



Michael Higuchi  
Stantec Consulting Services Inc.  
19800 MacArthur Blvd., Suite 550  
Irvine, CA 92612

March 26, 2018

Dear Michael:

I have enclosed a copy of our report "A Toxicity Evaluation of an Ambient Water Sample Collected for the East San Gabriel Valley CIMP" for the sample collected March 2, 2018. The results of this evaluation are summarized below.

**Chronic Effects of East San Gabriel Valley CIMP Ambient Water on *Ceriodaphnia dubia***

There was 100% survival in the ambient water sample, indicating that the sample was not toxic to *C. dubia* survival. The TST analysis of the 100% sample reproduction data shows that the reproduction response in the ambient water sample was **not** statistically less than the response at the Control treatment; in this scenario, the 2010 EPA TST document states, "the test result is Pass and the sample is declared not toxic".

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

Sincerely,

Stevi Vasquez  
Project Manager

Cc: Mitch Mysliwicz, Larry Walker Associates  
Jonathan Abelson, Stantec



Pacific EcoRisk is accredited in accordance with NELAP (ORELAP ID 4043). Pacific EcoRisk certifies that the test results reported herein conform to the most current NELAP requirements for parameters for which accreditation is required and available. Any exceptions to NELAP requirements are noted, where applicable, in the body of the report. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk. This testing was performed under Lab Order 28478.

# **A Toxicity Evaluation of an Ambient Water Sample Collected for the East San Gabriel Valley CIMP**

Sample collected March 2, 2018

Submitted To:

Stantec Consulting Services Inc.  
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Prepared By:

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**March 2018**



# A Toxicity Evaluation of an Ambient Water Sample Collected for the East San Gabriel Valley CIMP

Sample collected March 2, 2018

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Appendix C	Summary of Statistics for the Evaluation of the Chronic Toxicity of the East San Gabriel Valley CIMP Ambient Water Sample to <i>Ceriodaphnia dubia</i> : Analysis Including Outliers
Appendix D	Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the <i>Ceriodaphnia dubia</i>

## 1. INTRODUCTION

Under contract to Stantec Consulting Services Inc (Stantec), Pacific EcoRisk (PER) performed a chronic toxicity evaluation of an ambient water sample collected from the East San Gabriel Valley (ESGV) watershed. The sample was collected to address compliance requirements in the ESGV CIMP. The chronic toxicity evaluation consists of performing the US EPA short-term chronic 3-brood (6-8 day) survival and reproduction test with the crustacean *Ceriodaphnia dubia*.

This chronic toxicity test was performed on an ambient water sample collected by a Stantec field team on March 2, 2018. This report describes the performance and results of this toxicity test.

## 2. SAMPLE COLLECTION AND HANDLING

On March 2, Stantec staff collected an ambient water sample from one ESGV monitoring station (Table 1). The ambient water sample was collected into an appropriately cleaned sample container. The ambient water sample was transported, on ice and under chain-of-custody, to the PER laboratory facility in Fairfield, CA within 24 hours of collection. Upon receipt at the testing laboratory, an aliquot of the sample was analyzed to determine initial water quality characteristics (Table 2). The remainder of the sample was stored at  $\leq 6^{\circ}\text{C}$  and used to initiate testing within 36 hours of collection.

The chain-of-custody record for the collection and delivery of the sample is presented in Appendix A.

Table 1. Collection of the ESGV ambient water sample.		
Sample ID Code	Sample Collection Date	Sample Receipt Date
ESGV-15-LOW-4	3/2/18 (1505)	3/3/18 (0943)

Table 2. Initial water quality characteristics of ESGV ambient water sample.							
Sample ID	Temp. (°C)	pH	D.O. (mg/L)	Alkalinity (mg/L)	Hardness (mg/L)	Conductivity (µS/cm)	Total Ammonia (mg/L N)
ESGV-15-LOW-4	0.1	8.16	9.7	42	50	173	<1.0

### 3. TOXICITY TESTING PROCEDURES

The ESGV ambient water sample for this event was tested for toxicity using the following US EPA short-term chronic toxicity test:

- 3-brood (6-8 day) survival and reproduction test with the crustacean *Ceriodaphnia dubia*.

The method used in conducting the chronic toxicity test followed the “Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition” (EPA-821-R-02-013).

#### 3.1 Survival and Reproduction Toxicity Testing with *Ceriodaphnia dubia*

The short-term chronic *Ceriodaphnia* test consists of exposing individual females to the ambient water sample for the length of time it takes for the Lab Control treatment females to produce 3 broods (typically 6-8 days), after which effects on survival and reproduction are evaluated. The specific procedures used in this test are described below.

The Lab Water Control medium for this test consisted of modified EPA synthetic moderately hard water, prepared by addition of reagent grade chemicals to Type 1 lab water. The ambient water sample was tested at the 100% concentration only. As an additional QA measure, and in response to the observation of low hardness in the sample (see Table 2), a “Hardness Control” treatment, consisting of Lab Water Control medium adjusted to the hardness of the water sample using Type 1 lab water, was also prepared and tested. Each treatment consisted of 200 mL of test solution to which the alga *Selenastrum capricornutum* and Yeast-Cerophyll®-Trout Food (YCT) had been added as food for the test organisms. “New” water quality characteristics (pH, dissolved oxygen [D.O.], and conductivity) were measured on these food-amended test solutions prior to use in the test.

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

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

After it was determined that  $\geq 60\%$  of the *C. dubia* in the Control had produced their third brood of offspring, the test was terminated. The resulting survival and reproduction data were analyzed to evaluate any impairment caused by the ambient water. All statistical analyses were performed using the CETIS® statistical software (TidePool Scientific, McKinleyville, CA).

### **3.1.1 Reference Toxicant Testing of the *Ceriodaphnia dubia***

The reference toxicant test was performed similarly to the ambient water test, except that test solutions comprised of Lab Water Control medium spiked with NaCl at test concentrations of 500, 1000, 1500, 2000, and 2500 mg/L were used. The resulting test response data were statistically analyzed to determine key concentration-response point estimates. All statistical analyses were performed using the CETIS software. These response endpoints were then compared to the typical response ranges established by the mean  $\pm$  2 SD of the point estimates generated by the most recent previous reference toxicant tests performed by this lab.

## 4. RESULTS

### 4.1 Effects of ESGV Ambient Water on *Ceriodaphnia dubia*

The results of this test are summarized below in Table 3. There was 100% survival in the ambient water sample, indicating that the sample was not toxic to *C. dubia* survival. The reproduction data were analyzed using the TST analytical method. The reproduction response in the 100% ambient water sample was **not** statistically less than the response at the Control treatment; in this scenario, the 2010 EPA TST document states, “the test result is Pass and the sample is declared not toxic”.

The test data and summary of statistical analyses excluding outliers are presented in Appendix B; the summary of statistical analyses including outliers are presented in Appendix C.

