

2018-2019 Permit Year

Ventura Countywide Stormwater Quality Management Program Annual Report

Attachment D Monitoring Appendices H - K



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



Kelly Hahs Ventura County Watershed Protection District 800 South Victoria Ave., L#1610 Ventura, CA 93009

December 21, 2018

Kelly:

I have enclosed our report "Evaluation of the Toxicity of Ventura County Watershed Protection District Stormwater Samples" for the samples that were collected November 21, 22, and 29, 2018. The results of this testing are summarized below.

Toxicity summary f	or VCWPD mass emission	n station stormwater	samples.			
Sample Station	Toxicity Present Relative to the Lab Control treatment?					
	Purple Urchin	Atherino	ps affinis			
	Fertilization	Survival	Growth			
ME-CC		no	no			
ME-SCR	no					
ME-VR2		no	no			
MO-HUE ^a		no	no			

a - This site is a major outfall station, and is tested using A. affinis when the salinity of the site water is >2 ppt.

Toxicity	summary for VO	CWPD major ou	tfall station storn	nwater samples	S.				
	Toxicity Present Relative to the Lab Control treatment?								
Sample Station	Selenastrum capricornutum	Ceriodapl	Fathead	Minnow					
	Growth	Survival	Reproduction	Survival	Growth				
MO-CAM				YES	YES				
MO-OJA				YES	YES				
MO-MEI				no	YES				
MO-VEN		no	YES						
MO-OXN				no	YES				
MO-HUE		YES	YES						
MO-THO		no	no						
MO-MPK	no								
MO-SIM		no	no						
MO-FIL		no	YES						
MO-SPA				no ^a	YESa				

a – Pathogen-related mortality (PRM) was observed in this treatment.

Chronic Toxicity of VCWPD Stormwater to Purple Urchin Fertilization

There was <u>no</u> significant reduction in purple urchin fertilization in the ME-SCR stormwater sample.

Chronic Toxicity of VCWPD Stormwater to *Atherinops affinis* (**Topsmelt**)

There was <u>no</u> significant reduction in topsmelt survival or growth in any of the stormwater samples tested.

Chronic Toxicity of VCWPD Stormwater to Selenastrum capricornutum

There was <u>no</u> significant reduction in *S. capricornutum* growth in the MO-MPK stormwater sample.

Chronic Toxicity of VCWPD Stormwater to Ceriodaphnia dubia

There <u>was</u> a significant reduction in *C. dubia* survival in the MO-HUE stormwater sample; there was <u>no</u> significant reduction in *C. dubia* survival in any of the remaining stormwater samples. There was <u>no</u> significant reduction in *C. dubia* reproduction in the MO-THO and MO-SIM stormwater samples. However, there <u>was</u> a significant reduction in reproduction in the MO-VEN, MO-HUE, and MO-FIL stormwater samples. It must be noted that the elevated conductivity of the MO-HUE stormwater sample (\sim 8500 μ S/cm) was well above the tolerance range for this species, and therefore is the likely cause of the observed toxicity.

Chronic Toxicity of VCWPD Stormwater to Fathead Minnows

There was <u>no</u> significant reduction in fathead minnow survival in the MO-MEI, MO-OXN, and MO-SPA stormwater samples; there <u>was</u> a significant reduction in survival in the MO-CAM and MO-OJA stormwater samples. There <u>was</u> a significant reduction in fathead minnow growth in all stormwater samples tested.

It is important to note that pathogen related mortalities (PRM) were observed in the MO-SPA sample. PRM is considered an artifact of the test methodology. PRM is well documented in the EPA guidelines (EPA-821-R-02-013) as caused by microorganisms, and it is acknowledged that PRM interferes with the toxicity evaluation. PRM was not observed in the Lab Control treatment, indicating that the source of pathogens was the ambient water sample. To resolve the observation of PRM in the affected samples, future testing could be performed following the protocol using 20 test replicates noted in the EPA testing manual.

If you have any questions regarding the performance and interpretation of these tests, feel free to contact me or my colleague Stephen Clark at (707) 207-7760.

Sincerely,

Stevi Vasquez Project Manager



Pacific EcoRisk is accredited in accordance with NELAP (ORELAP ID 4043). Pacific EcoRisk certifies that the test results reported herein conform to the most current NELAP requirements for parameters for which accreditation is required and available. Any exceptions to NELAP requirements are noted, where applicable, in the body of the report. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk. This testing was performed under Lab Order 29434.

Evaluation of the Toxicity of Ventura County Watershed Protection District Stormwater Samples

Samples collected November 21, 22, and 29, 2018

Prepared For:

Ventura County Watershed Protection District 800 South Victoria Ave., L#1610 Ventura, CA 93009

Prepared By:

Pacific EcoRisk 2250 Cordelia Road Fairfield, CA 94534

December 2018



Evaluation of the Toxicity of Ventura County Watershed Protection District Stormwater Samples

Samples collected November 21, 22, and 29, 2018

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1. INTRODUCTION

Under contract to Ventura County Watershed Protection District, Pacific EcoRisk (PER) has been contracted to evaluate the toxicity of stormwater samples collected for the Ventura County Watershed Protection District (VCWPD). This evaluation consists of performing the following US EPA short-term chronic toxicity tests:

- echinoderm sperm fertilization test with the purple urchin, *Strongylocentrotus purpuratus*;
- 7-day survival and growth test with the topsmelt, *Atherinops affinis*;
- 96-hour algal growth test with the green alga, Selenastrum capricornutum;
- 3-brood survival and reproduction test with the crustacean, Ceriodaphnia dubia; and
- 7-day survival and growth test with larval fathead minnows (*Pimephales promelas*).

These toxicity tests were conducted on stormwater samples collected on November 21, 22, and 29, 2018. This report describes the performance and results of these tests.

2. CHRONIC TOXICITY TEST PROCEDURES

The methods used in conducting the chronic toxicity tests followed the guidance established by the following EPA manuals:

- "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms" (EPA/600/R-95/136); and
- "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013).

2.1 Sample Receipt and Handling

On November 21-22, VCWPD staff collected stormwater samples from 11 stations into appropriately-cleaned containers; stormwater samples from three stations were collected on November 29. These samples were transported on ice and under chain-of-custody to the PER laboratory in Fairfield, CA. Upon receipt at the laboratory, aliquots of the water samples were collected for analysis of initial water quality characteristics (Tables 1a and 1b). The samples were then stored at 0-6°C except when being used to prepare test solutions. The chain-of-custody records for the collection and delivery of these samples are presented in Appendix A.

Table 1a. Initial water quality characteristics of the VCWPD mass emission station stormwater sample									
Date Sample Received	Date Sample Received Sample ID 11/23/18 ME-CC 11/30/18 ME-SCR		Temp. (°C) pH D.O. (mg/L) Conductivity (µS/cm)						
11/23/18	ME-CC	0.0	7.79	10.3	1566	<1.0			
11/30/18	ME-SCR	0.5	7.51	7.1	2074	<1.0			
11/23/18	ME-VR2	0.0	7.83	10.6	1295	<1.0			

Table 1b.	Initial water qua	lity charact	eristics	of the VC	CWPD major	r outfall stati	ion stormwate	er samples.
Date Sample Received	Sample ID	Temp.	рН	D.O. (mg/L)	Alkalinity (mg/L)	Hardness (mg/L)	Conductivity (µS/cm)	Total Ammonia (mg/L N)
11/23/18	MO-CAM	0.0	7.16	10.9	68	163	600	2.2
11/23/18	MO-OJA	0.0	7.23	10.4	32	83	377	2.3
11/23/18	MO-MEI	0.0	6.95	9.7	30	69	202	1.9
11/23/18	MO-VEN	0.0	7.13	11.2	14	35	161	<1.0
11/23/18	MO-OXN	0.0	7.15	10.1	33	108	359	2.2
11/23/18	MO-HUE	0.0	7.27	10.1	196	1105	8572	1.4
11/30/18	MO-THO	0.8	7.81	10.8	64	158	523	<1.0
11/23/18	MO-MPK	0.0	7.86	11.3	116	318	2526	<1.0
11/23/18	MO-SIM	0.0	7.48	10.5	54	185	551	1.4
11/23/18	MO-FIL	0.0	7.76	10.4	27	62	190	<1.0
11/30/18	MO-SPA	0.4	7.93	11.1	111	744	85	<1.0

2.2 Echinoderm Fertilization Toxicity Testing with Strongylocentrotus purpuratus

The echinoderm sperm cell fertilization test consists of exposing purple sea urchin sperm to the stormwater, after which the effects on successful fertilization of the eggs are determined. The specific procedures used in this testing are described below.

Sperm and eggs were generated from gravid adult purple urchins, *S. purpuratus*. The gravid adult urchins were obtained from a commercial supplier (Alexi Gabriel, San Diego, CA). Upon receipt at the lab, the urchins were held at 12°C. Spawning of the urchins was induced by injection with 0.5 M KCl, followed by vigorous shaking of the animals to stimulate gamete release, as per EPA guidelines. The gametes from each spawning individual were collected and examined microscopically; the gametes exhibiting the best quality (as determined from morphology and trial fertilization) were pooled to provide a composite of high quality sperm and a composite of high quality eggs.

The Lab Water Control medium for this test consisted of 1-µm filtered seawater (collected from the UC Granite Canyon Marine Lab). The stormwater sample was adjusted to the test salinity of approximately 33 ppt using an artificial sea salt (Tropic Marin®). As an additional QA measure, and in order to assess any potential artefactual toxicity that might have been caused by the addition of the sea salt to the sample, a Salt Control consisting of filtered seawater diluted to the salinity of the stormwater sample and then adjusted back to a salinity of approximately 33 ppt via addition of the same artificial sea salt was also prepared and tested. Routine water quality characteristics (pH, D.O., and salinity) were measured for each test solution prior to use in this test.

There were four replicates at each test treatment. Each test replicate consisted of a 30-mL glass vial to which five mL of appropriate test solution was added. The test was initiated with the inoculation of an appropriate quantity of sperm into each replicate vial to achieve a final sperm-to-egg ratio of 2000:1. After a 20-min exposure period, approximately 1000 eggs were inoculated into each vial. After an additional 20-min exposure, the test was terminated with all of the test embryos being fixed by the addition of 0.5 mL of 1% glutaraldehyde.

The contents of each preserved test vial were subsequently examined microscopically to determine the percentage of embryos exhibiting successful fertilization. The resulting percentage fertilization data were analyzed to determine any impairment caused by the stormwater; all statistical analyses were performed using CETISTM (TidePool Scientific, McKinleyville, CA).

2.3 Survival and Growth Toxicity Testing with Topsmelt (Atherinops affinis)

The chronic toxicity test with topsmelt consists of exposing larval fish to the stormwater samples for seven days, after which effects on survival and growth are evaluated. The specific procedures used in this testing are described below.

The larval topsmelt used in these tests were obtained from a commercial supplier (Aquatic Biosystems, Fort Collins, CO). Upon receipt at the testing lab, the larval fish were maintained in aerated Lab Water Control medium, and were fed brine shrimp nauplii *ad libitum* during the pretest holding period.

The Lab Water Control medium for these tests consisted of 1-µm filtered U.C. Granite Canyon Marine Laboratory seawater. The stormwater samples were adjusted to a salinity of approximately 33 ppt via addition of an artificial sea salt (Crystal Seas®-bioassay grade). The samples were tested at the 100% concentration only. As an additional QA measure, and in order to assess any potential artefactual toxicity that might have been caused by the addition of the sea salt to the samples, a Salt Control consisting of filtered seawater diluted to the salinity of the stormwater sample and then adjusted back to a salinity of approximately 33 ppt via addition of the same artificial sea salt was also prepared and tested. Routine water quality characteristics (pH, D.O., and salinity) were measured for each test solution prior to use in these tests.

There were five replicates for each test treatment, each replicate consisting of 400 mL of test solution in a 600-mL glass beaker. The tests were initiated by randomly allocating five 14-day old topsmelt into each replicate beaker. The beakers were randomly positioned in a temperature-controlled room at 20°C (with temperature being monitored daily), under a 16L:8D photoperiod. These test fish were fed brine shrimp nauplii twice daily.

Each day of the tests, fresh test solutions were prepared as before. The test replicate beakers were examined, with any dead animals, uneaten food, wastes, and other detritus being removed. The number of live fish in each replicate was determined and then approximately 80% of the test

solution in each beaker was carefully poured out and replaced with fresh test solution. "Old" water quality characteristics (pH and D.O.) were measured on the old test water collected from one randomly selected replicate at each treatment.

After seven days exposure, the tests were terminated and the number of live fish in each replicate beaker was recorded. The fish from each replicate were then carefully euthanized in methanol, rinsed in de-ionized water, and transferred to a pre-tared weighing pan. The fish were then dried at 100°C for >24 hours and re-weighed to determine the total weight of fish in each replicate; the total weight was then divided by the initial number of fish per replicate to determine the biomass value. The resulting survival and growth data were analyzed to determine any impairment(s) caused by the stormwater samples; all statistical analyses were performed using CETIS.

2.4 Algal Growth Toxicity Testing with Selenastrum capricornutum

The short-term chronic toxicity algal test consists of exposing *Selenastrum capricornutum* to the stormwater for 96 hours, after which the effects on cell growth are evaluated. The specific procedures used in this testing are described below.

The Lab Water Control medium for this test consisted of Type 1 lab water (reverse-osmosis, filtered, de-ionized water) spiked with nutrients. The stormwater sample was tested at the 100% concentration only. An aliquot of the stormwater sample was 0.45-µm filtered and spiked with nutrients before use in the algal test. "New" water quality characteristics (pH, D.O., and conductivity) were measured on the resulting test solutions prior to use in the test.

There were 4 replicates at each test treatment, each replicate consisting of a 250-mL glass Erlenmeyer flask containing 100 mL of test solution; an additional replicate was established at each test treatment for the measurement of test solution water quality characteristics during the test and at test termination. Each flask was inoculated to an initial algal cell density of 10,000 cells/mL from a laboratory culture of *Selenastrum* that is maintained in log growth phase.

These flasks were loosely capped and randomly positioned within a temperature-controlled room at 25°C, under continuous cool-white fluorescent illumination. Each replicate flask was shaken a minimum of three times daily. The temperature and pH were determined daily for the designated "water quality" replicate at each treatment.

After 96 (±2) hours exposure, the algal cell density in each replicate flask was determined by spectrophotometric analysis. The resulting cell density data were analyzed to determine any impairment caused by the stormwater; all statistical analyses were performed using CETIS.

2.5 Survival and Reproduction Toxicity Testing with Ceriodaphnia dubia

The short-term chronic *Ceriodaphnia* test consists of exposing individual females to the stormwater samples for the length of time it takes for the Lab Control treatment females to produce three broods (typically 6-8 days), after which effects on survival and reproduction are evaluated. The specific procedures used in this testing are described below.

The Lab Water Control medium for this testing consisted of modified US EPA synthetic moderately hard water, prepared by addition of reagent grade chemicals to Type 1 lab water. The stormwater samples were tested at the 100% concentration only. Each treatment consisted of a 200 mL aliquot of test solution to which the alga *S. capricornutum* and Yeast-Cerophyll®-Trout food (YCT) had been added to provide food for the test organisms. "New" water quality characteristics (pH, D.O., and conductivity) were measured on these food-amended test solutions prior to use in these tests.

There were 10 replicates for each test treatment, each replicate consisting of 15 mL of test solution in a 30-mL plastic cup. The tests were initiated by allocating one neonate (<24 hours old and within 8 hours of age) *C. dubia*, obtained from in-house laboratory cultures, into each replicate cup. The replicate cups were placed in a temperature-controlled room at 25°C, under cool white fluorescent lighting on a 16L:8D photoperiod.

Each day of the test, fresh test solutions were prepared and characterized as before, and a new set of replicate cups was prepared. The original test replicate cups were examined, with surviving original individual organisms being transferred to the corresponding new cup. The contents of each of the remaining old replicate cups was carefully examined and the number of neonate offspring produced by each original organism was determined, after which the "old" water quality characteristics (pH, D.O., and conductivity) were measured for the old test solution from randomly-selected replicate(s) at each treatment.

After it was determined that \geq 60% of the *C. dubia* in the Lab Control treatments had produced their third brood of offspring, the tests were terminated. The resulting survival and reproduction data were analyzed to determine any impairment(s) caused by the stormwater samples. All statistical analyses were performed using CETIS.

2.6 Survival and Growth Toxicity Testing with Larval Fathead Minnows

The short-term chronic fathead minnow test consists of exposing larval fish to the stormwater for 7 days, after which effects on survival and growth are evaluated. The specific procedures used in this testing are described below.

The larval fathead minnows used in these tests were obtained from a commercial supplier (Aquatox, Hot Springs, AR). Upon receipt at the lab, the larval fish were maintained in aerated tanks of EPA moderately-hard water at 25°C, and were fed brine shrimp nauplii *ad libitum*.

The Lab Water Control medium for this test consisted of EPA synthetic moderately-hard water. The stormwater samples were tested at the 100% concentration only. "New" water quality characteristics (pH, D.O., and conductivity) were measured on these test solutions prior to use in the tests.

There were 4 replicates for each test treatment, each replicate consisting of 200 mL of test solution in a 600-mL glass beaker. The test was initiated by randomly allocating 10 larval fathead minnows (<48 hours old) into each replicate. The replicate beakers were placed in a temperature-controlled room at 25°C, under cool-white fluorescent lighting on a 16L:8D photoperiod. The test fish were fed brine shrimp nauplii twice daily.

Each day of the test, fresh test solutions were prepared for each treatment, and water quality characteristics were determined as before. The replicate beakers were examined, with any dead animals, uneaten food, wastes, and other detritus being removed. The number of live fish in each replicate was determined and then approximately 80% of the old test media in each beaker was carefully poured out and replaced with fresh test solution. "Old" water quality characteristics (pH, D.O., and conductivity) were measured on the old test water that had been discarded from one randomly selected replicate at each treatment.

After 7 days exposure, the test was terminated and the number of live fish in each replicate beaker was recorded. The fish from each replicate were then carefully euthanized in methanol, rinsed in de-ionized water, and transferred to a pre-tared weighing pan. These fish were then dried at 100°C for >24 hours and re-weighed to determine the total weight of fish in each replicate. The total weight was then divided by the initial number of fish per replicate to determine the "biomass value." The resulting survival and biomass data were analyzed to determine any impairment(s) caused by the stormwater samples. All statistical analyses were performed using CETIS.

3. RESULTS

3.1 Effects of VCWPD Stormwater on Purple Urchin Fertilization

The results of this test are summarized in Table 2. There was no significant reduction in fertilization in the ME-SCR stormwater sample. The test data and summary of statistical analyses for this test are presented in Appendix B.

Table 2. Effects of VCWPD stormwater on purple urchin fertilization.							
Test Initiation Date (Time)							
	Salt Control	89.8					
12/1/18 (1626)	Lab Control	94.3					
	ME-SCR	98.5					

3.2 Effects of VCWPD Stormwater on Atherinops affinis

The results for these tests are summarized in Table 3. There was no significant reduction in survival or growth any of the stormwater samples tested. The test data and summary of statistical analyses for these tests are presented in Appendix C.

Table 3. Effects of VCWPD stormwater on Atherinops affinis.								
Test Initiation Date (Time) Treatment/Sample ID Mean	Mean % Survival	Mean Biomass Value (mg)						
	Salt Control	88	1.70					
	Salt Control 88 1.70 Lab Control 92 1.94	1.94						
11/23/18 (1225)	ME-CC	84	1.68					
	ME-VR2	92	2.20					
	MO-HUE	88	1.83					

3.3 Effects of VCWPD Stormwater on Selenastrum capricornutum

The results for this test are summarized in Table 4. There was no significant reduction in algal growth in the MO-MPK stormwater sample. The test data and summary of statistical analyses for this test are presented in Appendix D

Table 4. Effects of	F VCWPD stormwater on Selend	astrum capricornutum.
Table 4. Effects of Test Initiation Date (Time) 11/23/18 (1020)	Treatment/Sample ID	Mean Algal Cell Density (cells/mL x 10 ⁶)
, ,	Lab Control	3.03
	MO-MPK	7.34

3.4 Effects of VCWPD Stormwater on Ceriodaphnia dubia

The results for this test are summarized in Table 5. There was a significant reduction in *C. dubia* survival in the MO-HUE stormwater sample; there was no significant reduction in *C. dubia* survival in any of the remaining stormwater samples tested. There was no significant reduction in *C. dubia* reproduction in the MO-THO and MO-SIM stormwater samples. However, there was a significant reduction in reproduction in the MO-VEN, MO-HUE, and MO-FIL stormwater samples. It must be noted that the elevated conductivity of the MO-HUE stormwater sample (\sim 8500 μ S/cm) was well above the tolerance range for this species, and therefore is the likely cause of the observed toxicity. The test data and summary of statistical analyses are presented in Appendix E.

Table 5. Effect	ts of VCWPD stormwater on	Ceriodaphnia	dubia.
Test Initiation Date (Time)	Treatment/Sample ID	Mean % Survival	Mean Reproduction (# neonates/female)
	Lab Control-01	100	28.3
	MO-VEN	100	18.9*
11/24/18 (1113)	MO-HUE	0*	0*a
	MO-SIM	100	30.9
	MO-FIL	100	15.6*
12/1/19 (1557)	Lab Control-02	100	34.9
12/1/18 (1557)	MO-THO	100	32.9

^{*} The response at this test treatment was significantly less than the Lab Control treatment response (p < 0.05).

a – The EPA manual indicates that "concentrations that had a significant toxic effect on one of the observed responses would not be subsequently tested for an effect on some other response as only applying to dilution series testing." The Surface Water Ambient Monitoring Program (SWAMP) Roundtable has ruled that this does not apply to testing of 100% solution testing, and that hypothesis test results for both the survival and sub-lethal endpoints must be reported for SWAMP compliant programs. We have complied with this requirement by indicating that this treatment is toxic to survival and reproduction.

3.5 Effects of VCWPD Stormwater on Fathead Minnows

The results for this test are summarized in Table 6. There was no significant reduction in fathead minnow survival in the MO-MEI, MO-OXN, and MO-SPA stormwater samples; there was a significant reduction in survival in the MO-CAM and MO-OJA stormwater samples. There was a significant reduction in fathead minnow growth in all stormwater samples tested. The test data and summary of statistical analyses for this test are presented in Appendix F.

Table 6. Effe	ects of VCWPD stormwater	on fathead minnows	S.	
Test Initiation Date (Time)	Treatment/Sample ID Mean Mean Wean Value			
	Lab Control-01	100	1.00	
11/24/18 (1127)	MO-CAM	77.5*	0.38*a	
	MO-OJA	57.5*	0.23*a	
	MO-MEI	85.0	0.46*	
	MO-OXN	90.0	0.53*	
12/1/19 (1222)	Lab Control-02	95.0	0.79	
12/1/18 (1323)	MO-SPA	82.5	0.45*b	

^{*} The response at this test treatment was significantly less than the Lab Control treatment response (p < 0.05).

a - The EPA manual indicates that "concentrations that had a significant toxic effect on one of the observed responses would not be subsequently tested for an effect on some other response as only applying to dilution series testing." The Surface Water Ambient Monitoring Program (SWAMP) Roundtable has ruled that this does not apply to testing of 100% solution testing, and that hypothesis test results for both the survival and sub-lethal endpoints must be reported for SWAMP compliant programs. We have complied with this requirement by indicating that this treatment is toxic to survival and growth.

b - Pathogen related mortalities (PRM) were observed in this treatment. PRM is considered an artifact of the test methodology. PRM is well documented in the EPA guidelines (EPA-821-R-02-013) as caused by microorganisms, and it is acknowledged that PRM interferes with the toxicity evaluation. PRM was not observed in the Lab Control treatment, indicating that the source of pathogens was the stormwater sample.

4. AQUATIC TOXICITY DATA QUALITY CONTROL

Two QC measures were assessed during the toxicity testing:

- Maintenance of acceptable test conditions; and
- Negative Control testing;

4.1 Maintenance of Acceptable Test Conditions

Due to the timing of the storm, the urchin fertilization test, the C. dubia test using the sample collected November 29, and all fathead minnow tests were initiated outside the 36-hour hold time, but within 72 hours as allowed in the VCWPD MRP. Additionally, due to a lack of culture neonates on November 23, the C. dubia tests using samples collected November 21-22 were initiated the following morning, outside the 36-hour hold time, but within 72 hours as allowed in the VCWPD MRP. During the routine D.O. check of the A. affinis test on Day 3, the D.O. in the MO-HUE sample dropped to 5.7 mg/L. In order to prevent mortalities due to hypoxia, all replicates for this treatment were aerated for the remaining duration of the test. During the routine D.O. check of the November 24 fathead minnow test on Day 1, a low D.O. of 3.3 mg/L, 1.4 mg/L, 2.6 mg/L, and 3.7 mg/L was measured in the MO-CAM, MO-OJA, MO-MEI, and MO-OXN samples, respectively, resulting in aeration for the remainder of testing. During the routine D.O. check of the December 1 fathead minnow test on Day 1, a low D.O. of 2.4 mg/L was measured in the MO-SPA sample, resulting in aeration for the remainder of testing. One replicate in the MO-VEN C. dubia test was observed with two adult females in the replicate cup at test termination. As the brood count for that replicate was higher than the rest of the treatment, it is likely that both females had broods. Further investigation did not result in determining the source of the second adult and as such, the replicate was excluded from both survival and reproduction statistics.

Pathogen related mortalities (PRM) were observed in the fathead minnow test in site MO-SPA. PRM is considered an artifact of the test methodology. PRM is well documented in the EPA guidelines (EPA-821-R-02-013) as caused by microorganisms, and it is acknowledged that PRM interferes with the toxicity evaluation. PRM was not observed in the Lab Control treatment, indicating that the source of pathogens was the ambient water sample.

Otherwise, all other test conditions (pH, D.O., temperature, etc.) were within acceptable limits. All analyses were performed according to laboratory Standard Operating Procedures.

4.2 Negative Control Testing

The responses at the Lab Control treatments were acceptable.

5. SUMMARY AND CONCLUSIONS

An evaluation of the toxicity of VCWPD stormwater samples was conducted utilizing samples collected on November 21, 22, and 29, 2018. A summary of test results is provided below.

Chronic Toxicity of VCWPD Stormwater to Purple Urchin Fertilization

There was <u>no</u> significant reduction in purple urchin fertilization in the ME-SCR stormwater sample.

Chronic Toxicity of VCWPD Stormwater to *Atherinops affinis* (**Topsmelt**)

There was <u>no</u> significant reduction in topsmelt survival or growth in any of the stormwater samples tested.

Chronic Toxicity of VCWPD Stormwater to Selenastrum capricornutum

There was <u>no</u> significant reduction in *S. capricornutum* growth in the MO-MPK stormwater sample.

