	le:	VCF1116.216			CI	lient:	vcw	PD		
			erial:	Sample Water			Pi	roject:	2016/	17-2 (Wet)	
		2 Sou	rce:		rt							
Age:	40h	Stat	ion:	MO-HUE								
Interpo	lation Options											
form	Y Transform	See	d	Resamples	Exp 95%	CL Me	thod					
	Linear	0		280	Yes	Tw	o-Point Inte	erpolation				
ceptab	oility Criteria	TACI	imits									
te	Test Stat			r Overlap	Decision							
Resp	0.96	0.8	>>	Yes		riteria						
stimate	es											
%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
>100	n/a	n/a	<1	n/a	n/a							
>100	n/a	n/a	<1	n/a	n/a							
>100	n/a	n/a	<1	n/a	n/a							
>100	n/a	n/a	<1	n/a	n/a							
	n/a	n/a	<1	n/a	n/a							
	n/a	n/a		n/a								
>100	n/a	n/a	<1	n/a	n/a							
ival Ra	ate Summary				Calcu	lated Var	iate(A/B)					
•	Code	Count	Mean		Max	Std Err					A	В
	N											25
												25 25
												25 25
												25 25
												25 25
ival Pa	eta Datail		1.000	1.0000	710000	0,000	0.0000	0.007		111770		
		Pen 1	Pan 2	Pan 3	Pan 4	Pan 5						
	N											
ivel De	to Dinamiala			. 1,0000								
ivai Ka	Code	Rep 1	Rep 2	Ren ?	Rep 4	Rep 5						
		4/5	5/5	Rep 3 5/5	5/5	5/5						
	N		5/ 5	5/5								
	N		5/5	5/5	4/5	2/2						
	N	5/5	5/5 5/5	5/5 5/5	4/5 5/5	5/5 5/5						
	N	5/5 5/5	5/5	5/5	5/5	5/5						
	N	5/5										
	s ID: ed: D: ate: Date: pate: Date: Date: Age: Interpolation stimate % >100 >100 >100 >100 >100 >100 >100 >1	s ID: 20-1446-6951 ed: 06 Jan-17 9:56 ate: 22 Nov-16 14:48 Date: 29 Nov-16 12:56 ate: 20 Nov-16 12:56 ate: 20 Nov-16 12:56 ate: 20 Nov-16 22:46 ate: 21 Nov-16 08:42 ate: 21 Nov-	S ID: 20-1446-6951 End 2d: 06 Jan-17 9:56 Ana D: 15-8612-2226 Test ate: 22 Nov-16 14:49 Proi Date: 29 Nov-16 12:50 Spe ID: 06-6695-0374 Cod Date: 20 Nov-16 08:42 Sou Date: 21 Nov-16 08:42 Sou Age: 40h State Age: 40h Age	S ID:	Decision	Stantage Stantage	St ID: 20-1446-6951 Endpoint: 7d Survival Rate Analysis: Linear Interpolation (ICPIN)	IS ID: 20-1446-6951	S D 20-1446-6951	IS ID: 20-1446-6951	S D 20-1446-6951 Endpoint: 7d Survival Rate CETIS Version: CETISVarion: 06 Jan-17 9:56 Analysis: Cinear Interpolation (ICPIN) Official Results: Yes	S D 20-1446-6951 Endpoint: 7d Survival Rate CETIS Version: CETISV1.9.2



Report Date:

06 Jan-17 09:57 (p 2 of 4)

Test Code:

VCF1116.216t | 13-1406-0566

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

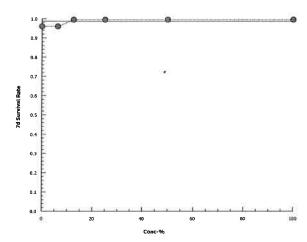
Analysis ID: Analyzed: 20-1446-6951 06 Jan-17 9:56 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version:
Official Results:

CETISv1.9.2

Yes



Report Date:

06 Jan-17 09:57 (p 3 of 4)

Test Code:

VCF1116,216t | 13-1406-0566

Pacific	Topsn	nelt 7-d Surviva	I and Grow	th Test					Aqu	atic Bi	oassay & Consulting Labs, Inc
Analys Analyz		03-1453-1675 06 Jan-17 9:56		lpoint: llysis:	Mean Dry Bion Linear Interpola	•)		CETIS Ver Official Re		CETISv1.9.2 Yes
Batch I	ID:	15-8612-2226	Tes	t Type:	Growth-Surviva	al (7d)			Analyst:	Joe F	reas
Start D	ate:	22 Nov-16 14:4	9 Pro	tocol:	EPA/600/R-95/	136 (1995)			Diluent:	Labo	ratory Seawater
Ending	Date:	29 Nov-16 12:50	0 Sp e	cies:	Atherinops affin	nis			Brine:	Not A	Applicable
Duratio	n:	6d 22h	Sou	ırce:	Aquatic Biosys	tems, CO			Age:		
Sample	D:	06-6695-0374	Cod	le:	VCF1116.216				Client:	VCW	PD
Sample	Date:	20 Nov-16 22:46	0 Mat	erial:	Sample Water				Project:	2016	/17-2 (Wet)
Receip	t Date:	21 Nov-16 08:42	2 So u	rce:	Bioassay Repo	rt					
Sample	Age:	40h	Stat	ion:	MO-HUE						
₋inear	Interpo	lation Options									
(Trans	sform	Y Transforn	n See	d	Resamples	Exp 95%	CL M	lethod			
inear		Linear	269	459	280	Yes	T	wo-Point Ir	nterpolation		
est Ac	ceptat	oility Criteria	TAC L	imite							
Attribu	te	Test Stat		Uppe	r Overlap	Decision					
Control		0.9976	0.85	>>	Yes	Passes C	riteria				
oint E	stimate	es									
.evel	%	95% LCL	95% UCL	ΤU	95% LCL	95% UCL					
C5	>100	n/a	n/a	<1	n/a	n/a					
C10	>100	n/a	n/a	<1	n/a	n/a					
C15	>100	n/a	n/a	<1	n/a	n/a					
C20	>100	n/a	n/a	<1	n/a	n/a					
C25	>100	n/a	n/a	<1	n/a	n/a					
C40	>100	n/a	n/a	<1	n/a	n/a					
C50	>100	n/a	n/a	<1	n/a	n/a					
lean D	ry Bior	nass-mg Summ	nary			Cal	culated	Variate			
onc-%		Code	Count	Mean	Min	Max	Std Er	r Std D	ev CV%	5	%Effect
		N	5	0.9976	0.82	1.2	0.0716	4 0.160	2 16.0	6%	0.0%
.25			5	1.22	0.922	1.722	0.1381	0.308	8 25.3	1%	-22.29%
2.5			5	1.501	1.234	1.976	0.1315	0.294	19.59	9%	-50.48%
5			5	1.652	1.224	2.138	0.1858	0.415	5 25.19	5%	-65.64%
0			5	1.359	1.07	1.798	0.1254				-36.25%
00			5	1.32	1.124	1.38	0.0492	0.11	8.33	%	-32,36%
lean D	ry Bion	nass-mg Detail									
onc-%	,	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5				
		N	0.82	1.1	1.2	1.01	0.858				
.25			1.044	1,138	1.722	0.922	1.274				
2.5			1.418	1.976	1,234	1.57	1.308				
5			1.224	1.24	1,968	2.138	1.692				
0			1.38	1.382	1.798	1.07	1.166				
			1.124	1.364							



Report Date:

06 Jan-17 09:57 (p 4 of 4)

Test Code:

VCF1116.216t | 13-1406-0566

Pacific	Topsmelt	7-d	Survival	and	Growth	Test
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Aquatic Bioassay & Consulting Labs, Inc.

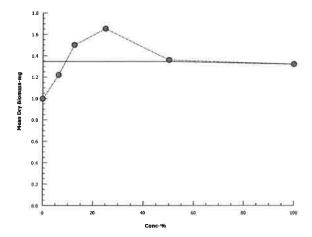
Analysis ID: Analyzed:

03-1453-1675 06 Jan-17 9:56 Endpoint: Mean Dry Biomass-mg Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

06 Jan-17 09:57 (p 1 of 2)

Test Code:

VCF1116.216t | 13-1406-0566

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	15-8612-2226
Start Date:	22 Nov-16 14:49

Test Type: Growth-Survival (7d)

Analyst:

Joe Freas

Ending Date: 29 Nov-16 12:50

EPA/600/R-95/136 (1995) Protocol:

Diluent:

Laboratory Seawater

Duration:

6d 22h

Species: Atherinops affinis Brine:

Not Applicable

Source:

Aquatic Biosystems, CO

Age:

06-6695-0374 Sample ID: Sample Date: 20 Nov-16 22:40

Code: Material: VCF1116.216

Client:

VCWPD

Receipt Date: 21 Nov-16 08:42

Source:

Sample Water Bioassay Report Project:

2016/17-2 (Wet)

Sample Age: 40h

Station: MO-HUE

Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.363	7	7.725	6.9	7.9	0.1535	0.434	5.9%	0
6.25		8	7.238	6.928	7.547	6.8	7.8	0.1308	0.3701	5.11%	0
12.5		8	7.237	6.9	7.575	6.7	7.8	0.1426	0.4033	5.57%	0
25		8	7.2	6.875	7.525	6.7	7.7	0.1376	0.3891	5.41%	0
50		8	7.125	6.823	7.427	6.7	7.7	0.1278	0.3615	5.07%	0
100		8	6.863	6.537	7.188	6.1	7.5	0.1375	0.3889	5.67%	0
Overall		48	7.171	7.054	7.288	6.1	7.9	0,05804	0.4021	5.61%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	7.213	6.962	7.463	6.8	7.6	0.106	0.2997	4.16%	0
6.25		8	7.612	7.508	7.717	7.4	7.8	0.04407	0.1246	1.64%	0
12.5		8	7.65	7.573	7.727	7.5	7.8	0.03273	0.09258	1.21%	0
25		8	7.675	7_568	7.782	7.5	7.9	0.04532	0.1282	1.67%	0
50		8	7.712	7.659	7.766	7.6	7.8	0.02266	0.06409	0.83%	0
100		8	7.762	7.674	7.851	7.6	7.9	0.0375	0.1061	1.37%	0
Overall		48	7.604	7.536	7.672	6.8	7.9	0.03394	0.2352	3.09%	0 (0%)

Salinity-ppt

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	25	25	25	25	25	0	0	0.0%	0
6.25		8	25	25	25	25	25	0	0	0.0%	0
12.5		8	25	25	25	25	25	0	0	0.0%	0
25		8	25	25	25	25	25	0	0	0.0%	0
50		8	25	25	25	25	25	0	0	0.0%	0
100		8	25	25	25	25	25	0	0	0.0%	0
Overall		48	25	25	25	25	25	0	0	0.00%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	21	21	21	21	21	0	0	0.0%	0
6.25		8	21	21	21	21	21	0	0	0.0%	0
12.5		8	21	21	21	21	21	0	0	0.0%	0
25		8	21	21	21	21	21	0	0	0.0%	0
50		8	21	21	21	21	21	0	0	0.0%	0
100		8	21	21	21	21	21	0	0	0.0%	0
Overall		48	21	21	21	21	21	0	0	0.00%	0 (0%)



Report Date:

06 Jan-17 09:57 (p 2 of 2) 566

Test Code:	VCF1116.216t 13-1406-05
report bate.	00 0an 17 05.07 (p 2 01

Pacific Topsm	elt 7-d Surviv	al and Gr	Aquati	c Bioassay & Consulting Labs, Inc					
Dissolved Oxy	gen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	7.1	7	6.9	6.9	7.9	7.6	7.6	7.9
6.25		7.2	7	6.8	6.8	7.8	7.5	7.6	7.2
12.5		7.2	7	6.7	6.8	7.8	7.5	7.7	7.2
25		7.1	7.1	6.7	6.8	7.7	7.5	7.7	7
50		7	7	6.7	6.8	7.5	7.4	7.7	6.9
100		6.1	7	6.7	6.8	7	6,9	7.5	6,9
pH-Units									
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	7	7.4	7,5	7,6	6.8	7.4	7,1	6,9
6.25		7.8	7.7	7.6	7.7	7.4	7.6	7.6	7.5
12.5		7.8	7.7	7.6	7.7	7.5	7.7	7.6	7.6
25		7.9	7.8	7.6	7.7	7.5	7.7	7.6	7.6
50		7.7	7.8	7.7	7.7	7.6	7.8	7.7	7.7
100		77	7.8	7.7	7.7	7.6	7.9	7.8	7.9
Salinity-ppt									
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	25	25	25	25	25	25	25	25
6.25		25	25	25	25	25	25	25	25
12.5		25	25	25	25	25	25	25	25
25		25	25	25	25	25	25	25	25
50		25	25	25	25	25	25	25	25
100		25	25	25	25	25	25	25	25
Temperature-°(
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	21	21	21	21	21	21	21	21
6.25		21	21	21	21	21	21	21	21
12.5		21	21	21	21	21	21	21	21
25		21	21	21	21	21	21	21	21
50		21	21	21	21	21	21	21	21
100		21	21	21	21	21	21	21	21



Chain of Custody Record

Ventura County Watershed Protection District

NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season

Toxicity - ABC Laboratories

Side 1 of 1

Sampling Date: Sampling Team:	11/20/2 Arne A		ean	W.	15	Ster			ber: <u>20</u>	16/	17-2 (Wet)
SAMPLE ID	DATE/ COLLE		Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyritera)	Chronic toxicity - purple sea urchin (Strongylocentrotus purpuratus)	Chronic toxicity - fathead minnow (Pimephales promelas)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	CAM = H1 7-57 = 20.1 = 3.0 =
ME-SCR				_		X				2	Note 1, Note 2, Note 3
MO-CAM	11-20-16	21145					Х			2	Note 1, Note 2, Note 3
MO-HUE	11-20-16	22:40						X		2	Note 1, Note 2, Note 3,Note 4
										-	
Relinquished	Printed Name Signature Affiliation	Ste Ste Vcw	wen te	5.	Gr.	C	Date/	~ Γim_ \\	/21/	20	16 0842
Received	Printed Name		MAS	367	M	MAN	an		. 4		
	Signature	- an	de					10			
	Affiliation	_ABC	LA	135.			Date/7	Гіт	11	21	14 0842
Other Notes:	Note 1: Diluti	ons - 6.25%	6, 12.5%	⁄ ₀ , 25%	, 50%,	100%	Note	2: Plea	ase exe	cute	TIE if mortality > 50%
	Note 3: Notif	y District w	ithin 24	hours	if signi	ificant 1	oxicity	is obse	erved.		
					_		-			elt u	mavailable, use Hyalella



January 25, 2017

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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*. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-CAM TIE 45µm Filtration

DATE RECEIVED:

11/21/2016

ABC LAB, NO.:

VCF1116.215

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

SURVIVAL

PERCENT EFFECT = 0.00%

BIOMASS

PERCENT EFFECT = 3.51%

*NOTE:TIE 45µm Filtration. Toxicity was reduced from 31.67% effect in the undiluted sample to 0.00% effect in the 45µm filtered sample. It is our opinion that the toxicity in this sample was caused by a species of freshwater algae. The dissolved oxygen in primary testing declined during the incubation periods which led us to believe algae could be the culprit. Upon filtering the sample it was noted the filter appeared to turn green during the process. Once filtered the sample did not experience a drop in dissolved oxygen. Due to these lines of evidence we suspect toxicity exhibited by this sample to be caused by freshwater algae present in solution.

