

DRBC – SODIUM CHLORIDE STANDARD REFERENCE TOXICANT TESTS

Pimephales promelas

Test Date	Test ID*	Test Duration	Fish Age	LC ₅₀	Three Test Average
06/26/12	DC I	48 hours	8 days	6812.4 ppm	7787 ppm
	DC II		9 days	7558.7 ppm	
	DC III		10 days	8988.7 ppm	
06/26/12	WCC I	48 hours	8 days	7071 ppm	7071 ppm
	WCC II		9 days	7071 ppm	
	WCC III		10 days	7071 ppm	
* DC – Dyberry Creek WCC – White Clay Creek					

DRBC – SODIUM CHLORIDE STANDARD REFERENCE TOXICANT TESTS

Ceriodaphnia dubia

Test Date	Test ID*	Test Duration	Animal Age**	LC ₅₀	Three Test Average
06/26/12	DC I	48 hours	<24 hours	2351.3 ppm	2672 ppm
	DC II		<24 hours	2716.5 ppm	
	DC III		<24 hours	2766.6 ppm	
06/26/12	WCC I	48 hours	<24 hours	2679.4 ppm	2736 ppm
	WCC II		<24 hours	2873.8 ppm	
	WCC III		<24 hours	2653.7 ppm	
* DC – Dyberry Creek WCC – White Clay Creek					
** Test organisms all <24 hours, three different lots used one each to set up tests designated I, II, and III.					

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1655

Species: P. promelas

I

End Date & Time: 06/28/12 1600

Dilution Water: DC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
978 625	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
1956 1250	A	10	10	10	20.0		19.5
	B	10	10	10	20.0		19.5
3913 2500	A	10	10	10	20.0		19.5
	B	10	10	10	20.0		19.5
7825 5000	A	10	5 ¹	12	20.0		19.5
	B	10	7 ³	5 ²	20.0		19.5
15650 10000	A	10	0 ¹⁰	—	20.5		—
	B	10	0 ¹⁰	—	20.5		—
Initials		WPK	WPK	WPK	WPK		WPK
Date		6/26	06/27	6/28	6/26		06/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	30	30	0.02
100%	—	—	—
Initials	WPK	WPK	WPK
Date	06/26	06/26	06/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	6.7	7.8	62	82	9.6	8.2
978 625	6.8	7.7	1469	1549	9.4	8.3
1956 1250	6.9	7.6	2646	2746	9.4	8.4
3913 2500	7.0	7.6	5810	5890	9.3	8.3
7825 5000	7.2	7.5	11740	11880	9.2	8.5
15650 10000	7.8	7.5	23750	23460	8.6	8.2
Initials	WPK	WPK	WPK	WPK	WPK	WPK
Date	6/26	06/28	6/26	06/28	6/26	06/28

Observations:

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcDC1Pp	Sample ID: DC #1
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: P promelas

Conc-ppm	1	2
Control	1.0000	1.0000
978	1.0000	1.0000
1956	1.0000	1.0000
3913	1.0000	1.0000
7825	0.5000	0.1000
15650	0.0000	0.0000

DC #1

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
978	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
1956	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
3913	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
7825	0.3000	0.3000	0.5536	0.3218	0.7854	59.224	2	14	20	
15650	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

Auxiliary Tests

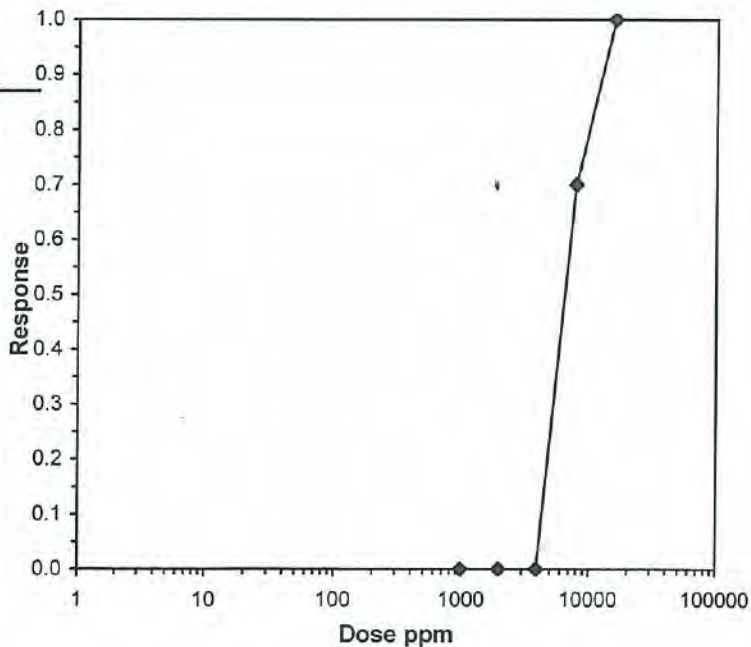
Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%	6812.36	5910.32	7852.08
5.0%	6720.53	5749.63	7855.39
10.0%	6634.81	5600.37	7860.31
20.0%	6490.39	5347.02	7878.24
Auto-0.0%	6812.36	5910.32	7852.08

