Pilot Plant Report



Concentrate Toxicity Testing

С N Ι C A \mathbf{M} Π Μ 0 R A N D U Μ

Bay Area Regional Desalination Project Pilot Study

Subject:	Brine Toxicity Testing Results								
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Reviewed by:	JAJ-AMS; COB-MWH	Date:	November 2009						

The Bay Area's four largest water agencies, the Contra Costa Water District (CCWD), the East Bay Municipal Utility District (EBMUD), the San Francisco Public Utilities Commission (SFPUC), and the Santa Clara Valley Water District (SCVWD), are jointly exploring a regional desalination project that could provide the region an additional water source, diversify the area's water supply, and foster long-term regional sustainability. The Bay Area Regional Desalination project (RDP) could consist of one or more desalination facilities, with an ultimate total capacity of up to 65 million gallons per day.

The RDP tested the operation and maintenance of a joint desalination facility on a pilot scale. The Pilot Plant Study (PPS) was located at CCWD's Mallard Slough Pumping Plant site near Pittsburg, CA, adjacent to the San Francisco Bay Estuary in Suisun Bay. The PPS operated between October 2008 and March 2009, in order to capture both wet and dry season conditions. Water from Mallard Slough underwent microfiltration pretreatment and then reverse osmosis (RO) treatment to produce potable water at the PPS. The PPS then blended the permeate with the backwash and brine/reject streams for subsequent discharge into the CCWD water treatment facility.

One of the major potential issues associated with RO operations in the Delta is the discharge of the RO brine, backwash, and reject streams back into the Delta. The potential toxic effects of brine on local organisms involve both increased concentrations of ions (e.g., salinity or total dissolved solids) as well as more concentrated contaminants from the source water (e.g., pesticides or heavy metals). Identifying whether any toxicity effects of the brine are due to salinity or contaminants is necessary to determine the operational solutions needed to minimize them.

This Technical Memorandum describes the results of tests that were conducted to: (1) assess the potential toxicity of brine produced by the PPS desalination plant, and (2) differentiate toxicity sources (i.e., salinity or contaminants).

1.0 Brine Toxicity Testing Approach

The desalination process concentrates both salts and contaminants in the brine effluent, which are potentially toxic to aquatic organisms living in the Delta. Thus, brine toxicity at the PPS location is susceptible to two potential influences that affect the source water: (1) seawater



salinity, due to the PPS's proximity to Suisun Bay, and (2) the concentration of contaminants washed off the surrounding land by storm runoff and transported via Delta outflow.

Testing the PPS brine focused on evaluating its potential toxicity to several test organisms during extremes in salinity and contaminant input for the source water, which typically occur during the dry and wet seasons of the year. Dry season conditions represent the period of highest ambient salinities, whereas wet season conditions represent highest contaminant concentrations associated with storm runoff. Assessing the toxicity of brine produced during both extremes was intended to differentiate the separate effects.

As a QA measure, a positive control test (i.e., reference toxicant test) was conducted concurrently with the salinity and brine toxicity testing to assess the sensitivity of each test organism to toxic stress.

2.0 Objectives

The objectives of the brine toxicity testing were to:

- Sample brine from the PPS during a dry period (high salinity, low contaminant concentration) and a wet period (low salinity, high contaminant concentration).
- Assess algal growth toxicity with the diatom *Thalassiosira pseudonana*
- Assess survival and growth toxicity with the crustacean Americamysis bahia
- Assess survival and growth toxicity with the fish *Menidia beryllina*

3.0 Methods

3.1 Sampling Methods

Samples of brine were collected from the PPS facility on November 14, 2008 and February 25, 2009. The November sample was expected to be representative of "dry" conditions, with elevated salinity and reduced contaminants. It was collected during the high tide (estimated +4.8 ft at Mallard Island Ferry Wharf, Suisun Bay), when saltwater incursion within the Estuary, and salinity at the intake for the site, was expected to be maximized. The February sample was expected to be representative of "wet" conditions, with reduced salinity and elevated contaminants from freshwater runoff during recent storms. This sample was collected during the low tide (estimated +1.0 ft), when salinity at the intake for the site was expected to be minimized.

Brine water was collected from the PPS in plastic cubitainers and transported in coolers on ice to Pacific EcoRisk for toxicity testing. Samples were homogenized at the laboratory before analysis.

3.2 Analytical Methods

Pacific EcoRisk performed toxicity evaluations of the samples (Appendix A, B). These evaluations consisted of the following USEPA short-term chronic toxicity tests:

- Chronic growth test with the diatom *Thalassiosira pseudonana*
- Chronic survival and growth test with the crustacean Americamysis bahia



• Chronic survival and growth test with larvae of the fish *Menidia beryllina*.

These specific test organisms were selected because they represented a "best fit" of standard effluent test organisms approved by EPA for testing under 40 CFR Part 136, are representative of taxa that inhabit the San Francisco Bay-Delta region, and are known to be less tolerant of high salinity concentrations than other potential test organisms.

All tests involving concentration treatments involved diluting brine or a reference toxicant (KCl or $K_2Cr_2O_7$) in a Lab Control water (reverse-osmosis, deionized water). During dilutions, the brine and reference toxicant were adjusted to a test salinity of 25 ppt.

3.2.1 Growth Toxicity Testing with Thalassiosira pseudonana

The diatom *Thalassiosira pseudonana* was exposed to varied treatment concentrations of brine for 96 hours (2.5%, 5%, 10%, 25%, 50%, and 100%), and then the effects on cell growth (i.e., cell density) were assessed to identify any toxicity caused by the brine (Pacific EcoRisk, 2008, 2009). A reference toxicity test was performed to determine the sensitivity of the diatoms to toxic stress, by exposing *Thalassiosira* to varied concentrations of KCl (0.625, 1.25, 2.5, 5, and 10 g/L) for 96 hours. The data were analyzed to determine key dose-response point estimates, including No Effect Concentration (NOEC) and Inhibition Concentration 50% (IC₅₀) and 25% (IC₂₅).

3.2.2 Survival and Growth Toxicity Testing with Americamysis bahia

The crustacean *Americamysis bahia* was exposed to a series of brine dilutions for seven days, and fed brine shrimp nauplii twice daily. After the test, the effects on survival (number of live mysids) and growth ("biomass value" = dry weight of live mysids divided by initial number) were assessed to determine any impairments caused by the brine (Pacific EcoRisk, 2008, 2009). A reference toxicity test was performed to determine the sensitivity of the mysids to toxic stress, by exposing *Americamysis* to serial dilutions of a toxicant for seven days. The data were analyzed to determine key dose-response point estimates, including NOEC, IC₅₀, and IC₂₅, as well as Effect Concentration 50% (EC₅₀) and 25% (EC₂₅).

Between the two sample collections, the testing laboratory transitioned from using chromium to KCl as the toxicant in these tests, for safety reasons (Pacific EcoRisk, 2008, 2009). For the "dry" sample, Lab Control water was spiked with chromium (as $K_2Cr_2O_7$) at concentrations of 0.88, 1.75, 3.5, 7, and 14 mg/L. For the "wet" sample, KCl was used at concentrations of 0.125, 0.25, 0.5, 1, and 2 g/L. Using different toxicants in the reference tests has no effect on sample tests.

3.2.3 Survival and Growth Toxicity Testing with Menidia beryllina

Larvae of the fish *Menidia beryllina* were exposed to a series of brine dilutions for seven days, and fed brine shrimp nauplii twice daily. After the test, the effects on survival (number of live fish) and growth ("biomass value" = dry weight of live fish divided by initial number) were evaluated (Pacific EcoRisk, 2008, 2009). A reference toxicity test was performed to determine the sensitivity of the fish to toxic stress, by exposing *Menidia* to serial dilutions of KCl at concentrations of 0.5, 1.0, 1.25, 1.5, and 2 mg/L for seven days. The test response data were



analyzed to determine key dose-response point estimates, including NOEC, IC_{50} , IC_{25} , EC_{50} , and EC_{25} .

4.0 Results

4.1 Water Quality Characteristics of Brine Samples

The brine samples differed between seasons in several water quality characteristics (Table 4-1). Brine collected from the PPS during the "dry" season (November 2008) at high tide had a salinity of 17.7 ppt and conductivity of 29.35 mS/cm, whereas the sample collected during the "wet" season (February 2009) at low tide had lower values of 7.0 ppt and 12.42 mS/cm, respectively (Pacific EcoRisk, 2008, 2009). Although not directly relevant to this study, the "dry" season sample had a higher dissolved oxygen content (7.3 mg/L) than the "wet" season sample (5.5 mg/L). pH and total ammonia concentrations in both samples were the same (i.e., <1.0 mg/L N).

Table 4-1. Collection information and water quality characteristics for brine samples collected during "dry" (11/14/08) and "wet" (2/25/09) periods from the PPS desalination plant (Pacific EcoRisk, 2008, 2009).

Season ¹	Target Salinity	Target Contam.	Date	Time	Tidal Height ²	рН	DO (mg/L)	Salinity (ppt)	Cond. (mS/cm)	Total Ammonia (mg/L N)
"Dry"	High	Low	11/14/08	1444- 1451	High (+4.8 ft)	7.55	7.3	17.7	29.35	<1.0
"Wet"	Low	High	2/25/09	0915- 0935	Low (+1.0 ft)	7.55	5.5	7.0	12.42	<1.0

¹ Representative, based on precipitation and river discharge

² Estimated at Mallard Island Ferry Wharf, Suisun Bay (38° 02.6' N, 121° 55.1' W)

4.2 Toxicity Test Results

Copies of the bioassay test result reports are contained in Appendices A and B for the November 2008 and February 2009 PPS brine discharge sample events, respectively.

4.2.1 Growth Toxicity on Thalassiosira pseudonana

There were no significant reductions in algal growth in the desalination brine for either the "dry" or "wet" sample (Table 4-2) (Pacific EcoRisk, 2008, 2009). NOEC estimates were 100% brine, and IC_{50} and IC_{25} estimates were >100% brine.



4.2.2 Survival and Growth Toxicity on Americamysis bahia

There were no significant reductions in invertebrate survival or growth in the desalination brine for either the "dry" or "wet" sample (Table 4-2) (Pacific EcoRisk, 2008, 2009). NOEC, IC_{50} , IC_{25} , EC_{50} , and EC_{25} estimates were all >100% brine.

4.2.3 Survival and Growth Toxicity on Menidia beryllina

There were no significant reductions in fish survival or growth in the desalination brine for either the "dry" or "wet" sample (Table 4-2) (Pacific EcoRisk, 2008, 2009). NOEC, IC₅₀, IC₂₅, EC₅₀, and EC₂₅ estimates were all >100% brine.

5.0 Discussion

5.1 Toxicity Test Results

No significant growth toxicity of the desalination brine was found for the algae, and no significant survival or growth toxicity was found for the invertebrate or fish test organisms for either the "dry" sample (salinity-dominant scenario) or the "wet" sample (contaminant-dominant scenario) (Table 4-2). Because neither salinity- nor contaminant-related toxicity was found, it was not possible to distinguish the relative effects of each. The toxicity results suggest that, if the source water used at the PPS desalination plant and the brine samples tested are representative of those at an operational desalination plant at the Mallard Slough location, then there would be no expected toxic effects of the effluent on biota.

5.2 Representative Source Water Extremes

One concern with these results is whether the brine samples were collected during the extremes in salinity and contaminant input at Mallard Slough, as intended. As discussed previously, the "dry" season sample was collected during expected conditions of low freshwater flow through the Delta and high tidal seawater incursion, when salinity would be maximized and contaminant input from precipitation-driven surface runoff would be minimal (Table 4-1). The "wet" season sample was collected during expected conditions of high freshwater flow and low seawater influence, when salinity would be minimized and contaminant concentrations from surface runoff maximized. Measurements of the collected brine confirm the expected higher brine salinity and conductivity during "dry" conditions and lower values during "wet" conditions (Table 4-1).

Hydrographic conditions and water quality data measured near the PPS desalination plant from January 2008 to March 2009 also substantiate that the samples were collected during extremes in source water composition during the study period. Freshwater input to the region varied significantly throughout 2008 and early 2009, when the PPS was operating. Precipitation data for Concord Airport show that the 2008 dry season extended from March through mid October (Figure 5-1a). In early November, a storm delivered two inches of rain to the region, but for nearly two weeks before the "dry" sampling event on November 14, 2008, and during the sampling event itself, conditions were dry (National Weather Service, 2009). A series of storms in late November of 2008 through February of 2009 delivered 8.3 inches of rain, with nearly 6



inches of that falling during the three weeks immediately before the "wet" sampling event on February 25, 2009.

The effects of precipitation runoff during the PPS operation can be seen in records related to contaminant input near Mallard Island. Sacramento River discharge at Rio Vista (USGS water quality station "SRV") (California Data Exchange Center, 2009) varied sinusoidally around a



Table 4-2. Summary of toxicity testing results for brine samples collected from the PPS desalination plant during "dry" (11/14/08) and "wet" (2/25/09) periods, as well as results for reference toxicant tests (Pacific EcoRisk, 2008, 2009).

Test	Test	Test		Algae (Thalassiosira pseudonana)		ebrate aysis bahia)	Fish (<i>Menidia beryllina</i>)		
Parameter	Treatment	Statistic	"Dry"	"Wet"	"Dry"	"Dry" "Wet"		"Wet"	
Survival	Brine	NOEC	-	-	>100% brine	>100% brine	>100% brine	>100% brine	
Survival	Brine	EC ₂₅	-	-	>100% brine	>100% brine	>100% brine	>100% brine	
Survival	Brine	EC ₅₀	-	-	>100% brine	>100% brine	>100% brine	>100% brine	
Survival	Ref Tox	EC ₅₀	-	-	6.1 mg/L Cr	0.60 g/L KCl	1.2 g/L KCl	1.2 g/L KCl	
Growth	Brine	NOEC	100% brine	100% brine	>100% brine	>100% brine	>100% brine	>100% brine	
Growth	Brine	IC ₂₅	>100% brine	>100% brine	>100% brine	>100% brine	>100% brine	>100% brine	
Growth	Brine	IC_{50}	>100% brine	>100% brine	>100% brine	>100% brine	>100% brine	>100% brine	
Growth	Ref Tox	IC ₅₀	1.72 g/L KCl	4.25 g/L KCl	4.6 mg/L Cr	0.64 g/L KCl	1.2 g/L KCl	1.3 g/L KCl	

median value of approximately 11,800 cfs from March through October of 2008 (Figure 5-1b). Discharge during the "dry" sample collection was on the lower end of this variation, at 440 cfs. In contrast, discharge peaked at over 91,000 cfs on the day the "wet" sample was collected, which indicates a significant increase in the fresh water flow (and presumably, contaminant input) from the Delta to Mallard Slough. Water turbidity in the Sacramento River at Mallard Island (California Department of Water Resources station "MAL") (California Data Exchange Center, 2009), which we use here as a proxy for suspended sediment and contaminant input to the Sacramento River, also increased between the "dry" and "wet" sample collections, from 14.8 to 38.1 ntu (Figure 5-1c).

The effect of freshwater runoff on source water salinity is also apparent in electrical conductivity records from Sacramento River at Mallard Island (California Data Exchange Center, 2009). Conductivity increased throughout the 2008 dry season, but decreased between the "dry" and "wet" events, from 11.6 to 0.5 mS/cm (Figure 5-1d). Conductivity of the feed water tank for the PPS desalination plant closely tracked that of the nearby MAL station (Figure 5-1d). The conductivity of the feed water on 11/14/08 is unknown, due to an instrument error (Stefani Harrison, Pers. Comm., 2009), but based on values immediately before and after that date, the value was probably about 12 mS/cm. This value dropped to 4.2 mS/cm on the 2/25/09 event.

The logistics of collecting a field sample under target weather and hydrographic conditions is difficult, and much more so when coordinating with a complex operation such as the PPS desalination plant. Yet, the brine samples appear to have been collected during conditions that represent the seasonal extremes of source water quality for Mallard Slough reasonably well. Although the "dry" brine sample ideally would have been collected several weeks earlier (i.e., before the first significant storm in early November of 2008), unexpected start-up delays prevented sampling earlier in the year. However, the "wet" sample was collected during peak freshwater runoff of the 2008-2009 winter storm season.

5.3 Representative Water Year

Another concern with the results of the toxicity tests is that they may not be representative of conditions during other years. California is in its third year of drought. The samples were collected when the Sacramento River was in a Moderate to Severe Drought, based on 8 Station Index (8SI) percentiles for the current water year (October 1, 2008 to September 30, 2009) (California Department of Water Resources, 2009). It is possible that if the source water for the desalination plant had higher salinity and/or contaminant concentration than those tested, then the desalination process could potentially concentrate the salts and contaminants enough to produce brine with toxic effects on biota. However, because the survival and growth NOEC values for all tests were $\geq 100\%$ brine, it is unclear how much the salinity or contaminant concentration would need to increase in the brine to see a toxic effect on the test organisms.

6.0 Conclusions

Toxicity tests of desalination brine samples collected during the "dry" season (salinity-dominant scenario) and "wet" season (contaminant-dominant scenario) from the PPS in Mallard Slough



showed no significant effects on the survival or growth of algal (*Thalassiosira pseudonana*), invertebrate (*Americamysis bahia*), or fish (*Menidia beryllina*) test organisms.

Assuming that brine samples tested in this study are representative of those produced by an operational desalination plant at Mallard Slough, there would be no expected toxic effects of the brine on biota were the brine to be discharged into the Delta.

7.0 References

California Data Exchange Center, 2009. http://cdec.water.ca.gov/.

- California Department of Water Resources, April 6, 2009. Sacramento River Drought Status. http://www.cnrfc.noaa.gov/products/Drought_8si_product.pdf.
- National Weather Service, 2009. Observed Weather Reports. <u>http://www.weather.gov/climate/index.php?wfo=mtr</u>.
- Pacific EcoRisk, December, 2008. A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent, Sample Collected November 14, 2008. 63 pp.
- Pacific EcoRisk, March, 2009. Supplemental Report: A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent, Sample Collected February 25, 2009.
- Stefani Harrison, Pers. Comm., 2009. Electrical conductivity data from raw water tank at PPS desalination plant.



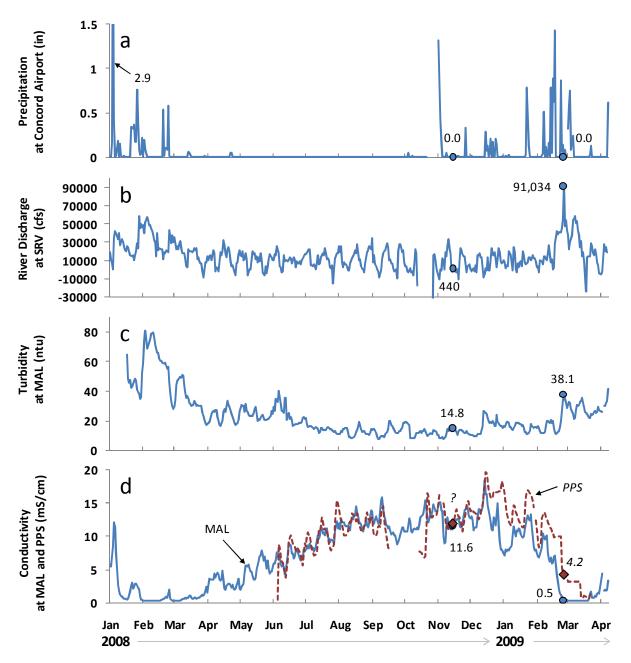


Figure 5-1. Measured precipitation (a), hydrographic (b), and water quality (c, d) parameters near the Pilot Plant Study (PPS) site. River discharge, water turbidity, and water electrical conductivity are plotted as median daily values. SRV = Sacramento River at Rio Vista station (USGS); MAL = Sacramento River at Mallard Slough station (California DWR). Symbols with labels indicate parameter values during brine sampling events on 11/14/08 ("dry") and 2/25/09 ("wet"). The dashed line in plot d indicates measurements within the feed water tank of the desalination plant. The "?" label for 11/14/08 feed water at PPS denotes an instrument error (symbol position interpolated from surrounding values).



8.0 Appendix A

See separate attachment for detailed toxicity testing results for the "dry" season brine sample, collected on November 14, 2008 (AppendixA_111408Results.pdf) (Pacific EcoRisk, December, 2008).



> PACIFIC ECORISK

December 16, 2007

Jay Johnson Applied Marine Sciences 4749 Bennett Dr., Suite L Livermore, CA 94550

Dear Jay:

I have enclosed two copies of our report "A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent" for the sample collected November 14, 2008. The results of this testing are summarized below:

Chronic Effects of the Desalination Effluent on Thalassiosira pseudonana

There were <u>no</u> significant reductions in *Thalassiosira pseudonana* growth.

Chronic Effects of the Desalination Effluent on Americamysis bahia

There were *no* significant reductions in Americamysis bahia survival or growth.

Chronic Effects of the Desalination Effluent on Menidia beryllina

There were no significant reductions in Menidia beryllina survival or growth.

If you have any questions regarding the performance and interpretation of these tests, please give me a call at (707) 207-7760.

Sincerely,

R. Scott Ogle, Ph.D. Principal & Special Projects Director

This testing was performed under Lab Order 14150. The test results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report, and only relate to the sample(s) tested. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk.

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A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent

Sample collected November 14, 2008

Prepared For:

Applied Marine Sciences 4749 Bennett Dr., Suite L Livermore, CA 94550

Prepared By:

Pacific EcoRisk, Inc. 2250 Cordelia Rd. Fairfield, CA 94534

December 2008



A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent

Sample collected November 14, 2008

Prepared For:

Applied Marine Sciences 4749 Bennett Dr., Suite L Livermore, CA 94550

Prepared By:

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December 2008

A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent

Sample collected November 14, 2008

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1. INTRODUCTION

Under contract to the Applied Marine Sciences, Pacific EcoRisk (PER) performed chronic toxicity evaluations of effluent sample collected from the Bay Area Regional Desalination Project. The toxicity evaluations consist of performing the following chronic toxicity tests:

- chronic (96-hr) growth test with the diatom Thalassiosira pseudonana;
- chronic survival and growth test with the crustacean Americamysis bahia; and
- chronic survival and growth test with larval Menidia beryllina.

These toxicity tests were performed on water the sample collected on November 14, 2008. This report describes the performance and results of these tests.

2. COLLECTION AND DELIVERY OF THE EFFLUENT SAMPLE

On November 14, an effluent sample was collected from the Bay Area Regional Desalination plant. The sample was transported, on ice and under chain-of-custody, to the PER laboratory facility in Fairfield. Upon receipt at the testing laboratory, aliquots of sample were collected for analysis of initial water quality characteristics (Table 1). The remainder of the water sample was stored at $0-6^{\circ}C$ except when being used to prepare test solutions. The chain-of-custody record for the collection and delivery of this sample is provided in Appendix A.

Table 1. Initial water quality characteristics of the Bay Area Regional Desalination Project effluent.									
Date Sample Collected	Date Sample Received	Sam ple ID	Temp (°C)	pН	D.O (mg/L)	Salinity	Conductivity (µS/cm)	Total Ammonia (mg/L N)	
11/14/08	11/14/08	MWHA-Dry	11.7*	7.55	7.3	17.7	29350	<1.0	

* Sample was delivered on the day of collection, and was transported at ≤ 6.0 °C.

3. CHRONIC TOXICITY TEST PROCEDURES

The Bay Area Desalination Project effluent sample was tested for toxicity using the following US EPA short-term chronic toxicity tests:

- chronic (96-hr) growth test with the diatom Thalassiosira pseudonana;
- chronic survival and growth test with the crustacean Americamysis bahia; and
- chronic survival and growth test with larval Menidia beryllina.

The methods used in conducting these toxicity tests followed the guidelines established by the following manuals:

- "Standard Guide for Conducting Static 96-h Toxicity Tests with Microalgae" (ASTM E 1218-97a); and
- "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition" (EPA-821-R-02-014).

3.1 Algal Growth Toxicity Testing with Thalassiosira pseudonana

The short-term chronic diatom toxicity test consists of exposing *Thalassiosira pseudonana* to the effluent for \sim 96-hrs, after which the effects on cell growth are evaluated. The specific procedures used in these tests are described below.

The Lab Control water for this test consisted of reverse osmosis, de-ionized (RO/DI) water adjusted up to the test salinity of 25 ppt using an artificial sea salt (Crystal Seas[®]-bioassay grade). For use in this test, an aliquot of the effluent was similarly adjusted to 25 ppt using the same sea salt. The Lab Control water and ambient waters were filtered (0.45 μ m) and then spiked with nutrients, as per ASTM guidelines. The salinity-adjusted Lab Control water and effluent were used to prepare test solutions at test treatment concentrations of 2.5%, 50% and 100% effluent. Water quality characteristics were measured on these test solutions prior to use in this 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 treatment was inoculated to an initial diatom cell density of 20,000 cells/mL from a from a laboratory culture of *Thalassiosira* that is maintained in log growth phase. These flasks were loosely capped and randomly positioned within a temperaturecontrolled room at 20°C, under continuous illumination from cool-white fluorescent bulbs.

Each day, the temperature and pH were determined for the designated "water quality" replicate at each treatment; each replicate flask was gently shaken in the morning and randomly repositioned within the temperature-controlled room.

After 96 (± 2) hrs exposure, the cell density in each replicate flask was determined by microscopic analysis. The resulting cell density data were analyzed to determine any growth impairment, or toxicity, caused by the ambient water; all statistical analyses were performed using CETIS[®] statistical software (Tidepool Scientific, McKinleyville, CA).

3.1.1 Reference Toxicant Testing of the Thalassiosira pseudonana

In order to assess the sensitivity of the *Thalassiosira* to toxic stress, a reference toxicant test was performed. The reference toxicant test was performed similarly to the effluent test except that test solutions consisted of Lab Control water spiked with KCl at concentrations of 0.625, 1.25, 2.5, 5, and 10 gm/L. The resulting test response data were statistically analyzed to determine key

dose-response point estimates (e.g., IC50); all statistical analyses were performed using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

3.2 Survival and Growth Toxicity Testing with Americamysis bahia

The short-term chronic *Americanysis bahia* test consists of exposing the organisms to a series of effluent dilutions for 7 days, after which effects on survival and growth are evaluated. The specific procedures used in this test are described below.

The *Americanysis bahia* used in this test were obtained from Aquatic BioSystems (Ft. Collins, CO); upon receipt at the lab, the mysids were transferred into aerated tanks containing saltwater at 25 ppt, and were fed brine shrimp nauplii during the pre-test holding period.

The Lab Control/dilution water for this test was prepared by salting up reverse-osmosis, deionized water to a salinity of 25 ppt using a commercial artificial sea salt (Crystal Sea Salt[®]bioassay grade). Each day, an aliquot of the final effluent sample was similarly adjusted to a salinity of 25 ppt using the same artificial sea salt. The salinity-adjusted Lab Control/dilution water and effluent sample were used to prepare daily test solutions at concentrations of 2.5%, 5%, 10%, 25%, 50% and 100% effluent. "New" water quality characteristics (pH, D.O., and salinity) were measured on these test solutions prior to use in the test.

There were 8 replicates at each test treatment, each replicate consisting of 200 mL of test solution in a 400-mL glass beaker. The test was initiated by randomly allocating five 7-day old mysids into each replicate beaker. The beakers were randomly positioned in a temperature-controlled room at 26°C (with temperature being monitored daily) under a 16L:8D photoperiod. The mysids were fed freshly-hatched brine shrimp nauplii twice daily.

Each day of the test, fresh test solutions were prepared and characterized as before. The test replicate beakers were examined, with any dead animals, uneaten food, wastes, and other detritus being removed. The number of live mysids in each replicate was determined and $\sim 80\%$ of the test media in each beaker was carefully poured out and replaced with fresh test solution. "Old" water quality characteristics (pH, D.O., and salinity) 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 mysids in each replicate beaker was recorded. The mysids from each replicate were then carefully euthanized in methanol, rinsed in de-ionized water, and transferred to a pre-dried and pre-tared weighing pan. The mysids were then dried at 100°C for >24 hrs and re-weighed to determine the total weight of mysids in each replicate; the total weight was divided by the initial number of mysids per replicate (n=5) to determine the "biomass value". The resulting survival and growth (biomass

value) data were analyzed to evaluate any impairment(s) caused by the effluent; all statistical analyses were performed using CETIS[®] statistical software.

3.2.1 Reference Toxicant Testing of the Americamysis bahia

In order to assess the sensitivity of the mysid test organisms to toxic stress, a reference toxicant test was performed. The reference toxicant test was performed similarly to the effluent test except that test solutions consisted of Lab Control media spiked with chromium (as $K_2Cr_2O_7$) at concentrations of 0.88, 1.75, 3.5, 7, and 14 mg/L. The resulting test response data were analyzed to determine key dose-response point estimates (e.g., EC50); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 3 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab.

3.3 Survival and Growth Toxicity Testing with Menidia beryllina

The short-term chronic *Menidia beryllina* test consists of exposing larval fish to a series of effluent dilutions for 7 days, after which effects on survival and growth are evaluated. The specific procedures used in this test are described below.

The larval fish used in this bioassay were obtained from a commercial supplier (Aquatic Biosystems, Fort Collins, CO). These fish were maintained at 25°C in aerated aquaria containing Lab Control water (described below) prior to their use in this test. During this pre-test period, the fish were fed brine shrimp nauplii *ad libitum*.

The Lab Control/dilution water for this bioassay was prepared by salting up reverse-osmosis, deionized water to a salinity of 25 ppt using a commercial artificial sea salt (Crystal Sea[®] -bioassay grade). Each day, an aliquot of the final effluent sample was similarly adjusted to a salinity of 25 ppt using the same artificial sea salt. The salinity-adjusted Lab Control/dilution water and effluent sample were used to prepare daily test solutions at concentrations of 2.5%, 5%, 10%, 25%, 50% and 100% effluent. "New" water quality characteristics (pH, D.O., and salinity) were measured on these test solutions prior to use in the test.

There were 4 replicates for the Lab Control and each effluent treatment, each replicate consisting of 400 mL of test media in a 600-mL glass beaker. This test was initiated by randomly allocating 10 nine-day old *Menidia beryllina* into each replicate. These 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 and characterized as before. The replicate beakers containing the larval fish 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 media in each beaker was carefully poured out and replaced

with fresh media. "Old" water quality characteristics (pH, D.O., and conductivity) were measured on the old test water collected from one randomly selected replicate at each treatment.

After 7 days exposure, the number of live fish in each replicate beaker was recorded. Then, the fish from each replicate were carefully euthanized in methanol, rinsed in de-ionized water, and transferred to a pre-dried and pre-tared weighing pan. These were then dried at 100° C for >24 hrs 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 (n=10) to determine the "biomass value". The resulting survival and "biomass value" data were analyzed to determine key dose-response point estimates (e.g., EC50); all statistical analyses were performed using the CETIS[®] statistical software.

3.3.1 Reference Toxicant Testing of the Menidia beryllina

In order to assess the sensitivity of the fish test organisms to toxic stress, a reference toxicant test was performed concurrently with the effluent test. This reference toxicant test was performed similarly to the effluent toxicity test, except that test solutions consisted of Lab Control (25 ppt water) spiked with KCl at concentrations of 0.5, 1.0, 1.25, 1.5, and 2 gm/L. After 7 days exposure, the survival and weight data were evaluated as in the effluent test. The resulting test response data were analyzed to determine key dose-response point estimates (e.g., EC50); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab.

4. RESULTS

4.1 Effects of the Desalination Effluent on Thalassiosira pseudonana

The results of this test are summarized below in Table 2. There were <u>*no*</u> significant reductions in algal growth in the Desalination effluent; the growth NOEC was 100% effluent. The IC25 and IC50 were both >100% effluent, resulting in <1.0 survival TUc (where survival TUc = 100/IC25 or 100/IC50) for both test endpoints.

The test data and the summary of statistical analyses for these tests are presented in Appendix B.

Table 2. Effect of the Desalination effluent on Thalassiosira pseudonana.						
Effluent Treatment	Mean Diatom Cell Density (cells/mL x 10 ⁶)					
Lab Water Control	1.91					
2.5%	2.28					
5%	2.27					
10%	2.51					
25%	2.63					
50%	3.02					
100%	3.18					
Summary of	Key Statistics					
Growth NOEC=	100% effluent					
TUc (TUc = 100/NOEC) =	1.0					
Growth IC25 =	>100% effluent					
TUc (TUc = $100/IC_{25}$) =	<1.0					
Growth IC50 =	>100% effluent					
TUc (TUc = $100/IC50$) =	<1.0					

4.1.1 Reference Toxicant Toxicity to Thalassiosira pseudonana

The results of this test are presented in Table 3. There was a mean of 833,000 cells/mL at the Lab Control treatment. The growth IC50 was 1.72 gm/L KCl.

The IC50 of 1.72 gm/L KCl is just outside of the lower threshold of 1.80 gm/L KCl of the "typical response" range established by the mean \pm 2 SD from the 20 most recent previously performed reference toxicant tests; this indicates that these test organisms may have been slightly more sensitive to toxicant stress than is typical. The U.S. EPA guidelines state that at the p<0.05 level, it is to be expected that 1 out of 20 reference toxicant tests will fall outside of the "typical response" range due to statistical probability, so our observation of this "outlier" is not unexpected nor cause for undue concern. Moreover, as there was no impairment of algal growth in the effluent, the observation of algal cells that may be more sensitive than is typical does not affect the interpretation of the effluent test results.

The test data and the summary of statistical analyses for these tests are presented in Appendix C.

Table 3. Reference toxicant testing: effects of KCl on <i>Thalassiosira pseudonana</i> .						
KCl Treatment (gm/L)	Mean Diatom Cell Density (cells/mL x 10 ⁶)					
Lab Water Control	0.83					
0.625	0.66					
1.25	0.51*					
2.5	0.26*					
5	0.00*					
10	0.00*					
Summary of Key Statistic						
IC50 = 1.72 gm/L KCl						

* Significantly less than the Lab Control treatment response at p<0.05.

4.2 Effects of the Desalination Effluent on Americamysis bahia

The results of this test are presented in Table 4. There was a mean of 97.5% survival at the Lab Control treatment. There were <u>no</u> significant reductions in survival in the Desalination effluent; the survival NOEC was 100% effluent. Due to the absence of significant mortalities, the EC25 and EC50 could not be calculated, but can both be assumed >100% effluent, resulting in <1.0 survival TUc (where TUc = 100/EC25 or 100/EC50) for both test endpoints.

The mean 'biomass value' was 0.31 mg at the Lab Control treatment. There were <u>no</u> significant reductions in growth in the Desalination effluent; the growth NOEC was 100% effluent. The IC25 and IC50 were both >100% effluent, resulting in <1.0 growth TUc (where TUc = 100/IC25 or 100/IC50) for both test endpoints.

Table 4. Effects of the Desalination effluent on Americamysis bahia.							
Effluent Treatment	Mean % Survival	Mean "Biomass Value" (mg)					
Lab Control	97.5	0.31					
2.5%	100	0.35					
5%	100	0.34					
10%	97.5	0.35					
25%	100	0.34					
50%	97.5	0.34					
100%	95	0.36					
Summary	of Key Statistics						
NOEC	>100% effluent	>100% effluent					
TUc (TUc = $100/NOEC$) =	<1.0	<1.0					
Survival EC25 or Growth IC25	>100% effluent	>100% effluent					
TUc (TUc = $100/EC_{25}$ or $100/IC_{25}$) =	<1.0	<1.0					
Survival EC50 or Growth IC50	>100% effluent	>100% effluent					
TUc (TUc = $100/EC50$ or $100/IC50$) =	<1.0	<1.0					

The test data and summary of statistical analyses for this test are attached as Appendix D.

4.2.1 Reference Toxicant Toxicity to Americamysis bahia

The results of this test are presented in Table 5. There was a mean of 92.5% survival and a mean mysid biomass of 0.31 mg at the Lab Control treatment. The survival EC50 was 6.1 mg/L, and the growth IC50 was 4.6 mg/L.

The results of the concurrent reference toxicant test were consistent with the reference toxicant test database, indicating that these test organisms were responding to toxic stress in a typical fashion.

Table 5. Reference toxicant testing: effects of chromium on Americamysis bahia.								
Chromium Treatment (mg/L)	Mean % Survival	Mean Biomass Value (mg)						
Lab Control	92.5	0.31						
0.88	92.5	0.31						
1.75	95	0.25*						
3.5	91.4	0.21*						
7	26.7*	0.04						
14	0*	0						
Summary of Key Statistics								
Survival EC50 or Growth IC50 =	6.1 mg/L Cr	4.6 mg/L Cr						

The test data and the summary of statistical analyses for this test are attached as Appendix E.

* Significantly less than the Lab Control treatment response at p<0.05.

4.3 Effects of the Desalination Effluent on Menidia beryllina

The results of this test are presented in Table 6. There was a mean of 97.5% survival at the Lab Control treatment. There were <u>no</u> significant reductions in survival in the Desalination effluent; the survival NOEC was 100% effluent. Due to the absence of significant mortalities, the EC25 and EC50 could not be calculated, but can both be assumed >100% effluent, resulting in <1.0 survival TUc (where TUc = 100/EC25 or 100/EC50) for both test endpoints.

The mean fish biomass value was 1.29 mg at the Lab Control treatment. There were <u>no</u> significant reductions in growth in the Bay Area Regional Desalination effluent; the growth NOEC was 100% effluent. The IC25 and IC50 were both >100% effluent, resulting in <1.0 growth TUc (where TUc = 100/IC25 or 100/IC50) for both test endpoints.

Table 6. Effects the Desalination effluent on Menidia beryllina.							
Effluent Treatment	Mean % Survival	Mean Biomass Value (mg)					
Lab Control	97.5	1.29					
2.5%	97.5	1.23					
5%	95	1.24					
10%	100	1.40					
25%	100	1.23					
50%	95	1.32					
100%	100	1.44					
Summary	of Key Statistics						
NOEC	>100% effluent	>100% effluent					
TUc (TUc = $100/NOEC$) =	<1.0	<1.0					
Survival EC25 or Growth IC25	>100% effluent	>100% effluent					
TUc (TUc = $100/EC_{25}$ or $100/IC_{25}$) =	<1.0	<1.0					
Survival EC50 or Growth IC50	>100% effluent	>100% effluent					
TUc (TUc = $100/EC50$ or $100/IC50$) =	<1.0	<1.0					

The test data and the summary of statistical analyses for this test are attached as Appendix F.

4.3.1 Reference Toxicant Toxicity to Menidia beryllina

The results of this test are summarized below in Table 7. There was a mean of 97.5% survival and a mean fish biomass value of 1.35 mg at the Lab Control treatment; the survival EC50 value was 1.2 gm/L KCl, and the growth IC50 was 1.2 gm/L KCl.

These reference toxicant test responses were consistent with previous performance of this test in our lab, indicating that these organisms were responding to toxic stress in a typical fashion.

The test data and summary of statistical analyses for this test are attached as Appendix G.

Table 7. Reference toxicant testing: effects of KCl on Menidia beryllina.							
KCl Treatment (gm/L)	Mean % Survival	Mean Biomass Value (mg)					
Lab Control	97.5	1.35					
0.5	95	1.24					
1	77.5*	1.10					
1.25	40*	0.59					
1.5	7.5*	0.06					
2	0*	0.0					
Summary of Key Statistics							
Survival EC50 or Growth IC50 =	1.2 gm/L KCl	1.2 gm/L KCl					

* Significantly less than the Lab Control treatment response (p < 0.05).

5. SUMMARY AND CONCLUSIONS

Chronic Effects of the Desalination Effluent on *Thalassiosira pseudonana* There were <u>no</u> significant reductions in algal growth in the effluent.

Chronic Effects of the Desalination Effluent on Americamysis bahia

There were no significant reductions in invertebrate survival or growth in the effluent.

Chronic Effects of the Desalination Effluent on Menidia beryllina

There were no significant reductions in fish survival or growth in the effluent.

6. AQUATIC TOXICITY DATA QUALITY CONTROL

Test Conditions – Test conditions (pH, D.O., temperature, etc.) were within acceptable limits for these tests. All such analyses were performed according to laboratory Standard Operating Procedures.

Negative Control – The test organism responses at the Lab Control treatments were within acceptable limits.

