



October 21, 2013

Mr. Ray Hiemstra
Orange County Coastkeeper
3151 Airway Ave. Suite F-110
Costa Mesa, CA 92626

Dear Mr. Hiemstra:

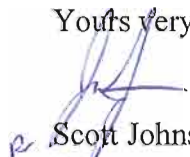
We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, EPA/600/R-94/025. Results were as follows:

CLIENT:	Orange County Coastkeeper
SAMPLE I.D.:	HM1
DATE RECEIVED:	8/22/2013
ABC LAB. NO.:	OCC0813.263

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 96.00% Survival

Yours very truly,


p. Scott Johnson
Laboratory Director

CETIS Analytical Report

Report Date: 21 Oct-13 11:18 (p 1 of 2)
 Test Code: OCC0813.263eoh | 07-5777-1000

Eohaustorius 10-d Survival and Reburial Sediment Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 12-3350-2379	Endpoint: Survival Rate	CETIS Version: CETISv1.8.7			
Analyzed: 21 Oct-13 11:15	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes			
Batch ID: 00-5519-5087	Test Type: Survival-Reburial	Analyst:			
Start Date: 03 Sep-13 11:10	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater			
Ending Date: 13 Sep-13 12:00	Species: Eohaustorius estuarius	Brine: Not Applicable			
Duration: 10d 1h	Source: Northwestern Aquatic Science, OR	Age:			
Sample ID: 07-1186-1923	Code: OCC0813.263e	Client: Orange County CoastKeeper			
Sample Date: 21 Aug-13 13:10	Material: Sediment	Project: Newport Bay Sediment			
Receive Date: 21 Aug-13 18:00	Source: Bioassay Report				
Sample Age: 12d 22h	Station: HM1				

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

Test Acceptability Criteria				
Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.94	0.9 - NL	Yes	Passes Acceptability Criteria

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

Survival Rate Summary			Calculated Variate(A/B)									
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B	
0	Negative Control	5	0.94	0.9	1	0.01871	0.04183	4.45%	0.0%	94	100	
100		5	0.96	0.9	1	0.02449	0.05477	5.71%	-2.13%	96	100	

Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.9	1	0.95	0.95	0.9
100		1	0.9	0.9	1	1

Survival Rate Binomials						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	18/20	20/20	19/20	19/20	18/20
100		20/20	18/20	18/20	20/20	20/20

CETIS Measurement Report

Report Date: 21 Oct-13 11:18 (p 1 of 2)
 Test Code: OCC0813.263eoh | 07-5777-1000

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 00-5519-5087	Test Type: Survival-Reburial	Analyst:
Start Date: 03 Sep-13 11:10	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 13 Sep-13 12:00	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 10d 1h	Source: Northwestern Aquatic Science, OR	Age:
Sample ID: 07-1186-1923	Code: OCC0813.263e	Client: Orange County CoastKeeper
Sample Date: 21 Aug-13 13:10	Material: Sediment	Project: Newport Bay Sediment
Receive Date: 21 Aug-13 18:00	Source: Bioassay Report	
Sample Age: 12d 22h	Station: HM1	

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	10.05	9.415	10.69	10	10.1	0.05001	0.07073	0.7%	0
100		2	10.15	9.515	10.79	10.1	10.2	0.05	0.0707	0.7%	0
Overall		4	10.1			10	10.2				0 (0%)

Total Ammonia (N)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	1	0			0	0	0	0		0
100		1	0			0	0	0	0		0
Overall		2	0			0	0				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	7.8	7.787	7.813	7.8	7.8	0	0	0.0%	0
100		2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
Overall		4	7.85			7.8	7.9				0 (0%)

Salinity-ppt

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	20	20	20	20	20	0	0	0.0%	0
100		2	20	20	20	20	20	0	0	0.0%	0
Overall		4	20			20	20				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	14.85	14.21	15.49	14.8	14.9	0.05004	0.07077	0.48%	0
100		2	14.8	14.78	14.82	14.8	14.8	0	0	0.0%	0
Overall		4	14.83			14.8	14.9				0 (0%)



October 21, 2013

Mr. Ray Hiemstra
Orange County Coastkeeper
3151 Airway Ave. Suite F-110
Costa Mesa, CA 92626

Dear Mr. Hiemstra:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, EPA/600/R-94/025. Results were as follows:

CLIENT:	Orange County Coastkeeper
SAMPLE I.D.:	LV1
DATE RECEIVED:	8/22/2013
ABC LAB. NO.:	OCC0813.264