Table 3. Effects of ESGV ambient water on <i>Ceriodaphnia dubia</i> .		
Treatment	Mean % Survival	Mean Reproduction (# neonates /female)
Hardness Control	100	26.3
Lab Water Control	100	26.7 <sup>a</sup>
100%	100	34.4
Summary of Statistics		
TST Analysis =		Pass: Sample is not toxic

a - Statistical analysis indicated that the reproduction response for one of the replicates at this test treatment was a statistical outlier, and the results reported above are for the analyses of the test data excluding the outlier. As per EPA guidelines, the test data were analyzed both with and without the outlier, and the results of both sets of analyses are reported in the appendices.

## 5. AQUATIC TOXICITY DATA QUALITY CONTROL

Three QC measures were assessed during the toxicity testing:

- Maintenance of acceptable test conditions;
- Negative control testing; and
- Positive control (reference toxicant) testing.

### 5.1 Maintenance of Acceptable Test Conditions

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

### 5.2 Negative Control Testing

The response at the Lab Control treatment was within acceptable limits.

### 5.3 Positive Control Testing

#### 5.3.1 Reference Toxicant Toxicity to *Ceriodaphnia dubia*

The results of this test are summarized below in Table 4. The survival EC<sub>50</sub> and reproduction IC<sub>50</sub> were both consistent with the typical response ranges established by the reference toxicant test database for this species, indicating that these organisms were responding to toxic stress in a typical and consistent fashion. The test data and summary of statistical analyses for this test are presented in Appendix D.

Table 4. Reference toxicant testing: Effects of NaCl on <i>Ceriodaphnia dubia</i> .		
NaCl Treatment (mg/L)	Mean % Survival	Mean Reproduction (# neonates/female)
Lab Water Control	90	29.0
500	90	30.3
1000	100	29.7
1500	100	<b>21.1*</b>
2000	<b>30*</b>	1.8
2500	<b>0*</b>	-
Summary of Statistics		
Survival EC <sub>50</sub> or Reproduction IC <sub>50</sub> =	1880 mg/L NaCl	1660 mg/L NaCl
Typical Response Range (mean $\pm$ 2 SD)	1665 - 2257 mg/L NaCl	1185 - 1810 mg/L NaCl

\* The response at this test treatment was significantly less than the Lab Control treatment response at  $p < 0.05$ .

## 6. SUMMARY AND CONCLUSIONS

The results for the toxicity evaluation of the ambient water sample collected for the East San Gabriel Valley CIMP are summarized below.

### **Chronic Effects of East San Gabriel Valley CIMP Ambient Water on *Ceriodaphnia dubia***

There was 100% survival in the ambient water sample, indicating that the sample was not toxic to *C. dubia* survival. The TST analysis of the 100% sample reproduction data shows that the reproduction response in the ambient water sample was ***not*** statistically less than the response at the Control treatment; in this scenario, the 2010 EPA TST document states, “the test result is Pass and the sample is declared not toxic”.

## **Appendix A**

### **Chain-of-Custody Record for the Collection and Delivery of the East San Gabriel Valley CIMP Ambient Water Sample**

## CHAIN OF CUSTODY RECORD

[illegible]

## **Appendix B**

### **Test Data and Summary of Statistics for the Evaluation of the Chronic Toxicity of the East San Gabriel Valley CIMP Ambient Water Sample to *Ceriodaphnia dubia*: Analysis Excluding Outliers**

# CETIS Summary Report

Report Date: 20 Mar-18 10:24 (p 1 of 1)

Test Code: ESGV\_15CD\_C1 | 19-1074-8865

Ceriodaphnia Survival and Reproduction Test							Pacific EcoRisk				
Batch ID:	05-6653-8448	Test Type:	Reproduction-Survival (7d)				Analyst:	Stevi Vasquez			
Start Date:	03 Mar-18 18:57	Protocol:	EPA-821-R-02-013 (2002)				Diluent:	Not Applicable			
Ending Date:	09 Mar-18 14:06	Species:	Ceriodaphnia dubia				Brine:	Not Applicable			
Duration:	5d 19h	Source:	In-House Culture				Age:	1			
Comments:											
Analysis excluding outlier LWC-H											
Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project					
ESGV_15CD_C1	00-3548-0297	03 Mar-18 18:57	03 Mar-18 18:57	n/a (24.5 °C)	Stantec	28478					
ESGV-15CD_HARD	04-2102-5439	03 Mar-18 18:57	03 Mar-18 18:57	n/a (24.5 °C)							
ESGV-15-LOW-4	13-7042-7550	02 Mar-18 15:05	03 Mar-18 09:43	28h (0.1 °C)							
Sample Code	Material Type	Sample Source			Station Location		Lat/Long				
ESGV_15CD_C1	Lab Control	East San Gabriel Valley CIMP			LABQA						
ESGV-15CD_HARD	Hardness Control	East San Gabriel Valley CIMP									
ESGV-15-LOW-4	Ambient Water	East San Gabriel Valley CIMP			LOW-4						
Single Comparison Summary											
Analysis ID	Endpoint	Comparison Method			P-Value	Comparison Result					
09-7022-1286	Reproduction	TST-Welch's t Test			0.0021	ESGV-15CD_HARD passed reproduction					
06-6106-3702	Reproduction	TST-Welch's t Test			3.6E-06	ESGV-15-LOW-4 passed reproduction					
Reproduction Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
ESGV_15CD_C1	LW	9	26.7	25.6	27.8	25	29	0.471	1.41	5.30%	0.00%
ESGV-15CD_HARD	HC	10	26.3	22.6	30	16	33	1.62	5.12	19.47%	1.38%
ESGV-15-LOW-4		10	34.4	30.9	37.9	28	41	1.53	4.84	14.06%	-29.00%
Reproduction Detail											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
ESGV_15CD_C1	LW	29	28	26	26	27	26	25		28	25
ESGV-15CD_HARD	HC	25	27	33	30	28	28	29	28	16	19
ESGV-15-LOW-4		39	37	34	28	28	38	28	35	36	41

# CETIS Analytical Report

Report Date: 13 Mar-18 16:02 (p 1 of 2)

Test Code: MWH\_15CD\_C1 | 19-1074-8865

## Ceriodaphnia Survival and Reproduction Test Pacific EcoRisk

Analysis ID: 06-6106-3702      Endpoint: Reproduction      CETIS Version: CETISv1.9.2  
 Analyzed: 13 Mar-18 16:01      Analysis: Parametric Bioequivalence-Two Sample      Official Results: Yes

### TST-Welch's t Test

Sample I	vs	Sample II	Test Stat	Critical	DF	P-Type	P-Value	Decision( $\alpha$ :20%)
Lab Water Control		ESGV-15-LOW-4*	9.18	0.883	9	CDF	3.6E-06	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	283.284	283.284	1	21.3	2.5E-04	Significant Effect
Error	226.4	13.3176	17			
Total	509.684		18			