Positive Control – The results for the *Americamysis bahia* and *Menidia beryllina* reference toxicant test were consistent with the reference toxicant test database, indicating that these test organisms were responding to toxic stress in a typical fashion. The *Thalassiosira pseudonana* cells were slightly more sensitive to toxic stress than is typical; however, as there was no impairment of algal growth in the effluent, the observation of algal cells that may be more sensitive than is typical does not affect the interpretation of the effluent test results.

Appendix A

Chain-of-Custody Record for the Collection and Delivery of the Bay Area Regional Desalination Project Effluent Sample 4749 Bennett Dr., Ste L Livermore, CA 94551 925-373-7142

APPLIED Manine SCIENCES

Chain of Custody Record

Page _____ of ____ White: Lab Copy Yellow: AMS Copy

Project ID: MWHA Regronal Desal					Client Contact:						1
PO #: 2279					Address: .						1
Results to: AMS	Client										
AMS Contact: Jay Johnson Email: johnson@amarine.com					Phone:						
Email: johnson@amar	ine.com				Email:						1
Sample ID	Site Name	Date	Time	Most sucception: Mallagerosina Dseudonana	1 (x 3) Matsus species Americamysis bahia (x 3)	Wenters. species: Menteria. beryttina.	Contaminent sessi	Reference toxicity	Selinity toxicity	Comments	
MWHA-Dry &		1/14/08	1442	<u>×</u>	×	×	×	×	×	GOL water total (bettles Number 1 to d
Relinquished by: Received by:		Date: U/14/07 Date: //////		ne: 1:39 1:37	Shippin		elivered b icked up b		ing#		-
# coolers:									ш <u>Б</u> т		

Appendix B

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to *Thalassiosira pseudonana*

CETIS Sum	imary Repo	rt						Report Da Test Code		30		23 (p 1 of 1) -7060/31048
Phytoplanktor	Growth Inhibit	ion Test									Paci	fic EcoRisk
Start Date:	No: 02-1743-4374 : 15 Nov-08 11:20 ate: 19 Nov-08 15:00 4d 4h		it Type: itocal: ecies: urce:	Cell Growth EPA/821/R/02/014 (2002) Thalassiosira pseudonana In-House Culture				Analyst: Diluent: Brine: Age:	Lab	on Walker oratory Wat stal Sea	er	
	11-2799-6109 14 Nov-08 14:42 14 Nov-08 15:33 21h (11.7 °C)	9 So	de: terial: urce: tion:	EFF Effluent Applied Marin MWHA	e Sciences			Client: Project:	AM3 141			
Comparison S	ummary											
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	ти	Met	hod			
03-7220-8470	Cell Density		100	>100	N/A	7.93%	1	Equ	al Var	iance t Two	-Sample T	est
Point Estimate	e Summary											
Analysis No	Endpoint		Level	Conc-%	95% LCL	95% UCL	τU	Met	hod			
06-5571-6402	Cell Density		IC2.5 IC5 IC10 IC16 IC20 IC25	>100 >100 >100 >100 >100 >100 >100	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A	<1 <1 <1 <1 <1 <1 <1 <1	Line	ar Int	erpolation (l	CPIN〉	
			IC40 IC50	>100 >100	N/A N/A	N/A N/A	<1 <1					
Cell Density S	ummary											
Conc-%	Control Type	Count	Mean	95% LC	L 95% UCL	Min	Max	Std	Err	Std Dev	CV%	Diff%
0 2.5 5 10 25 50 100	Control	4 4 4 4 4 4	1.91E 2.28E 2.27E 2.51E 2.63E 3.02E 3.18E	+6 2.21E+6 +6 2.24E+6 +6 2.46E+6 +6 2.58E+6 +6 2.98E+6	2.34E+6 2.29E+6 2.55E+6 2.68E+6 3.05E+6	1.83E+6 2.09E+6 2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.04 2.43 2.35 2.60 2.76 3.09 3.34	E+6 3.08 E+6 1.32 E+6 2.33 E+6 2.35 E+6 1.95	9E+4 3E+4 2E+4 7E+4 5E+4 5E+4 3E+4 3E+4	9.26E+4 1.69E+5 7.23E+4 1.30E+5 1.29E+5 1.07E+5 1.25E+5	4.86% 7.41% 3.19% 5.18% 4.9% 3.54% 3.93%	0.0% -19.6% -18.9% -31.5% -38.1% -58.3% -66.8%
Cell Density D	letail											
	Control Type Control	Rep 1 1.88E+6 2.18E+6 2.35E+6 2.60E+6 2.45E+6 2.86E+6 3.19E+6	Rep 2 2.04E 2.41E 2.18E 2.59E 2.69E 3.09E 3.04E	+6 1.87E+6 +6 2.09E+6 +6 2.24E+6 +6 2.51E+6 +6 2.76E+6 +6 3.08E+6	2.43E+6 2.29E+6 2.32E+6 2.51E+6 3.03E+6							

Analyst: 10 OA:

						lest	Code:		12-0863	-1000/3104
Phytoplanktor	n Growth Inhibition Te	st							Pacil	fic EcoRisl
Analysis No:	03-7220-8470	-	ell Density			CETIS Version:		CETISv1	.6.5	·
Analyzed:	ed: 30 Nov-08 12:22 Analysis: Pa		Parametric-Two	ametric-Two Sample			ial Results:	Yes		
Data Transfor		Alt Hyp		oh	NOEL	LOEL	TÓEL	тυ	PMSD	
Untransformed	1	C > T	Not Run		100	>100	N/A	1	7.93%	
Equal Varianc	e t Two-Sample Test									
Control	vs Conc-%	Test St	at Critical	MSD	P-Value	Decision(5%)			
Control	2.5	-3.87	1.94	187000	0.9960	Non-Signi	ficant Effect			
	5	-6.13	1.94	114000	1,0000	Non-Signi	ficant Effect			
	10	-7.53	1.94	155000	1.0000	-	ficant Effect			
	25	-9.14	1.94	154000	1.0000		Non-Significant Effect			
	50	-15.7	1.94	137000	1.0000	Non-Significant Effect				
	100	-16.4	1.94	151000	1.0000	Non-Signi	ficant Effect			
ANOVA Table										
Source	Sum Squares	Mean S	•	DF	F Stat	P-Value	Decision(
Between	4.756436E+12	7.92739		6	54	0.0000	Significant	Effect		
Error	3.0815E+11	146738		2 1						
Total	5.064585642E+1	2 8.07413	312512E+11	27						
ANOVA Assur	mptions									
Attribute	Test		Test Stat	Critical	P-Value	Decision	(1%)			
Variances Bartlett Equality of Variance		2.23	16.8	0.8970	Equal Variances					
Distribution	stribution Shapiro-Wilk Normality		0.95		0.2020	Normal Distribution				
Cell Density S	Summary						_			
Conc-%	Control Type Cour	nt Mean	95% LCL	95% UCL	Min	Мах	Std Err	Std Dev	CV%	Diff%
a	Control 4	1.91E+	6 1.87E+6	1 .94E+6	1.83E+6	2.04E+6	1.72E+4	9.26E+4	4.86%	0.0%
4	6011101 4								7 4404	4 8 0.01
2.5	4	2.28E+	6 2.21E+6	2.34E+6	2.09E+6	2.43E+6	3.13E+4	1.69E+5	7.41%	-19.6%
		2.28E+ 2,27E+		2.34E+6 2.29E+6	2.09E+6 2.18E+6	2.43E+6 2.35E+6	3.13E+4 1.34E+4	1.69E+5 7.23E+4	7.41% 3.19%	-19.6% -18.9%
2.5	4		6 2.24E+6							
2.5 5	4	2.27E+	6 2.24E+6 6 2.46E+6	2.29E+6	2.18E+6	2.35E+6	1.34E+4	7.23E+4	3,19%	-18.9%
2.5 5 10	4 4 4	2,27E+ 2.51E+	6 2.24E+6 6 2.46E+6 6 2.58E+6	2.29E+6 2.55E+6	2.18E+6 2.32E+6	2.35E+6 2.60E+6	1.34E+4 2.41E+4	7.23E+4 1.30E+5	3.19% 5.18%	-18.9% -31.5%
2.5 5 10 25	4 4 4 4	2,27E+ 2.51E+ 2.63E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6	2.18E+6 2.32E+6 2.46E+6	2.35E+6 2.60E+6 2.76E+6	1.34E+4 2.41E+4 2.39E+4	7,23E+4 1.30E+5 1,29E+5	3.19% 5.18% 4.9%	-18.9% -31.5% -38.1%
2.5 5 10 25 50	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 2.68E+6 3.06E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+5	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 5 2.46E+6 6 2.58E+6 6 2.97E+6	2.29E+6 2.55E+6 3.06E+6 3.23E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+6 3.04E+6	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 6 2.46E+6 6 2.58E+6 6 2.97E+6 6 3.13E+6	2.29E+6 2.55E+6 3.06E+6 3.23E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+5	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 6 2.46E+6 6 2.58E+6 6 2.97E+6 6 3.13E+6	2.29E+6 2.55E+6 3.06E+6 3.23E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+5 3.04E+5	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 6 2.46E+6 6 2.58E+6 6 2.97E+6 6 3.13E+6	2.29E+6 2.55E+6 3.06E+6 3.23E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+5 ^{2.3F+05} 1.31+05 1.21+05 5.02(40)- 5.02(40)- 5.02(40)-	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7,23E+4 1.30E+5 1,29E+5 1.07E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%
2.5 5 10 25 50 100 Graphics	4 4 4 4 4	2,27E+ 2.51E+ 2.63E+ 3.02E+	6 2.24E+6 6 2.46E+6 6 2.58E+6 6 2.97E+6 6 3.13E+6	2.29E+6 2.55E+6 3.06E+6 3.23E+6	2.18E+6 2.32E+6 2.46E+6 2.86E+6 3.04E+5 3.04E+5	2.35E+6 2.60E+6 2.76E+6 3.09E+6	1.34E+4 2.41E+4 2.39E+4 1.98E+4	7.23E+4 1.30E+5 1.29E+5 1.07E+5 1.25E+5	3.19% 5.18% 4.9% 3.54%	-18.9% -31.5% -38.1% -58.3%

ETIS		-							Test	Code:	12	-0863-7060/3104
Phytopl	ankton Gr	owth Inhibit	ion Test									Pacific EcoRis
Analysis	s No: 06	5571-6402	End	point:	Cell Density	y			CETI	S Version:	CETISv1.6.5	
Analyze		Nov-08 12:2	3 Ana	ysis:	Linear Inter	polation (ICPIN)		Offic	ial Results:	Yes	
Linear I	nterpolati	n Options										
X Trans	-	Y Transform	See	8	Resamples	3 Exp 95%	CL	Metho	d			
Linear		Linear		1240	280	Yes			oint Interpo	plation		
Point E	stimates											
Level	Conc-%	95% LCL	95% UCL		TU	95% LCL	95%	UCL				
IC2.5	>100	N/A	N/A		<1	<u>N/A</u>	N/A					
IC5	>100	N/A	N/A		<1	N/A	N/A					
IC10	>100	N/A	N/A		<1	N/A	N/A					
IC15	>100	N/A	N/A		<1	N/A	N/A					
IC20	>100	N/A	N/A		<1	N/A	N/A					
IC25	>100	N/A	N/A		<1	N/A	N/A					
IC40	>100	N/A	N/A		<1	N/A	N/A					
IC50	>100	N/A	N/A		<1	N/A	N/A					
Cell Dei	nsity Sum	mary				Ca	iculate	ed Varia	ate			
Conc-%		rol Type	Count	Mean	Min	Мах	Std	Err	Std Dev	CV%	Diff%	
0	Contr		4	1,91E	+6 1.83E	+6 2,04E+6	1.69	E+4	9.26E+4	4.86%	0.0%	
2,5			4	2.28E	+6 2.09E	+6 2.43E+6	3.08	E+4	1.69E+5	7.41%	-19.6%	
5			4	2.27E	+6 2.18E	+6 2.35E+6	1.32	E+4	7.23E+4	3.19%	-18.9%	
10			4	2.51E	+6 2,32E	+6 2.60E+6	2,37	E+4	1.30E+5	5.18%	-31.5%	
25			4	2.63E	+6 2.46E	+6 2.76E+6	2.35	E+4	1.29E+5	4.9%	-38.1%	
50			4	3.02E			1,95		1.07E+5	3,54%	-58.3%	
100			4	3.18E	+6 3.04E	+6 3.34E+6	2.28	E+4	1.25E+5	3.93%	-66.8%	
Cell De	nsity Detai	L										
Conc-%	Cont	rol Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Conti	ol	1.88E+6	2.04E	+6 1.87E	+6 1.83E+6						
2.5			2.18E+6	2.41E	+6 2.09E	+6 2.43E+6						
5			2,35E+6	2,18E	+6 2,24E	+6 2.29E+6						
10			2.60E+6	2.59E	+6 2.5 1E	+6 2.32E+6						
25			2.46E+6	2.69E	+6 2.76E	+6 2.61E+6						
50			2.86E+6	3.09E	+6 3.08E	+6 3.03E+6						
100			3.19E+6	3.04E	+6 3.14E	+6 3.34E+6						
Graphic	:5											
	372+00-1											
					•							
	3.0E +05 -		• •									
	2 SE 405											
1	2.06 -05-											
3	Ī											
Ŭ	L 5E + 06-											
	1.32+00-											
	5 GE 106 -											
	4											
	0.00°+00 t		,			120						

Client: Applie	d Marine Sciences	Initi						
Test Material:	mwha-b	ry Enumerating	Scientist: <u>510</u>					
Test Start Date: 0/15/09	Start Time: 11:20	•	Project #: 31045					
Test End Date: <u>11/19/08</u>	End Time: 1583	<u>}</u>	Test ID #:	1 <u>4150</u>				
Treatment %	Rcp A	Rep B	Rep C	Rep D	Меал			
Lab Water Control	1.88	2.04	1.87	1.83	1.90			
2.5	2.18	2.4)	2.09	2.43	2.28			
5	235	2.18	2.24	2.29	2.24			
10	2.60	2.51	2.51	2.32	2.50			
25	2,59246	2.69	2.76	2.61	2.63			
50	2.86	3.09	3.08	3.03	3.02			
100	3.19	3-оц	3.14	3.34	3.18			
This datasheet has been reviewed for completeness and	Control Mean Den	sity (cells/mL x 10°)	Date:	Time:	Signoff:			
consistency with Test Acceptability Criteria and/or other issues of concern.	1.90		11-19-08	1800	**			

Thalassiosira pseudonana Cell Density Enumeration Data

Client: Appl	ied Marine Science	s Te	est ID #: 14		^r est Date: <u>I//<i>I5/0</i>8</u> //Diluent: <u>Algal Medium</u>
Test Material:	CHICENC THE	HA-Pry H	roject #:	Control	VDiluent: <u>Algal Medium</u>
Treatment 96	Temp (*C)	рН	D.O. (mg/L)	Salinity (ppt)	Sign-Off
Lab Water Control	0.05	7.96	7.8	25.0	Test Solution Prep JZ
2.5	20.0	8.14	7.7	25.1	New WO MEC
5	70.0	8.15	7,7	25,1	innoculation Date 11/15/08
10	20.0	8.09	7.6	25.2	innoculation Date 11/15/08 Innoculation Time 11/20
25	700	8.01	7.6	25.2	Innoculation Signoff JL
50	20.0	7.43	٦,٦	25.2	
100	20.0	7.83	7.7	25.9	Contraction of the second s
Meter ID:	40	PH03	DOIL	EC04	
Lab Water Control	20.0	8.02		-	Date 11/16/08
2.5	20.0	7.96			WQ Time: 1220
5	20,0	7,93	- <u>1. 6. 17. 5. 5. 6. 16</u> 1. 5 [.] 5		WO Signal SL
10	20.0	7,94			Condess and Children and
25	20,0	7.96			State State of the
50	20.0	7.98			
100	20.0	8.03			the second s
Meter 1D.	40	phi			
Lab Water Control	20.3	8.28			Data: 11/17/08
2.5	20.3	8.39		1.1.1	They arrive I F LL &
5	20.3	8.38			WO Signoffi JNC
10	20.3	9.41			A Strain Strain Strain
25	20.3	8.42			
<u></u>	20.3	8.38	* <u>************************************</u>		
	20.3	8.31	·	-	Chine to be with the statistics of the
100	40	pHII			and the second s
Meter ID:	21.	9.18			Date 11/18/08
Lab Water Control	71.1	ARG 379.24			WQ Time: 1645
2.5		9.3			WQ Signifi Ar
5	71.1	9.36			- <u>C</u>
10	71,1	9,47		-	and the second state of the second states of the second states of the second states of the second states of the
25	71.1	9.38			a te constituine constituine annu
50	71.1	9.30			
100	40	phiz		+	2.9.0 () () a view - 107540
Meter ID:		-	0.0	252	Due III a lad
Lab Water Control	21.0	9.08	9.9	25.2	Termination Time 450150
2.5	21.0	9.15	10.1	25.2	Terroration Suppol
5	21.0	9.17	10.2	15.3	- CM
10	21,0	9.22	10.5	25.3	9.00
25	21.0	9,29	9,6	25.3	WO Stimolt SL
50	21.0	9.33	9.9	25.3	
100	21.0	9.36	11.1	25.4	
Meter ID:	40	phil	DOIO	ECOI	

Thalassiosira pseudonana Toxicity Test Water Quality Data

Initial Test Conditions	Light Intensity (lux)
	to34.75 6347

Appendix C

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Thalassiosira pseudonana*

ETIS Sum	mary Repor	t					Repo Test (rt Date: Code:	25 N	lov-08 15:3 08-8156-	2 (p 1 of 1 3646/3104
Phytoplanktor	Growth Inhibitio	on Test								Paclfi	c EcoRisk
Test Run No: Start Date: Ending Date: Duration:	02-8530-0394 15 Nov-08 15:00 19 Nov-08 16:00 4d 1h	Prote	ies:	Cell Growth ASTM E 1218-9 Thalassiosira ps n-House Cultur	eudonana		Analy Dilue Brine Age:	nt: Lab	an Villanuevi oratory Wate stal Sea		
Sample No: Sample Date: Receive Date: Sample Age:	15-7757-6135 15 Nov-D8 15:00 15 Nov-08 15:00 N/A (20 °C)		rial: I rce: I	Reference Toxicant				it: Ref ict: 141	erence Toxic 51	anl	
Comparison \$	Summary										
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	TU	Method			_
14-8507-6429	Cell Density		0.625	1.25	0.884	31.5%		Dunnett's	Multiple Cor	nparison To	est
Point Estimat	e Summary										
Analysis No	Endpoint		Level	Conc-g/L	95% LCL	95% UCL	TU	Method		_	
00-3622-5947	_		IC2.5	0.0754	0.0166	1.03		Linear In	erpolation (I(CPIN)	
			IC5	0.151	0.0372	1.05					
			IC10	0.302	0.0744	1.22					
			IC15	0.452	0.112	1.81					
			IC20	0.603	0.149	1.9					
			IC25	0.773	0.174	1.98					
			IC40 IC50	1.3 1.72	0.277 D.661	2.2 2.38					
Cell Density 5	Summany										
Conc-g/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control	4	8.33E+		8.73E+5	7.10E+5	9.30E+5	2,00E+4	1.10E+5	13.2%	0.0%
0.625		4	6.60E+	⊧5 5.82E+5	7.38E+5	3.90E+5	9.00E+5	3.82E+4	2,09E+5	31.7%	20.7%
1.25		4	5.10E-	+5 4.29E+5	5.91E+5	3.40E+5	8.20E+5	3.94E+4	2.16E+5	42.3%	38.7%
2.5		4	2.60E-		2.80E+5	2.00E+5	3.20E+5	1.00E+4	5.48E+4	21.1%	68.8%
5		4	0,00E-	+0 0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0		100.0%
10		4	0.00E	+0 D.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0		100.0%
Cell Density	Detail										
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Control	7.70E+5	7.10E	+5 9.30E+5	9.20E+5						
0.625		9.00E+5	6.90E	+6 6.60E+5	3.90E+5						
1.25		3,90E+5	3.40E	+5 8.20E+5	4.90E+5						
2.5		2.30E+5	2.90E	+5 2.00E+5	3.20E+5						
5		0.00E+0	0.00E	+0 0.00E+0	0.00E+0						
		0.00E+0	0.00E	+0 0.00E+0	0.00E+0						

Client: <u>Ref</u>	erence Toxicant	. Initi	al Count:	20,000 cells/mL			
Test Material: Po	tassium chloride	Enumerating	Scientist: <u> </u>				
Test Start Date: 11/11/08	Start Time: 15:00		Project #:	14151			
Test End Date: 11/19/11 &	End Time: ([Constant		Test ID #:	31048			
Treatment	Rep A	Rep B	Rep C	Rep D	Меал		
Lab Water Control	0.77	17.0	0.93	0.92	0. 83		
0.625 g/L KCl	0.90	0.69	0.66	0.39	0.64		
1.25 g/L KCl	0.39	0.34	0.82	0.49	0.51		
2.5 g/L KCl	0.23	0.29	0.20	0.32	0.26		
5 g/L KCI	0.0	0.0	0.0	0.0	0.0		
10 g/L KCl	0.0	0.0	0.0	0.0	0.0		
This datasheet has been reviewed for completeness and	Control Mean Den	sity (cells/mL x 10°)	Date:	Time:	Signoff:		
consistency with Test Acceptability Criteria and/or other issues of concern.	0.	83	11-19-08	1750	AB		

Thalassiosira pseudonana Reference Toxicant Test Cell Density Data

Client:	Reference Toxica	nt	Test ID #: 310	<u>)48 </u> 1	Fest Date: 3, 11/15/08
Test Material:	Potassium chlorid	<u>le</u>	Project #: 141	51 Contro	I/Diluent: Algal Medium
eference Toxicant Test Treatment (g/L KCI)	Temp (°C)	рН	D.O. (mg/L)	Salinity (ppt)	Sign-Off
Lab Water Control	20,0	7.96	7.3	26.7	Test Solution Prep: JL
0.625	20.0	8.16	7.4	25.7	New WQ JL
1.25	20.0	8.21	6.9	26.4	Innoculation Date: 11/145/06
2.5	20.0	8.20	7.0	27.6	Innoculation Time: 1600
5	20.0	8,21	7.1	50.1	Innoculation Signoff JL
10	20,0	8.20	7.1	34.7	
Meter ID:	40	PHIZ	D012	CL04	
Lab Water Control	20,0	8.07		1 - Al - Al	Date: 11/16/08
0.625	20,0	\$,04			WQ Time 1730
1.25	20,0	8.03			WQ Signoff: SL
2.5	20,0	8.03	and the second		
5	20,0	8,01			and the second
10	20.0	9,01			
Meter ID:	40	Phili	1.1.1	Carl Street	
Lab Water Control	20.3	7.93		A DECK	Date 11/17/08
0.625	2.0.3	7.96		Charles of the	WQ Time: 1540
1.25	20.3	7.95		and Wint	WQ Signoff JNC
2.5	20.3	7.94			
5	20.3	7.90		a sector de la	
10	20.3	7.88			
Meter ID:	40	PHII			
Lab Water Control	71.1	8-24	S. COLLAN		Dute 11/18/68
0.625	71.1	8.19			WQ Time: 17 to
1.25	21.1	8.18	ľ	a superior and	WQ Signoff AR
2.5	21,1	8.12			Protocolistit at
5	21.1	8.04		A REALLY	
10	21.1	8.01		2	
Meter ID:	40	Ph12		「新三市」の「	
Lab Water Control	21.0	8.24	8.1	25,3	Date 11/19/08
0.625	21,0	8,15	29	25,9	Termination Time 1 (1.00
1.25	21.0	8.17	7.9	26.8	Termination Signoff: SM
2.5	21,0	8,10	7.6	27.9	WQ Time: A2D
5	21.0	8.02	2.4	30.4	WQ Signoff: SL
10	21.0	7.97	6.5	34.8	
	40	ph03	DOID	ELDI	the management of

Thalassiosira pseudonana Reference Toxicant Test Water Quality Data

Initial Test Conditions		Light Intensity (lux)
		43475 6347.5

Appendix D

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to Americamysis bahia

Test Run No: 11-3743-9629 Test Type: Growth-Survival-Fac (7d) Analysi: Jason Walker Start Date: 15 Nov-08 03:00 Species: Armericamysis behia Brine: Crystal Sea Duration: 6d 16h Source: Aquatic Biosystems, CO Age: 7 Sample No: 11-2789-5109 Code: EFF Client: AMS Sample Date: 14 Nov-08 14.22 Material: Effluent Project: 14150 Receive Date: 14 Nov-08 15.39 Source: Applied Marine Sciences Sample Age: 7 Analysis No Endpoint NOEL LOEL TOEL PMSD TU Method 18-5195-7028 7d Survival Rate 100 >100 N/A 8.64% 1 Steel Many-One Rark Test 04/215-5166 Mean Dry Biomass-mg 100 >100 N/A 14.9% Equal Variance t Two-Sample Test Point Estimate Summary Level Conc-% 95% LCL 95% UCL 10 Method Cl22 >100	CETIS Surr	nmary Report							Report Dat Test Code		30 Nov-08 12:38 (p 1 of 2 00-2118-6318/31047			
Start Date: 15 Nov-08 (5.50) Protocol: EPAR2:/RV02/014 (2002) Diluent: Laboratory Water Ending Date: 22 Nov-08 08.00 Species: Americamysis bahia Brine: Crystal Sea Duration: 6d 16h Source: Aquatic Blosystems, CO Age: 7 Sample No: 11-2759-5109 Code: EFF Citiant: AMS Sample Date: 14 Nov-08 15:39 Source: Applied Marine Sciences Sample Age: 7 Analysis No Endpoint NOEL LOEL TOEL PMSD TU Method 18-5198-7028 7 d Survival Rate 100 >100 N/A 8.64% 1 Steel Many-One Rank Test 47:215-3166 Mean Dry Biomass-mg 100 >100 N/A 1.45% Endpoint Incerts Steel Many-One Rank Test D0-8668-1767 Mean Dry Biomass-mg 102.5<>100 N/A N/A 1 </th <th>Chronic Mysic</th> <th>d Survival, Growth</th> <th>and I</th> <th>Fecundity</th> <th>Test</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Paci</th> <th>fic EcoRisk</th>	Chronic Mysic	d Survival, Growth	and I	Fecundity	Test							Paci	fic EcoRisk	
Sample Date: 14 Nov-08 14:42 receive Date: Material: Effluent Applied Marine Sciences MWHA Project: 14150 Comparison Summary Station: MWHA Station: MWHA Station: Statio:	Start Date: Ending Date:	15 Nov-08 15:50 22 Nov-08 08:00	F	Protocol: Species:	EPA/821/R/02/ Americamysis	014 (2002) bahia			Diluent: Brine:	Laborat Crystal	ory Wat	er		
Analysis No Endpoint NOEL LOEL TOEL PMSD TU Method 18-5198-7028 7d Survival Rate 100 >100 N/A 8,64% 1 Steel Mary-One Rank Test QA-7215-3166 Mean Dry Biomass-mg 100 >100 N/A 14.9% 1 Equal Variance t Two-Sample Test Point Estimates Endpoint Level Conc-% 95% LCL 95% UCL TU Method 00-9868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A <1	Sample Date: Receive Date:	14 Nov-08 14:42 14 Nov-08 15:39	N	Naterial: Source:	Effluent Applied Marine	: Sciences								
12-5198-7028 7d Survival Rate 100 >100 N/A 8.64% 1 Steet Many-One Rank Test Q4-7215-3166 Mean Dry Biomass-mg 100 >100 N/A 14.9% 1 Equal Variance t Two-Sample Test Point Estimate Summary Anatysis No Endpoint Level Conc-% 95% LCL 95% UCL TU Method 00-5868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A N/A <1	Comparison S	Summa ry												
04-7215-3166 Mean Dry Biomass-mg 100 >100 N/A 14.9% 1 Equal Variance 1 Two-Sample Test Point Estimate Summary Analysis No Endpoint Level Conc-% 95% LCL 95% LCL 95% UC TU Method D0-9868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A <1	Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	τu	Met	hod				
Point Estimate Summary Analysis No Endpoint Level Conc-% 95% LCL 95% UCL TU Method OD-9868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A IC2.5 >100 N/A N/A OD-9868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A IC100 N/A N/A IC100 N/A N/A IC25 >100 N/A N/A IC25 >100 N/A N/A Control Type Count Mean 95% LCL 95% UCL Min Max	18-5198-7028	7d Survival Rate						1		-				
Analysis No Endpoint Level Conc-% 95% LCL 95% UCL TU Method 00-9868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A <1	04-7215-3166	Mean Dry Biomass	s-mg	100	>100	N/A	14.9%	1	Equ	al Variano	ce t Two-	-Sample Ti	est	
DD-9868-1767 Mean Dry Biomass-mg IC2.5 >100 N/A N/A <1 Linear Interpolation (ICPIN) IC5 >100 N/A N/A N/A <1	Point Estimat	e Summary						••						
IC5 >100 N/A N/A <1	Analysis No	Endpoint		Level	Conc-%	95% LCL	95% UCL	TU	Met	hod				
IC10 >100 N/A N/A <1	00-9868-1767	Mean Dry Biomas	s-mg	IC2.5	>100	N/A	N/A	<1	Line	ar Interpo	plation (I	CPIN)		
IC15 >100 N/A N/A <1 IC20 >100 N/A N/A <1				IC5	>100	N/A	N/A	<1						
IC20 >100 N/A N/A <1 IC25 >100 N/A N/A <1				IC10	>100	N/A	N/A	<1						
IC25 >100 N/A N/A <1 IC40 >100 N/A N/A <1				IC15	>100	N/A	N/A	<1						
IC40 >100 N/A N/A N/A <1 7d Survival Rate Summary Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dit 0 Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dit 0 Control 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 2.5 8 1 1 1 1 0 0 0.0% -2. 5 8 1 1 1 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.955 0.949 </td <td></td> <td></td> <td></td> <td>IC20</td> <td>>100</td> <td>N/A</td> <td>N/A</td> <td><1</td> <td></td> <td></td> <td></td> <td></td> <td></td>				IC20	>100	N/A	N/A	<1						
IC50 >100 N/A N/A <1 7d Survival Rate Summary Count of Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dif 0 Control 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.02 2.5 8 1 1 1 1 0 0 0.0% -2. 5 8 1 1 1 1 0 0 0.0% -2. 10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.02 25 8 1 1 1 0.8 1 0.0129 0.0707 7.25% 0.02 25 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.02 100 8 0.955 0.949 1 0				IC25	>100	N/A	N/A	<1						
7d Survival Rate Summary Conc-% Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dir 0 Control 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 2.5 8 1 1 1 1 0 0 0.0% -2. 5 8 1 1 1 1 0 0 0.0% -2. 10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.95 0.915 0.985 0.8 1 0.0169 0.0926 9.75%				IC40	>100	N/A	N/A	<1						
Conc-% Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dist 0 Control 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 2.5 8 1 1 1 1 0 0 0.0% -2. 5 8 1 1 1 1 0.0 0.0% -2. 10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.95 0.949 1 0.8 1 0.0169 0.926 9.75% 2.5 Mean Dry Blomass-mg Summary V <td></td> <td></td> <td></td> <td>1050</td> <td>>100</td> <td>N/A</td> <td>N/A</td> <td><1</td> <td></td> <td></td> <td></td> <td></td> <td></td>				1050	>100	N/A	N/A	<1						
0 Control 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 2.5 8 1 1 1 1 1 0 0 0.0% -2. 5 8 1 1 1 1 1 0 0 0.0% -2. 10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.955 0.949 1 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blomass-mg	7d Survival Ra	ate Summary												
2.5 8 1 1 1 1 0 0 0.0% -2. 5 8 1 1 1 1 1 0 0 0.0% -2. 10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0 0 0.0% -2. 25 8 1 1 1 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0.0129 0.0707 7.25% 0.0 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.95 0.915 0.985 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blorass-mg Summary 2 5 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 0.0 0.0	Conc-%	Control Type C	ount	Mean	95% LCL	95% UCL	Min	Ma	x Std	Err S	td Dev	CV%	Diff%	
5 8 1 1 1 1 0 0 0.0% -2. 10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.955 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.95 0.915 0.985 0.8 1 0.0169 0.926 9.75% 2.5 Mean Dry Biosemus Stomase mg Summers Stomase mg Sum Summers Stomase mg Sum Summers Sto	0	Control 8		0.975	0.949	1	0.8	1	0.01	29 0	.0707	7.25%	0.0%	
10 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 25 8 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.955 0.949 1 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blomass-mg Summers Conc-% Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Difter 0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% 11 5 8 0.346 0.326 0.354 0.274 0.388 0.00698 0.0326 11.2% 10	2.5	8		1	1	1	1	1	0	0		0.0%	-2.56%	
25 8 1 1 1 1 1 0 0 0.0% -2. 50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.95 0.915 0.985 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blomass-mg Summary V V V Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dift 0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -11 5 8 0.346 0.326 0.354 0.274 0.388 0.00698 0.0322 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	5	8		1	1	1	1	1	0	0		0.0%	-2.56%	
50 8 0.975 0.949 1 0.8 1 0.0129 0.0707 7.25% 0.0 100 8 0.95 0.915 0.985 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blomass-mg Summary Conc-% Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Diff 0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.346 0.326 0.354 0.274 0.388 0.00698 0.0382 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	10	8		0.975	0.949	1	0.8	1	0.01	29 0	.0707	7.25%	0.0%	
100 8 0.95 0.915 0.985 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blomass-mg Summary Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dift 0 Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dift 0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.344 0.326 0.354 0.274 0.388 0.00698 0.0326 9.4% -12 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	25	8		1	1	1	1	1	0	0		0.0%	-2.56%	
100 8 0.95 0.915 0.985 0.8 1 0.0169 0.0926 9.75% 2.5 Mean Dry Blomass-mg Summary Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Difter 0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.346 0.326 0.354 0.274 0.388 0.00698 0.0322 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	50	8		0.975	0.949	1	0.8	1	0.01	29 0	.0707	7.25%	0.0%	
Conc-% Control Type Count Mean 95% LCL 95% UCL Min Max Std Err Std Dev CV% Dir 0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.0 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.34 0.326 0.354 0.274 0.388 0.00698 0.0382 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12		8		0.95	0.915	0.985	0,8	1	0.01	69 0	.0926		2.56%	
0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.6 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.34 0.326 0.354 0.274 0.388 0.00698 0.0392 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	Mean Dry Blo	mass-mg Summar	у											
0 Control 8 0.309 0.296 0.321 0.25 0.352 0.00592 0.0324 10.5% 0.6 2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.34 0.326 0.354 0.274 0.388 0.00698 0.0392 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	Conc-%	Control Type C	ount	Mean	95% LCL	95% UCL	Min	Ma	x Std	Err S	td Dev	CV%	Diff%	
2.5 8 0.347 0.331 0.363 0.294 0.408 0.00759 0.0416 12.0% -12 5 8 0.34 0.326 0.354 0.274 0.388 0.00698 0.0382 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12				0.309	0.296						.0324		0.0%	
5 8 0.34 0.326 0.354 0.274 0.388 0.00698 0.0382 11.2% -10 10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12	2.5										.0416		-12.5%	
10 8 0.346 0.334 0.359 0.3 0.408 0.00595 0.0326 9.4% -12		8											-10.2%	
													-12.3%	
	25	8		0.34	0.325	0.355	0.266					11.6%	-10.1%	
													-9.64%	
													-15.1%	

CETIS™ v1.6.5A

CETIS Summary Report

Report Date:

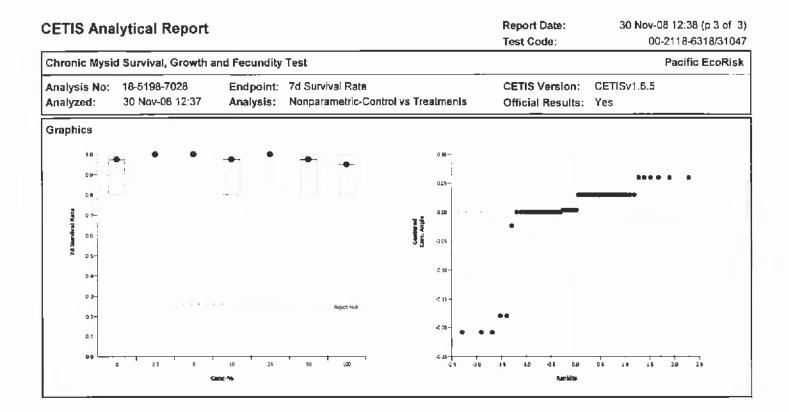
Test Code:

30 Nov-08 12:38 (p 2 of 2) 00-2118-6318/31047

Chronic M	Chronic Mysid Survival, Growth and Fecundity Test												
7d Surviva	l Rate Detail												
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8				
0	Control	1	1	1	1	8.0	1	1	1				
2.5		1	1	1	1	1	1	1	1				
5		1	1	1	1	1	1	1	1				
10		8.0	1	1	1	1	1	1	1				
25		1	1	1	1	1	1	1	1				
50		0.8	1	1	1	1	1	1	1				
100		8.0	1	1	0.8	1	1	1	1				
Mean Dry B	- Biomass-mg Detail	1											
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8				
0	Control	0.3	0.302	0.288	0.352	0.25	0.324	0.344	0 308				
2.5		0.308	0.31	0.368	0.394	0.344	0.35	D.408	0.294				
5		0.33	0.38	0.368	0.34	0.37	0.312	0.326	0.274				
10		0.342	0.408	0.314	0.348	0.34	0.36	0.3	0.36				
25		0.266	0.33	0.376	0.32	0.344	0.332	0.352	0.398				
50		0.242	0.382	0.298	0.366	0,318	0,354	0.354	0.392				
100		0.222	0.374	0.34	0.438	0.392	0.31	0.404	0.36				

CETIS Ana	alytical Repo	ort				ort Date: Code:	30 Nov-08 12:38 (p 2 of 00-2118-6318/310				
Chronic Mys	id Survival, Grov	wth and Fe	cundity Test	:						Paci	fic EcoRisk
Analysis No:	18-5198-7028	Ene	ipoint: 7d \$	Survival Rate	2		CET	S Version:	CETISv1.	6.5	
Analyzed:	30 Nov-08 12:3		•	nparametric-		reatments	Offic	ial Results:	Yes		
Data Transfo	2 m	Zeta	Alt Hyp	Monte Ca	rlo	NOEL	LOEL TOEL		TU	PMSD	
Angular (Corr	rected)		C > T	Not Run		100	>100	N/A	1	8.64%	
Steel Many-O	One Rank Test										
Control	vs Conc-%		Test Stat	Critical	Ties	P-Value	Decision((5%)			
Control	2.5		72	46	1	0.9430	Non-Signi	ficant Effect			
	5 72 46 1 0.9430 Non-Significant Effe							ficant Effect			
	10		68	46	2	0.8570	Non-Signi	ficant Effect			
	25	5									
	50		68	46	2	ficant Effect					
	100		64	46	2	0.8570 0.7130	-	ficant Effect			
ANOVA Tabl	e										
Source	Sum Squ	ares	Mean Squ	are	DF	F \$tat	P-Value	Decision(5%)		
Between	0.0232273	22	0.0038712	203	6	0.809	0.5680	Non-Signif	icant Effect		
Error	0.2345659	9	0.0047870	159	49						
Total	0.257793	08751226	0.0086582	6173685	55						
ANOVA Assu	umptions										
Attribute	Test			Test Stat	Critical	P-Value	Decision	(1%)			
Variances	Mod Leve	ene Equality	y of Variance	0.809	3.19	0.5680	Equal Var	iances			
Distribution	Shapiro-	Wilk Norma	lity	0.597		0.0000	Non-norm	al Distributio	n		
7d Survival I	Rate Summary										
Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control	8	0.975	0.948	1	8.0	1	0,0131	0.0707	7.25%	0.0%
2.5		8	1	1	1	1	1	0	0	D.0%	-2.56%
5		8	1	1	1	1	1	0	0	0.0%	-2.56%
10		8	0.975	0.948	1	0.8	1	0.0131	0.0707	7.25%	0.0%
25		8	1	1	1	1	1	0	0	0.0%	-2.56%
50		8	0.975	0.948	1	0.8	1	0.0131	0.0707	7.25%	0.0%
100		8	0.95	0.915	0.985	0.8	1	0.0172	0.0925	9.75%	2.56%
Angular (Col	rrected) Transfor	med Sum									
Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Мах	Std Err	Std Dev	CV%	Diff%
0	Control	8	1,32	1.28	1.35	1.11	1.35	0.0156	0.0842	6.4%	0.0%
2.5	÷ • • • • • •	8	1.35	1.35	1.35	1.35	1.35	D.0100	D	0.0%	-2.26%
5		8	1.35	1.35	1.35	1.35	1.35	0	0	0.0%	-2.26%
10		8	1.33	1.33		1.11	1.35	0.0156	0.0842	6.4%	-2.20%
					1.35						
25		8	1.34	1.34	1.35	1.32	1.35	0.00178	0.0096	0,72%	-2.0%
50		8	1.32	1.28	1.35	1.11	1.35	0.0156	0.0842	6.4%	0.0%
100		8	1.29	1.24	1.33	1.11	1.35	0.0205	D.11	8.57%	2.26%