Chronic Toxicity of VCWPD Stormwater to Ceriodaphnia dubia

There <u>was</u> a significant reduction in *C. dubia* survival in the MO-HUE stormwater sample; there was <u>no</u> significant reduction in *C. dubia* survival in any of the remaining stormwater samples. There was <u>no</u> significant reduction in *C. dubia* reproduction in the MO-THO and MO-SIM stormwater samples. However, there <u>was</u> a significant reduction in reproduction in the MO-VEN, MO-HUE, and MO-FIL stormwater samples. It must be noted that the elevated conductivity of the MO-HUE stormwater sample (\sim 8500 μ S/cm) was well above the tolerance range for this species, and therefore is the likely cause of the observed toxicity.

Chronic Toxicity of VCWPD Stormwater to Fathead Minnows

There was <u>no</u> significant reduction in fathead minnow survival in the MO-MEI, MO-OXN, and MO-SPA stormwater samples; there <u>was</u> a significant reduction in survival in the MO-CAM and MO-OJA stormwater samples. There <u>was</u> a significant reduction in fathead minnow growth in all stormwater samples tested.

Appendix A

Chain-of-Custody Records for the Collection and Delivery of the VCWPD Samples

Pacific EcoRisk 2250 Cordelia Rd., Fairfield, CA 94534 (707) 207-7760 FAX (707) 207-7916

CHAIN-OF-CUSTODY RECORD

Results To: Ventura County Watershed Protection District Address: 800 South Victoria Ave., L#1610				Invoice To:	Ventura Count	y Public Works Agency	REQUESTED ANALYSIS											
Address:	800 South Victoria Ave., L#1610 Ventura, CA 93009		Address:	dress: Engineering Services Division			0		0	,								
					800 South Vi	ctoria Ave., L#1670	9	(80	4	a Survival EPA 1002.	200							
						Ventura, CA	93009-1670	amm EPA	A 1	3.0 utu	56	A A						
Phone:	hone: (805) 658-4375			Phone:			KO	EP	000	Su	Z III	1						
Attn:	Kelly Hahs				Attn:	Karen Goo	dman	Growth,	Urchin (S. purpuratus) Fertilization, EPA 1008.0	Capricornutum	<i>dubia</i> tion, E	winnow (<i>P. promeias</i>) and Growth, EPA						
E-mail: Kelly.Hahs@ventura.org			E-mail:			Gro	Urchin (S. Fertilizatio	S. P.	양명	Gro								
Project Name: NPDES Stormwater Monitoring Program - 2018/19-1 (Wet)				9-1 (Wet)			Pu	き量	Mt &	odu odu	D I							
P.O.#/Ref:	Contract No.	AE18-015						19 19	25	Selenastrum (Algal Growth,	<i>Ceriodaphnia dubii</i> and Reproduction,	Survival and (
Client S	ample ID	Sample	Sample	Sample	Grab/		Container	Surviv 1006	Purple (Sperm l	al (d R	No.						
		Date	Time	Matrix*	Comp	Number	Type	5 <u>9</u> 5	J S	S ₹	Q ≅	S S	1					
	-OXŅ	11/21/18	1340	STRMW	Grab	2	2.5-gal jerrican					Х					,	
	-HUE	11/22/18	0030	STRMW	Grab	2	2.5-gal jerrican				Х				वीतु र उत्	9		
MO-	THO	-		STRMW	Grab	2	2.5 gal jerrican			1	×			-				
MO-	-MPK	11/22/18	0010	STRMW	Grab	2	2.5-gal jerrican			Х								
MO-	-SIM	11/24/18		STRMW	Grab	2	2.5-gal jerrican				Х		12.1					
MO)-FIL	11/22/18	0125	STRMW	Grab	2	2.5-gal jerrican				Х				-			
-MO-	SPA	111		STRMW	Grab	2	2.5 gal jerrican					×						
		_						1	-							-		-
amples collec	ted by:	-																
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VII oitaalanasia	4009/						W-B-CAR				Signat	ure:	fle	u	16	1/6	/	
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errorm E r>	יסטייטייט פייטטיי; ne	otify client imn	nediately if	toxicity is ob:	served		on: VCWPD	•				ization				50		
IO-HUE: If salinity >2ppt, perform additional topsmelt test for comparison					1-22-18	Time:	151	0	Date:	11		8		Time:	310	0		
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						Organizatio	in: PEXN				Organ	ization		0				
							THE LUCK	_			-19411		. / /					

CHAIN-OF-CUSTODY RECORD

Pacific EcoRisk 2250 Cordelia Rd., Fairfield, CA 94534 (707) 207-7760 FAX (707) 207-7916

Address: 800 South Victoria Ave., L#1610 Ventura, CA 93009-1610 Phone: (805) 658-4375 Attn: Kelly Hahs E-mail: Kelly.Hahs@ventura.org	Phone: Attn: E-mail:	800 South Vi Ventura, CA		amnis) EPA	Urchin (S. <i>purpuratus</i>) Fertilization, EPA 1008.0	Capricornutum EPA 1003.0	Survival EPA 1002.0	Міппоw (<i>P. promeias</i>) and Growth, EPA					
Phone: (805) 658-4375 Attn: Kelly Hahs	Attn:	Ventura, CA	93009-1670	ammis) EPA	ratus) A 1008	tum .0	val 202	sias				1 1	1
Attn: Kelly Hahs	Attn:			amm EPA	rati	\$ 0	120					1 1	
Attn: Kelly Hahs	Attn:	Karen Goo	dman	(0 11		3 60	≥ ≤	PA					
	E-mail:	Karen Goo	dman		I'pu	cornutur 1003.0	S. P. S.	E II					
E-mail: Kelly Hahs@ventura.org		-	uman	W.	on,	oric A	dubia tion, E	F \$					
- man manage ventoralors	/19-1 (Wet)			growth,	Purple Urchin (S.) Sperm Fertilization	Capril EPA	ohnia dubii roduction,	₩ O O		- 1 -	9		
ject Name: NPDES Stormwater Monitoring Program - 2018				Topsinen (ਸਥਾ Survival and (1006.011	ફ	Selenastrum C Algal Growth, I	Ceriodaphnia and Reproduc	Fathead Minn Survival and (1000.0					
P.O.#/Ref: Contract No. AE18-015				a a	구등	str.	spr epr	<u>a</u>		- 1			
Sample Sample Sample Sample	Grab/	1	Container	ViV	eg E	alo	io a	N Viv					
Client Sample ID Sample Sample Sample Sample Sample Matrix*	Comp	Number	Туре	Sul	Spe	Sel	Seri	Sur					
ME-CC 11/22/18 0130 STRMW	Grab	2	2.5-gal jerrican	Х									
ME-SCR STRMW	Grab	-2	2.5-gal jerrican		X				-				
ME-VR2 122/18 0130 STRMW	Grab	2	2.5-gal jerrican	Х									
MO-CAM U/ZV/K 22 35 STRMW	Grab	2	2.5-gal jerrican					Х					
MO-OJA 11/21/14 2315 STRMW	Grab	2	2.5-gal jerrican					Х					
MO-MEI 1/22/18 0020 STRMW	Grab	2	2.5-gal jerrican					Х					
MO-VEN 11/21/19 2315 STRMW	Grab	2	2.5-gal jerrican				Х						
		Summer											
ples collected by:													
ments/Special Instruction:		RELINQUIS	HED BY:				RECE	IVED BY	7 /	1	M		
		Signature:	W-B CAR	EY			Signa	ture:	-la	-10	10	- 15	
ites/species: 100% concentration only		Print: W	B. Carey				Print:	/F04	mk	Bus	Am	An 12	9
orm TIE if >50% effect; notify client immediately if toxicity is	observed		on: VCWPB				Organ	ization:	RED	LINE	Cou	RIE	n
		Date:	= 11-22-18	Time:	151	0	Date:	11/2		3	Time:	310	an
		RELINQUIS		11			RECE	IVED BY:	_				1
		Signature:	LEED#	1			Signa	ture: 🕗	TOINS	711	sher		
		Print:	ALL BUST	mil	mt	0	Print:		-	is cho			
		Organizatio	n: PEOUNE	•	_		Organ	ization:					
		Date: 1)	23/18	Time	200	ton		11/23			Time:	080	2

CHAIN-OF-CUSTODY RECORD

Pacific EcoRisk 2250 Cordelia Rd., Fairfield, CA 94534 (707) 207-7760 FAX (707) 207-7916

Results To:	Ventura Cour	ity Watershed	1 Protection	District	Invoice To:	P: Ventura County Public Works Agency REQUESTED ANALYSIS											
Address:	800 South Vi	ctoria Ave., L	#1610		Address:	Engineering S	Services Division		0		0	,					
	Ventura, CA	93009				800 South Vi	ctoria Ave., L#1670	9	purpuratus) on, EPA 1008.0	8		promeias, EPA					
						Ventura, CA	93009-1670	EPA	rati A 10	Capricornutum EPA 1003.0	odaphnia dubia Survival Reproduction, EPA 1002	EPA					
Phone:	(805) 658-43	75			Phone:			III A	IP I	100	Su						
Attn:	Kelly Hahs				Attn:	Karen Goodman		Growth,	on,	Capric EPA	ibia n, E	Growth,					
	Kelly.Hahs@v				E-mail:				S III	a du					1		
Project Name:	-		oring Progr	am - 2018/19	(Wet)		and	년 등 분	astrum Growth,	hni	and		- 1				
P.O.#/Ref:	Contract No.	AE18-015						nell Val	Purple U Sperm Fe	Selenastrum Algal Growth,	Ceriodaphnia and Reproduc	ad Val					
Client S.	ample ID	Sample	Sample	Sample	Grab/		Container		ld r	gai	Cerio and F	Survival 1000.0				1	
		Date	Time	Matrix*	Comp	Number	Туре	- 1S -	<u>F</u> (2)	ω ₹	QP	10.7					
	OXN	4		STRMW	Grab	- 2	2:5-gal jerrican					X					
_MO-			-11	STRMW	Grab	2	2.5 gal jerrican	-			_ X_						
	THO	11-29-18	1415	STRMW	Grab	2	2.5-gal jerrican				Х						
MO.	MPK			STRMW	Grab	- 2	2.5-gal jerrican		-	_X_	_						
-MO	-SIM			STRMW	Grab	_ 2	2.5-gal jerrican	-			-X	_	1111				
-MO	FIL			STRMW	Grab	- 2	2.5 gal jerrican			-	X						
MO-	-SPA	11/27/18	0200	STRMW	Grab	2	2.5-gal jerrican					Х					
me	-scr	V	1630	STAMW	Greb	2	(1		×				1 1				
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-	s: 100% conce	_				Print:		ELLY	HA	H5	Print:	VI	KTE	12	RE	Zn	IK
Perform TIE if >	>50% effect; no	otify client imi	nediately if	toxicity is ob	served	Organizatio	4			41.0	Organ	ization	:				
						Date: \1	130/18	Time:	07	30	Date:	11/	301	18	٩	ĭime: 🚽	130
MO-HUE: If sali	inity >2ppt, per	form addition	al topsmelt	test for comp	parison	RELINQUIS	HED BY:				RECE	IVED B	Y: /			-	
						Signature	PBV	1			Signal	ture:	La	ye	~		
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					_ 4 1	Organizatio	n: Anno E	1 hr	25	3	Organ	ization	P	En	1		
					1	Date: //	130110	Time:	14	.15	Date:	/1-	20	12	1	ime: /	415
Example Matri	x Codes: (EFF	- Effluent) (FW	I = Freshwat	er): (SW = Sa	Itwater): (WW		r); (STRMW = Storm		SED	Sedin		rothor	20	U 0			177

Appendix B

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the VCWPD Stormwater to Purple Urchin Fertilization

CETIS Summary Report

Report Date:

12 Dec-18 14:57 (p 1 of 1)

Test Code:

VCWPD_1201_SP | 03-6519-9191

Echinoid Fertilizat	ion Test									Pacifi	c EcoRisk
		Test Proto Spec Sour	ies: Stro	/600/R-95/1	136 (1995) tus purpura	tus		ent: ne:	Stevi Vasquez Not Applicable Tropic Marin N/A		
Sample Code	Sample ID	Samp	ole Date	Receipt	Date	Sample Age	Clie	nt Name	Pi	roject	
VCWPD_1201_SP	17-6589-9394		ec-18 16:26	01 Dec-	18 16:26	n/a (11.6 °C)) Ven	tura Cou	inty Watersh 29	9434	
VCWPD_SP_SALT	16-7833-1950	0 01 De	ec-18 16:26	01 Dec-	18 16:26	n/a (11.5 °C))				
ME-SCR	00-0419-796	5 29 No	ov-18 16:30	30 Nov-	18 14:15	48h (0.5 °C)					
Sample Code	Material Typ	е	Sam	ple Source	9	Stat	ion Locat	ion	Lat/Long		
VCWPD_1201_SP	Lab Water		Vent	tura County	Watershed	Prote LAB	QA				
VCWPD_SP_SALT	Salt Control			•	Watershed						
ME-SCR	Ambient Wat	er	Vent	tura County	Watershed	Prote ME-	SCR				
Single Comparisor	Summary										
Analysis ID End	ooint		Compariso	n Method			P-Value	Comr	parison Result		
18-7485-5966 Fertil			Equal Varia		Sample Tes	st	0.1408		PD_SP_SALT p		zation rate
11-4517-2914 Fertil	lization Rate		Equal Varia		•		0.9408		CR passed ferti		
Fertilization Rate S	ummary										
Sample	Code C	ount	Mean	95% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	%Effect
VCWPD_1201_SP	LW 4		0.943	0.865	1.000	0.880	0.990	0.024	0.049	5.15%	0.00%
VCWPD_SP_SALT	SA 4		0.898	0.804	0.991	0.830	0.970	0.029	0.059	6.52%	4.77%
ME-SCR	4		0.985	0.976	0.994	0.980	0.990	0.003	0.006	0.59%	-4.51%
Fertilization Rate D	etail										
Sample	Code R	ер 1	Rep 2	Rep 3	Rep 4						
VCWPD_1201_SP	LW 0.	.930	0.970	0.88.0	0.990						
VCWPD_SP_SALT	SA 0.	.970	0.880	0.910	0.830						
ME-SCR	0.	.980	0.990	0.980	0.990						
Fertilization Rate B	inomials										
Sample	Code R	ep 1	Rep 2	Rep 3	Rep 4						
VCWPD_1201_SP	LW 93	3/100	97/100	88/100	99/100						
VCWPD_SP_SALT	SA 97	7/100	88/100	91/100	83/100						
ME-SCR	98	8/100	99/100	98/100	99/100						

CETIS Analytical Report

Report Date:

12 Dec-18 14:57 (p 1 of 2)

Test Code:

VCWPD_1201_SP | 03-6519-9191

Echinoid Fertil	ization Test									Pac	ific EcoRis
•	11-4517-29 12 Dec-18 1		Endpoint: Analysis:	Fertilization F Parametric-T				'IS Versior cial Result		1.9.2	
Data Transform		Alt I						son Resul			PMSD
Angular (Correct	ted)	C > 1					ME-SCR	passed fer	tilization rate		5.28%
Equal Variance	t Two-Sam	ple Test									
Sample I vs	Sampl	e II	Test	Stat Critical	MSD D	F P-Type	P-Value	Decisio	n(α:5%)		
Lab Water Cont	rol ME-SC	R	-1.82	1.94	0.11 6	CDF	0.9408	Non-Sig	nificant Effec	et	
ANOVA Table											
Source	Sum S	quares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
Between	0.0211		0.021		1	3.32	0.1184	Non-Sig	nificant Effec	t	
Error	0.0383		0.006	386	6						
Total	0.0594	952 			7						
Distributional T	ests										
Attribute	Test				Test Sta	t Critical	P-Value	Decisio	n(α:1%)		
√ariances	Variand	e Ratio F	Test		21	47.5	0.0324	Equal Va	ariances		
Distribution	Shapiro	-Wilk W I	Normality Te	st	0.969	0.645	0.8931	Normal l	Distribution		
ertilization Ra	te Summar	У									
Sample	Code	Cour	nt Mean	95% LC	L 95% UCI	_ Median	Min	Max	Std Err	CV%	%Effect
CWPD_1201_	SP LW	4	0.943	0.865	1.000	0.950	0.880	0.990	0.024	5.15%	0.00%
ME-SCR		4	0.985	0.976	0.994	0.985	0.980	0.990	0.003	0.59%	-4.51%
Angular (Correc	ted) Transi	formed Si	ummary								
Sample	Code	Coun	t Mean	95% LC	L 95% UCI	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1201_9	SP LW	4	1.35	1.17	1.52	1.35	1.22	1.47	0.0552	8.20%	0.00%
ME-SCR		4	1.45	1.41	1.49	1.45	1.43	1.47	0.012	1.66%	-7.64%
Graphics											
1.0			har a difference			0.16					
0.9						0.14					
		2.22.5		Reject N	-ili-	0.12					•
0.8						0.08					
0.7						9.00 O.06				- 6	
9.0 8						0.06 Centered 0.04 - 4mg/e					
.5 0.5						0.00					
Ferblization Rate						-0.02		• /•			
_						-0.04 -0.06	• /				
0.3						-0.08					
						-0.10	er e				
0.2											
0.2						-0.12 -0.34					
							-1.0	-0.5 0.6	0.5	1.0	1.5

Echinoderm Fertilization Toxicity Test Water Chemistry Data

Client:	Ventura County Watershed Protection District	Organism Log#:	11316	Age:	N/A
Test Material:	ME-SCR	Organism Supplier:	Alexi		
Test Species	S. purpuratus	Control/Diluent:		FSW	
Test ID#:	80311 Project #:29434	Test Date:	12/1/18	Randomization:	_
Sample Salinity	adjusted with : Tropic Marin			-	

Treatment	Temperature (°C)	рН	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Water Control	11.6	7.77	7.8	34.0	Date: 12 1 1 5
100%	11.5	8.36	6.8	33.2	Sample ID: 5/497
Meter ID	100A	pH24	R013	EC12	Test Solution Prep:
					New WQ: Le
					Innoculation Time: 1626
					Innoculation Signoff: ゴロ

Echinoderm Fertilization Toxicity Test Data Sheet

Client:	Ventura County Watershed Protection District	Test Start Date: 12/1/18	
Test Material:	ME-SCR	Test End Date: 12/1/13	
Test Species:	S. purpuratus	Enumeration Date: 12/1/18	
Test ID #:	80311	Investigator:	
Project #	20434		

Sample Salinity adjusted with: Tropic Marin

Concentration Rep	olicate	Number of Fertilized Eggs	Number of Unfertilized Eggs	Total Number of Eggs	Percent Fertilization
	A	93	7	100	93
Lab Water	В	97	3	100	97
Control	С	88	12	100	88
	D	99	1	100	99
	A	98	2	100	98
100%	В	99	1	100	99
200 /0	С	98	2	100	98
	D	99		100	99

CETIS Analytical Report

Report Date:

12 Dec-18 14:57 (p 2 of 2)

Test Code:

VCWPD_1201_SP | 03-6519-9191

	tion Test									Paci	fic EcoRis
Analysis ID: 18-	7485-5966	Enc	dpoint: Fe	rtilization Ra	te		CET	IS Versio	n: CETISv		
Analyzed: 12	Dec-18 14:	57 Ana	alysis: Pa	rametric-Tw	o Sample		Offic	ial Result			
Data Transform		Alt Hyp					Comparis	on Resul	t		PMSD
Angular (Corrected))	C > T							passed fertil	ization rate	7.95%
Equal Variance t T	wo-Sample	e Test									
Sample I vs	Sample II		Took Stok	Critical	MCD DE	D. Tours	D. Valera	D !- ! .	(=0()		
Lab Water Control	Salt Contr		1.18	1.94	MSD DF 0.149 6	P-Type CDF	0.1408	Decisio Non-Sig	n(α:5%) nificant Effec	.+	
ANOVA Table					0.110		0.1400	14011-Olg	milicant Enec		
Source	Sum Squ	iares	Mean Sq	uare	DF	F Stat	P-Value	Decisio	n(a:5%)		
Between	0.0163579		0.016357		1	1.4	0.2816		nificant Effec	at .	
Error	0.0701351	1	0.011689	2	6			3			
Total	0.086493				7						
Distributional Test	s										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances		Ratio F Test	_		1.09	47.5	0.9453	Equal Va	ariances		
Distribution	Shapiro-W	Vilk W Norm	ality Test		0.94	0.645	0.6092	Normal I	Distribution		
Fertilization Rate S	Summary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1201_SP	LW	4	0.943	0.865	1.000	0.950	0.880	0.990	0.024	5.15%	0.00%
VCWPD_SP_SALT	SA	4	0.898	0.804	0.991	0.895	0.830	0:970	0.029	6.52%	4.77%
Angular (Corrected	l) Transfor	med Summ	ary								
	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Sample	Code				1.52	1.35	1.22	1.47	0.0552	8.20%	0.00%
VCWPD_1201_SP	LW	4	1.35	1.17	1.02						
VCWPD_1201_SP	LW	4 4	1.35 1.26	1.17	1.42	1.24	1.15	1.4	0.0529	8.42%	6.71%
VCWPD_1201_SP VCWPD_SP_SALT	LW								0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT	LW								0.0529		6.71%
/CWPD_1201_SP /CWPD_SP_SALT Graphics	LW					0.16			0.0529		6.71%
/CWPD_1201_SP /CWPD_SP_SALT Graphics	LW					1.24			0.0529		6.71%
/CWPD_1201_SP /CWPD_SP_SALT Graphics	LW			1.09		0.16			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16			0.0529		6.71%
/CWPD_1201_SP /CWPD_SP_SALT Graphics	LW			1.09		0.16			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16 0.12 0.08			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16 0.12 0.08 0.04 0.00			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16 0.12 0.08			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16 0.12 0.08 0.04 0.00			0.0529		6.71%
VCWPD_1201_SP VCWPD_SP_SALT Graphics	LW			1.09	1.42	0.16 0.12 0.08 0.00 -0.04			0.0529		6.71%

Echinoderm Fertilization Toxicity Test Water Chemistry Data

Client:	Ventura Coun	ty Watershed	Protection D	District	Organism Log#:	11316	Age:	N/A
Test Material:		Salt Contr	ol		Organism Supplier:	Alexi		
Test Species		S. purpurat	us		Control/Diluent:		FSW	
Test ID#:	80311	Project #:	29434		Test Date:	12/1/18	Randomization:	
Sample Salinity	adjusted with:_	Tropic Mari	n		-		_	

Treatment	Temperature (°C)	pН	D.O. (mg/L)	Salinity (ppt)	Signoff
Lab Water Control	11.6	7.77	7.8	34,0	Date: 12/1/8
Salt Control	11.5	8.67	7.6	<i>3</i> 3.3	Test Solution Prep:
					New WQ: Le
					Innoculation Time: 1626
					Innoculation Signoff:
Meter ID	100A	p424	ROIS	ECIZ	

Echinoderm Fertilization Toxicity Test Data Sheet

Client: Ventura County Watershed Protection District

Test Material:

Salt Control

Test End Date: 12/1/18

Test Species:

S. purpuratus

Test ID #:

80311

Project #:

29434

Sample Salinity adjusted with: Tropic Marin

Concentration Rep	olicate	Number of Fertilized Eggs	Number of Unfertilized Eggs	Total Number of Eggs	Percent Fertilization
	A	93	7	100	93
Lab Water	В	97	3	100	97
Control	С	88	12	100	88
	D	99	1	100	99
	A	97	3	100	97
Salt Control	В	88	12	100	9.5
	С	91	9	100	91
	D	83	17	100	93

Appendix C

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the VCWPD Stormwater to Atherinops affinis

CETIS Summary Report

Report Date:

06 Dec-18 11:18 (p 1 of 2)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larval Fish Survival and Growth Test Pacific EcoRisk												
Batch ID: 09-30	09-3052-8477 Test Type: Growth-Survival (7d)						Analyst	t: Ste	vi Vasquez			
Start Date: 23 N	ov-18 12:25	Protocol: EPA/600/R-95/136 (1995)				Diluent		Applicable)			
Ending Date: 30 N	ov-18 08:34		erinops affir				Brine:	Cry	stal Sea			
Duration: 6d 2	0h	Source: Aq	uatic Biosys	tems, CO			Age:	14				
Sample Code Sample ID		Sample Date Receipt Date			Sample Age		Client Name		F	Project		
VCWPD_1123_AA	13-1519-8115	23 Nov-18 12:2	5 23 Nov-	-18 12:25	n/a (20.	1 °C)	Ventura	County	Watersh 2	29434		
VCWPD_AA_SALT	07-5380-4617	23 Nov-18 12:29	5 23 Nov-	-18 12:25	n/a (19.	1 °C)						
ME-CC	09-8136-9357	22 Nov-18 01:30	23 Nov-	-18 08:02	35h (0 °	'C)						
ME-VR2	19-8396-2457	22 Nov-18 01:30	23 Nov-	-18 08:02	35h (0 °	C)						
MO-HUE	02-1965-3242	22 Nov-18 00:30	23 Nov-	-18 08:02	36h (0 °	C)						
Sample Code Material Type Sample Source S							ation Location Lat/Long					
VCWPD_1123_AA	Lab Water	Ver	ntura County	Watershed	l Prote	LABQA				*		
VCWPD_AA_SALT	Salt Control	Ver	ntura County	/ Watershed	Prote							
ME-CC	Ambient Water	Ver	ntura County	/ Watershed	Prote	ME-CC						
ME-VR2	Ambient Water	Ver	ntura County	/ Watershed	Prote	ME-VR2						
MO-HUE	Ambient Water		ntura County									
Single Comparison Summary												
Analysis ID Endpoint Comparison Method P-Value Compa								omparis	on Resul	t		
11-9639-0399 7d Survival Rate Equal Variance t Two-Sample Test						0.34				passed 7d su	rvival rate	
15-8817-8476 7d Survival Rate Equal Variance t Two-Sample Test						0.20				urvival rate		
00-9464-5738 7d Survival Rate Wilcoxon Rank Sum Two-Sample Test						0.73				survival rate		
00-0367-2190 7d Survival Rate Equal Variance t Two-Sample Test						0.34				survival rate		
14-2240-5459 Mean Dry Biomass-mg Equal Variance t Two-Sample Test						0.12			•		dry biomas	
02-3207-9203 Mean Dry Biomass-mg Equal Variance t Two-Sample Test						0.20		VCWPD_AA_SALT passed mean dry biomas ME-CC passed mean dry biomass-mg				
08-3027-4251 Mean Dry Biomass-mg Equal Variance t Two-Sample Test						0.86		ME-VR2 passed mean dry biomass-mg				
05-6650-6645 Mean							MO-HUE passed mean dry biomass-mg					
7d Survival Rate Summary												
Sample	Code Cour	nt Mean	95% LCL	95% UCL	Min	Max	• •	td Err	Std Dev	CV%	%Effect	
	LW 5	0.920	0.784	1.000	0.800	1.00		.049	0.110	11.91%	0.00%	
VCWPD_AA_SALT		0.880	0.658	1.000	0.600	1.00		.080	0.179	20.33%	4.35%	
ME-CC	5	0.840	0.632	1.000	0.600	1.00		.075	0.167	19.92%	8.70%	
ME-VR2	5	0.920	0.784	1.000	0.800	1.00		.049	0.110	11.91%	0.00%	
MO-HUE	5	0.880	0.658	1.000	0.600	1.00		.080	0.179	20.33%	4.35%	
Mean Dry Biomass-mg Summary												
Sample	Code Cour	nt Mean	95% LCL	95% UCL	Min	Max	S	td Err	Std Dev	CV%	%Effect	
VCWPD_1123_AA	LW 5	1.94	1.6	2.28	1.66	2.29		.121	0.272	14.01%	0.00%	
VCWPD_AA_SALT	SA 5	1.7	1.27	2.13	1.22	2.02		.155	0.346	20.40%	12.54%	
ME-CC	5	1.68	0.925	2.43	1.21	2.74	0.	.271	0.606	36.13%	13.49%	
ME-VR2	5	2.2	1.7	2.69	1.71	2.68		.177	0.397	18.06%	-13.27%	
MO-HUE	5	1.83	1.16	2.49	0.986	2.34	0.	.24	0.538	29.43%	5.76%	

