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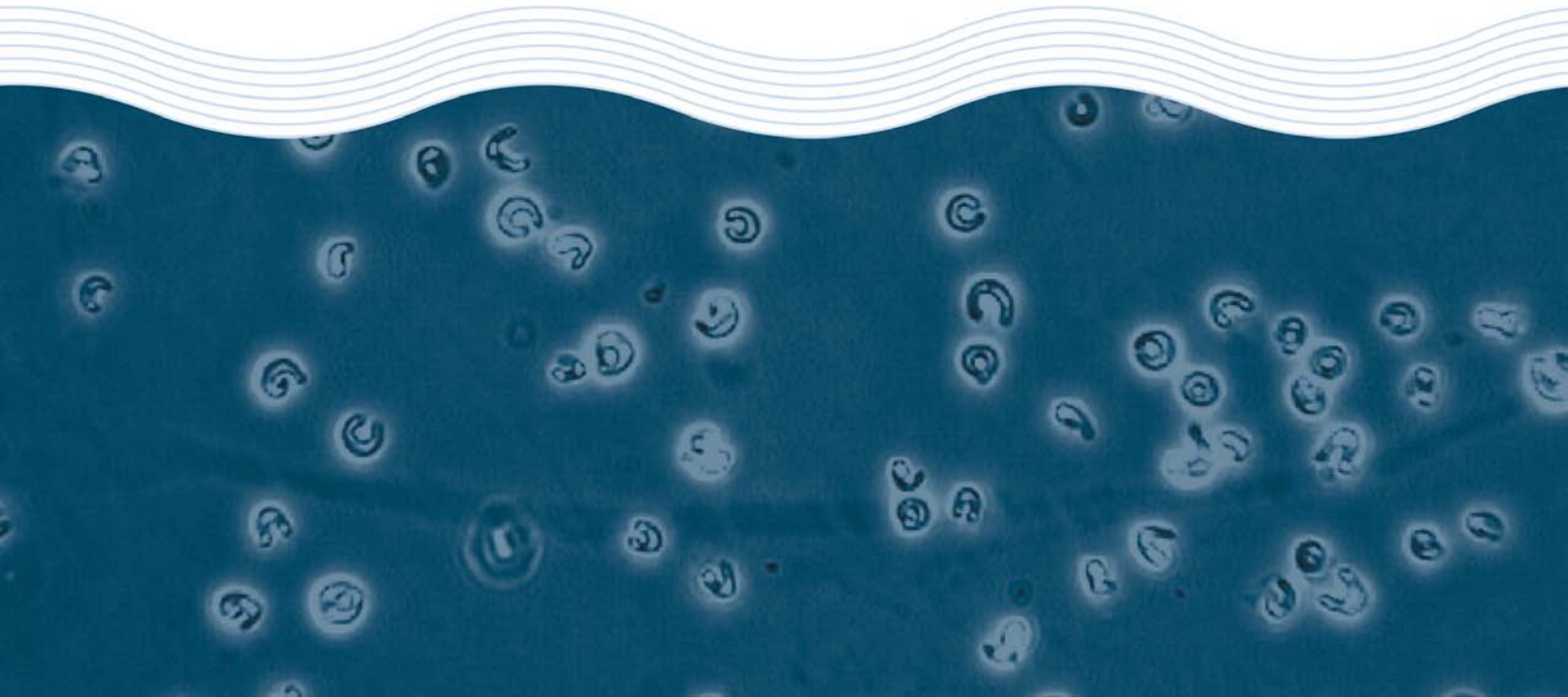
Toxicity Assessment of S-200 Oilgone Bioremediation Accelerator

Gary Pearse Enterprises Pty Ltd

Test Report

April 2012



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Gary Pearse Enterprises Pty Ltd

Test Report

April 2012

ECOTOX Services Australasia Pty Ltd ABN>45 094 714 904
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2 May 2012
Ref: PL0757_L01

Mr Gary Pearse
Managing Director
Gary Pearse Enterprises Pty Ltd
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Murrah NSW 2550
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Re: Toxicity Test Reports TR0757/1-3 with S-200 Bioremediation Accelerator

Dear Gary

Please find following our Test Reports TR0757/1, TR0757/2 and TR0757/3 undertaken with S-200 Bioremediation Accelerator using the following marine ecotoxicity tests:

- 48-hr larval abnormality test using the blue mussel *Mytilus edulis galloprovincialis* (based on Krassoi *et al*., 1996 for the National Pulp Mills Research Program)
- 48-hr larval abnormality test using the the rock oyster *Saccostrea glomerata* (formerly *S. commercialis*) (based on Krassoi *et al*., 1996 for the National Pulp Mills Research Program)
- 48-hr larval abnormality test using the tropical milky oyster *Saccostea echinata*, (based on Krassoi *et al*., 1996 for the National Pulp Mills Research Program)

The tests were undertaken in accordance with our NATA endorsed Standard Operating Procedures, and met all quality assurance criteria. The tests were performed using the following nominal concentration range; 0.6, 1.3, 2.5, 5.0 and 10.0mg/L plus negative and positive control treatments. The highest concentration of 10mg/L was selected as this was the acceptability rate given by the current AMSA test protocol for acute tests. No criteria are given for chronic or sub-chronic tests.