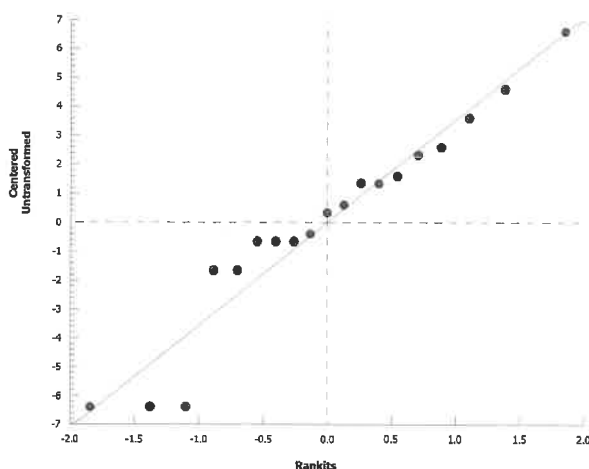
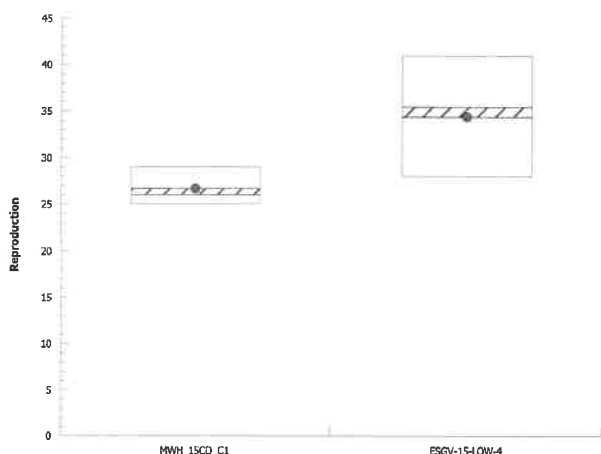
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Variance Ratio F Test	11.7	7.34	0.0020	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.932	0.861	0.1894	Normal Distribution

### Reproduction Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
MWH_15CD_C1	LW	9	26.7	25.6	27.8	26	25	29	0.471	5.30%	0.00%
ESGV-15-LOW-4		10	34.4	30.9	37.9	35.5	28	41	1.53	14.06%	-29.00%

### Graphics



Short-Term Chronic 3-Brood *Ceriodaphnia dubia* Survival & Reproduction Test DataClient: **MWH: East San Gabriel CIMP**Material: **Ambient Water**Test Date: **3/3/18**Project #: **28478**Test ID: **76884**Randomization: **10.5.5 / 10.4.4**Control Water: **Mod EPAMH**

	Day	pH		D.O.		Cond. ( $\mu$ S/cm)	Temp ( $^{\circ}$ C)	Survival / Reproduction										SIGN-OFF				
		New	Old	New	Old			A	B	C	D	E	F	G	H	I	J	Date:	New WQ:	Test Init:	Time:	
Lab Water Control	0	7.88		8.8		349	24.5	0	0	0	0	0	0	0	0	0	0	0	Date: 3/3/18	New WQ: TA	Test Init: SM	Time: 1:57
	1	7.88	8.01	8.9	8.6	350	24.7	0	0	0	0	0	0	0	0	0	0	0	Date: 3/4/18	New WQ: DM	Counts: TK	Time: 1:54
	2	7.86	7.97	8.5	8.5	342	24.6	0	0	0	0	0	0	0	0	0	0	0	Date: 3/15/18	New WQ: FT	Counts: TK	Time: 1:55
	3	7.77	7.84	8.5	8.4	383	24.2	0	0	0	5	0	0	4	0	0	0	0	Date: 3/16/18	New WQ: TA	Counts: W	Time: 1:30
	4	7.87	7.90	8.7	8.0	354	24.5	6	4	5	0	5	4	0	4	5	4	4	Date: 3/7/18	New WQ: YB	Counts: NB	Time: 1:22
	5	8.21	7.91	9.0	7.0	361	25.0	8	9	9	9	9	10	10	6	9	8	8	Date: 3/8/18	New WQ: TA	Counts: WC	Time: 1:20
	6	8.12	8.12	8.4	8.0	383	24.6	15	15	12	12	13	12	11	9	14	13	13	Date: 3/9/18	New WQ: SB	Counts: B	Time: 1:00
	7																		Date:	New WQ:	Counts:	Time:
	8																		Date:	Old WQ:	Counts:	Time:
Total=							29	28	26	26	27	26	25	19	28	25	Mean Neonates/Female = 25.9					
	Day	pH		D.O.		Cond. ( $\mu$ S/cm)		Survival / Reproduction										SAMPLE ID				
		New	Old	New	Old			A	B	C	D	E	F	G	H	I	J					
100%	0	7.70		9.9		167		0	0	0	0	0	0	0	0	0	0	0	49062			
	1	7.88	7.72	9.9	8.3	176		0	0	0	0	0	0	0	0	0	0	0	49062			
	2	7.68	7.80	9.3	8.4	170		0	0	0	0	0	0	0	0	0	0	0	49062			
	3	7.57	7.55	10.0	7.8	174		0	0	5	5	0	0	0	0	0	0	0	49062			
	4	7.40	7.72	8.8	7.9	180		7	6	0	0	3	4	6	6	6	6	6	49062			
	5	7.63	7.76	9.9	7.1	174		11	12	11	7	8	11	10	12	10	14	14	49062			
	6	7.63	7.87	8.6	7.7	177		21	19	18	16	17	21	12	17	20	21	21	49062			
	7																					
	8																					
Total=							39	37	34	28	28	38	28	35	36	46	Mean Neonates/Female = 34.4					

# CETIS Analytical Report

Report Date: 13 Mar-18 16:02 (p 2 of 2)

Test Code: MWH\_15CD\_C1 | 19-1074-8865

## Ceriodaphnia Survival and Reproduction Test Pacific EcoRisk

Analysis ID: 09-7022-1286      Endpoint: Reproduction      CETIS Version: CETISv1.9.2  
 Analyzed: 13 Mar-18 16:02      Analysis: Parametric Bioequivalence-Two Sample      Official Results: Yes

### TST-Welch's t Test

Sample I	vs	Sample II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:20%)
Lab Water Control		Hardness Control*	3.8	0.883	9	CDF	0.0021	Non-Significant Effect

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.636842	0.636842	1	0.0429	0.8383	Non-Significant Effect
Error	252.1	14.8294	17			
Total	252.737		18			

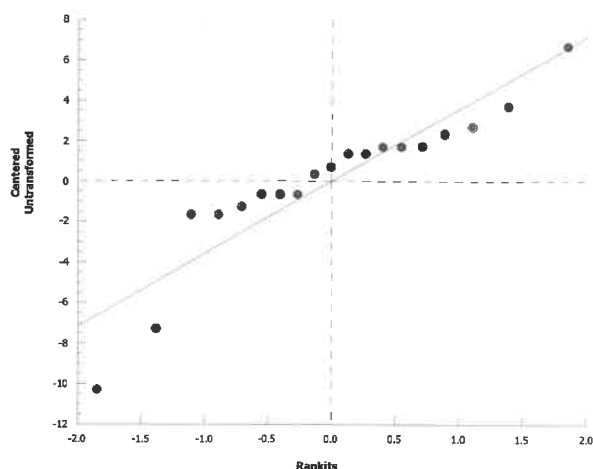
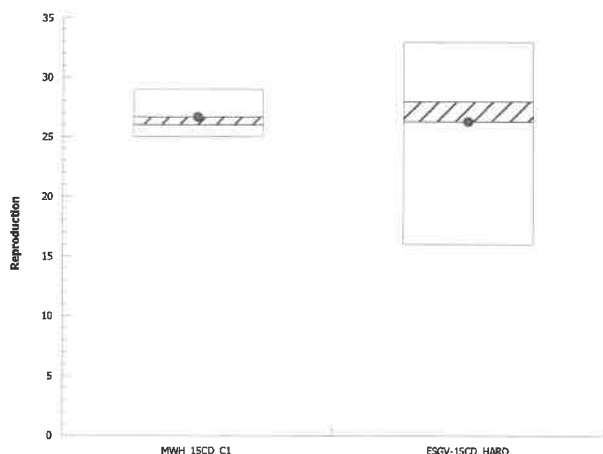
### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	13.1	7.34	0.0014	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.874	0.861	0.0166	Normal Distribution