Analyst:) () QA:])



Analyst: JA QA:

CETIS Ana	lytical Report						-	ert Date: Code:	30 M		87 (p 1 of 3 6318/3104
Chronic Mysi	d Survival, Growth a	nd Fecund	lity Test							Pacif	ic EcoRís
Analysis No: Analyzed:	04-7215-3166 30 Nov-08 12:37	Endpoir Analysis		in Dry Biom ametric-Two	-			S Version: ial Results:	CETISv1. Yes	6.5	
Data Transfor			t Hyp	Monte Ca	rlo	NOEL	LOEL	TOEL	TU	PMSD	
Untransformed	<u> </u>		> T	Not Run		100	>100	N/A	1	14.9%	
Equal Varianc	e t Two-Sample Tes	t									
Control	vs Conc-%	Те	est Stat	Critical	MSD	P-Value	Decision(5%)			
Control	2.5	-2.	.07	1.76	0.0328	0.9710	Non-Signit	ficant Effect			
	5	-1.	.78	1.76	0.0312	0.9510	Non-Signit	ficant Effect			
	10	-2.	.34	1.76	0.0286	0.9830	Non-Signi	ficant Effect			
	25	-1	.74	1.76	0.0318	0.9480	-	ficant Effect			
	50		.42	1.76	0.037	0.9110	_	ficant Effect			
	100	-1.	.78	1.76	0.0461	0.9510	Non-Signi	ficant Effect			
ANOVA Table	I							-			
Source	Sum Squares	M	ean Squ	are	DF	F Stat	P-Value	Decision(5	5%n}		
Between	0.01046493	0.	0017441	55	6	0.887	0.5120	Non-Signifi	icant Effect		
Error	0.09632742	0.	0019658	65	49						
Total	0.1057923484	3701 0 .	0037100	2079919	55						
ANOVA Assu	mptions										
Attribute	Test			Test Stat	Critical	P-Value	Decision(1%)			
Variances	Bartlett Equal	ity of Variar	nce	5.71	16.6	0.4560	Equal Var	iances			
Distribution	Shapiro-Wilk	Normality		0.973		0.2280	Normal Di	stribution			
Mean Dry Bio	mass-mg Summary							-			
Сопс-%	Control Type Co	unt M	ean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control 8	0.	309	0.296	0.321	0.25	0.352	0.00602	0.0324	10.5%	0.0%
2.5	8	0.3	347	0.331	0.363	0.294	0.408	0.00772	0.0416	12,0%	-12.5%
5	8	0.	34	0.325	0.355	0.274	0.388	0.0071	0.0382	11.2%	-10.2%
10	8	0.3	346	0.334	0.359	0.3	0.408	0.00605	0.0326	9.4%	-12.3%
25	8	0.3	34	0.325	0.355	0.266	0.398	0.00732	0.0394	11.6%	-10.1%
50	8	0.3	338	0.319	0.357	0.242	0.392	0.00925	0.0498	14.7%	-9.64%
100	8	0.1	355	0.33	0.38	0.222	0.438	0.0124	0.0665	18.7%	-15,1%
Graphics							· · · · ·				
0		•	+	Rijez Hol	ł			,		••• •	
30 L	0 25 5 C	8 0116-141	8	50. 10d		-0 15 -2,5	-10 15 1	s 41,6 0,6 Rumkita	as st	, r - L9 2a	25

CETIS Analytical Report								iport Date: st Code:		08 12:38 (p 1 of 0-2118-6318/310-	
Chronie	c Mysid Su	rvival, Grow	th and Fe	cundity	Test					-	Pacific EcoRis
	is No: 00-			-	Mean Dry Bior				ETIS Version:	CETISv1.6.5	
Analyze	ed: 30	Nov-08 12:3	7 An	alysis:	Linear Interpol	ation (ICPIN)		о — — —	ficial Results:	Yes	
_inear	Interpolatic	on Options									
X Trans		/ Transform			Resamples	Exp 95%		thod			
Linear	L	inear	289	95625	280	Yes	Tw	o-Point Inte	erpolation		
Point E	stimates										
Level	Conc-%	95% LCL		-	TU	95% LCL		L			
IC2.5	>100	N/A	N/A		<1	N/A	N/A				
IC5	>100	N/A	N/A		<1 <1	N/A N/A	N/A N/A				
	>100 >100	N/A	N/A N/A		<1 <1	N/A N/A	N/A				
IC15 IC20	>100	N/A N/A	N/A N/A		<1	N/A	N/A				
IC20	>100	N/A	N/A		<1	N/A	N/A				
IC40	>100	N/A	N/A		<1	N/A	N/A				
IC50	>100	N/A	N/A		<1	N/A	N/A				
Mean D	Dry Biomas	s-mg Sumn	nary			Ca	culated \	/ariate			
Conc-%	6 Conti	rol Type	Count	Mean	Min	Max	Std Err	Std De	v CV%	Diff%	
0	Contr		6	0.309	0.25	0.352	0.00592	0.0324	10.5%	0.0%	
2.5			8	0.347	0.294	0.408	0.00759	0.0416	12.0%	-12.5%	
5			8	0.34	0.274	0.388	0.00598			-10.2%	
10			8	0.346		0.408	0.00595			-12.3%	
25			8	0.34	0.266	0.398	0.0072	0.0394		-10.1%	
50 100			8 8	0.338 0.355		0.392 0.438	0.00909	0.0498		-9.64% -15.1%	
		Datali		0,000	0.222	0.400	0.0121	0.0000	1011 10	-10.170	
		s-mg Detail		Den 1	Don 2	Deg 4	Dan F	Don 6	Dan 7	Don 9	
Conc-%	Contr	rol Type	Rep 1 0.3	Rep 2 0.302	-	Rep 4 0.352	Rep 5 0.25	Rep 6 0.324	Rep 7 0.344	Rep 8 0,308	
2.5	Conti		0.308	0.31	0.368	0.394	0.23	0.35	0.408	0.294	
5			0.33	0.38	0.388	0.34	0.37	0.312	0.326	0.274	
10			0.342	0.408		0.348	0.34	0.36	0.3	0.36	
25			0.266	0.33	0.376	0.32	0.344	0.332	0.353	0.398	
50			0.242	0.382		0.366	0.318	0.354	0.354	0.392	
100			0.222	0.374		0.438	0.392	0.31	0.404	0.36	
Graphi	ics										
	0.40	_			•						
	0.39	.	•								
and the second se	0.23										
H and											
	0.12-										
	8.02	·									
	0	20 40		10	100 120	1					
			Carse Alle								

Client:		Applic	ed Mari	ine Sci	ences				Orgai	nism L	.og#:	Ц.	2 5 !	5	Age:	7
Client: Fest Material:		-041	ment -	KB Y	nwH	A-I	ry			ո Տոր						
Test ID #:	310	047	Pr				Ŭ	Control/Diluent:DI & Crystal Sea @ 25 pp								
Test Date:	H+	15.08						Control Water Batch: 696								
·		-	-	-	-	-	-									
Treatment	Temp	P	Н	D.O. (mg/L)	Salinit	y (ppt)	-	-		ive Q					SIGN-OFF
(% effluent)	(°C)	new	old	new	blo	new	old	A	В	С	D	Ē	F	G	H	Laie:
Control	Z5.6	7,92		1.1		24.3		5	5	5	5	5	5	5		Date: 11, 15, 08 Sample ID:
2.5	258	7.92		7.8		24.5	- 1-1	5	5	5	5	5	5	5	5	20936 Test Solution Prep:
5	25.8	7.92	-	1.7	1	24.5		5	5	5	5	5	5	5	5	Nen WQ:
10	25.8	291	1	1.7	1.1.1	24.5	1	5	5	5	5	5	5	5	5	MEC
25	25.8	7.88		7.9	1 - 1	94.4	1	5	5	5	5	5	5	5	5	Indiation Time 1559
50	25.8	7.85	-	8.0		24.2	-	5	5	5	5	5	5	5	5	
100	25.8	7.79		8.5		a4.0		5	5	5	5	5	5	5	5	
Meter ID	IIA	рноз		D614		Ec04							187			
Control	258	8.23	7.52	7.8	5.5	24.8	24.9	5	5	5	5	5	5	5	5	Date: 11/16/08
2.5	25.8	8.24	7.43			24.8	251	5	5		5	5	5	5	5	Sample ICI 20926
5	258	8.23	7.45	2.8	5.1		25.1	2	5	5	5	5	5	5	5	Test Solution Prop: 1 900 New WQ:
10	25.8	8,19	7.46				25.1		5	5	5	5	5	5	5	New WQ: SL
25	25.8	8.09	7.59	8.1	4.9	24.6	25.0	5	5	5	5	5	5	5	5	Homes al Time:
50		7.95	7.81	and the second se	5.1	_			5	5	5	5	5	5	5	Renewal-Sign-off:
100	25.8	7.74	7.97	8.8	5.0	24.3	24.6	5	5	5	A	5	5	5	5	OIJ WO:
Meter ID	11A	ph 1	Phil	DOIZ	2000	604	Teco4	100			ľ					
Control	25.7	8.05	7.70	7.8	5.8	24.8	25.3	5	5	5	5	5	S	5	5	HHE PA
2.5	25.7	-	777	The second second	and the second s	24.8	25.4	5	5	2	5	5	5	5	5	Sample 10. 20926
5	25.7	8.17	7.00	6.8	5.3	24.7	25.5	5	5	5	5	6	4	5	5	Test Solution Frep:
10	25.7	8.16	7.76	1 11		21.7	25.4	5	5	Ś	5	μ	5	S	5	New WAR
25	15.7	8.01	7.79	6.9	5.0	24.7	25.1	5	5	5	5	5	5	5	5	Renewal Time:
50	25.7	7.96	7.90	24	5.2	24.6	25.2	5	5	5	9	5	7	5	5	Renewal-Sign-oil:
100	25.7	7.79	8.04	7.2	5.3	24.(25.5	5	5	5	A	5	5	5	5	OLI WQ:
Meter ID	1114	phil	plt12	1010	Dary	Ecoy	EC05				1					
Control	259	8.23	7.70	7.0	5.4	24.6	25.4	5	5	5	5	S	5	5	5	Date: 11/18/08
2.5	25%	8.22	7.61	6.9	4.7	24.9	25.3	5	5	5	5	5	5	5	5	Sumple ID: 20426
5	25.8	8.20	7.45	3.0	5.4	24.9	25.6	5	S.	5	5	5	5	5	5	Test Solution Prep:
10	15.4	8.16	7,63	70	5.1	24.8	255	S	5	S	5	5	5	5	5	New WQ: JNC
25	258	8.07	7.64	6.9	5.4	24.7	25.4	AS	5	S	5	5	5	5	3	Renewal Time:
50	254	7.90	7.75	7.6	5.2	24.5	25.4	4	S	5	5	5	5	S	5	Renewal-Sign-pl1:
100	288	7.66	7.94	8.5	5.2	24.3	25.5	4	5	5	4	5	5	5	5	Ora WG. JL
Meter ID	114		Pall	Doio	Dolo	ECCU	e(di									

7 Day Chronic Americamysis bahia Toxicity Test Test Data

						-			_		•	42				2
Client: Fest Material:			ed Mar			Sry.		0						AB	Age:	7
Test ID #:						Ŷ	·		ganisı Contr		-					:a @ 25 ppt
Test Date:				uject #.		1.70			trol W							area 220 ppr
	_			_												
Treatment	Temp	p	H	D.011	mg/L)	Salinit	y (ppt)	-		#1	ive O	rgania	ms	_	_	SIGN-OFF
(% effluent)	(°C)	new	old	new	oid	nëw	old	A	В	С	D	E	F	G	H	Date:
Control	The Cost in	8.34	1		1	1.000	25-2		5	5	5	4	5	5	5	1115/08 Sampio ID:
2.5	1	-	7.65	6.9	6.3	24.9	25-4	1	5	5	5	5	5	5	5	20926 Test Solution Prep:
5	25.8	8.34	271	6.7	5-6	24.9	25-6	5	5	5	5	5	5	5	5	New WQ:
10	25.8	8.30	7.73	6.8	6.0	24.8	25.7	5	5	5	5	5	5	5	5	Tu
25	25.8	8.22	7.83	6.5	5-8	227	25.4	5	5	5	5	5	5	5	5	Renowal Time:
50	25-8	5.10	7.89	7.0	6.3	24.6	255	4	5	5	5	5	5	5	5	Renewal-Sign-off:
100	258	7.91	8.02			Constant of the	and the second s	4	5	5	4	5	5	5	5	UNI WQ: LL
Meter ID	IIA	Ph /1	Ph 12	0017	1001	8005	EC1	1								
Control	257	9.34	7.79	17.6	5.8	24.7	250	5	5	5	5	4	5	5	5	Dive 11/20/08
25	250	8.33	7.79	74	50	249	25,4	5	5	5	5	5	5	5	5	Sample ID: 20126
5	257	8.32	7.87	7.4	5.1	24.9	5.4	5	5	5	5	5	5	5		Test Solution Prep:
10	257	8.29	7.71	7.4	5.5	649	25,4	5	5	5	5	5	5	5	5	New WEAR
25	257		7.90	7.6		24.9	253	5	5	5	5	5	5	5	5	Kenewar Filmes 100
50	257	8.02	7.89	7.9	95	24.9	25.3	4	5	5	5	5	5	5	5	Renewal-Sign-off:
100	25.7	290	2.05	8.3	100 13	24.7	25.2	4	5	5	Ч	5	5	5	5	MUM DIJ WQ:
Meter ID	IIA	PHIZ	0103	DOIY	DOID	ELOI	EN									
Control	25.7	3.07	8.01	8.8	-	251		5	5	5	5	4	5	5	5	11-21-08
2.5	25.7		8.15	89	5.9		255	5	S	5	5	5	5	5	5	ZA26
5	25.7	8.09	4	8.9	55		25.3	5	5	5	5	5	5	5	5	Test Solution Prop:
10	25.7	8.08	1	- V In the second second	56		25.4	_	5	5	5	5	5	5	5	New WQ:
	25.7	8.07	824	90	55	246	0	5	5	5	5	5	5	4	5	Renewal Time:
25	25.7	8.01	834	9.3	5.4		5.1	4	5	5	5	5	5	5		172.5 Kenewal-Sign-Odi:
100	25.7	7.96	8.49	95	5.7	22.7	25.2	4	5	5	4	5	5	5	5	
Meter ID	IA	pHI1	P#03		DOIY	Gall				-	-			0		- WI
1. 201. 1	25.4		7.84	PULL	6.6	2001	25.6	5	5	5	5	4	5	5	5	Date: 11-22-03
Control	25.6		2.84		6.6		25.7	5	5	5	5	5	5	5	5	Temmillion-Time
2.5	25.6		7.82	-	65	14.00	25.6	5	5	5	5	5	5	5	5	Termination-Signalit:
5	25.6	1	284		6.2	The second	25.4	4	5	5	5	~ 5	5	5	5	ANCW BID
10	25.6	Contraction of Contra	2.89	-			25.4	5	5	5	5	5	5	4	5	
25	15.6	1	100000000000000000000000000000000000000		6.2		25.1	3	5				5	5	5	
50	25.6		8.01 8.09		1		24.4	4		5	5	<u>5</u>	5	5	5	
100	10.6		12H03	-	Co.D	R TRU	BLOY	4	5	5	7	5		-	5	
Meter ID	MR		1,100	-	DOIY	1	BUN	-	t aprel		-		L			

7 Day Chronic Americamysis bahia Toxicity Test Test Data

Americamysis bahia Dry Weight and Biomass Value Data

Tare Weight Date: $d - t7 - 6$ Sign-off: Mc Test Date: $1 - 15 - 6$ Final Weight Date: $d - t7 - 6$ Sign-off: Mc Tare Weight Date: $d - t7 - 6$ Sign-off: Mc Tare Weight Date: $d - t7 - 6$ Sign-off: Mc Tare Weight Date: $d - t7 - 6$ Sign-off: Mc Tare Weight Date: $d - t7 - 6$ Sign-off: Mc Pan ID Concentration (%) Initial Pan Weight Pan + Dry Mysid Initial 4 off Mysid Biomas Value (mg) 1 Concentration (%) Initial Pan Weight Date: $d - t7 - 6$ Sign-off: Mc 2 D Of Concentration (%) Initial Pan Weight Date: $d - t7 - 6$ Sign-off: Mc Concentration (%) Initial Pan Weight Date: $d - t7 - 6$ Sign-off: Mc Concentration (%) Initial Pan Weight Date: $d - t7 - 6$ O 30 C Concentration (%) Initial Pan Weight Date: $d - t7 - 6$ <th <="" colspan="2" th=""><th></th><th></th><th></th><th>Sciences</th><th></th><th></th><th></th></th>	<th></th> <th></th> <th></th> <th>Sciences</th> <th></th> <th></th> <th></th>					Sciences			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $									
Pan ID Replicate (mg) Weight (mg) Organisms Value (mg) 1 Control A $22 \cdot 18$ $24 \cdot 32$ 5 0.302 2 B $28 \cdot 32$ $24 \cdot 33$ 5 0.302 3 C $22 \cdot 45$ $23 \cdot 87$ $28 \cdot 43$ 5 0.352 4 D $24 \cdot 87$ $28 \cdot 43$ 5 0.352 5 E $33 \cdot 56$ $24 \cdot 47$ 5 0.32 \cdot 41 7 G $25 \cdot 16$ $24 \cdot 47$ 5 0.32 \cdot 41 8 H $24 \cdot 32$ $37 \cdot 46$ 5 $0 \cdot 32 \cdot 41$ 8 H $24 \cdot 32$ $37 \cdot 36$ 5 $0 \cdot 30^{-50}$ 9 2.5 A $30 \cdot 50$ $32 \cdot 04$ 5 $0 \cdot 30^{-50}$ 10 B $24 \cdot 52$ $24 \cdot 67$ 5 $0 \cdot 30^{-50}$ 11 C $28 \cdot 41^{-7}$ $30 \cdot 42^{-7}$ $5 \cdot 0 \cdot 30^{-7}$ $0 \cdot 30^{-7}$ 12	Test Date:	11-15	-08	Final We	eight Date: 11-24 -08	Sign-off:	NC		
2 B $2x_{32}$ $29_{1}x_{3}$ 5 0.302 3 C $2p_{1}x_{3}$ 2389 5 0.286 4 D 2687 32.63 5 0.352 5 E 2356 24.47 5 0.352 6 F 2582 27.44 5 0.324 7 G 25.16 24.47 5 0.324 8 H 24.32 27.44 5 0.397 9 2.5 A 30.50 32.04 5 0.307 10 B 24.52 24.67 5 0.307 10 B 24.52 24.67 5 0.307 11 C 28.47 30.32 5 0.307 12 D 24.47 30.46 5 0.310 13 E 25.27 24.97 5 0.244 14 F	Pan ID		· ·				Mysid Biomass Value (mg)		
3 C 22.45 2359 5 0.258 4 D 24.87 32.63 5 0.352 5 E 3356 34.47 5 0.250 6 F 2552 27.44 5 0.324 7 G 25.16 26.48 5 0.324 8 H 24.32 37.86 5 0.308 9 2.5 A 30.50 52.04 5 0.308 9 2.5 A 30.50 52.04 5 0.308 9 2.5 A 30.50 52.04 5 0.308 10 B 24.52 24.67 5 0.310 11 C 28.47 30.32 5 0.308 12 D 24.47 30.46 5 0.544 13 E 25.27 24.99 5 0.548	1	Control	A	22-88	24.38	5	0.300		
4 D 26.87 28.63 5 0.352 5 E 2356 24.17 5 6.250 6 F 25.82 27.44 5 0.324 7 G 25.16 26.83 5 0.324 8 H 24.32 27.44 5 0.324 8 H 24.32 27.44 5 0.305 9 2.5 A 30.50 32.04 5 0.305 9 2.5 A 30.50 32.04 5 0.305 9 2.5 A 30.50 32.04 5 0.305 10 B 24.52 24.67 5 0.305 11 C 28.47 30.32 5 0.305 11 C 28.47 30.32 5 0.306 12 D 24.67 30.46 5 0.340 13 E 25.27 24.99 5 0.350 1	2		в	28.32	29.83	5	0.302		
4 D 26.87 28.63 5 0.352 5 E 2356 24.17 5 6.250 6 F 25.82 27.444 5 0.3244 7 G 25.16 26.88 5 0.3444 8 H 24.32 27.86 5 0.305 9 2.5 A 30.50 32.04 5 0.305 10 B 24.52 24.67 5 0.305 11 C 28.487 30.32 5 0.305 11 C 28.487 30.32 5 0.306 12 D 24.97 30.32 5 0.306 13 E 25.27 24.99 5 0.5444 14 F 28.77 30.46 5 0.350 15 G 25.47 24.99 5 0.2944 17 5 A 28.21 29.494 5 0.3300 18	3		С	22.45	2389	5	0.288		
6F 258λ 27.44 5 0.324 7G 25.16 2648 5 0.344 8H 24.32 37.56 5 0.305 9 2.5 A 30.50 32.04 5 0.305 10B 24.32 24.67 5 0.305 11C 28.47 30.32 5 0.363 12D 24.47 25.98 5 0.344 13E 25.27 24.97 5 0.344 14F 28.77 36.46 5 0.344 14F 28.77 36.46 5 0.344 16H 28.07 39.46 5 0.294 175A 28.37 24.47 50.468 16H 28.07 39.46 5 0.350 18B 22.66 24.47 28.47 5 0.340 19C 24.47 28.47 5 0.340 21E 31.87 33.65 5 0.340 22F 27.45 24.47 5 0.342 23G 24.87 24.19 5 0.342 24H 24.82 24.19 5 0.348 2510A 27.90 29.67 5 0.348 29E 24.62 24.32 5 0.346	4		D		28.63	5			
6 F 258λ 27.44 5 0.324 7 G 25.16 2648 5 0.344 8 H 24.3λ 37.56 5 0.303 9 2.5 A 39.50 32.04 5 0.305 10 B 24.3λ 24.67 5 0.305 11 C 28.48 30.3λ 5 0.305 12 D 24.07 25.98 5 0.304 13 E 25.27 24.97 5 0.344 14 F 28.77 36.49 5 0.344 14 F 28.77 36.49 5 0.344 15 G 25.47 36.46 5 0.350 16 H 28.77 36.46 5 0.350 18 B 22.47 24.46 5 0.340 19 C 24.47 28.47 5 0.340 21 E 3	5		Е		24.81	5			
7G 25.16 24.18 5 $0.3,44$ 8H 24.32 37.56 5 0.3_07 9 2.5 A 30.50 32.04 5 0.3_07 10B 24.52 24.67 5 0.3_07 11C 28.47 30.32 5 0.367 12D 24.97 25.98 5 0.344 13E 25.27 24.97 5 0.5474 14F 25.77 24.97 5 0.5444 14F 25.77 24.97 5 0.5444 15G 25.47 24.97 5 0.5444 16H 25.07 24.97 5 0.5403 16H 25.07 24.97 5 0.403 16H 25.07 24.944 5 0.7320 18B 22.474 29.444 5 0.7320 18B 22.464 24.55 5 0.3400 19C 24.477 28.476 5 0.3420 21E 31.87 33.65 5 0.3400 22F 27.45 24.97 5 0.342 23G 24.87 24.19 5 0.342 24H 24.87 24.19 5 0.342 2510A 27.90 29.67 5 0.348 29E 24.62 24.32 5 0.346	6		F	25.82					
8 H 24.32 37.36 5 0.30% 9 2.5 A 30.50 32.04 5 0.30% 10 B 24.52 24.67 5 0.310 11 C 28.48 30.32 5 0.36% 12 D 24.67 30.32 5 0.36% 13 E 25.27 24.97 5 0.344 13 E 25.27 24.97 5 0.5444 14 F 28.77 30.46 5 0.5444 14 F 28.77 30.46 5 0.350 15 G 25.47 30.46 5 0.350 16 H 28.07 39.46 5 0.350 18 B 29.46 94.56 5 0.390 19 C 26.47 28.47 5 0.340 20 D	<u> </u>		G		26.88	5			
92.5A 39.50 32.04 5 0.30° 10B 24.52 24.67 5 0.310 11C 28.48 30.32 5 0.368 12D 24.67 25.98 5 0.3944 13E 25.27 24.99 5 0.5474 14F 28.77 24.99 5 0.5444 14F 28.77 24.99 5 0.5444 14F 28.77 24.99 5 0.5444 15G 25.47 24.99 5 0.2944 16H 25.07 24.94 5 0.2944 175A 28.31 39.96 5 0.350 18B 27.66 24.47 28.41 5 0.386 19C 24.47 28.41 5 0.3400 21E 51.80 33.65 5 0.370 22F 27.45 29.47 50.312 23G 24.84 24.97 5 0.342 24H 24.87 24.19 5 0.342 2510A 27.90 29.61 5 0.346 29E 24.62 24.32 5 0.346	8		н		27.86	5			
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14F $2E.7/$ 30.46 5 0.350 15G 25.49 27.53 5 0.408 16H $2E.07$ 29.48 5 0.249 175A $2E.31$ 29.46 5 0.350 18B 22.66 24.47 $2E41$ 5 0.380 19C 24.47 $2E41$ 5 0.368 20D 27.26 $2E.96$ 5 0.340 21E 31.80 33.65 5 0.312 23G 24.87 24.47 5 0.312 23G 24.87 24.47 5 0.312 24H 24.87 24.19 5 0.274 2510A 27.90 29.61 5 0.342 26B 25.53 27.57 5 0.406 27C 23.33 24.90 5 0.348 29E 24.62 24.32 5 0.346									
15G 25.49 27.53 5 0.408 16H 25.97 29.44 5 0.244 175A 28.31 29.46 5 0.330 18B 22.66 24.47 28.41 5 0.380 19C 24.47 28.41 5 0.386 20D 27.26 28.96 5 0.340 21E 31.80 33.65 5 0.340 22F 27.45 24.47 5 0.342 23G 24.87 24.47 5 0.312 23G 24.87 24.47 5 0.326 24H 24.82 24.19 5 0.342 2510A 27.90 29.61 5 0.342 26B 25.53 27.57 5 0.408 27C 23.33 24.90 5 0.348 29E 24.62 24.32 5 0.346									
16H $25.0/$ 29.48 5 0.294 17 5A $28.3/$ 39.46 5 0.330 18 B 22.66 24.56 5 0.380 19 C 24.47 $28.4/$ 5 0.388 20 D 27.26 28.96 5 0.340 21 E 31.80 33.65 5 0.340 22 F 27.65 24.97 5 0.312 23 G 24.87 26.47 5 0.312 23 G 24.87 26.47 5 0.312 24 H 24.87 24.19 5 0.216 24 H 24.87 24.19 5 0.274 25 10 A 27.90 $29.6/$ 5 0.348 27 C 23.33 27.57 5 0.406 27 C 23.33 24.90 5 0.348 29 E 24.62 24.32 5 0.346									
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25 10 A 27.40 24.61 5 6.342 26 B 25.53 27.57 5 6.406 27 C 23.33 24.40 5 0.314 28 D 31.16 32.84 5 0.348 29 E 24.62 26.32 5 0.346									
26 B 25.53 27.57 5 0.406 27 C 23.33 24.40 5 0.3/4 28 D 31.16 32.84 5 0.348 29 E 24.62 26.32 5 0.346		10			T				
27 C 23.33 24.90 5 0.3/4 28 D 31.60 32.84 5 0.348 29 E 24.62 26.32 5 0.346		10							
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29 E 24.62 26.32 5 0.346					I		0.348		
						1			
31 G 24.09 27.59 5 0.300									
31 0 24.57 24.37 5 0.360 32 H 26.57 24.37 5 0.360									

Americamysis bahia Dry Weight and Biomass Value Data

Client:	Applied I	<u>Marine S</u>	ciences	Test ID #: 31047	Project #	14150
Sample:	MWH	tA-Dr	<u>∖∖</u> Tare W	eight Date: <u>//-17-08</u>	Sign-off:	nic
				eight Date: 11-24-08	Sign-off:	Me
						<u> </u>
Pan ID	Concentratio	m (%)	Initial Pan Weight	Pan + Dry Mysid	Initial # of	Mysid Biomass Value (mg)
		Replicate	(mg)	Weight (mg)	Organisms	value (mg)
33	25	A	22.03	23.36	5	0.2.46
34		B	27.49	29.14	5	0.330
35		С	27.25	29.13	5	0.376
36		D	22.23	23.83	5	0.320
37		Е	26.12	27.84	5	0.344
38		F	25.58	27.24	5	0.302
39		G	34.99	36.40	89	0.3525
40		Н	27.83	29.82	5	0.398
41	50	А	2657	27.78	5	0.242
42		В	28.07	29.98	5	0.302
43		С	31.76	33.25	5	0.298
44		D	24.43	26.26	5	0.366
45		E	30.44	32.03	5	0.318
46	1	F	24.92	26.69	5	0.354
47		G	25.90	27.67	5	0.354
48		н	26.80	28.76	5	0.392
49	100	А	25.83	26.94	5	0.222
50	1	B	25.57	27.44	5	0.37482
51		С	24.18	25.88	5	0.340
52	<u> </u>	D	25.15	27.34	5	0.4350
53		E	28.08	30.04	5	0.3920
54		F	27.15	28.70	5	0.310
55		G	28.94	30.96	5	0.464
56		Н	27.59	29.39	5	6.360
QA 1			27.86	27.85		-0.010
QA 2			24-61	24.62		0.010
QA 3			27.32	27.31		0.010
QA 4			29.60	29.60		0.000
QA 5	· · · · · ·		al.87	al.87		0.000
QA 6	1		25.183	25.50		-0.030
L	<u> </u>				<u> </u>	A

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Appendix E

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Americamysis bahia*

ETIS Sum	mary Repo	ort					•	ort Date: //Link Co			8 (p 1 of 2 D153/3105
Chronic Mysld	Survival, Grov	wth and F	ecundity	Test						Pacifi	c EcoRisl
Start Date:	02-6444-3409 15 Nov-08 16:4 22 Nov-08 08:4 6d 16h	15 P 10 S	est Type: rotocol: pecles: ource:	Growth-Surviv EPA/821/R/02 Americamysis Aquatic Biosys	/014 (2002) bahia			ient: L Ie: C	Lisa Nugent Laboratory Water Crystal Sea 7		
Receive Date:	18-8681-4098 15 Nov-08 16:4 15 Nov-08 16:4 N/A (25.8 °C)	15 N 15 S	ode: laterial: ource: tation:	K2CrO4 Polassium dic Reference To: In House			Clie Pro		Aeference Toxi 4153	cant	
Comparison S	Summary							-			
Analysis No	Endpoint			NOEL	LOEL	TOEL	PMSD	Method	1		
16-3540-2606	7d Survival Ra	te		3.5	7	4.95	16.6%	Wilcoxo	n/Bonferroni A	dj Test	
06-9574-8000	Mean Dry Bion	nass-mg		88.0	1.75	1.24	21.8%	Bonferr	oni Adj t Tesl		
Point Estimate	e Summary										
Analysis No	Endpoint			Effect-%	Conc-mg/L	95% LCL	95% UCL	Method	1		
	7d Survival Ra	te		2.5	3,76	1E-10	5.19	Linear f	Regression (M	LE)	
				10	4.45	1E-10	5.66				
				15	4.72	1E-10	5.85				
				20	4,95	1E -10	6.01				
				25	5.16	1E-10	6.15				
				40	5.72	1E-10	6.56				
				50	6.09	1E-10	6.88				
04-1344-8866	Mean Dry Bior	nass-mg		2.5	0.979	0.186	1.2	Linear I	Interpolation (I	CPIN)	
				5	1.08	0.372	1.58				
				10	1,28	0.744	2.09				
				15	1.48	1.03	2.49				
				20	1,68	1.21	2,86				
				25	2.24	1.37	3.32				
				40	3.95	2.3	4.31				
				50	4.6	4.08	4.96				
7d Survival R	-							.	.		
Conc-mg/L	Control Type		Mean		95% UCL		Max	Std En		CV%	Diff%
0	Control	8	0.925		0.964	0.8	1	D.0189		11.2%	0.0%
0.68		В	0.925		0.964	0.8	1	0.0189		11.2%	0.0%
1.75		7	0,943		0.979	0.8	1	0.0178		10.4%	-1.93%
3.5		7	0.914		0.954	0.8	1	0.0195		11.7%	1.16%
7		6	0,267		0.344	0	0.6	0.0377		77.5%	71.2%
14	B	8	0	0	0	0	0	0	0		100.0%
Mean Dry Bio Conc-mg/L	mass-mg Sum Control Type	mary Count	Mean	95% LCL	. 95% UCL	Min	Max	Std Er	r Std Dev	CV%	Diff%
0	Control	8	0.312		0.328	0.244	0.37	0.0081		14.2%	0.0%
-	Sonto	8	0.312		0.328	0.232	0.382	0.0089		15.7%	-0.6%
		0 7	0.314		0.332	0.252	0.314	0.0153		34.4%	21.6%
0.8B			1 / 44	U.Z.I.J	V.6/0	0.000	0.014	- 0.0100	0.0041	34.470	61,070
1.75								0.0054			
		7 6	0.209	0.198	0.22 0.057	0.166 0	0.264 0.112	0.0054 0.0079	9 0.0301	14.4% 108.0%	32.9% 87.0%

Chronic Mysid Survival, Growth and Fecundity Test

Pacific EcoRisk

Report Date:

Link/Link Code:

7d Survival F	Rate Detail								
Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	Control	1	1	1	0.8	1	0.8	0.8	1
0.88		1	1	1	0. B	0.8	1	1	0.8
1,75		1	1	0.8	1	1	0.8	1	
3.5		1	0.8	D.8	1	1	1	0.8	
7		0	0.2	0.6	0.4	0.2	0.2		
14		0	۵	0	0	0	a	0	0
Mean Dry Bi	omass-mg Detai	1							
Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
D	Control	0.316	0.342	0.346	0.28	0.37	0.244	0.264	0.332
0.88		0.324	0.324	0,325	0.232	0.278	0.382	0.366	0.278
1.75		0.314	0.28	0.242	0.068	0.312	0.23	0.264	
3.5		0.214	0.208	0.166	0.22	0.202	0.264	0.19	
7		0	0.D14	0.112	0.076	0.028	0.014		
14		0	0	0	0	D	0	0	0

4255 Client: Reference Toxicant Organism Log#: ABS Test Material: _____ Potassium dichromate Organism Supplier: _____ Project #: 14153 Test ID #: 31050 Control/Diluent: ____ DI & Crystal Sea @ 25ppt Test Date: 11 - 15 -08 Randomization: 86.0 Control Water Batch: 696 Temp pH D.O. (mg/L) Salinity (ppt) Treatment # Live Organisms SIGN-OFF (mg/L Cr) E (°C) С D F G H new old new old new old A B 5 5 5 5 5 5 5 5 11-15-08 25.8 7,94 1.7 24.3 Control Test Solution Prep: 5 5 5 5 5 5 5 5 24.5 258 7.81 7.8 0.88 WQ: 5 5 5 5 5 5 5 5 7.6 25.6 1.83 24.6 ME(1.75 nitiation Time: 5 5 5 5 5 5 5 1.7 24.5 5 25.8 7.71 1645 ation Signalf: 3.5 24.6 5 5 5 5 5 5 5 5 25.8 7.7 7,49 7 RV 5 5 7.7 5 5 5 5 5 5 25.8 7.11 24.6 14 pH03 Ec04 DOM IIA Meter ID 25.0 25.3 5 8.36 7.7 4 5 5 5 11/16/08 258 7.2 5 5 5 Control 7.62 est Solution Prep: 252 25.2 5 5 5 5 25.8 8.32 7.3 6.5 5 5 5 5 7.69 0.88 New WQ 25.1 25.1 5 5 7.3 6.8 5 5 5 JNC 25.8 8.28 7,68 5 4 5 1.75 Renewal Time: 6.8 5 5 4 4 25.1 25.0 5 5 25.8 8.19 7.63 7.3 5 5 1515 3.5 Renewal-Sign-off: 25.2 25.1 7.63 6.3 5 5 5 5 5 4 5 25.8 7.98 5 7 7.3 8h Cild WQ: 4 6.3 4 3 2 25.8 7.55 25.3 25.0 3 4 4 1.57 3 7.8 14 SL PH12 ECOI ECOS Dolo DOIO INA. Oh12 Meter ID Daie: LI/17/08 Test Solution Prep: 8.1 5 7.9S 24.9 25.4 7.91 5.9 5 5 4 5 5 5 25.6 5 Control 25.6 8.09 75 5.9 25.0 25.5 5 5 5 5 5 5 2 ap 7,87 5 0.88 New WQ: 25.6 25.6 5 5 7.5 5 5 8.09 5 7.92 6.0 5 5 4 15.6 1.75 25.6 25.3 5 7.58.03 7.89 5 4 5 6.0 4 5 5 4 25.6 430 3.5 Renewal-Sign-off 3 25.6 25.b 7.88 7.S 3 2 2 4 3 OKH WO: 2 4 7.83 7 256 5,4 7.SZ 7.79 7.Y 24.8 3 2 2 Z 0 6.0 255 1 25.6 SL 14 phil Ecoy ph 12 An Meter ID DOLD DOIY ELO5 Date: 1/14/08 Test Solution Prep: 5 5 5 25.8 6.3 25.4 5 Ц 7.81 8.30 6.7 24.7 Control 5 5 5 5 5 5 5 25.0 25.6 5 25.8 6.1 7.80 8.27 6.7 0.88 WO: 5 5 5 5 4 25.8 7.80 6.2 25.0 256 5 4 5 1.75 8.24 6.6 JNC 5 5 4 25.8 5 25.0 25.3 4 ч 5 6.0 4 8.15 7.76 100 6.6 3.5 newal-Sign-off: 2 3 2 24.9 25.4 2 U 25.4 6.0 L 2 3 SUR 7.96 7.76 7 6.6 MEC 25.8 25.0 25.6 0 0 0 D 0 O -7.46 7.74 6.1 ١ 14 6.6 AI pH03 ECOS ECOH DHIL DOIO Meter ID DOIL

7 Day Chronic Americamysis bahia Reference Toxicant Test Data

7 Day Chronic Americamysis bahia Reference Toxicant Test Data

Client:	R	eference Toxica	nt	Organism Log#:	4255
Tesi Material: _	Po	tassium dichroma	ate	Organism Supplier:	ABS
Test ID #:	31050	Project #:	14153	Control/Diluent:	DI & Crystal Sea @ 25ppt
Test Date:	11 15.08	Randomization:	8.6.10	Control Water Batch:	696