The 48-h EC50 for all three tests was >10mg/L, meeting the AMSA acceptability criteria for acute tests, despite these being more sensitive sub-chronic tests.

Should you have any questions or you require further information, please contact Dr Rick Krassoi on (02) 9420-9480 / 0418 881862 or email on rkrassoi@ecotox.com.au

Sincerely

Dr Rick Krassoi
Director

Toxicity Test Report: TR0757/1

This document is issued in accordance with NATA's accreditation requirements

Client:	Gary Pearse Enterprises Pty Ltd 2962 Tathra Bermagui Road Murrah NSW 2550	**ESA Job #:** **Date Sampled:** **Date Received:**	PR0757 Not supplied 22 March 2012
Attention:	Gary Pearse	**Sampled By:**	Client
Client Ref:	Not supplied	**ESA Quote #:**	PL0757_q02

Lab ID No.:	**Sample Name:**	**Sample Description:**
5327	S-200 Oilgone	Chemical sample received at room temperature in apparent good condition

Test Performed:	48-hr larval development test using the mussel *Mytilus galloprovincialis*
Test Protocol:	ESA SOP 106 (ESA 2011), based on APHA (1998) and USEPA (1996)
Test Temperature:	The test was performed at 20±1°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 5327 'S-200 Oilgone' into filtered seawater (FSW). The remaining test concentrations were achieved by serially diluting the highest test concentration with FSW. A FSW control was tested concurrently with the prepared sample.
Source of Test Organisms:	Farm-reared, Mercury Passage, TAS
Test Initiated:	3 April 2012 at 1430h

Sample 5327: *S-200 Oilgone* **Concentration (mg/L)**	**% Normal larvae (Mean ± SD)**	*Vacant*	*Vacant*
FSW Control	79.3 ± 5.7		
0.6	76.8 ± 6.7		
1.3	79.0 ± 5.7		
2.5	79.0 ± 3.8		
5.0	76.3 ± 5.6		
10.0	75.5 ± 7.1		
48-hr EC10 = >10mg/L **48-hr EC50 = >10mg/L** **NOEC = 10mg/L** **LOEC = >10mg/L**			

Toxicity Test Report: TR0757/1

QA/QC Parameter	Criterion	This Test	Criterion met?
FSW Control mean % normal	≥70%	79.3%	Yes
Reference Toxicant within cusum chart limits	6.4-16.4µg Cu/L	10.3µg Cu/L	Yes

Test Report Authorised by:  Dr Rick Krassoi, Director on 18 April 2012

Results are based on the samples in the condition as received by ESA.

NATA Accredited Laboratory Number: 14709

Citations:

APHA (1998) *Standard Methods for the Examination of Water and Wastewate*r. 20th Ed. American Public Health Association, American Water Works Association and the Water Environment Federation, Washington, DC, USA.

ESA (2011) *Bivalve Larval Development Test*. Issue No. 10. Ecotox Services Australasia, Sydney, NSW

USEPA (1996) *Bivalve acute toxicity test (embryo larval) OPPTS 850.1055. Ecological Effects Test Guidelines.* United States Environmental Protection Agency. Prevention, Pesticides and Toxic Substances. EPA/712/C-96/137.

Toxicity Test Report: TR0757/2

This document is issued in accordance with NATA's accreditation requirements

Client:	Gary Pearse Enterprises Pty Ltd 2962 Tathra Bermagui Road Murrah NSW 2550	**ESA Job #:** **Date Sampled:** **Date Received:**	PR0757 Not supplied 22 March 2012
Attention:	Gary Pearse	**Sampled By:**	Client
Client Ref:	Not supplied	**ESA Quote #:**	PL0757_q02

Lab ID No.:	**Sample Name:**	**Sample Description:**
5327	S-200 Oilgone	Chemical sample received at room temperature in apparent good condition

Test Performed:	48-hr larval development test using the Sydney rock oyster *Saccostrea glomerata*
Test Protocol:	ESA SOP 106 (ESA 2011), based on APHA (1998) and Krassoi (1995)
Test Temperature:	The test was performed at 25±1°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 5327 'S-200 Oilgone' into filtered seawater (FSW). The remaining test concentrations were achieved by serially diluting the highest test concentration with FSW. A FSW control was tested concurrently with the prepared sample.
Source of Test Organisms:	Farm-reared, Wallis Lakes, NSW.
Test Initiated:	10 April 2012 at 1800h