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

25 Jan-17 11:40 (p 1 of 1)

Test Code:

VCF1116.215Fil | 19-9440-8710

Fathead Minn	ow 7-d Larval	Survival	and Growt	h Test				Aquatic	Bioassay &	Consultin	g Labs, Ind		
Batch ID:	08-8081-5329		Test Type:	Growth-Surviva	al (7d)		Ana	lyst: Jo	e Freas				
Start Date:	13 Dec-16 15:3	30	Protocol:	EPA/821/R-02	-013 (2002)		Dilu	ent: La	boratory Wa	ter			
Ending Date:	20 Dec-16 13:3	30	Species:	Pimephales pr	omelas		Brin	ne: Not Applicable					
Duration:	6d 22h		Source:	Aquatic Biosys			Age						
Sample ID:	10-4066-7227		Code:	VCF1116.2157	ΓIE		Clie	nt: VO	CWPD	PD			
-	20 Nov-16 11:4	45	Material:	Sample Water			Proj	ect: TII	E				
•	21 Nov-16 08:4		Source:	•									
Sample Age:			Station:	MO-CAM									
Comments:													
TIE 45um Filtr	ation												
Single Compa	arison Summai	ry											
Analysis ID Endpoint Comparison Method P-Value Comparison Result													
15-8818-1635	18-1635 7d Survival Rate Wilcoxon Rank Sum Two-Sample Test 0.7857 100% passed 7d survival rat						vival rate						
14-2337-4423 Mean Dry Biomass-mg Equal Variance t Two-Sample Test 0.2719 100%							100% pa	ssed mean	dry biomas	s-mg			
Test Acceptat	TAC Limits												
Analysis ID	Endpoint		Attrib	ute	Test Stat		Upper	Overlap	Decision				
15-8818-1635	635 7d Survival Rate Control Resp				0.9833	0_8	>>	Yes	Passes C	riteria			
14-2337-4423	Mean Dry Biom	nass-mg	Contro	ol Resp	0.2988	0.25	>>	Yes	Passes C	Passes Criteria			
7d Survival R	ate Summary												
Conc-%	Code	Coun	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect		
0	N	4	0.983	3 0.9303	1.0000	0.9333	1.0000	0.0167	0.0333	3.39%	0.00%		
100		4	0.983	3 0.9303	1.0000	0.9333	1.0000	0.0167	0.0333	3.39%	0.00%		
Mean Dry Bio	mass-mg Sumi	mary											
Conc-%	Code	Coun	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect		
0	N	4	0.298	3 0.2675	0.3302	0.2787	0.3233	0.00986	0.01972	6.60%	0,00%		
100		4	0.2883	0.2469	0.3297	0.274	0.3273	0.01301	0.02602	9.03%	3.51%		
7d Survival Ra	ate Detail												
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4								
0	N	0_9333	3 1.0000	1.0000	1.0000								
100		0.9333	1.0000	1.0000	1.0000								
Mean Dry Bion	mass-mg Detai	ı											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4								
0	N	0.3053	0.2787	0,3233	0.288								
100		0.2753			0.3273								
7d Survival Ra	te Binomials												
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4								

14/15

14/15

15/15

15/15

15/15

15/15

15/15

15/15

0

100

Report Date:

25 Jan-17 11:40 (p 1 of 4)

Test Code:

VCF1116.215Fil | 19-9440-8710

							163	code.	VOLLI	0.2 13111	13-3440-0		
Fathead Minn	ow 7-d Larval	Survival a	nd Growt	h Test				Aquatic	Bioassay &	Consultin	g Labs, Ir		
Analysis ID:	15-8818-1635	Eı	ndpoint:	7d Survival Ra	ite		CET	1.9.2					
Analyzed:	25 Jan-17 11:		nalysis:	Nonparametric		le	Offic	cial Result	s: Yes				
Batch ID:	08-8081-5329	Te	est Type:	Growth-Surviv	wth-Survival (7d) Analyst: Joe Freas								
Start Date:	13 Dec-16 15:3		otocol:	EPA/821/R-02			Dilu	•	boratory Wa	ter			
Ending Date:	20 Dec-16 13:3	30 Si	oecies:	Pimephales pr	omelas		Brin		t Applicable				
Duration:	6d 22h	•	ource:	Aquatic Biosys	stems, CO		Age	:					
Sample ID:	10-4066-7227	Co	ode:	VCF1116.215	TIE		Clie	nt: VC	WPD				
•	20 Nov-16 11:4		aterial:	Sample Water			Proj	-	<u> </u>				
•	21 Nov-16 08:4		ource:	Bioassay Repo			•		i. ric				
Sample Age:	23d 4h	St	ation:	MO-CAM									
Comments: TIE 45um Filtra	ation												
Data Transfor	m	Alt Hyp					Comparis	son Result			PMSD		
Angular (Corre	cted)	C > T					100% pas	sed 7d sur	vival rate		4.67%		
Wilcoxon Ran	ık Sum Two-Sa	mple Test											
	vs Conc-%		Test S	Stat Critical	Ties Di	F P-Type	P-Value	Decision	η(α:5%)				
Negative Contr			18	n/a	2 6	Exact	0.7857		nificant Effec	t			
Test Acceptab	oility Criteria	TAC	Limits										
Attribute	Test Stat	Lower	Uppei	overlap (Decision								
Control Resp	0.9833	0.8	>>	Yes	Passes C	riteria							
ANOVA Table													
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decision	n(α:5%)				
Between	0		0		1	0	1.0000	Non-Sign	t				
Error	0.026016		0,0043	336	6								
Total	0.026016				7								
Distributional	Tests												
Attribute	Test				Test Stat	Critical	P-Value	Decision	ι(α:1%)				
√ariances	Levene E	quality of V	'ariance T	est	0	13.75	1.0000	Equal Va	riances				
/ariances	Mod Leve	ne Equality	of Varia	nce Test	0	13.75	1.0000	Equal Va	riances				
/ariances	Variance	Ratio F Te	st		1	47.47	1.0000	Equal Va	riances				
Distribution		-Darling A2		y Test	1.973	3.878	<1.0E-37		mal Distribut				
Distribution	_	ov-Smirno			0.4554	0.3313	2.1E-05		nal Distribut				
Distribution	Shapiro-V	Vilk W Nori	mality Tes	st	0.5659	0.6451	6.3E-05	Non-Norr	mal Distribut	ion			
d Survival Ra	ate Summary												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect		
)	N	4	0.9833		1,0000	1.0000	0.9333	1.0000	0.0167	3.39%	0.00%		
100		4	0.9833	0.9303	1.0000	1.0000	0.9333	1.0000	0.0167	3.39%	0.00%		
	ected) Transfor		-										
Conc-%	Code	Count	Mean	95% LCL			Min	Max	Std Err	CV%	%Effect		
)	N	4	1.408	1.304	1.513	1.441	1.31	1.441	0.03292	4.68%	0.00%		
100		4	1.408	1.304	1.513	1.441	1.31	1.441	0.03292	4.68%	0.00%		
'd Survival Ra	ite Detail												
		D 1	D 4										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4								
Conc-%) 100	Code N	0.9333 0.9333	1.0000 1.0000	1.0000	1.0000 1.0000								

Report Date:

25 Jan-17 11:40 (p 2 of 4)

Test Code:

VCF1116.215Fil | 19-9440-8710

Fathead Minnow 7-d Lai	val Survival a	nd Growth Test
------------------------	----------------	----------------

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 15-8818-1635 **Analyzed:** 25 Jan-17 11:4

15-8818-1635 **Endpoint**: 25 Jan-17 11:40 **Analysis**:

Endpoint: 7d Survival Rate **Analysis:** Nonparametric-Two Sample

CETIS Version: Official Results:

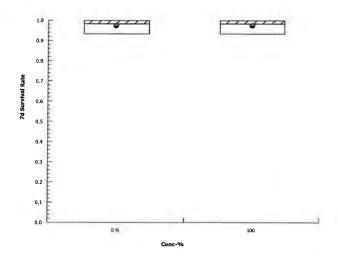
CETISv1.9.2 Yes

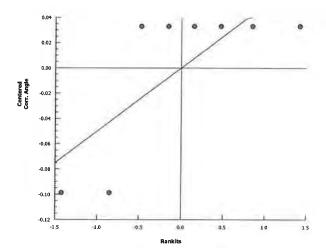
Angular (Corrected)	Transformed Detail
---------------------	--------------------

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.31	1.441	1.441	1.441
100		1.31	1.441	1_441	1.441

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	14/15	15/15	15/15	15/15
100		14/15	15/15	15/15	15/15





Report Date:

25 Jan-17 11:40 (p 3 of 4)

Test Code:

VCF1116.215Fil | 19-9440-8710

								.00	. 0040.		10.210111	10 0110 0		
Fathead Minr	now 7-	d Larval S	urvival ar	nd Growt	h Test				Aquatic E	Bioassay &	Consultir	ng Labs, Ir		
Analysis ID:	14-23	337-4423	En	dpoint:	Mean Dry Bio	mass-mg		CET	IS Version:	CETISV	1.9.2			
Analyzed:	25 Ja	an-17 11:3	9 A n	alysis:	Parametric-T	wo Sample		Offi						
Batch ID:	08-80	81-5329	Te	st Type:	Growth-Surviv	val (7d)		Ana	lyst: Joe	Freas				
Start Date:	13 De	c-16 15:30		otocol:	EPA/821/R-0				-	oratory Wa	ter			
Ending Date:	20 De	c-16 13:30	Sp	ecies:	Pimephales p	` ,		Brin		: Applicable				
Duration:	6d 22		•	urce:	Aquatic Biosy			Age						
Sample ID:	10-40	66-7227	Co	de:	VCF1116.215	STIE		Clie	nt: VC					
Sample Date:	: 20 No	v-16 11:45	5 Ma	terial:	Sample Wate	r		Proj	ect: TIE					
Receipt Date:	: 21 No	v-16 08:42	2 So	urce:	Bioassay Rep	ort		•						
Sample Age:	23d 4	h	Sta	ation:	MO-CAM									
Comments:														
TIE 45um Filtr	ration													
Data Transfor	rm		Alt Hyp						son Result			PMSD		
Untransformed	d		C > T					100% pas	ssed mean o	dry biomass	-mg	10.62%		
Equal Variand	ce t Tw	o-Sample	Test											
Control	vs	Conc-%		Test S	stat Critical	MSD DI	F P-Туре	P-Value	Decision	(a:5%)				
Negative Cont	trol	100		0.6432	2 1.943	0.032 6	CDF	0.2719	Non-Signi	ificant Effec	t			
Test Acceptat	bility C	riteria	TAC	Limits										
Attribute	=	Test Stat		Upper	Overlap	Decision								
Control Resp		0.2988	0.25	>>	Yes	Passes C								
ANOVA Table														
ANOVA Table		· · · · · ·	0.72	Mana	0	DE	E 04+4	DV-l		F0/1				
Source		Sum Squa			Square	DF 4	F Stat	P-Value	Decision		4			
Between		0.0002205 0.0031981		0.0002		1	0.4137	0.5439	Non-Signi	ficant Effec	τ			
Error Total		0.0031981		0.0005	330	6 7								
Distributional		3.000 1100												
Attribute		Гest				Tool Stat	Critical	D Value	Danisland	/40/)				
Variances			uality of \/	orionas T	oot	0.2681		P-Value 0.6231	Decision(Equal Var					
variances Variances		Levene Eq Mod Leven	-			0.2001	13.75 13.75	0.8231	Equal Var					
Variances Variances		/ariance R			ice rest	1.741	47.47	0.6599	Equal Var					
Distribution		Anderson-l		-	v Teet	0.7494	3.878	0.0599	Normal Di					
Distribution			•		, 1001	0.7494	0.3313	0.0163						
Distribution	•						0.6451	0.0604	Normal Distribution Normal Distribution					
	_													
	111455-F	_	-				Madian	Min	Max	Ctd Er-	C)/0/	0/ = 66 ~ -4		
-		`odo	Cause	Maar	QE0/ I CI	050/ 1101								
Сопс-%		Code	Count	Mean	95% LCL			Min		Std Err	CV%			
Mean Dry Bior Conc-% 0		Code V	4	0.2988	0 2675	0.3302	0.2967	0.2787	0.3233	0.00986	6.60%	0.00%		
Conc-%	١	N			0 2675									
Сопс-%	mass-n	N	4	0.2988	0 2675	0.3302	0.2967	0.2787	0.3233	0.00986	6.60%			

100

0.2787

0.2767

0.3233

0.274

0.288

0.3273

0.3053

0.2753

Report Date:

25 Jan-17 11:40 (p 4 of 4)

Test Code:

VCF1116.215Fil | 19-9440-8710

Fathead Minnow 7-d Larval Survival and Growth Test

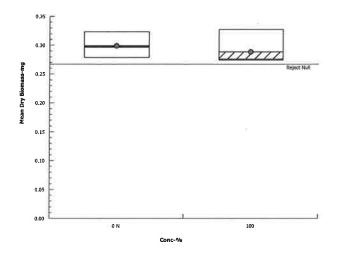
Aquatic Bioassay & Consulting Labs, Inc.

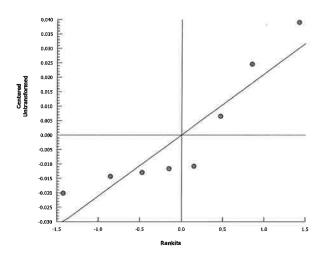
Analysis ID: 14-23 Analyzed: 25 Ja

14-2337-4423 25 Jan-17 11:39 **Endpoint:** Mean Dry Biomass-mg **Analysis:** Parametric-Two Sample

CETIS Version: CET Official Results: Yes

CETISv1.9.2 Yes





CETIS Measurement Report

Report Date:

25 Jan-17 11:40 (p 1 of 2)

Test Code:

VCF1116.215Fil | 19-9440-8710

Fathead Minn	now 7-d Larva	l Surviva	and Growt	th Test				Aquat	ic Bioassay 8	k Consultir	ig Labs, Inc.
Batch ID:	08-8081-5329	9	Test Type:	Growth-Surviv	/al (7d)			Analyst:	Joe Freas		
Start Date:	13 Dec-16 15	5:30	Protocol:	EPA/821/R-02	2-013 (2002))		Diluent:	Laboratory Wa	ater	
Ending Date:	20 Dec-16 13	3:30	Species:	: Pimephales promelas Brine: Not A		Not Applicable)				
Duration:	6d 22h		Source:	Aquatic Biosy	stems, CO			Age:			
Sample ID:	10-4066-7227		Code:	VCF1116.215	TIE			Client:	VCWPD		
Sample Date:	20 Nov-16 11	:45	Material:	Sample Wate	r			Project:	TIE		
Receipt Date:	21 Nov-16 08	3:42	Source:	Bioassay Rep	ort						
Sample Age:	23d 4h		Station:	MO-CAM							
Comments: TIE 45um Filtra	ation										
Alkalinity (Cat	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	Std Dev	CV%	QA Count
0	N	1	61			61	61	0	0	0.0%	0
100		1	69			69	69	0	0	0.0%	0
Overall		2	65	14.18	115.8	61	69	4	5.657	8.70%	0 (0%)
Dissolved Oxy	ygen-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Eri	Std Dev	CV%	QA Count
0	N	8	7.863	7.336	8.389	7.3	9.3	0.2228	0.6301	8.01%	0
100		8	7.85	7.732	7.968	7.7	8.1	0.05	0.1414	1.8%	0
Overall		16	7.856	7.621	8.091	7.3	9.3	0.1103	0.4412	5.62%	0 (0%)
Hardness (Ca	CO3)-mg/L										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	84			84	84	0	0	0.0%	0
100		1	138			138	138	0	00	0.0%	0
Overall		2	111	-232.1	454.1	84	138	27	38.18	34.40%	0 (0%)
pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	8.038	7.904	8.171	7.8	8.2	0.0565	0.1598	1.99%	0
100		8	7.85	7.724	7.976	7.6	8	0.05345	0.1512	1.93%	0
Overall		16	7.944	7.848	8.039	7.6	8.2	0.04469	0.1788	2.25%	0 (0%)
Salinity-ppt											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	8	0	0	0	0	0	0	0		0
100		8	0	0	0	0	0	0	0		0
Overall		16	0	0	0	0	0	0	0	#Num!	0 (0%)
Temperature-°	С										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err		CV%	QA Count
ס	N	8	24	24	24	24	24	0	0	0.0%	0
100		8	24.05	23.93	24.17	24	24.4	0.05	0.1414	0.59%	0
Overall		16	24.02	23,97	24.08	24	24.4	0.025	0.1	0.42%	0 (0%)



CETIS Measurement Report

Report Date:

25 Jan-17 11:40 (p 2 of 2)

Test Code:

VCF1116.215Fil | 19-9440-8710

Fathead Minno	ow 7-d Larvai	Survival a	and Growth	Test				Aquati	c Bioassay & Consulting Labs, Inc
Alkalinity (CaC	:O3)-mg/L								
Conc-%	Code	1							
0	N	61							
100		69							
Dissolved Oxy	gen-mg/L								
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	8	7.5	7.9	7.8	7.7	7.4	7.3	9.3
100		7.8	7.9	7.8	7.7	7.7	8	8.1	7.8
Hardness (CaC	O3)-mg/L								
Conc-%	Code	1							
0	N	84							
100		138							
pH-Units									
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	8.1	7.8	8	7.8	8.1	8.2	8.1	8.2
100		7.6	7.7	7.8	7.8	8	8	7.9	8
Salinity-ppt									
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	0	0	0	0	0	0	0	0
100		0	0	0	0	0	0	0	0
Temperature-°0	C								
Conc-%	Code	1	2	3	4	5	6	7	8
0	N	24	24	24	24	24	24	24	24
100		24	24	24	24	24.4	24	24	24



January 25, 2017

Mr. Arne Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised 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. "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:

Ventura County Flood Control

SAMPLE I.D.:

MO-CAM TIE BASELINE

DATE RECEIVED:

11/21/2016

ABC LAB. NO.:

VCF1116.215

CHRONIC FATHEAD MINNOW SURVIVAL & GROWTH BIOASSAY

SURVIVAL

PERCENT EFFECT = 31.67%

BIOMASS

PERCENT EFFECT = 21.91%

*NOTE: TIE Initiated due to 56.67% effect in initial test and client approval...