Treatment	Temp	pł	-	D.O. (mg/L)	Salinit	y (ppt)			#	Live O	rganist	ns			SIGN-OFF
(mg/L Cr)	(°C)	пе₩	old	new	old	new	old	A	в	С	D	Е	F	G	Н	
Control	25.8	8.33	7.73	7.6	7.8	24.8	26.4	5	5	S	Ч	5	Ч	5	5	Date: 11/19/08
0.88	25.8	8.75	7.74	7.4	6.6	75.0	76?	5	5	5	45	Ť	S	4	5	Test Solution Prep: JUR
1.75	25.9	8.32	7.74	7.3	62	25.0		5	5	1	4	5	5	4	5	New WQ: AR
3.5	25.9	8.27	7.71	2.3	5.9	0.25	766	5	4	1	4	5	5	5	4	Renewal Time: 1430
7	25.8	8.09	72	7.3	60	24.9	20.	d	-	(1	3	2	2	-t	Renewal-Sign-off:
14	25.8	7.60	NA	7.2	NM	250	NM	(1	ĺ	-	-	-	-	0	OH WQ AR
Meter ID	W.M	pho3	phiz	Dolo	1014	Earl	Ecol	15	A STATE						416	
Control	25.8	8.32	2.73	6.9	63	24.6	243	5	5	5	4	5	4	4	5	Dale: 11/20/08
0.88	25.8	8.13	7.62	20	47	25:4	24.7	5	5	5	4	4	5	5	Ч	Test Solution Prep:
1.75	25.8	8.01	7.63	20	4.6	254	26.7	5.	5	1	4	5	5	4	5	New We DAP
3.5	25.8	8.02	7.19	20	4.7	25.3	25.3	5	4	-	ч	5	5	5	4	Renewal Time: 1430
7	25.8	2.86	7.71	20	4.9	25.1	24.1	2	-	-	1	3	2	1	1	Renewal-Sign-off:
14	25.8	2.5		68	-	24.9		-	-	-	-	-	~	-	-	Old WQ:
Meter ID	IIA	PHA	0403	DOIY	Doco	ECOI	ELA	i i			100					4.
Control	25.8	8.13	8.25	8.1	5.9	25.2	20-5	5	5	5	4	5	4	4	5	Date: 11/21/08
0.88	25.8	8,08	8 20	1.1	6.7	25:4	26.6	5	5	5	4	4	5	5	4	Test Solution Prep:
1.75	25.8	8.03	8.21	7.5	57	254	26.3	5	SE.	1	54	5	5	4	5	New WQ:
3.5	25.8	8.02	8.22	2.5	5.7	25.3	26.2	5	4	-	4	5	5	Ś	4	Renewal Time:
7	25.8	7.73	8.27	7.5	5-6	25.4	25.9	0	-	-	I	3	2	1	1	Renewal-Sign-off:
14	-	-	-	-	-		-	-	-	-	-	-	-	-	-	W NO
Meter ID	All	deu	1403	POIL	1000	ELOY	Reas			1						
Control	25.7		7.82	THE LOCAL DRIVEN CONTRACTOR OF THE	6.5	Marti	25.9	5	5	5	4	5	4	4	5	Date: 11/22/08
0.88	25.7		7.83		6.2		26.4	5	5	4	4	4	5	5	4	Termination Time:
1.75	25.7		7.83		6.7		26.1	.5	5	1.	4	5	5	314	5	Final Sign-off:
3.5	257		1.82	The second second	6.2	Mag	26.1	5	4	-	4	5	5	5	4	ora the Born
7	25.7		7.89	A DECK STREET, STREET, ST. A.	6.5		26.3		-	-	1	3	2	1	L	2
14	-		-	Ser	-	(Anti-	-	-	-	-	-	-	-	-		
Meter ID	IIA	1	pHII		הוכת		600	1	1		1		120			

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Americamysis bahia Dry Weight and Biomass Value Data

Semula ID:				Test ID #: 31050		14153
- Sample ID.	Potassiu	m dichr	omate Tare We	ight Date: <u>1-17-0</u>	Sign-off:	ma
Test Date:	11-1	5-08	Final We	ight Date: <u>194-08</u>	Sign-off:	THE
Pan	Concentratio	n Replicate	Initial Weight (mg)	Final Weight (mg)	# Organisms	Biomass (mg)
	Control	А	26.78	28.36	5	0.316
2		В	26.44	28.15	5	0.2412
3		С	25.67	27.40	5	6.346
4		D	29.17	30.57	5	0.280
5		Ê	30.02	31.87	5	0.370
6		F	28.15	29.37	5	0.244
7		G	25:35	26.67	5	0.264
8		Н	24.46	26.12	5	0.331
9	0.88 mg/L	Α	24.99	26.61	5	0.324
10		В	10 28,61 35		5	6.324
11		С	25.06	26.36	54	0-26020.325
12		D	24-69	25.85	5	0.232
13		E	25143	26.82	5	0.27%
14		F	26.64	28.55	5	0.362
15		G	27.57	29.40	5	0.366
16		н	24.59	25.98	5	0.278
17	1.75 mg/L	А	28.66	30.23	5	0.314
18		в	29.28	30.78	5	0.280
19		С	24.63	24.91	8 Z 0	
20		D	24.51	25.72	5	0.242
21		E	27.29	27.63	5	0.668
22		F	30.66	32.22	5	0.312
23		G	24.81	25.96	5	0.230
24		Н	25.58	26.90	5	0264
25	3.5 mg/L	A	24.78	25.85		0.214
26		В	30.01	31.05	5	0.208
27		C	23,82	-	50	-
28		D	29.00	29.83	5	0.166
29	-	E	25.03	26.13	5	0.220
30		F	26.43	27.44	5	0.202
31		G	26.32	27-64	5	0.294
32		H	24.20	- 1 25.15	5	6.190

Americamysis bahia Dry Weight and Biomass Value Data

Client:	Reference Toxic	ant Test	Test ID #:31	050 Project	#: 14153
Sample ID:	Potassium dich		eight Date:		
Test Date:	1(-15-	K Final W	eight Date: 11-24-	ot Sign-of	it: Me
Pan	Concentration Replicate	Initial Weight (mg)	Final Weight (mg)	# Organisms	Biomass (mg)
33	7 mg/L A	24.18	- 1	5	P+ \$0
34	В	24.05	~	5NO	- " 10-
35	С	26.32	-	8000	- 2 2 -
36	D	28.93	29.00	5	0.014
37	Е	2641	27-37	5	0.112
38	F	26.62	27-00	5	0.676
39	G	25.40	25.54	5	0.028
40	Н	23.37	23.44	5	0.014
41	14 mg/L A	-	-	5	6.000 0
42	В	-	-	5	6
43	С		-	5	0
44	D			5	C
45	Е	-	-	5	Û
46	F	<u>د</u>	-	5	0
47	G		-	5	6
48	Н	1	-	5	D
Q1		24.56	24.55	-	-0.010
Q2	COMPANY OF L	25.91	25.90	-	-0.010
Q3		27.68	27.68	-	0.000
Q4		25.00	24.99	-	-0.010
Balance ID		r	1		
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Appendix F

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to *Menidia beryllina*

	nmary Repo	rt						Report Date Test Code:	a: 3	0 Nov-08 12: 02-3227	31 (p 1 of 2) - 5 487/31046
Chronic Larva	al Fish Survival a	and Gr	owth Test							Paci	fic EcoRisk
Test Run No: Start Date: Ending Date: Duration:	19-1593-6539 15 Nov-08 11:30 22 Nov-08 09:13 6d 22h	D 5	Test Type: Protocol: Species: Source:	Growth-Surviva EPA/821/R/02/ Menidia beryllir Aquatic Biosyst	014 (2002) na			Analyst: Diluent: Brine: Age:	Jason Walker Laboratory W Crystal Sea 9		
Receive Date:	11-2799-6109 14 Nov-08 14:43 : 14 Nov-08 15:33 21h (11.7 °C)	2	Code: Material: Source: Station:	EFF Effluent Applied Marine MWRA	Sciences	-		Client: Project:	AMS 14150		
Comparison S	Summary										
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	ΤU	Meth	od		
20-5578-9613	7d Survivai Rate		100	>100	N/A	5.2%	1		I Variance t Ty		
17-6240-2220	Mean Dry Biom	ass-mg	100	>100	N/A	17.5%	1	Dunn	ett's Multiple (Comparison 1	est
Point Estimat	e Summary										
Analysis No	Endpoint		Level	Conc-%	95% LCL	95% UCL	TU	Meth			
13-5969-4097	Mean Dry Biom	ass-mg			N/A	N/A	<1	Linea	ar Interpolation	(ICPIN)	
			IC5	>100	N/A	N/A	<1				
			IC10	>100	N/A	N/A	<1				
			IC15	>100	N/A	N/A	<1				
			IC20	>100	N/A	N/A	<1				
			IC25	>100	N/A	N/A	<1				
			IC40	>100	N/A	N/A	<1				
							-				
7d Survival R	ate Summary		IC40	>100	N/A	N/A	<1				
7d Survival R Conc-%	ate Summary Control Type	Coun	IC40 IC50	>100 >100	N/A N/A	N/A N/A	<1	std E	Err Std De	v CV%	Diff%
		Coun 4	IC40 IC50	>100 >100 95% LCL	N/A N/A	N/A N/A	<1 <1	std I 0.005		v CV% 5.13%	Diff% 0.0%
Conc-%	Control Type		IC40 IC50 t Mean	>100 >100 95% LCL 0.956	N/A N/A 95% UCL	N/A N/A Min	<1 <1 Max		013 0.05		
Conc-% 0	Control Type	4	IC40 IC50 t Mean 0.975	>100 >100 95% LCL 0.956	N/A N/A 95% UCL 0.994	N/A N/A Min 0.9	<1 <1 Max	0.009	913 0.05 913 0.05	5.13%	0.0%
Conc-% 0 2.5	Control Type	4 4	IC40 IC50 t Mean 0.975 0.975	>100 >100 95% LCL 0.956 0.956	N/A N/A 95% UCL 0.994 0.994	N/A N/A Min 0.9 0.9	<1 <1 Max 1	0.009	913 0.05 913 0.05	5.13% 5.13%	0.0% 0.0%
Conc-% 0 2.5 5 10	Control Type	4 4 4	IC40 IC50 t Mean 0.975 0.975 0.95	>100 >100 95% LCL 0.956 0.956 0.928	N/A N/A 95% UCL 0.994 0.994	N/A N/A 0.9 0.9 0.9	<1 <1 Max 1 1 1	0.009 0.009 0.010	913 0.05 913 0.05 95 0.0577	5.13% 5.13% 6.08%	0.0% 0.0% 2.56%
Conc-% 0 2.5 5 10	Control Type	4 4 4 4	IC40 IC50 t Mean 0.975 0.975 0.95	>100 >100 95% LCL 0.956 0.956 0.928 1	N/A N/A 95% UCL 0.994 0.994 0.972 1	N/A N/A 0.9 0.9 0.9 1	<1 <1 1 1 1 1	0.009 0.009 0.010 0	913 0.05 913 0.05 95 0.0577 0 0 0	5.13% 5.13% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56%
Conc-% 0 2.5 5 10 25	Control Type	4 4 4 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1	>100 >100 95% LCL 0.956 0.956 0.928 1 1	N/A N/A 95% UCL 0.994 0.994 0.972 1 1	N/A N/A 0.9 0.9 0.9 1 1	<1 <1 1 1 1 1	0.009 0.009 0.010 0 0	913 0.05 913 0.05 95 0.0577 0 0	5.13% 5.13% 6.08% 0.0% 0.0%	0.0% 0.0% 2.56% -2.56% -2.56%
Conc-% 0 2.5 5 10 25 50 100	Control Type	4 4 4 4 4 4 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 0.95	>100 >100 95% LCL 0.956 0.956 0.928 1 1 0.928	N/A N/A 95% UCL 0.994 0.994 0.972 1 1	N/A N/A 0.9 0.9 0.9 1 1 0.9	<1 <1 1 1 1 1	0.009 0.009 0.010 0 0 0 0	913 0.05 913 0.05 95 0.0577 0 0 0 05 0.0577	5.13% 5.13% 6.08% 0.0% 0.0% 6.08%	0.0% 0.0% 2.56% -2.56% -2.56% 2.56%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio	Control Type Control	4 4 4 4 4 4 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 0.95 1	>100 >100 0.95% LCL 0.956 0.956 0.928 1 1 0.928 1 1 1 0.928 1	N/A N/A 0.994 0.994 0.972 1 1 0.972 1 1 0.972 1	N/A N/A 0.9 0.9 1 1 0.9 1 1	<1 <1 1 1 1 1	0.009 0.009 0.010 0 0 0 0.010 0	913 0.05 913 0.05 95 0.0577 0 0 0 05 0.0577 0	5.13% 5.13% 6.08% 0.0% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56% -2.56% 2.56%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio Conc-%	Control Type Control mass-mg Summ	4 4 4 4 4 4 4 8	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 0.95 1	>100 >100 0.95% LCL 0.956 0.956 0.928 1 1 0.928 1 1 1 0.928 1	N/A N/A 0.994 0.994 0.972 1 1 0.972 1 1	N/A N/A 0.9 0.9 1 1 0.9 1 1	<1 <1 1 1 1 1 1 1 1	0.009 0.009 0.010 0 0 0.010 0 0 5 ttd 8	913 0.05 913 0.05 95 0.0577 0 0 05 0.0577 0 0 5 0.0577 0	5.13% 5.13% 6.08% 0.0% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56% -2.56% 2.56% -2.56%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio Conc-% 0	Control Type Control mass-mg Summ Control Type	4 4 4 4 4 4 8 8 9 8 9 9 9 9 9 9 9 9 9 9	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 1 0.95 1 1 1 0.95 1 1	>100 >100 0.95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL	N/A N/A 0.994 0.994 0.972 1 1 0.972 1 95% UCL	N/A N/A 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 Min	<1 <1 1 1 1 1 1 1 1 1 1 1	0.009 0.009 0.010 0 0 0.010 0 0 5 td 8 0.000	913 0.05 913 0.05 95 0.0577 0 0 05 0.0577 0 55 0.0577 0 55 0.0577 0	5.13% 5.13% 6.08% 0.0% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56% -2.56% -2.56% -2.56%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio Conc-% 0 2.5	Control Type Control mass-mg Summ Control Type	4 4 4 4 4 4 ary 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 0.95 1 1 0.95 1 1 .29	>100 >100 95% LCL 0.956 0.956 0.928 1 1 0.928 1 1 0.928 1 1 1.29	N/A N/A 0.994 0.994 0.972 1 1 0.972 1 95% UCL 1.3	N/A N/A 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 1 0.9 1 1 2.28	<1 <1 1 1 1 1 1 1 1 1 1 1 1 3	0.009 0.010 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	913 0.05 913 0.05 95 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 0 0 0.05 0.0577 0 0 0 0 0 0 0 0.0139 07 0.185	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% v CV% 1.07%	0.0% 0.0% 2.56% -2.56% -2.56% -2.56% -2.56% Diff% 0.0%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio Conc-% 0 2.5 5	Control Type Control mass-mg Summ Control Type	4 4 4 4 4 4 4 ary Coun 4 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 0.95 1 1 1 0.95 1 1 2.9 1.23	>100 >100 3 95% LCL 0.956 0.956 0.928 1 1 0.928 1 1 0.928 1 1 1 0.928 1 1 1 0.95% LCL 1.29 1.16	N/A N/A 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.3 1.3	N/A N/A 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 1 0.9 1 1 1 0.9 1 1	<1 <1 1 1 1 1 1 1 1 1 1 1 1 3 1.3 ³ 1.45	0.005 0.010 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	913 0.05 913 0.05 915 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 055 0.0577 0 0 05 0.0577 0 0 0 0 0 0 0 0 0 0.0577 0 0 0 0.0577 0 0 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0139 07 0.0859	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% v CV% 1.07% 15.0% 6.95%	0.0% 0.0% 2.56% -2.56% 2.56% -2.56% -2.56% 0.0% 4.53% 4.26%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio Conc-% 0 2.5 5 10	Control Type Control mass-mg Summ Control Type	4 4 4 4 4 4 4 Coun 4 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 0.95 1 1 1 0.95 1 1 1 0.95 1 1 1.29 1.23 1.24 1.4	>100 >100 3 95% LCL 0.956 0.956 0.928 1 1 0.928 1 1 0.928 1 1 1 0.928 1 1 1.29 1.16 1.2 1.36	N/A N/A 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.3 1.3 1.3 1.27 1.43	N/A N/A 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 1 0.9 1 1 1 0.9 1 1 1 0.9 1 1 1 0.9 1 1 1 1 0.9 1 1 1 1 0.9 1 1 1 1 0.9 1 1 1 1 1 0.9 1 0.9 1 0.9 1 1 1 1 1 0.9 1 0.9 1 0.9 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 3 1.45 1.33 1.45	0.009 0.010 0 0 0 0 0 0 0.010 0 5 0.033 5 0.033 5 0.018 7 0.016	913 0.05 913 0.05 915 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 055 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 05 0.0577 0 0 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0139 07 0.0859 03 0.0892	5.13% 5.13% 6.08% 0.0% 6.08% 0,0% v CV% 1.07% 15.0% 6.95% 6.4%	0.0% 0.0% 2.56% -2.56%
Conc-% 0 2.5 5 10 25 50 100 Mean Dry Bio Conc-% 0 2.5 5	Control Type Control mass-mg Summ Control Type	4 4 4 4 4 4 ary Coun 4 4 4	IC40 IC50 t Mean 0.975 0.975 0.95 1 1 1 0.95 1 1 t Mean 1.29 1.23 1.24	>100 >100 3 95% LCL 0.956 0.956 0.928 1 1 0.928 1 1 0.928 1 1 1 0.928 1 1 1.29 1.16 1.2	N/A N/A 95% UCL 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.3 1.3 1.3 1.27	N/A N/A 0.9 0.9 1 1 1 0.9 1 1 1 0.9 1 1 1 1 28 1 1,13	<1 <1 1 1 1 1 1 1 1 1 1 1 1 1 3 1.3 ² 1.3 ³	0.009 0.010 0 0 0 0 0 0 0.010 0 5 0.033 5 0.015 5 0.016 5 0.016 5 0.016 5 0.016	913 0.05 913 0.05 913 0.05 915 0.0577 0 0 95 0.0577 0 0 95 0.0577 0 0 95 0.0577 0 0 95 0.0577 0 0 97 0.139 937 0.185 937 0.0859 933 0.0892 932 0.127	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% v CV% 1.07% 15.0% 6.95%	0.0% 0.0% 2.56% -2.56% 2.56% -2.56% -2.56% 0.0% 4.53% 4.26%

Analyst: 11- QA:

CETIS Summary Report

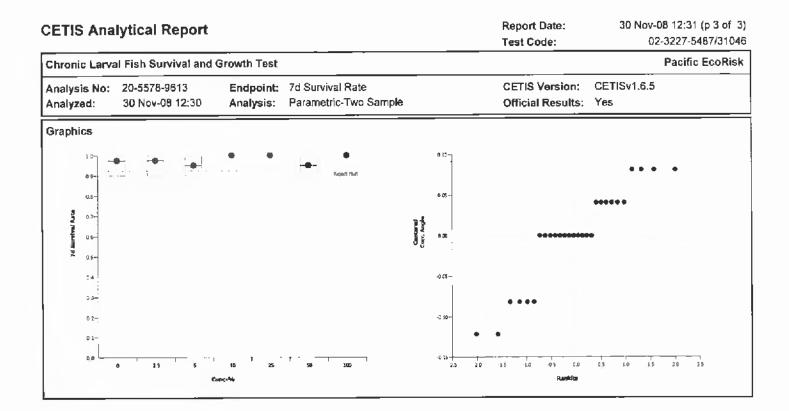
Chronic La	rval Fish Survival	and Grow	th Test	-		Pacific EcoRisk
7d Survival	Rate Detail					
Conc-%	Cantrol Type	Rep 1	Rep 2	Rep 3	Rep 4	
0	Control	1	1	1	0.9	
2,5		1	1	0.9	1	
5		0.9	0,9	1	1	
10		1	1	1	1	
25		1	1	1	1	
50		1	0.9	0.9	1	
100		1	1	1	1	
Mean Dry B	liomasa-mg Detai	1			· ·	
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	
0	Control	1.29	1.31	1.29	1.28	
2.5		1.45	1.27	1	1.21	
5		1.13	1.26	1.33	1.23	
10		1.27	1.45	1.47	1.38	
25		1.25	1.07	1.38	1.22	
50		1.41	1.25	1.16	1.48	
100		1.65	1.52	1.33	1.26	

Report Date: Test Code:

		ort				_	Test	Code.		02-0221	-5487/3104
Chronic Lar	val Fish Survival	and Grow	th Test							Pacif	iic EcoRisl
Analysis No:	: 20-5578-9613	En	dpoint: 7d S	Survival Rate	e		CETI	S Version:	CETISv1.	6.5	
Analyzed:	30 Nov-08 12:3		•	ametric-Two			Offic	al Results:	Yes		
Data Transfo		Zeta	Alt Hyp	Monte Ca	rlo	NOEL	LOEL	TOEL	TU	PMSD	
Angular (Corr	rected)		C > T	Not Run		100	>100	N/A	1	5.2%	
Equal Varian	nce t Two-Sample	a Test									
Control	vs_ Conc-%		Test Stat	Critical	MSD	P-Value	Decision(
Control	2.5		0	1.94	0.112	0.5000	Non-Signi	ficant Effect			
	5		0.655	1.94	0.121	0.2680	Non-Signi	ficant Effect			
	10		-1	1.94	0.0792	0.8220	Non-Signi	ficant Effect			
	25		-1	1,94	0.0792	0.8220	Non-Signi	ficant Effect			
	50		0.655	1.94	0.121	0.2680	Non-Signi	ficant Effect			
	100		-1	1.94	0,0792	0.8220	Non-Signi	ficant Effect			
ANOVA Tabl											
Source	Sum Squ	ares	Mean Squ	are	DF	F Stat	P-Value	Decision(5%)		
Between	0.0322506	62	0.0053751	03	6	1.21	0,3380	Non-Signii	ficant Effect		
Error	0.0929576	66	0.0044265	55	21						
Total	0.1252082	2772553	0.0098016	5787041	27						
ANOVA Assu	umptions				-						
Attribute	Test			Test Stat	Critical	P-Value	Decision(4973			
Variances					Citudai	r - raiww	Decision	1 29)			
v dridtiGCS	Mod Leve	ene Equalil	y of Variance	2.63	3.81	0.0351	Equal Var				
Variances Distribution		ene Equalil Wilk Norma	y of Variance ality	2.83 0.875			Equal Var		on		
Distribution			•			0.0351	Equal Var	iances	on		
Distribution	Shapiro-		•			0.0351	Equal Var	iances	Std Dev	CV%	Diff%
Distribution 7d Survival I	Shapiro-N Rate Summary	Wilk Norma	ality	0.875	3.81	0.0351 0.0032	Equal Var Non-norm	iances al Distributio		CV% 5.13%	Diff% 0.0%
Distribution 7d Survival I Conc-% 0	Shapiro-N Rate Summary Control Type	Wilk Norma	ality Mean	0.875 95% LCL	3.81 95% UCL	0.0351 0.0032 Min	Equal Var Non-norm Max	iances al Distributio Std Err	Std Dev		
Distribution 7d Survival I Conc-% 0 2.5	Shapiro-N Rate Summary Control Type	Wilk Norma Count 4	Mean 0.975 0.975	0.875 95% LCL 0.956	3.81 95% UCL 0.994	0.0351 0.0032 Min 0.9	Equal Var Non-norm Max 1	iances al Distributio Std Err 0.00928	Std Dev 0.05	5.13%	0.0%
Distribution 7d Survival I Conc-% 0 2.5 5	Shapiro-N Rate Summary Control Type	Count 4 4 4	Mean 0.975	0.875 95% LCL 0.956 0.956	3.81 95% UCL 0.994 0.994 0.972	0.0351 0.0032 Min 0.9 0.9 0.9 0.9	Equal Var Non-norm Max 1 1 1	iances al Distributio Std Err 0.00928 0.00928 0.0107	Std Dev 0.05 0.05 0.0577	5.13% 5.13% 6.08%	0.0% 0.0% 2.56%
Distribution 7d Survival I Conc-% 0 2.5 5 10	Shapiro-N Rate Summary Control Type	Count 4 4 4 4	Mean 0.975 0.975 0.95	0.875 95% LCL 0.956 0.928	3.81 95% UCL 0.994 0.994 0.972 1	0.0351 0.0032 Min 0.9 0.9 0.9 1	Equal Var Non-norm Max 1 1 1 1	iances al Distributio Std Err 0.00928 0.00928 0.0107 0	Std Dev 0.05 0.05 0,0577 0	5.13% 5.13% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25	Shapiro-N Rate Summary Control Type	Count 4 4 4 4 4 4	Mean 0.975 0.975 0.95 1 1	0.875 95% LCL 0.956 0.956 0.928 1 1	3.81 95% UCL 0.994 0.994 0.972 1 1	0.0351 0.0032 Min 0.9 0.9 0.9 1 1	Equal Var Non-norm 1 1 1 1 1	iances al Distributio 5td Err 0.00928 0.00928 0.0107 0 0	Std Dev 0.05 0.05 0.0577 0 0	5.13% 5.13% 6.08% 0.0% 0.0%	0.0% 0.0% 2.56% -2.56% -2,56%
Distribution 7d Survival I Conc-% 0 2.5 5 5 10 25 50	Shapiro-N Rate Summary Control Type	Count 4 4 4 4 4 4 4 4	Mean 0.975 0.975 0.95 1 1 0.95	0.875 95% LCL 0.956 0.928 1 1 0.928	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 1 0.9	Equal Var Non-norm 1 1 1 1 1 1 1	iances al Distributio 0.00928 0.00928 0.0107 0 0 0.0107	Std Dev 0.05 0.05 0.0577 0 0 0 0.0577	5.13% 5.13% 6.08% 0.0% 0.0% 6.08%	0.0% 0.0% 2.56% -2.56% -2,56% 2.56%
Distribution 7d Survival 1 Conc-% 0 2.5 5 10 25 50 100	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 4 4	Mean 0.975 0.975 0.95 1 1 0.95 1	0.875 95% LCL 0.956 0.956 0.928 1 1	3.81 95% UCL 0.994 0.994 0.972 1 1	0.0351 0.0032 Min 0.9 0.9 0.9 1 1	Equal Var Non-norm 1 1 1 1 1	iances al Distributio 5td Err 0.00928 0.00928 0.0107 0 0	Std Dev 0.05 0.05 0.0577 0 0	5.13% 5.13% 6.08% 0.0% 0.0%	0.0% 0.0% 2.56% -2.56% -2,56%
Distribution 7d Survival I Conc-% 0 2.5 5 5 10 25 50 100 Angular (Co	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 7 med Sum	Mean 0.975 0.975 0.95 1 1 0.95 1 1 0.95	0.875 95% LCL 0.956 0.928 1 1 0.928 1	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1	Equal Var Non-norm 1 1 1 1 1 1 1 1	iances al Distributio 0.00928 0.00928 0.0107 0 0.0107 0	Std Dev 0.05 0.05 0.0577 0 0 0.0577 0	5.13% 5.13% 6.08% 0.0% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56% -2.56% 2.56% -2.56%
Distribution 7d Survival I Conc-% 0 2.5 5 5 10 25 50 100 Angular (Co Conc-%	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 7 med Sum Count	Mean 0.975 0.975 0.95 1 1 0.95 1 1 0.95 1 Mean	0.875 95% LCL 0.956 0.928 1 1 0.928 1 95% LCL	3.81 95% UCL 0.994 0.972 1 1 0.972 1 1 95% UCL	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 Min	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio Std Err 0.00928 0.00928 0.0107 0 0.0107 0 5td Err	Std Dev 0.05 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577	5.13% 5.13% 6.08% 0.0% 6.08% 0.0%	0.0% 0.0% 2.56% -2.56% 2.56% 2.56% -2.56% Diff%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25 50 100 Angular (Co Conc-% 0	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Mean 0.975 0.975 0.95 1 1 0.95 1 1 mary Mean 1.37	0.875 95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL 1.34	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1 95% UCL 1.4	0.0351 0.0032 Min 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 2.5	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio 0,00928 0.00928 0.0107 0 0.0107 0 0.0107 0 5td Err 0.0151	Std Dev 0.05 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% CV% 5.94%	0.0% 0.0% 2.56% -2.56% 2.56% -2.56% -2.56% Diff% 0.0%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25 50 100 Angular (Co Conc-% 0 2.5	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 4 4 5 7 med Sum Count 4 4	Mean 0.975 0.975 0.95 1 1 0.95 1 1 mary Mean 1.37 1.37	0.875 95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL 1.34 1.34	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.4 1.4 1.4	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 25 1.25	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio 0,00928 0.00928 0.0107 0 0.0107 0 0.0107 0 5td Err 0.0151 0.0151	Std Dev 0.05 0.05 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0515 0.0815	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% CV% 5.94% 5.94%	0.0% 0.0% 2.56% -2.56% 2.56% -2.56% -2.56% Diff% 0.0% 0.0%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25 50 100 Angular (Co Conc-% 0	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Mean 0.975 0.975 0.95 1 1 0.95 1 1 mary Mean 1.37	0.875 95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL 1.34 1.34 1.29	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.4 1.4 1.37	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 25 1.25 1.25	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio 0,00928 0.00928 0.0107 0 0.0107 0 0.0107 0 5td Err 0.0151	Std Dev 0.05 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0577 0	5.13% 5.08% 0.0% 0.0% 6.08% 0.0% CV% 5.94% 5.94% 7.07%	0.0% 0.0% 2.56% -2.56% -2.56% -2.56% -2.56% 0.0% 0.0% 0.0% 2.97%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25 50 100 25 50 100 Angular (Co Conc-% 0 2.5 5	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 4 4 5 7 med Sum Count 4 4	Mean 0.975 0.975 0.95 1 1 0.95 1 1 mary Mean 1.37 1.37	0.875 95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL 1.34 1.34	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.4 1.4 1.4	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 25 1.25	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio 0,00928 0.00928 0.0107 0 0.0107 0 0.0107 0 5td Err 0.0151 0.0151	Std Dev 0.05 0.05 0.0577 0 0.0577 0 0.0577 0 0.0577 0 0.0515 0.0815	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% CV% 5.94% 5.94%	0.0% 0.0% 2.56% -2.56% 2.56% -2.56% -2.56% Diff% 0.0% 0.0%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25 50 100 25 50 100 Angular (Co Conc-% 0 2.5 5	Shapiro- Rate Summary Control Type Control	Count 4 4 4 4 4 4 4 4 4 4 4 5 count 4 4 4 4	Mean 0.975 0.975 0.95 1 1 0.95 1 mary Mean 1.37 1.37 1.33	0.875 95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL 1.34 1.34 1.29	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.4 1.4 1.37	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 25 1.25 1.25	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio 0.00928 0.00928 0.0107 0 0.0107 0 5td Err 0.0151 0.0151 0.0175	Std Dev 0.05 0.05 0.0577 0 0.0577 0 0.0577 0 0.0517 0 0.0515 0.0815 0.0941	5.13% 5.08% 0.0% 0.0% 6.08% 0.0% CV% 5.94% 5.94% 7.07%	0.0% 0.0% 2.56% -2.56% -2.56% -2.56% -2.56% 0.0% 0.0% 0.0% 2.97%
Distribution 7d Survival I Conc-% 0 2.5 5 10 25 50 100 Angular (Co Conc-% 0 2.5 5 10	Shapiro- Rate Summary Control Type Control	Count 4	Mean 0.975 0.975 0.95 1 1 0.95 1 1 mary Mean 1.37 1.37 1.33 1.41	0.875 95% LCL 0.956 0.928 1 1 0.928 1 1 95% LCL 1.34 1.34 1.34 1.29 1.41	3.81 95% UCL 0.994 0.994 0.972 1 1 0.972 1 1 95% UCL 1.4 1.4 1.37 1.41	0.0351 0.0032 Min 0.9 0.9 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 0.9 1 1 25 1.25 1.25 1.41	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	iances al Distributio 0.00928 0.00928 0.0107 0 0.0107 0 5td Err 0.0151 0.0151 0.0175 0	Std Dev 0.05 0.05 0.0577 0 0.0577 0 0.0577 0 0.0515 0.0815 0.0815 0.0941 0	5.13% 5.13% 6.08% 0.0% 6.08% 0.0% CV% 5.94% 5.94% 7.07% 0.0%	0.0% 0.0% 2.56% -2.56% 2.56% -2.56% -2.56% -2.56% 0.0% 0.0% 0.0% 0.0% 2.97% -2.97%

Analyst: JAL QA: W

CETIS™ v1.6.5A



Analyst: 1 QA:

	lytical Repo	ort						-	ort Date: Code:			31 (p 1 of 3 -5487/3104
Chronic Larva	I Fish Survival	and Grow	th Test								Pacif	ic EcoRis
Analysis No: Analyzed:	17-6240-2220 Endpoin 30 Nov-08 12:30 Analysis			• •				IS Version: al Results:	CETISv1. Yes	6.5		
Data Transfor	m	Zeta	Alt H	ур Мо	nte Car	10	NOEL	LOEL	TOEL	TU	PMSD	
Untransformed	1		C > T	Not	Run		100	>100	N/A	1	17.5%	
Dunnett's Mul	Itiple Compariso	on Test										
Control	vs Conc-%		Test	Stat Cri	tical	M\$D	P-Value	Decision	(5%)			
Control			0.634		2,45	0.226	0.6220		ficant Effect			_
	5		0.597			0.226	0.6390	-	ificant Effect			
	10		-1.13	2,4	5	0.226	0.9910	Non-Sign	licant Effect			
	25		0,667			0,226	0.6070		ificant Effect			
	50		-0.35	2.4	5	0.226	0.9310		ificant Effect			
	100		•1. 62	2.4	5	0.226	0.9980	Non-Signi	ificant Effect			
ANOVA Table				_								
Source	Sum Squ	ares	Mean	n Square		DF	F Stat	P-Value	Decision(5%)		
Between				0.02836187 6			1,67	0.1780	Non-Signif	cant Effect	•	
Error	0.3570597		0.017	00284		21						
Total	0.5273509	90255737	0.045	3847143	7991	27						
ANOVA Assu	mptions					-						
Attribute	Test			Te	st Stat	Critical	P-Value	Decision	(1%)			
Variances		quality of	Variance	12.	12.2 16.8 0.0581				riances			
Distribution		Wilk Norma		0.9			0.6790	•	istribution			
Mean Dry Bio	mass-mg Sumn	nary		-								
Conc-%	Control Type	Count	Mear	1 95'	% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control	4	1.29	1.2	9	1.3	1.28	1.31	0.00257	0.0139	1.07%	0.0%
2,5		4	1,23	1.1	6	1.3	1	1.45	0.0343	0.185	15.0%	4.53%
5		4	1.24	1.2	<u>.</u>	1.27	1.13	1.33	0.0159	0.0859	6.95%	4.26%
10		4	1.4	1.3		1.43	1.27	1.47	0.0166	0.0892	6.4%	-8.03%
25		4	1.23	1.1		1.28	1.07	1.38	0.0236	0.127	10.3%	4.76%
50		4	1.32	1.2		1.38	1.16	1.48	0.0271	0.146	11.0%	-2.5%
100		4	1.44	1.3		1.51	1.26	1.65	0.0332	0.179	12.4%	-11.6%
Graphics 20 20 20					•		0 25- 3 20- 2 15- 0.10				•	
6 19- 19- 10- 05-	•	•	+		Rayazî, Mulî		0.05- 0.00 0.00 0.05- 0.05- 0.05- 0.05- 0.05-	• • •				
u s .	0 2,5	\$ ID Conc-%	25	50	Цø	-1	-0 22- -0 22- 2 3	• -10 -15	⊺ Γ -?∎ -0.5 D.0 Raminita	1 5 (a	13 20	25