Sample 5327: *S-200 Oilgone* **Concentration (mg/L)**	**% Alive/Normal larvae (Mean ± SD)**	*Vacant*	*Vacant*
FSW Control	63.4 ± 6.8		
0.6	65.2 ± 11.8		
1.3	59.8 ± 7.9		
2.5	59.8 ± 8.9		
5.0	57.1 ± 7.7		
10.0	53.6 ± 9.2		
48-hr EC10 = 4.5mg/L*			
48-hr EC50 = >10mg/L			
NOEC = 10mg/L			
LOEC = >10mg/L			

*95% confidence limits are not available

Toxicity Test Report: TR0757/2

QA/QC Parameter	Criterion	This Test	Criterion met?
FSW Control mean % survival	≥70%	73.2%	Yes
FSW Control mean % normal	≥70%	86.4%	Yes
Reference Toxicant within cusum chart limits	16.6-28.9µg Cu/L	20.3µg Cu/L	Yes

Test Report Authorised by:  Dr Rick Krassoi, Director on 18 April 2012

Results are based on the samples in the condition as received by ESA.

NATA Accredited Laboratory Number: 14709

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Citations:

APHA (1998) Standard Methods for the Examination of Water and Wastewater. 20th Ed. American Public Health Association, American Water Works Association and the Water Environment Federation, Washington, DC.

ESA (2011) SOP 106 – *Bivalve Larval Development Test*. Issue No. 10. Ecotox Services Australasia, Sydney, NSW.

Krassoi, R (1995) Salinity adjustment of effluents for use with marine bioassays: effects on the larvae of the doughboy scallop Chlamys asperrimus and the Sydney rock oyster *Saccostrea commercialis*. *Australasian Journal of Ecotoxicology*, 1: 143-148.

Toxicity Test Report: TR0757/3

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Client:	Gary Pearse Enterprises Pty Ltd 2962 Tathra Bermagui Road Murrah NSW 2550	**ESA Job #:** **Date Sampled:** **Date Received:**	PR0757 Not supplied 22 March 2012
Attention:	Gary Pearse	**Sampled By:**	Client
Client Ref:	Not supplied	**ESA Quote #:**	PL0757_q02

Lab ID No.:	**Sample Name:**	**Sample Description:**
5327	S-200 Oilgone	Chemical sample received at room temperature in apparent good condition

Test Performed:	48-hr larval development test using the milky oyster *Saccostrea echinata*
Test Protocol:	ESA SOP 106 (ESA 2011), based on APHA (1998) and Krassoi (1995)
Test Temperature:	The test was performed at 25±1°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 5327 'S-200 Oilgone' into filtered seawater (FSW). The remaining test concentrations were achieved by serially diluting the highest test concentration with FSW. A FSW control was tested concurrently with the prepared sample.
Source of Test Organisms:	Field collected from Mackay, QLD.
Test Initiated:	10 April 2012 at 1830h

Sample 5327: *S-200 Oilgone* **Concentration (mg/L)**	**% Alive/Normal larvae (Mean ± SD)**	*Vacant*	*Vacant*
FSW Control	75.8 ± 5.3		
0.6	71.1 ± 9.3		
1.3	72.7 ± 6.9		
2.5	68.8 ± 9.2		
5.0	61.7 ± 3.0 *		
10.0	47.7 ± 3.0 *		
48-hr EC10 = 3.3mg/L**			
48-hr EC50 = >10mg/L			
NOEC = 2.5mg/L			
LOEC = 5mg/L			

*Significantly lower percentage of alive/normal larvae when compared with the FSW Control (Dunnett's Test, 1-tailed, P=0.05)

**95% Confidence limits are not reliable

Toxicity Test Report: TR0757/3

QA/QC Parameter	Criterion	This Test	Criterion met?
FSW Control mean % normal	≥70%	86.6%	Yes
Reference Toxicant within cusum chart limits	9.2-23.0µg Cu/L	14.8µg Cu/L	Yes

Test Report Authorised by: Dr Rick Krassoi, Director on 18 April 2012

Results are based on the samples in the condition as received by ESA.

NATA Accredited Laboratory Number: 14709

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Citations:

APHA (1998) Standard Methods for the Examination of Water and Wastewater. 20th Ed. American Public Health Association, American Water Works Association and the Water Environment Federation, Washington, DC.

ESA (2011) SOP 106 – *Bivalve Larval Development Test*. Issue No. 10. Ecotox Services Australasia, Sydney, NSW.