8 DAYS OLD



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-20-12 1155

Species: P. promelas

II

End Date & Time: 6/28/12 1010

Dilution Water: DC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
978 625	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
1950 1250	A	10	10	10	20.0		19.5
	B	10	10	10	20.0		19.5
3913 2500	A	10	10	10	20.5		19.5
	B	10	10	10	20.5		19.5
7825 5000	A	10	37	3	20.5		19.5
	B	10	8 ²	6 ²	20.5		19.5
15650 10000	A	10	0 ¹⁰	-	21.0		-
	B	10	0 ¹⁰	-	21.0		-
Initials		MMP	J/KK	MMP		J/KK	
Date		6/26	6/27	6/28	6/26		6/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	30	30	0.02
100%	-	-	-
Initials	J/KK	J/KK	J/KK
Date	6/26	6/26	6/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	6.7	7.9	62	107	9.6	8.2
978 625	6.9	7.5	180	1891	9.4	8.1
1950 1250	7.0	7.5	2543	26602	9.3	8.2
3913 2500	7.2	7.4	6060	6340	9.3	8.1
7825 5000	7.4	7.4	11850	12130	9.1	8.4
15650 10000	7.8	7.5	23680	23470	8.6	8.3
Initials	MMP	J/KK	MMP	J/KK	MMP	J/KK
Date	6/26	6/28	6/26	6/28	6/26	6/28

Observations: _____

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012 Test ID: drbcDC2Pp Sample ID: DC #1
 End Date: 6/28/2012 Lab ID: AAT, INC Sample Type: PREPARED
 Sample Date: Protocol: EPAA 91-EPA/600/4-90/027F Test Species: ~~MY-Mysidopsis baltica~~ *P. promelas*
 Comments:

Conc-ppm	1	2
Control	1.0000	1.0000
978	1.0000	1.0000
1956	1.0000	1.0000
3913	1.0000	1.0000
7825	0.3000	0.6000
15650	0.0000	0.0000

DC2

Conc-ppm	Transform: Arcsin Square Root							Number Resp	Total Number
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
978	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
1956	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
3913	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
7825	0.4500	0.4500	0.7329	0.5796	0.8861	29.567	2	11	20
15650	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20

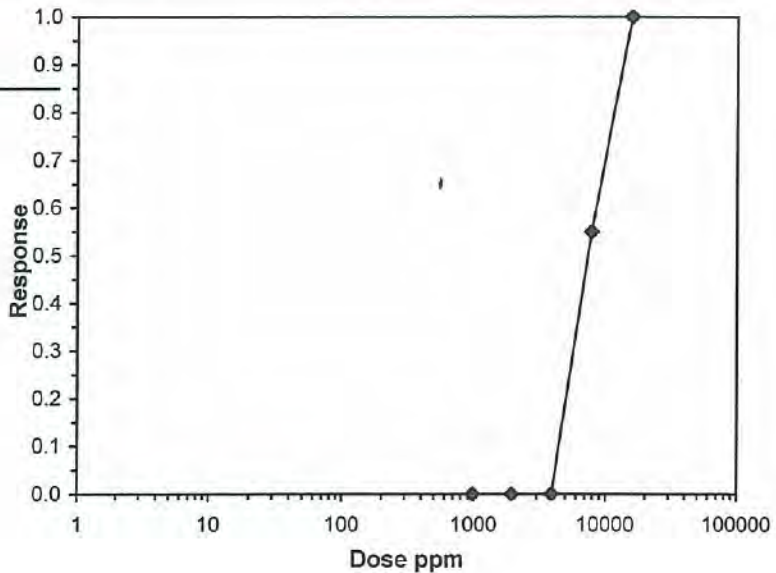
Auxiliary Tests Statistic Critical Skew Kurt