### Reproduction Summary

Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
MWH_15CD_C1	LW	9	26.7	25.6	27.8	26	25	29	0.471	5.30%	0.00%
ESGV-15CD_HARD	HC	10	26.3	22.6	30	28	16	33	1.62	19.47%	1.38%

### Graphics



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

Client: MWH: East San Gabriel

Material: Hardness Control

Test Date: 3/3/18

Project #: <sup>SVV 3/13/18</sup> 28487 28478 Test ID: <sup>SVV 3/13/18</sup> 76884 ~~76885 76884~~ Randomization: 10.5.5 / 10.4.4 Control Water: Mod EPAMH + DI @ hardness 50

	Day	pH		D.O.		Cond. (µS/cm)	Temp (°C)	Survival / Reproduction										SIGN-OFF	
		New	Old	New	Old			A	B	C	D	E	F	G	H	I	J		
Hardness Control	0	7.75		8.8		208	24.5	0	0	0	0	0	0	0	0	0	0	Date: 3/3/18 New WQ: TA Test Init: SMC Sol'n Prep: JG TA Time: 18:57	
	1	7.72	7.90	9.6	8.6	208	24.7	0	0	0	0	0	0	0	0	0	0	Date: 3/4/18 New WQ: DM Counts: TK Sol'n Prep: JL Old WQ: MYL Time: 15:48	
	2	7.83 7.86	7.86	9.6 8.4	8.7	208	24.6	0	0	0	0	0	0	0	0	0	0	Date: 3/5/18 New WQ: FT Counts: TK Sol'n Prep: TK Old WQ: KB Time: 15:15	
	3	7.72	7.72	10.5	8.6	211	24.2	0	0	0	0	0	0	0	0	0	0	Date: 3/6/18 New WQ: TA Counts: W Sol'n Prep: SF Old WQ: TA Time: 14:30	
	4	7.81	7.89	10.2	8.1	206	24.5	4	4	5	5	4	5	6	5	6	4	Date: 3/7/18 New WQ: MB Counts: MB Sol'n Prep: SMC Old WQ: TA Time: 16:20	
	5	7.89	7.90	10.5	7.0	207	25.0	9	8	12	10	9	9	8	9	10	7	Date: 3/8/18 New WQ: TA Counts: W Sol'n Prep: SMC Old WQ: ER Time: 14:20	
	6	7.88	8.04	9.5	8.1	210	24.4	12	15	16	15	15	14	15	14	0	8	Date: 3/9/18 New WQ: MB Counts: MB Sol'n Prep: SMC Old WQ: MB Time: 14:00	
	7																	Date: New WQ: Counts: Sol'n Prep: Old WQ: Time:	
	8																	Date: Old WQ: Counts: Time:	
Total=							25	27	33	30	28	28	29	28	14	19	Mean Neonates/Female = 26.3 26.3		

## **Appendix C**

### **Summary of Statistics for the Evaluation of the Chronic Toxicity of the East San Gabriel Valley CIMP Ambient Water Sample to *Ceriodaphnia dubia*: Analysis Including Outliers**

# CETIS Summary Report

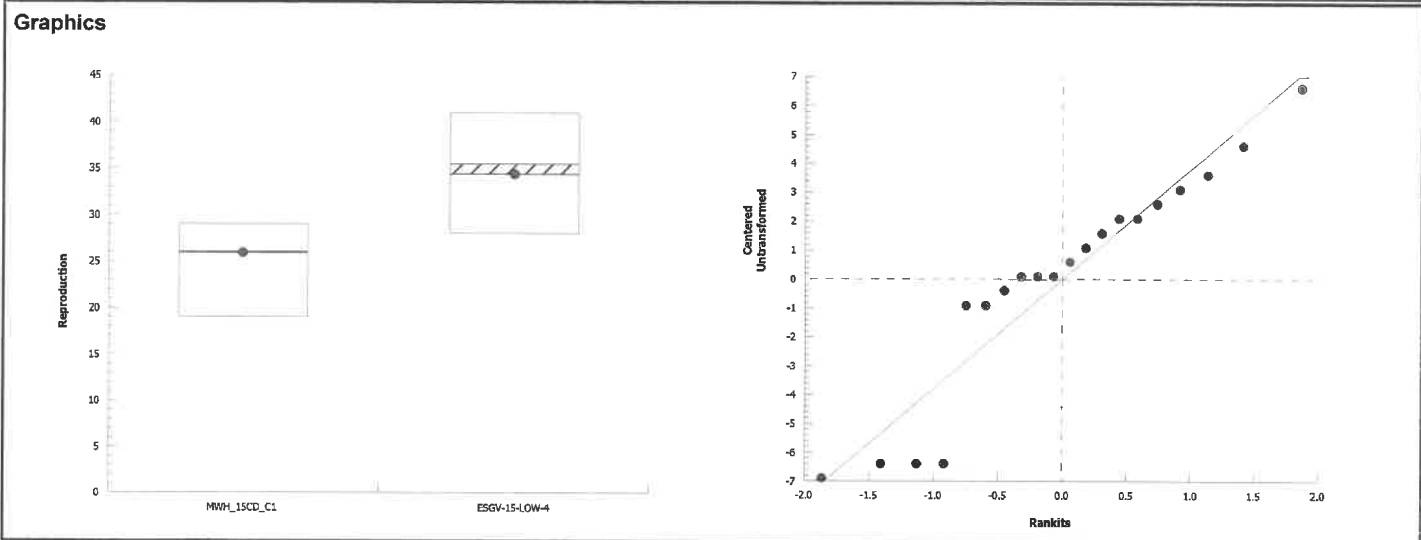
Report Date: 20 Mar-18 10:25 (p 1 of 1)  
Test Code: ESGV\_15CD\_C1 | 19-1074-8865