Krassoi, R (1995) Salinity adjustment of effluents for use with marine bioassays: effects on the larvae of the doughboy scallop Chlamys asperrimus and the Sydney rock oyster *Saccostrea commercialis*. *Australasian Journal of Ecotoxicology*, 1: 143-148.

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Statistical Printouts for the Mussel Toxicity Tests

Bivalve Larval Development Test-Proportion Normal

Start Date:	3/04/2012 14:30	Test ID:	PR0757/06	Sample ID:	S-200 Oilgone
End Date:	5/04/2012 14:30	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	MG-Mytilus galloprovincialis
Comments:					

Conc-mg/L	1	2	3	4
FSW Control	0.8200	0.7400	0.8600	0.7500
0.63	0.8600	0.7500	0.7000	0.7600
1.25	0.8400	0.8200	0.7900	0.7100
2.5	0.7600	0.8400	0.8000	0.7600
5	0.7100	0.7200	0.8000	0.8200
10	0.7000	0.6900	0.8300	0.8000

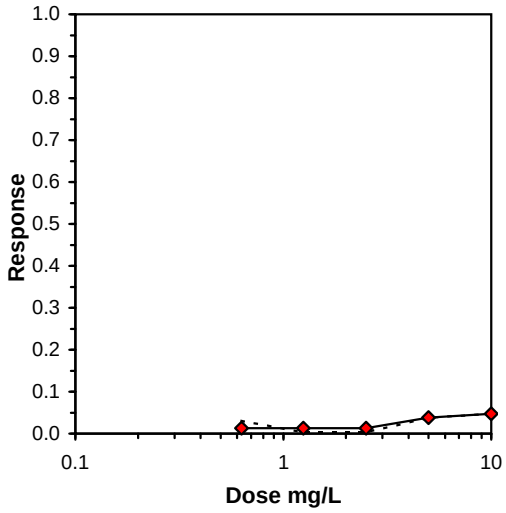
			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
FSW Control	0.7925	1.0000	1.1007	1.0357	1.1873	6.552	4				0.7925	1.0000
0.63	0.7675	0.9685	1.0711	0.9912	1.1873	7.739	4	0.589	2.410	0.1211	0.7825	0.9874
1.25	0.7900	0.9968	1.0972	1.0021	1.1593	6.261	4	0.070	2.410	0.1211	0.7825	0.9874
2.5	0.7900	0.9968	1.0960	1.0588	1.1593	4.373	4	0.094	2.410	0.1211	0.7825	0.9874
5	0.7625	0.9621	1.0638	1.0021	1.1326	6.184	4	0.735	2.410	0.1211	0.7625	0.9621
10	0.7550	0.9527	1.0561	0.9803	1.1458	7.850	4	0.888	2.410	0.1211	0.7550	0.9527

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.94112	0.916	0.202572	-1.28591
Bartlett's Test indicates equal variances (p = 0.97)	0.96127	15.08627		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	10	>10			0.105441	0.132658	0.001513	0.005048	0.906686	5, 18
Treatments vs FSW Control										

Log-Logit Interpolation (200 Resamples)

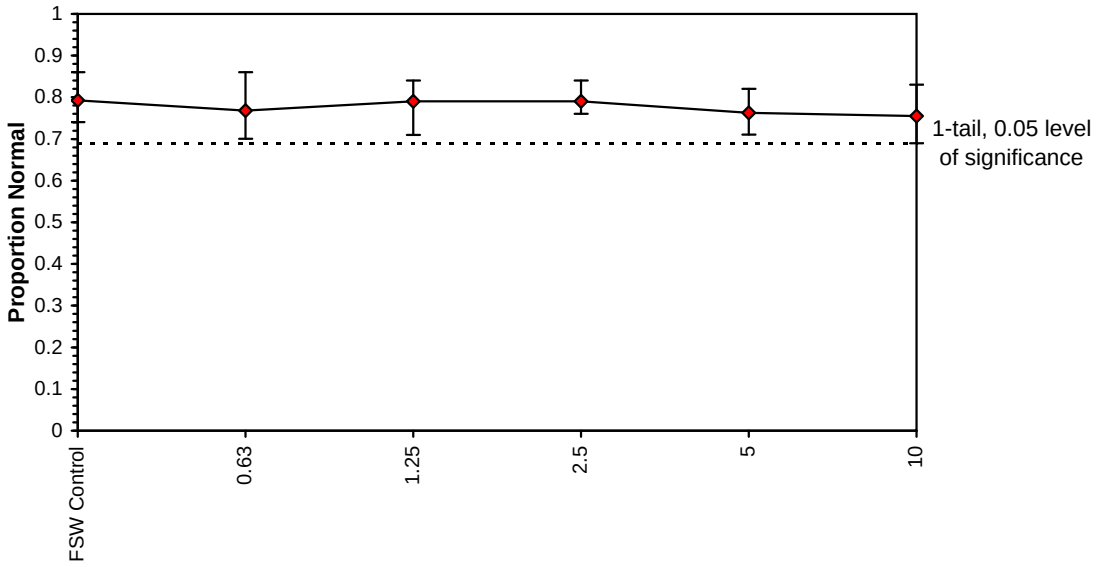
Point	mg/L	SD	95% CL(Exp)	Skew
IC05	>10			
IC10	>10			
IC15	>10			
IC20	>10			
IC25	>10			
IC40	>10			
IC50	>10			