Analyst: SVV QA:
Attachment D Appendix I

Report Date:

06 Dec-18 11:18 (p 2 of 2)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larval Fis	h Surviva	al and Grow	th Test				Pacific EcoRis
7d Survival Rate D	etail						
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
VCWPD_1123_AA	L.W	1.000	0.800	0.800	1.000	1.000	
VCWPD_AA_SALT	SA	0.800	1.000	1.000	0.600	1.000	
ME-CC		0.800	0.800	1.000	0.600	1.000	
ME-VR2		1.000	0.800	1.000	0.800	1.000	
MO-HUE		0.600	1.000	1.000	1.000	0.800	
Mean Dry Biomass	-mg Deta	uil					
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
VCWPD_1123_AA	LW	2.29	1.66	1.72	1.87	2.15	
VCWPD_AA_SALT	SA	1.22	1.79	1.98	1.46	2.02	
ME-CC		1.21	1.47	1.57	1.4	2.74	
ME-VR2		2.06	1.71	2.68	2.52	2.01	
MO-HUE		0.986	2.34	1.86	2.25	1.71	
7d Survival Rate Bi	inomials						
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
VCWPD_1123_AA	LW	5/5	4/5	4/5	5/5	5/5	
VCWPD_AA_SALT	SA	4/5	5/5	5/5	3/5	5/5	
ME-CC		4/5	4/5	5/5	3/5	5/5	
ME-VR2		5/5	4/5	5/5	4/5	5/5	
MO-HUE		3/5	5/5	5/5	5/5	4/5	

Report Date:

06 Dec-18 11:18 (p 1 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic	Larval	Fish	Survival	and	Growth	Test
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Pacific EcoRisk

Analysis ID: Analyzed:

Data Transform

Angular (Corrected)

15-8817-8476

06 Dec-18 11:16

Alt Hyp

C > T

7d Survival Rate Endpoint:

Analysis:

Parametric-Two Sample

CETIS Version: CETISv1.9.2

Official Results: Yes

Comparison Result **PMSD** ME-CC passed 7d survival rate 17.64%

Equa.	V	/ariance	t	Two-Sample Test	
-------	---	----------	---	-----------------	--

Sample I vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(a:5%)
Lab Water Control	ME-CC	0.881	1.86	0.194	8	CDF	0.2020	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.021087	0.021087	1	0.776	0.4040	Non-Significant Effect
Error	0.217313	0.0271641	8			
Total	0.2384		9			

Distributional Tests

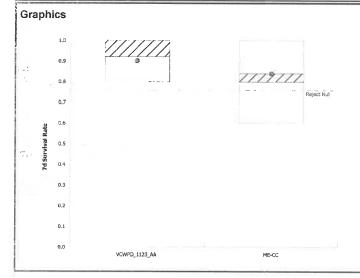
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	2.19	23.2	0.4655	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.919	0.741	0.3483	Normal Distribution

7d Survival Rate Summary

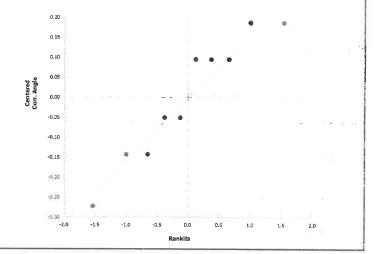
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA	LW	5	0.920	0.784	1.000	1.000	0.800	1.000	0.049	11.91%	0.00%
ME-CC		5	0.840	0.632	1.000	0.800	0.600	1.000	0.075	19.92%	8.70%

Angular (Corrected) Transformed Summary

	Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
1	VCWPD_1123_AA	LW	5	1.25	1.09	1.41	1.35	1.11	1.35	0.0583	10.43%	0.00%
-	ME-CC		5	1.16	0.918	1.4	1.11	0.886	1.35	0.0864	16.68%	7.35%



Management Program 2018/19 Annual Report



Attachment D Appendix I

Ventura Countywide Stormwater Quality

Variances

Variance Ratio F Test

Report Date:

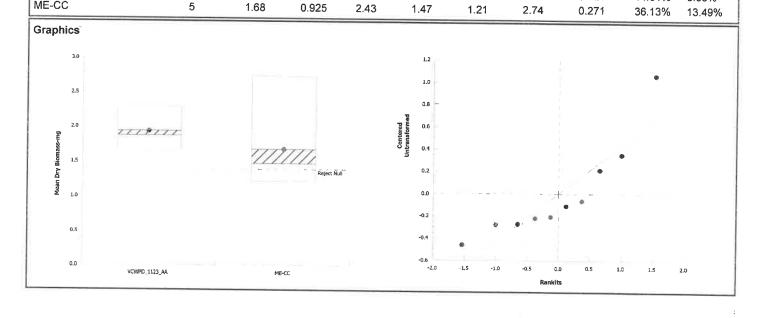
06 Dec-18 11:18 (p 5 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larval Fish Survival and Growth Test Pacific EcoRisk Analysis ID: 02-3207-9203 Endpoint: Mean Dry Biomass-mg **CETIS Version:** CETISv1.9.2 Analyzed: 06 Dec-18 11:17 Analysis: Parametric-Two Sample Official Results: Yes **Data Transform** Alt Hyp **Comparison Result PMSD** Untransformed C > T ME-CC passed mean dry biomass-mg 28.48% **Equal Variance t Two-Sample Test** Sample I VS Sample II Test Stat Critical MSD DF P-Type P-Value Decision(a:5%) Lab Water Control ME-CC 0.881 1.86 0.552 8 CDF 0.2020 Non-Significant Effect **ANOVA Table** Source **Sum Squares** Mean Square DF F Stat P-Value Decision(a:5%) Between 0.171088 0.171088 1 0.776 0.4040 Non-Significant Effect Error 1.76342 0.220428 8 Total 1.93451 9 **Distributional Tests** Attribute Test Stat Critical P-Value Decision(a:1%)

Variances Distribution		Ratio F Tes Wilk W Norr			4.98 0.826	23.2 0.741	0.1492 0.0303		ariances Distribution				
Mean Dry Biomass	lean Dry Biomass-mg Summary												
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect		
VCWPD_1123_AA	LW	5	1.94	1.6	2.28	1.87	1.66	2.29	0.121	14.01%	0.00%		
ME-CC		5	1.68	0.925	2.43	1.47	1 21	2.74	0.121	36 130/	12.400/		



7 Day Chronic Topsmelt (A. affinis) Toxicity Test Data

Client: Ventura County Watershed Protection District					Organism Log#:_	(1300 Age: 14 days	
Test Material:		ME-CC			Organism Supplier:	ARS	
Test ID#:	80308		Project #:	29434	Control Water:	FSW	
Test Date:	11/23/18	Randomization:	5.5.	.7	Control Water Batch:		

	,					T	,					
Test Treatment	Temp (°C)	-	H		(mg/L)	Salinity (ppt)	-	#1 B	ive Organ		T -	SIGN-OFF
	()	new	old	new	old	(PPV	A	В	С	D	Е	Date: 11/2 >// ()
Lab Water Control	201	7.89		9.8		34, 1	5	5	5	5	5	Test Solution Prep: TF
100%	20.0	7.93	1	7.4	A	34.3	5	5	5	5	5	Initiation Time:
Meter ID	81A	PH 19		RDII		ECII	New WQ:	TF				Sample ID: 5/378
Lab Water Control	20.6	7.88	7.76	7.7	6.6	34.3	5	5	5	5	5	Date: 11 24 118 Test Solution Prep: TO
100%	20.8	8.04	8.13	7.7	6.2	34.3	5	5	5	5	5	Renewal Time: 1030 Renewal Signoff: To
Meter ID	109 A	PH24	PH24	RDIO	RD 10	EC12	New WQ:	TF	Old WQ:	CD		Sample ID: 51378
Lab Water Control	20.0	7.62	7.81	7.8	6.4	34.2	5	5	5	5	5	Test Solution Prep:
100%	20.1	7.96	8.26	8.0	6.3	34.3	4	5	2	5	5	Renewal Time: 1145 Renewal Signoff: K/L
Meter ID	108A	PH19	P+ 24	RPIO	RD13	EC13	New WQ:	KL	Old WQ:	DH		Sample ID: 5,378
Lab Water Control	19.9	7.70	7.67	8.1	6.4	34.2	5	ζ	5	5	5	Date: \\\74 \\\8 \\\8 \\\8 \\\8 \\\8 \\\8 \\\
100%	19.9	8.12	8.08	8.0	6.3	34.4	4	5	5	5	5	Renewal Time: 1055 Renewal Signoff: 145
Meter ID	109A	pur	PHIG	PPIU	LNO	EC13	New WQ:	SF	Old WQ:	FIM	5	Sample ID: 51378
Lab Water Control	19.6	7.82	7.72	7-8	8-4	34.4	5	5	5	5	5	Date: 11/27/18 Test Solution Prep: —
100%	20.0	8-00	8-12	7.9	7.6	34.4	4	5	5	3	5	Renewal Time: 1109 Renewal Signoff: R6
Meter ID	AFOI	PHZS	PH25	RAID	RD10	EC13	New WQ:	TH	Old WQ:	TA		Sample ID: 5/378
Lab Water Control	19.8	7.4	7.59	7,6	7.2	33.3	5	5	5512	5	5	Date: 11 28 18 Test Solution Prep: KO
100%	200	7,92	8.12	10.1	7.8	34.4	4	4	5	3	5	Renewal Time: 1430 Renewal Signoff: 1430
	109A	pH25	PH35	roll	DOM	8010	New WQ:€	SAT	Old WQ:	547		Sample ID: 51378
Lab Water Control	20,2	7,80	7.58	10.3	5.9	33.4	5	4	4	5	5	Date: 11 Z9118 Test Solution Prep: ESC
100%	TE IN ZOLV	7.89	7.93	9.8	6.1	33.2	4	4	5	3	5	Renewal Time: USS Renewal Signoff: 1F
Meter ID	(19A	1419	PH19	1012	RD12	ECIZ	New WQ:≤	AT	Old WQ:	SVV		Sample ID: 51378
Lab Water Control	20.5		7-53		5.2	34.8	5	4	4	5	5	Date: 1/130 1/8 Termination Time: 38314
100%	70.7		7.92		4.4	34.2	4	ч	5	3	5	Termination Signoff: 12
Meter ID	107/1		PH19		RD13	EC13			Old WQ:	TA		

Chronic Topsmelt Dry Weight and Biomass Data

Client:	Ventura County Water Protection District	Test ID #:	80308	Project #	29434	
Sample:	ME-CC	Tare Weight Date:	11-29-18	Sign-off:	MYL	
Test Date:	11/23/18	Final Weight Date:	12 - 4 - 18	Sign-off:	AR	

Pan ID	Concentration Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Control A	407.28	418.72	5	2.29
2	В	408.87	417.19	5	1.66
3	C	409.58	418.17	5	1.72
4	D	406.36	415.73	5	1.87
5	Е	414.46	425.21	5	2.15
6	F	411.83	_	_	
7	100% A	418.16	424.23	5	1.21
8	В	409.09	416.44	5	1.47
9	С	416.00	423.84	5	1.57
10	D	411.90	418.89	5	1.40
11	Е	410.95	424.63	5	2.74
12	F	411.84			
QA 1		415.01	415.01		-
Balance ID		BALOH	Ba104		

Report Date:

06 Dec-18 11:18 (p 2 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larva	al Fish	Survival	and Growt	h Test							Paci	fic EcoRis
Analysis ID: Analyzed:		464-5738 ec-18 11:1		-	Survival Rat		ė		IS Version: ial Results		1.9.2	
Data Transforr	m		Alt Hyp					Comparis	on Result			PMSD
Angular (Correc	cted)		C > T					ME-VR2 p	bassed 7d s	urvival rate		13.97%
Wilcoxon Ran	k Sun	n Two-Sar	nple Test									
Sample I v	/s	Sample il		Test Stat	Critical	Ties DF	P-Type	P-Value	Decision	(α:5%)		
Lab Water Con	itrol	ME-VR2		27.5	n/a	2 8	Exact	0.7381		ificant Effec	t	
ANOVA Table												
Source		Sum Squa	ares	Mean Sq	uare	DF	F Stat	P-Value	Decision	(a:5%)		
Between		0		0		1	0	1.0000	Non-Signi	ificant Effec	t	
Error		0.136099		0.017012	4	8						
Total		0.136099				9						
Distributional '	Tests											
Attribute		Test				Test Stat	Critical	P-Value	Decision	(a:1%)		
Variances			Ratio F Tes			1	23.2	1.0000	Equal Var	riances		
Distribution		Shapiro-W	ilk W Norm	ality Test		0.64	0.741	1.7E-04	Non-Norm	nal Distribut	on	
7d Survival Ra	ate Su	mmary										
Sample		Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_	_AA	LW	5	0.920	0.784	1.000	1.000	0.800	1.000	0.049	11.91%	0.00%
ME-VR2			5	0.920	0.784	1.000	1.000	0.800	1.000	0.049	11.91%	0.00%
Angular (Corre	ected)	Transform	ned Sumn	ary								
Sample		Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_	_AA	LW	5	1.25	1.09	1.41	1.35	1.11	1.35	0.0583	10.43%	0.00%
ME-VR2			5	1.25	1.09	1.41	1.35	1.11	1.35	0.0583	10.43%	0.00%
Graphics												
1.0	v 2"	1.1.1.1.1.1.1	i	1771	///		0.10					
0.9				1///	11/2		0.08					
0.5							0.06		1			
0.8	١		I				D.04 -			/		
0,7						7	<u>o</u> 0.02					
au 0.6						antered	5 0.00		- 1			
Rate						S	S -0.02					
7d Survival Rate							-0.04					
15 0.4							-0.06					
							-0.08					
0.3							-0.10					
							+0,12					
0.3												
							-0.14 -0.16	• / •	• •			

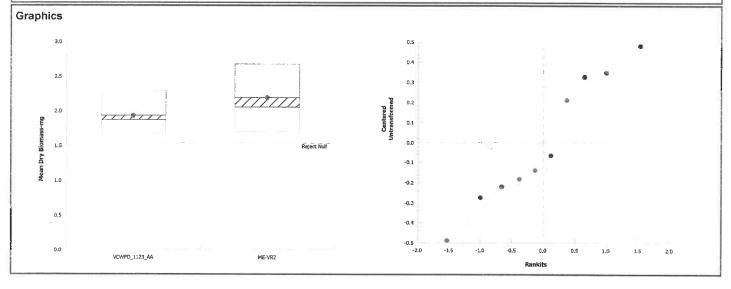
Report Date:

06 Dec-18 11:18 (p 6 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larval Fis	sh Survival and	d Growth Tes	st								Pacif	ic EcoRisi
Analysis ID: 08-	3027-4251	Endpoin	nt: Mea	n Dry Biom	ass-mg			CETI	S Version:	CETISv1	.9.2	
Analyzed: 06	Dec-18 11:17	Analysis	: Para	ametric-Two	Sample)		Offic	ial Results	: Yes		
Data Transform	Α	lt Hyp						Comparis	on Result			PMSD
Untransformed	C	> T						ME-VR2 p	assed mea	n dry bioma	ss-mg	20.61%
Equal Variance t T	wo-Sample Te	est										
Sample I vs	Sample II	Tes	st Stat	Critical	MSD	DF	P-Type	P-Value	Decision	(a:5%)		
Lab Water Control	ME-VR2	-1.3	2	1.86	0.4	8	CDF	0.8671	Non-Signi	ficant Effect		
ANOVA Table												
Source	Sum Square	s Me	an Squ	are	DF		F Stat	P-Value	Decision((α:5%)		
Between	0.165374	0.1	65374		1		1.43	0.2657	Non-Signi	ficant Effect		
Error	0.92392	0.1	1549		8							
Total	1.08929				9							
Distributional Test	s											
Attribute	Test				Test S	tat	Critical	P-Value	Decision((α:1%)		
Variances	Variance Rati	io F Test			2.13		23.2	0.4815	Equal Var	iances		
Distribution	Shapiro-Wilk	W Normality	Test		0.937		0.741	0.5150	Normal Di	stribution		
Mean Dry Biomass	s-mg Summar	y										
Sample	Code C	ount Me	an	95% LCL	95% U	CL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA	LW 5	1.9)4	1.6	2.28		1.87	1.66	2.29	0.121	14.01%	0.00%
ME-VR2	5	2.2	?	1.7	2.69		2.06	1.71	2.68	0.177	18.06%	-13.27%



7 Day Chronic Topsmelt (A. affinis) Toxicity Test Data

Client:	Ventura County Watershed Protection District	Organism Log#: 11300 Age: 140445
Test Material:	ME-VR2	Organism Supplier: ABS
Test ID#:	80309 Project #: 29434	Control Water: FSW
Test Date:	11/23/18 Randomization: 5.5.3	Control Water Batch:

			**	200	(()	0.55	1	<i>u</i> x				
Test Treatment	Temp (°C)	new	old	new	(mg/L)	Salinity (ppt)	A	B # 1	ive Organi C	D	Е	SIGN-OFF
Lab Water Control	20.1	7.89		9.8		34.1	5	5	5	5	5	Date: 11/23/18 Test Solution Prepi
100%	19.9	7.85		8.0		34.4	5	5	5	5	5	Initiation Time: /22 S Initiation Signoff: TF
Meter ID	81A	PH 19		RDII		E(1)	New WQ:	TF				Sample ID: 5/379
Lab Water Control	20.6	7.88	7.76	7.7	6.6	34.3	5	5	5	5	5	Date: ///24/18 Test Solution Prep: Jo
100%	20.8	7.97	8.19	7.7	6.2	34.3	5	5	5	5	5	Renewal Time: 1050 Renewal Signoff: 50
Meter ID	109A	PH 24	PH 24	RD10	ROIO	EC12	New WQ:	TF	Old WQ:	00		Sample ID: 5/379
Lab Water Control	20.0	7.62	7.81	7.8	6.4	34.2	5	5	5	5	5	Test Solution Prep:
100%	20.3	7.88	8.27	8.4	6.3	34.5	5	5	5	5	5	Renewal Time: 1145 Renewal Signoff: 144
Meter ID	108A	p1+19	P424	RDIO	RDIS	EU3	New WQ:	KL	Old WQ:	Рн		Sample ID: 51379
Lab Water Control	19.9	7.70	7.67	8.1	6.4	34.2	5	5	5	5	5	Date: \\\Z\&\UB Test Solution Prep: ER
100%	20.1	8.04	8:11	8. 4	6.2	34.2	5	5	5	5	5	Renewal Time: 105 5 Renewal Signoff: K/2
Meter ID	109A	pHIA	PHIA	1010	RINO	EC13	New WQ:	SF	Old WQ:	ST	5	Sample ID: 51379
Lab Water Control	196	7-82	7.72	7-8	8-4	34.4	5	5	5	5	5	Date: 112 A S Test Solution Prep: T
100%	20.3	7-90	8.19	8.2	8.1	34.4	5	4	5	4	5	Renewal Time: 1109 Renewal Signoff: Rd
Meter ID	APG	PH25	PH25	RDIO	ROID	EC13	New WQ:	TA	Old WQ:	TH		Sample ID: 513>9
Lab Water Control	19.8	7.4	7.59	7.6	7.2	33.3	S	5	Sun	TO THE	5	Test Solution Preps 6
100%	20.0	7,91	8.13	10.6	7.0	33.8	5	4	5	4	5	Renewal Time: 1430 Renewal Signoff: K
Meter ID	109A	QH 25	PH25	ROIL	ROIL	8010	New WQ:≤	27	Old WQ:	SA		Sample ID: 31379
Lab Water Control	78-7 7F 1/29/18	7.80	7.58	16.3	5.9	33.4	5	4	4	5	5	Date: U12418 Test Solution Prep: EQ
100%	207	7.88	8.05	9.8	6.2	33.6	5	4	5	4	5	Renewal Time: 1/53 Renewal Signoff:
Meter ID	109A	H19	PH19	ROIZ	PDIZ	EC12	New WQ:	AT	Old WQ:	811		Sample ID: 61379
Lab Water Control	70.5		7-83		5.2	34.8	5	4	U	5	5	Date: 1130/18 Termination Time: 03 3 4
100%	20.8		8.04		5-8	34.0	5	4	5	4	5	Termination Signoff:
Mcter ID	107/		FH19		RDB	EC/3			Old WQ:	14		

Chronic Topsmelt Dry Weight and Biomass Data

Client:	Ventura County Water Protection District	Test ID #:_	80309	Project #	29434	
Sample:	ME-VR2	Tare Weight Date:	11-29-18	Sign-off:	MYL	
Test Date:	11/231.8	Final Weight Date:	12-4-18	Sign-off:	AR	

Pan ID	Concentration	Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Control	A	407.28	418.72	5	2.29
2		В	408.87	417.19	5	1.66
3		С	409.58	418.17	5	1.72
4		D	406.36	415.73	5	1.87
5		Е	414.46	425.21	5	2.15
6		F	411.83		_	_
13	100%	A	411.33	421.62	5	2.06
14		В	410.76	419.30	5	1.71
15		C	417.51	430.90	5	2.68
16		D	410.50	423.11		2.52
17		Е	412.91	422.98	5	2.01
18		F	410,99			
QA 1			415.01	415.01		
Balance ID			BALOY	BAL 04		

Report Date:

06 Dec-18 11:18 (p 3 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larval Fish Survival and Growth Test	Pacific EcoRisk

Analysis ID: 00-0367-2190 Endpoint: 7d Survival Rate CETIS Version: CETISv1.9.2

Analyzed: 06 Dec-18 11:17 Analysis: Parametric-Two Sample Official Results: Yes

 Data Transform
 Alt Hyp
 Comparison Result
 PMSD

 Angular (Corrected)
 C > T
 MO-HUE passed 7d survival rate
 18.50%

Equal Variance t Two-Sample Test

Sample I Sample II Test Stat Critical DF P-Type ٧S MSD P-Value Decision(a:5%) Lab Water Control MO-HUE 0.405 1.86 0.203 8 CDF 0.3480 Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(a:5%)
Between	0.0048873	0.0048873	1	0.164	0.6961	Non-Significant Effect
Error	0.238371	0.0297963	8			
Total	0.243258		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(a:1%)
Variances	Variance Ratio F Test	2.5	23.2	0.3959	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.815	0.741	0.0218	Normal Distribution

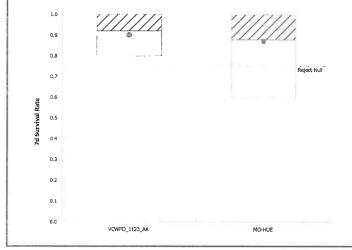
7d Survival Rate Summary

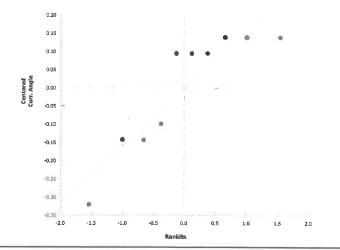
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA	LW	5	0.920	0.784	1.000	1.000	0.800	1.000	0.049	11.91%	0.00%
MO-HUE		5	0.880	0.658	1.000	1.000	0.600	1.000	0.080	20.33%	4.35%

Angular (Corrected) Transformed Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA	LW	5	1.25	1.09	1.41	1.35	1.11	1.35	0.0583	10.43%	0.00%
MO-HUE		5	1.21	0.95	1.46	1.35	0.886	1.35	0.0923	17.11%	3.54%

Graphics





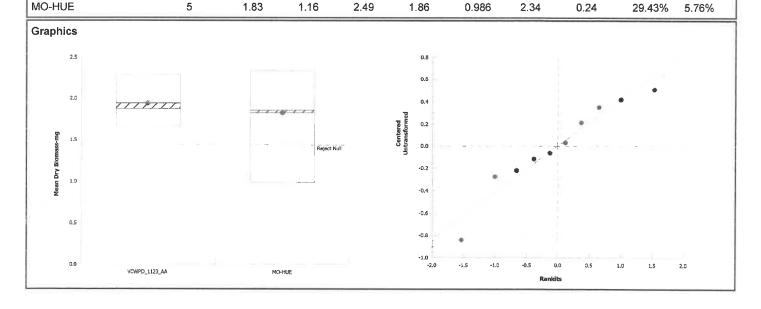
Report Date:

06 Dec-18 11:18 (p 7 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larval F	ish Survival	and Grow	th Test									Pacif	ic EcoRisk
Analysis ID: 05	-6650-6645	En	dpoint:	Mea	n Dry Biom	ass-mg			CET	S Version:	CETISv	1.9.2	
Analyzed: 06	Dec-18 11:	17 A n	alysis:	Para	metric-Two	Sample)		Offic	ial Results	: Yes		
Data Transform		Alt Hyp							Comparis	on Result			PMSD
Untransformed		C > T							MO-HUE	passed mea	ın dry biom	ass-mg	25.84%
Equal Variance t	Two-Sample	e Test											
Sample I vs	Sample I		Test 5	Stat	Critical	MSD	DF	P-Type	P-Value	Decision	α:5%)		
Lab Water Control	MO-HUE		0.414		1.86	0.501	8	CDF	0.3448	Non-Signi	ficant Effec	t	
ANOVA Table													
Source	Sum Squ	ares	Mean	Squa	are	DF		F Stat	P-Value	Decision(α:5%)		
Between	0.031138	7	0.031	1387		1		0.172	0.6896	Non-Signi	ficant Effec	t	
Error	1.45159		0.181	448		8							
Total	1.48273					9							
Distributional Tes	sts												
Attribute	Test					Test S	tat	Critical	P-Value	Decision(α:1%)		
Variances	Variance	Ratio F Tes	st			3.92		23.2	0.2142	Equal Var	iances		
Distribution	Shapiro-V	Vilk W Norr	nality Te	st		0.941		0.741	0.5695	Normal Di	stribution		
Mean Dry Biomas	ss-mg Sumn	nary											
Sample	Code	Count	Mean		95% LCL	95% U	CL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA	\ LW	5	1.94		1.6	2.28		1.87	1.66	2.29	0.121	14.01%	0.00%
MO-HUE		5	1.83		1.16	2.49		1.86	0.986	2.34	0.24	29.43%	5.76%