Ceriodaphnia Survival and Reproduction Test						Pacific EcoRisk					
Batch ID:	05-6653-8448	Test Type:	Reproduction-Survival (7d)			Analyst:	Stevi Vasquez				
Start Date:	03 Mar-18 18:57	Protocol:	EPA-821-R-02-013 (2002)			Diluent:	Not Applicable				
Ending Date:	09 Mar-18 14:06	Species:	Ceriodaphnia dubia			Brine:	Not Applicable				
Duration:	5d 19h	Source:	In-House Culture			Age:	1				
Comments:											
Analysis including outlier LWC-H											
Sample Code	Sample ID	Sample Date	Receipt Date	Sample Age	Client Name	Project					
ESGV_15CD_C1	00-3548-0297	03 Mar-18 18:57	03 Mar-18 18:57	n/a (24.5 °C)	Stantec	28478					
ESGV-15CD_HARD	04-2102-5439	03 Mar-18 18:57	03 Mar-18 18:57	n/a (24.5 °C)							
ESGV-15-LOW-4	13-7042-7550	02 Mar-18 15:05	03 Mar-18 09:43	28h (0.1 °C)							
Sample Code	Material Type	Sample Source		Station Location		Lat/Long					
ESGV_15CD_C1	Lab Control	East San Gabriel Valley CIMP		LABQA							
ESGV-15CD_HARD	Hardness Control	East San Gabriel Valley CIMP									
ESGV-15-LOW-4	Ambient Water	East San Gabriel Valley CIMP		LOW-4							
Single Comparison Summary											
Analysis ID	Endpoint	Comparison Method			P-Value	Comparison Result					
14-3884-9771	Reproduction	TST-Welch's t Test			0.0012	ESGV-15CD_HARD passed reproduction					
01-7686-8053	Reproduction	TST-Welch's t Test			5.5E-07	ESGV-15-LOW-4 passed reproduction					
Reproduction Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
ESGV_15CD_C1	LW	10	25.9	23.9	27.9	19	29	0.875	2.77	10.68%	0.00%
ESGV-15CD_HARD	HC	10	26.3	22.6	30	16	33	1.62	5.12	19.47%	-1.54%
ESGV-15-LOW-4		10	34.4	30.9	37.9	28	41	1.53	4.84	14.06%	-32.82%
Reproduction Detail											
Sample	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
ESGV_15CD_C1	LW	29	28	26	26	27	26	25	19	28	25
ESGV-15CD_HARD	HC	25	27	33	30	28	28	29	28	16	19
ESGV-15-LOW-4		39	37	34	28	28	38	28	35	36	41

# CETIS Analytical Report

Report Date: 13 Mar-18 16:00 (p 1 of 2)  
Test Code: MWH\_15CD\_C1 | 19-1074-8865

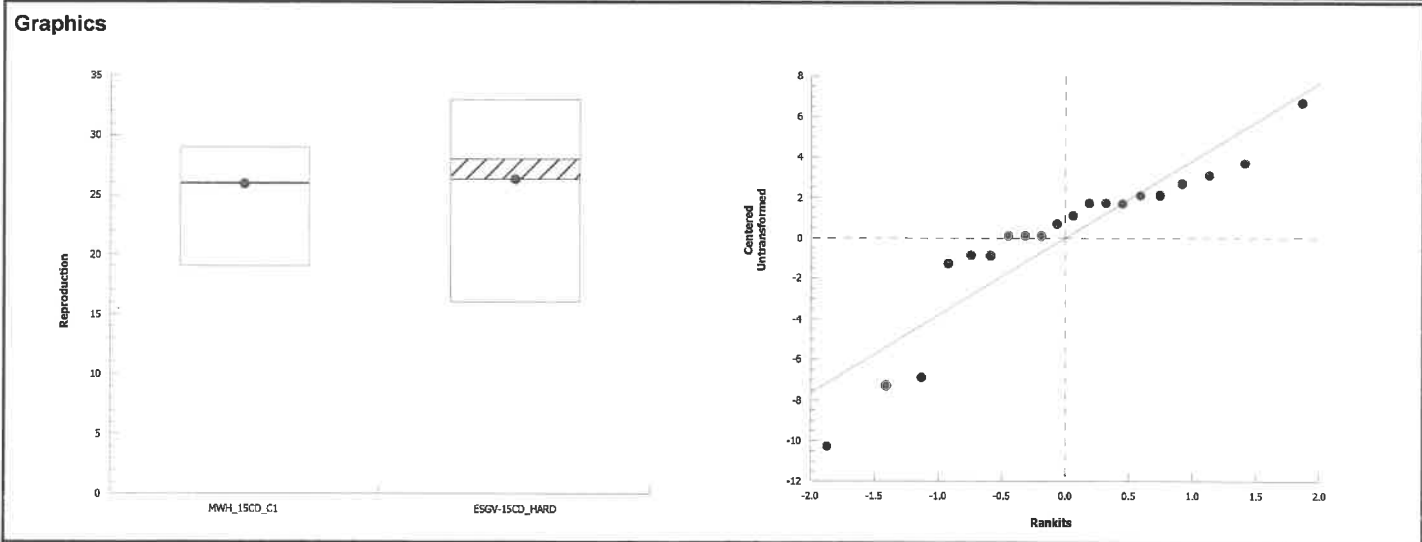
Ceriodaphnia Survival and Reproduction Test								Pacific EcoRisk			
Analysis ID: 01-7686-8053		Endpoint: Reproduction		CETIS Version: CETISv1.9.2							
Analyzed: 13 Mar-18 15:58		Analysis: Parametric Bioequivalence-Two Sample		Official Results: Yes							
TST-Welch's t Test											
Sample I	vs	Sample II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:20%)			
Lab Water Control		ESGV-15-LOW-4*	9	0.873	12	CDF	5.5E-07	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α:5%)			
Between	361.25		361.25		1	23.3	1.4E-04	Significant Effect			
Error	279.3		15.5167		18						
Total	640.55				19						
Distributional Tests											
Attribute	Test		Test Stat		Critical	P-Value	Decision(α:1%)				
Variances	Variance Ratio F Test		3.05		6.54	0.1118	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test		0.901		0.866	0.0436	Normal Distribution				
Reproduction Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
MWH_15CD_C1	LW	10	25.9	23.9	27.9	26	19	29	0.875	10.68%	0.00%
ESGV-15-LOW-4		10	34.4	30.9	37.9	35.5	28	41	1.53	14.06%	-32.82%



# CETIS Analytical Report

Report Date: 13 Mar-18 16:00 (p 2 of 2)  
Test Code: MWH\_15CD\_C1 | 19-1074-8865

Ceriodaphnia Survival and Reproduction Test								Pacific EcoRisk			
Analysis ID: 14-3884-9771		Endpoint: Reproduction		CETIS Version: CETISv1.9.2							
Analyzed: 13 Mar-18 16:00		Analysis: Parametric Bioequivalence-Two Sample		Official Results: Yes							
TST-Welch's t Test											
Sample I	vs	Sample II	Test Stat	Critical	DF	P-Type	P-Value	Decision(α:20%)			
Lab Water Control		Hardness Control*	3.93	0.876	11	CDF	0.0012	Non-Significant Effect			
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α:5%)			
Between	0.8		0.8		1	0.0472	0.8304	Non-Significant Effect			
Error	305		16.9444		18						
Total	305.8				19						
Distributional Tests											
Attribute	Test			Test Stat	Critical	P-Value	Decision(α:1%)				
Variances	Variance Ratio F Test			3.43	6.54	0.0808	Equal Variances				
Distribution	Shapiro-Wilk W Normality Test			0.864	0.866	0.0092	Non-Normal Distribution				
Reproduction Summary											
Sample	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
MWH_15CD_C1	LW	10	25.9	23.9	27.9	26	19	29	0.875	10.68%	0.00%
ESGV-15CD_HARD	HC	10	26.3	22.6	30	28	16	33	1.62	19.47%	-1.54%