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 97.00% Survival

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Analytical Report

Report Date: 21 Oct-13 11:17 (p 2 of 2)
Test Code: OCC0813.264eoh | 10-0216-9438

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-6629-5480 Endpoint: Survival Rate
Analyzed: 21 Oct-13 11:15 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7
Official Results: Yes



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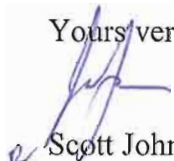
We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, EPA/600/R-94/025. Results were as follows:

CLIENT:	Orange County Coastkeeper
SAMPLE I.D.:	LYA1
DATE RECEIVED:	8/22/2013
ABC LAB. NO.:	OCC0813.265

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 95.00% Survival

Yours very truly,



Scott Johnson
Laboratory Director

CETIS Analytical Report

Report Date: 21 Oct-13 11:17 (p 1 of 2)
 Test Code: OCC0813.265eoh | 20-0453-9129

Eohaustorius 10-d Survival and Reburial Sediment Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 09-1648-6400	Endpoint: Survival Rate	CETIS Version: CETISv1.8.7			
Analyzed: 21 Oct-13 11:15	Analysis: Parametric-Two Sample	Official Results: Yes			
Batch ID: 03-6133-0885	Test Type: Survival-Reburial	Analyst:			
Start Date: 03 Sep-13 11:12	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater			
Ending Date: 13 Sep-13 12:00	Species: Eohaustorius estuarius	Brine: Not Applicable			
Duration: 10d 1h	Source: Northwestern Aquatic Science, OR	Age:			
Sample ID: 20-0446-7790	Code: OCC0813.265e	Client: Orange County CoastKeeper			
Sample Date: 21 Aug-13 14:20	Material: Sediment	Project: Newport Bay Sediment			
Receive Date: 21 Aug-13 18:00	Source: Bioassay Report				
Sample Age: 12d 21h	Station: LYA1				

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	6.44%	Passes survival rate

Equal Variance t Two-Sample Test									
Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	-0.3726	1.86	0.113	8	0.6404	CDF	Non-Significant Effect

Test Acceptability Criteria				
Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.94	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.001287675	0.001287675	1	0.1389	0.7191	Non-Significant Effect
Error	0.07419071	0.009273839	8			
Total	0.07547839		9			

Distributional Tests					
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.461	23.15	0.7225	Equal Variances
Variances	Mod Levene Equality of Variance	1.164	13.75	0.3221	Equal Variances
Variances	Levene Equality of Variance	0.5105	11.26	0.4952	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8774	0.7411	0.1219	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.2122	0.3025	0.2446	Normal Distribution
Distribution	D'Agostino Skewness	0.3788	2.576	0.7049	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.5701	3.878	0.1430	Normal Distribution

Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	0.94	0.8881	0.9919	0.95	0.9	1	0.01871	4.45%	0.0%
100		5	0.95	0.8879	1	0.95	0.9	1	0.02236	5.26%	-1.06%

Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	5	1.329	1.222	1.437	1.345	1.249	1.459	0.03883	6.53%	0.0%
100		5	1.352	1.222	1.482	1.345	1.249	1.459	0.04692	7.76%	-1.71%

Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.9	1	0.95	0.95	0.9
100		1	0.9	0.9	0.95	1

Angular (Corrected) Transformed Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.249	1.459	1.345	1.345	1.249
100		1.459	1.249	1.249	1.345	1.459

CETIS Analytical Report

Report Date: 21 Oct-13 11:17 (p 2 of 2)
Test Code: OCC0813.265eoh | 20-0453-9129

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-1648-6400 Endpoint: Survival Rate CETIS Version: CETISv1.8.7
Analyzed: 21 Oct-13 11:15 Analysis: Parametric-Two Sample Official Results: Yes

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	18/20	20/20	19/20	19/20	18/20
100		20/20	18/20	18/20	19/20	20/20



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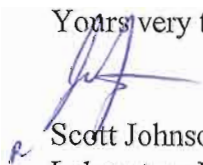
We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, EPA/600/R-94/025. Results were as follows:

CLIENT:	Orange County Coastkeeper
SAMPLE I.D.:	BC2
DATE RECEIVED:	8/22/2013
ABC LAB. NO.:	OCC0813.266

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 97.00% Survival

Yours very truly,



Scott Johnson
Laboratory Director

CETIS Measurement Report

Report Date: 21 Oct-13 11:17 (p 2 of 2)