Bivalve Larval Development Test-Proportion Normal

Start Date:	3/04/2012 14:30	Test ID:	PR0757/06	Sample ID:	S-200 Oilgone
End Date:	5/04/2012 14:30	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	MG-Mytilus galloprovincialis
Comments:					

Dose-Response Plot



Bivalve Larval Development Test-Proportion Normal

Start Date:	3/04/2012 14:30	Test ID:	PR0757/06	Sample ID:	S-200 Oilgone
End Date:	5/04/2012 14:30	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	MG-Mytilus galloprovincialis
Comments:					

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
FSW Control	% Alive/Normal	79.25	74.00	86.00	5.74	3.02	4
0.63		76.75	70.00	86.00	6.70	3.37	4
1.25		79.00	71.00	84.00	5.72	3.03	4
2.5		79.00	76.00	84.00	3.83	2.48	4
5		76.25	71.00	82.00	5.56	3.09	4
10		75.50	69.00	83.00	7.05	3.52	4
FSW Control	pH	8.30	8.30	8.30	0.00	0.00	1
0.63		8.30	8.30	8.30	0.00	0.00	1
1.25		8.30	8.30	8.30	0.00	0.00	1
2.5		8.30	8.30	8.30	0.00	0.00	1
5		8.30	8.30	8.30	0.00	0.00	1
10		8.30	8.30	8.30	0.00	0.00	1
FSW Control	Salinity ppt	35.00	35.00	35.00	0.00	0.00	1
0.63		35.10	35.10	35.10	0.00	0.00	1
1.25		35.10	35.10	35.10	0.00	0.00	1
2.5		35.20	35.20	35.20	0.00	0.00	1
5		35.20	35.20	35.20	0.00	0.00	1
10		35.20	35.20	35.20	0.00	0.00	1
FSW Control	DO %	100.40	100.40	100.40	0.00	0.00	1
0.63		96.20	96.20	96.20	0.00	0.00	1
1.25		95.90	95.90	95.90	0.00	0.00	1
2.5		95.80	95.80	95.80	0.00	0.00	1
5		95.20	95.20	95.20	0.00	0.00	1
10		94.60	94.60	94.60	0.00	0.00	1

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Statistical Printouts for the Rock Oyster Larval Development Tests

Bivalve Larval Development Test-Proportion Alive/Normal

Start Date:	10/04/2012 18:00	Test ID:	PR0757/02	Sample ID:	S-200 Oilgone
End Date:	12/04/2012 18:00	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	SG-Saccostrea glomerata
Comments:					

Conc-mg/L	1	2	3	4
FSW Control	0.6786	0.6429	0.5357	0.6786
0.63	0.7857	0.5357	0.5714	0.7143
1.25	0.5714	0.6786	0.6429	0.5000
2.5	0.6071	0.5714	0.7143	0.5000
5	0.6786	0.5357	0.5000	0.5714
10	0.5000	0.6429	0.4286	0.5714

			Transform: Arcsin Square Root					1-Tailed			Number	Total
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Resp	Number
FSW Control	0.6339	1.0000	0.9219	0.8211	0.9680	7.534	4				41	112
0.63	0.6518	1.0282	0.9436	0.8211	1.0895	13.373	4	-0.335	2.410	0.1567	39	112
1.25	0.5982	0.9437	0.8852	0.7854	0.9680	9.140	4	0.564	2.410	0.1567	45	112
2.5	0.5982	0.9437	0.8857	0.7854	1.0069	10.434	4	0.556	2.410	0.1567	45	112
5	0.5714	0.9014	0.8579	0.7854	0.9680	9.210	4	0.983	2.410	0.1567	48	112
10	0.5357	0.8451	0.8216	0.7137	0.9303	11.334	4	1.541	2.410	0.1567	52	112