7 Day Chronic Topsmelt (A. affinis) Toxicity Test Data

Client:	Ventura Co	unty Watershed P	rotection Dis	strict	Organism Log#:_	11300 Age:	14 days
Test Material:		MO-HUE			Organism Supplier:	ABS	
Test ID#:	80310	_	Project #:	29434	Control Water:	FS	W
Test Date:	11/23/18	Randomization:	5.	5-3	Control Water Batch:	_	

Tot Total	Temp	p.	Н	D.O.	(mg/L)	Salinity		#1	Live Organ	isms		SIGN OFF
Test Treatment	(°C)	new	old	new	old	(ppt)	A	В	С	D	E	SIGN-OFF
Lab Water Control	20.1	7.89		9.8		34.1	5	5	5	5	5	Test Solution Prep:
100%	21.0	7.81		7.7		34.2	5	5	5	5	5	Initiation Time: 1225 Initiation Signoff: 4F
Meter ID	81,4	PH 19		RDII		ECI	New WQ:	TF				Sample ID: 51387
Lab Water Control	20.6	7.88	7.76	7.7	6.6	34.3	5	5	5	5	5	Date:
100%	20.8	7.94	8.06		6.0	34.4	5	5	5	5	5	Renewal Time: /D30 Renewal Signoff:
Meter ID	109A	PH 24	PH24	RDIO	RUIO	EC12	New WQ:	TF	Old WQ:	0		Sample ID: 5/387
Lab Water Control	20.0	7.62	7.81	7.8	6.4	34.2	5	5	5	5	5	Test Solution Prep:
100%	20.3	7.82	8.12	8.1	5.6	34.2	5	5	5	5	5	Renewal Time: 1 145 Renewal Signoff: K/L
Meter ID	108A	PITA	PHZY	RDIO	RD13	ECV3	New WQ:	KL	Old WQ:	DH		Sample ID: 51387
Lab Water Control	19.9	770	7.67	8.1	6.4	34.2	5	5	5	5	5	Date: 1/126/18 Test Solution Prop: EQ
100%	20.1	7.97	8.00	8.0	5.7	34.3	5	5	5	5	5	Renewal Time: DSS Renewal Signoff: USS
Meter ID	IMA	MIS	PHZU	2010	RIVIO	EC13	New WQ:	SF	Old WQ:	Syr-	2	Sample ID: 31387
Lab Water Control	19.6	8.61	7.72	7.8	8-4	34.4	5	5	5	5	5	Date: 1/27/18 Test Solution Prep: T
100%	198	7.82	8-21	7.7	8.1	34.4	4	5	5	5	5	Renewal Time: 1109 Renewal Signoff: R6
Meter ID	109A	PH25	PH25	ROID	RDIO	E(13	New WQ:	TA	Old WQ:	TA		Sample ID: 5/387
Lab Water Control	198	7.4	7.59	7,6	7.2	33.3	5	5	54	45	5	Test Solution Propy(2
100%	19.9	7.81	8.05	10.3	7.4	33.5	3	5	S	5	4	Renewal Time: 1435
Meter ID	109A	PH25	0H25	RPI	KDII	8010	New WQ:	SAT	Old WQ:	SA		Sample ID: 51387
Lab Water Control	12111	7.80	7.58	0.3	5.9	33.4	5	ч	4	5	5	Date: 117918 Test Solution Prep: EQ
100%	20.2	7.73	8.12	9,3	6.5	33.2	3	5	5	5	4	Renewal Time: 1/53 Renewal Signoff: TF
Meter ID	109A	0419	PH19	B012	RD12	ECIZ	New WQ	AT	Old WQ:	841	/	Sample ID: 51387
Lab Water Control	20.5		7.53		5.2	34.8	5	4	4	5	5	Date: 1/12.0/18 Termination Time: 0834
100%	70.4		8.07		5.1	33-8	3	5	5	5	4	Termination Signoff:
Meter ID	107A		PHIG		RDB	EC13			Old WQ:	TA		

Chronic Topsmelt Dry Weight and Biomass Data

Client:	Ventura County Water Protection District	Test ID #:_	80310	Project#_	29434	_
Sample:	MO-HUE	Tare Weight Date: _	11-29-18	Sign-off:	MJL	
Test Date:	11/23/18	Final Weight Date:	12-4-18	Sign-off:	AR	

Pan ID	Concentration Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Control A	407.28	418.72	5	2.29
2	В	408.87	417.19		1.66
3	С	409.58	418 17	5	1.72
4	D	406.36	415.73	5	1.87
5	E	414.46	425.21	5	2.15
6	F	411.83		-	_
19	100% A	407.94	412.87	5	0.986
20	В	407.55	419.23	5	2.34
21	С	413.14	422.43	5	1.86
22	D	415.85	427.08	5	2.25
23	Е	410.81	419 . 36	5	1.71
24	F	407.71	_	_	-
QA 1		415.01	415.01		
Balance ID		BALOY	BALOY		

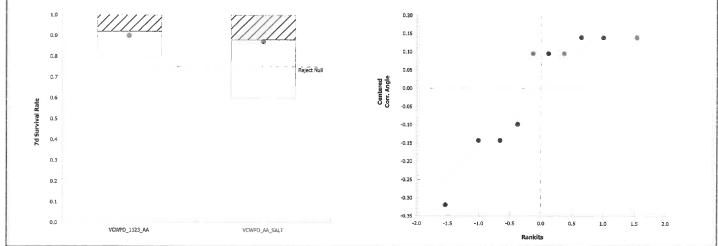
Report Date:

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Test Code:

VCWPD 1123 AA | 20-8046-1655

							lest	Code:	VCWPD_1	123_AA 20	0-8046-1655
Chronic Larval Fis	h Survival	and Growt	h Test							Pacif	ic EcoRisk
Analysis ID: 11-9	9639-0399	End	lpoint: 7d	Survival Rat	e		CET	S Version	: CETISv	1.9.2	
Analyzed: 06	Dec-18 11:1	7 Ana	ıl ysis: Par	ametric-Two	Sample		Offic	ial Results	s: Yes		
Data Transform		Alt Hyp					Comparis	on Result			PMSD
Angular (Corrected)		C > T					VCWPD_	AA_SALT p	passed 7d si	urvival rate	18.50%
Equal Variance t T	wo-Sample	Test									
Sample I vs	Sample II		Test Stat	Critical	MSD D	P-Type	P-Value	Decision	n(a:5%)		
Lab Water Control	Salt Contro	ol	0.405	1.86	0.203 8	CDF	0.3480	Non-Sign	nificant Effec	t	
ANOVA Table											17
Source	Sum Squa	ares	Mean Squ	are	DF	F Stat	P-Value	Decision	ι(α:5%)		
Between	0.0048873		0.0048873	3	1	0.164	0.6961	Non-Sign	ificant Effec	t	
Error	0.238371		0.0297963	3	8						
Total	0.243258				9						
Distributional Test	s										
Attribute	Test				Test Stat	Critical	P-Value	Decision	ι(α:1%)		
Variances	Variance F	Ratio F Test	t		2.5	23.2	0.3959	Equal Va	riances		
Distribution	Shapiro-W	ilk W Norm	ality Test		0.815	0.741	0.0218	Normal D	Distribution		
7d Survival Rate S	ummary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA		5	0.920	0.784	1.000	1.000	0.800	1.000	0.049	11.91%	0.00%
VCWPD_AA_SALT	SA	5	0.880	0.658	1.000	1.000	0.600	1.000	0.080	20.33%	4.35%
Angular (Corrected	l) Transforr	ned Summ	ıary								
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_AA	LW	5	1.25	1.09	1.41	1.35	1.11	1.35	0.0583	10.43%	0.00%
VCWPD_AA_SALT	SA	5	1.21	0.95	1.46	1.35	0.886	1.35	0.0923	17.11%	3.54%
Graphics											
1.0	(//////	!	17771	771		0.20					
0.9	<u> </u>					0.15					
			9			0.10				-	
0.8		mar.		Distant Firm		0.05		373			



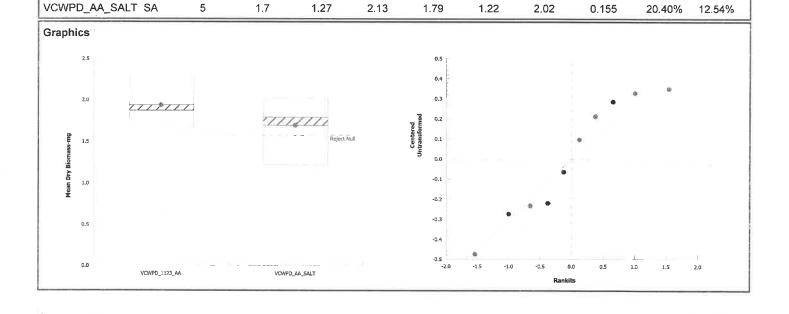
Report Date:

06 Dec-18 11:18 (p 8 of 8)

Test Code:

VCWPD_1123_AA | 20-8046-1655

Chronic Larva	al Fis	h Survival and G	rowth ⁻	Test						Pacit	ic EcoRisk
Analysis ID:	14-2	2240-5459	Endpo	oint: Mea	n Dry Bior	nass-mg		·	CET	IS Version: CETISv1.9.2	
Analyzed:	06 [Dec-18 11:17	Analy	sis: Par	ametric-Tw	o Sample	9		Offic	cial Results: Yes	
Data Transfori	m	Alt	Нур						Comparis	son Result	PMSD
Untransformed		C >	Т						VCWPD_	AA_SALT passed mean dry bioma	s 18.87%
Equal Varianc	e t T	wo-Sample Test									
Sample I V	vs	Sample II		Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)	
Lab Water Con	ntrol	Salt Control		1.24	1.86	0.366	8	CDF	0.1257	Non-Significant Effect	
ANOVA Table											
Source		Sum Squares	-	Mean Squ	are	DF		F Stat	P-Value	Decision(α:5%)	
Between		0.147865	(0.147865		1		1.53	0.2514	Non-Significant Effect	
Error		0.773803		0.0967253		8					
Total		0.921668				9					
Distributional	Tests	5									
Attribute		Test				Test S	tat	Critical	P-Value	Decision(a:1%)	
Variances		Variance Ratio F	Test			1.62		23.2	0.6504	Equal Variances	
Distribution		Shapiro-Wilk W	Normali	ity Test		0.917		0.741	0.3294	Normal Distribution	
Mean Dry Bior	mass	-mg Summary									



95% LCL 95% UCL Median

1.87

2.28

Min

1.66

Max

2.29

Std Err

0.121

CV%

14.01%

%Effect

0.00%

Sample

VCWPD_1123_AA LW

Code

Count

5

Mean

1.6

1.94

7 Day Chronic Topsmelt (A. affinis) Toxicity Test Data

Client:	Ventura Co	unty Watershed Prote	ection District	Organism Log#:	130 0 Age:	28 days
Test Material:		Salt Control		Organism Supplier:	ABS	
Test ID#:	•	Project #:	29434	Control Water:	Diluted Filtered Sea	awater + Crystal Sea
Test Date:	11/23/18	Randomization: 5	5,3	Control Water Batch:		

Test Date.	11/23/	/ S Ka	ndomization:) 5,/			idoi wat	er Batch:				
Test Treatment	Temp (°C)	new	H old	D.O.	(mg/L) old	Salinity (ppt)	A	# L	ive Organi C	isms D	Е	SIGN-OFF
Salt Control	19.1	8.22		8.2		34.2	5	5	5	5	5	Date: (1/23/18) Test Solution Prep: T
												Initiation Time: 1225 Initiation Signoff: TF
Meter ID	AIR	PH 19		RDII		E(II	New WQ:	1F				Date:
Salt Control	20.7	8.31	8.04	7.9	6.6	34.4	5	5	5	5	5	Test Solution Prep:
	A C C C C C C C C C C C C C C C C C C C							MIN MARKET MARKE	XXX 40000000000000000000000000000000000	OFFICE OF STANDARD COM-	## 60 P KKK 60 P P KKK 60 P P P P P P P P P P P P P P P P P P	Renewal Time: D3.0 Renewal Signoff: 50
Meter ID	109A	PHZU	pH24	RDIO	RDIO	ECIZ	New WQ:	TF	Old WQ: (0		
Salt Control	20.1	8.23	8.03	7.9	6.3	34.8	5	5	5	4	5	Test Solution Prep: GR
												Renowal Time: 1145 Renowal Signoff: KL
Meter ID	108A	PH 19	PH 24	RDIO	PD13	ECIS	New WO	KL	Old WQ	DH		Date: A Lo Colo
Salt Control	19.9	8.40	7.81	8.0	6.5	34.2	5	5	5	3	5	Test Solution Prep:
	No. No.	1	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7	Popular in the popula		MATERIAL DE LA COMPANION DE LA	N. GOOGGE ME MINICOLOGIES MONTH CANDON MONTH CANDON	Renewal Time: 1055 Renewal Signoff: K/O
Meter ID	109A	PHIG	PH 19	2010	ehio	EC13	New WS	2	Old WQ:	SOY	7	
Salt Control	199	8-61	7.81	7.9	8.1	34.4	5	5	5	3	5	Date: 1/2/18 Test Solution Prep T
		10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						100 00 00 00 00 00 00 00 00 00 00 00 00		NAME OF THE PROPERTY OF THE PR	X X X X X X X X X X	Renewal Time: LOY Renewal Signoff: RG
Meter ID	WIA	PH25	PHZS	RD/0	RDIO	E(13	New WQ:	TA	Old WQ:	TA	*1*1*1*1*1	
Salt Control	20.0	8.1	7.81	9.2	7.3	33.7	S	5	5	3	5	Test Solution Prep.
												Renewal Time: 1430 Renewal Signoff: K6
Meter ID	109A	OH 35	PHRS	RPII	ROIL	8010	New WQ:	TAT	Old WQ:	SAT	SAT	
Salt Control	TE MANY	9.16 9.55	7.73	9.5	6.1	33.4	5	5	5	3	5	Test Solution Prep:
										4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Renewal Time: 1/53 Renewal Signoff: 1
Meter ID	109 A	1419	PHIG	RD12	PD12	6612	Now WQ:	SAT	Old WQ:	8v.A		Date
Salt Control	20.7		7.65	THE STATE OF THE S	5.4	34.8	4	5	5	3	5	Date: 1/30/18 Termination Time: 1834
												Termination Signoff:
Meter ID	1071		PH19	* * * * *	RD13	EC13			Old WQ:	TA		

Chronic Topsmelt Dry Weight Data

Client:	Ventura County Watershed Protection	District Test ID #:		Project #	29434
Sample:	Salt Control	Tare Weight Date:	11-29-18	Sign-off:	myl
Test Date:	11/23/18	Final Weight Date:	12-4-18	Sign-off:	AR

Pan ID	Concentration Replic	_	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
IA	Salt A	414.11	420 - 21	Б	1.22
24	Control B	411.27	420.23	5	1,79
38	C	412.99	422.89	5	1.98
4A	D	410.46	417, 77	5	1.46
5A	Е	413.30	423.42	5	3.03

Appendix D

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the VCWPD Stormwater to Selenastrum capricornutum

CETIS Summary Report

Report Date:

06 Dec-18 11:23 (p 1 of 1)

Test Code:

VCWPD_1123_SC | 00-6855-1810

Algal Growth T	est											Paci	fic EcoRisk
Batch ID: 0	00-9959-25	90	Test Type:	Cell Gr	owth				Analys	t: Ste	vi Vasquez		
Start Date: 2	23 Nov-18	10:20	Protocol:	EPA-82	21-R-02-	013 (2002)			Diluen	t: Not	Applicable		
Ending Date: 2	27 Nov-18	09:45	Species:	Selena	strum ca	pricornutun	1		Brine:	Not	Applicable		
Duration: 9	95h		Source:	In-Hous	se Cultur	е			Age:	7			
Sample Code	Samp	ole ID	Sample Dat	te	Receipt	Date	Sample A	ge	Client	Name	P	roject	
VCWPD_1123_	SC 04-31	29-3925	23 Nov-18 1	0:20	23 Nov-	18 10:20	n/a (24.4 °	°C)	Ventura	County	Watersh 29	9434	
MO-MPK	02-64	15-9658	22 Nov-18 0	0:10	23 Nov-	18 08:02	34h (0 °C)						
Sample Code	Mate	rial Type		Sample	e Source	•	S	tation l	_ocation)	Lat/Long		
VCWPD_1123_	SC Lab V	Vater		Ventura	a County	Watershed	Prote L	ABQA					
MO-MPK	Ambi	ent Water		Ventura	a County	Watershed	Prote M	O-MPK					
Single Compar	ison Sumi	mary											
Analysis ID E	Endpoint		Comp	arison	Method			P-V	alue (Compari	son Result	;	
12-1186-2003 9	6h Cell De	ensity-withou	t ED Equal	Varianc	e t Two-	Sample Tes	st	1.00	000	MO-MPK	passed 96h	cell densit	y-without edt
96h Cell Densit	y-without	EDTA Sumi	mary										
Sample	Code	Coun	t Mean	95	5% LCL	95% UCL	Min	Max		Std Err	Std Dev	CV%	%Effect
VCWPD_1123_	SC LW	4	3.03E	+6 2.	72E+6	3.34E+6	2.81E+6	3.27	'E+6 9	9.68E+4	1.94E+5	6:40%	0.00%
MO-MPK		4	7.34E	+6 6.8	89E+6	7.80E+6	7.06E+6	7.72	2E+6 1	1.44E+5	2.89E+5	3.93%	-142.61%
96h Cell Densit	y-without	EDTA Detai	i										
Sample	Code	Rep 1	Rep 2	Re	ер 3	Rep 4							
VCWPD_1123_	SC LW	3.27E	+6 2.81E-	+6 2.9	96E+6	3.07E+6							
MO-MPK		7.41E	+6 7.06E-	+6 7.7	72E+6	7.19E+6							

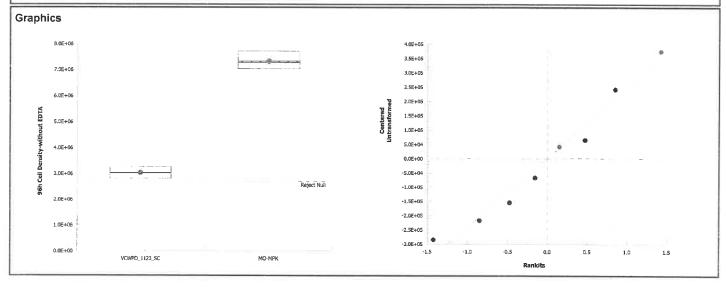
Report Date:

06 Dec-18 11:23 (p 1 of 1)

Test Code:

VCWPD_1123_SC | 00-6855-1810

Algal Growth Tes	t									Pacific	c EcoRisk
Analysis ID: 12	-1186-2003	Endp	oint: 96h	Cell Densit	y-without El	OTA	CETI	S Version:	CETISv1	.9.2	
Analyzed: 06	Dec-18 11:23	Analy	/sis: Par	ametric-Two	Sample		Offic	ial Results	Yes		
Data Transform		Alt Hyp					Comparison Result				PMSD
Untransformed		C > T					MO-MPK	passed 96h	cell density	-without edta	11.16%
Equal Variance t	Two-Sample	Test									
Sample I vs	Sample II		Test Stat	Critical	MSD DF	P-Type	P-Value	Decision	α:5%)		
Lab Water Control	MO-MPK		-24.8	1.94	3E+05 6	CDF	1.0000	Non-Signi	ficant Effect		
ANOVA Table											
Source	Sum Squar	res	Mean Squ	ıare	DF	F Stat	P-Value	Decision	α:5%)		
Between	3.728E+13		3.728E+13	3	1	617	2.8E-07	Significan	t Effect		
Error	3.626E+11		6.043E+10)	6						
Total	3.764E+13				7						
Distributional Tes	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision(α:1%)		
Variances	Variance Ra	atio F Test			2.22	47.5	0.5286	Equal Var	iances		
Distribution	Shapiro-Wil	k W Norma	lity Test		0.959	0.645	0.7976	Normal Distribution			
96h Cell Density-v	vithout EDTA	Summary			-						
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1123_SC	LW	4	3.03E+6	2.72E+6	3.34E+6	3.02E+6	2.81E+6	3.27E+6	9.68E+4	6.40%	0.00%
MO-MPK		4	7.34E+6	6.89E+6	7.80E+6	7.30E+6	7.06E+6	7.72E+6	1.44E+5	3.93%	-142.61%



Selenastrum capricornutum Algal Toxicity Test Data Sheet

Client: Ventura County Watershed Protection District

Test Material: MO-MPK

Test Start Date: \(\lambda 2 \rangle \rangle \lambda \rangle \rangle \lambda 2 \rangle \rangle \rangle \rangle \rangle \lambda 2 \rangle \rangle

Tuestment		Cell Density (cells/mL x 10 ⁶)			Mean Cell	Density	
Treatment	Rep A	Rep B	Rep C	Re	p D	(cells/mL x 10 ⁶)		
Lab Water Control 3-27		2-81	2-94	3 07		3.03		
100%	7-41	7-04	7.72	7-19	7-19			
This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other issues of concern.		Control Mean Density (cells/mL x 10 ⁶)	% CV	Date:	Time:	Signoff:		
with Test Accepta	ionity Criteria and/or	3.03	le-38	11/27/18	0945	NB		

Initial Count: 10,000 cells/mL Termination Time: 6945 Enumerating Scientist: NB

Test Treatment	Temp (°C)	pН	D.O. (mg/L)	Conductivity (µS/cm)	Sign-Off
Lab Water Control	24.4	7.50	90	87	Date: 1/23/18
100%	24.2	7.60	10.0	2550-2606	Sample ID: 51385
					Test Solution Prep: RG
					New WQ: R6
					Innoculation Time: 1020
Meter ID	62A	PH 23	RO13	ECD-EL17	Innoculation Signoff: Rb
Lab Water Control	25.9	8.19			Date: 11/24/18
100%	25.9	7.82			WQ Time: 0848
Meter ID	62A	PH19			WQ Signoff: MYL
Lab Water Control	26.0	8.62			Date: 11/25/18
100%	26.0	8-31			WQ Time: 0850
Meter ID	62 A	PH 24			WQ Signoff: ∓D
Lab Water Control	10 26 - 224	9.39			Date: 11/26/18
100%	26 Z 260	9.50			WQ Time: Danl
Meter ID	62 A	PH 25			WQ Signoff: ∡D
Lab Water Control	25.1	q.73	9.4	108	Date: 11127118
100%	25.1	10.38	15.9	2507	WQ Time; 0836
Meter ID	62A	рн2ч	RD13	EC13	WQ Signoff: AR

Initial Test Conditions	Alkalinity	/ Hardness	Light Intensity (ftc)
Initial Test Conditions	119	371	396

Appendix E

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the VCWPD Stormwater to Ceriodaphnia dubia Ceriodaphnia Survival and Reproduction Test

Report Date:

06 Dec-18 14:18 (p 1 of 2)

Test Code:

VCWPD_1124_CD | 20-3234-3150

	Pacific	EcoRisk

Batch ID:	02-4296-7304	Test Type:	Reproduction-Survival (7d)	Analyst:	Stevi Vasquez
Start Date:	24 Nov-18 11:13	Protocol:	EPA-821-R-02-013 (2002)	Diluent:	Not Applicable
Ending Date:	30 Nov-18 15:49	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	6d 5h	Source:	In-House Culture	Age:	1

Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project
VCWPD_1124_CD	20-4904-5898	24 Nov-18 11:13	24 Nov-18 11:13	n/a (24.6 °C)	Ventura County Watersh	29434
MO-VEN	15-6365-5653	21 Nov-18 23:15	23 Nov-18 08:02	60h (0 °C)		
MO-HUE	02-1965-3242	22 Nov-18 00:30	23 Nov-18 08:02	59h (0 °C)		
MO-SIM	07-0073-2265	22 Nov-18 01:10	23 Nov-18 08:02	58h (0 °C)		
MO-FIL	12-6512-2693	22 Nov-18 01:25	23 Nov-18 08:02	58h (0 °C)		

Sample Code	Material Type	Sample Source	Station Location	Lat/Long
VCWPD_1124_CD	Lab Water	Ventura County Watershed Prote	LABQA	
MO-VEN	Ambient Water	Ventura County Watershed Prote	MO-VEN	
MO-HUE	Ambient Water	Ventura County Watershed Prote	MO-HUE	
MO-SIM	Ambient Water	Ventura County Watershed Prote	MO-SIM	
MO-FIL	Ambient Water	Ventura County Watershed Prote	MO-FIL	

Single Compa	arison Summary			
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result
15-4845-8331	Reproduction	Equal Variance t Two-Sample Test	0.0042	MO-VEN failed reproduction
04-0336-8563	Reproduction	Wilcoxon Rank Sum Two-Sample Test	5.4E-06	MO-HUE failed reproduction
18-4248-6037	Reproduction	Equal Variance t Two-Sample Test	0.8773	MO-SIM passed reproduction
08-9184-2602	Reproduction	Equal Variance t Two-Sample Test	2.1E-04	MO-FIL failed reproduction
11-3879-4920	Survival	Fisher Exact Test	1.0000	MO-VEN passed survival
03-2885-1306	Survival	Fisher Exact Test	5.4E-06	MO-HUE failed survival
18-7563-5106	Survival	Fisher Exact Test	1.0000	MO-SIM passed survival
14-4960-6467	Survival	Fisher Exact Test	1.0000	MO-FIL passed survival

_									
Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
10	28.3	24.8	31.8	17	33	1.56	4.92	17.39%	0.00%
9	18.9	12.3	25.5	4	29	2.85	8.55	45.27%	33.25%
10	0	0	0	0	0	0	0		100.00%
9	30.9	27.5	34.3	22	38	1.47	4.4	14.25%	-9.15%
10	15.6	9.95	21.3	2	26	2.5	7.9	50.67%	44.88%
	10 9 10 9	10 28.3 9 18.9 10 0 9 30.9	10 28.3 24.8 9 18.9 12.3 10 0 0 9 30.9 27.5	10 28.3 24.8 31.8 9 18.9 12.3 25.5 10 0 0 0 9 30.9 27.5 34.3	10 28.3 24.8 31.8 17 9 18.9 12.3 25.5 4 10 0 0 0 0 0 9 30.9 27.5 34.3 22	10 28.3 24.8 31.8 17 33 9 18.9 12.3 25.5 4 29 10 0 0 0 0 0 0 9 30.9 27.5 34.3 22 38	10 28.3 24.8 31.8 17 33 1.56 9 18.9 12.3 25.5 4 29 2.85 10 0 0 0 0 0 9 30.9 27.5 34.3 22 38 1.47	10 28.3 24.8 31.8 17 33 1.56 4.92 9 18.9 12.3 25.5 4 29 2.85 8.55 10 0 0 0 0 0 0 9 30.9 27.5 34.3 22 38 1.47 4.4	10 28.3 24.8 31.8 17 33 1.56 4.92 17.39% 9 18.9 12.3 25.5 4 29 2.85 8.55 45.27% 10 0 0 0 0 0 0 0 0 9 30.9 27.5 34.3 22 38 1.47 4.4 14.25%