## **Appendix D**

### **Test Data and Summary of Statistics for the Reference Toxicant Evaluation of the *Ceriodaphnia dubia***

# CETIS Summary Report

Report Date: 16 Mar-18 08:51 (p 1 of 2)

Test Code: 77094 | 15-3562-0423

Ceriodaphnia Survival and Reproduction Test							Pacific EcoRisk				
Batch ID:	11-0354-4374		Test Type:	Reproduction-Survival (7d)			Analyst:	Stevi Vasquez			
Start Date:	08 Mar-18 13:10		Protocol:	EPA-821-R-02-013 (2002)			Diluent:	Laboratory Water			
Ending Date:	14 Mar-18 13:03		Species:	Ceriodaphnia dubia			Brine:	Not Applicable			
Duration:	6d		Source:	In-House Culture			Age:	1			
Sample ID:	19-8790-0588		Code:	NaCl			Client:	Reference Toxicant			
Sample Date:	08 Mar-18 13:10		Material:	Sodium chloride			Project:	28579			
Receipt Date:	08 Mar-18 13:10		Source:	Reference Toxicant							
Sample Age:	n/a (24.6 °C)		Station:	In House							
Multiple Comparison Summary											
Analysis ID	Endpoint		Comparison Method			NOEL	LOEL	TOEL	TU	PMSD ✓	
08-8019-9606	Reproduction		Steel Many-One Rank Sum Test			1000	1500	1225		19.1%	
06-5921-3405	Survival		Fisher Exact/Bonferroni-Holm Test			1500	2000	1732		n/a	
Point Estimate Summary											
Analysis ID	Endpoint		Point Estimate Method			Level	mg/L	95% LCL	95% UCL	TU	✓
05-8477-5924	Reproduction		Linear Interpolation (ICPIN)			IC5	1090	266	1130		
						IC10	1170	868	1260		
						IC15	1260	1060	1390		
						IC20	1350	1160	1510		
						IC25	1430	1240	1540		
						IC40	1590	1480	1640		
						IC50	1660	1570	1710		
10-7089-6666	Survival		Spearman-Kärber			EC50	1880	1740	2020		
Reproduction Summary											
Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	10	29	22.6	35.4	4	33	2.81	8.89	30.67%	0.00%
500		10	30.3	26.7	33.9	18	35	1.61	5.1	16.83%	-4.48%
1000		10	29.7	27.9	31.5	25	33	0.803	2.54	8.55%	-2.41%
1500		10	21.1	17.7	24.5	9	26	1.52	4.82	22.83%	27.24%
2000		10	1.8	0.0542	3.55	0	6	0.772	2.44	135.58%	93.79%
2500		10	0	0	0	0	0	0	0		100.00%
Survival Summary											
Conc-mg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LW	10	0.900	0.674	1.000	0.000	1.000	0.100	0.316	35.14%	0.00%
500		10	0.900	0.674	1.000	0.000	1.000	0.100	0.316	35.14%	0.00%
1000		10	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-11.11%
1500		10	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-11.11%
2000		10	0.300	0.000	0.646	0.000	1.000	0.153	0.483	161.02%	66.67%
2500		10	0.000	0.000	0.000	0.000	0.000	0.000	0.000		100.00%

# CETIS Summary Report

Report Date: 16 Mar-18 08:51 (p 2 of 2)  
 Test Code: 77094 | 15-3562-0423

Ceriodaphnia Survival and Reproduction Test											Pacific EcoRisk
Reproduction Detail											
Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	LW	29	30	4	33	32	33	33	33	31	32
500		30	27	32	35	28	34	34	34	18	31
1000		28	31	25	31	33	27	29	32	32	29
1500		26	23	18	23	24	20	24	9	23	21
2000		0	0	3	5	0	0	0	4	6	0
2500		0	0	0	0	0	0	0	0	0	0
Survival Detail											
Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	LW	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
500		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	1.000
1000		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1500		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000		0.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000	1.000	0.000
2500		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Survival Binomials											
Conc-mg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	LW	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
500		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1
1000		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
1500		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
2000		0/1	0/1	1/1	1/1	0/1	0/1	0/1	0/1	1/1	0/1
2500		0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1

## Ceriodaphnia Survival and Reproduction Test

Pacific EcoRisk

Test Type: Reproduction-Survival (7d)

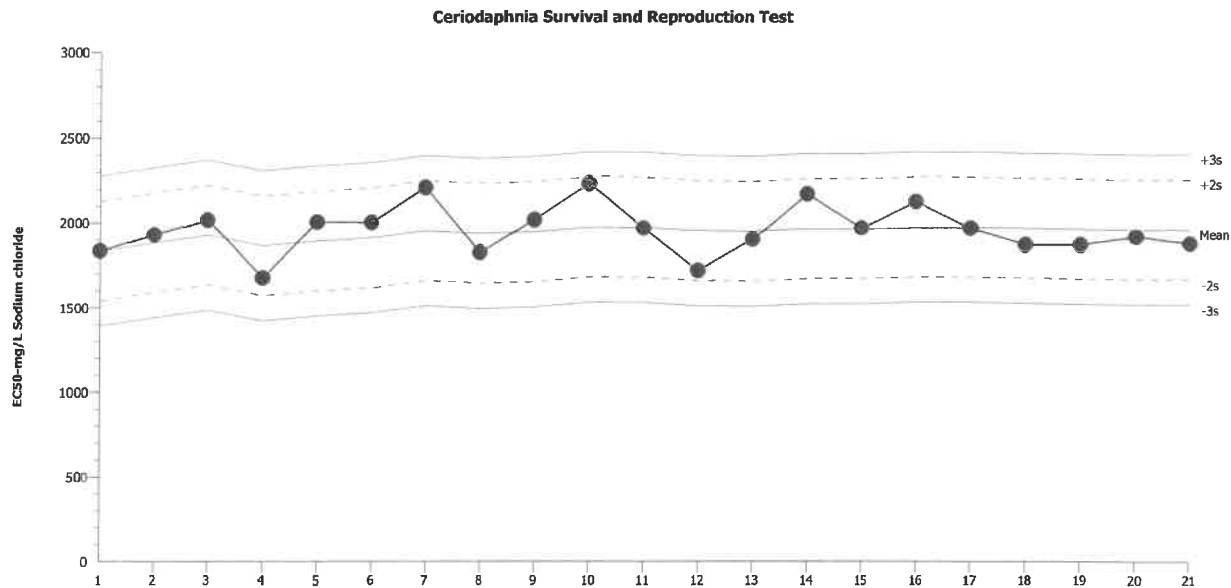
Organism: Ceriodaphnia dubia (Water Flea)

Material: Sodium chloride

Protocol: EPA-821-R-02-013 (2002)