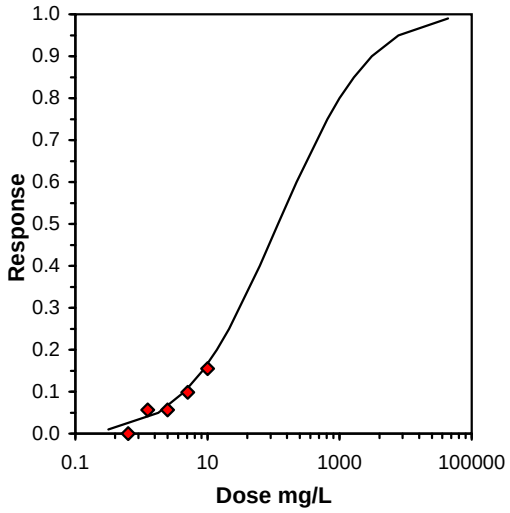
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.947503	0.916	0.120149	-1.13489
Bartlett's Test indicates equal variances (p = 0.94)	1.206264	15.08627		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs FSW Control	10	>10			0.155036	0.244239	0.007635	0.008458	0.500667	5, 18

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	0.904686	0.936992	-0.93182	2.741191	0.366071	0.440958	7.814728	0.93	2.069938	1.105355	6
Intercept	3.127355	0.815071	1.529815	4.724895							
TSCR	0.359484	0.042348	0.276483	0.442485							

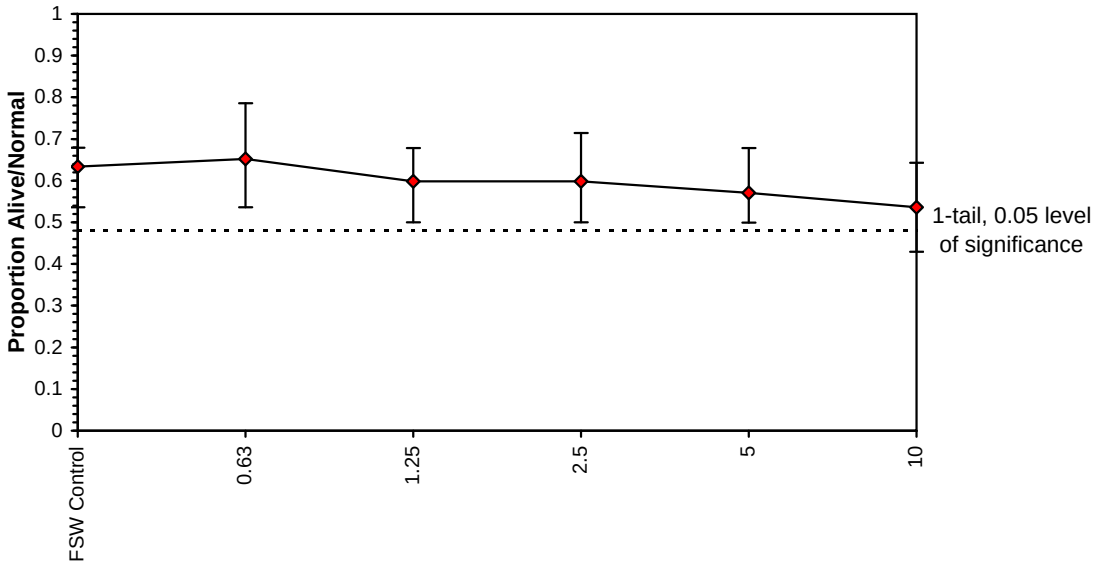
Point	Probits	mg/L	95% Fiducial Limits
EC01	2.674	0.315135	
EC05	3.355	1.785626	
EC10	3.718	4.501615	
EC15	3.964	8.400615	
EC20	4.158	13.79265	
EC25	4.326	21.1051	
EC40	4.747	61.64527	
EC50	5.000	117.4731	
EC60	5.253	223.8603	
EC75	5.674	653.8668	
EC80	5.842	1000.528	
EC85	6.036	1642.729	
EC90	6.282	3065.549	
EC95	6.645	7728.34	
EC99	7.326	43790.52	



Bivalve Larval Development Test-Proportion Alive/Normal

Start Date:	10/04/2012 18:00	Test ID:	PR0757/02	Sample ID:	S-200 Oilgone
End Date:	12/04/2012 18:00	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	SG-Saccostrea glomerata
Comments:					

Dose-Response Plot



Bivalve Larval Development Test-Proportion Alive/Normal

Start Date:	10/04/2012 18:00	Test ID:	PR0757/02	Sample ID:	S-200 Oilgone
End Date:	12/04/2012 18:00	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	SG-Saccostrea glomerata
Comments:					