Normality of the data set cannot be confirmed

Equality of variance cannot be confirmed

Trimmed Spearman-Kärber

Trim Level	EC50	95% CL
0.0%	7558.72	6478.57 8818.95
5.0%	7532.57	6348.71 8937.2
10.0%	7506.59	6200.34 9088.04
20.0%	7455.27	5814.26 9559.43
Auto-0.0%	7558.72	6478.57 8818.95



9 DAYS *dd*

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1655

Species: P. promelas

III

End Date & Time: 06/28/12 1600

Dilution Water: DC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
978 625	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
1956 1250	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
3913 2500	A	10	10	10	20.0		20.0
	B	10	10	10	20.0		20.0
7825 5000	A	10	8 ²	7 ¹	20.5		20.0
	B	10	8 ²	7 ¹	20.5		20.0
15650 40000	A	10	0 ¹⁰	—	21.0		—
	B	10	0 ¹⁰	—	21.0		—
Initials		WMP	JJ	WMP			JJ KK
Date		6/26	06/27	06/28	6/26		06/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	30	30	0.02
100%	—	—	—
Initials	JJ	JJ	JJ
Date	06/26	06/26	06/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	6.7	7.8	62	92	9.6	8.0
978-625	7.3	7.6	1690	1618	9.2	7.9
1956-1250	7.3	7.5	2696	2806	9.2	7.9
3913-2500	7.3	7.4	5950	6180	9.2	8.2
7825-5000	7.4	7.4	12080	12160	9.1	8.2
15650-40000	7.8	7.3	23240	23810	8.6	7.7
Initials	WMP	JJ KK	WMP	JJ KK	WMP	JJ KK
Date	6/26	06/28	6/26	06/28	6/26	06/28

Observations: lot # 15611C

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcDC3Pp	Sample ID: DC #3
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: P promelas

Conc-ppm	1	2
Control	1.0000	1.0000
978	1.0000	1.0000
1956	1.0000	1.0000
3913	1.0000	1.0000
7825	0.7000	0.7000
15650	0.0000	0.0000

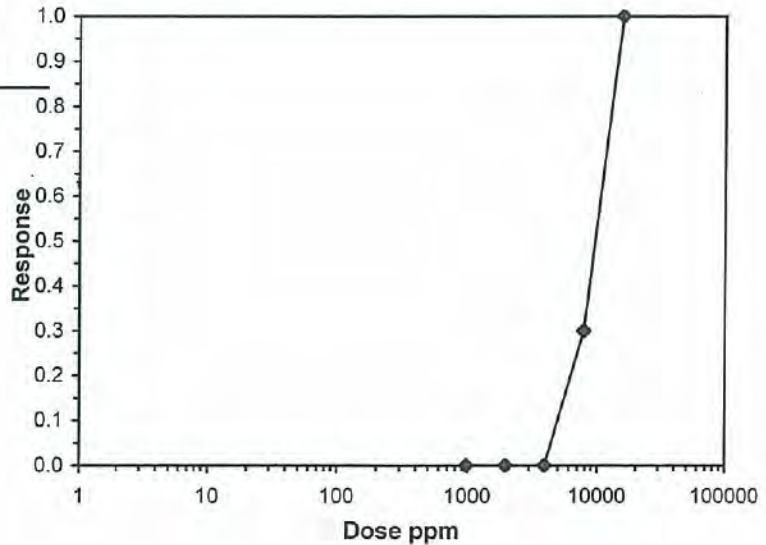
DC #3

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
978	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
1956	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
3913	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
7825	0.7000	0.7000	0.9912	0.9912	0.9912	0.000	2	6	20	
15650	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%	8988.74	7798.51	10360.6
5.0%	9111.5	7767.33	10688.3
10.0%	9229.17	7665.8	11111.4
20.0%	9434.44	7132.74	12478.9
Auto-0.0%	8988.74	7798.51	10360.6



10 DAYS OLD

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1700

Species: P. promelas

I

End Date & Time: 06/28/12 1630

Dilution Water: WCC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.5	/	20.5
	B	10	10	10	20.5		20.5
625	A	10	10	10	21.0		20.5
	B	10	10	10	21.0		20.5
1250	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
2500	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
5000	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
10000	A	10	0 ⁰	0	21.0		—
	B	10	0 ⁰	0	21.0		—
Initials		WKL	WKL	WKL	WKL	WKL	
Date		6/26	6/27	6/28	6/26	6/28	