Test Code: OCC0813.266eoh | 17-5965-7366

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

C-%	Control Type	1	2
0	Negative Contr	10.2	10.1
100		10.2	10.3

Total Ammonia (N)-mg/L

C-%	Control Type	1	2
0	Negative Contr	0	
100		0	

pH-Units

C-%	Control Type	1	2
0	Negative Contr	7.9	7.9
100		7.7	7.8

Salinity-ppt

C-%	Control Type	1	2
0	Negative Contr	20	20
100		20	20

Temperature-°C

C-%	Control Type	1	2
0	Negative Contr	14.8	14.9
100		14.8	14.8



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CLIENT:	Orange County Coastkeeper
SAMPLE I.D.:	LE
DATE RECEIVED:	8/22/2013
ABC LAB. NO.:	OCC0813.267

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 98.00% Survival

Yours very truly,



Scott Johnson
Laboratory Director

CETIS Analytical Report

Report Date: 21 Oct-13 11:17 (p 1 of 2)
 Test Code: OCC0813.267eoh | 07-6280-8651

Eohaustorius 10-d Survival and Reburial Sediment Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-4000-6220	Endpoint: Survival Rate	CETIS Version: CETISv1.8.7
Analyzed: 21 Oct-13 11:15	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Batch ID: 13-5774-7102	Test Type: Survival-Reburial	Analyst:
Start Date: 03 Sep-13 11:14	Protocol: EPA/600/R-94/025 (1994)	Diluent: Laboratory Seawater
Ending Date: 13 Sep-13 12:00	Species: Eohaustorius estuarius	Brine: Not Applicable
Duration: 10d 1h	Source: Northwestern Aquatic Science, OR	Age:
Sample ID: 11-4419-0716	Code: OCC0813.267e	Client: Orange County CoastKeeper
Sample Date: 21 Aug-13 12:10	Material: Sediment	Project: Newport Bay Sediment
Receive Date: 21 Aug-13 18:00	Source: Bioassay Report	
Sample Age: 12d 23h	Station: LE	

Linear Interpolation Options

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

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.94	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

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

Survival Rate Summary

C-%	Control Type	Count	Calculated Variate(A/B)								
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	0.94	0.9	1	0.01871	0.04183	4.45%	0.0%	94	100
100		5	0.98	0.9	1	0.02	0.04472	4.56%	-4.26%	98	100

Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.9	1	0.95	0.95	0.9
100		1	1	0.9	1	1

Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Contro	18/20	20/20	19/20	19/20	18/20
100		20/20	20/20	18/20	20/20	20/20

CETIS Analytical Report

Report Date: 21 Oct-13 11:17 (p 2 of 2)
Test Code: OCC0813.267eoh | 07-6280-8651

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 03-4000-6220 Endpoint: Survival Rate
Analyzed: 21 Oct-13 11:15 Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7
Official Results: Yes



October 21, 2013

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Orange County Coastkeeper
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Dear Mr. Hiemstra:

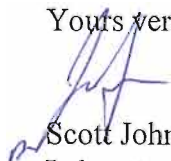
We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods*, EPA/600/R-94/025. Results were as follows:

CLIENT:	Orange County Coastkeeper
SAMPLE I.D.:	WLB
DATE RECEIVED:	8/22/2013
ABC LAB. NO.:	OCC0813.268

***Eohaustorius estuarius* 10 Day Survival Sediment Bioassay**

Percent Survival = 95.00% Survival

Yours very truly,



Scott Johnson
Laboratory Director

CETIS Measurement Report

Report Date: 21 Oct-13 11:16 (p 2 of 2)

Test Code: OCC0813.268eoh | 09-3412-0756

Eohaustorius 10-d Survival and Reburial Sediment Test

Aquatic Bioassay & Consulting Labs, Inc.

Dissolved Oxygen-mg/L

C-%	Control Type	1	2
0	Negative Contr	10.1	10.2
100		10	10.2

Total Ammonia (N)-mg/L

C-%	Control Type	1	2
0	Negative Contr	0	
100		0	

pH-Units

C-%	Control Type	1	2
0	Negative Contr	7.9	7.9
100		7.7	7.7

Salinity-ppt

C-%	Control Type	1	2
0	Negative Contr	20	20
100		20	20

Temperature-°C

C-%	Control Type	1	2
0	Negative Contr	14.8	14.9
100		14.8	14.9