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
FSW Control	% Alive/Normal	63.39	53.57	67.86	6.76	4.10	4
0.63		65.18	53.57	78.57	11.80	5.27	4
1.25		59.82	50.00	67.86	7.92	4.70	4
2.5		59.82	50.00	71.43	8.93	4.99	4
5		57.14	50.00	67.86	7.72	4.86	4
10		53.57	42.86	64.29	9.22	5.67	4
FSW Control	pH	8.30	8.30	8.30	0.00	0.00	1
0.63		8.30	8.30	8.30	0.00	0.00	1
1.25		8.40	8.40	8.40	0.00	0.00	1
2.5		8.30	8.30	8.30	0.00	0.00	1
5		8.40	8.40	8.40	0.00	0.00	1
10		8.40	8.40	8.40	0.00	0.00	1
FSW Control	Salinity ppt	35.00	35.00	35.00	0.00	0.00	1
0.63		35.20	35.20	35.20	0.00	0.00	1
1.25		35.20	35.20	35.20	0.00	0.00	1
2.5		35.30	35.30	35.30	0.00	0.00	1
5		35.30	35.30	35.30	0.00	0.00	1
10		35.30	35.30	35.30	0.00	0.00	1
FSW Control	DO %	98.70	98.70	98.70	0.00	0.00	1
0.63		98.80	98.80	98.80	0.00	0.00	1
1.25		98.80	98.80	98.80	0.00	0.00	1
2.5		97.10	97.10	97.10	0.00	0.00	1
5		98.00	98.00	98.00	0.00	0.00	1
10		98.20	98.20	98.20	0.00	0.00	1

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Statistical Printouts for the Milky Oyster Larval Development Tests

Bivalve Larval Development Test-Proportion Alive/Normal

Start Date:	10/04/2012 18:30	Test ID:	PR0757/03	Sample ID:	S-200 Oilgone
End Date:	12/04/2012 18:30	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	SE-Saccostrea echinata
Comments:					

Conc-mg/L	1	2	3	4
FSW Control	0.7813	0.6875	0.8125	0.7500
0.63	0.5938	0.6875	0.8125	0.7500
1.25	0.6250	0.7500	0.7813	0.7500
2.5	0.7813	0.5938	0.7500	0.6250
5	0.5938	0.6563	0.5938	0.6250
10	0.5000	0.4688	0.4375	0.5000

			Transform: Arcsin Square Root					1-Tailed			Number	Total
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Resp	Number
FSW Control	0.7578	1.0000	1.0580	0.9776	1.1230	5.848	4				31	128
0.63	0.7109	0.9381	1.0069	0.8797	1.1230	10.279	4	0.987	2.410	0.1248	37	128
1.25	0.7266	0.9588	1.0226	0.9117	1.0841	7.423	4	0.684	2.410	0.1248	35	128
2.5	0.6875	0.9072	0.9807	0.8797	1.0841	10.209	4	1.492	2.410	0.1248	40	128
*5	0.6172	0.8144	0.9039	0.8797	0.9443	3.419	4	2.976	2.410	0.1248	49	128
*10	0.4766	0.6289	0.7619	0.7227	0.7854	3.936	4	5.717	2.410	0.1248	67	128

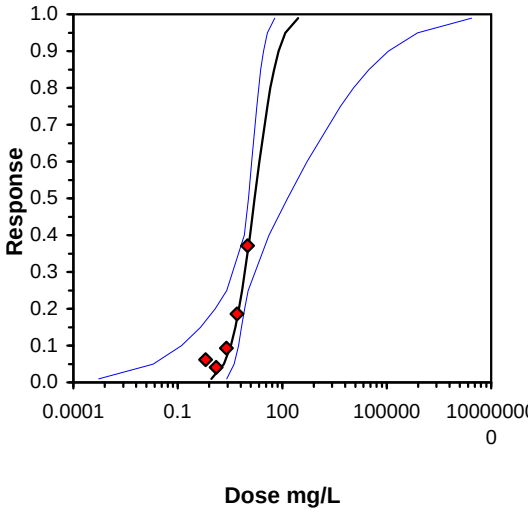
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.05)	0.968308	0.916	-0.3018	-0.42398
Bartlett's Test indicates equal variances (p = 0.26)	6.531283	15.08627		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	2.5	5	3.535534		0.113636	0.149666	0.046728	0.005363	2.4E-04	5, 18
Treatments vs FSW Control										

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	1.866064	0.729874	0.43551	3.296617	0.242188	0.404909	7.814728	0.94	1.206351	0.535887	7
Intercept	2.748873	0.640738	1.493027	4.004718							
TSCR	0.262076	0.027648	0.207886	0.316266							