CETIS™ v1.6.5A

Pacifie 1 Pacifie 1 Chronic Larval Fish Survival and Growth Test Pacifie 1 CETIS Version: CETIS Version: CETIS Version: CETIS Version: Ver	CETIS Analytical Report						Repo Test (rt Date: Code:)8 12:31 (p 1 of -3227-5487/3104			
Name Jack 30 Nov-08 12:31 Analysis Linear Interpolation (ICPIN) Official Results: Yes Insar Interpolation Options Cransform Y Transform Seed Recamplose Exp 95%; CL Method Insar Interpolation Insar Interpolation Seed Recamplose Exp 95%; CL Method Insar Interpolation Insar Interpolation Seed Recamplose Exp 95%; CL Method Insar Interpolation Insar Interpolation Seed Recamplose Exp 95%; CL Method Insar Interpolation NA NA NA Six VI Six VI Six VI Six VI Insar Interpolation NA NA <1 NA NA Six VI NA NA Six VI <	Chronic La	arval Fish	Survival a	ind Grow	vth Test			_					Pacific EcoRis
Insear Interpolation Options Cransform Y transform Seed Resamples Exp 95%, CL Math.od Jinear Linear 5785166 280 Yes Two-Point Interpolation Joint Estimates	Analysis N	o: 13-59	69-4097	Er	ndpoint:	Mean Dry Bion	nass-mg		-	CETI	S Version:	CETISv1.6.5	
V Transform V Seed Resamplex Exp 96% CL Method Linear 5795166 280 Yes Two-Point Interpolation Joint Estimates	-		w-08 12:31	1 A r	nalysis:	Linear Interpol	ation (ICPIN)			Offici	al Results:	Yes	
Integr Linear 5795188 280 Yes Two-Point Interpolation Paint Estimates evel Conc.% 95% LCL 95% UCL 10 95% UCL 95% UCL <td< td=""><td>inear inte</td><td>erpolation</td><td>Options</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	inear inte	erpolation	Options										
Point Estimates Level Conc-% 95% LCL 95% UCL TU 96% LCL 85% UCL C2.5 >100 N/A N/A C1 N/A N/A C1 N/A N/A C10 N/A N/A C1 C25 >100 N/A N/A C1 N/A N/A C1 N/A N/A C1 N/A N/A C1 C25 C0ntrol Type Count Mean MIn Max Stat Er Std Dev CV% DIff% 00% Control Y C1	K Transfor	m YT	'ransform	Se	eed	Resamples	Exp 95%						
Level Conc.*// 95% LCL 95% LC 95% LC 9	Linear	Lin	ear	57	795186	280	Yes		Two-P	oint Interpo	latioл		
C25 >100 N/A N/A <1	Point Estin	mates					<u> </u>	_					
C25 >100 N/A N/A <1	evel C	onc-%	95% LCL	95% UC	۲	τU	95% LCL	95%	ŲCL				
CS >100 N/A N/A <1				N/A			N/A	N/A					
C10 N/A N/A N/A N/A N/A N/A C15 >100 N/A N/A N/A N/A N/A C25 >100 N/A N/A N/A N/A N/A Mean Dry Biomass-mg Summary Calculated Variate CV% Diff% Control 4 1.29 1.26 1.31 0.00253 0.0189 15.0% 4.53% 5 4 1.24 1.13 1.33 0.0167 0.0889 6.95% 4.26% 10 4 1.41 1.27 1.47 0.0185 10.0% -2.5% 5 4 1.23 1.07 1.38 0.0226 0.179 10.3% 4.76% 100 4 1.44 1.26 1.66 0.0326 0.146 11.0% -2.5%			N/A	N/A		<1	N/A	N/A					
$ \begin{array}{c c15 \ > 100 \ N/A \ N/A \ N/A \ < 1 \ N/A \ N/A \ > 1 \ > 1 \ N/A \ > 1 \ N/A$				N/A		<1	N/A	N/A					
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						<1		N/A					
CCA0 >100 N/A N/A N/A N/A N/A Mean Dry Biomass-mg Summary Calculated Variate Conc-% Control Type Count Mean Min Max Std Err Std Dev CV% Diff% 0 Control 4 1.29 1.28 1.31 0.0253 0.0139 1.07% 0.00% 2.5 4 1.23 1 1.45 0.0337 0.185 15.0% 4.53% 10 4 1.23 1.07 1.38 0.0232 0.127 10.3% 4.76% 25 4 1.23 1.18 1.48 0.0266 0.146 11.0% -2.5% 100 4 1.42 1.26 1.65 0.0326 0.145 11.0% -2.5% 100 4 1.24 1.28 1.33 1.28 1.35 1.35% 4.76% Mean Dry Blomass-mg Detail Conc-% Control Type Rep 1 Rep 2 Rep 3 Rep 4 Coc 0 Control Type Rep 1 Rep 3 Rep 4 - - - - 1 1.25 1.65 1.27 1 1.21 - - - -						<1							
CCS >100 N/A N/A <1 N/A N/A Mean Dry Blomass-mg Summary Calculated Variate Conc-% Control Type Count Mean MIn Max Std Err Std Dev CV% Diff% 0 Control 4 1.29 1.28 1.31 0.00253 0.0139 1.07% 0.0% 2.5 4 1.23 1 1.45 0.0337 0.185 15.0% 4.53% 5 4 1.24 1.27 1.47 0.0163 0.0892 6.95% 4.26% 10 4 1.24 1.27 1.47 0.0163 0.0892 6.95% 4.26% 100 4 1.24 1.26 1.66 0.0326 0.146 11.0% -2.5% 100 4 1.32 1.16 1.48 0.0266 0.146 11.0% -2.5% Mean Dry Blomass-mg Detail Concol Rep 1 Rep 2 Rep 3 Rep 4													
Calculated Variate Cantrol Type Cont Mean Min Max Std Dev CV% Diff% Conc-% Control 4 1.28 1.31 0.00253 0.0139 1.07% 0.0% 2.5 4 1.23 1 1.45 0.00337 0.185 15.0% 4.53% 5 4 1.23 1 1.45 0.0037 0.185 16.0% 4.53% 10 4 1.27 1.47 0.0163 0.0892 6.95% 4.26% 50 4 1.32 1.18 1.48 0.0236 0.177 10.3% 4.76% 100 4 1.44 1.26 1.65 0.0326 0.177 12.4% -11.6% Mean Dry Biomass-mp Detail Control 1.28 1.31 1.29 1.24 - - - - - 0 Control 1.28 1.31 1.29													
Control Type Count Mean Min Max Std Err Std Dev CV% Diff% 0 Control 4 1.29 1.28 1.31 0.00253 0.0139 1.07% 0.0% 2.5 4 1.23 1 1.45 0.0337 0.185 15.0% 4.53% 5 4 1.24 1.13 1.33 0.0157 0.0859 6.95% 4.26% 10 4 1.41 1.27 1.47 0.0163 0.0892 6.4% $= 8.03\%$ 25 4 1.23 1.07 1.38 0.0232 0.127 10.3% 4.76% 50 4 1.32 1.16 1.48 0.0266 0.146 11.0% -2.5% 100 4 1.44 1.26 1.65 0.0326 0.179 12.4% -11.6% Mean Dry Biomass-mg Detail Control Type Rep 1 Rep 2 Rep 3 Rep 4 - - - - -<								_	ul Var				
Control Control 4 1.29 1.28 1.31 0.00253 0.0139 1.07% 0.0% 2.5 4 1.23 1 1.45 0.0337 0.185 15.0% 4.26% 5 4 1.24 1.13 1.33 0.0157 0.0869 6.95% 4.26% 10 4 1.42 1.47 0.0163 0.0892 6.4% 8.03% 25 4 1.23 1.07 1.38 0.0232 0.127 10.3% 4.76% 50 4 1.32 1.16 1.48 0.0266 0.146 11.0% -2.5% 100 4 1.42 1.26 1.65 0.0326 0.179 12.4% -11.6% Mean Dry Blomass-mg Detail Control Type Rep 1 Rep 2 Rep 3 Rep 4 -0 -0.179 12.4% -11.6% 2.5 1.45 1.27 1 1.21 -1.28 -1.25 -1.18 -2.25 2.						B41-	_						
2.5 4 1.23 1 1.45 0.0337 0.185 15.0% 4.53% 5 4 1.24 1.13 1.33 0.0157 0.0859 6.95% 4.26% 10 4 1.4 1.27 1.47 0.0163 0.0899 6.4% -8.03% 25 4 1.23 1.07 1.38 0.0232 0.127 10.3% 4.76% 50 4 1.32 1.16 1.48 0.0266 0.146 11.0% -2.5% 100 4 1.44 1.26 1.65 0.0326 0.179 12.4% -11.6% Mean Dry Biomass-mg Detail Conc-% Control Type Rep 1 Rep 2 Rep 3 Rep 4 0 Control 1.29 1.31 1.29 1.28 2.5 1.45 1.27 1 1.21 5 1.13 1.26 1.33 1.23 10 1.27 1.45 1.47 1.38 25 1.13 1.25 1.16 1.48 26 1.51 1.25 1.16 1.48 26 1.52 1.33 1.22 50 1.141 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26 Graphics $\frac{1}{10}$	_		type										·
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$													
100 4 1.44 1.26 1.65 0.0326 0.179 12.4% -11.6% Control Type Rep 1 Rep 2 Rep 3 Rep 4 O Control Type Rep 1 Rep 3 Rep 4 0 Control 129 1.31 1.29 1.28 2.5 1.45 1.27 1 1.21 5 1.13 1.25 1.33 1.23 1.00 1.27 1.45 1.47 1.38 25 1.25 1.07 1.38 1.22 50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26													
Mean Dry Blomass-mg Detail Conc-% Control Type Rep 1 Rep 2 Rep 3 Rep 4 0 Control 1.29 1.31 1.29 1.28 2.5 1.45 1.27 1 1.21 5 1.13 1.26 1.33 1.23 10 1.27 1.45 1.47 1.38 25 1.25 1.07 1.38 1.22 50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26 Graphics 1.95 1.52 1.33 1.26													
Conc-% Control Type Rep 1 Rep 2 Rep 3 Rep 4 0 Control 1.29 1.31 1.29 1.28 2.5 1.45 1.27 1 1.21 5 1.13 1.26 1.33 1.23 10 1.27 1.45 1.47 1.38 25 1.25 1.07 1.38 1.22 50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26						1,20	1.00		20				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					B 1	Den 1							
2.5 1.45 1.27 1 1.21 5 1.13 1.26 1.33 1.23 10 1.27 1.45 1.47 1.38 25 1.25 1.07 1.38 1.22 50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26 Graphics $t_{a_{a_{a_{a_{a_{a_{a_{a_{a_{a_{a_{a_{a_$			туре										
5 1.13 1.26 1.33 1.23 1.38 1.23 1.25 1.25 1.45 1.47 1.38 1.22 50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26		Control											
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$													
25 1.25 1.07 1.38 1.22 50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26 Graphics													
50 1.41 1.25 1.16 1.48 100 1.65 1.52 1.33 1.26 Graphics													
100 1.65 1.52 1.33 1.26 Graphics													
Graphics													
	100			1.65	1,52	1.33	1,26						
14 14 14 14 14 10 08 06 06 06 06	Graphics												
10 C 08- 06- 04-						•							
0.6-			•										
a2-													
20 40 60 ma 100 12m			r i ⊓ ¥0			1800 12	la la						

Test Material:][Applied MWH	I <u>Mariae</u> A - D	Sciences 19 14	150	Organism S	m Log#: Supplien Diluent:	47	DI + Crystal Sea @ 25 ppt			
Treatment (% Effluent)	Temp (°C)	p new	H pld	D.O. (ing/L) old	Salinity (ppt)	A	t Live O B	rganism: C	s	SIGN-OFF	
Control	25.9	7.92		7.7		24.3	10	10	10	10	11, 15.08	
2.5	251	7.92		7.8	-	24.5	10	10	10	10	Sample ID 20926	
5	25.9	7.92		הר		24.5	10	10	10	10	Test Solution Prep	
10	25.1	7,91		7.7		24.5	10	10	10	10	New WO MEL	
25	25.4	1.88		7.9		24,4	10	10	10	10	Initiation The	
50	25.4	7.85		8.0		24.2	10	10	10	10	Inumation Signoff	
100	25.9	7.79		8.5		24.0	10	10	10	10		
Meter ID	ILR	DH03		DOIL		Ec 04						
Control	256	8.33	735	7.7	5.8	24.9	10	10	10	10	Dave 11/110/08	
2.5	25,6	8.31	7.37	7.4	6.4	25.2	10	10	7	10	Sample ID 20926	
5	25.6	8.29	7.44	7.4	G.I	25.2	9	97	10	10	Test Solution Prep	
10	25.6	8.25	7.41	7.5	58	25.2	10	10	10	10	New WQ JMC	
25	25.10	8.14	7.58	7.5	5.9	25.1	10	10	10	10	Renewal Time	
50	25.6	8.00	77	8.1	60	25.1	10	9	9	10	Renewal Stepolf.	
100	25.6	7.78	7.82	8.1	5.8	25.0	10	10	10	10	OH WOAR	
Meter ID	lin	POTIZ	phil	Dolo	1012	ECOL						
Control	25.9		2.94	7.3	5.9	24.8	10	10	10	9	11/17/08	
2.5	258		7.98		5.7	25.0	10	10	7	10	Sample ID ZOGLG	
5		8.44	801	7.3	5.8	25.1	9	9	10	10	Test Solytuon Prep	
10	258		7.96		5.5	25.0	10	10	10	10	New WQ JNC	
25	15.8	8.34	2.04	-	5.7	25.0	10	10	10	10	Renewal Times	
50	256	8.22		7.9	5.3	24.9	10	9	9	10	Kenewal Signol	
100	258		1642	8.6		24.9	10	ID	10	10	Old WQ	
Meter ID	IA	PH03	pH03		2012	ECOI						
Control	25.7	8.25	7.84	7.1	253	24.8	10	10	10	٩	0000 (1/18/08	
2,5	75.7	8.23	7.85	7.0	5.8	24.9	10	10	9	10	Sample ID 20926	
5	257	8.21	7.89	7.1	5.5	24.9	9	9	10	10	Test Solution Prep	
10	25.7	~	7.88	7.1	5.7	24.9	10	10	10	10	New WQ JNC	
25	25.7		7.45	7.2	5.5	24.8	10	10	10	10	Renewal Turier	
50	25.7	7.91	8.02	7.6	5.5	14.5	10	হ	9	10	Renewal Sugnoff	
100	23.7	7.67	8.04	8.9	5.3	24.3	10	10	10	10	Old WQ RY	
Meter ID	IIA	PHI	PH 12		DOIY	ECON						

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

Test Material: Test ID#:	31	<u>mwi</u> 046	Project #:	iry 141	50	Organism Se	upplier:		DI + Cn	Age:		
Test Date:			1-	15-28	s	Control Water	Batch		k	995		
Treatment (% Eiffuent)	Temp (°C)	new pi	H old	D,O. (m <u>g/L)</u> old	Salinity Lpp0	A	Live Or B	ganisms C	p	SIGN-OFF	
Control	25.6	8.27	7.89	7.0	5,9	24.6	10	10	10		Dave 11/10/06	
2.5		8.29	7.87	7.3	\$7	24.7	10	10	7		2092-6	
5	25.6		7.19	7.3	5.5	24.7	9	9	10	Ø	JPL	
10	75.6	\$25	7.84	7.4	SS	24.7	10_	10	10	10	Nen WQ	
25	25.1	6.16	7.90	7.5	5.4	24.6	10	10	10	10	Renewal Time	
50	25.6	10.8	7.97	7.5	5.5	24.4	10	tot	9	10	Renewal Signaff	
100	75.6	PHT2	801	(APTI	~56	EE OY	10	10	10	ю	AF	
Meter ID	JA	0212	Phos	paly	110	EC04				-	Date	
Control	Z5.7	8.32	779	7.5	5.6	24.8	р	10	10	9	11/26/04 Sample ID	
2.5	25,7	832	783	4.2	5.6	24.9	U	10	9	σ	Deg 2.6	
5	25.7	8.31	782	7.3	5.4	24.9	9	9	(D	10		
10	25.7	827	785	7.4	5.3	24.9	10	10	(0	(0	Ma	
25	25.7	8.17	7.87	15	5.3	24.8	10	10	10	10	Reneval Signoff	
50	25,7	8.DI	787	7.8	50	24.9	10	1	٩	(2)		
100	25.7	7-79	795	8.2	4.7	24.8	10	(0)	1	(ù	2004	
Meter ID	11pr	PH12	PHIZ	J014	D014	ECO1				0		
Control	25,9	811	7.83	7.6	6.0	25.2	10	10	10	9	Dette - 21-08	
2.5	25.9	8.10	7.80	7.4	5.7	25.1	10	[0	9	10	Sample D 20106 Test Solution Prep	
5	25.9	8.10	7.77	7.6	5.6	25.1	9	9.	10	р	New WQ	
10	25.9	8.08	7.74	7,7	5.5	25.0	10	10	10	40	Mom	
25	25.9	8.05	7.90		5.8	24.8	10	10	٥)	to	Renewal Support	
50	25.9	8,00	7.90		6.0	24.3	10	9	9	10	CN DW bio	
100	25.9	7.92	802		55	275	10	10	10	(0	kom	
Meter ID	IIK	pHII	DHII	Dory	Dory				0.00		Date	
Control	25.8	:	7405		6.0	25.8	10	10	10	9	11/22/09	
2_5	26.8		7.64		5.8	25.7	10	10	9	10	Certranslick Time 0915	
5	258	-	773		5.9	25.8	9	9	10	10	Terministion Signed	
10	26.8		771		5.8	25.8	10	10	10	10	- TARG	
25	25.8	12.13	7.93		5.7	25.2	10	10	01	10		
50	25.8		783		53	25.1	10	9	9	10		
100	25.8		2.95	_	5.4	24.3	10	0	10	10		
Meter ID	AIA		P103		0014	8604		1				

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

Chronic Inland Silverside Dry Weight and Biomass Data

Client:		Marine S	Sciences 1	Cest ID #: 310	46 Project #	#14150
Sample:	111	N IL	Tare Wei	gnt Date: <u>//~/7~0</u>	Sign-oir	
Test Date:	11-1	5-08	Final Wei	ght Date: <u>//- アイ</u> フ	Sign-off	
						T
Pan ID	Concentr	ation Replicate	Initial Pan Weight (mg)	Final Pan Weight	Initial # of Organisms	Biomass Value (mg)
<u> </u>		represe		(mg)		
<u> </u>	Control	A	185.18	198-03	10	1.295
2		B	16856	141.68	10	1.3/2
3		С	161.95	174-80	10	1.295
4		D	167.28	180.11	10	1.283
5	2.5	А	167.04	181.53	10	1.449
6		В	161.79	174.52	10	1.273
7		С	176.95	186.97	10	1.002
8		D	157-68	169.75	10	1.207
9	5	A	(78.44	181,70	10	1.12600
10		В	163.92	176.51	10	1.157
11		С	173.03	186-36	10	1.353
12		D	163.29	175.56	10	1.227
13	10	A	160.37	173.11	10	1.274
14		B	177.57	192.07	10	1.4 50
15		C	171.12	(15.85	10	1.473
16		D	183.07	196.90	10	1.389
17	25	A	176.49	189.04	10	1.255
	2.)	B	184.64	195.31	10	1.067
18		C	185.43	199.19	10	1.376
19				197.71		1.221
20		D	185.56		10	
21	50	A	152.13	196.23	10	1.410
		В	175-45	187.96	10	1.251
23	ł	С	181-99	193.56	10	
24	<u> </u>	D	182.22	196.98	10	1.476
25	100	A	170.95	187.46	10	1.651
26		В	188.06	203.27	10	1.521
27		С	179.45	192.77	10	1.332
28		D	171.65	184.23	10	1.158
QA 1			167.97	168.00		
QA 2	1		175.69	175.70		
QA 3			119.48	119.46		
Balance IL		,	1	1	Final States	

Appendix G

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Menidia beryllina*

ETIS Sum	mary Repo		Report Date: Test Code:		01 D	ec-08 11:05 15-3411-4	5 (p 1 of 2) 317/31049					
Chronic Larva	Fish Survival a	ind Gr	owth Test								Pacific	: EcoRisk
Start Date:	15 Nov-08 12:05 Protocol: 8 22 Nov-08 11:15 Species: 8		: Growth-Survival (7d) EPA/821/R/02/014 (2002) Menidia beryllina Aquatic Biosystems, CO						n Villanueva atory Wate al Sea			
Receive Date:	17-0698-4462 15 Nov-08 12:03 15 Nov-08 12:03 N/A (25.8 °C)		Code: Material: Source: Station:	KCI Potassium chi Reference To: In House				Client: Project:			ant	
Comparison S	Summary											
Analysis No 11-8178-4333 12-2977-0287	Endpoint 7d Survival Rate Mean Dry Biom		0.5 0.5	L LOEL 1 1	TOEL 0.707 0.707	PMSD 17.0% 17.8%	TU	Dun	Method Dunnett's Multiple Comparison Test Dunnett's Multiple Comparison Test			
Point Estimat	e Summary											
Analysis No	Endpoint		Leve	l Conc-g/	L 95% LCL	95% UCL	τU	Met	thod			
03-7103-5061	7d Survival Rat	e	EC2 EC1 EC1 EC2 EC2 EC2 EC4 EC4	0 0.936 5 0.977 0 1.01 5 1.04 0 1.12	0.689 0.617 0.868 0.911 0.948 1.05 1.11	0.92 1.01 1.05 1.08 1.11 1.18 1.23		Line	Linear Regression (MLE)			
16-3238-7402	Mean Dry Biom	iass-m		5 0.15 0.301 0.581 0.819 0 1.01 5 1.04 1.13	0.0136 0.0271 0.0668 0.131 0.321 0.708 1.03 1.11	0.845 1.42 1.29 1.18 1.11 1.12 1.24 1.3		Line	ear Inte	rpolation (IC	CPIN)	
7d Survival R	tate Summary					-						
Conc-g/L	Control Type	Cou	nt Mea	•••	L 95% UCL		Max		i Err	Std Dev	CV%	DIff%
0 0.5 1 1.25 1.5 2	Control	4 4 4 4 4	0.97 0.95 0.77 0.4 0.07 0	0.928 5 0.704 0.339	0.994 0.972 0.846 0.461 0.111 0	0.9 0.9 0.5 0.2 0	1 1 0.9 0.6 0.2 0	0.0 0.0 0.0	0913 105 346 298 175	0.05 0.0577 0.189 0.163 0.0957 0	5.13% 6.08% 24.4% 40.8% 128.0%	0.0% 2.56% 20.5% 59.0% 92.3% 100.0%
	mass-mg Sumr	nary										
Conc-g/L	Control Type	Соц	nt Mea	in95% LC	L 95% UCL		Ma		d Err	Std Dev	CV%	Diff%
0 0.5 1 1.25	Contral	4 4 4	1.35 1,24 1.1 0.55	1.18 1.03	1.39 1.3 1.17 0.655	1.24 1.05 0.908 0.443	1.4 1.4 1.3 0.8	1 0.0 5 0.0)18)287)34)312	0.0988 0.157 0.185 0.171	7.3% 12.7% 16.9% 28.9%	0.0% 8.31% 18.8% 56.4%
1.5		4 4	0.00 0	51 0.0308 0	0.0912 0	0 0	0.1 0	71 0.0 0	0148	0.081 0	133.0%	95.5% <u>100.</u> 0%

CETIS™ v1.6.5A

						lest code.	10-0411-40171010-12
Chronic La	val Fish Survival	and Grow	th Test				Pacific EcoRisk
7d Survival	Rate Detail						
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4		
0	Control	0.9	1	1	1		
0.5		0.9	1	0.9	1		
1		0.9	0.9	0.5	0.8		
1.25		0.2	0.6	0.4	0.4		
1,5		0	0	0.2	0.1		
2		0	0	0	0		
Mean Dry B	liomass-mg Detai	I					
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4		
0	Control	1.42	1.24	1.31	1.45		
0.5		1.05	1.32	1.18	1.41		
1		1.09	1.35	0.908	1.04		
1.25		0.443	0.827	0.601	0.492		
1.5		0	0	D.171	0.073		
2		0	0	0	D		

000-034-164-1

Client: Test Material:			e <mark>rence Toxi</mark> assium Chlo			Organism Organism St	Log#: _ .pplier: _	42	<u>86</u> ABS	Age:	<u> </u>
Test ID#:		049	Project #:	141.	52	Control/E	Diluent: _		<u>)] + Cŋ</u>	<u>istal Sea</u>	@ 25 pos
Test Date:	I	1.15.0	8			Control Water	Baich; _		60	15	
Treatment (g KCI/L)	Temp ("C")	p) new	H old	D.Q. (c new	mg/L) cid	Salinity (ppt)	A	Live On B	ganisms C	D	SIGN-OFF
Control	258	7.94	E1/20	7.9		24.3	10	10	10	10	11-15-08
0.5		7,95		7.7		25.0	10	10	10	10	Sample ID
1	25.8	7.95	Harring.	7.7	and and	25.6	10	10	10	10	Test Sol RV Prep
1.25	25.8	7,95		7.6		25.7	10	10	10	10	New WOMEC
1.5	25.8	7.96		7.6		26,1	10	10	10	10	1205
2	25.8	7.94		7.7		26.6	10	10	10	10	Instantin Root
1119						Ma				L.	
Meter ID	UA	PHOS		12014		Ec04	THE I	- 20	-		. 1. 1.
Control	256	8.34	1.53	8.0	6.5	24.9	10	10	10	10	N/1608
0.5	25.6	8.34	7.53	7.9	6,9	25.5	9	10	9	10	Sample [D
1	25.6	8.34	7.55	7.9	6.5	26.0	9	9	8	10	Test Solution Prep.
1.25	-		7.93	7.8	G.1	26.2	9	10	7	7	JNC JNC
1.5		8.35	7,52	7.8	6.5	26.4	2	L	9	4	Revend Time 1510
2		8.36	7.48	7.8	6.5	27.2	0	2	2	2	Renewal Signoff
- Ale				1 2 1 1 1 1 1 1 1	4					2.3	on we SL
Meter ID	IIA	PHIZ	oh12	DOLO	7010	ECOI	301	100	177	1-3	
Control	\$58	6 .	7.86	7.7	5.6	248	10	to	10	10	Dat 17.08
0.5	25.8	<u> </u>	7.87	21	5.8	25.5	9	10	9	10	Sample ID
1	25.8	14.0	7.88	7.0	5.7	260	9	9	6	(0	Test Solution Prop
1.25	25.8	21.9	7.84	17.0	5.6	26.1	7	10	6	7	New WOAR
1.5	25.8	816	7.94	69	5.1	76.5	I	T	7	3	Renewal Time
2	25.1	8.16	1.99	69	5.1	27.0	-	0	6	0	Renewal Support
11153			NAT		Serie I	0 110		6.	Q	C.	OH WO NO
* Meter ID	HA	phil	0412	Dolo	Dov4-	Ecoy	E	and in		1	14-15- N
Control	25.9	5.14	12	24	5.7	248	10	10	10	10	Date 11/18/08
0.5	15.8	8 74	7 73	27	5.7	25.6	q	10	9	10	Sample ID
1	259	8.35	17	27	5.5	26.1	9	9	5	10	Test Solution Prop
1.25	268	8.30	177	177	5.2	26.3	3	影	5	7	Harn WO AD
1.5	24.9	8.20	9.82	171	5.5	26.5	1	0	6	3	Revensi Tune 1415
2	-	10-22		-		(W.)	-	-	-	-	Randon af Signald
					and a		1.41				Of Der
Meter ID	NA	0	0.1	10012	0610	Ecol		1	1	H-TA	1 and

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

	Reference Toxicant Potassium Chloride			Organism Log#: <u>425~6</u> _Age: 		<u>q</u>					
Test Material:					57	-				stal Sea	∠ 4€ 25 ppi
		1.15.0				Control Water				95	
TCAT ENGLO.	6	<u>u a e</u>	С						_	_	
Treatment	Temp			D.O. (mg/L)	Salinity	*	Live Or	ganisms		SIGN-OFF
(g KCI/L)	(0)	new	bla	new	bla	(ppt)	A	B	С	D	0.0
Control	25.7	8.39	1.80	6.8	6.0	24.6	10	10	10		Dale 11/19/10/5 Sample 10
0.5	25.7	8.40	7.02	6.9	6.5	25.4	a	10	9	10	Test Solution Prep
	25.7	8.40	7.8	6.9	28	25.9	9	9	5	9	Sew
1.25	257	6.39	282	6.7	56	26.1	3	7	5	6	New WQ JNC Renewal Time
1.5	25.7	8.39	7.96	6.8	5.5	26.4	0	-	3	2	1130
2	-	-	-	1	-	-	-	-	-	-	Renewal Signaft
	B ^t		A STARY	No. of Street, or other				D.B.			OID WQ AP
Meter ID	Inr	рни	pho3	0012	Dolo	Ecos					
Control	25.8	8.33	7.68	6.8	4.9	24.6	10	10	10	10	Date 11/20/08
0.5	25.8	8.23	7.79	6.9	4.8	25.7	9	10	9	10	Sample ID
· ,	25.8	831		6.9	4.8	26.59	9	٩	5	9	Test Solution Prep
1.25	25.8	829	7.73	6.9	4.8	26.4	2	7	5	5	New WQ
1.5	25.8	831	7.84	69	5.3	26.6	-		2	1	Restor of Time
2	-	8.36	-	6.3	-	27.0	-	-	-	-	SLR
		N.E.S.S.			1-1		124				Old WQ
Meter ID	١١A	PH12	pH03	D014	0010	ELOI					
Control	25.9	8,05	7.79	7.7	6.0	25.2	10	10		10	
0.5	25.9	9.00	7,78	7.6	6.0	25.9	9	10	9	10	Sample ID
l	25 A	3.08	7.79	7.7	5.5	26.4	9	9	5	8	Test Solution Prep
1.25	25.9	8.08	7.82	216	5.7	26.6	2	6	5	4	New WQ.
1.5	25.9	8.09	7.38		5.9	269	~	-	2	1	Renewal Time
2	-	-	-	-	-	-	-	-	-	-	
			120	1. P.	1	a wind			S.	in the	MAM
Meter ID	IIA	ofen	0411	DOIL	DOM	0004				-3	
Control	25.9	No.	7.67	A REAL PROPERTY AND A REAL	5.9	26.0	9	10	10	D	Date 11/22/08
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	1		Carrier a	· Printers	1	T: 1744					a second s
Meter ID	114		pHII		Dor	ECOI					
Meter ID	II A	1.458.0	pHII		Dor	ECOI					10-11-

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

Chronic Inland Silverside (M. beryllina) Dry Weight and Biomass Data

Client:	Reference Toxicant	Test ID #:	31049	Project #	14152
Sample:	Potassium Chloride	Tare Weight Date:	11-17-08	Sign-off:	le
Test Date:	11-15-08	Final Weight Date:	11-24-08	Sign-off:	<u>د </u>

Pan ID	Concentra	ition Replicate	Initial Pan Weight (mg)	Final Pan Weight (mg)	Initial # of Organisms	Biomass Value (mg)
1	Control	A	177-32	191.49	10	1.417
2	T	В	171.53	189.92	10	1.239
3		С	186.83	199.89	10	1.306
4		a	19.50	194.03	10	1.4.53
5	0.5	A	168.46	179.00	10	1.054
6		В	165.33	178.49	10	1.316
7		С	176-48	188.29	10	1.191
8		D	165.97	183.11	10	1.414
9	I	A	190-91	201.83	10	1.692
10		в	174.43	188.16	10	1.35
11		С	197.82	206.90	10	0.908
12		D	169.91	180.36	10	1.045
13	1.25	A	177-97	182.40	10	6.443
14		В	131.09	139.36	10	0.827
15		С	152.35	158.36	10	0.60
16		D	118.72	123.64	10	0.492
17	1.5	A	117.21		10	
18		В	17452	-	10	-
19		С	185.03	186.74	10	0.171
20		D	163.14	163.89	10	a.073
21	2	A	189.15	-	10	-
22		B	142.41	-	10	-
23		С	154.89	-	10	-
24		D	181.91	-	10	
QA1	1		116.80	116.80		0.000
QA2	5.	ISBN 1	147-01	146.99		-0.010
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9.0 Appendix B

See separate attachment for detailed toxicity testing results for the "wet" season brine sample, collected on February 25, 2009 (AppendixB_022509Results.pdf) (Pacific EcoRisk, March, 2009).



March 30, 2009

Jay Johnson Applied Marine Sciences 4749 Bennett Dr., Suite L Livermore, CA 94550

Dear Jay:

I have enclosed two copies of our *Supplemental* report "A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent" for the sample collected February 25, 2009. This report was revised to reflect the correction of the sample collection date.

The results of this testing are summarized below:

Chronic Effects of the Desalination Effluent on *Thalassiosira pseudonana* There were <u>*no*</u> significant reductions in *Thalassiosira pseudonana* growth.

Chronic Effects of the Desalination Effluent on Americamysis bahia

There were <u>no</u> significant reductions in Americamysis bahia survival or growth.

Chronic Effects of the Desalination Effluent on *Menidia beryllina* There were <u>no</u> significant reductions in *Menidia beryllina* survival or growth.

If you have any questions regarding the performance and interpretation of these tests, feel free to call me at (707) 207-7760.

Sincerely,

R. Scott Ogle, Ph.D. Principal & Special Projects Director

This testing was performed under Lab Order 14499. The test results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report, and only relate to the sample(s) tested. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk.

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Supplemental Report

A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent

Sample collected February 25, 2009

Prepared For:

Applied Marine Sciences 4749 Bennett Dr., Suite L Livermore, CA 94550

Prepared By:

Pacific EcoRisk, Inc. 2250 Cordelia Rd. Fairfield, CA 94534

March 2009 Report Revised March 2009



Supplemental Report

A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent

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A Toxicity Evaluation of the Bay Area Regional Desalination Project Effluent

Sample collected February 25, 2009

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- Appendix B Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to *Thalassiosira pseudonana*
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- Appendix FTest Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of
the Bay Area Regional Desalination Project Effluent to *Menidia beryllina*
- Appendix G Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Menidia beryllina*

1. INTRODUCTION

Under contract to the Applied Marine Sciences, Pacific EcoRisk (PER) performed chronic toxicity evaluations of effluent sample collected as part of the Bay Area Regional Desalination Project. The toxicity evaluations consist of performing the following chronic toxicity tests:

- chronic (96-hr) growth test with the diatom *Thalassiosira pseudonana*;
- chronic survival and growth test with the crustacean Americamysis bahia; and
- chronic survival and growth test with larval *Menidia beryllina*.

These toxicity tests were performed on water the sample collected on February 25, 2009. This report describes the performance and results of these tests.

2. COLLECTION AND DELIVERY OF THE EFFLUENT SAMPLE

On February 25, an effluent sample was collected from the Bay Area Regional Desalination plant. The sample was transported, on ice and under chain-of-custody, to the PER laboratory facility in Fairfield. Upon receipt at the testing laboratory, aliquots of sample were collected for analysis of initial water quality characteristics (Table 1). The remainder of the water sample was stored at 0-6°C except when being used to prepare test solutions. The chain-of-custody record for the collection and delivery of this sample is provided in Appendix A.

Table 1. Initial water quality characteristics of the Bay Area Regional Desalination Project effluent.								
Date Sample Collected	Date Sample Received	Sample ID	Temp (°C)	рН	D.O (mg/L)	Salinity	Conductivity (µS/cm)	Total Ammonia (mg/L N)
02/25/09	02/25/09	Brine	13.7*	7.55	5.5	7.0	12420	<1.0

* Sample was delivered on the day of collection, and was transported at $\leq 6.0^{\circ}$ C.

3. CHRONIC TOXICITY TEST PROCEDURES

The Bay Area Desalination Project effluent sample was tested for toxicity using the following US EPA short-term chronic toxicity tests:

- chronic (96-hr) growth test with the diatom *Thalassiosira pseudonana*;
- chronic survival and growth test with the crustacean Americamysis bahia; and
- chronic survival and growth test with larval *Menidia beryllina*.

The methods used in conducting these toxicity tests followed the guidelines established by the following manuals:

- "Standard Guide for Conducting Static 96-h Toxicity Tests with Microalgae" (ASTM E 1218-97a); and
- "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition" (EPA-821-R-02-014).

3.1 Algal Growth Toxicity Testing with Thalassiosira pseudonana

The short-term chronic diatom toxicity test consists of exposing *Thalassiosira pseudonana* to the effluent for ~96-hrs, after which the effects on cell growth are evaluated. The specific procedures used in these tests are described below.

The Lab Control water for this test consisted of reverse osmosis, de-ionized (RO/DI) water adjusted up to the test salinity of 25 ppt using an artificial sea salt (Crystal Seas[®]-bioassay grade). For use in this test, an aliquot of the effluent was similarly adjusted to 25 ppt using the same sea salt. The Lab Control water and ambient waters were filtered (0.45 μ m) and then spiked with nutrients, as per ASTM guidelines. The salinity-adjusted Lab Control water and effluent were used to prepare test solutions at test treatment concentrations of 2.5%, 5%, 10%, 25%, 50% and 100% effluent. Water quality characteristics were measured on these test solutions prior to use in this 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 treatment was inoculated to an initial diatom cell density of 20,000 cells/mL from a from a laboratory culture of *Thalassiosira* that is maintained in log growth phase. These flasks were loosely capped and randomly positioned within a temperature-controlled room at 20°C, under continuous illumination from cool-white fluorescent bulbs.

Each day, the temperature and pH were determined for the designated "water quality" replicate at each treatment; each replicate flask was gently shaken in the morning and randomly repositioned within the temperature-controlled room.

After 96 (\pm 2) hrs exposure, the cell density in each replicate flask was determined by microscopic analysis. The resulting cell density data were analyzed to determine any growth impairment, or toxicity, caused by the ambient water; all statistical analyses were performed using CETIS[®] statistical software (Tidepool Scientific, McKinleyville, CA).

3.1.1 Reference Toxicant Testing of the Thalassiosira pseudonana

In order to assess the sensitivity of the *Thalassiosira* to toxic stress, a reference toxicant test was performed. The reference toxicant test was performed similarly to the effluent test except that test solutions consisted of Lab Control water spiked with KCl at concentrations of 0.625, 1.25, 2.5, 5, and 10 gm/L. The resulting test response data were statistically analyzed to determine key

dose-response point estimates (e.g., IC50); all statistical analyses were performed using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

3.2 Survival and Growth Toxicity Testing with Americamysis bahia

The short-term chronic *Americanysis bahia* test consists of exposing the organisms to a series of effluent dilutions for 7 days, after which effects on survival and growth are evaluated. The specific procedures used in this test are described below.

The *Americanysis bahia* used in this test were obtained from Aquatic BioSystems (Ft. Collins, CO); upon receipt at the lab, the mysids were transferred into aerated tanks containing saltwater at 25 ppt, and were fed brine shrimp nauplii during the pre-test holding period.

The Lab Control/dilution water for this test was prepared by salting up reverse-osmosis, deionized water to a salinity of 25 ppt using a commercial artificial sea salt (Crystal Sea Salt[®]bioassay grade). Each day, an aliquot of the final effluent sample was similarly adjusted to a salinity of 25 ppt using the same artificial sea salt. The salinity-adjusted Lab Control/dilution water and effluent sample were used to prepare daily test solutions at concentrations of 2.5%, 5%, 10%, 25%, 50% and 100% effluent. "New" water quality characteristics (pH, D.O., and salinity) were measured on these test solutions prior to use in the test.

There were 8 replicates at each test treatment, each replicate consisting of 200 mL of test solution in a 400-mL glass beaker. The test was initiated by randomly allocating five 7-day old mysids into each replicate beaker. The beakers were randomly positioned in a temperature-controlled room at 26°C (with temperature being monitored daily) under a 16L:8D photoperiod. The mysids were fed freshly-hatched brine shrimp nauplii twice daily.

Each day of the test, fresh test solutions were prepared and characterized as before. The test replicate beakers were examined, with any dead animals, uneaten food, wastes, and other detritus being removed. The number of live mysids in each replicate was determined and ~80% of the test media in each beaker was carefully poured out and replaced with fresh test solution. "Old" water quality characteristics (pH, D.O., and salinity) 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 mysids in each replicate beaker was recorded. The mysids from each replicate were then carefully euthanized in methanol, rinsed in de-ionized water, and transferred to a pre-dried and pre-tared weighing pan. The mysids were then dried at 100°C for >24 hrs and re-weighed to determine the total weight of mysids in each replicate; the total weight was divided by the initial number of mysids per replicate (n=5) to determine the "biomass value". The resulting survival and growth (biomass

value) data were analyzed to evaluate any impairment(s) caused by the effluent; all statistical analyses were performed using CETIS[®] statistical software.

3.2.1 Reference Toxicant Testing of the Americamysis bahia

In order to assess the sensitivity of the mysid test organisms to toxic stress, a reference toxicant test was performed. The reference toxicant test was performed similarly to the effluent test except that test solutions consisted of Lab Control media spiked with KCl at concentrations of 0.125, 0.25, 0.5, 1, and 2 gm/L. The resulting test response data were analyzed to determine key dose-response point estimates (e.g., EC50); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab.

3.3 Survival and Growth Toxicity Testing with Menidia beryllina

The short-term chronic *Menidia beryllina* test consists of exposing larval fish to a series of effluent dilutions for 7 days, after which effects on survival and growth are evaluated. The specific procedures used in this test are described below.

The larval fish used in this bioassay were obtained from a commercial supplier (Aquatic Biosystems, Fort Collins, CO). These fish were maintained at 25°C in aerated aquaria containing Lab Control water (described below) prior to their use in this test. During this pre-test period, the fish were fed brine shrimp nauplii *ad libitum*.

The Lab Control/dilution water for this bioassay was prepared by salting up reverse-osmosis, deionized water to a salinity of 25 ppt using a commercial artificial sea salt (Crystal Sea[®] -bioassay grade). Each day, an aliquot of the final effluent sample was similarly adjusted to a salinity of 25 ppt using the same artificial sea salt. The salinity-adjusted Lab Control/dilution water and effluent sample were used to prepare daily test solutions at concentrations of 2.5%, 5%, 10%, 25%, 50% and 100% effluent. "New" water quality characteristics (pH, D.O., and salinity) were measured on these test solutions prior to use in the test.

There were 4 replicates for the Lab Control and each effluent treatment, each replicate consisting of 400 mL of test media in a 600-mL glass beaker. This test was initiated by randomly allocating ten 11-day old *Menidia beryllina* into each replicate. These 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 and characterized as before. The replicate beakers containing the larval fish 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 media in each beaker was carefully poured out and replaced

with fresh media. "Old" water quality characteristics (pH, D.O., and conductivity) were measured on the old test water collected from one randomly selected replicate at each treatment.

After 7 days exposure, the number of live fish in each replicate beaker was recorded. Then, the fish from each replicate were carefully euthanized in methanol, rinsed in de-ionized water, and transferred to a pre-dried and pre-tared weighing pan. These were then dried at 100°C for >24 hrs 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 (n=10) to determine the "biomass value". The resulting survival and "biomass value" data were analyzed to determine key dose-response point estimates (e.g., EC50); all statistical analyses were performed using the CETIS[®] statistical software.

3.3.1 Reference Toxicant Testing of the Menidia beryllina

In order to assess the sensitivity of the fish test organisms to toxic stress, a reference toxicant test was performed concurrently with the effluent test. This reference toxicant test was performed similarly to the effluent toxicity test, except that test solutions consisted of Lab Control (25 ppt water) spiked with KCl at concentrations of 0.5, 1.0, 1.25, 1.5, and 2 gm/L. After 7 days exposure, the survival and weight data were evaluated as in the effluent test. The resulting test response data were analyzed to determine key dose-response point estimates (e.g., EC50); all statistical analyses were made using the CETIS[®] software. These response endpoints were then compared to the typical response range established by the mean ± 2 SD of the point estimates generated by the 20 most recent previous reference toxicant tests performed by this lab.

4. RESULTS

4.1 Effects of the Desalination Effluent on *Thalassiosira pseudonana*

The results of this test are summarized below in Table 2. There were <u>*no*</u> significant reductions in algal growth in the Desalination effluent; the growth NOEC was 100% effluent. The IC25 and IC50 were both >100% effluent, resulting in <1.0 survival TUc (where survival TUc = 100/IC25 or 100/IC50) for both test endpoints..

The test data and the summary of statistical analyses for these tests are presented in Appendix B.

Table 2. Effect of the Desalination effluent on <i>Thalassiosira pseudonana</i> .					
Effluent Treatment	Mean Diatom Cell Density (cells/mL x 10 ⁶)				
Lab Water Control	1.91				
2.5%	2.26				
5%	2.53				
10%	2.99				
25%	3.70				
50%	3.85				
100%	5.58				
Summary of	Key Statistics				
Growth NOEC =	100% effluent				
TUc (TUc = $100/NOEC$) =	1.0				
Growth IC25 =	>100% effluent				
TUc (TUc = 100/IC25) =	<1.0				
Growth IC50 =	>100% effluent				
TUc (TUc = $100/IC_{50}$) =	<1.0				

4.1.1 Reference Toxicant Toxicity to Thalassiosira pseudonana

The results of this test are presented in Table 3. There was a mean of 1,990,000 cells/mL at the Lab Control treatment. The growth IC50 was 4.25 gm/L KCl.