Count 10	Mean	95% LCL	95% UCL	Min	Max				
10	4.000			141111	Max	Std Err	Std Dev	CV%	%Effect
	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
9	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%
9	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
10	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
	9	9 1.000	9 1.000 1.000	9 1.000 1.000 1.000	9 1.000 1.000 1.000 1.000	9 1.000 1.000 1.000 1.000 1.000	9 1.000 1.000 1.000 1.000 0.000	9 1.000 1.000 1.000 1.000 0.000 0.000	9 1.000 1.000 1.000 1.000 0.000 0.000 0.00%

CETIS Summary Report

Report Date:

06 Dec-18 14:18 (p 2 of 2)

Test Code:

VCWPD_1124_CD | 20-3234-3150

								c oodo.		127_00 12	0 020 1 0 10
Ceriodaphnia Surv	vival and	Reproduction	on Test							Pacif	fic EcoRisk
Reproduction Deta	ail										
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
VCWPD_1124_CD	LW	23	31	33	30	27	31	32	28	17	31
MO-VEN		26	23	29	17	24	25	4	12	10	
MO-HUE		0	0	0	0	0	0	0	0	0	0
MO-SIM		30	32	38	22	31	33	30	34	28	
MO-FIL		16	10	11	2	12	10	23	26	25	21
Survival Detail											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
VCWPD_1124_CD	LW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MO-VEN		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
MO-HUE		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MO-SIM		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
MO-FIL		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Survival Binomials											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
VCWPD_1124_CD	LW	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
MO-VEN		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
MO-HUE		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1
MO-SIM		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
MO-FIL		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

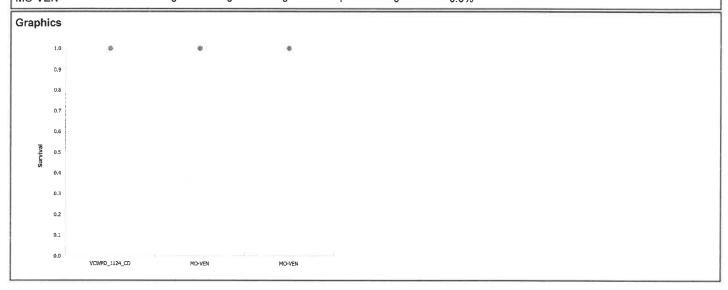
Report Date:

06 Dec-18 14:18 (p 1 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

Ceriodaphnia Survival and Reproduction Test Pacific EcoRisk Analysis ID: 11-3879-4920 Endpoint: Survival **CETIS Version:** CETISv1.9.2 Analyzed: 06 Dec-18 14:16 Analysis: Single 2x2 Contingency Table Official Results: Yes Fisher Exact Test Sample I vs Sample II Test Stat P-Type P-Value Decision(a:5%) Lab Water Control MO-VEN 1.000 1.0000 Non-Significant Effect Exact **Data Summary** Sample Code NR R NR + R Prop NR Prop R %Effect VCWPD_1124_CD LW 10 0 10 1 0 0.0% MO-VEN 9 0 9 1 0 0.0%



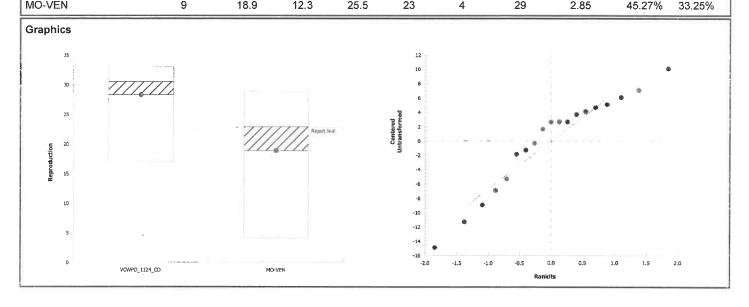
Report Date:

06 Dec-18 14:17 (p 1 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

									ooue.			0-0204-0100
Ceriodaphnia Sur	vival and R	eproductio	n Test								Paci	fic EcoRisk
Analysis ID: 15-	-4845-8331	End	point: Rep	oroduction				CETI	S Version:	CETISv1	.9.2	
	Dec-18 14:1	17 Ana	l ysis: Par	ametric-Two	Sample			Offic	ial Results:	Yes		
Data Transform		Alt Hyp						Comparis	on Result			PMSD
Untransformed		C > T						MO-VEN	failed reprod	luction		19.41%
Equal Variance t 1	Гwo-Sample	Test										
Sample I vs	Sample II		Test Stat	Critical	MSD E	F	P-Type	P-Value	Decision(a:5%)		
Lab Water Control	MO-VEN*		2.98	1.74	5.49 1	7 (CDF	0.0042	Significant	t Effect		
ANOVA Table												
Source	Sum Squ	ares	Mean Squ	iare	DF	1	F Stat	P-Value	Decision(α:5%)		
Between	419.537		419.537		1	8	8.88	0.0084	Significant	Effect		
Error	802.989		47.2346		17							
Total	1222.53				18							
Distributional Tes	ts											
Attribute	Test				Test Sta	t (Critical	P-Value	Decision(α:1%)		
Variances	Variance I	Ratio F Test			3.02	(5.69	0.1203	Equal Vari	ances		
Distribution	Shapiro-W	/ilk W Norm	ality Test		0.933	(0.861	0.1928	Normal Di	stribution		
Reproduction Sur	nmary											
Sample	Code	Count	Mean	95% LCL	95% UC	LI	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_CD	LW	10	28.3	24.8	31.8	3	30.5	17	33	1.56	17.39%	0.00%
MO-VEN		9	18.9	12.3	25.5	2	23	4	29	2.85	45.27%	33.25%



Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

C	lient:	Vent	tura Coun	ty Waters	hed Prote	ction Dist	rict		/laterial:			MO-	VEN			Te	est Date:	11124/18
Proje	ect #:				Test ID:	803	17	Randon	nization:		10 =	1				Contro	l Water:	Modified EPAMH
	Day	New pl	H Old	D. New	O.	Cond.	Temp	A	L			vival / F	-	_	1 11			SIGN-OFF
2151212121	0	7.94		11.2	VI V	(μS/cm) 354	(°C) 24.6	ð	B 0	0	0	E	F	G O	Н	0	0	Date:\\/34/19 New WQ: Test Init.: 7
	1	7.74	8.09	10.8	7.0	359	24.3	0	0	0	0	0	0	0	U	0	0	Date: 11/25/18 New WQ: K Counts: K6 Sol'n Prep: Old WQ: D H Time: 11/36
	2	7.59	7,84	10-6	8.1	360	24.8	0	0	0	0	0	0	0	0	0	0	Date: WILL Counts: CR Sol'n Prep: CR Old WQ: DM Time: 1144
ntrol	3	7.88	7.72	10.3	7.5	352	24.5	6	6	6	4	6	5	6	5	6	6	Date: 11/27/8 New WQ: The Counts: 1/3 Sol'n Prep: TP Old WQ: AR Time: 1541
Lab Water Control	4	7-89	8.838	6.4	7.7 X	350	24.8	7	11	11	11	7	11	11	0	0	0	Sol'n Prep: DB Old WQ: SA Time: 1514
ab Wa	5	7.84	7.75	8.9	7-6	356	25.1	0	0	0	U	0	15	0	W	0	11	Date: 1/179/18 New WQ: SVV Counts: ER Sol'n Prep: GP Old WQ: TA Time: 1644
Ľ	6	_	8-09		7-0	393	25.3	10	14	16	15	14	0	15	13	1)	14	Date: W130/13 New WQ: Counts: Rb Sol'n Prep: Old WQ: TA Time: 154
	7																	Date: New WQ: Counts: Sol'n Prep: Old WQ: Time:
	8	NAME OF STREET O																Date: Old WQ: Counts: Time:
Stimionie							Total=	23	31	33	30	27	31	32	28	17	31	Mean Neonates/Female = 28,3
	Day	p New	Old	D. New	O. Old	Cond. (µS/cm)	Temp (°C)	A	В	С	Sur	vival / F E	Reproduc F	G	Н	I	J.	SAMPLE ID
	0	7.24		10.3		153	24.5	0	9	0	U	Ö	0	0	0	0	0	5/386
	1	7.35	7.18	10.2	7.2	157	24.10	0	0	U	0	0	0	0	0	0	0	51386
	2	737	7,36	CR 11/2018	8.1	152 GR	24.3	0	0	0	0	0	0	0	0	0	0	51386
	3	7.16	6.98	8-3	7.7	161	24.2	4	3	2	3	0	3	3	4	4	0	51386
100%	4	6.89	7.68	6.1	8.0	162	24.7	7	9	0	9	0	9	0	0	0	6	51384
_	5	6.91	7.63	6.4	7.9	163	24.8	0	018	Q5	0	2	0	8	0	0	4	51386
	6		7.56	_	7.9	172	25.3	15	12	27*	17	15	12	14	0	8	Ö	
	7	0.0.8.8.6.0.0.9.8.4		walle and the second of the														
	8																	
La Var							Total=	26	23	_	29	17	24	25	4	12	10	Mean Neonates/Female = 18.9

ACTWO adult females were observed in this replicate at test termination. As there is potentially twentum counting and case up, the replicate Page DI-58x chuded from statistics. Attachment D Appendix I Management Program 2018/19 Annual Report

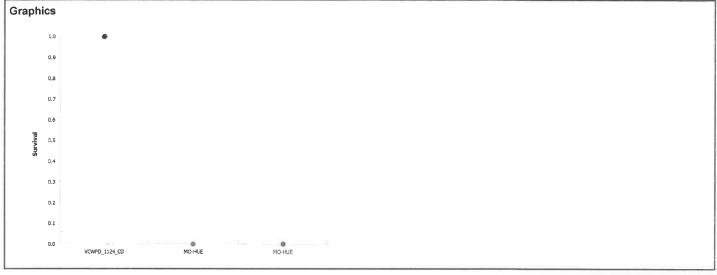
Report Date:

06 Dec-18 14:18 (p 2 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

Ceriodaphnia S	Surv	rival and Re	prod	uction Test							Pacific EcoRisk
Analysis ID: Analyzed:		2885-1306 Dec-18 14:1	6	Endpoint: Analysis:			ntingency Tai	ole	CETIS Version: Official Results:	CETISv1.9.2 Yes	
Fisher Exact T	est										
Sample I v	s	Sample II	l	Test	Stat	P-Type	P-Value	Decision	(α:5%)		
Lab Water Conf	rol	MO-HUE*	+	0.000)	Exact	5.4E-06	Significan	t Effect		
Data Summary											
Sample		Code	NR	R		NR + R	Prop NR	Prop R	%Effect		
VCWPD_1124_	CD	LW	10	0		10	1	0	0.0%		
MO-HUE			0	10		10	0	1	100.0%		



VCWPD_1124_CD LW

MO-HUE

10

10

28.3

0

24.8

Report Date:

06 Dec-18 14:18 (p 2 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

							1631	code. v	OVVI D_112	27_01	7 20-3234-3130
Ceriodaphnia Sur	vival and Reprod	uction Test								F	Pacific EcoRisk
Analysis ID: 04-	0336-8563	Endpoint: R	eproduction				CETI	S Version:	CETISv1.	9.2	· · · · · · · · · · · · · · · · · · ·
Analyzed: 06	Dec-18 14:17	Analysis: N	onparametric	-Two Sam	ple		Offic	ial Results:	Yes		
Data Transform	Alt	Нур					Comparis	on Result			PMSD
Untransformed	C >	Т					MO-HUE 1	ailed reprod	uction		9.54%
Wilcoxon Rank Su	ım Two-Sample 1	Гest									
Sample I vs	Sample II	Test Sta	t Critical	Ties I	DF	P-Type	P-Value	Decision(x:5%)		
Lab Water Control	MO-HUE*	55	n/a	0 ′	18	Exact	5.4E-06	Significant	Effect		
ANOVA Table											
Source	Sum Squares	Mean S	quare	DF		F Stat	P-Value	Decision(x:5%)		
Between	4004.45	4004.45		1		330	<1.0E-37	Significant	Effect		
Error	218.1	12.1167		18							
Total	4222.55			19							
Distributional Tes	ts										
Attribute	Test			Test Sta	at	Critical	P-Value	Decision(x:1%)		
Variances	Levene Equality	of Variance Tes	st	13.9		8.29	0.0015	Unequal Va	ariances		
Variances	Mod Levene Eq	uality of Varianc	e Test	6.22		8.29	0.0226	Equal Varia	ances		
Distribution	Shapiro-Wilk W	Normality Test		0.751		0.866	1.8E-04	Non-Norma	al Distributio	on	
Reproduction Sur	nmary										
Sample	Code Cou	nt Mean	95% LCL	95% UC	L	Median	Min	Max	Std Err	CV%	%Effect

Graphi	cs			
	35	and the second second		6
	30 ··			2
	25			Ontransformed 0
rction	20			Orthonia Cont
Reproduction	15			4
	10			-8
	5			-10
	0	VCWPD_1124_CD	MO·HUE	-12 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 Rankits

31.8

0

30.5

0

17

0

33

0

1.56

0

17.39%

0.00%

100.00%

Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

C	ient:	Vent	tura Coun	ty Waters	hed Prote	ction Dist	rict	N	faterial:		, ,	МО-	HUE			Te	st Date:	11124118	
Proje	ct #:	294	134		Test ID:	803	18	Random	ization:		10 5	2./				Contro	Water:	Modified EPAME	
	Day	pl		D,		Cond.	Temp		D				eproduc		11		r	SIGN-OFF	
	0	794	Old	New 11.2	Old	(μS/cm) 354	(°C) 24.6	A 0	0	<u>с</u> О	D	Đ	F C)	G O	Н	0	0	Date: 11/24/18 New WQ: Sol'n Prep: 72 1 F	Test Init.
	1	7.74	8.05	10.8	7.0	359	24.3	0	0	0	0	0	0	0	0	0	0	Date: 1/137/19 New WQ: KC Sol'n Prep: 31 Old WQ: DH	Counts: KG
	2	7-59	7.84	10-6	5.1	36.0	248	0	0	0	0	0	6	0	0	0	0	Date 1/2101(8 New WQ: 1 M	Counts: ER Time: 1144
itrol	3	7.88	7.72	10.3	75	352	24.5	6	6	6	4	6	5	6	5	6	6	Date: 11/27/13 New WQ: TA Sol'n Prep: TF Old WQ: AR	Counts: DB
er Control	4	7.89	7.82	6.4	7.7	356	24.8	٦	11	11	11	7	11	11	0	0	0	Date: 4/28/4 New WO- Sol'n Prep: NR Old WO- AT	Counts: (5) 4
Lab Water	5	7.86	7.75	8.9	7.6	350	25.1	O	0	0	O	0	15	0	11	0	11	Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Counts:
La	6	-	8.09	-	7.0	393	25,3	10	14	16	15	14	0	15	12	u	14	Date: Wissia New WQ: - Sol'n Prep: - Old WQ: TA	Counts: 7
	7	**********************		01012111														Date: New WQ: Sol'n Prep: Old WQ:	Counts: Time: Counts:
	8																	Date: Old WQ:	Time:
2000000						Y 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Total=	23	31	33	30	27	31	32	28	m	31	Mean Neonates/Female = 28.	3
X 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Day	New	H Old	D. New	O.	Cond. (µS/cm)	Temp (°C)	A	В	С	D	vival / F	Reproduc F	G	Н	1	J	SAMPLE ID	
	0	7.65	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.2		8293	24.1	0	0	Ò	0	Û	Ü	0	0	0	0	51387	
	1	7.44	8.38	10.3	7.2	8342	25.1	×/0	X/0	X/0	0	0	×/0	×/0	0	4/6	0	51387	
	2	7.35	8,29	9.6	8,4	8343	24,9	-		-	×/0	40	-	-	×/6	ب	8/0	51387	
	3	-	_	_	_		-		-	-	-	-	-	-	_	-	-	-5/387	TF 11127/19
100%	4	_		_		_	-	-	-	-			-	-	-	_	_		
1 =	5		-	_	-	_	_	-	-	-	-		-		-	-	_		
	6	-		_	_	_		-	-	-	-	-	-	-	-	-	-		
	7							-	-	-	~		-	-	-	-	-		
	8				**************	***************************************		,		~	_	-	-	_	-		_		
							Total=	410	×/D	Yu	×/0	410	×10	410	*/6	4/0	7/0	Mean Neonates/Female = C	

0.0

VCWPD_1124_CD

Report Date:

06 Dec-18 14:18 (p 3 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

Ceriodaphnia Surv	vival and Re	prod	uction	Test						Pacific EcoRisk
	7563-5106 Dec-18 14:1	7	Endpo Analys	oint: Sur sis: Sing	vival gle 2x2 Cont	tingency Tal	ble	CETIS Version: Official Results:	CETISv1.9.2 Yes	
Fisher Exact Test										
Sample I vs	Sample II			Test Stat	P-Type	P-Value	Decision(α:5%)		
Lab Water Control	MO-SIM			1.000	Exact	1.0000	Non-Signif	icant Effect		
Data Summary										
Sample	Code	NR		R	NR + R	Prop NR	Prop R	%Effect		
VCWPD_1124_CD	LW	10		0	10	1	0	0.0%		
MO-SIM		9		0	9	1	0	0.0%		
Graphics										
1.0	0		•		•					
0.0										
0.8										
0.7										

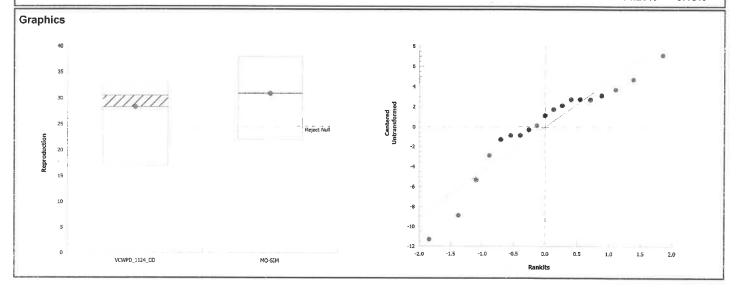
Report Date:

06 Dec-18 14:18 (p 3 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

Ceriodaphnia Sui	vival and R	eproduction	n Test								Pac	ific EcoRisk
Analysis ID: 18	-4248-6037	End	point: Rep	production				CET	S Version:	CETISv1	.9.2	
Analyzed: 06	Dec-18 14:1	7 Ana	lysis: Par	ametric-Two	Sample	1		Offic	ial Results:	Yes		
Data Transform		Alt Hyp						Comparis	on Result			PMSD
Untransformed		C > T						MO-SIM p	assed repro	duction		13.23%
Equal Variance t	Two-Sample	Test										
Sample I vs	Sample II		Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(a:5%)		
Lab Water Control	MO-SIM		-1.2	1.74	3.74	17	CDF	0.8773	Non-Signi	ficant Effect		
ANOVA Table												
Source	Sum Squa	ares	Mean Squ	ıare	DF		F Stat	P-Value	Decision(α:5%)		
Between	31.748		31.748		1		1.45	0.2455	Non-Signi	ficant Effect		
Error	372.989		21.9405		17							
Total	404.737				18							
Distributional Tes	ts											
Attribute	Test				Test St	at	Critical	P-Value	Decision(α:1%)		
Variances	Variance F	Ratio F Test			1.25		7.34	0.7623	Equal Vari	iances		
Distribution	Shapiro-W	ilk W Norm	ality Test		0.91		0.861	0.0754	Normal Di	stribution		
Reproduction Sur	nmary											
Sample	Code	Count	Mean	95% LCL	95% U	CL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_CD	ĻW	10	28.3	24.8	31.8		30.5	17	33	1.56	17.39%	0.00%
MO-SIM		9	30.9	27.5	34.3		31	22	38	1.47	14.25%	-9.15%



Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

0		W 7								_	,,,,,				.prou			11/24/18
	lient: ect #:	294		ty Waters	Test ID:				Material:		10.	7./	-SIM				est Date: 1 Water:	
110,	Day		Н	D.		Cond.	Temp	randon	iizatioii.		_	vival / R	eproduc	ction		Contro	i water.	
		New	Old	New	Old	(μS/cm)	(°C)	A	В	С	D	Е	F	G	Н	I	J	SIGN-OFF
	0	7.94		11.2		354	24.6	0	0	0	0	0	0	Ð	0	0	0	Date: 11/24/18 New WQ: Test Init.: TF Sol'n Prep: T Time: 11/3
	1	7.74	8.09	10.8	7.0	359	243	0	0	0	0	0	0	0	0	0	U	Date: 1118/19 New WQ: KC Counts: K6 Sol'n Prep: 32 Old WQ: DH Time 1936
	2	7.54	7.84	10.6	8,1	360	24,8	0	0	0	0	0	0	0	0	0	0	Date: 1\120/18 New WQLCC Counts: 62 Sol'n Prep: 64 Old WQ: 1 Time: 1144
ntrol	3	7.88	7.72	10.3	7.5	352	24.5	6	Le	6	4	6	5	6	5	6	6	Date: 11/27 New WQ: 74 Counts: FB Sol'n Prep: T Old WQ: DR Time; 541
Lab Water Control	4	7.89	7.82	6.4	7.7	350	24.8	7)y	11	11	7	11	11	0	0	0	Date: 11/28/12 New WQ: TA Counts: 8V Sol'n Prep: NB Old WQ: SA Time: 16 14
b Wat	5	7.80	7-75	8.9	76	356	25.1	0	0	0	0	0	15	0	11	0	11	Date: 1\129/18 New WQ: SVV Counts: 62 Sol'n Prep: 62 Old WQ: TA Time: 1644
La	6	-	8.09	~	7-0	393	25.3	10	14	16	15	14	0	15	12	11	14	Date: 11/30/11 New WQ: — Counts: 66 Sol'n Prep: — Old WQ: TA Time: 15/19
	7																	Date: New WQ: Counts: Sol'n Prep: Old WQ: Time:
	8																	Date: Old WQ: Counts:
							Total=	23	31	33	30	27	31	32	28	17	31	Mean Neonates/Female = 28,3
	Day	P New	H Old	D. New	O. Old	Cond.	Temp (°C)	A	В	С	Sur	vival / R E	eproduc F	ction	Н	-	I	SAMPLE ID
131,111,111	0	7.67		10.9		533	24.1	6	0	0	ð	0	0	Ð	0	0	ð	51388
	1	7.61	7.80	10.4	7.1	546	24.8	0	0	0	0	0	0	D	0	0	0	51388
	2	7.41	7.83	8.9	8.3	548	24.9	0	0	Ö	0	0	0	0	0	0	6	51388
	3	7.48	7.66	8.3	7.8	541	24.4	2	2	3	4	7	4	6	4	5	4	51388
100%	4	7.37	7.70	6.le	8.2	533	248	a	12	3.	14	8	9	8	0	0	8	51388
10	5	7.09	7-60	6.7	7.7	552	245	0	18	8	Ö	0	Ö	G	12	13	12	51388
	6		7-68	_	7-8	590	25.0	19	0	-	20	12	18	19	14	16	12	
	7						- V			-					1			
	8									-								
							Total=	30	32	16	38	22	31	33	30	34	28	Mean Neonates/Female = 30.9

0.1

VCWPD_1124_CD

Report Date:

06 Dec-18 14:18 (p 4 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

Ceriodaphnia Survival and Reproduction Test Pacific EcoRisk 14-4960-6467 Analysis ID: Endpoint: Survival **CETIS Version:** CETISv1.9.2 Single 2x2 Contingency Table Analyzed: 06 Dec-18 14:17 Analysis: Official Results: Yes **Fisher Exact Test** Sample I P-Value Decision(a:5%) Sample II Test Stat P-Type Lab Water Control MO-FIL 1.000 1.0000 Non-Significant Effect Exact **Data Summary** NR Sample Code R NR + R Prop NR Prop R %Effect VCWPD_1124_CD LW 10 0 10 1 0 0.0% MO-FIL 10 0 0 0.0% 10 1 Graphics 1.0 0.9 8.0

Sample

MO-FIL

VCWPD_1124_CD LW

Count

10

10

Mean

28.3

15.6

Report Date:

06 Dec-18 14:18 (p 4 of 4)

Test Code:

VCWPD_1124_CD | 20-3234-3150

Ceriodaphnia Su	rvival and Reprod	uction Test							Pacific EcoRisk
y =	-9184-2602 Dec-18 14:17	•	eproduction rametric-Tw	o Sampl	e			IS Version: CETISv1.9.2	!
Data Transform	Alt I	Нур					Comparis	son Result	PMSD
Untransformed	C > .	Т					MO-FIL fa	iled reproduction	18.04%
Equal Variance t	Two-Sample Test								
Sample I vs	Sample II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(a:5%)	
Lab Water Control	MO-FIL*	4.31	1.73	5.11	18	CDF	2.1E-04	Significant Effect	
ANOVA Table									
Source	Sum Squares	Mean Sq	uare	DF		F Stat	P-Value	Decision(a:5%)	
Between	806.45	806.45		1		18.6	4.2E-04	Significant Effect	
Error	780.5	43.3611		18					
Total	1586.95			19					
Distributional Tes	sts								
Attribute	Test			Test S	tat	Critical	P-Value	Decision(α:1%)	
Variances	Variance Ratio F	Test		2.58		6.54	0.1744	Equal Variances	
	Shapiro-Wilk W	Navenality Toot		0.969		0.866	0.7331	Normal Distribution	

35			12			
			10			
30	11/1/1//		8		•	
25			Pau 4			
s 20		Reject Nulī	Centered Centered 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		•	
uoquoquo			5 0			
Repres		7777177	-4			
10			-6 -8			
			-10			
5			-12			
0	VCWPD_1124_CD	MO-FIL	-14 -2.0 -1.5 -1.0	-0.5 0.0	0.5 1.0	1.5 2.0