Yours yery truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

25 Jan-17 11:32 (p 1 of 2)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Mini	now 7-d Larva	l Survival	and Growt	h Test				Aquati	Bioassay &	Consulting	Labs, I	nc.	
Batch ID:	15-9137-519		Test Type:	Growth-Surviv	al (7d)		An	Analyst: Joe Freas					
Start Date:	29 Nov-16 13	:55	Protocol:	EPA/821/R-02	-013 (2002)		Dil	Diluent: Laboratory Water					
Ending Date:	: 06 Dec-16 11	:55	Species:	Pimephales pr	omelas		Bri	ine: N	lot Applicable				
Duration:	6d 22h		Source:	Aquatic Biosys			Ag	Age:					
Sample ID:	18-0627-8157	,	Code:	VCF1116.215	Bas		Cli	ent: V	CWPD	WPD			
Sample Date:			Material:	Sample Water					ΙE				
Receipt Date:			Source:	Bioassay Repo					,_				
-					JI (
Sample Age:	90 14n		Station:	MO-CAM								_	
Comments: TIE BASELIN	E												
Multiple Com	ıparison Sumr	nary											
Analysis ID	Endpoint		Comp	arison Method	i		NOEL	LOEL	TOEL	TU	PMSE) __ /	
	7d Survival R	ate		ett Multiple Com		t	< 30	30	n/a	>3.333	8.92%	7	
	Mean Dry Bio			ett Multiple Com			60	100	77.46	1.667	18.6%		
Point Estimat	te Summanı												
Analysis ID	Endpoint		Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	ΤU	√	
	7d Survival R	nto		Interpolation (I			EC5	12.86	6.686	28.29	7.778	_	
10-0040-0003	70 Sulvival K	ale	Linear	interpolation (i	CPIN)		EC10						
								25.71	13.37	48.57	3.889		
							EC15	40	19.2	76.92	2.5	√	
							EC20	55	28.71	95	1.818		
							EC25	73.33	34.55	n/a	1.364		
							EC40	>100	n/a	n/a	<1	✓	
							EC50	>100	n/a	n/a	<1	_ <	
05-0696-1533	Mean Dry Bio	mass-mg	Linear	Interpolation (I	CPIN)		IC5	60.06	n/a	89.07	1.665		
							IC10	71.58	n/a	111.3	1.397		
							IC15	83.09	14.58	n/a	1,204		
							IC20	94.6	51.32	n/a	1.057		
							IC25	>100	n/a	n/a	<1		
							IC40	>100	n/a	n/a	<1	√	
							IC50	>100	n/a	n/a	<1	✓	
Test Acceptal	bility					TAC	Limits						
Analysis ID	Endpoint		Attrib	ute	Test Stat	Lower	Upper	Overla	Decision				
03-1954-1442	7d Survival Ra	ate	Contro	l Resp	1	0.8	>>	Yes	Passes C	riteria			
16-8846-0853	7d Survival Ra	ate	Contro	i Resp	1	0.8	>>	Yes	Passes C	riteria			
05-0696-1533	Mean Dry Bio	mass-mg	Contro	l Resp	0.3233	0.25	>>	Yes	Passes C	riteria			
08-7119-2691	Mean Dry Bion	mass-mg	Contro	l Resp	0.3233	0.25	>>	Yes	Passes C				
08-7119-2691	Mean Dry Bio	mass-mg	PMSD	•	0.1859	0.12	0.3	Yes	Passes C	riteria			
7d Survival R	ate Summary												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effe	ct	
0	N	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%		
30		4	0.8833	0.7818	0.9849	0.8000	0.9333	0.0319	0.0638	7.23%	11.679	6	
50		4	0.7833	0.5825	0.9841	0.6000	0.8667	0.0631	0.1262	16.11%	21.679	6	
100		4	0.6833		0.8645	0.5333	0.8000	0.0569	0.1139	16.66%	31.67%		
Mean Dry Bio	mass-mg Sun	mary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effe	ct	
				0.0007	0.407	0.2667	0.2027	0.02628	0.05255	16.25%	0.00%		
0	N	4	0.3233	0.2397	0.407	0.2667	0.3927	0.02020	0.00200	10.2370	0.0070		
	N	4 4	0.3233 0.327	0.2397	0.407	0.2967	0.3927	0.02020		8.12%	-1.13%		
0 30 60	N								0.02656			ó	

CETIS Summary Report

Report Date:

25 Jan-17 11:32 (p 2 of 2)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Minn	ow 7-d Larval	Survival an	d Growth T	est		Aquatic Bioassay & Consulting Labs, Inc.
7d Survival R	ate Detail					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.0000	1.0000	1.0000	1.0000	
30		0.9333	0.8000	0.9333	0.8667	
60		0.8667	0.8000	0.8667	0.6000	
100		0.6667	0.7333	0.8000	0.5333	
Mean Dry Bio	mass-mg Deta	il				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.2667	0.3073	0:3927	0.3267	
30		0.32	0.2967	0.3307	0.3607	
60		0.3413	0.288	0.326	0.2807	
100		0.252	0.2947	0.2533	0.21	
7d Survival Ra	ate Binomials					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	15/15	15/15	15/15	15/15	
30		14/15	12/15	14/15	13/15	
60		13/15	12/15	13/15	9/15	
100		10/15	11/15	12/15	8/15	

Report Date:

25 Jan-17 11:32 (p 1 of 4)

Test Code:

VCF1116.215BI | 00-5536-4847

							Tes	t Code:	VCF11	16.215BI 0	10-5536-4	
Fathead Minno	w 7-d Larval	Survival	and Growt	h Test			Aquatic	Bioassay 8	Consultin	g Labs, Ir		
Analysis ID:	03-1954-1442		Endpoint:	7d Survival Ra	ate		CETIS Version: CETISv1.9.2					
Analyzed:	25 Jan-17 11:	31	Analysis:	Parametric-Co	ontrol vs Trea	atments	Offi	cial Resul	ts: Yes			
Batch ID: 1	15-9137-5191	1	est Type:	Growth-Surviv	al (7d)		Ana	lyst: Jo	e Freas			
Start Date: 2	29 Nov-16 13:5		Protocol:	EPA/821/R-02	2-013 (2002)				boratory Wa	iter		
Ending Date: (06 Dec-16 11:5	55 S	Species:	Pimephales pr	romelas		Brir	Brine: Not Applicable				
Duration: 6	3d 22h	5	Source:	Aquatic Biosys	stems, CO		Age	. ,				
Sample ID: 1	18-0627-8157	(ode:	VCF1116.215	Bas		Clie	nt: V	CWPD			
Sample Date: 2	20 Nov-16	N	/laterial:	Sample Water			Pro	ject: Tl	E			
Receipt Date: 2	22 Nov-16	S	ource:	Bioassay Repo	ort							
Sample Age: 9	d 14h	S	Station:	MO-CAM								
Comments:												
Data Transform	1	Alt Hy	p				NOEL	LOEL	TOEL	TU	PMSE	
Angular (Correct	ted)	C > T					< 30	30	n/a	>3.333	8.92%	
Dunnett Multip	le Compariso	n Test										
Control vs	s Control	II	Test S	Stat Critical	MSD DI	F P-Type	P-Value	Decisio	n(a:5%)			
Negative Contro	l 30*		2.77	2.287	0.174 6	CDF	0.0214	Significa	nt Effect			
	60*		4.535	2.287	0.174 6	CDF	9.3E-04	Significa	nt Effect			
	100*		6.107	2.287	0.174 6	CDF	7.4E-05	Significa	nt Effect			
Test Acceptabil	lity Criteria	TAC	CLimits									
Attribute	Test Stat	Lower	Upper	overlap	Decision							
Control Resp	4	0.8	>>	Yes	Passes C	riteria						
ANOVA Table												
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisio	η(α:5%)			
Between	0.474797		0.1582	266	3	13.71	3.5E-04	Significa	nt Effect			
Error	0.138522		0.0115	5435	12							
Total	0.613319				15							
Distributional T	ests											
Attribute	Test				Test Stat	Critical	P-Value	Decision	η(α:1%)			
/ariances	Levene E	quality of	Variance T	est	2.894	5.953	0.0791	Equal Va	riances			
/ariances	Mod Leve	ne Equali	ty of Variar	nce Test	1.793	5.953	0,2021	Equal Va	riances			
Distribution			2 Normalit	y Test	0.6644	3.878	0.0830	Normal [Distribution			
Distribution	D'Agostin				1.539	2.576	0.1238	Normal [Distribution			
Distribution	Kolmogor				0.1875	0.2471	0.1396		Distribution			
Distribution	Shapiro-W	Vilk VV No	rmality Tes	it	0.9144	0.8408	0.1369	Normal I	Distribution			
d Survival Rate	e Summary											
Conc-%	Code	Count	Mean	95% LCL			Min	Max	Std Err	CV%	%Effec	
)	N	4	1.0000		1.0000	1_0000	1.0000	1.0000	0.0000	0.00%	0.00%	
30		4	0.8833		0.9849	0.9000	0.8000	0.9333	0.0319	7.23%	11.67%	
00		4	0.7833		0.9841	0.8333	0.6000	0.8667	0.0631	16.11%	21.67%	
00		4	0.6833	0.5022	0.8645	0.7000	0.5333	0.8000	0.0569	16.66%	31.67%	
Angular (Correc	ted) Transfor	med Sun	nmary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effec	
)	N	4	1.441	1.441	1.442	1.441	1.441	1.441	0	0.00%	0.00%	
0		1	1 221	1.075	1 397	1 252	1 107	1 21	0.04004	7.070/	14 600/	

7.97%

13.38%

12.54%

14,60%

23.90%

32.19%

4

4

1.231

1.097

0.9773

1.075

0.8633

0.7823

30

60

100

1.387

1.33

1.172

1.253

1.152

0.9917

1.107

0.8861

0.8188

1.31

1.197

1.107

0.04904

0.07337

0.06128

Report Date:

25 Jan-17 11:32 (p 2 of 4)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Minnow 7-d Larval	Survival and	Growth 1	Test
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Aquatic Bioassay	& Consulting	Labs,	Inc
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Analysis ID:	03-1954-1442	Endpoint:	7d Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	25 Jan-17 11:31	Analysis:	Parametric-Control vs Treatments	Official Paguite:	Vac

7d Survival Rate Detail

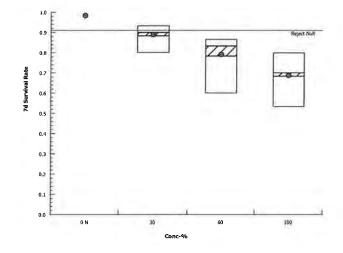
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.0000	1.0000	1.0000	1.0000
30		0.9333	0.8000	0.9333	0.8667
60		0.8667	0.8000	0.8667	0.6000
100		0.6667	0.7333	0.8000	0.5333

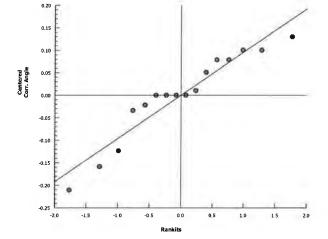
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	×	
0	N	1.441	1.441	1,441	1,441		
30		1.31	1.107	1,31	1.197		
60		1.197	1.107	1.197	0.8861		
100		0.9553	1.028	1.107	0.8188		

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	15/15	15/15	15/15	15/15
30		14/15	12/15	14/15	13/15
60		13/15	12/15	13/15	9/15
100		10/15	11/15	12/15	8/15





Report Date:

25 Jan-17 11:32 (p 3 of 4)

Test Code: VCF1116.215BI | 00-5536-4847

Fathead Minnow	7-d Larval S	Burvival	and Growt	th Test		Aquatic Bioassay & Consulting Labs, Inc					
•	3-7119-2691 5 Jan-17 11:3		Endpoint: Analysis:	Mean Dry Bio Parametric-C	•	atments		ris Version		1.9.2	
	9137-5191			Growth-Surviv	/al (7d)		Δna	lyst: Jo	e Freas		
	Nov-16 13:5		Protocol:	EPA/821/R-02	• •			•	aboratory Wa	iter	
Ending Date: 06			Species:	Pimephales p	, ,		Brin		ot Applicable		
_	22h		Source:	Aquatic Biosy			Age		, , , , , , , , , , , , , , , , , 		
Sample ID: 18-	0627-8157		Code:	VCF1116,215	Bas		Clie	nt: V	CWPD		
Sample Date: 20	Nov-16		Material:	Sample Wate	r		Proj	ject: TI	E		
Receipt Date: 22	Nov-16	;	Source:	Bioassay Rep	ort						
Sample Age: 9d	14h		Station:	MO-CAM							
Comments: TIE BASELINE											
Data Transform		Alt Hy	/p				NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C > T	•				60	100	77.46	1.667	18.59%
Dunnett Multiple	Comparisor	n Test									
Control vs	Conc-%		Test 9	Stat Critical	MSD D	F P-Type	P-Value	Decisio	n(α:5%)		
Negative Control	30		-0.139	6 2.287	0.060 6	CDF	0.7969	Non-Sig	nificant Effec	t	
	60		0.545	6 2.287	0.060 6	CDF	0.5258	Non-Sig	nificant Effec	t	
	100*		2.696	2.287	0.060 6	CDF	0.0244	Significa	int Effect		
Test Acceptability	/ Criteria	TA	C Limits								
Attribute	Test Stat				Decision						
Control Resp		0.3233			Passes C						
PMSD	0.1859	0.1859 0.12 0.3 Yes				riteria					
ANOVA Table											
Source		Sum Squares Mean Square			DF	F Stat	P-Value	Decision			
Between	0.0143028 0.0165648		0.0047 0.0013		3 12	3.454	0.0514	Non-Sig	nificant Effec	τ	
Error Total	0.0308675		0.001	3004	15	-					
Distributional Tes											
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(a:1%)		
Variances		uality of	Variance T	est	1.57	11.34	0.6662	Equal Va			
Variances			Variance T		0.5152	5.953	0.6795	Equal Va			
√ariances			ity of Varia		0.4985	5.953	0.6902	Equal Va			
Distribution	Anderson-	Darling A	A2 Normalit	y Test	0.1943	3.878	0_9422	Normal [Distribution		
Distribution	D'Agostino	Skewn	ess Test		0.6274	2.576	0.5304	Normal [Distribution		
Distribution	Kolmogoro	ov-Smirn	ov D Test		0.1436	0.2471	0.5357	Normal [Distribution		
Distribution	Shapiro-W	ilk W No	ormality Tes	st	0.9825	0.8408	0.9805	Normal [Distribution		
Mean Dry Biomas	s-mg Summ	агу									
Conc-%	Code	Count		95% LCL			Min	Max	Std Err	CV%	%Effect
)	N	4	0.3233		0.407	0.317	0.2667	0.3927	0.02628	16.25%	0.00%
30		4	0.327	0.2847	0.3693	0.3253	0.2967	0.3607	0.01328	8.12%	-1.13%
30 100		4	0.309	0.2624	0.3556	0.307	0.2807	0.3413	0.01466	9.49%	4.43%
100		4	0.2525	0.1975	0.3075	0.2527	0.21	0.2947	0.01728	13.69%	21.91%
Mean Dry Biomas: Conc-%	s-mg Detail Code	Rep 1	Rep 2	Dan ?	Rep 4						
)	N	0.2667			0.3267						
30		0.32	0.2967		0.3607						
50 50		0.3413		0.326	0.2807						
100		0.252	0.2947		0.2007						
100		U.Z3Z	0.2947	0.2533	0.21						

Report Date:

25 Jan-17 11:32 (p 4 of 4)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Minnow 7-d Larval Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 08-7119-2691 25 Jan-17 11:31 Endpoint:

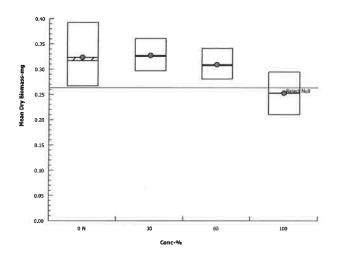
: Mean Dry Biomass-mg

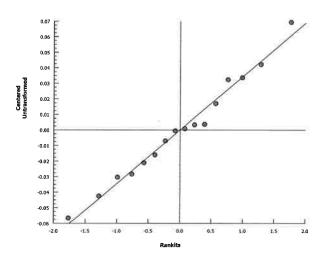
Analysis: Parametric-Control vs Treatments

CETIS Version:

CETISv1.9.2

Official Results: Yes





Report Date:

25 Jan-17 11:32 (p 1 of 4)

Test Code:

VCF1116.215BI | 00-5536-4847

													1 22 3000
Fathea	ad Minn	now 7-d Larval S	urvival and	d Growt	th Test				Aqua	tic Bic	assay &	Consul	iting Labs,
Analys Analyz		16-8846-0853 25 Jan-17 11:3		ipoint:	7d Survival Ra Linear Interpol)		ETIS Vers		CETISv Yes	1,9,2	
Batch	ID:	15-9137-5191	Tes	t Type:	Growth-Surviva	al (7d)		A	nalyst:	Joe F	reas		
Start D	ate:	29 Nov-16 13:55	5 Pro	tocol:	EPA/821/R-02-013 (2002)				Diluent: Laboratory Water				
Ending	g Date:	06 Dec-16 11:55	5 Spe	cies:	Pimephales pro	omelas		Е	Brine:	Not A	pplicable		
Duratio	on:	6d 22h	Sou	ırce:	Aquatic Biosys	tems, CO		A	.ge:				
Sample	e ID:	18-0627-8157	Cod	de:	VCF1116.215E	Bas		C	lient:	VCWF	PD		
Sample	e Date:	20 Nov-16	Mat	erial:	Sample Water			P	roject:	TIE			
Receip	t Date:	22 Nov-16	Sou	ırce:	Bioassay Repo	ort			-				
Sample	e Age:	9d 14h	Stat	tion:	MO-CAM								
Comm	ents: SELINE												
Linear	Interpo	olation Options											
X Trans	sform	Y Transform		d	Resamples	Exp 95%		ethod					
Linear		Linear	0		280	Yes	T۱	wo-Point Int	erpolation				
Test A	cceptab	oility Criteria	TAC L	imits									
Attribu		Test Stat	Lower	Uppe	r Overlap	Decision							
Control	Resp	1	0.8	>>	Yes	Passes C	riteria						
Point E	Estimate	es											
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL							
EC5	12.86	6.686	28 29	7.778	3.535	14.96							
EC10	25.71		48.57	3.889	2.059	7.479							
EC15	40	19 2	76.92	2.5	1.3	5.208							
EC20	55	28.71	95	1.818	1.053	3.483							
EC25	73.33	34.55	n/a	1.364	n/a	2.895							
EC40	>100	n/a	n/a	<1	n/a	n/a							
EC50	>100	n/a	n/a	<1	n/a	n/a							
7d Surv	vival Ra	ate Summary				Calcu	lated Va	riate(A/B)					
Conc-%	6	Code	Count	Mean	Min	Max	Std Err			Q	%Effect	Α	В
)		N	4	1.0000		1.0000	0.0000	0.0000			0.0%	60	60
30			4	0.8833		0.9333	0.0319	0.0638			11.67%	53	60
60			4	0.7833		0.8667	0.0631	0.1262			21.67%	47	60
100			4	0.6833	3 0.5333	0.8000	0.0569	0,1139	16.66	% 3	31.67%	41	60
7d Surv	vival Ra	ite Detail											
Conc-%	ó .	Code	Rep 1	Rep 2	Rep 3	Rep 4							
)		N	1.0000	1_0000		1.0000							
30			0.9333	0.8000	0.9333	0.8667							
30			0.8667	0.8000	0.8667	0.6000							
100			0,6667	0.7333	0.8000	0,5333							
'd Surv	/ival Ra	te Binomials											
Conc-%	, D	Code	Rep 1	Rep 2	Rep 3	Rep 4							
		NI NI	45145	45145	45145	4545							

15/15

13/15

9/15

8/15

Ν

15/15

14/15

13/15

10/15

15/15

12/15

12/15

11/15

15/15

14/15

13/15

12/15

0

30

60

100

Report Date:

25 Jan-17 11:32 (p 2 of 4)

Test Code:

VCF1116.215BI | 00-5536-4847

Eathard Minnow 7 d Las	val Survival and Growth Test
i auticau miliilow /-u Lat	vai Sui vivai aliu Giowili 1631

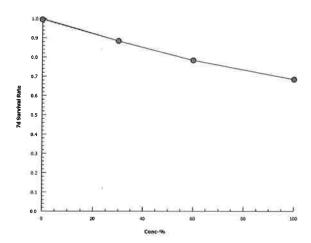
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed: 16-8846-0853 25 Jan-17 11:31 Endpoint: 7d Survival Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



Report Date:

25 Jan-17 11:32 (p 3 of 4)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Minn	ow 7-d Larval Survi	val and Growt	h Test	Aquatic Bioassay & Consulting Labs, Inc					
Analysis ID:	05-0696-1533	Endpoint:	Mean Dry Biomass-mg	CETIS Ver	sion: CETISv1.9.2				
Analyzed:	25 Jan-17 11:31	Analysis:	Linear Interpolation (ICPIN)	Official Re	sults: Yes				
Batch ID:	15-9137-5191	Test Type:	Growth-Survival (7d)	Analyst:	Joe Freas				
Start Date:	29 Nov-16 13:55	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water				
Ending Date:	06 Dec-16 11:55	Species:	Pimephales promelas	Brine:	Not Applicable				
Duration:	6d 22h	Source:	Aquatic Biosystems, CO	Age:					
Sample ID:	18-0627-8157	Code:	VCF1116.215Bas	Client:	VCWPD				
Sample Date:	20 Nov-16	Material:	Sample Water	Project:	TIE				
Receipt Date:	22 Nov-16	Source:	Bioassay Report						
Sample Age:	9d 14h	Station:	MO-CAM						

Comments:

TIE BASELINE

Linear Interpolation Options

X Transform		Y Transform	See	d	Resamples	Exp 95% CL	Method	
Linear		Linear	207	559	280	Yes	Two-Point Interpolation	
Test A	cceptabil	lity Criteria	TAC L	imits				
Attribu	ite	Test Stat	Lower	Upper	Overlap	Decision		
Control	l Resp	0.3233	0.25	>>	Yes	Passes Criteria		
Point E	Estimates	S						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL		
IC5	60.06	n/a	89.07	1.665	1.123	n/a		
IC10	71.58	n/a	111.3	1.397	0.8986	n/a		
IC15	83.09	14.58	n/a	1.204	n/a	6,858		
IC20	94.6	51.32	n/a	1,057	n/a	1.949		
IC25	>100	n/a	n/a	<1	n/a	n/a		
IC40	>100	n/a	n/a	<1	n/a	n/a		
IC50	>100	n/a	n/a	<1	n/a	n/a		

Mean Dry Bio	mass-mg Sum	ітагу			Ca	alculated Va	riate			
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	N	4	0.3233	0.2667	0.3927	0.02628	0.05255	16.25%	0.0%	
30		4	0.327	0.2967	0_3607	0.01328	0.02656	8.12%	-1.13%	
50		4	0.309	0.2807	0.3413	0.01466	0.02932	9.49%	4.43%	
100		4	0.2525	0.21	0.2947	0.01728	0.03457	13,69%	21.91%	

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	0.2667	0.3073	0.3927	0.3267	
30		0.32	0.2967	0.3307	0.3607	
60		0.3413	0.288	0.326	0.2807	
100		0.252	0.2947	0.2533	0.21	

Report Date:

25 Jan-17 11:32 (p 4 of 4)

Test Code:

VCF1116,215BI | 00-5536-4847

Fathead Minnow	7-d Larval	Survival and	Growth Test
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Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

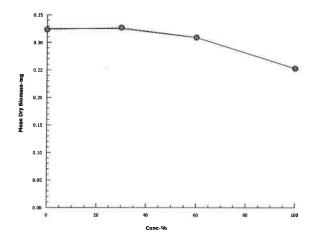
05-0696-1533 25 Jan-17 11:31

Endpoint: Mean Dry Biomass-mg Analysis:

Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2 Yes



CETIS Measurement Report

Report Date:

25 Jan-17 11:32 (p 1 of 2)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Minr	athead Minnow 7-d Larval Survival and Growth Test								Aquatic Bioassay & Consulting Labs, Inc					
Batch ID: Start Date:	15-9137-5191 29 Nov-16 13:	<i></i>	-	Growth-Surviv				•	oe Freas					
			Protocol:	EPA/821/R-02)		Diluent: Laboratory Water						
Duration:	06 Dec-16 11: 6d 22h	55	Species:	Pimephales p					lot Applicable)				
	00 ZZII		Source:	Aquatic Biosy				Age:						
Sample ID:	18-0627-8157		Code:	VCF1116.215					CWPD					
Sample Date:			Material:	Sample Wate				Project: T	ΊE					
Receipt Date:			Source:	Bioassay Rep	ort									
Sample Age:	9d 14h		Station:	MO-CAM										
Comments: TIE BASELINE														
Alkalinity (Ca	CO3)-mg/L													
Conc-%	Code	Count	t Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Coun			
0	N	1	61			61	61	0	0	0.0%	0			
100		1	57			57	57	0	0	0.0%	0			
Overall		2	59	33.59	84.41	57	61	2	2.828	4.79%	0 (0%)			
Conductivity-	µmhos													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count			
0	N	8	328.6	324	333.3	323	339	1.972	5,579	1.7%	0			
30		8	309	205.1	412.8	4.9	395	43.91	124.2	40.2%	0			
60		8	352.4	349.7	355	349	357	1.117	3.159	0.9%	0			
100		8	373	369.6	376.4	368	380	1.427	4.036	1.08%	0			
Overali		32	340.7	317.7	363.8	4.9	395	11.32	64.02	18.79%	0 (0%)			
Dissolved Oxy	/gen-mg/L													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count			
0	N	8	7.988	7.745	8.23	7.7	8.6	0.1025	0.29	3.63%	0			
30		8	15.31	-3.854	34.48	5.8	72	8,105	22.93	149_7%	0			
60		8	7.187	6 33	8.045	5.8	8.9	0.3627	1.026	14.27%	0			
100		8	6.575	5.469	7.681	4.7	8.1	0.4678	1.323	20.12%	0			
Overall		32	9.266	5.121	13.41	4.7	72	2,032	11.5	124.10%	0 (0%)			
Hardness (Ca	CO3)-mg/L													
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count			
0	N	1	88			88	88	0	0	0.0%	0			
100 Overell		2	145	245.0	470 C	145	145	0	0	0.0%	0 (00()			
Overall			116.5	-245.6	478.6	88	145	28.5	40.31	34.60%	0 (0%)			
pH-Units														
Conc-%	Code	Count		95% LCL	95% UCL		Max	Std Err	Std Dev	CV%	QA Count			
0 30	N	8	7.838	7.729	7.946	7.7	8.1	0.04605	0.1302	1.66%	0			
60		8 8	7.863 7.7	7.8 7.611	7.925 7.789	7.7	7.9	0.0263	0.07439	0.95%	0			
100		8	7.525	7.312	7.738	7.5 7.1	7.8 7.9	0.0378	0,1069	1.39% 3.39%	0			
Overall		32	7.731	7.658	7.804	7.1	8.1	0.09014 0.03576	0,255 0.2023	2.62%	0 (0%)			
Temperature-°	С		,,,,	71000	7.001			0.00070	0.2020	2.0270	0 (070)			
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Day	CV9/	04 Caust			
0	N	8	24	24	24	24	24	0	Std Dev 0	CV%	QA Count			
30	•••	8	24.01	23.98	24.04	24	24.1	0.01249	0,03531	0.0%	0			
60		8	24.01	23.98	24.04	24	24.1	0.01249	0.03531	0.15%	0			
100		8	24.01	23.98	24.04	24	24.1	0.01249	0.03531	0.15%	0			
Overall		32	24.01	24	24.02	24	24.1	0.005235		0.13%	0 (0%)			



Report Date:

25 Jan-17 11:32 (p 2 of 2)

Test Code:

VCF1116.215BI | 00-5536-4847

Fathead Minr	now 7-d Larval	Survival a	and Growth	Test				Aquati	Aquatic Bioassay & Consulting Labs, Inc.		
Alkalinity (Ca	CO3)-mg/L										
Conc-%	Code	1									
0	N	61									
100		57									
Conductivity-	µmhos										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	327	339	324	323	333	330	323	330		
30		4.9	354	395	341	340	339	347	351		
60		357	355	352	350	350	349	350	356		
100		370	376	373	371	370	368	376	380		
Dissolved Ox	ygen-mg/L										
Conc-%	Code	1	2	3	4	5	6	7	8		
0	N	8.2	8	7.7	7.9	7.8	7.9	7.8	8.6		
30		5.8	6.6	6.3	72	7.7	7.7	7.5	8.9		
60		5.8	6.6	6.3	7.9	7.7	7.7	8.9	6.6		
100		8.1	5.3	5.5	4.7	7.8	7.6	7.5	6.1		
Hardness (Ca	CO3)-mg/L										
Conc-%	Code	1									
0	N	88									
30											
60											
100		145									
pH-Units											
Conc-%	Code	1	2	3	4	5	6	7	8		
)	N	7.8	7.8	7.7	7.7	7.8	7.9	7.9	8.1		
30		7.7	7.9	7.9	7.8	7.9	7.9	7.9	7.9		
30		7.6	7.7	7.7	7.7	7.8	7.8	7.5	7.8		
100		7.9	7.4	7,1	7.6	7.8	7.4	7.4	7.6		
Temperature-	°C										
Conc-%	Code	1	2	3	4	5	6	7	8		
)	N	24	24	24	24	24	24	24	24		
30		24	24	24	24	24	24	24.1	24		
80		24	24	24	24.1	24	24	24	24		
100		24	24.1	24	24	24	24	24	24		





Chain of Custody Record

Ventura County Watershed Protection District

NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season

Toxicity - ABC Laboratories

Side 1 of 1

Sampling Date: Sampling Team:	Arne A. Dean W. Steven (F.										
SAMPLE ID	DATE/TI COLLECT		Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyrifera)	Chronic toxicity - purple sea urchin (Strongylocentrotus purpuratus)	Chronic toxicity - fathead minnow (Pimephales promelas)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	CAM = H 7.50 = 20.1 = 3.0 =
ME-SCR						X				2	Note 1, Note 2, Note 3
MO-CAM	11-20-16 2	21145					X			2	Note 1, Note 2, Note 3
MO-HUE	11-20-16	22:40						Х		2	Note 1, Note 2, Note 3, Note 4
elinquished	Printed Name	S4e	ven	5.	Gr	tes:					
.eceived	Signature Affiliation VCURD Date/Tirr W2x 2016 0842 Printed Name Affiliation Date/Tirr W2x 2016 0842										16 0842
other Notes:	Signature Affiliation Note 1: Dilution	ABC		655.	50%		Date/T				TIE if mortality > 50%
		Note 1: Dilutions - 6.25%, 12.5%, 25%, 50%, 100% Note 2: Please execute TIE if mortality > 50% Note 3: Notify District within 24 hours if significant toxicity is observed.									
	Note 4: If salinit	ty >2 ppt	then al	so run	topsme	elt for c	ompari	ison. If	topsm	elt u	mavailable, use <i>Hyalella</i>



January 25, 2017

Mr. Arnie Anselm Ventura County Watershed Protection District 800 South Victoria Ave Ventura, CA 93009

Dear Mr. Anselm:

We are pleased to present the enclosed revised bioassay report. The test was conducted under guidelines prescribed in Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, EPA-600/R95/136, 1995. Results were as follows:

CLIENT:

County of Ventura

SAMPLE I.D.:

ME-SCR

DATE RECEIVED:

1/5/2017

ABC LAB. NO.:

VCF0117.015

CHRONIC SEA URCHIN FERTILIZATION BIOASSAY

NOEC = 100.00 %

TUc = 1.00

IC25 = >100.00 %

IC50 = >100.00 %

Yours very truly,

Scott Johnson

Laboratory Director

CETIS Summary Report

Report Date:

25 Jan-17 15:09 (p 1 of 1)

Test Code:

VCF0117.015uf | 07-1639-0130

Purple Sea Urchin Sperm Cell Fertilization Test								Aquatic Bioassay & Consulting Labs, Inc.					
Batch ID:	14-2366-3156	1	est Type:	Fertilization			Analyst: Joe Freas						
Start Date:	05 Jan-17 13:	36 F	Protocol:	EPA/600/R-95	/136 (1995)		Diluent: Laboratory Seawater			water			
Ending Date:	05 Jan-17 14:	16 S	species:	Strongylocentre	otus purpura	atus	Brii	ne: N	ot Applicable				
Duration:	40m	S	Source:	David Gutoff			Age) :					
Sample ID:	01-0109-3223		ode:	VCF0117.015u			Ctie	ent: V	CWPD				
Sample Date:	: 05 Jan-17 09:	30 N	laterial:	Sample Water		Pro	ject: 20	016/17-4(Wet)					
Receipt Date:	05 Jan-17 11:	11 S	ource:	Bioassay Repo	ort								
Sample Age:	4h (12.6 °C)	S	tation:	ME-SCR									
Multiple Com	parison Sumn	nary											
Analysis ID	Endpoint		Comp	arison Method			NOEL	LOEL	TOEL	TU	PMSD .		
10-0945-8890	Fertilization R	ate	Dunne	tt Multiple Com	parison Tes	t	100	> 100	n/a	1	9.61%		
Point Estimat	te Summary												
Analysis ID	Endpoint		Point	Estimate Meth	od		Level	%	95% LCL	95% UCL	TU 、		
17-9579-2574	Fertilization Ra	ate	Linear	Interpolation (I	CPIN)		EC5	65.99	n/a	n/a	1_515		
							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		
							EC50	>100	n/a	n/a	<1		
Test Acceptal	bility					TAC	Limits						
Analysis ID	Endpoint		Attribu	ıte	Test Stat	Lower	Upper	Overlap	Decision				
10-0945-8890	Fertilization Ra	ate	Contro	l Resp	0.9425	0.7	>>	Yes	Passes Cr	iteria			
17-9579-2574	Fertilization Ra	ate	Contro	l Resp	0.9425	0.7	>>	Yes	Passes Cr	iteria			
Fertilization F	Rate Summary												
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect		
0	N	4	0.9425	0.9186	0.9664	0.9300	0.9600	0.0075	0.0150	1.59%	0.00%		
6.25		4	0.9450		1.0000	0.8900	0.9900	0.0240	0.0480	5.07%	-0.27%		
12.5		4	0.9750	0.9371	1.0000	0.9500	1,0000	0.0119	0.0238	2.44%	-3.45%		
25		4	0.9200		1.0000	0.8400	0.9700	0.0314	0.0627	6.82%	2.39%		
50		4	0.9225					0.0514	0.0027				
100		7			0.9853	0.8900	0.9800	0.0314	0.0395	4.28%	2.12%		
		4	0.9225		0.9853 0.9636	0.8900 0.8000				4.28% 6.36%	2.12% 7.16%		
	tate Detail						0.9800	0.0197	0.0395				
ertilization R	tate Detail Code						0.9800	0.0197	0.0395				
Fertilization R		4	0.8750	0.7864 Rep 3	0.9636		0.9800	0.0197	0.0395				
Fertilization R Conc-%	Code	4 Rep 1	0.8750 Rep 2	0.7864 Rep 3 0.9300	0.9636 Rep 4		0.9800	0.0197	0.0395				
Fertilization R Conc-%) 3.25	Code	Rep 1 0.9300	0.8750 Rep 2 0.9500	0.7864 Rep 3 0.9300 0.9800	0.9636 Rep 4 0.9600		0.9800	0.0197	0.0395				
Fertilization R Conc-% 0 3.25 12.5	Code	Rep 1 0.9300 0.9900	0.8750 Rep 2 0.9500 0.8900	0.7864 Rep 3 0.9300 0.9800 0.9500	0.9636 Rep 4 0.9600 0.9200		0.9800	0.0197	0.0395				
Fertilization R Conc-% 3.25 2.5	Code	Rep 1 0.9300 0.9900 0.9600	0.8750 Rep 2 0.9500 0.8900 0.9900	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400	0.9636 Rep 4 0.9600 0.9200 1.0000		0.9800	0.0197	0.0395				
Fertilization R Conc-% 0 3.25 2.5 2.5	Code	Rep 1 0.9300 0.9900 0.9600 0.9700	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9000	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700		0.9800	0.0197	0.0395				
Fertilization R Conc-% 3.25 2.5 25 60 00	Code	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9000 0.9800	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900		0.9800	0.0197	0.0395				
Fertilization R Conc-% 3.25 12.5 25 60 00 Fertilization R	Code N	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100 0.8700 Rep 1	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9000 0.9800	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100 0.9300 Rep 3	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900		0.9800	0.0197	0.0395				
Fertilization R Conc-% 5.25 2.5 5.0 00 Fertilization R Conc-%	N N ate Binomials	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100 0.8700	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9000 0.9800 0.9000	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100 0.9300	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900 0.8000		0.9800	0.0197	0.0395				
Fertilization R Conc-% 3.25 2.5 2.5 3.0 00 Fertilization R	Code N ate Binomials Code	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100 0.8700 Rep 1	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9000 0.9800 0.9000 Rep 2	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100 0.9300 Rep 3 93/100	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900 0.8000		0.9800	0.0197	0.0395				
Fertilization R Conc-% 3.25 12.5 25 60 100 Fertilization R Conc-%	Code N ate Binomials Code	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100 0.8700 Rep 1 93/100	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9800 0.9000 Rep 2 95/100	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100 0.9300 Rep 3 93/100	Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900 0.8000 Rep 4 96/100		0.9800	0.0197	0.0395				
Fertilization R Conc-% 3.25 12.5 50 100 Fertilization R Conc-% 3.25 2.5	Code N ate Binomials Code	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100 0.8700 Rep 1 93/100 99/100	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9800 0.9000 Rep 2 95/100 89/100	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100 0.9300 Rep 3 93/100 98/100	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900 0.8000 Rep 4 96/100 92/100		0.9800	0.0197	0.0395				
Fertilization R Conc-% 0 3.25 12.5 25 60	Code N ate Binomials Code	Rep 1 0.9300 0.9900 0.9600 0.9700 0.9100 0.8700 Rep 1 93/100 99/100 96/100	0.8750 Rep 2 0.9500 0.8900 0.9900 0.9800 0.9000 Rep 2 95/100 89/100 99/100	0.7864 Rep 3 0.9300 0.9800 0.9500 0.8400 0.9100 0.9300 Rep 3 93/100 98/100 95/100	0.9636 Rep 4 0.9600 0.9200 1.0000 0.9700 0.8900 0.8000 Rep 4 96/100 92/100 100/100		0.9800	0.0197	0.0395				

Report Date:

25 Jan-17 15:09 (p 1 of 2)

Test Code:

VCF0117.015uf | 07-1639-0130

											0000 0.
Purple Sea U	rchin Sperm Ce	II Fertiliz	ation Test				Aquatic Bioassay & Consulting Labs, In				
Analysis ID:	10-0945-8890	E	ndpoint: i	ertilization R	ate		CET	IS Version	ı: CETIŞv	1.9.2	
Analyzed:	25 Jan-17 15:0	08 A	nalysis: I	Parametric-Co	ontrol vs Trea	atments	Offi	cial Result	s: Yes		
Batch ID:	14-2366-3156	Т	est Type:	ertilization			Ana	lyst: Jo	e Freas		
Start Date:	05 Jan-17 13:36			EPA/600/R-95	5/136 (1995)			-	boratory Se	awater	
Ending Date:	05 Jan-17 14:16	6 S	pecies:	Strongylocenti	rotus purpura	atus	Brine: Not Applicable				
Duration:	40m		•	David Gutoff	• •		Age:				
Sample ID:	01-0109-3223	С	ode: \	/CF0117.015	u		Clie	nt: V0	CWPD		
•	05 Jan-17 09:30) N	laterial: S	Sample Water	•		Proj		16/17-4(We	t)	
•	05 Jan-17 11:11			Bioassay Rep						-7	
Sample Age:				ME-SCR							
Data Transfor	m	Alt Hy	D				NOEL	LOEL	TOEL	TU	PMSD
Angular (Corre		C > T					100	> 100	n/a	1	9.61%
Dunnett Multip	ple Comparisor	n Test									
Control	vs Conc-%		Test St	at Critical	MSD DI	F P-Type	P-Value	Decisio	n(α:5%)		
Negative Contr	rol 6.25		-0.3724	2,407	0.154 6	CDF	0.9198		nificant Effec	ot	
	12.5		-1.503	2.407	0.154 6	CDF	0.9959	Non-Sig	nificant Effec	ct	
	25		0.4641	2.407	0.154 6	CDF	0.6630	Non-Sig	nificant Effec	ct	
	50		0.495	2.407	0.154 6	CDF	0.6497	Non-Sig	nificant Effec	et	
	100		1.792	2.407	0.154 6	CDF	0.1469	Non-Sig	nificant Effec	ot	
Test Acceptab	ility Criteria	TAC	Limits								
Attribute	Test Stat	Lower	Upper	Overlap	Decision						
Control Resp	0.9425	0.7	>>	Yes	Passes C	riteria					
ANOVA Table											
Source	Sum Squ	ares	Mean S	quare	DF	F Stat	P-Value	Decisio	η(α:5%)		
Between	0.0976827	7	0.01953	65	5	2.376	0.0802	Non-Sigi	nificant Effec	t	
Error	0.147988		0.00822	16	18						
Total	0 245671				23						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	ι(α:1%)		
/ariances	Bartlett Eq	uality of \	/ariance Te	st	3.895	15.09	0.5646	Equal Va	riances		
/ariances	Levene Ed	quality of \	Variance Te	st	2.319	4.248	0.0860	Equal Va	riances		
/ariances	Mod Lever	ne Equalit	y of Variand	e Test	1.504	4.248	0.2379	Equal Va	riances		
Distribution	Anderson-	Anderson-Darling A2 Normality Test			0.4583	3.878	0.2680	Normal E	Distribution		
Distribution	D'Agostino	D'Agostino Kurtosis Test			1.8	2.576	0.0718	Normal E	Distribution		
Distribution	D'Agostino	D'Agostino Skewness Test			0.05113	2.576	0.9592	Normal E	Distribution		
Distribution	D'Agostino	-Pearson	K2 Omnibu	s Test	3.243	9.21	0.1976	Normal E	Distribution		
Distribution	Kolmogoro	ov-Smirno	v D Test		0.1326	0.2056	0.3335	Normal E	Distribution		
Distribution	Shapiro-W	ilk W Nor	mality Test		0.9529	0.884	0.3133	Normal E	Distribution		

CV%

1.59%

5.07%

2.44%

6.82%

4.28%

6.36%

%Effect

0.00%

-0.27%

-3.45%

2.39%

2.12%

7.16%

Mean

0.9425

0.9450

0.9750

0.9200

0.9225

0.8750

95% LCL

0.9186

0.8687

0.9371

0.8202

0.8597

0.7864

Count

4

4

4

4

4

Fertilization Rate Summary

Code

Ν

Conc-%

0

6.25

12.5

25

50

100

95% UCL

0.9664

1.0000

1.0000

1.0000

0.9853

0.9636

Median

0.9400

0.9500

0.9750

0.9350

0.9100

0.8850

Min

0.9300

0.8900

0.9500

0.8400

0.8900

0.8000

Max

0.9600

0.9900

1.0000

0.9700

0.9800

0.9300

Std Err

0.0075

0.0240

0.0119

0.0314

0.0197

0.0278

Report Date:

25 Jan-17 15:09 (p 2 of 2)

Test Code:

VCF0117.015uf | 07-1639-0130

Purple Sea Urchin Sperm Cell Fertilization Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	10-0945-8890	Endpoint:	Fertilization Rate	CETIS Version:	CETISv1.9,2
Analyzed:	25 Jan-17 15 08	Analysis:	Parametric-Control vs Treatments	Official Results	Yes

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.33	1.278	1.383	1.324	1.303	1.369	0.01644	2.47%	0.00%
6.25		4	1.354	1.173	1.535	1.356	1.233	1.471	0_05687	8.40%	-1.80%
12.5		4	1.427	1.294	1,559	1.42	1.345	1.521	0.04152	5,82%	-7.24%
25		4	1.3	1.114	1.487	1.323	1.159	1.397	0.05853	9.00%	2,24%
50		4	1.298	1,158	1.439	1.266	1.233	1.429	0.04419	6.81%	2.39%
100		4	1.215	1,083	1.348	1.225	1.107	1.303	0.04154	6.84%	8.64%

Fertilization Rate Detail

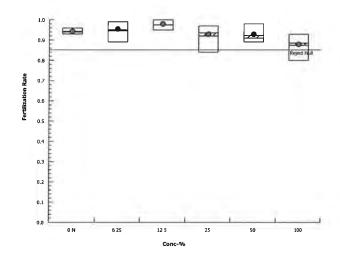
Code	Rep 1	Rep 2	Rep 3	Rep 4			
N	0.9300	0.9500	0.9300	0.9600			
	0.9900	0,8900	0,9800	0.9200			
	0.9600	0.9900	0.9500	1.0000			
	0.9700	0.9000	0.8400	0.9700			
	0.9100	0_9800	0.9100	0.8900			
	0_8700	0.9000	0.9300	0.8000			
		N 0.9300 0.9900 0.9600 0.9700 0.9100	N 0.9300 0.9500 0.9900 0,8900 0.9600 0.9900 0.9700 0.9000 0.9100 0.9800	N 0.9300 0.9500 0.9300 0.9900 0,8900 0,9800 0.9600 0.9900 0.9500 0.9700 0.9000 0.8400 0.9100 0.9800 0.9100	N 0.9300 0.9500 0.9300 0.9600 0.9900 0.8900 0.9800 0.9200 0.9600 0.9700 0.9700 0.9700 0.9700 0.9100 0.8900	N 0.9300 0.9500 0.9300 0.9600 0.9900 0.9900 0.8900 0.9500 1.0000 0.9700 0.9100 0.9800 0.9100 0.9100 0.9800 0.9100	N 0.9300 0.9500 0.9300 0.9600 0.9900 0,8900 0,9800 0,9200 0.9600 0.9900 0.9500 1.0000 0.9700 0.9000 0.8400 0.9700 0.9100 0.9800 0.9100 0.8900

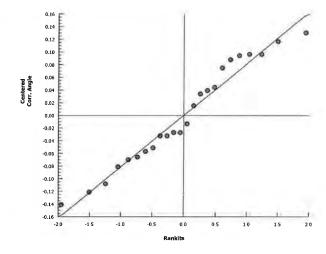
Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	N	1.303	1.345	1.303	1.369	
6.25		1.471	1.233	1.429	1.284	
12.5		1.369	1.471	1.345	1.521	
25		1.397	1.249	1.159	1,397	
50		1.266	1.429	1.266	1.233	
100		1.202	1.249	1,303	1.107	

Fertilization Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	93/100	95/100	93/100	96/100
6.25		99/100	89/100	98/100	92/100
12.5		96/100	99/100	95/100	100/100
25		97/100	90/100	84/100	97/100
50		91/100	98/100	91/100	89/100
100		87/100	90/100	93/100	80/100





Report Date:

25 Jan-17 15:09 (p 1 of 2)

Test Code:

VCF0117_015uf | 07-1639-0130

Purple	Sea U	rchin Sperm Cel	l Fertiliza	ition Tes	t					Aqu	atic Bi	oassay &	Consul	ting Labs, In
•		17-9579-2574 25 Jan-17 15:09		•		ite ation (ICPIN)			CETIS Ver Official Re		CETISv Yes	1.9.2	
Batch	ID:	14-2366-3156	Te	est Type:	Fertilization				-	Analyst:	Joe F	reas		
Start Date: 05 Jan-17 13:36		Pr	otocol:	EPA/600/R-95/	/136 (1995)				Diluent:	Labo	ratory Sea	awater		
		05 Jan-17 14:16	S	oecies:	Strongylocentre	otus purpura	itus		E	Brine:	Not A	pplicable		
		40m	Sc	ource:	David Gutoff				1	\ge:				
Sampl	e ID:	01-0109-3223	Co	ode:	VCF0117.015u	1			(Client:	VCW			
•		05 Jan-17 09:30	M	aterial:	Sample Water				F	Project:	2016/	17-4(We	t)	
_		05 Jan-17 11:11		ource:	Bioassay Repo	ort								
Sampl	e Age:	4h (12.6 °C)	St	ation:	ME-SCR									
Linear	Interpo	olation Options												
X Tran	sform	Y Transform		ed	Resamples	Exp 95%	CL	Meth						
Linear		Linear	0		280	Yes		Two-	-Point In	terpolation				
Test A	cceptat	oility Criteria	TAC	Limits										
Attribu		Test Stat	Lower	Uppe	r Overlap	Decision								
Control	l Resp	0.9425	0.7	>>	Yes	Passes C	riteria							
Point E	Estimate	es												
Level	%	95% LCL	95% UC		95% LCL	95% UCL								
EC5	65.99		n/a	1.515	n/a	n/a								
EC10	>100	n/a	n/a	<1	n/a	n/a								
EC15	>100	n/a	n/a	<1	n/a	n/a								
EC20	>100	n/a	n/a	<1	n/a	n/a								
EC25	>100	n/a	n/a	<1	n/a	n/a								
EC40 EC50	>100 >100	n/a n/a	n/a n/a	<1 <1	n/a n/a	n/a n/a								
			11/4		11/a		1 - 41	., .						_
		ate Summary	•	-					te(A/B)	A) (0)		0/ m ee .		
Conc-%	/a	Code N	Count 4	Mean 0.942	Min 5 0.9300	Max 0.9600	0.00	Err 175	O.0150			%Effect 0.0%	A 377	8 400
3.25		N	4	0.9450		0.9900	0.02		0.0480			-0.27%	378	400
2.5			4	0.9750		1.0000	0.01		0.0238			-3.45%	390	400
25			4	0.9200		0_9700	0.03		0.0627			2.39%	368	400
50			4	0.922		0.9800	0.01		0.0395			2.12%	369	400
00			4	0.8750	0.8000	0.9300	0.02	278	0.0557			7.16%	350	400
ertiliz	ation R	ate Detail												
Conc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4								
)		N	0.9300	0.9500		0.9600								
.25			0,9900	0.8900	0.9800	0.9200								
2.5			0.9600	0.9900	0.9500	1.0000								
25			0.9700	0.9000	0.8400	0.9700								
0			0.9100	0.9800	0.9100	0.8900								
00			0.8700	0.9000	0.9300	0.8000								
ertiliza	ation Ra	ate Binomials												
onc-%	6	Code	Rep 1	Rep 2	Rep 3	Rep 4								
		N	93/100	95/100	93/100	96/100								
5.25			99/100	89/100	98/100	92/100								
2.5			96/100	99/100		100/100								
5			97/100	90/100	84/100	97/100								
50			91/100	98/100	91/100	89/100								
00			87/100	90/100	93/100	80/100								

Report Date:

25 Jan-17 15:09 (p 2 of 2)

Test Code:

VCF0117.015uf | 07-1639-0130

Purple Sea Urchin Sperm Cell Fertilization Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: Analyzed:

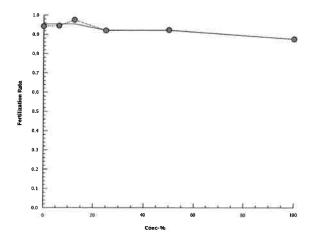
17-9579-2574 25 Jan-17 15:09 Endpoint: Fertilization Rate

Analysis: Linear Interpolation (ICPIN)

CETIS Version: Official Results:

CETISv1.9.2

Yes



CETIS Measurement Report

Report Date:

25 Jan-17 15:09 (p 1 of 2)

Test Code:

VCF0117.015uf | 07-1639-0130

Purple Sea Urchin Sperm Cell Fertilization Te	st
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Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 14-2366-3156 Test Type: Fertilization Analyst: Joe Freas

Start Date:05 Jan-17 13:36Protocol:EPA/600/R-95/136 (1995)Diluent:Laboratory SeawaterEnding Date:05 Jan-17 14:16Species:Strongylocentrotus purpuratusBrine:Not Applicable

Duration: 40m **Source**: David Gutoff **Age**:

 Sample ID:
 01-0109-3223
 Code:
 VCF0117.015u
 Client:
 VCWPD

 Sample Date:
 05 lon 17.00:30
 Meterial:
 Sample Water
 Project:
 3016/17.40

Sample Date: 05 Jan-17 09:30 Material: Sample Water Project: 2016/17-4(Wet)

Receipt Date: 05 Jan-17 11:11 Source: Bioassay Report

Sample Age: 4h (12.6 °C) Station: ME-SCR

12

6.5

6.31

Parameter Acceptability Criteria			TAC	Limits		
Parameter	Min	Max	Lower	Upper	Overlap	Decision
Salinity	34	34	32	36	Yes	Passes Criteria
Temperature	14.8	14,9	11	13	Yes	Above Criteria

Dissolved Oxygen-mg/L **QA Count** Conc-% Code Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% 0 2 N 6.4 1.318 11.48 6 6.8 0.4 0.5657 8.84% 0 2 6.25 6.5 3.959 9.041 6.3 6.7 0.2 0.2828 4.35% 0 12,5 2 6.45 2.003 10.9 6.1 6.8 0.35 0.495 7.67% 0 25 2 6.7 4.159 9.241 6.5 6.9 0.2 0.2828 4.22% 0 50 2 6.4 3.859 8.941 6.2 6.6 0.2 0.2828 4.42% 0 100 2 6.55 4.644 8.456 6.4 6.7 0.15 0.2121 3.24% 0

6

6.9

0.08616

0.2985

4.59%

0 (0%)

6.69

pH-Units											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
6.25		2	7.9	7.884	7.916	7.9	7,9	0	0	0.0%	0
12.5		2	7.9	7.884	7.916	7.9	7,9	0	0	0.0%	0
25		2	7.85	7.215	8.485	7.8	7.9	0.05	0.07071	0.9%	0
50		2	7.8	7.787	7.813	7.8	7.8	0	0	0.0%	0
100		2	7.75	7.115	8.385	7.7	7.8	0.05001	0.07072	0.91%	0
Overall		12	7.85	7.807	7.893	7.7	7.9	0.01946	0.06742	0.86%	0 (0%)

Salinity-ppt											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	34	34	34	34	34	0	0	0.0%	0
6.25		2	34	34	34	34	34	0	0	0.0%	0
12.5		2	34	34	34	34	34	0	0	0.0%	0
25		2	34	34	34	34	34	0	0	0.0%	0
50		2	34	34	34	34	34	0	0	0.0%	0
100		2	34	34	34	34	34	0	0	0_0%	0
Overall		12	34	34	34	34	34	0	0	0.00%	0 (0%)

Temperature-°C											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
6.25		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
12.5		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
25		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
50		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
100		2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
Overall		12	14.85	14.82	14.88	14.8	14.9	0.01508	0.05222	0.35%	0 (0%)

Overall

CETIS Measurement Report

Report Date:

25 Jan-17 15:09 (p 2 of 2)

Test Code:

VCF0117.015uf | 07-1639-0130

Purple Sea Urchin Sperm Cell Fertilization Test			tion Test	Aquatic Bioassay & Consulting Labs, Inc
Dissolved Oxy	ygen-mg/L			
Conc-%	Code	1	2	
0	N	6.8	6	
6.25		6.7	6.3	
12.5		6.8	6.1	
25		6.9	6.5	
50		6.6	6.2	
100		6.7	6.4	
pH-Units				
Conc-%	Code	1	2	
0	N	7.9	7.9	
6.25		7.9	7.9	
12.5		7.9	7.9	
25		7.8	7.9	
50		7.8	7.8	
100		7.8	7.7	
Salinity-ppt				
Conc-%	Code	1	2	
0	N	34	34	
6.25		34	34	
12.5		34	34	
25		34	34	
50		34	34	
100		34	34	
Temperature-°	С			
Conc-%	Code	1	2	
0	N	14.9	14.8	
6.25		14.9	14.8	
12.5		14.9	14.8	
25		14.9	14.8	
50		14.9	14.8	
100		14.9	14.8	



Chain of Custody Record

Ventura County Watershed Protection District NPDES Stormwater Monitoring Program

Project: NPDES Stormwater Wet Season

Toxicity - ABC Laboratories

Side 1 of 1

			sdo	Menidia	ocystis			phnia	idocelis		
SAMPLE ID	DATE/T COLLEC		Chronic toxicity - topsmelt (Atherinops affinis)	Chronic toxicity - inland silverside (Menidia beryllina)	Chronic toxicity - giant kelp (Macrocystis pyrifera)	Chronic toxicity - purple sea urchin (Strongylocentrotts purpuratus)	Chronic toxicity - fathead minnow (Pimephales promelas)	Chronic toxicity - daphnid (Ceriodaphnia dubia)	Chronic toxicity - green alga (Raphidocelis subcapitata)	Number of 5-Gallon Buckets	NOTES
Æ-SCR	+	30				X				2	Note 1, Note 2, Note 3
						76 OX	opia opia	teg (r)	y 3	E	10.5 20.5
elinquished	Printed Name Signature Affiliation	Las	NPD		ekes Vi		Date/	Γim <u></u>	15/1	7	[[:1]
Received	Printed Name Signature Affiliation	ABC	endi Lat	7			Date/	Tim_C	1/09	> /ı	7 1111
Other Notes:	Note 1: Dilutions - 6.25%, 12.5%, 25%, 50%, 100% Note 2: Please execute TIE if mortality > 50% Note 3: Notify District within 24 hours if significant toxicity is observed.										

Appendix J. Dry-Weather Analytical Monitoring Results

	Site ID	Port Hueneme-3	Unincorporated-2	Camarillo-4	Fillmore-1
		DRY-HUE3	DRY-UNI2	DRY-CAM4	MO-FIL
	At Major Outfall?	No	No	No	Yes
	Location	Bubbling Springs @ RR xing	MCW-12 Medea Creek @ Tamarind	West Tributary Somis Drain	North Fillmore Drain
	Date	08/03/17	08/03/17	08/03/17	08/02/17
	Time	14:20	12:40	9:15	9:45
	Conveyence Type	Natural channel	Natural channel	Trapezoidal channel	Box culvert
Site Description	Dimensions	N/A	N/A	N/A	N/A
•	Dominant Land Use	Commercial & residential	Residential & rural	Residential, industrial & commercial	Residential
	Site Elevation Weather	10 Partly cloudy	1000 Partly cloudy	150 Partly cloudy	430 Partly cloudy
Weather	Wind Condtion	Slight breeze	Slight breeze	Calm	Calm
Weather	Air Temp. (C)	31.1	35.6	28	27.2
771 1	Trash (general area)	None	Light	None	Light
Trash	Trash (stream banks)	Light	None	High	Light
	Water Clarity	Clear	Clear	Clear	Clear
	Water Color	Green	Clear	Clear	Clear
	Odors	None	None	None	None
	Floatables	Garbage	Sheen	None	None
	Foam	None	None	1% sparse, thin, white, <0.01' high	None
	Stains/ deposits	None	White (mineralization?) above water line	Pink/orange	None
Observations	Structural condition	Natural channel	Rip-rap with natural bottom	Concrete channel	Rip rap with concrete bottom to natural bottom
	Vegetation Condition	Maintained grass/park	Somw new willow growth on edges	Some reeds and grasses in channel seams	Recently cleared, sparse herbaceous plants
	Biology	>100 ducks in/near water, 100s of <1" long fish	Louisiana crayfish*	Aquatic snails	Aquatic snails
	Algae (suspended)	microalgae	Greenish-brown 70%	Green 5%	None
	Algae (substrate)	None	Greenish-brown 100%	Green 70%	Green 5%
	Dissolved Oxygen (%)	83.6	64.6	153.4	163.1
	Dissolved Oxygen (mg/L)	6.72	4.93	12.04	13.69
Water	Conductivity (µS)	9010	3698	2873	1120
Chemistry	Specific Conductance (µS) Salinity (ppt)	8380	3382	2726	1104 0.5
(Field)	Water Temp. (C)	4.6 27.5	1.8 29.5	1.4 26.9	24.7
(Pielu)	Water Temp. (F)	81.5	85.1	80.4	76.5
	pH	7.42	7.26	8.26	8.34
	Turbidity (NTU)	47.10	4.95	2.82	1.52
	Total Organic Carbon (mg/L) 1	7.9	8.6	20	4.1
	Total Hardness as CaCO ₃ (mg/L)	1,540	1,150	653	540
	Total Calcium (mg/L)	291	216	181	147
Water	Total Magnesium (mg/L)	197	149	49.0	42.3
Chemistry	Dissolved Copper (µg/L)	< 0.13	0.25 (DNQ)	7.9	7.0
(Lab)	Dissolved Lead (µg/L)	< 0.031	<0.031	0.12 (DNQ)	0.070 (DNQ)
	Dissolved Zinc (µg/L)	< 0.94	1.1 (DNQ)	4.3 (DNQ)	23
	Total Coliform (MPN/100 mL)	129,970	12,997	461,100	74
	E. coli (MPN/100 mL)	14,136	<10	4,884	<10
	Flow Status	Ponded	Flowing	Flowing	Flowing
Estimated	Water Width (ft.)	20.0	3.0	6.0	2.0
Flow	Water Depth (ft.)	1-2	0.30	0.01	0.10
	Flow Velocity (ft/s)	< 0.001	< 0.01	0.50	0.30
	Flow Rate (ft ³ /s) Comments	~ 0	<0.01 MRCA ² staff/volunteers catching ~1000/day, 5-6 days/wk for the last few years. Use traps with dog food or crayfish food (more recent) as bait.	0.03	0.06

	Site ID	Moorpark-1	Ojai-6	Oxnard-2	Santa Paula-4
		MO-MPK	DRY-OJA6	DRY-OXN2	DRY-SPA4
	At Major Outfall?	Yes	No	No	No
	Location	Walnut Canyon	Tributary to Fox Barranca	Stroube Drain	Richmond Rd Drain
	Date	08/03/17	08/02/17	08/03/17	08/02/17
	Time	10:20	11:20	8:00	8:50
		†			
	Conveyence Type	Box culvert	Natural channel	Natural channel	Epoxy coated metal pipe
Site Description	Dimensions	5' x 12'	N/A	N/A	1'6"
	Dominant Land Use Site Elevation	Commercial & residential	Residential 730	Commercial & residential 70	Residential 343
	Weather	Partly cloudy	Overcast	Partly cloudy	Overcast
Weather	Wind Condtion	Slight breeze	Calm	Calm	Calm
w cather	Air Temp. (C)	30.5	24.4	23.6	27.3
Pri 4	Trash (general area)	None	None	Light	None
Trash	Trash (stream banks)	Light	Light	Light	None
	Water Clarity	Clear	Clear	Clear	Clear
	Water Color	Yellow	Clear	Clear	Clear
	Odors	None	None	None	None
	Floatables	None	None	None	None
	Foam	None	None	<1% sparse, thin, white, <0.01' high	None
	Stains/ deposits	None	None	None	None
Observations	Structural condition	Concrete channel	Natural channel	Concrete channel to rip rap	Pipe to concreted rip rap
	Vegetation Condition	None	Some vines including blackberry, poison oak	Dense herbaceous - watercress	Herbaceous growth and mulefat
	Biology	None	Water striders	Snails on streambed. Flies on algae	None
	Algae (suspended)	None	None	Green 40%	None
	Algae (substrate)	None	Green <1%	Green 40%	Green 40%
	Dissolved Oxygen (%)	119.5	83.8	63.5	94.7
	Dissolved Oxygen (mg/L)	9.21	7.25	5.60	8.26
	Conductivity (µS)	2202	1369	1051	1680
Water	Specific Conductance (µS)	2062	1180	1132	1774
Chemistry	Salinity (ppt)	1.0	0.5	0.6	0.9
(Field)	Water Temp. (C)	28.3	22.2	21.3	22.7
	Water Temp. (F)	82.9	72.0	70.3	72.9
	pН	8.80	7.8	8.01	7.77
	Turbidity (NTU)	3.62	1.09	1.64	0.09
	Total Organic Carbon (mg/L) 1	30	3.2	9.3	1.6
	Total Hardness as CaCO ₃ (mg/L)	281	634	466	771
XV/	Total Calcium (mg/L)	74.8	174	122	212
Water	Total Magnesium (mg/L)	22.9	48.3	39.3	58.6
Chemistry	Dissolved Copper (µg/L)	7.8	0.32 (DNQ)	3.4	0.30 (DNQ)
(Lab)	Dissolved Lead (μg/L)	0.070 (DNQ)	< 0.031	< 0.031	< 0.031
	Dissolved Zinc (μg/L)	2.8 (DNQ)	< 0.94	6.6	< 0.94
	Total Coliform (MPN/100 mL)	579,400	1,720	198,630	2,382
	E. coli (MPN/100 mL)	11,199	122	422	<10
	Flow Status	Flowing	Flowing	Flowing	Flowing
Estimated	Water Width (ft.)	3.5	4.0	8.0	1.0
Flow	Water Depth (ft.)	0.03	0.30	0.10	0.10
2.25 17	Flow Velocity (ft/s)	1.00	0.10	0.10	3.00
	Flow Rate (ft ³ /s) Comments	0.10 pH#1 8.78, pH#2 8.81	0.12	0.08	0.30
	Conments	p11#1 0.70, p11#2 0.01			