The results of the concurrent reference toxicant test were consistent with the reference toxicant test database, indicating that these test organisms were responding to toxic stress in a typical fashion.

The test data and the summary of statistical analyses for these tests are presented in Appendix C.

Table 3. Reference toxicant testing: effects of KCl on Thalassiosira pseudonana.					
KCl Treatment (gm/L)	Mean Diatom Cell Density (cells/mL x 10 ⁶)				
Lab Water Control	1.99				
0.625	2.17				
1.25	2.38				
2.5	2.01				
5	0.70*				
10	0.19*				
Summary of Key Statistic					
IC50 =	4.25 gm/L KCl				

* Significantly less than the Lab Control treatment response at p<0.05.

4.2 Effects of the Desalination Effluent on Americamysis bahia

The results of this test are presented in Table 4. There was a mean of 92.5% survival at the Lab Control treatment. There were <u>no</u> significant reductions in survival in the Desalination effluent; the survival NOEC was 100% effluent. Due to the absence of significant mortalities, the EC25 and EC50 could not be calculated, but can both be assumed >100% effluent, resulting in <1.0 survival TUc (where TUc = 100/EC25 or 100/EC50) for both test endpoints.

The mean 'biomass value' was 0.26 mg at the Lab Control treatment. There were <u>no</u> significant reductions in growth in the Desalination effluent; the growth NOEC was 100% effluent. The IC25 and IC50 were both >100% effluent, resulting in <1.0 growth TUc (where TUc = 100/IC25 or 100/IC50) for both test endpoints.

Table 4. Effects of the Desalination effluent on Americamysis bahia.				
Effluent Treatment	Mean % Survival	Mean "Biomass Value" (mg)		
Lab Control	92.5	0.26		
2.5%	97.5	0.31		
5%	97.5	0.29		
10%	100	0.31		
25%	95.0	0.31		
50%	95.0	0.29		
100%	97.5	0.31		
Summary	of Key Statistics			
NOEC	>100% effluent	>100% effluent		
TUc (TUc = $100/NOEC$) =	<1.0	<1.0		
Survival EC25 or Growth IC25	>100% effluent	>100% effluent		
TUc (TUc = 100/EC25 or 100/IC25) =	<1.0	<1.0		
Survival EC50 or Growth IC50	>100% effluent	>100% effluent		
TUc (TUc = 100/EC50 or 100/IC50) =	<1.0	<1.0		

The test data and summary of statistical analyses for this test are attached as Appendix D.

4.2.1 Reference Toxicant Toxicity to Americamysis bahia

The results of this test are presented in Table 5. There was a mean of 97.5% survival and a mean mysid biomass of 0.28 mg at the Lab Control treatment. The survival EC50 was 0.60 gm/L, and the growth IC50 was 0.64 gm/L.

The results of the concurrent reference toxicant test were consistent with the reference toxicant test database, indicating that these test organisms were responding to toxic stress in a typical fashion.

Table 5. Reference toxicant testing: effects of potassium chloride on Americamysis bahia.						
KCl Treatment (gm/L)	Mean % Survival	Mean Biomass Value (mg)				
Lab Control	97.5	0.28				
0.125	97.5	0.28				
0.25	100	0.26				
0.5	75	0.19*				
1	0*	0*				
2	0*	0*				
Summary of Key Statistics						
Survival EC50 or Growth IC50 =	0.60 gm/L KCl	0.64 gm/L KCl				

The test data and the summary of statistical analyses for this test are attached as Appendix E.

* Significantly less than the Lab Control treatment response at p<0.05.

4.3 Effects of the Desalination Effluent on Menidia beryllina

The results of this test are presented in Table 6. There was 100% survival at the Lab Control treatment. There were <u>no</u> significant reductions in survival in the Desalination effluent; the survival NOEC was 100% effluent. Due to the absence of significant mortalities, the EC25 and EC50 could not be calculated, but can both be assumed >100% effluent, resulting in <1.0 survival TUc (where TUc = 100/EC25 or 100/EC50) for both test endpoints.

The mean fish biomass value was 0.94 mg at the Lab Control treatment. There were <u>*no*</u> toxicologically significant reductions in growth in the Desalination effluent; the growth NOEC was 100% effluent. The IC25 and IC50 were both >100% effluent, resulting in <1.0 growth TUc (where TUc = 100/IC25 or 100/IC50) for both test endpoints.

Table 6. Effects the Desalination effluent on <i>Menidia beryllina</i> .					
Effluent Treatment	Mean % Survival	Mean Biomass Value (mg)			
Lab Control	100	0.94			
2.5%	97.5	0.92			
5%	97.5	0.90			
10%	100	0.89			
25%	97.5	0.82*			
50%	100	0.94			
100%	100	0.97			
Summary	of Key Statistics				
NOEC	>100% effluent	>100% effluent			
TUc (TUc = $100/NOEC$) =	<1.0	<1.0			
Survival EC25 or Growth IC25	>100% effluent	>100% effluent			
TUc (TUc = 100/EC25 or 100/IC25) =	<1.0	<1.0			
Survival EC50 or Growth IC50	>100% effluent	>100% effluent			
TUc (TUc = 100/EC50 or 100/IC50) =	<1.0	<1.0			

The test data and the summary of statistical analyses for this test are attached as Appendix F.

* There was an interrupted dose-response with a biomass of 0.82 mg at the 25% effluent treatment, which was indicated as being statistically less than the Lab Control treatment. However, the biomass values at the remaining 50% and 100% effluent treatments were not significantly less than the Lab Control, indicating that the apparent reduction in biomass in the 25% effluent was not toxicologically significant.

4.3.1 Reference Toxicant Toxicity to Menidia beryllina

The results of this test are summarized below in Table 7. There was a mean of 100% survival and a mean fish biomass value of 1.03 mg at the Lab Control treatment; the survival EC50 value was 1.2 gm/L KCl, and the growth IC50 was 1.3 gm/L KCl.

These reference toxicant test responses were consistent with previous performance of this test in our lab, indicating that these organisms were responding to toxic stress in a typical fashion.

The test data and summary of statistical analyses for this test are attached as Appendix G.

Table 7. Reference toxicant testing: effects of KCl on Menidia beryllina.						
KCl Treatment (gm/L)	Mean % Survival	Mean Biomass Value (mg)				
Lab Control	100	1.03				
0.5	100	1.03				
1	85	0.91				
1.25	40*	0.54*				
1.5	7.5*	0.13*				
2	0*	0*				
Summary of Key Statistics						
Survival EC50 or Growth IC50 =	1.2 gm/L KCl	1.3 gm/L KCl				

* Significantly less than the Lab Control treatment response (p < 0.05).

5. SUMMARY AND CONCLUSIONS

Chronic Effects of the Desalination Effluent on *Thalassiosira pseudonana* There were <u>no</u> significant reductions in algal growth in the effluent.

Chronic Effects of the Desalination Effluent on Americamysis bahia

There were <u>no</u> significant reductions in invertebrate survival or growth in the effluent.

Chronic Effects of the Desalination Effluent on Menidia beryllina

There were no significant reductions in fish survival or growth in the effluent.

6. AQUATIC TOXICITY DATA QUALITY CONTROL

Test Conditions – Test conditions (pH, D.O., temperature, etc.) were within acceptable limits for these tests. All such analyses were performed according to laboratory Standard Operating Procedures.

Negative Control – The test organism responses at the Lab Control treatments were within acceptable limits.

Positive Control – The results for the *Americanysis bahia*, *Menidia beryllina*, and *Thalassiosira pseudonana* reference toxicant tests were consistent with the reference toxicant test databases, indicating that these test organisms were responding to toxic stress in a typical fashion.

Concentration Response Relationships – There was an interrupted dose-response in the Menidia beryllina growth response, with an indication of a statistically significant reduction at the 25% effluent concentration. However, the biomass value at the remaining 50% and 100% effluent treatments were not significantly less than the Lab Control, indicating that the apparent reduction in biomass in the 25% effluent was not toxicologically significant.

There were valid concentration-response relationships for the remaining effluent and reference toxicant tests (EPA821-B-00-004), which were determined to be acceptable for this testing.

Appendix A

Chain-of-Custody Record for the Collection and Delivery of the Bay Area Regional Desalination Project Effluent Sample

		CHAI	N OF C	USTODY REC	ORD					
PACIFIC ECORISK 2250 Cordelia Rd Fairfield, CA 94534 Ph: (707) 207-7760 Fax: (707) 207-7916 www.pacificecorisk.com	Attn: $\int \alpha A$ Phone: (92)	1 Johns	ion 7142	clence, the.		L TO:	·	 		
PROJECT: MWHA Regional Cjost-storm e	Desal Brin vent)	e Sarry	pling			LYSES F			REMA	RKS
SAMPLE IDENTIFICATION	DATE TIME 2/25/09 0915	SAMPLE MATRIX Water	GRAB/ COMP.	# CONTAINERS/TYPE 2×202 3 Cubiton 2×102 4 /	si .					_
METHOD OF SHIPMENT: COMMENTS:	FedEx:	UPS:	HA	// AND:01	THER:	CODES:				
RELINQUISHED BY: (SIGNAT	ΓURE)	DATE 2/25/09	TIME [0:33;04	RECEIVED BY:	SIGNATU	IRE)		 DATE 2 /25/09	TIME 10-35	PAGE #

YELLOW - KEEP FOR YOUR RECORDS

Appendix B

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to *Thalassiosira pseudonana*

CETIS Sum	nmary Repoi	rt						eport Da est Code		08		58 (p 1 of 1 -9388/3218
Phytoplanktor	n Growth Inhibiti	on Test								_	Paci	ic EcoRisk
Test Run No: Start Date: Ending Date: Duration:	18-5118-4444 25 Feb-09 14:30 01 Mar-09 13:30 95h) Pro Spe	tocol:	Cell Growth EPA/821/R/02/(Thalassiosira p In-House Cultur	seudonana		D	nalyst: illuent: irine: ge:	Lab	on Walker oratory Wa stal Sea	ter	
	08-7787-0147 25 Feb-09 09:15 25 Feb-09 10:35 5h (13.7 °C)	Sou	erial:	Brine Effluent Applied Marine MWHA	Sciences	· ·		lient: roject:	AMS 1449			
Comparison S	Summary							-				
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	τυ	Met	hod			
03-5037-7206	Cell Density		0	>0		6.26%		Equ	al Var	iance t Two	o-Sample Te	est
04-4861-5439			100	>100	N/A	19.5%	1	Dur	inetl's	Mulliple Co	omparison 1	est
Point Estimate	e Summary											
Analysis No	Endpoint		Level	Conc-%	95% LCL	95% UCL	TU	Met	hod			
15-8463-6205	Cell Density		IC2.5	>100	N/A	N/A	<1	Line	ear Inte	erpolation (ICPIN)	
			IC5	>100	N/A	N/A	<1					
			IC10	>100	N/A	N/A	<1					
			IC15	>100	N/A	N/A	<1					
			IC20	>100	N/A	N/A	<1					
			1C25	>100	N/A	N/A	<1					
			IC40 IC50	>100 >100	N/A N/A	N/A N/A	<1 <1					
Cell Density S	ummany							<u> </u>				
Conc-%	Control Type	Count	Mean	95% L CL	95% UCL	Min	Max	Std	Err	Std Dev	CV%	Diff%
0	Control	4	1.91E		1.95E+6	1.82E+6	2.01E)E+4	8.77E+4	4.59%	0.0%
0	Seawater	4	2.33E-	+6 2.29E+6	2.36E+6	2.21E+6	2.42E	+6 1.5	9E+4	8.66E+4	3.72%	-21.6%
2.5		4	2.26E-	+6 2.25E+6	2.27E+6	2.23E+6	2.28E	+6 3.7	6E+3	2.06E+4	0.91%	-18.0%
5		4	2.53E	+6 2.47E+6	2.58E+6	2.35E+6	2.72E	+6 2.9	3E+4	1.61E+5	6.36%	-32.0%
10		4	2.99E	+6 2.90E+6	3.07E+6	2.68E+6	3.19E	+6 3.9	8E+4	2.18E+5	7.3%	-56.1%
25		4	3.70E-	+6 3.58E+6	3.82E+6	3.35E+6	4.06E	+6 5.8	1E+4	3.18E+5	8.6%	-93.3%
50		4	3.85E	+6 3.74E+6	3.96E+6	3.53E+6	4.22E	+6 5.1	7E+4	2.83E+5	7.36%	-101.0%
100		4	5.58E		5.68E+6	5.33E+6	5.81E		2E+4	2.48E+5	4.44%	-192.0%
Cell Density D	Detail											
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4							
0	Control	1.82E+6	2.01E	-	1.96E+6							
0	Seawater	2.34E+6	2.33E	+6 2.42E+6	2.21E+6							
2.5		2.26E+6	2.23E	+6 2.26E+6	2.28E+6							
5		2.58E+6	2.72E	+6 2.45E+6	2.35E+6							
10		3.19E+6	3.07E	+6 3.00E+6	2.68E+6							
25		3.35E+6	4.06E	+6 3.53E+6	3.85E+6							
50		3.53E+6	4.22E	+6 3.83E+6	3.82E+6							
100		5.81E+6	5.78E	+6 5.33E+6	5.41E+6							

CETIS Ana	lytical Repo	ort					•	ort Date: Code:	08		58 (p 2 of 2 -9388/3218
Phytoplankto	n Growth Inhibi	tion Test								Paci	fic EcoRis
Analysis No: Analyzed:	04-4861-5439 08 Mar-09 15:		-	ell Density arametric-Cor	ntroi vs Trea	tments		S Version: al Results:	CETISv1 Yes	.6.5	
Data Transfor	m	Zeta	Alt Hyp	Monte Ca	rlo	NOEL	LOEL	TOEL	τυ	PMSD	_
Untransformed			C > T	Not Run		100	>100	N/A	1	19.5%	
Dunnett's Mul	tiple Comparis	on Test									
Control	vs Conc-%		Test Stat	t Critical	MSD	P-Value	Decision((5%)			
Control	2.5		-2.27	2.45	372000	1.0000	Non-Signi	ficant Effect			
	5		-4.03	2.45	372000	1.0000	-	ficant Effect			
	10		-7.05	2.45	372000	1.0000	-	ficant Effect			
	25		-11.7	2.45	372000	1.0000	-	ficant Effect			
	50		-12.7	2.45	372000	1.0000	-	ficant Effect			
	100		-24.1	2.45	372000	1.0000	Non-Signi	ficant Effect			
ANOVA Table											
Source	Sum Squ		Mean Sq		DF	F Stat	P-Value	Decision(
Between	3.748044		6.246741		6	135	0.0000	Significant	Effect		
Error	9.725E+1		4630952		21						
Total	3.845294	3127E+13	6.293050	0485E+12	27						
ANOVA Assur	nptions										
Attribute	Test			Test Stat	Critical	P-Value	Decision	(1%)			
Variances			/ariance	14.5	16.8	0.0248	Equal Var	iances			
Distribution	Shapiro-	Wilk Norma	ılity	0.975		0.7130	Normal Di	istribution			
Cell Density S	Summary	_								-	
Сопс-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Control	4	1.91E+6	1.88E+6	1.95E+6	1.82E+6	2.01E+6	1.63E+4	8.77E+4	4.59%	0.0%
2.5		4	2.26E+6	2.25E+6	2.27E+6	2.23E+6	2.28E+6	3.83E+3	2.06E+4	0.91%	-18.0%
5		4	2.53E+6	2.46E+6	2.59E+6	2.35E+6	2.72E+6	2.98E+4	1.61E+5	6.36%	-32.0%
10		4	2.99E+6	2.90E+6	3.07E+6	2.68E+6	3.19E+6	4.05E+4	2.18E+5	7.3%	-56.1%
25		4	3.70E+6	3.58E+6	3.82E+6	3.35E+6	4.06E+6	5.91E+4	3.18E+5	8.6%	-93.3%
50		4	3.85E+6	3.74E+6	3.96E+6	3.53E+6	4.22E+6	5.26E+4	2.83E+5	7.36%	-101.0%
100		4	5.58E+6	5.49E+6	5.68E+6	5.33E+6	5.81E+6	4.60E+4	2.48E+5	4.44%	-192.0%
Graphics			-								
						105.00					
8 0E+06-						4.0E+05				• •	
						3.02+05-					
6.0€+05- ≿						2.0E+05-					
Call Denuity						1.0E+05					
3					3						
4 05 +06			1. A. C.	-		D.0E+00					
		6.				-1.0E+05-		•*			
		H									
2.05+06-						-2.0£+05-					
				Reject Null		-3 0E+05					
							• • •				
<u>a.a∈+00</u> L	0 2.5	5 10	29	SD 100	7	-4.0E+05-	-2.0 -1.5	-10 -05 0.0	0.5 1.0	- T T 1.S 2.0	2.5
		Conc-%	2			-2.3	1.9	Rankits	9.2 LB	4.0 E.A	6.7

ETIS	Analyti	cal Repo	ort							rt Date: Code:	08 Mar-09 15:58 (p 1 17-9647-9388/3		
hytopi	ankton Gr	owth Inhibit	tion Test									Pacific EcoRis	
Analysi	s No: 15	-8463-6205	E	ndpoint:	Cell Density	-			CETI	S Version:	CETISv1.6.5		
Analyze	ed: 08	Mar-09 15:5	7 A I	nalysis:	Linear Inter	polation (ICPIN))		Offic	ial Results:	Yes		
inear l	nterpolatio	on Options											
(Trans		Y Transform	n Se	eed	Resamples	Exp 95%	CL	Method					
inear		Linear	7()55475	280	Yes		Two-Po	int Interp	olation			
Point E	stimates						-	·					
evel	Conc-%	95% LCL	95% UC	L	TU	95% LCL	95%	UCL					
C2.5	>100	N/A	N/A		<1	N/A	N/A						
C5	>100	N/A	N/A		<1	N/A	N/A						
C10	>100	N/A	N/A		<1	N/A	N/A						
C15	>100	N/A	N/A		<1	N/A	N/A						
C20	>100	N/A	N/A		<1	N/A	N/A						
C25	>100	N/A	N/A		<1	N/A	N/A						
C40	>100	N/A	N/A		<1	N/A	N/A						
C50	>100	N/A	N/A		<1	N/A	N/A						
Sell Dei	nsity Sumi	mary				Ca	lculate	d Varia	te				
Conc-%		rol Type	Count	Mean		Max	Std E		Std Dev	CV%	Diff%		
D	Contr	oi	4	1.91E			1.60E		.77E+4	4.59%	0.0%		
2.5			4	2.26E			3.76E		.06E+4	0.91%	-18.0%		
5			4	2.53E			2,93E		.61E+5	6.36%	-32.0%		
10 25			4 4	2.99E 3.70E			3.98E 5.81E		.18E+5 .18E+5	7.3% 8.6%	-56.1% -93.3%		
20 50			4	3.85E			5.17E		.83E+5	7.36%	-101.0%		
100			4	5.58E			4.528		.48E+5	4.44%	-192.0%		
	nsity Detai												
Conc-%		rol Type	Rep 1	Rep 2	2 Rep 3	Rep 4							
0	Contr		1.82E+0										
2.5			2.26E+6										
5			2.58E+6										
10			3.19E+6										
25			3.35E+6										
50			3.53E+6										
100			5.81E+6										
Graphic	cs					-							
	6.0E+06												
					•								
	5.0E+06-												
	4.0E+06-												
Ly.	- AME THE	•	0										
Cell Density	3.0E+06-												
3		-											
	2.0E+06												
	Ĩ												
	1.0E+06												
	0.0E+00	20	0 60		130								
	0	20 4	0 60 Caoc-No	80	100	1ter							

ETIS Ana	alytical Repo	ort						ort Date: Code:	08 1		57 (p 1 of 2 -9388/3218
Phytoplankto	on Growth Inhibi	tion Test						_		Paci	fic EcoRisl
Analysis No: Analyzed:	03-5037-7206 08 Mar-09 15:5		•	ll Density rametric-Two	Sample			IS Version: al Results:	CETISv1 Yes	.6.5	
Data Transfo		Zeta	Alt Hyp	Monte Ca	rlo	NOEL	LOEL	TOEL	τu	PMSD	
Untransforme	d		C > T	Not Run		0	>0			6.26%	
Equal Varian	ice t Two-Sample	e Test									
Control	vs Control		Test Stat	Critical	MSD	P-Value	Decision	(5%)			
Control	Seawate	r	-6.69	1.94	120000	1.0000		ficant Effect			
ANOVA Table	 8										
Source	Sum Squ	ares	Mean Sq	uare	DF	F Stat	P-Value	Decision(5%)		
Between	3.403125		3.403125		1	44.8	0.0005	Significant		_	· · ·
Error	45575000	000	75958330	00	6						
Total	3.858874	9005E+11	3.479083	2333E+11	7						
ANOVA Assu	Imptions						_				
Attribute	Test			Test Stat	Critical	P-Value	Decision	(1%)			
Variances	Variance	Ratio F		1.03	47,5	0.9840	Equal Var				
Distribution	Shapiro-	Wilk Norma	lity	0.931		0.5230	Normal D				
Cell Density	Summary										
Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Seawater	4	2.33E+6	2.29E+6	2.36E+6	2.21E+6	2.42E+6	1.61E+4	8.66E+4	3.72%	0.0%
0	Control	4	1.91E+6	1.88E+6	1.95E+6	1.82E+6	2.01E+6	1.63E+4	8.77E+4	4.59%	17.7%
Graphics											
3000000-]					1.0E+05				•	•
2500000-						5.0E+04-			•		
2	· · · · · · · · · · · · · · · · · · ·					1					
1 2000000 -		_				0.06+90		• • ;	•		
3				Rejact, Hull	ð						
1500000-											
						-\$.06+04-		•			
1000000-						1					
						-1 0E+05-	•				
500000						•					
	4										
						1					
٥				· · · · · · · · · · · · · · · · · · ·	٦	-1.5E+05	-1.0	0.0 2.0-	05	10	1.5

Analyst: 10 QA: 54

Client: Applie	d Marine Sciences	Ini	tial Count: NI	Pr	
Test Material: Brite	Effluent	Enumerating	g Scientist: 🖉 😽		
Test Start Date: 7/75/09	Start Time: 143	<u>> </u>	Project #:	14499	
Test End Date: 2/01/09	End Time: <u>1330</u>		Test ID #:	32189	
Treatment %	Rep A	Rep B	Rep C	Rep D	Mean
Lab Water Control	1.82	2.01	1.86	1.96	1.91
2.5	2.26	2.23	2.26	2.28	2.26
5	2.58	2.72	2.45	2.35	2.52
10	3.19	3.07	3.00	2.68	2.9998
25	3.35	4.06	3.53	3.85	3.70
50	3.53	4.22	3.83	3.82	3.85
100	5.81	5.78	5.33	5.41	5.58
This datasheet has been reviewed for completeness and		ean Density 1L x 10°)	Date:	Time:	Signoff:
consistency with Test Acceptability Criteria and/or other issues of concern.	1.91		31.109	14:00	to

Thalassiosira pseudonana Cell Density Enumeration Data

Test Material:	pplied Marine Scie UC EFFlue		st ID #: <u>321</u> roject #: <u>144</u>		/Diluent: Algal Medium
Treatment %	Temp (°C)	рН	D.O. (mg/L)	Salinity (ppt)	Sign-Off
Lab Water Control	20.7	8.00	8.4	25.2	Test Solution Prep: JL
2.5	20.7	8.01	8.3	25.3	New WO JAC
5	7.05	7.99	8.0	25.5	Insoculation Date 2/25/0
10	20.7	7.97	8.2	25.6	Innoculation Time. 1430
25	20.7	7.92	8.4	25.5	Innoculation Signoff JL
50	20.7	7.88	8.1	25.5	
100	20.7	7.81	7.8	25.5	
Meter ID:	40	PH12	D012	ELOS	
Lab Water Control	21.0	8.10			Date: 426/09
2.5	21.0	8.13	Contrast of Contrastory of		WQ TIME 0915
5	21.0	8.14			WQ Signoff DGV
10	21.0	8.15			
25	21.0	8.19	Mereal C		
50	21.0	8.18			
100	21.0	8.18	West		
Meter ID:	40	Phil			
Lab Water Control	20.5	8.39			Dale 2/27/09
2.5	20.5	48-388.3			WQ Time 12 00
	20.5	8.46			Wo Signal YUL
10	20.5	8.48			
25	20.5	8.58	- Carpen factoria in a company	2	
	20.5	8.47			
	20.5	8.42			
Meter ID:	40	Ph 12			
	20.9	9.48			Dute: 2/28/09
Lab Water Control	20.9	9.41		-	WQTIME: 1211M
2.5	20.9	920		are and	WQ Signoft MEL
5	20.9	9.38		1	
10	20,9	9.64			
25	0.9	9.47	1.13716	1.0	
50	20.9	9.19			
100	40	PHIA			
Meter ID:			11 1-	25.0	Date: 3/1/09
Lab Water Control	20.5	9.20	11.6	25.5	Termination Time 1330
2_5	20.5	9.34	13.1		Termination Signate:
5	20.5	9.41		25.4	WQ Time: (30.25
10	20.5	9.46	13.1	25.5 25.5	WQ Signot JNC
25	20.5	9.38	12.3	and the second sec	UNC
50	20.5	9.55	14.1	25.5	
100	20.5	9.55	>20.0	25.3 Ec15	

Thalassiosira pseudonana Toxicity Test Water Quality Data

Initial Test Conditions	Light Intensity (lux)
	6167

Client:

Sample ID: Sea Water Control

est Start Date: Z/25					Project #: /449
Cest End Date: 2/29/	09	(Control/Diluent:	Alga	al Medium
Test Treatment	Temp (C)	pН	D.O. (mg/L)	Salinity (ppt)	Sign-Off
Lab Water Control	20.7	8.00	8.4	25.4	Date: 2/75/09
Sea Water Control	20.7	7.90	8.8	24.5	Sample ID #: 7/508
		0			Test dolution Trep. JC
					New WQ: JNC
					Inoculation Time
Meter ID	40	PH12	DOIZ	ECOS	Innoculation Signoff:
Lab Water Control	21.0	8.10			Date: 2/26/09 WQ Time: 0915
Sea Water Control	21,0	8.04			WQ Time: 0915
					WQ Signoff: DGO
Meter ID	40	Phil			
Lab Water Control	20-5	8.39			Date: 2/27/09
Sea Water Control	20.5	8.43			Date: 2/27/09 WQ Time: 12'00 WQ Signoff:
					WQ Signoff:
Meter ID	40	Ph 12			
Lab Water Control	20.9	9,48			Date: 2/28/09 WQ Time: 12!10
Sea Water Control	20.9	9.52			WQ Time: 12!10
					WQ Signoff: MEC
Meter ID	40	PHIZ			Data: 2 4
Lab Water Control	20.5	9.20	0.11	25.0	Date: 3/1/09
Sea Water Control	20.5	9.23	12.4	24.8	3/1/09 WQ Time: 0930 WQ Signoff: المحمد
			-		JAC Signon. JAU
Meter ID	40	PH03	0014	Ecos	

Thalassiosira pseudonana Cell Density Enumeration Data Sheet

Applied Marine Sciences

Initial Count: 20.000 cells/mL Termination Time: \330

Enumerating

Scientist: 54

Treatment		Cell Density	y (cells/mL x 10 %)		Mean C	ell Density	
Teatment	Rep A	Rep B	Rep C	Rep D	(cells/mL x 10^{6})		
Lab Water Control	1.82	2.01	1-86	1.94	1.9	'	
Sea Water Control	2.34 2.33		2.42	2.21	2.32		
	This datasheet has been reviewed for completeness and consistency with Test Acceptability Criteria and/or other			Date:	Time:	Signoff:	
consistency with	issues of concer		1.91	3/1/09	14:00	de la	

Initial Test Conditions	Light Intensity (lux)
Initial Test Conditions	6167

Appendix C

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Thalassiosira pseudonana*

CETIS Sun	nmary Repo	rt					-	ort Date: Code:	0.	2 Mar-09 09 09-394	:25 (p 1 of ⁻)-3636/3219
Phytoplankto	n Growth Inhibiti	ion Test								Pac	fic EcoRis
Test Run No: Start Date: Ending Date: Duration:	02-3978-3152 25 Feb-09 14:30 01 Mar-09 13:10 95h) Prot	iocol: cies:	Cell Growth ASTM E 1218-9 Thalassiosira p In-House Cultur	seudonana			ient: l ie: f	Rivian Villanu Laboratory W Not Applicable	ater	
•	13-7905-2419 25 Feb-09 14:30 25 Feb-09 14:30 N/A (20.7 °C)		erial: rce:	KCI Potassium chlo Reference Toxi In House			Clie Proj		Reference To 14502	xicant	
Comparison S	Summary										
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	TU	Metho	d		
03-5814-1385	Cell Density		2.5	5	3.54	7.2%		Dunne	tt's Multiple C	Comparison	Test
Point Estimat	e Summary										
Analysis No	Endpoint		Level	Conc-g/L	95% LCL	95% UCL	TU	Metho	d		
20-1499-7251	Cell Density		IC2.5	1.66	1.49	1.95			Interpolation		
			IC5	2.06	1.72	2.64		Eniodi	morpolation		
			IC10	2.6	2.36	2.74					
			IC15	2.8	2.63	2.94					
			IC20	3.01	2.85	3.14					
			IC25	3.22	3.07	3.34					
			IC40 IC50	3.84 4.25	3.71 4.14	3.94 4.34					
Cell Density S	iummary										
Conc-g/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Er	τ Std Dev	/ CV%	Diff%
0	Control	4	1.99E-	+6 1.95E+6	2.02E+6	1.87E+6	2.08E+6	1.66E-			0.0%
0.625		4	2.17E-	+6 2.10E+6	2.23E+6	2.02E+6	2.40E+6	3.00E+	+4 1.64E+8		-9.07%
1.25		4	2.38E-	+6 2.35E+6	2.40E+6	2.32E+6	2.45E+6	1.20E-	+4 6.56E+4	2.76%	-19.6%
2.5		4	2.01E-	+6 1.99E+6	2.02E+6	1.97E+6	2.06E+6	6.89E+	+3 3.77E+4	1.88%	-1.13%
5		4	6.95E-	+5 6.84E+5	7.06E+5	6.60E+5	7.30E+5	5.27E-	+3 2.89E+4	4.15%	65.0%
10		4	1.90E-	+5 1.82E+5	1.98E+5	1.60E+5	2.10E+5	3.94E	+3 2.16E+4	11.4%	90.4%
Cell Density D)etail										
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Control	1.87E+6	1.96E-	F6 2.08E+6	2.03E+6	-				_	
0.625		2.40E+6	2.02E-	⊦6 2.10E+6	2.14E+6						
1.25		2.41E+6	2.32E-		2.45E+6						
2.5		2.00E+6	1.97E-		2.00E+6						
5		7.00E+5	6.90E-		6.60E+5						
10		1.90E+5	2.10E-	⊧5 1.60E+5	2.00E+5						

000-034-164-2

CETIS™ v1.6.5C

	erence Toxicant assium chloride Start Time: <u>/430</u> End Time: <u>1310</u>	Enumeratin	tial Count: 1	14502	
Treatment	Rep A	Rep B	Rep C	Rep D	Mean
Lab Water Control	1.87	1.94	2.08	2.03	1.98
0.625 g/L KCl	2.40	2.02	2.10	2.14	2.14
1.25 g/L KCl	2.41	2.32	2.32	2.45	2.38
2.5 g/L KCl	2.00	1.97	2.06	2.00	2.01
5 g/L KCl	0.70	0.69	0.73	0.66	0.70
10 g/L KCl	0.19	0-21	0.14	0.20	0.19
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 ⁴)		Date:	Time:	Signoff:
	1.98	Y	3/1/09	14:00	F

Thalassiosira pseudonana Reference Toxicant Test Cell Density Data

Client:	Reference Toxica	nt	Test ID #:321		Test Date: 2/25/09
Test Material:	Potassium chlorid	e	Project #: 145	502 Contro	l/Diluent: Algal Medium
Reference Toxicant Test Treatment (g/L KCl)	Temp ('C)	рН	D.O. (mg/L)	Salinity (ppt)	Sign-Off
Lab Water Control	20.7	8.00	8.4	25.4	Test Solution Prep JC
0.625	20.7	9.03	8.1	- 26:3	New WQ
1.25	20.7	8.04	7.9	27.0	Elinnoculater Date
2.5	207	8.05	7.8	282	Innoculation Time
5	20.7	8.05	7.7	30.8	Innoculation Sumoff
10	20.7	8.05	7.9	35.8	
Meter 1D:	58	oHb3	0012	Ec05	
Lab Water Control	20.7	8.07			Date: 2/26/09
0.625	70.7	8.11			WQ Time: 0930
1.25	20.7	8.0			WQ Signoff:
2.5	20.7	8.11			
5	20.7	8.08			
10	20.7	8.07			-
Meter ID:	58	PhU			
Lab Water Control	20.5	8.31			Date: 2/27/09
0.625	20.5	8.34			Date: 2/27/09 WQ Time: 12:03
1.25	20.5	8.35		T	WQ Signoff: YK
2.5	20.5	8.31			
5	20.5	8.09			
<u>_</u>	20.5	8.00			
Meter ID:	58	ph 12			
Lab Water Control	20.8	8,78			Date: 2/28/09
0.625	90.8	1.08			WQTime: 12:00
1.25	20.8	9.01			WQ Signoff: MEL
2.5	20.8	8.87			
5	20.8	8.40			
10	20.8	8.14			
Meter ID:	58	DHIJ			
Lab Water Control	20.5	8.82	11.2	25.2	Date. 3 61/09
0.625	20.5	9.16	14.6	26.0	
1.25	20.5	9.17	14.2	26.8	Termination Signoff:
2.5	20.5	9.04	12.9	28.0	
	20.5	<u>9.04</u> 8.40	9.9	30.2	WQ Signoff JNC
5	20.5	7,95	7.3	35.5	
10	<u> </u>	PH03	Doly	ECOS	
Meter ID:					

Thalassiosira pseudonana Reference Toxicant Test Water Quality Data

Initial Test Conditions	Light Intensity (lux)
	6200

Appendix D

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to *Americamysis bahia*

CETIS Sum	nmary Repo	rt		_				Report Dat Test Code:		08		17 (p 1 of 2 -8603/3219
Chronic Mysic	d Survival, Grow	rth and	I Fecundity	Test							Paci	ic EcoRisk
Start Date:	21-2258-0498 25 Feb-09 15:00 04 Mar-09 08:35 6d 18h	D 5	Test Type: Protocol: Species: Source:	Growth-Surviva EPA/821/R/02/ Americamysis Aquatic Biosys	014 (2002) bahia			Analyst: Diluent: Brine: Age:	Jason W Laborato Crystal \$ 7	ory Wat	er	
-	08-7787-0147 25 Feb-09 09:15 25 Feb-09 10:35 6h (13.7 °C)		Code: Material: Source: Station:	Brine Effluent Applied Marine MWHA	Sciences			Client: Project:	AMS 14499			
Comparison S	Summary											
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	ΤŲ	Meth	lod			
	7d Survival Rate		100	>100	N/A	11.2%	1	Stee	Many-O	ne Rank	Test	
16-9066-4752	Mean Dry Bioma	ass-mg) 100	>100	N/A	23.9%	1	Duni	nett's Mull	tiple Co	mparison T	est
Point Estimate	e Summary											
Analysis No	Endpoint		Level	Conc-%	95% LCL	95% UCL	τu	Meth	nod			
01-1773-8098	Mean Dry Bioma	ass-mo	IC2.5	>100	N/A	N/A	<1	Line	ar Interpol	lation (I	CPIN)	
			IC5	>100	N/A	N/A	<1					
			IC10	>100	N/A	N/A	<1					
			IC15	>100	N/A	N/A	<1					
			IC20	>100	N/A	N/A	<1					
			IC25	>100	N/A	N/A	<1					
			IC40	>100	N/A	N/A	<1					
			IC50	>100	N/A	N/A	<1					
7d Survival Ra	ate Summary											
Conc-%	Control Type	Coun	it Mean	95% LCL	95% UCL	Min	Max	c Std	Err St	d Dev	CV%	Diff%
0	Control	8	0.925	0.886	0.964	0.8	1	0,01	89 0.1	104	11.2%	0.0%
2.5		8	0.975	0.949	1	0.8	1	0.01	29 0.0	0707	7.25%	-5.41%
5		8	0.975	0.949	1	0.8	1	0.01	29 0.0	0707	7.25%	-5.41%
10		8	1	1	1	1	1	0	0		0.0%	-8.11%
25		8	0.95	0.897	1	0.6	1	0.02	58 0.1	141	14.9%	-2.7%
50		8	0.95	0.915	0.985	0.8	1	0.01	69 0.0	0926	9.75%	-2.7%
				0.040	1	0.8	1	0.01	29 0.0	0707	7.25%	-5.41%
100		8	0.975	0.949	1	0.0						
100	mass-mg Summ		0.975	0.949		0.0		-				
100 Mean Dry Bior	mass-mg Summ Control Type					Min	Max			d Dev	CV%	Diff%
100 Mean Dry Bio Conc-% 0		агу		95% LCL			Max 0.31	c Std	Err St	d Dev 0507	CV%	Diff% 0.0%
100 Mean Dry Bio Conc-% 0 2.5	Control Type	ary Coun	t Mean	95% LCL 0.243	95% UCL	Min		std	Err St 925 0.0			
100 Mean Dry Bio Conc-% 0 2.5	Control Type	ary Coun 8	t Mean 0.262	95% LCL 0.243 0.293	95% UCL 0.28	Min 0.176	0.31	s Std 16 0.00 16 0.00	Err St 925 0.(629 0.(0507	19.4%	0.0%
100 Mean Dry Bion Conc-% 0 2.5 5	Control Type	ary Coun 8 8	t Mean 0.262 0.306	95% LCL 0.243 0.293 0.275	95% UCL 0.28 0.319	Min 0.176 0.236	0.31 0.34	s Std 16 0.00 16 0.00 72 0.00	Err St 925 0.0 629 0.0 904 0.0	0507 0345	19.4% 11.3%	0.0% -16.9%
100 Mean Dry Bior Conc-%	Control Type	ary Coun 8 8 8	t Mean 0.262 0.306 0.294	95% LCL 0.243 0.293 0.275	95% UCL 0.28 0.319 0.312	Min 0.176 0.236 0.204	0.31 0.34 0.37	s Std 16 0.00 16 0.00 72 0.00 78 0.00	Err St 925 0.0 629 0.0 904 0.0	0507 0345 0495	19.4% 11.3% 16.9%	0.0% -16.9% -12.2% -18.3%
100 Mean Dry Bion Conc-% 0 2.5 5 5 10	Control Type	ary Coun 8 8 8 8	t Mean 0.262 0.306 0.294 0.309	95% LCL 0.243 0.293 0.275 0.293 0.288	95% UCL 0.28 0.319 0.312 0.326	Min 0.176 0.236 0.204 0.23	0.31 0.34 0.37 0.37	Std 16 0.00 16 0.00 72 0.00 78 0.00 98 0.01	Err St 925 0.0 629 0.0 904 0.0 798 0.0	0507 0345 0495 0437	19.4% 11.3% 16.9% 14.1%	0.0% -16.9% -12.2%

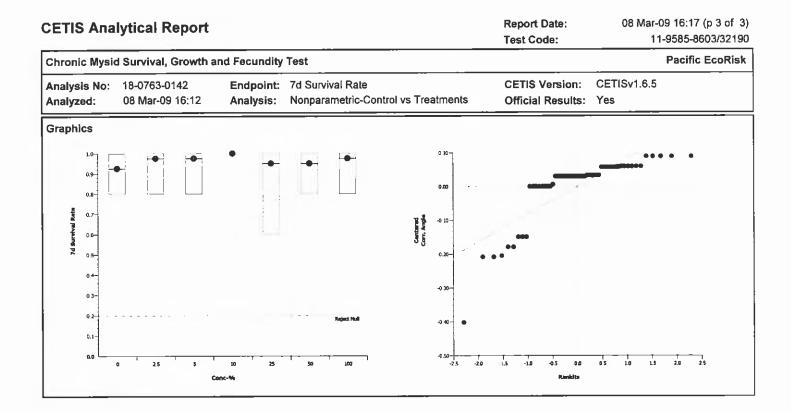
Report Date:

Test Code:

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Chronic My	sid Survival, Grov	wth and Fe	cundity Te	st						Pacific EcoRisk
7d Surviva	Rate Detail									
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	Control	1	1	0.8	1	1	0.8	1	0.8	
2.5		1	1	1	1	0.8	1	1	1	
5		0.8	1	1	1	1	1	1	1	
10		1	1	1	1	1	1	1	1	
25		1	1	1	0.6	1	1	1	1	
50		1	0.8	1	0.8	1	1	1	1	
100		1	1	1	1	0.8	1	1	1	
Mean Dry E	Biomass-mg Detail	1								-
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	Control	0.316	0.316	0.2	0.27	0.284	0.252	0.278	0.176	
2.5		0.328	0.284	0.346	0.236	0.312	0.332	0.312	0.296	
5		0.204	0.308	0.302	0.262	0.296	0.372	0.33	0.274	
10		0.304	0.378	0.306	0.322	0.274	0.336	0.324	0.23	
25		0.308	0.398	0.284	0.19	0.36	0.316	0.308	0.316	
50		0.306	0.23	0.446	0.246	0.266	0.292	0.286	0.272	
100		0.374	0.29	0.322	0.216	0.234	0.384	0.314	0.32	

	alytical Repo						Test	0000.		11-9202	-8603/3219
Chronic Mysi	id Survival, Grov	wth and	Fecundity Tes	t						Pacit	fic EcoRisl
Analysis No:	18-0763-0142	E	ndpoint: 7d	Survival Rat	e		CET	S Version:	CETISv1	.6.5	-
Analyzed:	08 Mar-09 16:1	2	nalysis: Nor	parametric-	Control vs T	reatments	Offic	ial Results:	Yes		
Data Transfo	m	Zeta	Alt Hyp	Monte Ca	rlo	NOEL	LOEL	TOEL	TU	PMSD	
Angular (Corre	ected)		C > T	Not Run		100	>100	N/A	1	11.2%	
Steel Many-O)ne Rank Test							-			
Control	vs Conc-%		Test Stat	Critical	Ties	P-Value	Decision((5%)			
Control	2.5		76	46	2	0.9820	Non-Signi	ficant Effect			
	5		76	46	2	0.9820	Non-Signi	ficant Effect			
	10		80	46	1	0.9950	Non-Signi	ficant Effect			
	25		74.5	46	1	0.9710	+	ficant Effect			
	50		72	46	2	0.9430	-	ficant Effect			
	100		76	46	2	0.9820	-	ficant Effect			
ANOVA Table											
Source	Sum Squ	ares	Mean Squ	iare	DF	F Stat	P-Value	Decision(5%)		
Between	0.039358	87	0.0065598	311	6	0.614	0.7180	Non-Signif	icant Effect		
Error	0.523787	1	0.0106895	53	49			_			
Total	0.563145	9467113	0.0172493	4205413	55						
ANOVA Assu	mptions										
Attribute	Test			Test Stat	0-1411	DMalua					
				IUSLOID	Critical	P-Value	Decision	[1%]			
Variances	Mod Lev	ene Equa	lity of Variance		3.19		Decision Equal Var				
Variances Distribution	Mod Lev Shapiro-		ility of Variance			0.7180 0.0000	Equal Var		n		
Distribution			•	0.614		0.7180	Equal Var	iances	n		
Distribution	Shapiro-		•	0.614		0.7180	Equal Var	iances	n Std Dev	 CV%	Diff%
Distribution 7d Survival R	Shapiro-1 Rate Summary	Wilk Norr	nality	0.614 0.694	3.19	0.7180 0.0000	Equal Var Non-norm	iances al Distributio		CV% 11.2%	Diff% 0.0%
Distribution 7d Survival R Conc-% 0	Shapiro- Rate Summary Control Type	Wilk Norr	Mean	0.614 0.694 95% LCL	3.19 95% UCL	0.7180 0.0000 Min	Equal Var Non-norm Max	iances al Distributio Std Err	Std Dev		
Distribution 7d Survival R Conc-% 0	Shapiro- Rate Summary Control Type	Count 8	Mean 0.925	0.614 0.694 95% LCL 0.886	3.19 95% UCL 0.964	0.7180 0.0000 Min 0.8	Equal Var Non-norm Max 1	iances al Distributio Std Err 0.0192	Std Dev 0.104	11.2%	0.0%
Distribution 7d Survival R Conc-% 0 2.5 5	Shapiro- Rate Summary Control Type	Count 8 8 8	Mean 0.925 0.975	0.614 0.694 95% LCL 0.886 0.948	3.19 95% UCL 0.964 1	0.7180 0.0000 Min 0.8 0.8	Equal Var Non-norm Max 1 1	Std Err 0.0192 0.0131 0.0131	Std Dev 0.104 0.0707 0.0707	11.2% 7.25% 7.25%	0.0% -5.41% -5.41%
Distribution 7d Survival R Conc-% 0 2.5 5 5 10	Shapiro- Rate Summary Control Type	Vilk Norr Count 8 8 8 8 8	Mean 0.925 0.975 0.975 1	0.614 0.694 95% LCL 0.886 0.948 0.948 1	3.19 95% UCL 0.964 1 1 1	0.7180 0.0000 Min 0.8 0.8 0.8 1	Equal Var Non-norm Max 1 1 1 1	iances al Distributio Std Err 0.0192 0.0131 0.0131 0	Std Dev 0.104 0.0707 0.0707 0	11.2% 7.25% 7.25% 0.0%	0.0% -5.41% -5.41% -8.11%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25	Shapiro- Rate Summary Control Type	Count 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896	3.19 95% UCL 0.964 1 1 1	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6	Equal Var Non-norm Max 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131	Std Dev 0.104 0.0707 0.0707 0 0.141	11.2% 7.25% 7.25% 0.0% 14.9%	0.0% -5.41% -5.41% -8.11% -2.7%
Distribution 7d Survival R Conc-% 0 2.5 5 5 10 25 50	Shapiro- Rate Summary Control Type	Vilk Norr 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915	3.19 95% UCL 0.964 1 1 1 0.985	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8	Equal Var Non-norm Max 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131	Std Dev 0.104 0.0707 0.0707 0 0.141 0.0926	11.2% 7.25% 7.25% 0.0% 14.9% 9.75%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7%
Distribution 7d Survival R Conc-% 0 2.5 5 5 10 25 50 100	Shapiro- Rate Summary Control Type Control	Vilk Norr 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896	3.19 95% UCL 0.964 1 1 1	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6	Equal Var Non-norm Max 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131	Std Dev 0.104 0.0707 0.0707 0 0.141	11.2% 7.25% 7.25% 0.0% 14.9%	0.0% -5.41% -5.41% -8.11% -2.7%
Distribution 7d Survival R Conc-% 0 2.5 5 5 10 25 50 100 Angular (Corr	Shapiro-N Rate Summary Control Type Control	Count 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975 mmary	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948	3.19 95% UCL 0.964 1 1 1 0.985 1	0.7180 0.0000 Min 0.8 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8	Equal Var Non-norm 1 1 1 1 1 1 1 1	iances al Distributio Std Err 0.0192 0.0131 0.0131 0 0.0263 0.0172 0.0131	Std Dev 0.104 0.0707 0.0707 0 0.141 0.0926 0.0707	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25 50 100 Angular (Corr Conc-%	Shapiro- Rate Summary Control Type Control rected) Transfor Control Type	Vilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.95 0.975 mmary Mean	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL	0.7180 0.0000 Min 0.8 0.8 1 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0172 0.0131 Std Err	Std Dev 0.104 0.0707 0.0707 0 0.141 0.0926 0.0707 Std Dev	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25 50 100 Angular (Corr Conc-% 0	Shapiro-N Rate Summary Control Type Control	Vilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.95 0.975 mmary Mean 1.26	95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL 1.21	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL 1.3	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.1 1	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 3 5	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0263 0.0131 Std Err 0.0229	Std Dev 0.104 0.0707 0.0707 0 0.141 0.0926 0.0707 Std Dev 0.123	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25% CV% 9.81%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff% 0.0%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25 50 100 Angular (Corr Conc-% 0 2.5	Shapiro- Rate Summary Control Type Control rected) Transfor Control Type	Vilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975 mmary Mean 1.26 1.32	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL 1.21 1.28	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL 1.3 1.35	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.1 1 0.6 0.8 0.8 0.1 1 0.6 0.1 1 0.6 0.1 1 0.0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0263 0.0172 0.0131 0 0.0263 0.0131 0.01263 0.01263 0.01263 0.0131	Std Dev 0.104 0.0707 0 0.141 0.0926 0.0707 Std Dev 0.123 0.0842	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25% CV% 9.81% 6.4%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff% 0.0% -4.74%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25 50 100 25 50 100 Angular (Corr Conc-% 0 2.5 5	Shapiro- Rate Summary Control Type Control rected) Transfor Control Type	Wilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975 mmary Mean 1.26 1.32 1.32	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL 1.21 1.28 1.28	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL 1.3 1.35 1.35	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0263 0.0131 Std Err 0.0229	Std Dev 0.104 0.0707 0 0.141 0.0926 0.0707 Std Dev 0.123 0.0842	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25% CV% 9.81% 6.4%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff% 0.0% -4.74% -4.74%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25 50 100 Angular (Corr Conc-% 0 2.5 5 10	Shapiro- Rate Summary Control Type Control rected) Transfor Control Type	Vilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975 mmary Mean 1.26 1.32 1.32 1.32	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL 1.21 1.28	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL 1.3 1.35	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.1 1 0.6 0.8 0.8 0.1 1 0.6 0.1 1 0.6 0.1 1 0.0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0263 0.0172 0.0131 0 0.0263 0.0131 0.01263 0.01263 0.01263 0.0131	Std Dev 0.104 0.0707 0 0.141 0.0926 0.0707 Std Dev 0.123 0.0842	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25% CV% 9.81% 6.4%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff% 0.0% -4.74%
Distribution 7d Survival R Conc-% 0 2.5 5 10 25 50 100 Angular (Corr Conc-% 0 2.5 5 10	Shapiro- Rate Summary Control Type Control rected) Transfor Control Type	Wilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975 mmary Mean 1.26 1.32 1.32	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL 1.21 1.28 1.28	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL 1.3 1.35 1.35	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0263 0.0172 0.0131 0.0263 0.0172 0.0131	Std Dev 0.104 0.0707 0 0.141 0.0926 0.0707 Std Dev 0.123 0.0842	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25% CV% 9.81% 6.4%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff% 0.0% -4.74% -4.74%
Distribution 7d Survival R Conc-% 0 2.5 5 5 10 25 50 100	Shapiro- Rate Summary Control Type Control rected) Transfor Control Type	Vilk Norr 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mean 0.925 0.975 0.975 1 0.95 0.95 0.95 0.975 mmary Mean 1.26 1.32 1.32 1.32	0.614 0.694 95% LCL 0.886 0.948 0.948 1 0.896 0.915 0.948 95% LCL 1.21 1.28 1.28 1.28 1.35	3.19 95% UCL 0.964 1 1 1 0.985 1 95% UCL 1.3 1.35 1.35 1.35	0.7180 0.0000 Min 0.8 0.8 0.8 1 0.6 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	Equal Var Non-norm 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Std Err 0.0192 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0131 0.0263 0.0172 0.0131 0.0156 0.0156 0.0156	Std Dev 0.104 0.0707 0 0.141 0.0926 0.0707 Std Dev 0.123 0.0842 0.0842 0	11.2% 7.25% 7.25% 0.0% 14.9% 9.75% 7.25% CV% 9.81% 6.4% 6.4% 0.0%	0.0% -5.41% -5.41% -8.11% -2.7% -2.7% -5.41% Diff% 0.0% -4.74% -4.74% -7.11%



							Test	0000.		11-9585	
Chronic Mysic	d Survival, Grov	wth and	Fecundity	Test						Pacif	fic EcoRis
Analysis No:	16-9066-4752		Endpoint:	Mean Dry Bion	nass-mg		CET	S Version:	CETISv1.	.6.5	
Analyzed:	08 Mar-09 16:1	16	Analysis:	Parametric-Co	ntrol vs Trea	tments	Offic	ial Results:	Yes		
Data Transfor	m	Zeta	Alt H	yp Monte Ca	rlo	NOEL	LOEL	TOEL	TU	PMSD	
Untransformed			C > T	Not Run		100	>100	N/A	1	23.9%	
Dunnett's Mul	Itiple Comparis	on Test									
Control	vs Conc-%		Test	Stat Critical	MSD	P-Value	Decision((5%)			
Control	2.5		-1.67	2.36	0.0625	0.9990	Non-Signi	ficant Effect			
	5		-1.21	2.36	0.0625	0.9940	Non-Signi	ficant Effect			
	10		-1.8	2.36	0.0625	0.9990	_	ficant Effect			
	25		-1.83	2.36	0.0625	0.9990	-	ficant Effect			
	50		-1.19	2.36	0.0625	0.9930		ficant Effect			
	100		-1.71	2.36	0.0625	0.9990	Non-Signi	ficant Effect			
ANOVA Table											
Source	Sum Squ	-	· · ·	Square	DF	F Stat	P-Value	Decision(
Between	0.0142424			373748	6	0.843	0.5430	Non-Signif	icant Effect		
	0.137990			816125	49 55						
Total	0.152232	0031095	0.005	18987257965	55						
ANOVA Assur	mptions										
Attribute	Test			Test Stat	Critical	P-Value	Decision				
Variances		• •	of Variance	3.63	16.8	0.7260	Equal Var				
Variances Distribution	Bartlett E Shapiro-	• •		3.63 0.97	16.8	0.7260 0.1800	Equal Var Normal D				
Distribution		Wilk No			16.8		-				
Distribution Mean Dry Bio	Shapiro-	Wilk No	mality	0.97		0.1800	-		Std Dev	CV%	Diff%
Distribution Mean Dry Bio Conc-% 0	Shapiro-' mass-mg Sumr	Wilk Nor	mality	0.97 95% LCL		0.1800	Normal D	istribution	Std Dev 0.0507	CV% 19.4%	Diff% 0.0%
Distribution Mean Dry Bio Conc-% 0	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun	rmality t Mean	0.97 95% LCL 0.242	95% UCL	0.1800 Min	Normal D Max	istribution Std Err			
Distribution Mean Dry Bio Conc-% 0 2.5	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8	t Mean	0.97 95% LCL 0.242 0.293	95% UCL 0.281	0.1800 Min 0.176	Max 0.316	Std Err 0.00941	0.0507	19.4%	0.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8	rmality t Mean 0.262 0.306	0.97 95% LCL 0.242 0.293 0.275	95% UCL 0.281 0.319	0.1800 Min 0.176 0.236	Normal D Max 0.316 0.346	Std Err 0.00941 0.0064	0.0507 0.0345	19.4% 11.3%	0.0% -16.9%
Distribution	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8	mality t Mean 0.262 0.306 0.294	0.97 95% LCL 0.242 0.293 0.275	95% UCL 0.281 0.319 0.312	0.1800 Min 0.176 0.236 0.204	Normal D Max 0.316 0.346 0.372	Std Err 0.00941 0.0064 0.0092	0.0507 0.0345 0.0495	19.4% 11.3% 16.9%	0.0% -16.9% -12.2%
Distribution Mean Dry Bio Conc-% 0 2.5 5 5 10 25	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287	95% UCL 0.281 0.319 0.312 0.326	0.1800 Min 0.176 0.236 0.204 0.23	Normal D Max 0.316 0.346 0.372 0.378	Std Err 0.00941 0.0064 0.0092 0.00812	0.0507 0.0345 0.0495 0.0437	19.4% 11.3% 16.9% 14.1%	0.0% -16.9% -12.2% -18.3%
Distribution Mean Dry Bio Conc-% 0 2.5 5 5 10 25 50	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333	0.1800 Min 0.176 0.236 0.204 0.23 0.19	Normal D Max 0.316 0.346 0.372 0.378 0.398	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112	0.0507 0.0345 0.0495 0.0437 0.0602	19.4% 11.3% 16.9% 14.1% 19.4%	0.0% -16.9% -12.2% -18.3% -18.5%
Distribution Mean Dry Bio Conc-% 0 2.5 5 5 10 25 50 100	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 5 10 25 50 100	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 5 10 25 50 100 Graphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 10 25 50 100 Graphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 10 25 50 100 Graphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.23 0.216	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 55 10 25 50 100 Graphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.23 0.216	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 5 10 25 50 100 Graphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.20- 0.15- 0.15- 0.30- 0.15- 0.30- 0.30- 0.30- 0.5-	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 55 10 25 50 100 Graphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 55 10 25 50 100 Craphics	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268 0.284	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.216 0.30 0.15- 0.30 0.15- 0.05- 0.05- 0.05-	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 10 25 50 100 Graphics 0.4-	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268 0.284	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.20- 0.15- 0.15- 0.30- 0.15- 0.30- 0.30- 0.30- 0.5-	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 10 25 50 100 Graphics 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268 0.284	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.216 0.30 0.15- 0.30 0.15- 0.05- 0.05- 0.05-	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 10 25 50 100 Graphics 0.4-	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268 0.284	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.20- 0.15- 0.05- 0.05-	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%
Distribution Mean Dry Bio Conc-% 0 2.5 5 10 25 50 100 Graphics 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	Shapiro- mass-mg Sumr Control Type	Wilk Nor nary Coun 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	mality t Mean 0.262 0.306 0.294 0.309 0.31 0.293	0.97 95% LCL 0.242 0.293 0.275 0.293 0.287 0.268 0.284	95% UCL 0.281 0.319 0.312 0.326 0.333 0.318	0.1800 Min 0.176 0.236 0.204 0.23 0.19 0.23 0.216 0.20- 0.15- 0.05- 0.05-	Normal D Max 0.316 0.346 0.372 0.378 0.398 0.446 0.384	Std Err 0.00941 0.0064 0.0092 0.00812 0.0112 0.0124	0.0507 0.0345 0.0495 0.0437 0.0602 0.0665	19.4% 11.3% 16.9% 14.1% 19.4% 22.7%	0.0% -16.9% -12.2% -18.3% -18.5% -12.0%

ETIS	Analyti	cal Repo	ort					-	ort Date: Code:		09 16:17 (p 1 of 1 -9585-8603/3219
Chronic	c Mysid Su	vival, Grov	vth and	Fecundity	Test						Pacific EcoRis
Analysi	s No: 01-	1773-8098		Endpoint:	Mean Dry Bio	mass-mg		CET	IS Version:	CETISv1.6.5	
Analyze		Mar-09 16:1	6	Analysis:	Linear Interpo	olation (ICPIN)	I	Offic	ial Results:	Yes	
inear	Interpolatio	n Options					_				
X Trans	-	' Transform	n :	Seed	Resamples	Exp 95%	CL Meth	nod			
Linear		inear		5795186	280	Yes		Point Interp	olation		
Point E	stimates								······		
Level	Сопс-%	95% LCL	95% L	ICL	TU	95% LCL	95% UCL				
C2.5	>100	N/A	N/A		<1	N/A	N/A				
IC5	>100	N/A	N/A		<1	N/A	N/A				
IC10	>100	N/A	N/A		<1	N/A	N/A				
IC15	>100	N/A	N/A		<1	N/A	N/A				
IC20	>100	N/A	N/A		<1	N/A	N/A				
IC25	>100	N/A	N/A		<1	N/A	N/A				
IC40	>100	N/A	N/A		<1	N/A	N/A				
IC50	>100	N/A	N/A		<1	N/A	N/A				
Mean C	bry Blomas	s-mg Sumn	nary		-	Cal	culated Va	riate			
Conc-%		ol Type	Coun			Max	Std Err	Std Dev	CV%	Diff%	
0	Contro	ol	8	0.262		0.316	0.00925	0.0507	19.4%	0.0%	
2.5			8	0.306		0.346	0.00629	0.0345	11.3%	-16.9%	
5			8	0.294		0.372	0.00904	0.0495	16.9%	-12.2%	
10			8	0.309		0.378	0.00798	0.0437	14.1%	-18.3%	
25 50			8 8	0.31 0.293	0.19	0.398 0.446	0.011 0.0121	0.0602 0.0665	19.4% 22.7%	-18.5% -12.0%	
100			8	0.293		0.384	0.0121	0.0595	19.4%	-17.3%	
		n ma Detail									<u> </u>
Conc-%	Dry Biomas			Rep 2	Don 1	Don 4	Don F	Don 6	Don 7	Don 8	
0	Contr	ol Type	Rep 1 0.316	0.316	·····	Rep 4 0.27	Rep 5 0.284	Rep 6 0.252	Rep 7 0.278	Rep 8	
2.5	Conta		0.328	0.284		0.236	0.312	0.332	0.312	0.296	
2.3 5			0.372	0.33	0.274	0.204	0.308	0.302	0.262	0.296	
10			0.304	0.378		0.322	0.274	0.336	0.324	0.23	
25			0.308	0.398		0.19	0.36	0.316	0.308	0.316	
50			0.306	0.23	0.446	0.246	0.266	0.292	0.286	0.272	
100			0.374	0.29	0.322	0.240	0.234	0.384	0.314	0.32	
Graphi			0.574	0.23		0.210	0.2.04	0.004	0.014		
Means Dry Diseases was	0.35- 0.30- 0.25- 0.20- 0.15- 0.10- 0.05-				•						
	0.00	20 40	Compc-Ma	a	1,000 ;	ា រ.គ					

Client:		Applie	d Mari	ne <u>Scie</u>	ences				Organ	iism L	og#:_	440	8		Age.	1 days
Test Material:	10	<u>مرمولک</u>	- and	<u>- E</u>	Brine	2_		Or	ganisn	n Supp	lier: _		Åß	\$		
Test ID #:	321	90	Pro	oject #:	144	99 _					-	-		Crysta	al Sea	@ 25 ppt
Test Date:	212	5105	<u> </u>					Cont	rol W	ater Ba	atch: _	1	58			
	-		. 1	D.0. (Colimits	(1991)	_		#13	ive Or	aniu	2015		-	SIGN-OFF
Treatment	Temp (°C)	pl new	old	new	mg/L) old	Salinity	old	A	в	C	D	E	F	G	н	31014-011
(% effluent)	24.5		UIU	8.1	0 d	25.0	014	5	5	5	5	5	5	5		Date
Control	-	7.90				25.Z		5	5	5	5	5	5	5	5	M 25/00
2.5	26.9	791		8.2				5	5	5	5	5	5	5	-	2-1508 Test Solution Prep
5	25.9			8.5		25.2					2	5	5	5	د ۲	Nen WQ.
10	26.9	7.88		8.6		25.1		5	5	5		-+		_		JNC Instation Time:
25	26.9	3.84		8.1		24.9		5	3	5	S	5	7	2	5	1500 Initiation Signol
50	26.9	7.79		8.2		24.5		2	5	S	5	5	2	2	2	
100	26.9	7.73		7.3		24.2		5	5	2	5	5	2	S	5	
Meter ID	JOA	PHIZ		0012	5.0	EL05				i						Data
Control	26.3	8.05	7.61	8.9	60	25.1	25.7	5	5	5	5	5	5	5	5	2/24/09
2.5	26.3		7.70			25.2	75.8	IJ	5	5	5	5	5	5	5	Sample ID 21508
5			7.77	8.4	U.9	25.2	258	5	5	5	5	5	5	5		Test Solution Prep
10	26.3		7.80	7,9		25.1	25.7	5	5	5	5	5	5	5	5	Nen WQ:
		7.96	7.93	~ ~ 1	5.3		25.7	-	5	5	4	5	5	5	5	Renewal Time
25			8,02		-		25.5			5	5	5	5	5	5	1330 Renewal-Sign-off EKK
50	26.3		रीम	8.3	4.5	24.0	24.9	_		5		5		5	5	USU WEIGH
100		-	-					5	5	-	5	5	5	5	2	
Meter ID	34A	p#11_	Ph12						·		-			~		Date:
Control	-	8.04					25.8		5	5	5	5	4	5	5	2/27/07 Sample ID
2.5			7,79				24.6		5	S	5	4	5	5	5	21508 Test Solution Prep
5	26.6	8.04	7.79	7.3	4.7	15.3	24.5	5	5	5	5	5	5	5	5	KO New WQ
10	26.4	8.03	7-34	7.4	49	15.3	26.4	5	5	5	5	5	5	5	5	EXX
2.5	24.6	7.99			5.4	25.2	25.5	5	5	5	4	5	5	5	5	Renewal Time 1205
.50	26.6	7.95	8.17	7.8	5.3	25.4	25.5	5	5	5	4	5	5	5	5	Renewal-Sign-oil:
100	role	7.89	8.30	1	5.4	25.3	· ·	5	5	5	5	5	5	5	3	MSM
Meter ID	70A	2403				EL05			-							
		8.22	500	7.3	50	25.2	LAN 3	5	5	5	5	5	4	5	5	Date 2/28/09
Control	25.7	8.26	29	7.4	5.5	25.2	2.7	5	5	5	5	4	5	5	5	2/28/09 Sample ID
2.5		-	2 92	7.4	52	25.2	01		<u> </u>	5	5	5	5	5	5	21508 Test Solution Prep
5	25.7	8.28	411	74	1.1		0100	5	5	5	5	5	5	5	5	Eiq-
10	25.7	8 28	8.07		5.0	250	about 1	5	5		-			5	+	JPC Renewal Time
25	25,7	825	8.12		5.4	24.7	040.	5	5	5	4	5	5	<u> </u>	5	1030 Renewal-Sign-off:
.50	15.7	8.22	82	7.5	5.3	24.3	203	5	5	5	ч	5	5	5	5	EKK
100	25.7	8.20	838	7.3	5.2	24.4	265	5	5	5	5	5	5	5	5	CHA WORK
Meter ID	14A	PH03	PHI	0010	DOIZ	FLOS	ECO									

7 Day Chronic Americamysis bahia Toxicity Test Test Data

			ed <u>Ma</u> ri						Orgar	nism L	.og#: _	<u>44</u>	08		Age:	1 Mays
Test Material:	+By	-	water	Br	ine	-			ganisn							
Test ID #:	32	190	Pr	oject#:	14	199			Contr	ol/Dil	uent:		DI 8	٤ Crys	stal Se	a @ 25 ppt
Test Date:		212	109					Con	trol W	ater B	atch:	7	08			
	m			DO		C-D-ti-		_		#1					_	SIGN OFT
Treatment	Temp (°C)	new p	H	new	mg/L) old	Salinit	y (ppt) old	A	в	r L	ive O D	E	ms F	G	Н	SIGN-OFF
						24.5		5	C	Z	5	Z	U	Š	5	Date 3/1/09
<u>Control</u>	25.4		1.59					10	0		2	ŭ	-	5	ン	Sample ID
2.5	ZSY	7.88	7.58		5.6	-	26.0	2	2	3	2	1	5	2	5	21508 Test Solution Prep
5	25.4	7,89			5.4	24,6	25.9	2	3	5	2	2	2	50		New WQ:
10	ZS,Y	7,89	7.68				25.9	S	5	5	2	2	N C	2-		SL Renewal Time:
25	25.Y	7,90	7.78		5.0		26-0	5	5	5	4	5	5	5	5	310
50	254	7,91	7.96	8.3			25.3	5	5	5	4	5	5	5	5	Renewal Sign off
100	25.4	7.91	8-12	8,7	5.4	24.0	25.1	5	5	5	5	5	5	5	5	NN NN
Meter ID	ZYA	рни	PH12	PO 10		EWS										
Control	25.6	7.80	7.48	2.4	67	247	251	5	5	4	5	5	4	5	4	Date: 31.2109
2.5	25%		7.67	8.3	59	247	75.6	5	5	<	5.	4	5	5	5	Sample ID: 21508
5	258		7.49	8.2	50	24.7	25.4	15	5	5	5	Ł	5	5	5	Test Solution Prep
	256		700	81	57	24.6	757	5			5	5	~	2	5	New WQ
10			770	8.1	50	216	25.4	2	5	2	U	5	5	$\frac{3}{5}$	$\overline{\langle}$	Renewal Time
25	256	7.84	1-12	8.2	5.6	15		5	2	5	-1	5		$\frac{5}{c}$	2	Renewal-Sugnant
50	-	7.85	101	83	2.0	24.3	25.3	5	2	2	4	2	2	2		ONTWOND
100	251	7.85	Y.04	81	2.5	24.0	24.9	5	>	5	2	5	5	S	S	AR
Meter ID	244	pH12		Delu	D 019	Fros										Date:
Control	25.7	1.86	7.58	8.9	6.3	247	25.4	5	5	4	5	5	4	5	4	313100
2.5	257	787	7.7	8.6	5.8	249	26,7	5	5	5	5	4	5	5	Ś	Sample ID Test Solution Prep
5	25.7	195	7.75	8,3	61	248	25.4	4	5	5	5	5	5	5	5	sen
10	257		7.83	8.6	\$.8		25.6	5	5	5	5	5	5	5	5	Neu WQ SL
	257	7.82	7.99	1.6	5.7		001		5	5	3	5	5	5	5	Renew al Time
25	25.7	7.80	801	8.5	1.0	246	253		5	S	4	5	5	5	5	1435 Renewal-Sign-off
50	257		8.26		5.8	244	255		5	5.	5	4	5	5	5	ONJ WHE
100	24A		Phil	410	000	· ·	E.CH	F	F					M	2	<u>u</u>
Meter ID		PHIZ	<u> </u>	DOM		COL		5	S		5	6	4			Date 11/100
Control	25.0		7,84		7.		25.4	5		7	5	0		S	7	3/4/09 Termination-Time:
2.5	25.0		7.85		6.8		25.4	<u> </u>	5	5	0	4	5	5	5	835
5	25.0		7.90		6.9		25.4	4	5	<u>p</u> .	5	5	2	5	5	OIJ WQ.
10	25.0		7:93		6.7		25.4	5	5	5	5	5	5	5	5	SL.
25	25.0		8.05		6.6		2514	5	5	5	3	5	5	5	5	- Manufacture - Linesenese Marco approvide an
50	25.0		8:16		65		25.2	5	4	5	4	5	5	5	5	
100	25.0		8:27		6.3		25.0	5	5	4	5	4	5	5	6	
Meter ID	ZYA	-	pH12		1014	-	ELOS	-		1-						
L'meter ID	10.64	L		1	1	<u></u>	4	1	1				F			

7 Day Chronic Americamysis bahia Toxicity Test Test Data

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28.48

0,210

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Test ID #: 32190 Project # 14499 Client: Applied Marine Sciences Sign-off: NC Tare Weight Date: 2_26-09 Sample: Test Date: 2/25/09 Final Weight Date: 3-5-09 Sign-off: 74 Concentration (%) Pan + Dry Mysid Initial # of Mysid Biomass Initial Pan Weight Pan ID Value (mg) Weight (mg) Organisms (mg)Replicate 5 0.316 1 Control Α 27.42 29.00 5 0.116 2 В 25.74 27.32 0.200 5 3 C 27.94 28.94 5 30.32 31-67 0.270 D 4 0.284 27.33 5 5 E 25.91 26.06 5 0.252 F 24.80 6 5 7 G 22.90 24.29 0.278 5 6-16 Н 28.74 29.62 8 0. 324 5 23.73 25.37 9 2.5 A 0.274 5 10 B 26.81 28.23 0.246 5 С 11 27.97 29.70 0.236 5 25.40 12 D 24.22 5 0.312 E 25.87 27.43 13 32.11 30.45 5 0.752 F 14 29.39 5 0.312 G 27.83 15 31.08 5 Н 32.56 0,226 16 5 27.57 28.59 0.204 17 5 А 31.33 32.87 5 0. 308 B 18 23.88 0. 302 С a5.39 5 19 27.71 5 0.212 26.40 20 D 26.78 5 6,296 E 25.30 21 F 30.68 5 0.372 22 28.82 0.370 5 G 26.82 28.47 23 5 0.274 Н 28.15 29.52 24 5 0.304 26.51 28.03 25 10 А 0.378 25.19 27.08 5 В 26 30.13 31.46 5 0.306 С 27 24.88 26.49 5 D 0322 28 28.63 0.274 27.26 5 29 Е 0. 336 26.57 5 F 24.89 30 a 324 26.88 28.50 5 G

Americanysis bahia Dry Weight and Biomass Value Data

29.63

Americamysis bahia Dry Weight and Biomass Value Data

	Applied N	<u>Aarine S</u>		Test ID #: 32190		
Sample:		1	Tare W	eight Date: <u>2-24 -09</u>		
Test Date:	<i>v</i>	rrjo	Final W	eight Date: 3-5-00	9 Sign-off:	<u>nuc</u>
Pan ID	Concentration	n (%) Replicate	Initial Pan Weight (mg)	Pan + Dry Mysid Weight (mg)	Initial # of Organisms	Mysid Biomass Value (mg)
33	25	А	26-00	27.54	5	0.308
34		В	24.86	26.85	5	0. 298
35		С	28.45	29.87	5	6.284
36		D	25-36	26.31	5	0.190
37		E	26-33	28.13	5	0.360
38		F	26.33	27.91	5	0.316
39		G	25.98	27.52	5	0.308
-40		Н	25.72	27.30	5	0.316
41	50	A	27.73	29.26	5	0-304
-12		В	ar.59	29.74	5	0-230
		С	25.47	27.70	5	D. 446
44		D	27.70	28.93	5	0.246
45		Е	22.95	24.28	5	0.266
-46		F	28.21	29.67	5	0.212
47		G	25.72	27.15	5	0,286
48		Н	27.18	2854	5	6-272
-49	100	А	30.53	32.40	5	0.374
50		В	23.94	25.39	5	0.210
51		С	28.43	29.72	54	0.322
52		D	29.45	30.53	5	0.216
53		Е	27.12	28.29	5	0.734
54		F	29.13	31.05	5	0-384
55		G	29.41	30.98	5	0.314
56		Н	30.24	31.84	5	0.320
QA I			26.99	26.99		
QA 2			25.52	25.51		
QA 3			25.65	28.63		
QA 4	<u> </u>		26:03	26-03		
QA 5			27.33	27:33		
QA 6	<u> </u>		27.20	27.19		
210						
L						<u> </u>

Appendix E

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Americamysis bahia*

CE (IS Sum	mary Report	t						Report Dat Test Code:				2 (p 1 of 2 0218/3219:
Chronic Mysid	Survival, Growti	h and	Fecundity	Test							Pacifi	c EcoRisk
Test Run No: Start Date: Ending Date: Duration:	13-2398-9421 25 Feb-09 15:45 04 Mar-09 08:45 6d 17h		Test Type: Protocol: Species: Source:	Growth-Surviv EPA/821/R/02 Americamysis Aquatic Biosys	/014 (2002) bahia			Analyst: Diluent: Brine: Age:	Rivian Villar Laboratory Crystal Sea 7	Water		
	12-4853-2547 25 Feb-09 15:45 25 Feb-09 15:45 N/A (26.7 °C)		Code: Material: Source: Station:	NaCl Sodium chlorid Reference To: In House	-			Client: Project:	Reference ⁻ 14500	Toxican	t	
Comparison S	ummary							-				
Analysis No	Endpoint		NOEL	LOEL	TOEL	PMSD	τu	Met	hod			
16-3010-1391	7d Survival Rate		0.5	1	0.707	12.1%		Stee	I Many-One I	Rank Te	est	
00-3908-7142	Mean Dry Bioma	ss-mg	0.25	0.5	0.354	17.4%		Stee	el Many-One I	Rank Te	est	
Point Estimat	e Summary		-									
Analysis No	Endpoint		Level	Conc-g/	L 95% LCL	95% UCL	TU	Met	hod			
15-1823-5578	7d Survival Rate		EC50	0.6	0.546	0.658		Spe	arman-Kärbe	r		
03-4110-6648	Mean Dry Bioma	ss-mg	IC2.5	0.181	0.0306	0.276		Line	ar Interpolation	on (ICP	IN)	
			IC5	0.236	0.0612	0.305						
			IC10	0.293	0.122	0.373						
			IC15	0.343	0.219	0.474						
			IC20	0.392	0.283	0.523						
			IC25	0.441	0.336	0.552						
			IC40 IC50	0.566 0.638	0.45 0.515	0.642 0.702						
7d Survival R	ate Summary											
Conc-g/L		Coun	t Mean	95% LC	L 95% UCL	Min	Max	c Std	Err Std D	Dev C	CV%	Diff%
0	Lab Water Contr	8	0.975	0.949	1	0.8	1	0.01	29 0.070)7 7	7.25%	0.0%
0.125		8	0.975	0.949	1	0.8	1	0.01	29 0.070)7 7	7.25%	0.0%
0.25		8	1	1	1	1	1	0	0	C).0%	-2.56%
0.5		8	0.75	0.663	0.837	0.4	1	0.04	0.233	3 3	31.1%	23.1%
1		8	0	0	0	0	0	0	0			100.0%
2		8	0	0	0	0	0	00	0			100.0%
Mean Dry Bio	mass-mg Summa	ary										
Conc-g/L		Cour					Ma		Err Std [CV%	Diff%
0	Lab Water Contr	8	0.276		0.293	0.212	0.32		0734 0.040		14.4%	0.0%
0.125		8	0.279		0.296	0.212	0.3		0859 0.047		16.9%	-0.09%
0.25		8	0.263		0.28	0.23	0.3		0863 0.047	73 1	18.0%	5.57%
0.5		8	0.192	0.167	0.217	0.066	0.2	52 0.01	0.067	71 3	34.9%	30.9%
1		8	0	0	0	0	0	0	0			100.0%
2		8	0	0	0	0	0	0	0			100.0%

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CETIS Su	mmary Repo	rt						ort Date: t Code:	05	Mar-09 15:32 (p 2 of 2) 06-2472-0218/32192
Chronic My	sid Survival, Grow	th and Fe	cundity Tes	st						Pacific EcoRisk
7d Survival	Rate Detail									
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	Lab Water Contr	1	1	0.8	1	1	1	1	1	
0.125		1	1	1	0.8	1	1	1	1	
0.25		1	1	1	1	1	1	1	1	
0.5		1	0.8	0.4	0.8	0.8	1	0.4	0.8	
1		0	0	0	0	0	0	0	0	
2		0	0	0	0	0	0	0	0	
Mean Dry B	iomass-mg Detail					-				
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	Lab Water Contr	0.286	0.328	0.228	0.312	0.212	0.288	0.27	0.302	
0.125		0.212	0.272	0.282	0.252	0.262	0.352	0.342	0.254	
0.25		0.248	0.29	0.236	0.25	0.246	0.232	0.37	0.23	
0.5		0.262	0.204	0.126	0.228	0.198	0.262	0.066	0.192	
1		0	0	0	0	0	0	0	0	
2		0	0	0	0	0	0	0	0	