95% LCL 95% UCL Median

30.5

14

31.8

21.3

24.8

9.95

Min

17

2

Max

33

26

Std Err

1.56

2.5

CV%

17.39%

50.67%

%Effect

0.00%

44.88%



Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

C	lient:	Ven	tura Coun	ity Waters	hed Prote	ction Dist	rict	N	/laterial:			МО	-FIL			T	est Date:	11/24/18
Proj	ect #:		434		Test ID:	803	21	Randon	ization:		10	.7.1					l Water:	
	Day		Н		.0.	Cond.	Temp				Sur		Reproduc	ction				SIGN-OFF
	-	New	Old	New	Old	(µS/cm)	(°C)	A	В	С	D	Е	F	G	Н	1	J	
	0	7.14		11.2		354	24.6	ð	0	Ô	0	0	0	0	0	0	0	Date: 11/24/19 New WQ: Test Init.: Sol'n Prep: T Time: 1
	1	7.74	8.09	10.8	7.0	359	24.3	0	0	0	0	0	0	0	0	0	0	Date:11/25/18 New WQ: K Counts: KG Sol'n Prep: JL Old WQ: JH Time[P30
	2	759	7.84	10.6	8.1	36.0	24.8	0	0	0	0	0	0	0	0	0	0	Date\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
trol	3	7-88	7.72	10.3	7.5	352	24.5	6	1,	le	4	6	5	Ce	5	6	6	Date: 1/27/8New WQ: TA Counts: JB Sol'n Prep: TF Old WQ: AR Time: 1841
r Con	4	7.89	7.82	6.4	7.7	350	24.8	7	11	11	w	7	N	11	0	0	0	Date: 1.1/28/18 New WQ: TA Counts: BV Sol'n Prep: NB Old WQ A Time: /J14
Lab Water Control	5	7.80	7.75	8.9	7.6	356	25.1	0	0	0	0	0	15	0	11	0	11	Date: 1/129/18 New WQ: SV V Counts: CP. Sol'n Prep: CR Old WQ: TA Time: LYH
Lat	6		8.09	-	7-0	393	25.3	10	14	16	15	14	0	15	12	11	14	Date: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	7					0 10				10					10			Date: New WQ: Counts:
	8																	Sol'n Prep: Old WQ: Time: Date: Old WQ: Counts: Time:
							Total=	23	31	33	30	27	31	32	28	17	31	Mean Neonates/Female = 28.3
	Day	р	Н	D.	0.	Cond.	Temp			9.0			Reproduc	20		- /		
		New	Old	New	Old	(µS/cm)	(°C)	A	В	С	D	Е	F	G	Н	I	J	SAMPLE ID
	0	7.72		10.6		189	24.3	0	ð	0	0	0	0	0	0	0	0	51389
	1	7.59	7.50	10.1	75	192	24.8	0	0	0	0	0	0	0	0	0	0	51389
	2	7-70	7.66	9.3	8.2	195	24.6	0	0	0	0	6	0	0	0	0	0	51389
	3	7-36	7.36	8-5	8.0	194	24.2	4	3	1	2	1	0	0	1	0	0	\$1389
100%	4	7.18	7.7%	16.5	8.2	190	25.1	0	7	0	0	0	0	0	0	0	4	81389
01	5	7.12	7-68	7.2	8-1	198	24.5	0	0	Ö	0	0	Ó	8	10	9	7	51389
	6	_	7.31	_	8-1	212	25.4	12	0	10	0	11	10	15	15	16	10	~
	7							1//						1.1				7
	8																	
							Total=	16	10	11	2	12	10	23	26	25	21	Mean Neonates/Female = 15,6

CETIS Summary Report

Report Date:

12 Dec-18 14:43 (p 1 of 1)

Test Code:

VCWPD_1201_CD | 06-5067-2466

Ceriodaphnia Sur	vival and Re	production	on Test							Paci	fic EcoRisk
Start Date: 01 D	902-0351 Dec-18 15:57	Pro		A-821 - R-02	-013 (2002)		Dilu	ent: No	vi Vasquez t Applicable		
Ending Date: 07 Duration: 6d (-		riodaphnia d House Cultu			Brir Age		t Applicable		
Sample Code	Sample ID	Sa	mple Date	Receip	t Date	Sample A	ge Clie	nt Name	Pi	roject	
VCWPD_1201_CD MO-THO	15-4630-70 13-5932-84		Dec-18 15:5 Nov-18 14:1		-18 15:57 -18 14:15	n/a (25 °C) 50h (0.8 °C		tura County	Watersh 29	9434	
Sample Code	Material Ty	/pe	Saı	mple Sourc	e	St	ation Locat	ion	Lat/Long		
VCWPD_1201_CD	Lab Water		Ver	ntura County	/ Watershed	Prote LA	BQA		_		
MO-THO	Ambient W	ater	Vei	ntura County	/ Watershed	d Prote Mo	O-THO				
Single Compariso	n Summary										
	point			on Method			P-Value		son Result		
18-8548-5358 Rep				iance t Two-	Sample Te	st	0.0566	MO-THO	passed repr	roduction	
09-6458-6457 Surv	rival —————		Fisher Exa	act Test			1.0000	МО-ТНО	passed surv	vival	
Reproduction Sun	nmary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
VCWPD_1201_CD	LW	10	34.9	32.7	37.1	29	39	0.983	3.11	8.90%	0.00%
MO-THO		10	32.9	31.3	34.5	30	37	0.69	2.18	6.64%	5.73%
Survival Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
VCWPD_1201_CD	LW	10	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
MO-THO		10	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
Reproduction Deta	nil										
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
VCWPD_1201_CD	LW	30	29	37	36	36	36	36	39	36	34
MO-THO		33	34	30	34	31	31	35	33	31	37
Survival Detail											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
VCWPD_1201_CD	LW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
мо-тно		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Survival Binomials											
Sample		Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
VCWPD_1201_CD	LW	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

мо-тно

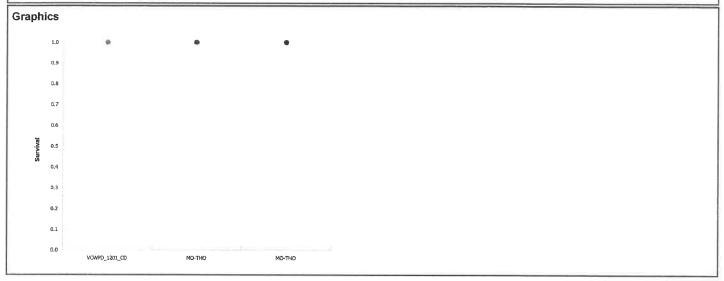
Report Date:

12 Dec-18 14:43 (p 1 of 1)

Test Code:

VCWPD_1201_CD | 06-5067-2466

Ceriodaphnia Su	ırvival and l	Reprod	uction Test							Pacific EcoRisk
,	9-6458-6457 2 Dec-18 14		Endpoint: Analysis:			itingency Tal	ble	CETIS Version: Official Results:	CETISv1.9.2 Yes	
Fisher Exact Tes	t									
Sample I vs	Sample	Н	Test S	Stat P-	Гуре	P-Value	Decision	(α:5%)		
Lab Water Contro	MO-TH)	1.000	Ex	act	1.0000	Non-Sign	ificant Effect		
Data Summary										
Sample	Code	NR	R	NF	+ R	Prop NR	Prop R	%Effect		
VCWPD_1201_C	D LW	10	0	10		1	0	0.0%		
MO-THO		10	0	10		1	0	0.0%		



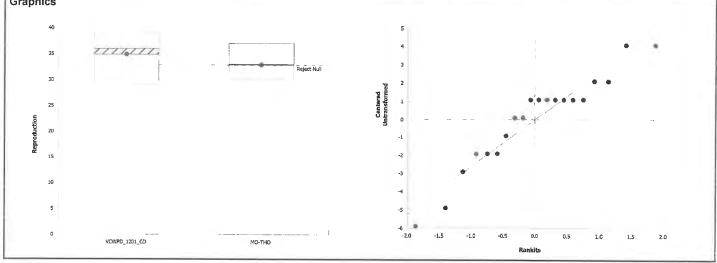
Report Date:

12 Dec-18 14:43 (p 1 of 1)

Test Code:

VCWPD_1201_CD | 06-5067-2466

Ceriodaphnia Sur	vival and R	eproduction	n Test							Pac	ific EcoRis
Analysis ID: 18-	8548-5358	En	dpoint: Re	oroduction			CET	S Versio	n: CETISv	1.9.2	
Analyzed: 12	Dec-18 14:	43 An	alysis: Par	ametric-Two	Sample		Offic	ial Resul	ts: Yes		
Data Transform		Alt Hyp					Comparis	son Resu	lt		PMSD
Untransformed		C > T					MO-THO	passed re	production		5.97%
Equal Variance t T	wo-Sample	e Test									
Sample I vs	Sample II		Test Stat	Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Lab Water Control	мо-тно		1.67	1.73	2.08 18	CDF	0.0566	Non-Sig	nificant Effec	t	
ANOVA Table											
Source	Sum Squ	ares	Mean Squ	are	DF	F Stat	P-Value	Decisio	n(α:5%)		
Between	20		20		1	2.77	0.1131		nificant Effec	t	
Error	129.8		7.21111		18						
Total	149.8				19						
Distributional Test	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance I	Ratio F Tes	t		2.03	6.54	0.3078	Equal V	ariances		
Distribution	Shapiro-W	Vilk W Norm	nality Test		0.926	0.866	0.1301	Normal	Distribution		
Reproduction Sun	nmary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1201_CD	LW	10	34.9	32.7	37.1	36	29	39	0.983	8.90%	0.00%
MO-THO		10	32.9	31.3	34.5	33	30	37	0.69	6.64%	5.73%
Graphics											
40						5					



Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

	Vent	tura Coun	ty Waters	hed Protec	ction Distr	ict	N	laterial:		L	ab Wate	r Cont	rol		Te	est Date:	12/1/18
	294	134		Test ID:		80319		Rar	ndomizat	ion:	(0,	4.9			Contro	l Water:	: Mod EPAMH
	pŀ		D.		Cond.	Temp					ırvival / R	eproducti	_				SIGN-OFF
N	lew	Old	New	Old	(μS/cm)	(°C)	A	В	C	D	Е	F	G	Н	I	J	Test Init : les
	84		8.6		352	25,0	D	D	0	0	0	0	0	0	0	0	Date: 12 11 18 New WQ: Test Init.: 13 Sol'n Prep: TV 3/2 Time: 1557
1	64	7-86	7.7	7.9	352	24.1	0	0	0	0	0	0	0	0	0	0	Date 1/2/19 New WQ: SAT Counts: Jec Sol'n Prep: Old WQ: Time: 1555
Т	92	8.10	87	7.7	354	245	0	6	D	0	0	0	0	0	0	0	Sol'n Prep: Old WQ: Counts: DE Time: 1531
	87	7.63	8.8	7.4	363	25.9	5	5	G	6	5	6	6	8	6	5	Date: 12/4/18 New WQ: TA Counts: 26 Sol'n Prep: T Old WQ: Time: LTU
	54	7.66	7.9	7.1	357	13,0	10	10	6	10	b	12	13	13	0	0	Date: 115/8 New WQ: Counts: NR Sol'n Prep: 2 Old WQ: Time: 144
,	13	7.57	7.9	6-7	365	24,6	0	0	12	0	12	0	0	0	13	13	Date:12/1/18 New WQ: Counts: TF Sol'n Prep: Old WO: Time: 134
_	-	7.89	-	5.4	385	24.8	15	14	19	20	19	18	17	18	17	16	Date: 1217119 New WQ: Counts: TIC Sol'n Prep: Old WQ: TIME: 1400
																	Date: New WQ: Counts: Sol'n Prep: Old WQ: Time:
**************************************													310				Date: Old WQ: Counts: Time:
						Total=	30	29	37	36	36	36	37	39	34	34	Mean Neonates/Female = 35.0 34.9
AN ONE						Total≃	30	29	37		36	36 36	36 36 36	36 36 36 37	36 36 36 37 39	36 36 36 37 39 36	36 36 36 37 39 34 34

Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

(Client:	Ventu	ra Count	y Waters	hed Prote	ection Dis	strict	N	laterial:			мо-	тно			Te	est Date:	12/1/18
Proj	ject #:	294	134		Test ID:	803	19		Randon	nization		10.4.	9			Contro	l Water:	Mod EPAMH
	Day	pН		D.O.		Cond.	Temp				_		eproducti	_				Sample ID
		New	Old	New	Old	(µS/em)	~ (°C)	Α	В	С	D	Е	F	G	Н	1	J	•
	0	7.67		10.4		515	15,4	0	0	0	O	0	0	0	0	0	0	31495
	1	755	7.87	8,9	7.8	512	24.1	0	6	0	0	0	0	0	G	٥	0	51495
	2	7.64	7.99	10.4	8.0	514	247	0	6	0	6	0	0	D	0	0	6	<i>८१५९</i> ८
	3	7-65	7.70	9.3	7.7	562	25.7	8	6	6		5	5	6	6	3	7	51495
100%	4	7.64	7.65	8.9	69	617	BF	0	0	8	2	0	10	0	8	0	1	51495
100	5 -	7-85	7.66	9-2	7.2	522	24.4	10	11	0	12	10	0	11	0	11	12	51495
	6	-	7.79	-	5.7	571	24.4	15	١٦	16	19	16	16	18	19	17	17	_
	7			4.							, [
	8									17								
							Total=	33	34	30	34	31	31	35	33	31		Mean Neonates/Female = 32.9

Appendix F

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the VCWPD Stormwater to Fathead Minnows

Report Date:

06 Dec-18 11:43 (p 1 of 2)

Test Code:

Chronic Larval Fi	sh Survival a	and Growth	Test								Pacif	ic EcoRisk
Start Date: 24 Ending Date: 01	5632-3219 Nov-18 11:27 Dec-18 08:17 21h	Proto	ies: F	Growth-Surviva EPA-821-R-02- Pimephales pro Aquatox, AR	013 (2002)			Analyst Diluent: Brine: Age:	Not	ri Vasquez Applicable Applicable		
Sample Code	Sample ID	Samp	le Date	Receipt	t Date	Sample	Age	Client N	lame	Р	roject	
VCWPD_1124_PF	02-1466-00	048 24 No	v-18 11	:27 24 Nov-	18 11:27	n/a (24.	9 °C)	Ventura	County \	Natersh 29	9434	
MO-CAM	06-9311-98	353 21 No	v-18 22	:35 23 Nov-	18 08:02	61h (0 °	(C)					
MO-OJA	13-4924-90)51 21 No	v-18 23	:15 23 Nov-	18 08:02	60h (0°	(C)					
MO-MEI	15-7267-63	340 22 No	v-18 00	:20 23 Nov-	18 08:02	59h (0 °	C)					
MO-OXN	07-1416-65	586 21 No	v-18 23	:40 23 Nov-	18 08:02	60h (0 °	'C)					
Sample Code	Material Ty	уре		Sample Source	е		Station L	_ocation		Lat/Long		
VCWPD_1124_PF	Lab Water		\	/entura County	Watershed	Prote	LABQA					
MO-CAM	Ambient W	ater ater	\	/entura County	Watershed	Prote	MO-CAM	ł				
MO-OJA	Ambient W	ater ater	\	/entura County	Watershed	Prote	MO-OJA					
мо-меі	Ambient W	ater	\	/entura County	Watershed	Prote	MO-MEI					
MO-OXN	Ambient W	ater ater	١	/entura County	Watershed	l Prote	MO-OXN					
Single Compariso	n Summary											
Analysis ID End	ipoint		Compa	rison Method			P-V	alue C	omparis	on Result		
06-1891-6906 7d	Survival Rate		Equal V	ariance t Two-	Sample Te	st	0.01	66 M	IO-CAM	failed 7d su	rvival rate	
13-0983-7195 7d	Survival Rate		Equal V	ariance t Two-	Sample Te	st	4.6E	E-04 M	IO-OJA f	ailed 7d sui	rvival rate	
06-3697-6362 7d	Survival Rate		Equal V	ariance t Two-	Sample Te	st	0.05	519 M	IO-MEI p	assed 7d s	urvival rate	
12-0686-5588 7d	Survival Rate		Equal V	/ariance t Two-	Sample Te	st	0.09	61 M	IO-OXN	passed 7d s	survival rate	
02-0593-7827 Mea	an Dry Bioma	ss-mg	Equal V	ariance t Two-	Sample Te	st	4.2E	E-05 M	IO-CAM	failed mear	dry biomas	s-mg
03-9675-4352 Mea	an Dry Bioma	ss-mg	Equal V	ariance t Two-	Sample Te	st	1.1E	E-05 M	IO-OJA f	ailed mean	dry biomass	s-mg
11-7812-1469 Mea	an Dry Bioma	ss-mg	Equal V	ariance t Two-	Sample Te	st	1.9E	E-04 M	IO-MEI fa	ailed mean	dry biomass	-mg
20-2469-8603 Mea	n Dry Bioma	ss-mg	Equal V	ariance t Two-	Sample Te	st	4.3E	E-04 M	O-OXN	ailed mean	dry biomas	s-mg
7d Survival Rate \$	Summary											
Sample	Code		Mean	95% LCL	95% UCL		Max		td Err	Std Dev	CV%	%Effect
VCWPD_1124_PP	LW		1.000	1.000	1.000	1.000	1.00		000	0.000	0.00%	0.00%
MO-CAM			0.775	0.503	1.000	0.600	1.00		085	0.171	22.04%	22.50%
MO-OJA			0.575	0.303	0.847	0.400	0.80		085	0.171	29.70%	42.50%
MO-MEI MO-OXN			0.850 0.900	0.574	1.000	0.600	1.00		087	0.173	20.38%	15.00%
			0.900	0.675	1.000	0.700	1.00	io U.	071	0.141	15.71%	10.00%
Mean Dry Biomas	-	-	Mass	050(1.01	050/ 1101	847			GI Pos	014.5	O) /II /	0/ 555
Sample VCWPD_1124_PP	Code		Mean 1	95% LCL	95% UCL		Max		td Err	Std Dev	CV%	%Effect
MO-CAM	LVV		1 0.379	0.834 0.249	1.17	0.867	1.12		0525	0.105	10.49%	0.00%
MO-OJA			0.379	0.249	0.508 0.355	0.275 0.145	0.47		0407	0.0815	21.53%	62.17%
MO-MEI			0.233 0.463	0.111	0.633	0.145	0.32 0.57		0383 0537	0.0766 0.107	32.91%	76.74%
MO-OXN			0.463	0.292	0.709	0.33	0.69		0557	0.107	23.19%	53.75%
WIO-OXIV		7	0.002	0.554	0.708	0.449	0.09	·	0007	0.111	20.97%	46.88%

CETIS Summary Report

Report Date:

06 Dec-18 11:43 (p 2 of 2)

Test Code:

Chronic Larval Fis	h Surviva	l and Grow	th Test				Pacific EcoRisi
7d Survival Rate D	etail						
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4		
VCWPD_1124_PP	LW	1.000	1.000	1.000	1.000		
MO-CAM		1.000	0.800	0.600	0.700		
MO-OJA		0.800	0.500	0.600	0.400		
MO-MEI		1.000	0.900	0.900	0.600		
MO-OXN		0.900	0.700	1.000	1.000		
Mean Dry Biomass	-mg Deta	il					
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4		
VCWPD_1124_PP	LW	0.993	1.12	1.02	0.867		
MO-CAM		0.474	0.388	0.275	0.377		
MO-OJA		0.328	0.249	0.209	0.145		
MO-MEI		0.577	0.515	0.429	0.33		
MO-OXN		0.467	0.449	0.693	0.517		
7d Survival Rate B	inomials						
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4		
VCWPD_1124_PP	LW	10/10	10/10	10/10	10/10	н,	
MO-CAM		10/10	8/10	6/10	7/10		
MO-OJA		8/10	5/10	6/10	4/10		
MO-MEI		10/10	9/10	9/10	6/10		
MO-OXN		9/10	7/10	10/10	10/10		

Report Date:

06 Dec-18 11:43 (p 1 of 8)

Test Code:

Chronic Larval Fis	sh Surviva	and Grow	th Test							Pacif	ic EcoRis
•	1891-6906 Dec-18 11:		dpoint: 7d alysis : Pa	Survival Rat				IS Version: cial Results	CETISv1	.9.2	
Data Transform		Alt Hyp						son Result			PMSD
Angular (Corrected)	C > T					MO-CAM	failed 7d su	rvival rate		13.73%
Equal Variance t 1	wo-Sampl	e Test									
Sample I vs	Sample i	1	Test Stat	Critical	MSD DF	P-Type	P-Value	Decision(α:5%)		
Lab Water Control	MO-CAM	*	2.75	1.94	0.221 6	CDF	0.0166	Significan	t Effect		
ANOVA Table											
Source	Sum Squ	ares	Mean Sq	uare	DF	F Stat	P-Value	Decision(α:5%)		
Between	0.195833		0.195833		1	7.58	0.0332	Significan	Effect		
Error	0.155012		0.025835	3	6						
Total	0.350845				7						
Distributional Tes	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision(α:1%)		
Variances			ariance Test		5.94	13.7	0.0506	Equal Var	iances		
Variances			of Variance	Test	4.99	13.7	0.0670	Equal Var	ances		
Distribution	Shapiro-V	Vilk W Norr	mality Test		0.813	0.645	0.0390	Normal Di	stribution		
7d Survival Rate S	ummary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_PP	LW	4	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
MO-CAM		4	0.775	0.503	1.000	0.750	0.600	1.000	0.085	22.04%	22.50%
Angular (Correcte	d) Transfo	rmed Sumr	nary								
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_PP	LW	4	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
MO-CAM		4	1.1	0.737	1.46	1.05	0.886	1.41	0.114	20.68%	22.16%
Graphics											
1.G						0.35					
	0					0.30					
0.9				Reject Null		0.25					
8.0			////	111		0.20					
, 0.7					70						
0.5					Centered	A CTO					
Rate					ថ	0.10					
0.5											
0.4 0.4						0.00				, T.	
0.3						-0.05					Po.
						-0.10	•				
0.2						-0.15					
0.1						-0.20					
0.0						-0.25 -1.5	-1,0	-0.5 0.0	0.5	1.0	1.5
	VCWPD_1124_PP		MO-CAP	4				Rankits			

Report Date:

06 Dec-18 11:43 (p 5 of 8)

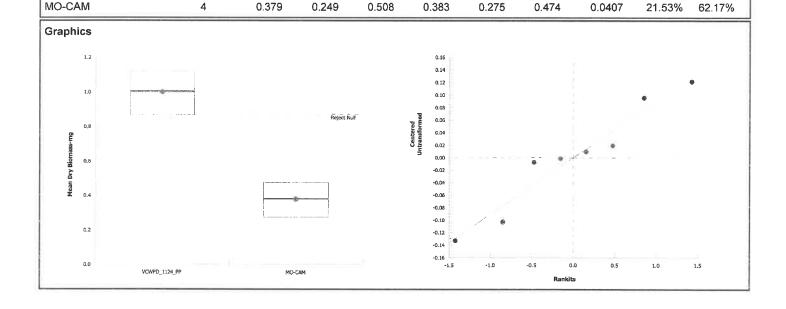
Test Code:

0.474

0.0407

VCWPD_1124_PP | 12-2924-2791

Chronic Larval Fis	sh Survival and	Growth T	est							Pacif	ic EcoRisk
Analysis ID: 02-	0593-7827	Endpo	int: Mea	n Dry Biom	ass-mg		CETI	S Version:	CETISv1	.9.2	
Analyzed: 06	Dec-18 11:41	Analys	is: Para	ametric-Two	Sample		Offic	ial Results:	Yes		
Data Transform	Al	t Hyp					Comparis	on Result			PMSD
Untransformed	С	> T					MO-CAM	failed mean	dry biomas	s-mg	12.90%
Equal Variance t T	wo-Sample Te	st									
Sample I vs	Sample II	Т	est Stat	Critical	MSD DF	P-Type	P-Value	Decision(x:5%)		
Lab Water Control	MO-CAM*	9.	.36	1.94	0.129 6	CDF	4.2E-05	Significant	Effect		
ANOVA Table											
Source	Sum Squares	. M	lean Squ	are	DF	F Stat	P-Value	Decision(x:5%)		
Between	0.773768	0.	.773768		1	87.7	8.4E-05	Significant	Effect		
Error	0.0529455	0.	.0088243		6						
Total	0.826714				7	_					
Distributional Tes	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision(d	x:1%)		
Variances	Variance Ratio	F Test			1.66	47.5	0.6883	Equal Varia	ances		
Distribution	Shapiro-Wilk	N Normality	y Test		0.936	0.645	0.5697	Normal Dis	tribution		
Mean Dry Biomass	s-mg Summary										
Sample	Code Co	ount M	lean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_PP	LW 4	1		0.834	1.17	1.01	0.867	1.12	0.0525	10.49%	0.00%



0.508

0.383

0.275

MO-CAM

4

0.379

0.249

7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Ventura Count	y Watershed Prot	ection District	Organism Log#:	11303	Age: 48h	
Test Material:		MO-CAM		Organism Supplier:	Aquatox		
Test ID#:	80312	Project #:	29434	Control:		EPAMH	
Test Date:	11/24/18	Rando	mization:4.5.12	Control Water Batch:	21"	2	

G-											
Test Treatment	Temp (°C)	new	H	D.O.	(mg/L)	Conductivity (µS/cm)	Α	# Live C	Organisms C	D	SIGN-OFF
Lab Water Control	24.9	8.16		9.1		301	10	10	10	lo	Date: 11/24/18 Test Solution Prep:
100%	25.0	7.23		105		605	10	10	lo	10	Sample ID: 5 39 Initiation Time: 1 2
Meter ID	108A	PHZY		Rojo		Ecio	New WQ:	Rb			Initiation Signoff: R6
Lab Water Control	24.8	7.96	7.93	8.8	6.6	309	10	10	10	10	Date: 11/25/18 Test Solution Prep: 37
100%	24.5	7.08	7.00	10.8	2.3	613	10	10	8	9	Sample ID: \$1331 Renewal Time: 1040
Meter ID	109A	FH19	PH 74	RDIO	RO13	EC10	New WQ:	KL	Old WQ:	DH	Renewal Signoff: K6
Lab Water Control	24.4	7.95	7.89	8.9	8.0	303	10	10	10	10	Test Solution Prep: ER
100%	24.3	7.83	7.34	9.4	6.0	614	10	10	8	9	Sample ID: 5138 \ Renewal Time: 1250
Meter ID	AIS/HIR	pMa	PHIG	KD10	Rojo	Ello	New WQ:	k	Old WQ:		Renewal Signoff:
Lab Water Control	24.4	7.85	7.65	8-4	8.2	300	10	10	(0)	10	Date: 1 / 2 - 7 / 8 Test Solution Prep: TF
100%	24.3	7.01	7.40	9-5	6-6	609	10	10	8	9	Sample ID: 5/38/ Renowal Time: 1029
Meter ID	81A	PH25	PHY	RDIO	RDIO	Ego	New WQ:	+	Old WQ:	4	Renewal Signoff:
Lab Water Control	75.2	7.86	7.67	8.5	5/47 7.3	73305	10	10	10	10	Date: U/28/E Test Solution Prep: VB
100%	25.	6.67	7.47	7.4	C.5	192	10	10	8	9	Sample ID: 51381 Renewal Time: 1113
Meter ID	107/	PHS	PH25	ROB	ROIT	8013		AT	Old WQ: S	41	Renewal Signoff:
Lab Water Control	24.7	8,09	7.76	8.4	8.1	297	10	10	10	10	Date: 1129/18 Test Solution Prep: ER
100%	24.7	6.49	7-43	7.4	6-6	403	10	10	8	9	Sample ID: 51381 Renewal Time: 1537
Meter ID	BIA	PHIS	PH19	RAIO	RAID	ECIO	New WQ:	A	Old WQ:	TA	Renewal Signoff: K6
Lab Water Control	24.7	795	8-06	8.0	8-3	304	10	10	10	10	Date: 11/30// X Test Solution Prep: KZ
100%	24.7	6.69	7-78	7.3	7-3	596	10	10	8	9	Sample ID: 51381 Renewal Time: 15 3 3
Meter ID	024	MIG	PHZ4	12013	ROLL	Trus	New WQ;	12	Old WQ:	A	Renewal Signoff:
Lab Water Control	24.6		7.80		6.7	321	10	(0)	10	10	Date: 12/11/8 Termination Time: 08/7
100%	24.5	1	7.49		6.8	632	i 0	8	6	7	Termination Signoff:
Meter ID	8 A		A124		2713	EC13		**************************************	Old WO:	2	