Endpoint: Survival

Source: Reference Toxicant-REF



Mean: 1961

Count: 20

-2s Warning Limit: 1665

-3s Action Limit: 1518

Sigma: 147.8

CV: 7.54%

+2s Warning Limit: 2257

+3s Action Limit: 2404

## Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2017	Dec	12	12:30	1835	-126.4	-0.855			15-7963-7323	19-6062-3616
2			14	11:50	1930	-31.01	-0.2098			17-3091-8548	04-9037-5543
3			16	14:25	2019	57.9	0.3918			06-3787-6107	10-7874-4004
4			20	14:00	1673	-287.9	-1.948			13-8212-8029	20-8482-0658
5			28	12:02	2006	44.84	0.3034			03-2773-5176	05-2725-7968
6	2018	Jan	3	14:35	2003	42.1	0.2848			03-6203-2409	19-2711-6543
7			5	16:00	2209	247.5	1.675			07-3043-6360	10-1121-9785
8			9	10:10	1823	-138.2	-0.9349			05-2593-0742	03-1992-5264
9			11	14:30	2019	57.9	0.3918			10-2730-8188	17-3962-6718
10			16	14:11	2230	268.7	1.818			06-2221-2315	15-3222-0069
11			23	13:10	1968	6.99	0.04729			18-9862-5611	00-1872-9565
12			30	16:30	1716	-244.7	-1.655			03-9354-9092	00-5758-9399
13			31	14:47	1901	-60.05	-0.4063			10-8982-3519	13-9525-7615
14		Feb	6	13:35	2170	208.8	1.412			01-2115-1133	04-9315-4902
15			8	15:20	1968	6.99	0.04729			16-3616-7886	11-9398-9253
16			13	13:50	2125	163.7	1.108			04-2620-0599	09-7192-4962
17			20	14:00	1968	6.99	0.04729			09-0272-1517	06-3320-8095
18			21	13:45	1870	-91.02	-0.6158			01-7935-6875	12-8453-6234
19			22	16:43	1870	-91.02	-0.6158			20-4559-4198	17-5984-6411
20			27	11:27	1918	-42.64	-0.2885			13-6441-8767	01-2651-1145
21		Mar	8	13:10	1878	-83.46	-0.5647			15-3562-0423	10-7089-6666

## Ceriodaphnia Survival and Reproduction Test

Pacific EcoRisk

Test Type: Reproduction-Survival (7d)

Organism: Ceriodaphnia dubia (Water Flea)

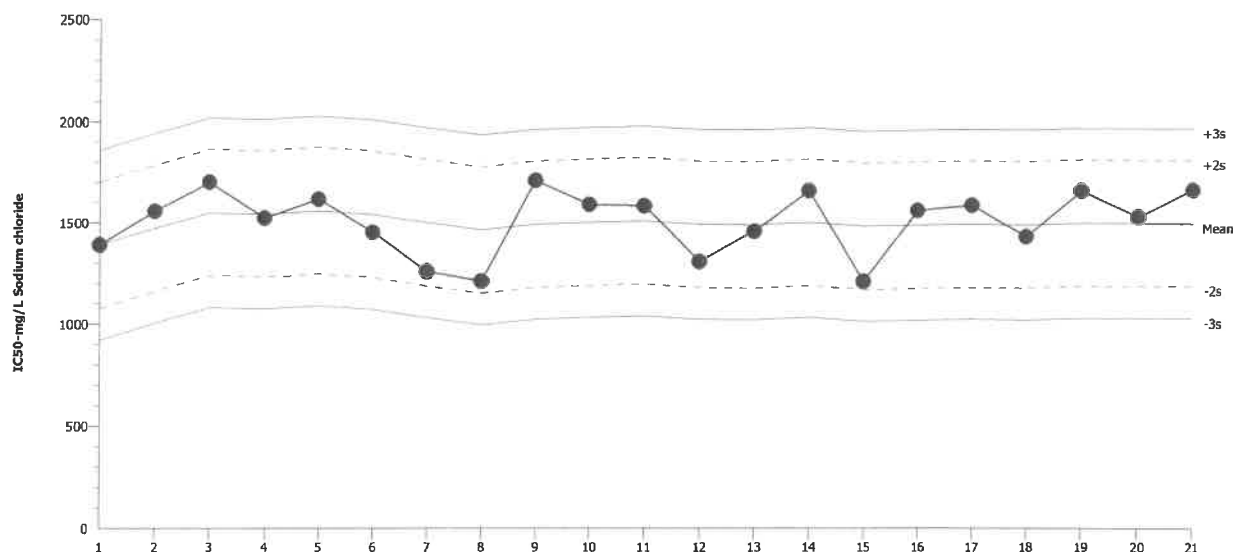
Material: Sodium chloride

Protocol: EPA-821-R-02-013 (2002)

Endpoint: Reproduction

Source: Reference Toxicant-REF

Ceriodaphnia Survival and Reproduction Test



Mean: 1498

Count: 20

-2s Warning Limit: 1185

-3s Action Limit: 1029

Sigma: 156.2

CV: 10.40%

+2s Warning Limit: 1810

+3s Action Limit: 1966

## Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2017	Dec	12	12:30	1389	-108.9	-0.6972			15-7963-7323	20-0353-3205
2			14	11:50	1557	59.31	0.3797			17-3091-8548	18-2139-8674
3			16	14:25	1700	202.3	1.295			06-3787-6107	13-0231-3989
4			20	14:00	1522	24.22	0.1551			13-8212-8029	18-9002-4497
5			28	12:02	1616	118	0.7556			03-2773-5176	21-3209-6304
6	2018	Jan	3	14:35	1450	-47.65	-0.305			03-6203-2409	02-9621-7676
7			5	16:00	1256	-241.6	-1.547			07-3043-6360	16-4756-8897
8			9	10:10	1209	-289.1	-1.851			05-2593-0742	14-6407-9198
9			11	14:30	1706	208.1	1.332			10-2730-8188	19-4067-6700
10			16	14:11	1587	89.16	0.5708			06-2221-2315	08-4465-0040
11			23	13:10	1582	84.3	0.5397			18-9862-5611	17-2505-2566
12			30	16:30	1305	-193.4	-1.238			03-9354-9092	00-3725-4656
13			31	14:47	1455	-43.11	-0.276			10-8982-3519	13-8322-1547
14		Feb	6	13:35	1656	158.4	1.014			01-2115-1133	12-4785-7083
15			8	15:20	1207	-291.1	-1.864			16-3616-7886	07-1097-8341
16			13	13:50	1558	59.52	0.3811			04-2620-0599	15-3366-2961
17			20	14:00	1584	86.12	0.5513			09-0272-1517	12-7035-7031
18			21	13:45	1427	-70.67	-0.4525			01-7935-6875	18-3841-1442
19			22	16:43	1654	156.1	0.9995			20-4559-4198	02-5662-7034
20			27	11:27	1528	30.2	0.1933			13-6441-8767	17-0770-1114
21		Mar	8	13:10	1662	164.3	1.052			15-3562-0423	05-8477-5924

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

Client: Reference Toxicant Material: Sodium Chloride Test Date: 3/8/18  
 Project #: 28579 Test ID: 77094 Randomization: 10.7.3 Control Water: Mod EPAMH