45/62

Client:		Re	ference T	oxicant	t		Orga	nism L	.og#:	44	08						
Test Material:		_	assium	hlorid <u>e</u>					C	Organis	m Supj	olier: 🤳	<u>AB</u>	5			
			Pr)0				Cont	rol/Dil	uent: _	Dl	& Crys	tal Sea	@ 25ppi	
Test Date:	2/25	/09	Random	ization:	8.6.1				Co	ontrol V	Vater B	atch: _	7	08			
Test Date.		<u> </u>		_				_	_								
Treatment	Temp	 h		D.O. (п	ng/L)	Salinity	(ppt)			_#L	iv <u>e Or</u>	ganism	s			SIGN-OFF	
(g/L KCI)	(°C)	new	old	new	old	new	old	A	В	С	D	Е	F	G	н	ate:	
Control	267	7.75		7.7	i	25.2	2 5552555552/25/										
0.125	26.7	7.83		7.9		5.4	4 66655555										
0.25	267	7.84		7.8	ľ	25.5	5 5 5 5 5 5 5 5 5 5 Initialized										
0.5	267	7.85		8.2		21.5		5	5	5	5	5		5	~ 1	1545	
1	267	7.8Š		8.2		25.6		5	5	5		1	5	5	5	mitation Signoff:	
2	26.2	7.84		9.8		26-2		5	5	5	5	5	5	5	5		
Meter ID	30A	phili		Dorg		Ecol						_	_	_		Date:	
Control	24	7.94	7.65	7.3	5.4	25.0	25.8	5	5	4	5	5	5	5	51	7/26/09	
0.125	26.7	8.00	7.19	7.0	4.7	25.3	26.1	5	5	5	4	5	5	5		Test Solution Prep:	
0.25	267	8.01	7.70	7.1	5.5	25.1	26.1	5	5	5	5	5	5	S	51	VIL. Renewal Time:	
0.5	267	8.02	7.70	7.2	5.6	25.5	26-1	5	4	5	5	4	5	4	51	1410 Renewal-Sign-off	
1		9.02	1.71	7.0		26.1	264	0	F	0	0	0	0	1		Old WQ	
2			7.70			27.2	26.8	0	0	0	0	0	0	0	0	MTM	
Meter ID	-	1403		0012		FOOS	204									1	
Control	26.7	1.68	7.67	7.2	5.8	25.3	25.8	6	5	4	5	5	5	5	5	A22/69 Test Solution Prep	
0.125	26.7	8.10	7.80	7.6	5.7	25.4	260	5	5	5	4	5	5	5	5	Kew WQ.	
0.25	26.7	8.11	7.78	Т.Т	57	25.5	262	5	5	5	S	5	5	5	5	CKL Renewal Time:	
0.5	267	8.11	רה ל	7.7	54	25.7	262	5	4	4	4	4	5	4	5	1040 Renewal-Sign-oll	
1	26.7	8.13		8.0	59	25.9	269		0	-	-	-	-	0		Old WO:	
2	26.7	-		-	-	-	-	-	-	-	-	-	~	-	-	MOM	
Meter ID		7H 03	0403	DO 10	2010	££ 05										Date: /	
Control	25.6	8.14	7.94	73	6.7	25.2	26.1	5	5	4	5	5	5	5	5	2/78/09	
0.125	25.0		7.45	72	5.7	155	26.1	5	5	5	4	5	5	5	5	Test Solution Piep:	
0.25	25.6	0 10		73	5.6	25.6	26.2	5	5	5	5	5	5	5	5	0 AP	
0.5	25.6	1010	7.99	75	5.7	25.8	26.3	5	4	2	ч	4	5	4	5	Renewal Time: O ¶ 4 O Renewal-Sign-off:	
1	25.6		- 1	7.7	-	263		-	-	-	-	-	-	-	~	Cold WQ:	
2	25.4		-	-	-	-	-	-	-	-	-	-	-	~	-	JPL	
Meter IE	241	P#1	pH12	1012	0010	Elo	EDE	5									

7 Day Chronic Americamysis bahia Reference Toxicant Test Data

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Meter ID

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7 Day Chronic Americamysis bahia Reference Toxic ant Test Data

Client:		R	eference	e Toxica	nt							Log#:			108	
Test Material:		<u>P</u>	otassiun	n chlorio	le					Organi	ism Suj	plier:		A I	35	
Test ID #:	32.	192	F	Project #:	145	500										Sea @ 25ppt
Test Date:	2/2	5/09	Randor	nization:	8.4	.1			C	Control	Water	Batch:		te	<u>8</u>	
													-			
Treatment	Temp	Р	н	D.O. (mg/L)	Salinit	y (ppt)			#	Live O	rganisr	ns	,		SIGN-OFF
(g/L KCi)	('C)	new	old	new	old	new	old	А	В	C	D	E	F	G	н	
Control	25.5	****	7,70	83	6.8	24.2	25.8	5	5	4	5	5	5	5	5	3/1/09
0.125	75.5		7,62	79	6.2	2417	27.0	5	5	5	4	5	5	5	5	Test Solution Prep.
0.25	25.5	7,90	761	8,4	5,9	24.8	27.2	S	۲	5	5	۲	5	5	5	New WQ:
0.5	765	7,94	7168	8,5	60	25.1	26.6	5	4	2	4	4	5	4	4	Renewal Time:
	-	1	1	-	1	1	-	1	1	1	-	1	*	-	-	1030 Renewal-Sign-off: JP2-
2	-	-	_	-	1	-	-	+	•	-	-	1	-	-	1	old wo. SL
Meter ID	ZAAS	PHIL	pH12	PO10	1012	EOI	elo4									- 1.100114///****
Control	25.7	7.75	7.54	2.2	6.7	245	249	.5	6	4	5	5	5	5	5	Date: 3/2/09
0.125	257	7.81	7,55		6.0	248	25.6	5	5	Ś	4	5	5	5	5	Test Solution Prep:
0.25	25.7	7-82	7.54		7.0	25.0	259	5	S	5	S	5	5	5	5	New WQ:
0.5	25.7	7.84	7.54	9.3	5.9	25.2	25.2	5	4	2	4	4	5	4	4	Renewal Time:
	-	-	-	~	-	-	-	-	-	-	-	-	_		-	Renewal-Sign-off
2	-	-	-	-	~	-	-	-	-	-	-	•	*	-	~	OILI WQ:
Meter ID	RYA	DH12	0403	D614	DO VI	205	100									**************************************
Control	26.8	1.86	7.76	7.7	6.7	24.6	24.9	5	2	ч	5	5	5	5	S	Date: 3/2/09
0.125	25.8	7,87	7.72	7.8	6.4	24.9	25.7	5	5	S	4	5	5	5	5	3/3/09 Test Solution Prop
0.25	25.8	7.90	7.72	Q.P	6.3	25.1	25.9	5	5	S	Ś	5	5	5	5	New
0.5	25.8	7-95	7.71	8,1	6.3	15.4	26.0	5	4	2	ч	4	5	4	4	Renewal Time:
1	~	-	-	-		-	-	-	-	-	-	-	-	~		Renewal-Sign-off:
2	-	-	-	-	-	-	-	-	~	-	-	-	-	~	-	OH WO MEL
Meter ID	24A	thi	PH03	DOP	Doia	Frank	13005									**************************************
Control	25.0	×,	7,77		6,6		25D	5	5	4	5	5	5	5	5	Date. 3/4/09
0.125	24.0		7:76		67		25,6	5	5	5	4	5	5	5	5	3/4/09 Termination Time: 0845

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Appendix F

Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the Bay Area Regional Desalination Project Effluent to *Menidia beryllina*

CETIS Sum	nmary Repo	rt						Report Dat Test Code:		11		41 (p 1 of 2 -9998/3219
Chronic Larva	Il Fish Survival a	nd Gr	owth Test								Pacit	ic EcoRisk
Batch ID: Start Date: Ending Date: Duration:	16-3894-6560 26 Feb-09 11:00 05 Mar-09 08:30 6d 21h		Test Type: Protocol: Species: Source:	Growth-Surviva EPA/821/R/02/0 Menidia beryllin Aquatic Biosyst	014 (2002) Ia			Analyst: Diluent: Brine: Age:	Jason W Laborato Crystal \$ 11	ory Wate	er	
•	08-7787-0147 25 Feb-09 09:15 25 Feb-09 10:35 26h (13.7 °C)		Code: Material: Source: Station:	Brine Effluenl Applied Marine MWHA	Sciences			Client: Project:	AMS 14499			
Comparison S	Summary											
Analysis ID	Endpoint		NOEL	LOEL	TOEL	PMSD	TU	Meti	hod			
08-8190-6186	7d Survival Rate	•	100	>100	N/A	6.17%	1	Stee	l Many-O	ne Rank	Test	
04-8325-9227	Mean Dry Bioma	ass-mį	g 100	>100	N/A	10.1%	1	Dun	nett's Mul	tiple Cor	mparison T	est
Point Estimate	e Summary											
Analysis ID	Endpoint		Level	%	95% LCL	95% UCL	τu	Meti	hod			
09-7075-4299	Mean Dry Bioma	ass-mg	J IC5	>100	N/A	N/A	<1	Line	ar Interpo	lation (IC	CPIN)	
			IC10	>100	N/A	N/A	<1					
			IC15	>100	N/A	N/A	<1					
			IC20	>100	N/A	N/A	<1					
			IC25	>100	N/A	N/A	<1					
			IC40 (C50	>100 >100	N/A N/A	N/A N/A	<1 <1					
7d Survival Ra	ate Summary											
Conc-%	Control Type	Cour	nt Mean	95% LCL	95% UCL	Min	Max	k Std	Err St	d Dev	CV%	Diff%
0	Lab Water Contr	4	1	1	1	1	1	0	0		0.0%	0.0%
2.5		4	0.975	0.956	0.994	0.9	1	0.00	913 0.	05	5.13%	2.5%
5		4	0.975	0.956	0,994	0.9	1	0.00	913 0.	05	5.13%	2.5%
10		4	1	1	1	1	1	0	0		0.0%	0.0%
25		4	0,975	0.956	0.994	0.9	1	0.00	913 0.	05	5.13%	2.5%
50		4	1	1	1	1	1	0	0		0.0%	0.0%
100		4	1	1	1	1	1	0	0		0.0%	0.0%
Mean Dry Bio	mass-mg Summ	ary										D:600/
	mass-mg Summ Control Type	ary Cour	nt Mean	95% LCL	95% UCL	Min	Max	x Std	Err St	td Dev	CV%	Diff%
Conc-%		Cour	nt Mean 0.94	0.931	95% UCL 0.949	Min 0.911	Max 0.91			td Dev 0254	2.7%	0.0%
Conc-%	Control Type	Cour		0.931	-			71 0.00	463 0.			
Conc-% 0 2.5	Control Type	Cour 4	0.94	0.931 0.901	0.949	0.911	0.9	71 0.00 44 0.00)463 0 <i>.</i>)663 0.	0254	2.7%	0.0%
Conc-% 0 2.5 5	Control Type	Cour 4 4	0.94 0.915	0.931 0.901 0.87	0.949 0.929	0.911 0.866	0.9 0.9	71 0.00 44 0.00 56 0.01)463 0.)663 0. 44 0,	0254 0363	2.7% 3.97%	0.0% 2.66%
Conc-%	Control Type	Cour 4 4 4	0.94 0.915 0.899	0.931 0.901 0.87 0.87	0.949 0.929 0.929	0.911 0.866 0.788	0.9 0.9 0.9	71 0.00 44 0.00 56 0.01 66 0.01	9463 0. 9663 0. 944 0. 1 0.	0254 0363 079	2.7% 3.97% 8.78%	0.0% 2.66% 4.34%
Conc-% 0 2.5 5 10	Control Type	Cour 4 4 4 4	0.94 0.915 0.899 0.893	0.931 0.901 0.87 0.87 0.87 0.87	0.949 0.929 0.929 0.916	0.911 0.866 0.788 0.84	0.9 0.9 0.9 0.9	71 0.00 44 0.00 56 0.01 66 0.01 95 0.01	9463 0. 9663 0. 944 0. 1 0. 18 0.	0254 0363 079 0604	2.7% 3.97% 8.78% 6.76%	0.0% 2.66% 4.34% 5.0%

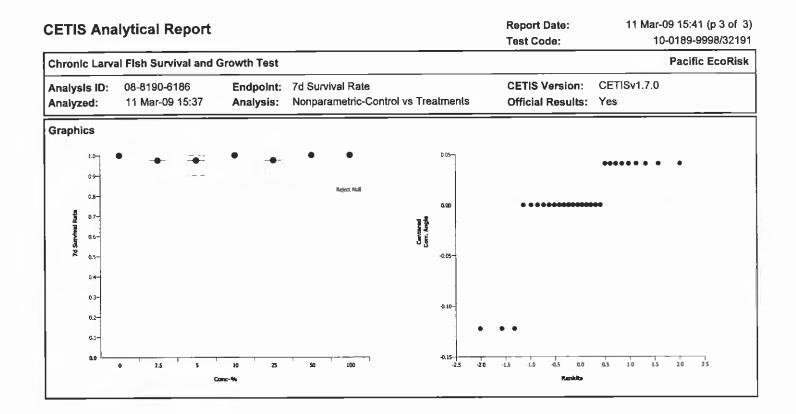
Chronic Larval Fish Survival and Growth Test

 Test Code:
 10-0189-9998/32191

 Pacific EcoRisk
 Pacific EcoRisk

7d Survival	Rate Detail					
Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	
0	Lab Water Contr	1	1	1	1	
2.5		1	1	0.9	1	
5		1	0.9	1	1	
10		1	1	1	1	
25		0.9	1	1	1	
50		1	1	1	1	
100		1	1	1	1	
Mean Dry E Conc-%	liomass-mg Detall Control Type	Rep 1	Rep 2	Rep 3	Rep 4	
0	Lab Water Conlr		0.911	0.947	0.931	
		0.909	0.941	0.866	0.944	
		0.909	0.041	0.000	0.0++	
2.5		0.955	0.788	0.898	0.956	
2.5 5						
2.5		0.955	0.788	0.898	0.956	
2.5 5 10		0.955 0.966	0.788 0.847	0.898 0.919	0.956 0.84	

CETIS Ana	alytical Repo	ort					•	ort Date: Code:	11 1		41 (p 2 of 3 -9998/32191
Chronic Larva	al Fish Survival a	and Gre	owth Test							Pacil	fic EcoRlsk
Analysis ID:	08-8190-6186	-		Survival Rate				S Version:	CETISv1.	7.0	
Analyzed:	11 Mar-09 15:3		Analysis: Non	parametric-				lal Results:	Yes		
Data Transfo	<u></u>	Zeta	Alt Hyp	Monte Car	10	NOEL	LOEL	TOEL	TU	PMSD	
Angular (Corre	ected)		C > T	Not Run		100	>100	N/A	1	6.17%	_
Steel Many-O	ne Rank Test										
Control	vs Conc-%		Test Stat	Critical	Ties	P-Value	Decision				
Lab Water Co	ntrol 2.5		16	10	1	0.6450	-	ficant Effect			
	5		16	10	1	0.6450	-	ficant Effect			
	10		18	10	1	0.8571	-	ficant Effect			
	25		16	10	1	0.6450	-	ficant Effect			
	50		18	10	1	0.8571		ficant Effect			
	100		18	10	1	0.8571	Non-Signi	ficant Effect			
ANOVA Table	Э										
Source	Sum Squ	ares	Mean Squ		DF	F Stat	P-Value	Decision(
Between	0.011382	57	0.0018970	95	6	0.667	0,6774	Non-Signif	icant Effect		
Error	0.059758	5	0.0028456	343	21						
Total	0.0711410	06	0.0047427	'38	27						
ANOVA Assu	Imptions										
Attribute	Test			Test Stat	Critical	P-Value	Decision				
Variances	Mod Lev	ene Eq	uality of Variance	0.667	3.81	0.6774	Equal Var	iances			
Distribution	Shapiro-	Wilk No	ormality	0.653		<0.0001	Non-norm	al Distributio	n		
7d Survival R	Rate Summary										
Conc-%	Control Type	Cour	nt Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Cont	r 4	1	1	1	1	1	0	0	0.0%	0.0%
2.5		4	0.975	0.956	0.994	0.9	1	0.00928	0.05	5.13%	2.5%
5		4	0.975	0.956	0.994	0.9	1	0.00928	0.05	5.13%	2.5%
10		4	1	1	1	1	1	0	0	0.0%	0.0%
25		4	0.975	0.956	0.994	0,9	1	0,00928	0.05	5.13%	2.5%
50		4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	0.0%
Angular (Cor	rected) Transfor	med S	iummary			_				_	
Conc-%	Control Type	Cour	-	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Con	4	1.41	1.41	1.41	1.41	1.41	0	0	0.0%	0.0%
2.5		4	1.37	1.34	1.4	1.25	1.41	0.0151	0.0815	5.94%	2.89%
5		4	1.37	1.34	1.4	1.25	1.41	0.0151	0.0815	5.94%	2.89%
10		4	1.41	1.41	1.41	1.41	1.41	0	0	0.0%	0.0%
25		4	1.37	1.34	1.4	1.25	1.41	0.0151	0.0815	5.94%	2.89%
50		4	1.41	1.41	1.41	1.41	1.41	0	0	0.0%	0.0%
				1.41	1.41	1.41	1.41	0	0	0.0%	0.0%
100		4	1.41	1244.0	1.41	1			0	0.070	0.070



						Repo Test	Code:		Var-09 15:4 10-0189-	9998/3219
Chronic Larva	I Fish Survival and Gr	owth Test		_					Pacif	ic EcoRisk
Analysis ID: Analyzed:	04-8325-9227 11 Mar-09 15:40	-	Mean Dry Biom Parametric-Cor		ments		S Version: ial Results:	CETISv1. Yes	7.0	
Data Transfor	m Zeta	Alt Hy	p Monte Ca	rlo	NOEL	LOEL	TOEL	TU	PMSD	
Untransformed		C > T	Not Run		100	>100	N/A	1	10.1%	
Dunnett's Mul	tiple Comparison Tes	t								
Control	vs Conc-%	- Test S	tat Critical	MSD	P-Value	Decision	(5%)			
Lab Water Cor		0.647	2.45	0.0946	0.6163		ficant Effect			
	5	1.05	2.45	0.0946	0.4290		ificant Effect			
	10	1.22	2.45	0.0946	0.3584	Non-Signi	ificant Effect			
	25*	3	2.45	0.0946	0.0161	Significan	t Effect			
	50	0.129	2.45	0.0946	0.8193	-	ificant Effect			
	100	-0.686	2.45	0.0946	0.9697	Non-Sign	ificant Effect			
ANOVA Table	· · · · · · · · · · · · · · · · · · ·									
Source	Sum Squares	Mean	Square	DF	F Stat	P-Value	Decision(
Between	0.04999426	0.0083	32376	6	2.79	0.0372	Significant	Effect		
Error	0.06269658	0.0029	85551	21						
Total	0.1126908	0.0113	1793	27						
ANOVA Assu	mptions									-
Attribute	Test		Test Stat	Critical	P-Value	Decision	(1%)			
Variances	Bartlett Equality	of Variance	8.07	16.8	0.2330	Equal Va				
Distribution	Shapiro-Wilk No		0.98		0.8420	-	istribution			
Mean Dry Bio	mass-mg Summary				_			*		
Conc-%	Control Type Cou	nt Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	Diff%
0	Lab Water Contr 4	0.94	0.93	0.95	0.911	0.971	0.00471	0.0254	2.7%	0.0%
		0.915	0.901	0.929	0.866	0.944	0.00674	0.0363	3,97%	2.66%
125	Δ		0.869	0.929	0.788	0.956	0.0147	0.079	8.78%	4.34%
2.5	4	0 899		0.010	0.84	0.966	0.0112	0.0604	6.76%	5.0%
5	4	0.899		0.916						3.070
5 10	4	0.893	0.87	0.916 0.849						
5 10 25	4 4 4	0.893 0.824	0.87 0.8	0.849	0.741	0.895	0.012	0.0645	7.83%	12.3%
5 10 25 50	4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100	4 4 4	0.893 0.824	0.87 0.8	0.849	0.741	0.895	0.012	0.0645	7.83%	12.3%
5 10 25 50	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%
5 10 25 50 100 Graphics	4 4 4	0.893 0.824 0.935	0.87 0.8 0.909	0.849 0.961	0.741 0.867 0.952	0.895 1.02 0.988	0.012 0.0126	0.0645 0.068	7.83% 7.27%	12.3% 0.53%

Analyst:_)[i~____QA:___

								Test			-0189-9998/3219
Chronic L	arval	Fish Survival a	nd Grow	th Test							Pacific EcoRis
Analysis I Analyzed:		09-7075-4299 11 Mar-09 15:40		dpoint: alysis:	Mean Dry Biom Linear Interpola			-	S Version: ial Results:	CETISv1.7.0 Yes	
inear Int	terpol	ation Options									
X T-ansfo	m	Y Transform	Se	ed	Resamples	Exp 95%					
Log(X+1)		Linear	579	951	200	Yes	Two	Point Interpe	olation		
Point Est	imate	s									
Level 9	%	95% LCL	95% UC	LTU	95% LCL	95% UCL					
	>100	N/A	N/A	<1	N/A	N/A					
IC10 ;	>100	N/A	N/A	<1	N/A	N/A					
IC15 3	>100	N/A	N/A	<1	N/A	N/A					
IC20 :	>100	N/A	N/A	<1	N/A	N/A					
IC25 :	>100	N/A	N/A	<1	N/A	N/A					
IC40 :	>100	N/A	N/A	<1	N/A	N/A					
IC50	>100	N/A	N/A	<1	N/A	N/A					
Mean Dry	y Bion	nass-mg Summ	агу			Cal	culated Va	riate			
Conc-%	C	ontrol Type	Count	Mear	n Min	Max	Std Err	Std Dev	CV%	Diff%	
0	Li	ab Water Contro	4	0.94	0.911	0.971	0.00463	0.0254	2.7%	0.0%	
2.5			4	0.915		0.944	0.00663	0.0363	3.97%	2.66%	
5			4	0.899		0.956	0.0144	0.079	8.78%	4.34% 5.0%	
10			4	0.893		0.966	0.011 0.0118	0.0604 0.0645	6.76% 7.83%	12.3%	
25			4	0.824		0.895 1.02	0.0118	0.0645	7.83%	0.53%	
50			4	0.93 0.96		0.988	0.00303	0.0166	1.72%	-2.82%	
100			4	0.90							
Mean Dr	-	nass-mg Detail									
Conc-%		ontrol Type	Rep 1	Rep		Rep 4					
0	L	ab Water Contro		0,91		0.931					
2.5			0.909	0.94		0.944					
5			0.955	0.78		0.956 0.84					
10			0.966	0.84							
25			0.741	0.81		0.846 1.02					
50			0.867 0.955	0.95 0.95		1.02 0.988					
100 Graphics			0.955	0.95	2 0.971	0.960					
Means Dry Monoram-org	10 0.8- 0.6- 0.4- 0.2-	20 40									

	32	Applied ICCA	Project #:	rine		Organism S	upplier: Diluent:		Af DI + Cr	5	11 days @ 25 ppt
Treatment (% Effluent)	Temp (°C)	pl new	H old	D.O. (new	mg/L) old	Salinity (ppt)	A	t Live O B	rganisms C	D	SIGN-OFF
Control	25.7	8.05		8.9		25.1	10	10	10		Date: 2/26/05
2.5	25.7	8.05		8.3		25.2	10	10	10	10	MSD8
5	25.7	8.03	_	8.4		25,2	10	10	10	10	Test Solution Prep
10	25.7	8,01		7,9		25.1	10	10	(0	0	New WQ SL
25	257	7.96		8.0		24.9	16	16	16	10	Initiation Time
50	257	7,90		8.2		24,5	10	10	10	10	Initiation Signoff
100	257	7,82		8.3		24.0	10	10	10	10	
Meter ID	HA CAL	PHI		DOIN		ECOY					
Control	25.5	8.04	7.76	7.1	5.9	25.2	10	to	10	10	Date 2/27/09 Sample ID
2.5	255	8.05	7.82	7.4	5.8	25.3	10	10	10	10	Sample ID 2/508 Test Solution Prep
5	25.6	8.04	7.84	7.3	5,6	25.3	10	10	10	10	40
10	25.5	8.03	7,92	7.4	58	15.3	10	10	10	10	New WQ
25	25.5	7.91	2.02	7.6	5.7	25.2	10	10	10	10	Renewal Time 1115
50	25.5	7.15	8.10	7.8	5.7	25.4	10	10	10	10	Renewal Signoff
100	255	7. 89	8.19	7.7	5.7	25.3	10	10	10	10	OId WQ
Meter ID	21/	1403	PH B3	0100	0010	ELOJ					
Control	255		8.02	7.3	5·7	25.2	10	10	[0	10	Date 2/28/09
2.5	255	8.26	8.10	7.4	5.9	25.2	10	10	9	10	Sample ID Z1508
5	25.5	8.29	୫୦୩	7.4	5.7	25.2	10	10	10	10	Test Solution Prep
10	25.5	2.28	8.18	7.4	6.0	25.0	10	10	10	10	New WQ
25		8.25	8.28	7.5	6.0	2437	9	10	10	10	Renewal Tune 1035
.50	3.6.5	8.22	8.36	7.5	6.0	24.3	10	10	10	10	
100	2.5.5	8.20	8.45	7.3	5.9	24.4	10	10	10	10	JPL
Meter ID	24A	pH03	PHIZ	000	Doio	Ec05					
Control	25.5	7,86	7.61	8.5	63	24.5	10	10	10	10	Date 3/1/07
2.5	25.5	1.88	7.69	8.3	6.2	24.6	10	0	9	10	Sample ID 21508
5	25.5	7.89	7.67	8,4	6.1	246	10	10	10	10	Test Solution Prep
10	25.5		7,78	8.4	6.2	246	10	10	10	10	New WQ
25		7,90	7,90	8.6	6.2	24.5	9	(0)	10	10	Renewal Time
50	25.5		7,99	8/3	6.2	24,4	10		10	10	Renewal Signoff
100	25.5		8.10	87	6.0	24,0	10	+:	10	10	old WQ
Meter ID	ZA	PHI	OH12	DOIO	D012	605		1			

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

Client. Test Material: Test ID#:			Project #:			Organism S Control/l	upplier: Diluent:		DI + Cr		11 days (@ 25 ppt
		12610				Control Wate					
Treatment (% Effluent)	Temp (°C)	p new.	oH old	D.O. new.	(mg/L) old	Salinity (ppt)	A	Live O B	rganism: C	s D	SIGN-OFF
Control	285	7-30	7.36	2.4	5.9	24.7	10	10	10	10	B12109
2.5	255	7.82	7.45	83	5.8	24.7	10	10	9	n	Sample ID
5	25.5	7.83	7.50	82	5.8	24.7	10	10	10	10	Test Solution Prep
10	25.5	7.84	7.57	8-1	5.8	24.6	10	0	10	10	Hom
25	28.5	7-84	7.70	3.2	5.8	245	9	Ø	10	10	Renewal Time 930
50	25 .5	7.85	7.86	8.3	5.8	24.3	10	10	10	10	Renewal Signoff
100	25.5	7.85	8.02	21	5.4	24.0	10	10	10	10	OId WQ
Meter ID	24A	0+12	pHe12	0014	DOIH	ELOS					
Control	25.5	7.86	7.63	88	6.1	247	10	(0	10	10	313105
2.5	25.5	7.81	07.7	5.6	6.0	24.9	10	10	9	10	21 SD8
5	25.5		7.73	8:3	6.0	24,8	10	10	(0	10	Test Solution Prep
10	25.5	784	7.81	8.6	6.1	24,8	10	10	[0]	10	New WO
25		7.82	7.94	8,6	6.1	247	199	10	ю	10	Renewal Time
50	25.5	1.90	8.04	8.5	5.9	246	10	6	6	10	Renewal Signoff
100	25.5	1,77	8.17	83	6.0	24.1	10	10	10	10	MEL
Meter ID	ZHA	PHIZ	PHOS	DOIL	10012	E(0)					
Control	25.2	8.08	7,77	7.9	6,7	24.6	10	/อ	10	10	3/4105
2.5	25.2	8:06	7,79	7,9	6.4	24,8	10	10	9	60	Sample ID 2-1508
5	25.2	8.04	7.82	7.8	6.4	24.7	10	10	10	10	Test Solution Pre
10	25.Z	8.01	7,90	8.0	6,4	247	10	10	GI	10	New WQ SL
25	28.2		8.01	8.0	6.3	246	9	10	19	10	Renewal Time 1035
50	25.7	7,89	8.12	8.2	6.3	24.4	10	10	01	10	Renewal Signoff
100	75.2	783	8.23	8.6	63	24,1	10	10	id	10	OIA WQ
Meter ID	ZYA	pHrz	pH12	1014	DOM	ECOY					
Control	25.6		7.63		6.9	25.0	10	10	10	10	Date 3/5/09
2.5	25.6		772		6.9	25.1	10	10	9	10	Termination Time
5	25.6		7.78		6.8	25.1	10	9	10	10	Termunation Sign
10	25.6		7.85		6.8	25.2	10	10	10	10	yn Su
25	25.6		7.95		6.8	24.4	9	10	10	10	
50	25.6		8.09		6.3	24.9	10	10	10	10	
100	25.6	2	8.21	-	5.8	24.7	10	10	10	10	
Meter ID	24A		104-11			ECOY					

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

Chronic Inland Silverside Dry Weight and Biomass Data

				· · · · · · · · · · · · · · · · · · ·	2191 Project #	
Sample:	FFI	fluent	Tare Wei	ght Date: <u>2 2</u>	<u>6 -9</u> ¶_Sign-off:	_ NC
Test Date:	2	127/0	5 Final Wei	ght Date: 3 - 4	9-04 Sign-off:	Mc
		(/				
Pan ID	Concentr		Initial Pan Weight	Final Pan Weight		Biomass Value (mg)
		Replicate	(mg)	(mg)	Organisms	Biolitado (trig)
1	Control	А	169.82	179.53	10	0.971
2		В	165.71	W 11-2 174	10	o.all
3		С	152.55	142.02	10	0.947
4		D	167.61	176.92	10	6-957 0.931
5	2.5	Α	163.28	172.37	10	0.109
6		В	162.27	171.68	10	0.941
7		С	152.27	160.93	10	0.816
8		D	152.96	162.40	10	0.944
9	5	А	150.73	160.28	10	0-955
10		В	143.60	151.48	10	0.788
11		С	170.43	179.41	10	0.898
12		D	120.45	110.51	10	0.956
13	10	А	165.82	175.48	10	0.066
14		В	144.43	172.90	10	0.847
15		С	17/125	180.44	10	0.915
16		D	173.73	182.13	10	0.84
17	25	A	179.38	187.29	10	3.741
18		В	167.82	175.97	10	0.515
19		С	153.96	162.91	10	0.895
20		D	170.56	179.02	10	0-846
21	50	А	163.67	172.34	10	0.867
22		в	144.35	178.92	10	0.957
23		C	172.46	181.42	10	0.896
24		D	174.57	184.77	10	0-1.02
25	100	Α	155.14	164.69	10	0.955
26		В	151.44	11.1.14	10	0.452
27		С	164.04	173.75	10	0,971
28		D	172.46	173.75	10	cr 988
QA 1			160.89	160.90		
QA 2			162.69	162.70		
QA 3			169.42	169.44		
Balance ID			#1	#1		

Appendix G

Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Menidia beryllina*

CETIS Sum	mary Repor	t						Report Dat Test Code:		11		59 (p 1 of 3 -2447/3219
Chronic Larva	l Fish Survival a	nd Gro	wth Test								Pacit	ic EcoRls
Batch ID: Start Date: Ending Date: Duration:	07-1664-1438 26 Feb-09 13:50 05 Mar-09 09:35 6d 20h) ;	Test Type: Protocol: Species: Source:	Growth-Surviva EPA/821/R/02/0 Menidia beryllin Aquatic Biosyst)14 (2002) a			Analyst: Diluent: Brine: Age:	Labo	an Villanuev pratory Wate ital Sea		
•	15-4866-4699 26 Feb-09 13:50 26 Feb-09 13:50 N/A (25.7 °C))	Code: Materiai: Source: Station:	KCI Potassium chlor Reference Toxic In House				Cllent: Project:	Refe 1450	erence Toxic	cant	
Comparison S	ummary											
Analysis ID	EndpoInt		NOEL	LOEL	TOEL	PMSD	τu	Met	hod			
17-6451-2614	7d Survival Rate)	1	1.25	1.12	10.3%		Stee	el Man	y-One Rank	Test	
09-1484-7067	Mean Dry Bioma	ass-mg	1	1.25	1.12	19.2%		Dun	nett's	Multiple Co	mparison T	est
Point Estimate	e Summary											
Analysis ID	Endpoint		Level	<u> </u>	95% LCL	95% UCL	τu	Met	hod			
04-4565-4745	7d Survival Rate	;	EC5	0.91	0.801	0.981		Line	ar Re	gression (M	LE)	
			EC10		0.869	1.03						
			EC15		0.917	1.07						
			EC20		0.956	1.09						
			EC25		0.991	1.12						
			EC40		1.08	1.19						
10 7000 0004			EC50		1.14	1.25	_					
13-7333-3004	Mean Dry Bioma	ass-mg	IC5 IC10	0.68 0.915	N/A 0.27	1.23 1.1 4		Line	arinte	erpolation (I	CPIN)	
			IC10	1.02	0.27	1.1 4 1.14						
			IC15	1.02	0.535	1.14						
			IC25	1.08	0.973	1.24						
			IC23	1.09	1.08	1.35						
			IC50	1.27	1.13	1.37						
7d Survival Ra	te Summary	-									<u></u>	
Conc-g/L	Control Type	Coun	t Mean	95% LCL	95% UCL	Min	Max	c Std	Err	Std Dev	CV%	Diff%
0	Lab Water Contr	4	1	1	1	1	1	0	-	0	0.0%	0.0%
0.5		4	1	1	1	1	1	0		0	0.0%	0.0%
1		4	0.85	0.813	0.887	0.8	1	0.01	63	0.1	11.8%	15.0%
1.25		4	0.4	0.347	0.453	0.3	0.6	0.02	58	0.141	35.4%	60.0%
1.5		4	0.075	0.0563	0.0937	0	0.1	0.00	913	0.05	66.7%	92.5%
2		4	0	0	0	0	0	0		0		100.0%
	mass-mg Summa	-										
	Control Type	Coun			95% UCL	Min	Max			Std Dev	CV%	Diff%
	Lab Water Contr	4	1.03	0.989	1.08	0.898	1.13			0.116	11.3%	0.0%
0.5		4	1.03	0.995	1.06	0.952	1.11			0.0831	8.1%	0.65%
1		4	0.912		0.952	0.821	1.00			0.106	11.7%	11.7%
1.25		4	0.543		0.61	0.407	0.79			0.177	32.6%	47.4%
1.5		4	0.125		0.157	0	0.18		57	0.086	68.6%	87.9%
2		4	0	0	0	0	0	0		0		100.0%

Analyst: RV QA: KO

CETIS Summary Report

Report Date: Test Code:

						1031 0040.	00 / 000 ET /// 0E100
Chronic Lar	val Fish Survival a	nd Growt	h Test				Pacific EcoRisk
7d Survival	Rate Detail						
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4		
0	Lab Water Contr	1	1	1	1		
0.5		1	1	1	1		
1		0.8	1	0.8	0.8		
1.25		0.3	0.6	0.4	0.3		
1.5		0	0.1	0.1	0.1		
2		0	0	0	0		
Mean Dry B	iomass-mg Detall						
Conc-g/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4		
0	Lab Water Contr	1.13	0.973	0.898	1.13		
0.5		1.09	0.952	1.11	0.957		
1		0.863	1.06	0.901	0.821	*	
1.25		0.424	0.791	0.552	0.407		
1.5		0	0.175	0.139	0.187		
2		0	0	0	0		

Test Material:		Potas	ence Toxic sium Chlor	ide		Organism Su	pplier.	pi	>		102112
Test ID#: _ Test Date: _	321	93 I	roject #: _	1450	01	Control/D Control Water	iluent _ Batch:		01 + Cry クス	sta <u>l S</u> ea	@ 25 ppt
	2/00										
Treatment (g KCl/L)	Temp (°C)	pH new	old	D.O. (n nev.	ng/L) old	Salinity (ppt)	# A	Live Or B	ganisms C	D	SIGN-OFF Date
Contral	25.7	1.97		7.4		25,1		10	10	10	2126/09
0.5	75.7	7.99		7.3		25.8	10	ю	10	lo	Sample ID
1	25.7	7.94	(F)	ר.ך		24.8	10	10	10	ю	PA
1.25	25.7	8.01		7.6		24.3	10	10	10	10	New WQ
1.5	25.7	8.00		-2.0		27.2	ю	10	D	10	Initiation Time
2	25.7	8.01		7.6		265	10	10	10	ю	Tontation Signof
Meter ID	ZYA	IIHa		DOIH		ELO4					
Control	25.5	8.03		6.1	6.6	15.1	10	10	10	10	Date 2/27/09
0.5	26.5	8.05	T	6.9	5.7	25.7	10	10	lo	10	Sample ID
i	25.5		1.79	7.0	5.7	26.1	8	10	10	10	Test Solution Prep
1 25	26.5	8.06	7.20	7.2	56	26.4	9	10	10	10	New WQ
1.5	26,5		7.80		5.8 .	26.5	5	城	6	6	Renewal Time
2	26,5		7.76	7.1	5.6	27.1	Ø	0	0	0	
											ojid wo
Meter ID	24A	other		-010	0010	EL 05					
Control	25.5	845	8.03	ריר	6.4	25.2	10	10	10	10	
0.5	255	8.46	8.03	7.7	6.1	25-8	10	10	10	10	Sample ID
1	25.5	8.46	8.04	7:8	6.1	26.2	8	10	9	10	
1.25	15.5	8.46	8.03	7.9	5.0	26.3	4	7	7-	9	New WQ
1.5	15.5	8.46	8.07	7.9	6.1	26.6	2	3	4	5	Renewal I-mi
2	-	-	-	-	-	-	2	â	is	Ā	Renewal Signofi
	1						1				JPC
Meter ID	24 A	PHO	5 pH12	DOIC	0000	E105					Dette
Control		7.90	7.67	84	2.4	24.3	10	10			
0.5	25,6		7:61	8.5	6.6	25.0	10	0 10	_	_	-
1	256	1	7.67	8.4	6.4	25,6	3	10	9	10	PA New WQ
1.25	251		7.68	8.5	6.5	25,7	5	0	- V	1	Renewal Time
1.5	25.0		7.66	8:6	6.0	25.8	2	- L - N	2	B	930 Renewal Signoff
2	-	-	-		-	-	1-				- PA Old WQ
										,	SL.
Meter ID	240	PH II	PHIZ	000	0012	ecol			1		

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data

Client:			rence Toxi ssium Chlo		_ _	Organism Organism Su				Age.	100 11d
lest ID#:	321	93	Project #:	145	01	Control/F	Diluent:	1) + Cry	stal Sea	@ 25 ppi
Test Date:						Control Water	Baich: _	102	}		
Treatment (g KCI/L)	Temp (°C)	p} new	l old	D.O. (1 new	ng/L) old	Salinity (ppt)	# A	Live Or B	ganism: C	D	SIGN-OFF
Control	25:5	1.77	7.48	9.2	5.7	24.4	10	10	10	10	Date 3/2/09
0.5	25.5	7.20	7.48	9.3	5.6	25.0	10	10	10	10	Sample ID Test Solution Prep
1	25.5	7.30	7.49	9.5	5.6	25.6	8	10	9	10	New WQ
1.25	25.5	7.81	7.53	9.6	5.9	25.9	5	6	5	6	MJM Renewal Time
1.5	25.5	7.81	7.55	9.5	5.9	26.1	0	1	1	5	1015 Renewal Signoff
2	-	-	-		-		-	-		-	5++ Old WQ
											NON
Meter ID	zЦA	H12	PH03	094	DOID	Elas					Dale
Control	25.5	7.95	7.56	7.8	6.5	24:8	10	10	10	16	3/3/09 Sample ID
0.5	25.5	7.96	7.65	7.9	6.3	25.2	10	10	61	10	Test Solution Prep
1	255	7.96	7.67	7.9	6.3	25.8	8	10	9	10	
1.25	255	7.97	7.73	8.0	6.5	26.0	4	6	5	6	Dev
1.5	25.5	7.97	<u>7.83</u>	8.0	6.8	26.3	_		1_	Z	Renewal Time 6945 Renewal Signoff
2	-	-	-	-	-	-	-	-	-	-	JUR
											MEC
Meter ID	ZUA	Phil	рноз	000	Dag	Ed					Data
Control	25.1	7.97	7.49	9.0	5.6	246	10		10		Date 3MIO
0.5	25.1	3.02	7.5	7.7	5.6	25.2	10	10	10	10	Sample 1D Test Solution Prep
1	25.1	8.02	7.58	7.8	5.6	25.8	8	10	9	9	New WQ
1.25	25,1	2.04	7.63	7.7	5.7	26-1	4	6	5	6	Renewal Time
1.5	25.5	8.03	7,71	7,9	5.8	26.3	-	11	1_	2	IS YS Renewal Signoff
2	-	-	-	-	-	-	-	-	-	-	Old WO
											mom
Meter ID	ZYA	IH	PH11	Dol	Do12	201		1			Date 1 -1-A
Control	25.5		7-7:	2	6.6	25.2	10	10	10	10	Date 315 09 Termination Time
0.5	25.5		7.73		6.2	25-8	10	10		10	0935
1	25.5		7.7		6.6	26.4	8	10	8	8	Termination Signofi
1.25	25.5		7.71	/	6.4	26.7	3	6	4	3	4k
1.5	15.5	5	7.70		6-1	26.6		- 1	1	1	
2	-		-		-	-	-	-	-		·
							-				
Meter ID	24A	:	PhH		0017	ELOY					

7 Day Chronic Inland Silverside (M. beryllina) Toxicity Test Data