	Site ID	Simi Valley-1	Thousand Oaks-1	Ventura-5
		MO-SIM	мо-тно	DRY-VEN5
	At Major Outfall?	Yes	Yes	No
	Location	Bus Canyon Drain	North Fork Arroyo Conejo at Hill Canyon WWTP	Dent Drain
	Date	08/03/17	08/03/17	08/02/17
	Time	10:55	11:40	13:15
	Conveyence Type	Box culvert	Natural channel	Natural channel
Site Description	Dimensions	7' x 16'	N/A	7.5' x 20'(toe) x 35'(top)
Description	Dominant Land Use	Commercial & residential	Commercial, residential & rural	Residential & rural
	Site Elevation	760	280	60
337 .1	Weather	Partly cloudy	Partly cloudy	Partly cloudy
Weather	Wind Condtion	Calm 31.7	Calm 31.4	Slight breeze 32
	Air Temp. (C) Trash (general area)		None	32 Light
Trash	Trash (general area) Trash (stream banks)	High High	None	None
	Water Clarity	Clear	Clear	Clear
	Water Color	Clear	Clear	Clear
	Odors	None	None	None
	Floatables	None	None	Oily sheen
	Foam	None	None	None
	Stains/ deposits	None	None	None
Observations	Structural condition	Concrete channel	Rip-rap with natural bottom	Flap gate RCP to natural channel
	Vegetation Condition	Small number grasses/reads in sediment	Willows and herbaceous growth at water's edge	Abundant river primrose
	Biology	None	None	None
	Algae (suspended)	Green 20%	None	None
	Algae (substrate)	Green 70%	None	None
	Dissolved Oxygen (%)	187.4	98.2	6.5
	Dissolved Oxygen (mg/L)	15.34	7.75	0.69
Water	Conductivity (μS) Specific Conductance (μS)	1636	1432	979
Chemistry	Salinity (ppt)	1628 0.8	1707 0.9	1060 0.5
(Field)	Water Temp. (C)	25.3	24.7	21.8
(Ficia)	Water Temp. (F)	77.5	76.5	71.2
	pH	8.17	8.05	7.25
	Turbidity (NTU)	1.75	0.81	14.63
	Total Organic Carbon (mg/L) 1	3.3	6.7	18
	Total Hardness as CaCO ₃ (mg/L)	1,090	261	349
	Total Calcium (mg/L)	273	47.3	88.0
Water	Total Magnesium (mg/L)	98.8	34.6	31.4
Chemistry	Dissolved Copper (μg/L)	0.56	1.5	5.0
(Lab)	Dissolved Lead (µg/L)	< 0.031	0.040 (DNQ)	0.12 (DNQ)
	Dissolved Zinc (µg/L)	< 0.94	32	15
	Total Coliform (MPN/100 mL)	141,360	48,840	>2,419,600
	E. coli (MPN/100 mL)	181	31	5,475
	Flow Status	Flowing	Flowing	Ponded
Estimated	Water Width (ft.)	5.0	15.0	15.0
Flow	Water Depth (ft.)	0.05	1.00	1.00
	Flow Velocity (ft/s)	2.00	<0.01	~0
	Flow Rate (ft ³ /s)	0.50	~0	<0.01
	Comments			Ventura drains very dry. Collected from mostly ponded area below flapgate

Appendix K. Formulas for WQO determination

BASIN PLAN and CALIFORNIA TOXICS RULE OBJECTIVES: FORMULAS

AMMONIA (BASIN PLAN)

Basin Plan Ammonia Objective formula selection is based on wet or dry event, COLD/MIGR designation status, early life stages (ELS) status, and salinity.

See the flow charts below to determine which formula to use:

Basin Plan NH3-N Objectives for Wet Weather

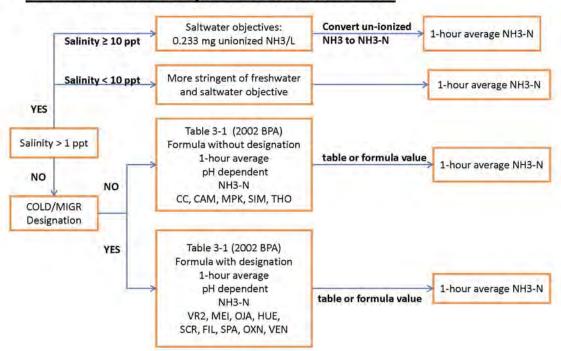


Table 3-1: One hour Average Objective for Ammonia-N for Freshwaters (mg N/L)

COLD and/or MIGR:

$$= \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}}$$

NOT COLD and/or MIGR:

$$= \frac{0.411}{1 + 10^{7.204 - pH}} + \frac{58.4}{1 + 10^{pH - 7.204}}$$

Saltwater 1-hour objective for Ammonia-N

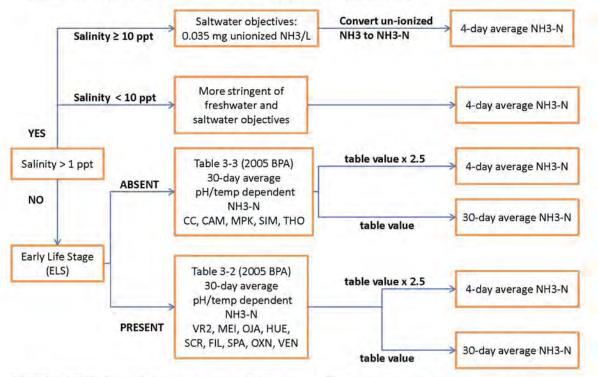
$$=0.233*(1+10^{\left[\left(9.245+0.116*\frac{19.9273*S}{1000-1.005109*S}\right)+0.0324(298-T)+\frac{(0.0415)P}{T}-pH\right]})$$

Where T= temperature expressed in $^{\circ}$ K (Note: Kelvin = Celsius + 273)

S = salinity (ppt)

P = pressure (assumed to be 1 atm)

Basin Plan NH3-N Objectives for Dry Weather



BPA 2005 p15-11 "Implementation actions to achieve applicable ammonia objectives must implement downstream objectives," NH3-N = NH3 x 0.822 4 day average objective = 2.5 x 30-day average objective

<u>Table 3-2: 30-Day Average Objective for Ammonia-N for Freshwaters Applicable to</u> Waters Subject to the "Early Life Stage Present" Condition (mg N/L)

$$= \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}}\right) * MIN(2.85, 1.45 * 10^{0.028 * (25 - T)})$$

Where T= temperature expressed in °C.

Highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

<u>Table 3-3: 30-Day Average Objective for Ammonia-N for Freshwaters Applicable to Waters Subject to the "Early Life Stage Absent" Condition (mg N/L)</u>

$$= \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+\ 10^{pH-7.688}}\right) * 1.45*10^{0.028*(25-MAX(T,7))}$$

Where T= temperature expressed in °C.

Highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

Saltwater 4-day objective for Ammonia-N

$$=0.035*(1+10^{\left[\left(9.245+0.116*\frac{19.9273*S}{1000-1.005109*S}\right)+0.0324(298-T)+\frac{(0.0415)P}{T}-pH\right]})$$

Where T= temperature expressed in $^{\circ}$ K (Note: Kelvin = Celsius + 273)

S = salinity (ppt)

P = pressure (assumed to be 1 atm)

PENTACHLOROPHENOL (CTR)

$$CMC = \exp(1.005(pH) - 4.869)$$

 $CCC = \exp(1.005(pH) - 5.134)$

METALS (CTR)

[cadmium, chromium, copper, lead, nickel, silver, zinc]

$$CMC = WER * (Acute Conversion Factor) * (exp{m_A[1n(hardness)] + b_A})$$

 $CCC = WER * (Chronic Conversion Factor) * (exp{m_C[1n(hardness)] + b_C})$

Note1: CCC formula contains error in CTR (says "Acute" not "Chronic" for Conversion Factor). Note2: see note to Table 2 of Paragraph (b)(2) in the CTR, "The term conversion factor represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column." Note3: Conversion factors (CF) are provided as values in a table for chromium, copper, nickel, silver, and zinc. CF for cadmium and lead are calculated based on hardness, i.e.

```
Cadmium Acute CF = 1.136672 - [(ln\{hardness\}) (0.041838)]

Cadmium Chronic CF = 1.101672 - [(ln\{hardness\}) (0.041838)]

Lead Acute and Chronic CF = 1.46203 - [(ln\{hardness\}) (0.145712)]
```

Note4: Only two WER in Ventura County and no stations discharge within the applicable reaches - Lower Calleguas Creek (Reach 2 which is Portrero Rd south to Mugu Lagoon) has a WER for copper of 3.69 and Mugu Lagoon copper WER is 1.51.

		Event	Sample		Result
Site ID	Event ID	Type	Date	Sign	(MPN/100 mL)
ME-CC	2010/11-1	Wet	10/6/2010	=	16000
ME-CC	2010/11-2	Wet	10/30/2010	=	24000
ME-CC	2010/11-4	Wet	2/16/2011	=	5000
ME-CC	2011/12-1	Wet	10/5/2011	=	9000
ME-CC	2011/12-2	Wet	1/21/2012	=	5000
ME-CC	2012/13-2	Wet	11/17/2012	=	16000
ME-CC	2012/13-3	Wet	2/19/2013	=	2400
ME-CC	2013/14-2	Wet	2/6/2014	=	8000
ME-CC	2013/14-3	Wet	2/27/2014	=	5000
ME-CC	2014/15-1	Wet	11/1/2014	=	130000
ME-CC	2014/15-3	Wet	12/12/2014	=	540000
ME-CC	2014/15-6	Dry	7/7/2015	=	8000
ME-CC	2015/16-1	Wet	9/15/2015	=	160000
ME-CC	2015/16-2	Wet	1/5/2016	=	14000
ME-CC	2015/16-3	Wet	1/31/2016	>	16000
ME-CC	2016/17-1	Wet	10/28/2016	=	790
ME-CC	2016/17-2	Wet	11/20/2016	=	24000
ME-CC	2016/17-3	Wet	12/15/2016	>	16000
ME-SCR	2010/11-2	Wet	10/30/2010	=	500
ME-SCR	2010/11-4	Wet	2/16/2011	=	1700
ME-SCR	2011/12-1	Wet	10/5/2011	=	2400
ME-SCR	2012/13-2	Wet	11/17/2012	=	700
ME-SCR	2013/14-2	Wet	2/6/2014	=	1700
ME-SCR	2013/14-3	Wet	2/27/2014	=	5000
ME-SCR	2014/15-3	Wet	12/12/2014	=	110000
ME-SCR	2014/15-4	Wet	4/7/2015	>	1600000
ME-SCR	2014/15-6	Dry	7/1/2015	=	13000
ME-SCR	2015/16-2	Wet	1/6/2016	>	1600000
ME-SCR	2015/16-4	Wet	3/6/2016	=	1600
ME-SCR	2016/17-4	Wet	1/5/2017	=	1400
ME-SCR	2016/17-5	Wet	1/19/2017	=	3000
ME-VR2	2010/11-1	Wet	10/6/2010	=	500
ME-VR2	2010/11-2	Wet	10/30/2010	=	5000
ME-VR2	2010/11-4	Wet	2/16/2011	=	900
ME-VR2	2011/12-1	Wet	10/5/2011	=	2400
ME-VR2	2011/12-2	Wet	1/21/2012	=	500
ME-VR2	2011/12-3	Wet	3/17/2012	=	5000
ME-VR2	2012/13-2	Wet	11/17/2012	=	1600
ME-VR2	2012/13-4	Wet	3/8/2013	=	900
ME-VR2	2013/14-2	Wet	2/6/2014	=	800
ME-VR2	2013/14-3	Wet	2/27/2014	=	90000
ME-VR2	2014/15-1	Wet	11/1/2014	=	13000
ME-VR2	2014/15-2	Wet	12/2/2014	=	1400
ME-VR2	2014/15-3	Wet	12/12/2014	=	79000
ME-VR2	2014/15-4	Wet	4/7/2015	>	1600000
ME-VR2	2014/15-6	Dry	6/23/2015	=	1600
ME-VR2	2015/16-1	Wet	9/15/2015	=	8000
ME-VR2	2015/16-2	Wet	1/5/2016	=	13000
ME-VR2	2015/16-3	Wet	1/31/2016	>	16000
ME-VR2	2015/16-4	Wet	3/6/2016	=	17000
ME-VR2	2016/17-1	Wet	10/28/2016	=	140000
ME-VR2	2016/17-2	Wet	11/20/2016	=	790
ME-VR2	2016/17-3	Wet	12/15/2016	=	2400

		Event	Sample		Result
Site ID	Event ID	Type	Date	Sign	(MPN/100 mL)
ME-VR2	2016/17-5	Wet	1/19/2017	=	17000
MO-CAM	2010/11-1	Wet	10/6/2010	=	46000
MO-CAM	2010/11-2	Wet	10/30/2010	=	30000
MO-CAM	2010/11-4	Wet	2/16/2011	=	5000
MO-CAM	2010/11-5	Dry	4/28/2011	=	460
MO-CAM	2011/12-1	Wet	10/5/2011	=	24000
MO-CAM	2011/12-2	Wet	1/21/2012	=	16000
MO-CAM	2011/12-3	Wet	3/17/2012	=	90000
MO-CAM	2012/13-2	Wet	11/17/2012	=	17000
MO-CAM	2012/13-4	Wet	3/7/2013	=	9000
MO-CAM	2012/13-5	Dry	5/23/2013	=	1100
MO-CAM	2013/14-1	Wet	12/7/2013	=	24000
MO-CAM	2013/14-2	Wet	2/6/2014	=	50000
MO-CAM	2013/14-3	Wet	2/27/2014	=	50000
MO-CAM	2013/14-4	Dry	4/25/2014	=	3000
MO-CAM	2014/15-1	Wet	11/1/2014	=	13000
MO-CAM	2014/15-3	Wet	12/12/2014	=	350000
MO-CAM	2014/15-6	Dry	7/7/2015	=	50000
MO-CAM	2015/16-1	Wet	9/15/2015	=	50000
MO-CAM	2015/16-2	Wet	1/5/2016	=	11000
MO-CAM	2015/16-3	Wet	1/31/2016	=	4300
MO-CAM	2016/17-2	Wet	11/20/2016	=	210000
MO-CAM	2016/17-3	Wet	12/15/2016	=	16000
MO-CAM	2016/17-5	Wet	1/19/2017	=	3000
MO-FIL	2010/11-1	Wet	10/6/2010	=	30000
MO-FIL	2010/11-2	Wet	10/30/2010	=	24000
MO-FIL	2010/11-4	Wet	2/16/2011	=	3000
MO-FIL	2010/11-5	Dry	4/28/2011	=	3000
MO-FIL	2011/12-1	Wet	10/5/2011	=	17000
MO-FIL	2011/12-3	Wet	3/17/2012	=	5000
MO-FIL	2011/12-4	Dry	5/22/2012	=	500
MO-FIL	2012/13-2	Wet	11/17/2012	=	30000
MO-FIL	2012/13-4	Wet	3/7/2013	=	30000
MO-FIL	2013/14-1	Wet	12/7/2013	=	17000
MO-FIL	2013/14-2	Wet	2/6/2014	=	50000
MO-FIL	2013/14-3	Wet	2/27/2014	=	17000
MO-FIL	2013/14-4		4/23/2014	=	2200
MO-FIL	2014/15-1	Wet	10/31/2014	=	110000
MO-FIL	2014/15-2	Wet	12/2/2014	=	33000
MO-FIL	2014/15-3	Wet	12/12/2014	=	280000
MO-FIL	2015/16-1	Wet	9/15/2015	=	50000
MO-FIL	2015/16-2	Wet	1/5/2016	=	3000
MO-FIL	2015/16-3	Wet	1/31/2016	=	9200
MO-FIL	2015/16-5	Dry	6/21/2016	=	17000
MO-FIL	2016/17-1	Wet	10/28/2016	=	540000
MO-FIL	2016/17-2	Wet	11/20/2016	=	92000
MO-FIL	2016/17-3	Wet	12/15/2016	=	92000
MO-FIL	2016/17-6	Dry	5/4/2017	=	4600
MO-HUE	2010/11-1	Wet	10/6/2010	=	24000
MO-HUE	2010/11-2	Wet	10/30/2010	=	9000
MO-HUE	2010/11-4	Wet	2/16/2011	=	2400
MO-HUE	2010/11-5	Dry	4/19/2011	=	500
MO-HUE	2011/12-1	Wet	10/5/2011	=	5200