Fathead Minnow Dry Weight Data Sheet

Client: Ventura County Water Protection District

Test ID #: 80312

Project #: 29434

Test Material: MO-CAM

Tare Weight Date: 11/28/18

Sign-off: 74

Test Date: 1/24/18

Final Weight Date: 12-4-18

Sign-off: AR

Pan ID	Treatment	Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Lab Water	A	414.87	424 80	10	0.993
2	Control	В	411-65	422.87	10	1.13
3		С	409.77	419.97	10	1.02
4		D	409.48	418.35	10	0.867
5	100%	A	412.12	416.86	10	0.474
6		В	410.12	414.00	10	0.388
7		С	418.52	421.27	10	0.275
8		D	411-27	415.04	10	0.377
QA			412-31	412.32		
Balance ID:			Bal 04	Bal 04		

Report Date:

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Test Code:

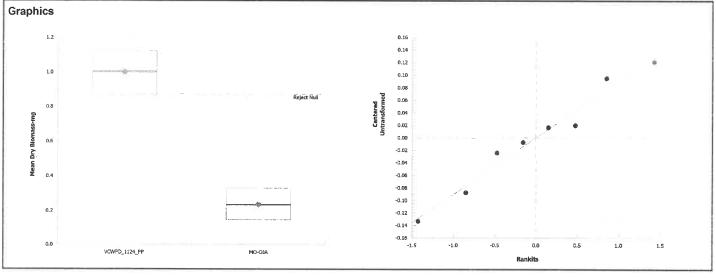
Chronic Larval Fis	sn Survival	and Grov	wth lest							Paci	fic EcoRis
•	0983-7195		•	7d Survival Rat				IS Version		1.9.2	
	Dec-18 11:		_	Parametric-Two	o Sample			cial Result			
Data Transform Angular (Corrected	\	Alt Hyp	0					son Result failed 7d su			PMSD 10.77%
							WIO-OUA	Talled 70 St	ar vivar rate		10.77 %
Equal Variance t 1	_										
Sample I vs	Sample I		Test S			P-Type	P-Value	Decision	· · ·		
_ab Water Control	MO-OJA*		6.05	1.94	0.176 6	CDF	4.6E-04	Significa	nt Effect		
ANOVA Table											
Source	Sum Squ		Mean S	Square	DF	F Stat	P-Value	Decision			
Between	0.596626		0.5966		1	36.6	9.3E-04	Significa	nt Effect		
Error	0.097915		0.0163	192	6						
Total	0.694541				7						
Distributional Tes	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(a:1%)		
/ariances			Variance Te		6.96	13.7	0.0387	Equal Va	riances		
/ariances	Mod Leve	ne Equalit	ty of Varian	ce Test	6.2	13.7	0.0472	Equal Va	riances		
Distribution	Shapiro-V	Vilk W Nor	rmality Test		0.844	0.645	0.0824	Normal E	Distribution		
'd Survival Rate S	Summary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	_Min	Max	Std Err	CV%	%Effect
/CWPD_1124_PP	LW	4	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
MO-OJA		4	0.575	0.303	0.847	0.550	0.400	0.800	0.085	29.70%	42.50%
Angular (Corrected	d) Transfor	med Sum	ımary								
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_PP	LW	4	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
MO-OJA		4	0.866	0.578	1.15	0.836	0.685	1.11	0.0903	20.87%	38.68%
Graphics											
1.0						0.25					
0.9						0.20					
0.8				Reject Null		0.15					
0.7					Centered	D C.10					
0.6			777	11/11	2	E 0.05				7	
7d Survival Rate						0.00	179		0 -0		
2						-0.05		/			
જ						-0.10	•				
0.3						-0.15					
0.3						-0.20					
0.3						-0.20 -0.25 -1.5	-1.0	-0.5 0.0	0.5	1.0	1.5

Report Date:

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Test Code:

Chronic Larval Fis	sh Survival and	Growth Test							Pacif	ic EcoRisk
Analysis ID: 03-	9675-4352	Endpoint:	Mean Dry Bion	nass-mg		CET	IS Version	: CETISv	192	
•	Dec-18 11:41	Analysis:	Parametric-Tw	•			ial Results			
Data Transform	Al	t Hyp				Comparis	son Result			PMSD
Untransformed	C	> T				MO-OJA	failed mear	dry biomas	s-mg	12.61%
Equal Variance t 1	wo-Sample Tes	st								
Sample I vs	Sample II	Test	Stat Critical	MSD DF	P-Type	P-Value	Decision	n(a:5%)		
Lab Water Control	MO-OJA*	11.8	1.94	0.126 6	CDF	1.1E-05	Significa	nt Effect		
ANOVA Table										
Source	Sum Squares	Mean	Square	DF	F Stat	P-Value	Decision	ı(a:5%)		
Between	1.17888	1.178	88	1	140	2.2E-05	Significal	nt Effect		
Error	0.0506219	0.008	437	6			_			
Total	1.2295			7						
Distributional Tes	ts									
Attribute	Test			Test Stat	Critical	P-Value	Decision	ι(α:1%)		
Variances	Variance Ratio	F Test		1.88	47.5	0.6183	Equal Va	riances		
Distribution	Shapiro-Wilk V	V Normality Te	st	0.966	0.645	0.8614	Normal D	Distribution		
Mean Dry Biomass	s-mg Summary									
Sample	Code Co	unt Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_PP	LW 4	1	0.834	1.17	1.01	0.867	1.12	0.0525	10.49%	0.00%
MO-OJA	4	0.233	0.111	0.355	0.229	0.145	0.328	0.0383	32.91%	76.74%



7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Ventura Count	y Watershed Prote	ection District	Organism Log#:	11303 Age: 2	-48hr
Test Material:		MO-OJA		Organism Supplier:	Aguatux	'
Test ID#:	80313	Project #:	29434	Control:	ЕРАМН	
Test Date:	11/24/18	Randon	nization: 45.12	Control Water Batch:	2/2/	

Test Treatment	Temp	,	H	D.O.	(mu/L)	Conductivity		# Live 0	Organisms		
rest reaunem	(°C)	new	old	new	old	(µS/cm)	A	В	С	D	SIGN-OFF
Lab Water Control	24.9	8.16		9.1		301	lo	10	lo	10	Date: 11/24/18 Test Solution Prep:
100%	24.8	7.36		9.7		371	10	10	10	lo	Sample ID: 51382 Initiation Time: 1127
Meter ID	108 A	PH24		ROW		2410	New WQ:	26			Initiation Signoff: Rb
Lab Water Control	24.9	7.96	7.93	8.8	8.3	309	10	10	10	10	Date: †1/25/18 Test Solution Prep: IT_
100%	24.	7.1/	7.00	95	2.8	381	8	5	8	7	Sample ID: 51332 Renewal Time: 040
Meter ID	1.09A	PHIP	ри 24	RDIO	RO13	EC10	New WQ:	156	Old WQ:	H	Renewal Signoff;
Lab Water Control	24.4	7.95	7.89	8.9	8.0	303	10	10	10	10	Test Solution Prep: EAL
100%	24.1	7.03	7:36	7.5	6.7	384	8	5	7	7	Sample ID: 61382 Renewal Time: 1250
Meter ID	814	pula	PHIA	koio	RIVID	ECIO	New WQ:	SF	Old WQ:	K	Renewal Signoff: 146
Lab Water Control	24.4	7.85	7.65	8-4	8.2	300	10	10	10	6)	Date: 11/27/18 Test Solution Prep: TF
100%	24.2	699	7.47	8.5	7.2	383	8	5	7	5	Sample ID: 5/382 Renewal Time: 1029
Meter ID	81 A	PHZS	PH25	RDIP	RDIO	ECIO	New WQ:	TA	Old WQ:	4	Renewal Signoff:
Lab Water Control	25.2	7.86	7.67	8.5	73	305	10	10	10	10	Date: 11/28/12 Test Solution Prep: NB
100%	24.9	672	7,45	68	62	5394 18	8	5	6	4	Sample ID: 513 B2 Renewal Time: 1113
Meter ID	107A	PH15	PH25	RD13	RDII	8013	New WQ:	AT	Old WQ:	T	Renewal Signoff: LZ
Lab Water Control	24.7	8.99	. 7.76	8-4	8.1	297	10	10	10		Date: 1179/18 Test Solution Prep: ER
100%	246	6-70	7-43	7.7	6.7	390	8	5	6	4	Sample ID: 51387 Renewal Time: 1537 Renewal Signoff: K.L.
Meter ID	BIA	PHIL	PH19	rolo	ROID	ECIO	New WQ:	TH	د :Old WQ	TA	
Lab Water Control	24.7	7.95	8-06	8.0	8-3	304	10	10	10	10	Test Solution Prep: KL
100%	24.6	6.8	7-85	8.6	7-4	400	8	5.	6	4	Sample ID: 51382 Renewal Time: 1533
Meter ID	02K	Mig	PH24	12013	RDII	EUS	New WQ:	阳	Old WQ:	14	Renewal Signoff:
Lab Water Control	24.6		7.80		6.7	321	(0	10	(0	10	Date: 12/1/18 Tennination Time: 08/7
100%	24.6	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7.62		6.7	428	3	5	6	4	Termination Signoff:
Meter ID	81A		PHZY		RAN3	BC23			Old WQ:	R	

Fathead Minnow Dry Weight Data Sheet

Client: Ventura County Water Protection District

Test ID #: 80313 Project #: 29434

Test Material: MO-OJA Tare Weight Date: 11/28/18 Sign-off: TA

Test Date: 11/24/18 Sign-off: AR

Pan ID	Treatment Replica	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Lab Water A	414.87	424.80	10	0.993
2	Control B	411.65	422.87	10	1.12
3	С	409-77	419.97	10	1.02
4	D	409.68	418.35	ĺΟ	0.867
9	100% A	415.92	419.20	10	0.328
10	В	409.96	412.45	10	0.249
11	С	412-40	414.49	10	0.209
12	D	410.88	412.33	10	0,145
QA 2		411.94	411.94		
Balance ID:		Bal o4	Bal 04		

Report Date:

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Test Code:

VCWPD_1124_PP | 12-2924-2791

Chronic Larval Fi	sh Surviva	al and Grow	th Test							Pacit	ic EcoRis
	-3697-6362 Dec-18 11			d Survival Rat arametric-Two				S Version		1.9.2	
Data Transform		Alt Hyp					Comparis	on Resul	t		PMSD
Angular (Corrected	d)	C > T					MO-MEI p	assed 7d	survival rate		13.40%
Equal Variance t	Two-Samp	le Test									
Sample I vs	Sample	II	Test Sta	t Critical	MSD DF	P-Type	P-Value	Decisio	n(a:5%)		
Lab Water Control	MO-MEI		1.92	1.94	0.216 6	CDF	0.0519		nificant Effec	t	
ANOVA Table											
Source	Sum Sq	uares	Mean S	quare	DF	F Stat	P-Value	Decisio	n(α:5%)		
Between	0.09071	24	0.09071	24	1	3.67	0.1039	Non-Sig	nificant Effec	t	
Error	0.14830	ô	0.02471	76	6						
Total	0.23901	8			7						
Distributional Tes	its										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Levene f	Equality of V	ariance Tes	st	5.84	13.7	0.0522	Equal Va	ariances		
Variances	Mod Lev	ene Equality	of Varianc	e Test	2.33	13.7	0.1780	Equal Va	ariances		
Distribution	Shapiro-	Wilk W Norr	mality Test		0.792	0.645	0.0237	Normal	Distribution		
7d Survival Rate	Summary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effec
VCWPD_1124_PP	LW	4	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
MO-MEI		4	0.850	0.574	1.000	0.900	0.600	1.000	0.087	20.38%	15.00%
Angular (Correcte	d) Transfo	rmed Sumi	nary								
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effec
VCWPD_1124_PP	LW	4	1.41	1.41	1.41	1.41	1.41	1.41	0	0.00%	0.00%
MO-MEI		4	1.2	0.845	1.55	1.25	0.886	1.41	0.111	18.54%	15.08%
Graphics											
1.O						0.30					
0.9						0.25					
			11/1	/-/// Reject Null		0.20					6
8.0						0.15					
0.7						0.10					
a 0.6					Centered	0.05			0		
Rate					8	9 0.00	•	0. 0	0	-	
7d Survival Rate						-0.05					
=						-0.10					

0.3

0.2

0,1

0.0

VCWPD_1124_PP

MO-MEI

-0.15

-0.20

-0.25

-0.35 -1.5

Rankits

VCWPD_1124_PP_LW

4

1

0.834

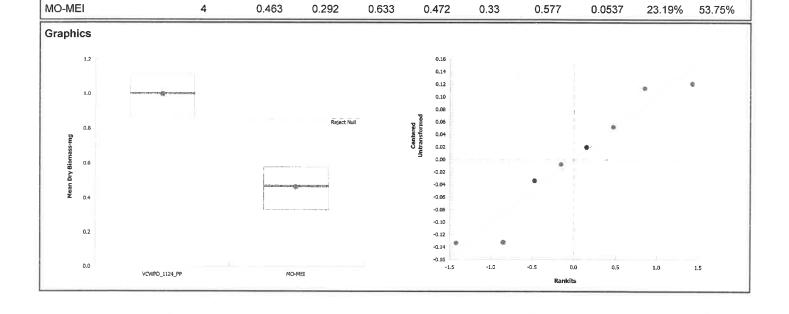
Report Date:

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Test Code:

VCWPD_1124_PP | 12-2924-2791

Chronic Larval F	ish Survival and	Growth Test						Pacific EcoRisk
Analysis ID: 1	I-7812-1469	Endpoint:	Mean Dry Biom	nass-mg		CET	IS Version: CETISv1.9.2	
Analyzed: 06	6 Dec-18 11:41	Analysis:	Parametric-Two	o Sample		Offic	cial Results: Yes	
Data Transform	Alt	Нур				Comparis	son Result	PMSD
Untransformed	C >	·T				MO-MEI f	ailed mean dry biomass-mg	14.57%
Equal Variance t	Two-Sample Tes	t						
Sample I vs	Sample II	Test S	tat Critical	MSD DF	P-Type	P-Value	Decision(a:5%)	
Lab Water Contro	I MO-MEI*	7.17	1.94	0.146 6	CDF	1.9E-04	Significant Effect	
ANOVA Table								
Source	Sum Squares	Mean :	Square	DF	F Stat	P-Value	Decision(α:5%)	
Between	0.578351	0.5783	51	1	51.4	3.7E-04	Significant Effect	
Error	0.0675646	0.0112	608	6				
Total	0.645915			7				
Distributional Te	sts							
Attribute	Test			Test Stat	Critical	P-Value	Decision(α:1%)	
Variances	Variance Ratio	F Test		1.05	47.5	0.9713	Equal Variances	
Distribution	Shapiro-Wilk W	/ Normality Test	t	0.918	0.645	0.4111	Normal Distribution	
Mean Dry Biomas	ss-mg Summary							
Sample	Code Cor	unt Mean	95% LCL	95% UCL	Median	Min	Max Std Err CV	% %Effect



1.17

1.01

0.867

1.12

0.0525

10.49%

0.00%

7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Ventura County	Watershed Prote	ection District	Organism Log#:	11303 Age: LYM	
Test Material:		MO-MEI		Organism Supplier:	Hyuatdx	
Test ID#:	80314	Project #:	29434	Control:	ЕРАМН	
Test Date:	11/24/18	Randon	nization: 45.12	Control Water Batch:	212	

Test Treatment	Temp		Н	D.O.	(mg/L)	Conductivity		# Live (Organisms		SIGN-OFF
	(°C)	new	old	new	old	(µS/cm)	A	В	С	D	5.517 517
Lab Water Control	24.9	8.16		9.1		30)	10	10	[0	10	Test Solution Prep:
100%	24.8	7.19		9.0		201	10	10	10	(0	Sample ID: 51383 Initiation Time: 1127
Meter ID	LOS A	PHZY		ROW		EUO	New WQ:	Rb			Initiation Signoff: R6
Lab Water Control	24.8	7.96	7.93	8.8	6.8	309	10	10	10	10	Date: 11/3/5/1/8 Test Solution Prep: JL
100%	24.4	7.01	7.04	9.6	3.6	206	10	9	9	В	Sample ID: S1383 Renewal Time: 1040
Meter ID	109A	PHIA	PHZ4	RDIO	ROIZ	F(10	New WQ:	~	Old MG:	H	Renewal Signoff:
Lab Water Control	244	7.95	7.89	8.9	8.0	303	10	10	10	16	Test Solution Prep: CR Sample ID: 3.77
100%	24.1	7.00	7.29	7.6	6.7	208	10	9	9	8	Sample ID: 61383 Renewal Time: 1250
Meter ID	BIA	9414	P419	KD 10	ROID	ECIU	New WQ:	se .	Old WQ:		Renewal Signoff:
Lab Water Control	24.4	7.85	7.65	8-4	8.2	360	10	10	10	10	Date: 11/2 7/18 Test Solution Prep: (F)
100%	24.2	6-86	7-36	8.5	6,5	207	10	9	9	8	Sample ID: 5/383 Renewal Time: 16.2.9
Meter ID	81A	PH25	PH25	RU10	RAIO	E40	New WQ:	4	Old WQ:	-	Renewal Signoff:
Lab Water Control	25.2	7.86	7.67	8.5	7.3	365	10	10	10	10	Date: U/2B/CC Test Solution Prep: NB
100%	24.8	667	7,45	7.1	G.V	213 13	10	9	9	7	Sample ID: 5 13 83 Renewal Time: 1113
Meter ID	107F	PH15	PH25	NB	RPII	843	New WQ:	41	Old WQ:	HT.	Renewal Signoff: 12
Lab Water Control	24.7	8.09	7.76	8-4	8-1	297	10	10	10	10	Date: 11/29/18 Test Solution Prep: ER
100%		6.65	746	7.8	7-2	209	10	9	9	7	Sample ID: 31383 Renewal Time: 1537
Meter ID	BIA	PH 15	PH19	RAID	RDIO	ECIO	New WQ:	A	Old WQ:	TA	Renewal Signoff:
Lab Water Control	24.7	7.95	8-06	8.0	8-3	304	10	10	10	10	Date: 11/30/18 Test Solution Prep: 154
100%	24.6	6.75	7.68	6.4	7.5	214	10	9	9	7	Sample ID: 51383 Renowal Time: 15 3 3
Meter ID	1024	PHIS	PH24	P013	RDII	EU3	New WQ:	Ut	Old WQ:	TA	Renewal Signoff:
Lab Water Control	24.6		7.80		6.7	321	19	10	(0)	10	Date: 12/1/18 Termination Time: 08/7
100%	24.5		7.40		6.7	129	10	9	9	6	Termination Signoff:
Meter ID	91A		2424		2013	EC03			Old WQ: 3	2	

Fathead Minnow Dry Weight Data Sheet

Client: Ventura County Water Protection District

Test ID #: 80314

Project #: 29434

Test Material: MO-MEI Tare Weight Date: 11/2%/18

Test Date: 11/2%/18

Sign-off: AR

Pan ID	Treatment	Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Lab Water	A	414.87	424 80	10	0.993
2	Control	В	411.65	422.87	10	C. 1.12
3		С	409.77	419.97	10	1.02
4		D	409.68	418.35	10	0.867
13	100%	A	412-82	418.59	10	0.577
14		В	417.12	422.27	10	0,515
15		С	415.09	419.38	10	0,429
16		D	411-58	414.88	10	0.330
QA 1			412.31	412.32		
Balance ID:			Bal of	Ba104		

Report Date:

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Test Code:

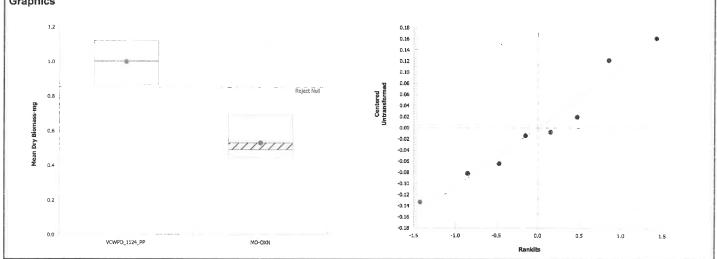
SII Survivai	l and Grow	th Test							Paci	fic EcoRis
									1.9.2	
	Alt Hyp					Comparis	son Result			PMSD
d)	C > T					MO-OXN	passed 7d	survival rate		11.88%
Two-Sample	e Test									
Sample I	l .	Test St	at Critical	MSD DF	P-Type	P-Value	Decision	(α:5%)		
MO-OXN		1.47	1.94	0.193 6	CDF	0.0961	Non-Sign	ificant Effec	t	
Sum Squ	uares	Mean S	quare	DF	F Stat	P-Value	Decision	(a:5%)		
0.042607	2	0.04260	072	1	2.16	0.1922	Non-Sign	ificant Effec	t	
11 11 4 404 404		0.01974	146	6	_					
0.161075 ————				7						
sts										
Test				Test Stat	Critical	P-Value	Decision	(a:1%)		
				7.69	13.7	0.0323				
	VIIK VV Norr	nality l'est		0.791	0.645	0.0231	Normal D	istribution		
_										
	Count	Mean			Median	Min	Max	Std Err	CV%	%Effect
, LM										0.00%
	4	0.900	0.675	1.000	0.950	0.700	1.000	0.071	15.71%	10.00%
∍d) Transfor	med Sumr	mary								
Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
P LW	4	1.41	1.41	1.41	1.41		1.41	0	0.00%	0.00%
	4	1.27	0.95	1.58	1.33	0.991	1.41	0.0994	15.70%	10.34%
					0.15				6	
		1///			0.10					
			Reject Null		0.05					
				_						
				tered	0.00	•	· • · · · · · · · · · · · · · · · · · ·			
				õ	-0.05					
					-0.10					
					-0.15					
					-0.20					
					-0.25					
					0120					
					-0.30					
	d) Two-Sample I Sample I MO-OXN Sum Squ 0.042607 0.118468 0.161075 sts Test Levene E Mod Leve Shapiro-V Summary Code LW ed) Transfor	Alt Hyp d) C > T Two-Sample Test Sample II I MO-OXN Sum Squares 0.0426072 0.118468 0.161075 sts Test Levene Equality of V Mod Levene Equality Shapiro-Wilk W Norr Summary Code Count Code Count Code Count Code Count Code Count	Alt Hyp	Alt Hyp	Alt Hyp C > T	Alt Hyp C > T Two-Sample Test Sample I MO-OXN 1.47 1.94 0.193 6 CDF	Alt Hyp	Alt Hyp	Sum Squares Mean Square DF F Stat P-Value Decision(α:5%)	Alt Hyp

Report Date:

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Test Code:

							1000	Coue.	VOVII D_I	127_11 12	2-2524-215
Chronic Larval Fis	h Surviva	and Grow	th Test							Pacif	ic EcoRisk
Analysis ID: 20-	2469-8603	En	dpoint: Me	ean Dry Biom	nass-mg		CET	S Version:	: CETISV	1.9.2	
-	Dec-18 11:	42 An	alysis: Pa	rametric-Two	o Sample		Offic	ial Results	: Yes		
Data Transform		Alt Hyp					Comparis	on Result			PMSD
Untransformed		C > T					MO-OXN	failed mear	dry biomas	ss-mg	14.86%
Equal Variance t T	wo-Sampl	e Test									
Sample I vs	Sample I	I	Test Stat	Critical	MSD DF	P-Type	P-Value	Decision	ı(α:5%)		
Lab Water Control	MO-OXN	*	6.13	1.94	0.149 6	CDF	4.3E-04	Significar	nt Effect		
ANOVA Table											
Source	Sum Squ	ıares	Mean Sq	uare	DF	F Stat	P-Value	Decision	(α:5%)		
Between	0.439922 0.439922			1	1	37.6	8.6E-04	Significar	nt Effect		
Error	0.070280	5	0.011713	0.0117134 6				_			
Total	0.510203				7						
Distributional Test	s										
Attribute	Test				Test Stat	Critical	P-Value	Decision	(α:1%)		
Variances	Variance	Ratio F Tes	ŧt		1.13	47.5	0.9232	Equal Va	riances		
Distribution	Shapiro-V	Vilk W Norn	nality Test		0.948	0.645	0.6914	Normal D	istribution		
Mean Dry Biomass	-mg Sumr	nary									
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1124_PP	LW	4	1	0.834	1.17	1.01	0.867	1.12	0.0525	10.49%	0.00%
MO-OXN		4	0.532	0.354	0.709	0.492	0.449	0.693	0.0557	20.97%	46.88%
Graphics											
1,2						0.18		1			