	Day	pH		D.O.		Conductivity (µS/cm)		Temp (°C)	Survival / Reproduction										SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	E	F	G	H	I	J	
Lab Water Control	0	7.76		8.7		358		24.6	0	0	0	0	0	0	0	0	0	0	Date: 3/8/18 New WQ: Sol'n Prep: SMC YLL Test Init.: ER Time: 1310
	1	8.21	8.09	8.4	7.7	361	383	24.6	0	0	0	0	0	0	0	0	0	0	Date: 3/9/18 New WQ: 5B Counts: EP Time: 1444
	2	7.95	7.91	7.8	7.4	360	389	24.4	0	0	0	0	0	0	0	0	0	0	Date: 3/10/18 New WQ: TA Counts: TC Time: 1448
	3	7.80	7.90	8.6	8.0	365	377	24.7	6	6	4	6	7	5	4	6	6	5	Date: 3/11/18 New WQ: 5R Counts: ER Time: 1338
	4	7.86	7.86	8.7	8.1	362	385	25.2	0	0	10	0	11	0	0	12	0	0	Date: 3/12/18 New WQ: 4K Counts: KL Time: 1340
	5	7.73	7.62	8.0	8.1	363	409	24.7	10	10	-	12	0	9	13	0	11	12	Date: 3/13/18 New WQ: 8R Counts: ER Time: 1310
	6	-	7.69	-	7.3	-	379	24.2	13	14	-	15	14	19	16	15	14	15	Date: 3/14/18 New WQ: - Counts: 12 Time: 1302
	7										-								Date: New WQ: Counts: Time:
	8										-								Date: Old WQ: Counts: Time:
	Total=								29	30	14	33	32	33	33	33	31	32	Mean Neonates/Female = 29.0
	Day	pH		D.O.		Conductivity (µS/cm)			Survival / Reproduction										RT BATCH NUMBER
		New	Old	New	Old	New	Old		A	B	C	D	E	F	G	H	I	J	
500 mg/L	0	7.88		8.9		1307			0	0	0	0	0	0	0	0	0	0	271
	1	8.13	8.08	8.5	7.8	1327	1375		0	0	0	0	0	0	0	0	0	0	271
	2	7.95	7.87	7.8	7.6	1302	1422		0	0	0	0	0	0	0	0	0	0	271
	3	7.79	7.88	8.7	8.1	1366	1390		5	5	6	5	5	5	6	5	5	5	271
	4	7.90	7.84	8.7	8.1	1371	1439		0	9	0	13	10	0	0	0	11	0	271
	5	7.74	7.62	7.4	7.9	1283	1442		11	0	11	0	0	13	11	13	0	10	271/272
	6	-	7.72	-	7.7	-	1388		14	13	15	17	13	16	17	16	2/1	16	-
	7																		
	8																		
	Total=								30	27	32	35	28	34	34	34	10/1	31	Mean Neonates/Female = 30.3

Short-Term Chronic 3-Brood *Ceriodaphnia dubia* Survival & Reproduction Test Data
 Client: \_\_\_\_\_  
 Project #: 28579      Reference Toxicant: \_\_\_\_\_  
 Test ID: 77094

 Material: Sodium Chloride  
 Randomization: 10.7.3

 Test Date: 3/8/18  
 Control Water: Mod EPAMH

	Day	pH		D.O.		Conductivity (µS/cm)		Temp (°C)	Survival / Reproduction										
		New	Old	New	Old	New	Old		A	B	C	D	E	F	G	H	I	J	
1000 mg/L	0	7.88		8.8		2226			0	0	0	0	0	0	0	0	0	0	
	1	8.10	8.06	8.5	7.8	2275	2360		0	0	0	0	0	0	0	0	0	0	
	2	7.91	7.85	8.1	7.7	2245	2436		0	0	0	0	0	0	0	0	0	0	
	3	7.78	7.88	8.9	8.1	2257	2413		5	6	5	5	5	5	5	6	5	5	
	4	7.88	7.88	8.8	8.4	2261	2544		0	0	8	10	0	0	0	12	12	0	
	5	7.79	7.63	7.6	7.8	2261	2403		10	11	0	0	12	8	11	0	0	10	
	6	—	7.72	—	7.6	—	2428		13	14	12	16	16	14	13	14	15	14	
	7																		
	8																		
Total=									28	31	25	31	33	27	29	32	32	29	Mean Neonates/Female = 29.7
	Day	pH		D.O.		Conductivity (µS/cm)			Survival / Reproduction										
		New	Old	New	Old	New	Old		A	B	C	D	E	F	G	H	I	J	
1500 mg/L	0	7.87		9.0		3164			0	0	0	0	0	0	0	0	0	0	
	1	8.05	8.04	8.7	7.7	3213	3306		0	0	0	0	0	0	0	0	0	0	
	2	7.87	7.84	8.3	7.7	3187	3386		0	0	0	0	0	0	0	0	0	0	
	3	7.76	7.87	9.1	8.2	3240	3415		6	4	3	3	4	80	4	0	5	5	
	4	7.85	7.88	9.0	8.3	3160	3514		0	0	0	0	0	0	0	0	0	0	
	5	7.72	7.65	7.9	8.0	3236	3418		10	6	4	8	5	89	8	0	4	8	
	6	—	7.70	—	7.2	—	3560		10	13	11	12	12	11	12	9	9	8	
	7																		
	8																		
Total=									26	23	18	23	24	20	24	9	23	21	Mean Neonates/Female = 21.1

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

Client: \_\_\_\_\_ Reference Toxicant: \_\_\_\_\_ Material: Sodium Chloride Test Date: 3/8/18  
 Project #: 28579 Test ID: 77094 Randomization: 10.7.3 Control Water: Mod EPAMH

	Day	pH		D.O.		Conductivity (µS/cm)		Temp (°C)	Survival / Reproduction										
		New	Old	New	Old	New	Old		A	B	C	D	E	F	G	H	I	J	
2000 mg/L	0	7.74		9.2		4194			0	0	0	0	0	0	0	0	0	0	
	1	8.00	8.03	8.9	7.9	4144	4316		0	0	0	0	0	0	0	0	0	0	
	2	7.82	7.84	8.8	7.7	4100	4393		x/0	0	0	0	x/0	x/0	x/0	0	0	x/0	
	3	7.74	7.86	9.4	8.1	4170	4336		-	x/0	0	0	-	-	-	0	0	-	
	4	7.81	7.86	9.5	8.3	4129	4368		-	-	0	0	-	-	-	0	0	-	
	5	7.70	7.65	8.3	8.0	4197	4386		-	-	0	2	-	-	-	0	1	-	
	6	-	7.70	-	7.6	-	4571		-	-	3	3	-	-	-	4/x	5	-	
	7								-	-			-	-	-	-		-	
	8								-	-			-	-	-	-		-	
	Total=	x/0	x/0	3	5	x/0	x/0	x/0	x/4	6	x/0	Mean Neonates/Female = <u>1.8</u>							
2500 mg/L	0	7.81		9.6		4969			0	0	0	0	0	0	0	0	0	0	
	1	8.00	8.03	8.6	7.9	5094	5197		0	0	0	0	0	0	0	0	0	0	
	2	7.78	7.82	9.3	7.2	5029	5317		x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	
	3	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
	5	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
	6	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
	7	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
	8	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	
	Total=	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	x/0	Mean Neonates/Female = <u>0</u>