		Event	Comple		D14
Site ID	Event ID	Type	Sample Date	Sign	Result (MPN/100 mL)
MO-HUE	2011/12-2	Wet	1/21/2012	=	9000
MO-HUE	2011/12-3	Wet	3/17/2012	=	16000
MO-HUE	2011/12-4	Dry	5/24/2012	=	3000
MO-HUE	2012/13-2	Wet	11/17/2012	=	35000
MO-HUE	2012/13-3	Wet	2/19/2013	=	11000
MO-HUE	2012/13-4	Wet	3/7/2013	=	2800
MO-HUE	2012/13-4	Dry	4/30/2013	=	9000
MO-HUE	2012/13-3	Wet	12/7/2013	_	9000
MO-HUE	2013/14-1	Wet	2/6/2014	=	16000
MO-HUE	2013/14-3	Wet	2/27/2014	=	11000
MO-HUE	2013/14-4	Dry	4/30/2014	=	500000
MO-HUE	2014/15-1	Wet	11/1/2014	>	1600000
MO-HUE	2014/15-3	Wet	12/12/2014	=	350000
MO-HUE	2014/15-6	Dry	7/1/2015	>	1600000
MO-HUE	2015/16-1	Wet	9/15/2015	=	280000
MO-HUE	2015/16-2	Wet	1/5/2016	=	22000
MO-HUE	2015/16-3	Wet	1/31/2016	>	16000
MO-HUE	2015/16-4	Wet	3/6/2016	=	54000
MO-HUE	2015/16-5	Dry	6/15/2016	=	1400
MO-HUE	2016/17-2	Wet			17000
			11/20/2016	=	
MO-HUE MO-HUE	2016/17-3 2016/17-5	Wet	12/15/2016		3500 7000
		Wet	1/19/2017	=	
MO-HUE	2016/17-6	Dry	5/23/2017	=	1700
MO-MEI	2010/11-1	Wet	10/6/2010	=	110000
MO-MEI	2010/11-3	Wet	11/20/2010	=	9000
MO-MEI	2010/11-4	Wet	2/16/2011	=	9000
MO-MEI	2010/11-5	Dry	4/19/2011	=	3000
MO-MEI	2011/12-1	Wet	10/5/2011	=	500000
MO-MEI	2011/12-2	Wet	1/21/2012	=	90000
MO-MEI	2011/12-3	Wet	3/17/2012	=	50000
MO-MEI	2011/12-4	Dry	4/24/2012	=	1400
MO-MEI	2012/13-2	Wet	11/17/2012	=	22000
MO-MEI	2012/13-4	Wet	3/8/2013	=	16000
MO-MEI	2013/14-1	Wet	12/7/2013	=	11000
MO-MEI	2013/14-2	Wet	2/6/2014	=	70000
MO-MEI	2013/14-3	Wet	2/27/2014	=	14000
MO-MEI	2014/15-1	Wet	11/1/2014	=	79000
MO-MEI	2014/15-2	Wet	12/2/2014	=	33000
MO-MEI	2014/15-3	Wet	12/12/2014	=	240000
MO-MEI	2014/15-4	Wet	4/7/2015	=	50000
MO-MEI	2015/16-2	Wet	1/5/2016	=	11000
MO-MEI	2015/16-3	Wet	1/31/2016	=	9200
MO-MEI	2015/16-4	Wet	3/6/2016	=	35000
MO-MEI	2016/17-1	Wet	10/28/2016	>	1600000
MO-MEI	2016/17-2	Wet	11/20/2016	=	24000
MO-MEI	2016/17-3	Wet	12/15/2016	=	35000
MO-MEI	2016/17-5	Wet	1/19/2017	=	170000
MO-MPK		Wet	10/6/2010	=	30000
MO-MPK		Wet	10/30/2010	=	5000
MO-MPK	2010/11-4	Wet	2/16/2011	=	3000
MO-MPK	2010/11-5	Dry	4/28/2011	=	30000
MO-MPK	2011/12-1	Wet	10/5/2011	=	900000

	l	Event	Sample		Dogul4
Site ID	Event ID	Type	Date	Sign	Result (MPN/100 mL)
MO-MPK	2011/12-2	Wet	1/21/2012	=	50000
MO-MPK	2011/12-3	Wet	3/17/2012	=	90000
MO-MPK	2012/13-2	Wet	11/17/2012	=	16000
MO-MPK	2012/13-4	Wet	3/8/2013	=	24000
MO-MPK	2013/14-1	Wet	12/7/2013	=	7000
MO-MPK	2013/14-2	Wet	2/6/2014	=	500000
MO-MPK	2013/14-3	Wet	2/27/2014	=	17000
MO-MPK	2014/15-1	Wet	11/1/2014	=	79000
MO-MPK	2014/15-3	Wet	12/12/2014	=	7900
MO-MPK	2015/16-1	Wet	9/15/2015	=	900000
MO-MPK	2015/16-2	Wet	1/5/2016	=	50000
MO-MPK	2015/16-3	Wet	1/31/2016	=	9200
MO-MPK	2015/16-4	Wet	3/6/2016	>	16000
MO-MPK	2016/17-1	Wet	10/28/2016	=	35000
MO-MPK	2016/17-2	Wet	11/20/2016	=	160000
MO-MPK	2016/17-3	Wet	12/15/2016	>	16000
MO-MPK	2016/17-6	Dry	5/18/2017	=	35000
MO-OJA	2010/11-1	Wet	10/6/2010	=	50000
MO-OJA	2010/11-3	Wet	11/20/2010	=	17000
MO-OJA	2010/11-4	Wet	2/16/2011	=	5000
MO-OJA	2011/12-1	Wet	10/5/2011	=	160000
MO-OJA	2011/12-2	Wet	1/21/2012	=	24000
MO-OJA	2011/12-3	Wet	3/17/2012	=	30000
MO-OJA	2011/12-4	Dry	4/24/2012	=	30000
MO-OJA	2012/13-1	Wet	10/11/2012	=	9000
MO-OJA	2012/13-1	Wet	11/17/2012	=	28000
MO-OJA	2012/13-4	Wet	3/7/2013	=	170000
MO-OJA	2012/13-5	Dry	4/30/2013	=	5000
MO-OJA	2013/14-1	Wet	12/7/2013	=	50000
MO-OJA	2013/14-2	Wet	2/6/2014	=	800
MO-OJA	2013/14-3	Wet	2/27/2014	=	17000
MO-OJA	2013/14-4	Dry	4/16/2014	=	1300
MO-OJA	2014/15-1	Wet	11/1/2014	=	1600000
MO-OJA	2014/15-2	Wet	12/2/2014	=	94000
MO-OJA	2014/15-3	Wet	12/12/2014	_	920000
MO-OJA	2014/15-4	Wet	4/7/2015	>	1600000
MO-OJA	2015/16-2	Wet	1/5/2016	=	13000
MO-OJA	2015/16-3	Wet	1/31/2016	>	16000
MO-OJA	2015/16-4	Wet	3/6/2016	=	14000
MO-OJA	2016/17-1	Wet	10/28/2016	=	540000
MO-OJA	2016/17-2	Wet	11/20/2016	=	54000
MO-OJA	2016/17-3	Wet	12/15/2016	=	540000
MO-OJA	2016/17-5	Wet	1/19/2017	=	5000
MO-OJA	2016/17-6	Dry	5/23/2017	=	3500
MO-OXN	2010/11-1	Wet	10/6/2010	=	24000
MO-OXN	2010/11-1	Wet	10/30/2010	=	11000
MO-OXN	2010/11-4	Wet	2/16/2011	=	3000
MO-OXN	2011/12-1	Wet	10/5/2011	=	22000
MO-OXN	2011/12-1	Wet	1/21/2012	=	1700
MO-OXN	2011/12-3	Wet	3/17/2012	=	3000
MO-OXN	2012/13-2	Wet	11/17/2012	=	24000
MO-OXN	2012/13-2	Wet	3/7/2013	=	9000
MO-OVIA	2014/13-4	77 GL	31114013		7000

		Event	Sample		Result
Site ID	Event ID	Type	Date	Sign	(MPN/100 mL)
MO-OXN	2013/14-1	Wet	12/7/2013	=	2400
MO-OXN		Wet	2/6/2014	=	460
MO-OXN	2013/14-3	Wet	2/27/2014	=	30000
MO-OXN	2014/15-1	Wet	10/31/2014	=	33000
MO-OXN	2014/15-2	Wet	12/2/2014	=	130000
MO-OXN	2014/15-3	Wet	12/12/2014	=	240000
MO-OXN	2015/16-1	Wet	9/15/2015	=	1600000
MO-OXN	2015/16-2	Wet	1/5/2016	_	3000
MO-OXN	2015/16-3	Wet	1/31/2016	=	5400
MO-OXN	2016/17-1	Wet	10/28/2016	=	24000
MO-OXN	2016/17-3	Wet	12/15/2016	=	92000
MO-OXN	2016/17-6	Dry	5/4/2017	=	540000
MO-SIM	2010/11-1	Wet	10/6/2010	=	90000
MO-SIM	2010/11-2	Wet	10/30/2010	=	30000
MO-SIM	2010/11-4	Wet	2/16/2011	=	2400
MO-SIM	2010/11-5	Dry	4/28/2011	=	500
MO-SIM	2011/12-1	Wet	10/5/2011	=	50000
MO-SIM	2011/12-1	Wet	1/21/2012	=	60000
MO-SIM	2011/12-3	Wet	3/17/2012	=	50000
MO-SIM	2011/12-3	Dry	5/24/2012	=	3000
MO-SIM		Wet		_	
	2012/13-2		11/17/2012	=	28000
MO-SIM	2012/13-3	Wet	2/19/2013		28000
MO-SIM	2012/13-4	Wet	3/8/2013	=	9000
MO-SIM	2012/13-5	Dry	5/23/2013	=	900
MO-SIM	2013/14-1	Wet	12/7/2013	=	11000
MO-SIM MO-SIM	2013/14-2	Wet	2/6/2014	=	110000 5000
MO-SIM MO-SIM	2013/14-3 2014/15-1	Wet Wet	2/27/2014 11/1/2014	=	1600000
MO-SIM	2014/15-3	Wet	12/12/2014	=	22000
MO-SIM	2014/15-6	Dry	7/7/2015		110000
MO-SIM		Wet		=	
	2015/16-1	Wet	9/15/2015	=	50000
MO-SIM	2015/16-2		1/5/2016		5000
MO-SIM	2015/16-3	Wet	1/31/2016	=	16000
MO-SIM	2015/16-5	Dry	6/23/2016	=	2300
MO-SIM	2016/17-1	Wet	10/28/2016	=	35000
MO-SIM	2016/17-2	Wet	11/20/2016		4900
MO-SIM	2016/17-3	Wet	12/15/2016	=	17000
MO-SIM	2016/17-6	Dry	5/18/2017	=	2200
MO-SPA	2010/11-1	Wet	10/6/2010	=	50000
MO-SPA	2010/11-2	Wet	10/30/2010	=	50000
MO-SPA	2010/11-4	Wet	2/16/2011	=	900
MO-SPA	2010/11-5	Dry	4/28/2011	=	2400
MO-SPA	2011/12-1	Wet	10/5/2011	=	50000
MO-SPA	2011/12-2	Wet	1/21/2012	=	1600
MO-SPA	2011/12-3	Wet	3/17/2012	=	9000
MO-SPA	2012/13-2	Wet	11/17/2012	=	30000
MO-SPA	2012/13-4	Wet	3/7/2013	=	16000
MO-SPA	2013/14-1	Wet	12/7/2013	=	3000
MO-SPA	2013/14-2	Wet	2/6/2014	=	170000
MO-SPA	2013/14-3	Wet	2/27/2014	=	30000
MO-SPA	2014/15-2	Wet	12/2/2014	=	49000

Site ID	Event ID	Event	Sample	Sign	Result
Site ID	Event 1D	Type	Date	oign	(MPN/100 mL)
MO-SPA	2014/15-3	Wet	12/11/2014	=	1600000
MO-SPA	2015/16-1	Wet	9/15/2015	=	350000
MO-SPA	2015/16-2	Wet	1/5/2016	=	3000
MO-SPA	2015/16-3	Wet	1/31/2016	>	16000
MO-SPA	2016/17-1	Wet	10/28/2016	=	54000
MO-SPA	2016/17-2	Wet	11/20/2016	=	110000
MO-SPA	2016/17-3	Wet	12/15/2016	=	35000
MO-THO	2010/11-1	Wet	10/6/2010	=	90000
MO-THO	2010/11-2	Wet	10/30/2010	=	24000
МО-ТНО	2010/11-4	Wet	2/16/2011	=	17000
МО-ТНО	2011/12-1	Wet	10/5/2011	=	16000
MO-THO	2011/12-2	Wet	1/21/2012	=	16000
MO-THO	2011/12-3	Wet	3/17/2012	=	9000
MO-THO	2011/12-4	Dry	5/24/2012	=	2400
MO-THO	2012/13-2	Wet	11/17/2012	=	28000
MO-THO	2012/13-3	Wet	2/19/2013	=	3000
MO-THO	2012/13-4	Wet	3/7/2013	=	460
MO-THO	2013/14-2	Wet	2/6/2014	=	160000
MO-THO	2013/14-3	Wet	2/27/2014	=	7000
MO-THO	2014/15-1	Wet	11/1/2014	=	4700
MO-THO	2014/15-3	Wet	12/12/2014	=	240000
MO-THO	2014/15-6	Dry	7/7/2015	=	1100
MO-THO	2015/16-1	Wet	9/15/2015	=	50000
МО-ТНО	2015/16-2	Wet	1/5/2016	=	3000
MO-THO	2015/16-3	Wet	1/31/2016	=	16000
MO-THO	2016/17-1	Wet	10/28/2016	=	47000
MO-THO	2016/17-2	Wet	11/21/2016	=	17000
MO-THO	2016/17-3	Wet	12/15/2016	=	16000
MO-VEN	2010/11-1	Wet	10/6/2010	=	30000
MO-VEN	2010/11-2	Wet	10/30/2010	=	24000
MO-VEN	2010/11-4	Wet	2/16/2011	=	1100
MO-VEN	2011/12-1	Wet	10/5/2011	=	2400
MO-VEN	2011/12-2	Wet	1/21/2012	=	16000
MO-VEN	2011/12-3	Wet	3/17/2012	=	14000
MO-VEN	2012/13-2	Wet	11/17/2012	=	24000
MO-VEN	2012/13-4	Wet	3/7/2013	=	9000
MO-VEN	2013/14-1	Wet	12/7/2013	=	30000
MO-VEN	2013/14-2	Wet	2/6/2014	=	170000
MO-VEN	2013/14-3	Wet	2/27/2014	=	3000
MO-VEN	2013/14-4		4/23/2014	=	5000
MO-VEN	2014/15-1	Wet	10/31/2014	=	7900
MO-VEN	2014/15-2	Wet	12/2/2014	=	46000
MO-VEN	2014/15-3	Wet	12/12/2014	>	1600000
MO-VEN	2015/16-1	Wet	9/15/2015	=	170000
MO-VEN	2015/16-2	Wet	1/5/2016	=	46000
MO-VEN	2015/16-3	Wet	1/31/2016	>	16000
MO-VEN	2016/17-1		10/28/2016	=	170000
MO-VEN	2016/17-2	Wet	11/21/2016	>	2300
MO-VEN	2016/17-3		12/15/2016	=	92000
MO-VEN	2016/17-5		1/19/2017	=	8000
MO-VEN	2016/17-6	Dry	5/4/2017	>	1600