7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Ventura Count	Watershed Prote	ection District	Organism Log#: 113	03 Age: 248hr	
Test Material:		MO-OXN		Organism Supplier:	Aquatex	
Test ID#:	80315	Project #:	29434	Control:	ЕРАМН	
Test Date:	11/24/18	Randor	nization: 4.5.12	Control Water Batch:	2(2)	

y-		·									
Test Treatment	Temp		H		(mg/L)	Conductivity (µS/cm)			rganisms		SIGN-OFF
	(°C)	new	old	new	old	(µS/CIII)	A	В	С	D	Date:
Lab Water Control	24.9	8.16		9.1		301	10	10	[0	10	Test Solution Prep.
100%	24.8	7.31		9.4		350	10	10	10	10	Sample ID: 7,384
Meter ID	108/1	Agry		ROW	THE RESERVE TO THE RE	Eclo	New WQ:	6			Initiation Signoff: 26
Lab Water Control	24.9	7.96	7.93	8.8	6.8	309	10	10	10	10	Date: 11/35/18 Test Solution Prep
100%	24.6	7.06	7.05	9.3	4.0	354	10	10	10	10	Sample ID: \$1384 Renewal Time: 1040
Meter ID	109A	PHM	PH 24	RDO	4D13	ECK	New WQ:	32	Old WG: DI		Renewal Signoff KG
Lab Water Control	24.4	7-95	7.89	8.9	8.0	303	10	10	10	10	Date: 1176/18 Test Solution Prep: EQ-
100%	24.3	6.96	7.30	8.0	6.8	356	10	8	10	10	Sample ID: 51384 Renewal Time: 1250
Meter ID	8 A	6419	PH19	£DI0	RATO	EUO	New WQ: 5	r	Old WQ:	_	Renewal Signoff:
Lab Water Control	24.4	7.85	7.65	8.4	8.2	300	10	10	10	10	Date: 1/2 7/18 Test Solution Prep: TF
100%	24.3	6-82	7-28	9.2	7.5	352	9	7	10	10	Sample ID: 5/384 Renewal Time: 1029
Meter ID	81A	PH25	PH25	RPIO	RDIO	ECID	New WQ:	A	Old WQ:	+	Renewal Signoff:
Lab Water Control	25.2	7.86	7.67	8.5	7.3	305	10	10	10	10	Date: 11/2 3/10 Test Solution Prep: NB
100%	25.0	6.62	7.35	7.7	6.7	353	9	7	10	10	Sample ID: 513 B4 ' Renewal Time: 11/3
Meter ID	107A	PH15	AHTA	BP13	RDII	EC13	New WQ:	AI	Old WQ: S	7	Renewal Signoff:
Lab Water Control	24.7	8-09	7-76	8.4	8-1	297	10	10	10	10	Date: 1129/18 Test Solution Prep:
100%	24.0	6.60	7.33	7.8	6.6	356	9	7	10	10	Sample ID: 6/384 Renewal Time: 1537
Meter ID	BIA	PHIS	PH19	RDIG	RUTO	ECLO	New WQ:	*	Old WQ: 7	7	Renewal Signoff:
Lab Water Control	24.7	7.95	8.06	8.0	8-3	304	10	10	10	10	Date: 11/30/18 Test Solution Prep: 154
100%	24.9	6.68	7.55	7.0	7-1	356	9	7	10	10	Sample ID: 513841 Renewal Time: 1533
Meter ID	101A	PH19	PH24	P013	RDII	EUS	New WQ:	七	Old WQ:		Renewal Signoff:
Lab Water Control	24.6	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7.80		6.7	321	10	10	10	10	Date: 12/1/18 Termination Time: 08/7
100%	24.7	M	7.39		6.8	382	9	7	10	10	Termination Signoff:
Meter ID	81A		P424		PD13	EC13		* * * * * * * * * * * * * * * * * * *	Old WQ:5	2	

Fathead Minnow Dry Weight Data Sheet

Client: Ventura County Water Protection District

Test ID #: 80315

Project #: 29434

Test Material: MO-OXN

Tare Weight Date: 11/28/18

Sign-off: 74

Test Date: 12-4-18

Sign-off: AR

Pan ID	Treatment	Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Lab Water	A	414.87	424 80	10	0.993
2	Control	В	411.65	422.87	10	Q 10 12/8/11
3		С	409.77	419 97	10	1.02
4		D	1411 - 409.68	418 .35	10	0,867
17	100%	A	411-78	416, 45	10	0.467
18		В	406.72	411.21	10	0,449
19		С	418-36	425.29	10	0.693
20		D	414.45	419 62	10	0.517
QA2			411.94	411.94		
Balance ID:			Bal 04	Ba104		

CETIS Summary Report

Report Date:

12 Dec-18 14:51 (p 1 of 1)

Test Code:

VCWPD_1201_PP | 20-8079-5193

Chronic Larval Fis	sh Survival a	and Grow	th Test								Pacifi	ic EcoRisk
Batch ID: 18-7	7289-3293	Tes	st Type: G	rowth-Surviva	al (7d)			Anal	yst: St	evi Vasquez		
Start Date: 01 [Dec-18 13:23			PA-821-R-02-				Dilue		ot Applicable		
Ending Date: 08 0	Dec-18 08:15	Spe	ecies: Pi	imephales pro	omelas			Brine	e: No	ot Applicable		
Duration: 6d	19h	So	urce: Ad	quatox, AR				Age:	1			
Sample Code	Sample ID	Sai	mple Date	Receipt	t Date	Sample	Age	Clier	nt Name	Pı	roiect	
VCWPD_1201_PP			Dec-18 13:2	<u>-</u>		n/a (24.				y Watersh 29		
MO-SPA	19-5530-99	933 29	Nov-18 02:0	00 30 Nov-	-18 14:15	59h (0.4	l °C)					
Sample Code	Material T	ype	Sa	ample Source	e		Statio	on Locati	on	Lat/Long		
VCWPD_1201_PP			Ve	entura County	Watershed	Prote	LABC	QA .				
MO-SPA	Ambient W	/ater	Ve	entura County	Watershed	d Prote	MO-S	SPA				
Single Comparison Summary												
Analysis ID End	point			ison Method				P-Value	Compar	ison Result		
06-9901-2315 7d S	Survival Rate		Equal Va	ariance t Two-	Sample Te	st	(0.1822	MO-SPA	passed 7d s	urvival rate	
05-1096-0853 Mea	n Dry Bioma	ss-mg	Equal Va	riance t Two-	Sample Te	st	8	8.8E-04	MO-SPA	A failed mean	dry biomas	s-mg
7d Survival Rate S	ummary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Min	1	Max	Std Err	Std Dev	CV%	%Effect
VCWPD_1201_PP	LW	4	0.950	0.791	1.000	0.800		1.000	0.050	0.100	10.53%	0.00%
MO-SPA		4	0.825	0.497	1.000	0.600	1	1.000	0.103	0.206	24.99%	13.16%
Mean Dry Biomass	s-mg Summ	ary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Min	P	Max	Std Err	Std Dev	CV%	%Effect
VCWPD_1201_PP	LW	4	0.79	0.62	0.96	0.64	(0.872	0.0534	0.107	13.54%	0.00%
MO-SPA		4	0.451	0.342	0.56	0.383	(0.539	0.0342	0.0684	15.17%	42.88%
7d Survival Rate D	etail											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4							
VCWPD_1201_PP	LW	1.000	1.000	1.000	0.800							
MO-SPA		1.000	0.700	0.600	1.000							
Mean Dry Biomass	s-mg Detail											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4							
VCWPD_1201_PP	LW	0.861	0.786	0.872	0.64							
MO-SPA		0.468	0.414	0.383	0.539							
7d Survival Rate B	inomials											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4							
VCWPD_1201_PP	LW	10/10	10/10	10/10	8/10							
MO-SPA		11/11	7/10	6/10	11/11							

Report Date:

12 Dec-18 14:50 (p 1 of 2)

Test Code:

VCWPD_1201_PP | 20-8079-5193

Chronic Larval Fis	sh Surviva	al and Grov	vth Test							Paci	fic EcoRis
•	9901-2315 Dec-18 14		-	d Survival Rat				IS Version		1.9.2	
Data Transform		Alt Hyp						on Result			PMSD
Angular (Corrected))	C > T							survival rate		23.08%
Equal Variance t T	wo-Samp	le Test									
Sample I vs	Sample	II	Test Sta	t Critical	MSD DF	P-Type	P-Value	Decision	(a:5%)		
ab Water Control	MO-SPA		0.981	1.94	0.311 6	CDF	0.1822		ificant Effec	t	
ANOVA Table											
Source	Sum Sq	uares	Mean So	quare	DF	F Stat	P-Value	Decision	(α:5%)		
Between	0.049146	58	0.049146		1	0.962	0.3645		ificant Effec	:t	
≘rror	0.306443	3	0.051073	38	6						
Гotal	0.355589	9			7						
Distributional Test	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision	(a:1%)		
/ariances	Variance	Ratio F Te	st		3.4	47.5	0.3421	Equal Va	riances		
Distribution	Shapiro-	Wilk W Nor	mality Test		0.873	0.645	0.1627	Normal D	istribution		
'd Survival Rate S	ummary										
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
/CWPD_1201_PP	LW	4	0.950	0.791	1.000	1.000	0.800	1.000	0.050	10.53%	0.00%
/IO-SPA		4	0.825	0.497	1.000	0.850	0.600	1.000	0.103	24.99%	13.16%
Angular (Corrected	d) Transfo	rmed Sum	mary								
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
/CWPD_1201_PP	LW	4	1.34	1.09	1.58	1.41	1.11	1.41	0.0762	11.41%	0.00%
IO-SPA		4	1.18	0.732	1.63	1.21	0.886	1.42	0.14	23.83%	11.74%
0.6 0.6 0.5 0.5	777777	2	777	Reject Null	Centered	-0.05		• 1	• •	•	В
0.3 0.2 0.1						-0.10 -0.15 -0.20 -0.25 -0.30	•	•			
0.0	VCWPD_1201_PP		MO-S	PA		-1.5	-1.0	-0.5 0.0 Rankits	0.5	1.0	1.5

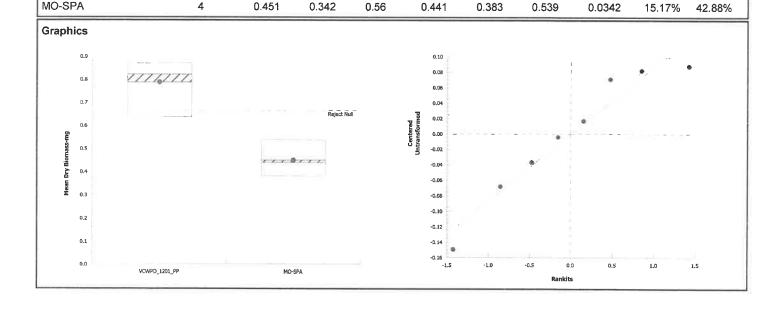
Report Date:

12 Dec-18 14:50 (p 2 of 2)

Test Code:

VCWPD_1201_PP | 20-8079-5193

Chronic Larval Fis	sh Survival and	d Growth T	est							Pacit	ic EcoRisk
Analysis ID: 05-	1096-0853	Endpo	int: Mea	n Dry Biom	ass-mg		CETI	S Version:	CETISv1	.9.2	
Analyzed: 12	Dec-18 14:50	Analys	is: Para	ametric-Two	Sample		Offic	ial Results:	Yes		
Data Transform	A	lt Hyp					Comparis	on Result			PMSD
Untransformed	С	> T					MO-SPA 1	failed mean o	dry biomass	s-mg	15.61%
Equal Variance t Two-Sample Test											
Sample I vs	Sample II	Т	est Stat	Critical	MSD DF	P-Type	P-Value	Decision(a:5%)		
Lab Water Control	MO-SPA*	5	.34	1.94	0.123 6	CDF	8.8E-04	Significant	Effect		
ANOVA Table											
Source	Sum Squares	s N	lean Squ	are	DF	F Stat	P-Value	Decision(x:5%)		
Between	0.229411	0	.229411		1	28.5	0.0018	Significant	Effect		
Error	0.0483291	0	.0080549		6						
Total	0.27774	manus man. Ju			7						
Distributional Test	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision(x:1%)		
Variances	Variance Rati	o F Test			2.44	47.5	0.4830	Equal Vari	ances		
Distribution	Shapiro-Wilk 1	W Normalit	y Test		0.926	0.645	0.4813	Normal Dis	stribution		
Mean Dry Biomass-mg Summary											
Sample	Code Co	ount N	lean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
VCWPD_1201_PP	LW 4	0	.79	0.62	0.96	0.823	0.64	0.872	0.0534	13.54%	0.00%
		_									



0.56

0.441

0.383

0.539

0.451

0.342

MO-SPA

7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Ventura Coun	ty Watershed Prote	ection District	Organism Log#:	11317 Age: 448/mrs
Test Material:		MO-SPA		Organism Supplier:	ARMATIX
Test ID#:	80316	Project #:	29434	Control:	ЕРАМН
Test Date:	12/1/18	Randon	nization: 4.2.1	Control Water Batch:	2123

				,			-				
Test Treatment	Temp (°C)	new	pH old	D.O. new	(mg/L)	Conductivity (µS/cm)	A	# Live I	Organisms C	D	SIGN-OFF
Lab Water Control	24.4	8.06		8.5		303	10	10	10	10	Date: 12 1 18 Test Solution Prep:
100%	24.4	7.61		10.8		84	18 (18)	10	10	1011	Sample ID: S1496 Initiation Time: 1323
Meter 1D	81A	PH15		RDII		ECII	New WQ:	141			Initiation Signoff: NL
Lab Water Control	24.4	8.08	7.69	9.0	7.1	305	10	10	10	10	Date: \2/2/12 Test Solution Prep: \
100%	24.9	7.48	6.99	11.0	6,4	88.4	1)	8	10	TRIN	Sample ID: S1491/ Renewal Time: 6950
Meter ID	994	PHAH	PH24	RDIO	2010	ECIO	New WQ:	p	Old WQ:	4	Renewal Signoff:
Lab Water Control	24.5	8.12	7.85	9.0	8.0	303	10	10	10	9	Date: / 2/3//8 Test Solution Prep: N3
100%	24.4	7.44		11.2	8.2	85	11	7	10	10	Sample ID: 5,494 Renowal Time: 1155
Meter ID	107A	PH24	Ph24	RDII	MI	EUI	New WQ:	yr _	Old WQ: 4	M	Renewal Signoff:
Lab Water Control	24.6	8.14	781	8.6	8-3	310	10	10	10	9	Date: 12/4/18 Test Solution Prep: LZ
100%	24.8	7.47	7-65	10.9	8-2	86	u	7	7	11	Sample ID: 51496 Renewal Time: 1029
Meter ID	NOOL	FH24	PH25	RDIO	RUII	ECIO	New WQ:	rA	Old WQ:	A	Renowal Signoff: WB
Lab Water Control	24.2	7.97	7.83		7.6	299	Į O	10	10	9	Date: 12/5/18 Test Solution Prep: L7.
100%	24.5	7.32	7.47 7.6%	Q.1 四分子		81	11	7	7	11	Sample ID: 51496 Renowal Time: 1040
Meter ID	SOR	PKTAIG	DA25	HD13	RD12	8013	New WQ:	+T	Old WQ: S	AT	Renewal Signoff: APF
Lab Water Control	24.6	8.03	7.52	8.3	6.2	303	10	10	10	8	Date: 12/6/18 Test Solution Prep:
100%		8.00		9-8	5-1	84	1)	7	7	1/	Sample ID: 51496 Renewal Time: 1055
Meter ID	/00 A	Pn 19	D#19	1003	Ron	EC 13	New WQ:	n	Old WQ:	R	Renewal Signoff: KZ
Lab Water Control	25. [8.06	8.09	1.8	8-1	326	10	10	10	8	Date: 12/7/18 Test Solution Prep: WB
100%	25.1	7.61	7.59	8.8	7.1	92	11	7	6		Sample ID: 51496 Renewal Time: 1040
Meter ID	93A	PH 25	8419	RD 13	RDIO	ELB	New WQ:	781	Old WQ:		Renewal Signoff:
Lab Water Control	25.5		8.07		8.3	320	10	10	10	0	Date: (2/8//8) Termination Time: 08/5
100%	25.5		1.63		8.2	87	11	7	6	11	Termination Signoff:
Meter ID	73A		PH24		2010	ECIO			Old WO: PA	\	

Fathead Minnow Dry Weight Data Sheet

Client: Ventura County Water Protection District

Test ID #: 80316

Project #: 29434

Test Material: MO-SPA

Tare Weight Date: 12 4 16

Final Weight Date: 15 11 8

Sign-off: 76

Sign-off: 76

Pan ID	Treatment	Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Lab Water	Α	410.48	419.09	10	0.861
2	Control	В	403-26	411.12	10	0.786
3		С	411-61	420.33	10	0.872
4		D	408.73	415.13	10	0.640
5	100%	Α	400.67	405.82		0.468
6		В	411-85	415.49	10	0.414
7		С	411.88	415.71	10	0.383
8		D	405.25	411.18	11	6.539
QA			409.73	409.72		
Balance ID:			Bal. 04	BAL04		

Appendix J. Dry-Weather Analytical Monitoring Results

	Site ID	Port Hueneme-3	Unincorporated-4	Camarillo-1	Fillmore-1
		DRY-HUE3	DRY-UNI4	MO-CAM	MO-FIL
	At Major Outfall?	No	No	Yes	Yes
	Location	Bubbling Springs @ RR xing	Arroyo Santa Rosa at Box Canyon confluence	Camarillo Hills Drain	North Fillmore Drain
	Date	08/20/19	08/21/19	08/21/19	08/20/19
	Time	14:10	09:45	07:30	9:35
	Conveyence Type	Natural channel	Box culvert	Box culvert	Box culvert
	Conveyence Type				
Site	Dimensions	N/A	N/A	8' x 24'	N/A
Description	Dominant Land Use	Commercial & residential	Residential & rural	Commercial & residential	Residential
	Site Elevation	0	250	100	430
	Weather	Clear	Clear	Clear	Clear
Weather	Wind Condtion	Slight breeze	Calm	Calm	Calm
	Air Temp. (C)	31	27	15.5	23.5
75 1	Trash (general area)	None	None	Light	Light
Trash	Trash (stream banks)	Light	None	Light	Light
	Water Clarity	Cloudy	Clear	Clear	Clear
	Water Color	Brown	Brown	Clear	Clear
	Odors	None	None	None	None
	Floatables	Other	None	None	None
	Foam	None	None	None	None
Observations	Stains/ deposits	None	None	None	None
	Structural condition	Natural channel	Concrete channel	Concrete channel	Rip rap with concrete bottom
	Vegetation Condition	None	None	Sparse grasses	Grasses and watercress channel
	Biology	Ducks in area	Aquatic snails	None	Aquatic snails
	Algae (suspended)	None	None	None	Green 30%
	Algae (substrate)	None	None	Green 40%	Green 90%
	Dissolved Oxygen (%)	192.9	168.8	98.8	198.6
	Dissolved Oxygen (mg/L)	15.32	15.31	9.33	16.92
	Conductivity (µS)	10500	1083	870	1263
Water	Specific Conductance (µS)	10390	1191	1004	1301
Chemistry	Salinity (ppt)	5.8	0.6	0.5	0.6
(Field)	Water Temp. (C)	25.7	20.4	18.1	23.4
` '	Water Temp. (F)	78.3	68.7	64.6	74.1
	pH	8.29	8.71	7.82	8.82
	Turbidity (NTU)	14.1	2.33	4.18	1.59
	Total Organic Carbon (mg/L)	10.0	9.6	7.2	6.8
	Total Hardness as CaCO ₃ (mg/L)	1,620	474	283	517
	Total Calcium (mg/L)	255	66.9	74.2	137
Water	Total Magnesium (mg/L)	240	74.6	23.7	42.7
Chemistry	Dissolved Copper (μg/L)	0.44 (DNQ)	5.0	3.7	13.0
(Lab)	Dissolved Copper (µg/L) Dissolved Lead (µg/L)	<0.031	<0.031	0.064 (DNQ)	0.031 (DNQ)
(200)	Dissolved Zinc (µg/L)	1.1 (DNQ)	1.7 (DNQ)	3.7 (DNQ)	3.5 (DNQ)
	Total Coliform (MPN/100 mL)	64,880	120,330	298,700	7,270
	E. coli (MPN/100 mL)	15,531	473	12,997	10
	Flow Status		Flowing	· · · · · · · · · · · · · · · · · · ·	
	Water Width (ft.)	Flowing	Ü	Flowing	Flowing
Estimated		12.0	1.0	0.5	3.0
Flow	Water Depth (ft.)	2.00	0.01	0.01	0.20
	Flow Velocity (ft/s) Flow Rate (ft ³ /s)	0.05 0.48	1.50 0.008	2.00 0.005	0.01 0.01
	FIOW Rate (II / S)	0.46	0.006	0.005	0.01
	Comments	Floatables leaf litter & bark	Channel recently scraped		

	Site ID	Moorpark-2	Ojai-6	Oxnard-2	Santa Paula-3
		DRY-MPK2	DRY-OJA6	DRY-OXN2	DRY-SPA3
	At Major Outfall?	No	No	No	No
	Location	Gabbert Drain	Tributary to Fox Barranca	Stroube Drain	Peck Rd Drain
	Date	08/21/19	08/20/19	08/20/19	08/20/19
	Time	08:15	11:35	08:10	10:45
	Conveyence Type	Box culvert	Natural channel	Natural channel	Box culvert
Site	Dimensions	5' x 12'	N/A	N/A	8' x 17'
Description	Dominant Land Use	Commercial & residential	Residential	Commercial & residential	Residential
	Site Elevation	460	720	70	224
	Weather	Clear	Clear	Clear	Clear
Weather	Wind Condtion	Calm	Calm	Calm	Calm
	Air Temp. (C)	19.5	30	20.1	30
Trash	Trash (general area)	Light	Light	Light	Moderate
110311	Trash (stream banks)	Moderate	Light	Light	Moderate
	Water Clarity	Clear	Clear	Clear	Clear
	Water Color	Clear	Clear	Clear	Clear
	Odors	None	None	None	None
	Floatables	None	None	None	None
	Foam	None	None	Very thin white scum upstream of sampling area	None
Observations	Stains/ deposits	None	None	None	None
	Structural condition	Concrete channel	Natural channel	Concrete channel to rip rap	Concrete channel
	Vegetation Condition	None	Berry and poison oak on banks	Abundant watercress	None
	Biology	None	None	None	Aquatic bugs
	Algae (suspended)	None	None	Green 30%	None
	Algae (substrate)	Red 30%, Green 15%	Brown 80%	Green 80%	Brown 90%, Green 1%
	Dissolved Oxygen (%)	Too shallow	93.1	95.8	201.5
	Dissolved Oxygen (mg/L)	Too shallow	8.42	8.94	15.20
	Conductivity (µS)	318.2	1293	1067	1819
Water	Specific Conductance (µS)	338.6	1428	1217	1674
Chemistry	Salinity (ppt)	0.2	0.7	0.6	0.8
(Field)	Water Temp. (C)	22.1	20.0	18.5	29.3
	Water Temp. (F)	71.8	68.0	65.3	84.7
	pH	8.64	8.12	7.92	8.77
	Turbidity (NTU)	2.71	1.24	1.29	2.16
	Total Organic Carbon (mg/L)	8	2.2	5	11
	Total Hardness as CaCO ₃ (mg/L)	121	599	448	567
Water	Total Calcium (mg/L)	28.5	163	114	134
Water	Total Magnesium (mg/L)	12.0	46.7	39.8	56.4
Chemistry	Dissolved Copper (µg/L)	5.5	0.39 (DNQ)	2.7	5.40
(Lab)	Dissolved Lead (µg/L)	0.16 (DNQ)	<.0.031	<0.031	0.72
	Dissolved Zinc (µg/L)	3 (DNQ)	2.2 (DNQ)	4.5 (DNQ)	36
	Total Coliform (MPN/100 mL)	173,290	9,804	1,720	5,475
	E. coli (MPN/100 mL)	644	80	130	379
	Flow Status	Flowing	Flowing	Flowing	Flowing
Estimated	Water Width (ft.)	3.0	5.0	8.0	4.0
Flow	Water Depth (ft.)	0.01	0.15	0.40	0.03
	Flow Velocity (ft/s)	1.00	0.25	0.05	0.50
	Flow Rate (ft ³ /s)	0.03	0.19	0.16	0.06
	Comments	Flow too shallow to submerge DO probe			

	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	08/21/19	08/21/19	08/20/19
	Time	09:10	10:20	13:05
	Conveyence Type	Box culvert	Natural channel	Natural channel
Site	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	66
	Weather	Clear	Clear	Clear
Weather	Wind Condtion	Calm	Calm	Slight breeze
	Air Temp. (C)	25	29	30
Trash	Trash (general area)	Light	None	Light
	Trash (stream banks)	Moderate	None	Light
	Water Clarity	Clear	Clear	Cloudy
	Water Color	Clear	Clear	Green
	Odors	Musty	None	None
	Floatables	None	Other	Oily sheen
	Foam	None	None	None
Observations	Stains/ deposits	None	None	None
	Structural condition	Concrete channel	Rip-rap with natural bottom	Flap gate RCP to natural channel
	Vegetation Condition	None	Herbaceous growth and trees at stream edge	River primrose and reeds
	Biology	None	None	None
	Algae (suspended)	None	None	Green 60%
	Algae (substrate)	Green 70%	Brown 70%	None
	Dissolved Oxygen (%)	104.9	95.1	87.3
	Dissolved Oxygen (mg/L)	9.49	8.54	7.74
	Conductivity (µS)	2672	1555	930
Water	Specific Conductance (µS)	2956	1772	995
Chemistry	Salinity (ppt)	1.5	0.9	0.5
(Field)	Water Temp. (C)	19.9	19.4	21.7
	Water Temp. (F)	67.8	66.9	71.1
	рН	7.87	8.13	7.41
	Turbidity (NTU)	1.39	1.14	9.74
	Total Organic Carbon (mg/L)	4.2	7.5	0.47
	Total Hardness as CaCO ₃ (mg/L)	1,200	219	312
****	Total Calcium (mg/L)	291	43.3	76.7
Water	Total Magnesium (mg/L)	114	26.9	29.2
Chemistry	Dissolved Copper (μg/L)	0.56	1.7	0.39 (DNQ)
(Lab)	Dissolved Lead (µg/L)	< 0.031	0.053 (DNQ)	< 0.031
	Dissolved Zinc (µg/L)	1.2 (DNQ)	42	0.99 (DNQ)
	Total Coliform (MPN/100 mL)	61,310	12,033	173
	E. coli (MPN/100 mL)	148	85	<10
	Flow Status	Flowing	Flowing	Flowing
Estimated	Water Width (ft.)	10.0	12.0	12.0
Flow	Water Depth (ft.)	0.05	0.80	1.00
1 10 W	Flow Velocity (ft/s)	2.00	0.005	0.005
	Flow Rate (ft ³ /s)	1.00	0.05	0.06
	Comments		Floatables sparse, thin, clear scum	

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

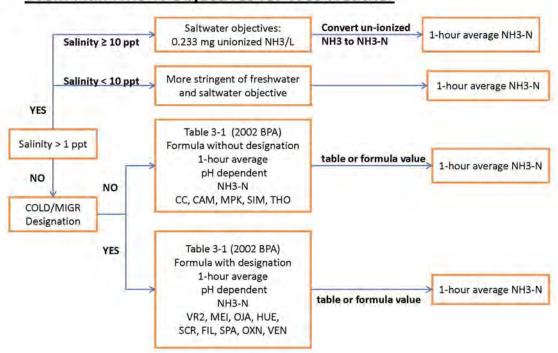


Table 3-1: One hour Average Objective for Ammonia-N for Freshwaters (mg N/L)

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

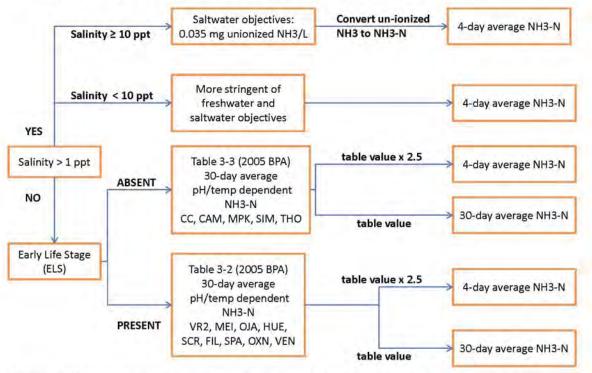
$$=0.233*(1+10^{\left[\left(9.245+0.116*\frac{19.9273*S}{1000-1.005109*S}\right)+0.0324(298-T)+\frac{(0.0415)P}{T}-pH\right]})$$

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.