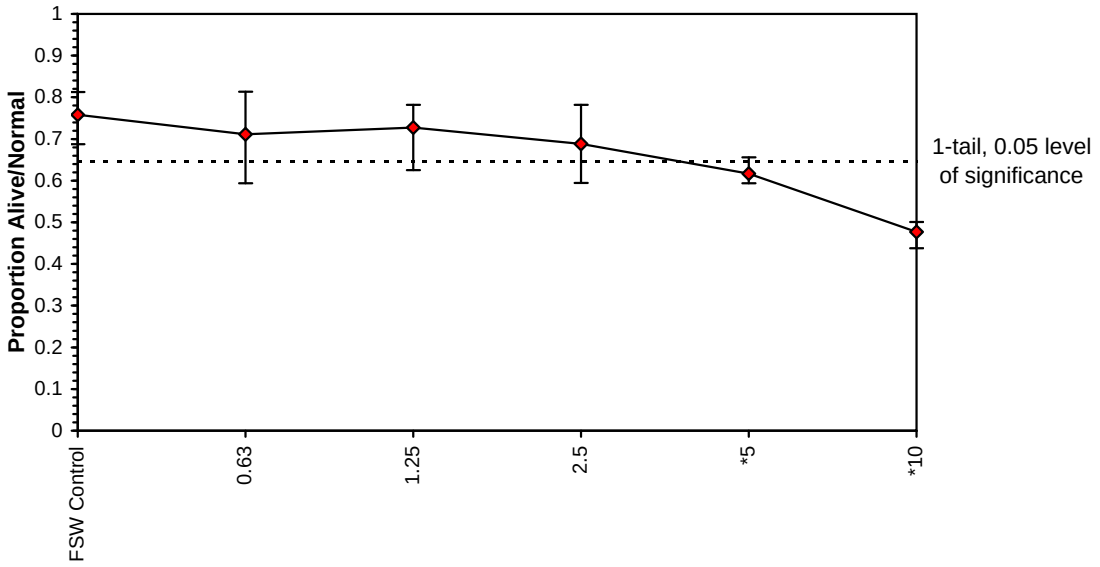
Point	Probits	mg/L	95% Fiducial Limits	
EC01	2.674	0.911361	0.000538	2.519659
EC05	3.355	2.112976	0.019308	4.152056
EC10	3.718	3.308137	0.128116	5.505666
EC15	3.964	4.476507	0.450427	6.791642
EC20	4.158	5.692941	1.185674	8.280349
EC25	4.326	6.996814	2.558444	10.4351
EC40	4.747	11.76482	8.070033	41.14889
EC50	5.000	16.0824	10.70387	141.3412
EC60	5.253	21.98449	13.34315	516.5679
EC75	5.674	36.96592	18.50678	4632.503
EC80	5.842	45.43235	20.95593	11124.95
EC85	6.036	57.77801	24.17376	30951.06
EC90	6.282	78.18406	28.87378	112383
EC95	6.645	122.4073	37.47158	761915
EC99	7.326	283.7995	60.81141	27744057



Bivalve Larval Development Test-Proportion Alive/Normal

Start Date:	10/04/2012 18:30	Test ID:	PR0757/03	Sample ID:	S-200 Oilgone
End Date:	12/04/2012 18:30	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	SE-Saccostrea echinata
Comments:					

Dose-Response Plot



Bivalve Larval Development Test-Proportion Alive/Normal

Start Date:	10/04/2012 18:30	Test ID:	PR0757/03	Sample ID:	S-200 Oilgone
End Date:	12/04/2012 18:30	Lab ID:	5327	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 106	Test Species:	SE-Saccostrea echinata
Comments:					

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
FSW Control	% Alive/Normal	75.78	68.75	81.25	5.34	3.05	4
0.63		71.09	59.38	81.25	9.33	4.30	4
1.25		72.66	62.50	78.13	6.93	3.62	4
2.5		68.75	59.38	78.13	9.20	4.41	4
5		61.72	59.38	65.63	2.99	2.80	4
10		47.66	43.75	50.00	2.99	3.63	4
FSW Control	pH	8.30	8.30	8.30	0.00	0.00	1
0.63		8.30	8.30	8.30	0.00	0.00	1
1.25		8.40	8.40	8.40	0.00	0.00	1
2.5		8.30	8.30	8.30	0.00	0.00	1
5		8.40	8.40	8.40	0.00	0.00	1
10		8.40	8.40	8.40	0.00	0.00	1
FSW Control	Salinity ppt	35.00	35.00	35.00	0.00	0.00	1
0.63		35.20	35.20	35.20	0.00	0.00	1
1.25		35.20	35.20	35.20	0.00	0.00	1
2.5		35.30	35.30	35.30	0.00	0.00	1
5		35.30	35.30	35.30	0.00	0.00	1
10		35.30	35.30	35.30	0.00	0.00	1
FSW Control	DO %	98.70	98.70	98.70	0.00	0.00	1
0.63		98.80	98.80	98.80	0.00	0.00	1
1.25		98.80	98.80	98.80	0.00	0.00	1
2.5		97.10	97.10	97.10	0.00	0.00	1
5		98.00	98.00	98.00	0.00	0.00	1
10		98.20	98.20	98.20	0.00	0.00	1