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	70	110	0.02
100%	—	—	—
Initials	WKL	WKL	WKL
Date	6/26	6/26	6/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	7.5	7.7	247	249	9.3	8.3
625	7.6	7.8	1337	1336	9.2	8.3
1250	7.6	7.8	1710	1722	9.2	8.4
2500	7.6	7.8	3893	3898	9.2	8.4
5000	7.7	7.8	7470	7470	9.0	8.4
10000	7.8	7.8	14510	14630	8.7	8.4
Initials	WKL	WKL	WKL	WKL	WKL	WKL
Date	6/26	6/28	6/26	6/28	6/26	6/28

Observations: _____

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-20-12 1700

Species: P. promelas

End Date & Time: 06/28/12 1635

Dilution Water: WCC

Test Type: 48hrs. SNR

II

Concentration ppm	Rep.	Live Count			Temperature (C)			
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.	
Control	A	10	10	10	20.5	/	20.0	
	B	10	10	10	20.5		20.0	
625	A	10	10	10	21.0		20.0	
	B	10	10	10	21.0		20.0	
1250	A	10	10	10	21.0		20.0	
	B	10	10	10	21.0		20.0	
2500	A	10	10	10	21.0		20.0	
	B	10	10	10	21.0		20.0	
5000	A	10	10	10	21.0		20.0	
	B	10	10	10	21.0		20.0	
10000	A	10	0 ¹⁰	—	21.0		—	
	B	10	0 ¹⁰	—	21.0		—	
Initials		WHL	WHL	WHL	WHL		WHL	WHL
Date		06/24	06/27	06/28	06/26		06/26	06/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	70	110	0.02
100%	—	—	—
Initials	WHL	WHL	WHL
Date	06/26	06/26	06/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	7.5	7.9	257	285	9.3	8.3
625	7.6	7.9	1088	1069	9.2	8.3
1250	7.6	7.9	1759	1761	9.1	8.2
2500	7.6	7.8	3870	3905	9.1	8.4
5000	7.6	7.8	8140	8090	9.0	8.4
10000	7.8	7.8	14520	14590	8.7	8.1
Initials	WHL	WHL	WHL	WHL	WHL	WHL
Date	06/26	06/28	06/26	06/28	06/26	06/28

Observations:

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1700

Species: P. promelas

End Date & Time: 06/28/12 1645

Dilution Water: WCC

Test Type: 48hrs. SNR

III

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.5		20.0
	B	10	10	10	20.5		20.0
625	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
1250	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
2500	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
5000	A	10	10	10	21.0		20.0
	B	10	10	10	21.0		20.0
10000	A	10	1 ⁹	0	21.0		20.0
	B	0	0 ¹⁰	-	21.0		-
Initials		WJA	WJA	WJA	WJA		WJA/KL
Date		06/26	06/27	06/28	06/26		06/26

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	70	110	0.02
100%	-	-	-
Initials	WJA	WJA	WJA/KL
Date	06/26	06/26	06/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	7.5	7.9	247	307	9.3	8.4
625	7.6	7.9	1361	1323	9.1	8.3
1250	7.6	7.9	1679	1889	9.1	8.4
2500	7.7	7.9	4167	4179	9.1	8.5
5000	7.7	7.8	8190	8120	8.9	8.5
10000	7.8	7.8	14500	14520	8.7	8.4
Initials	WJA	WJA/KL	WJA	WJA/KL	WJA	WJA/KL
Date	06/26	06/28	06/26	06/28	06/26	06/28

Observations:

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcWC1Pp	Sample ID: WCC #1, 2 and 3
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: P. promelas

Comments:

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	1.0000	1.0000
5000	1.0000	1.0000
10000	0.0000	0.0000

WCC 1, 2, 3

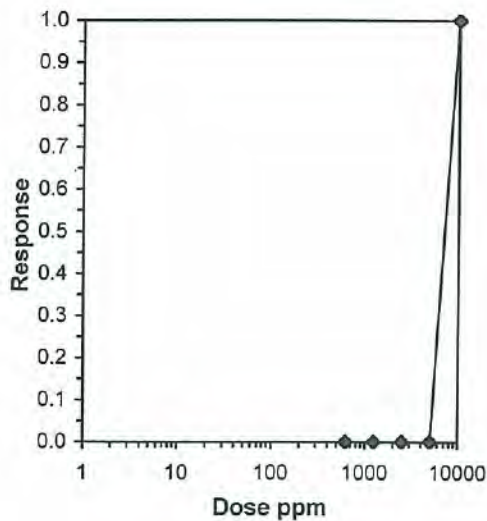
Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root				CV%	N	Number Resp	Total Number
			Mean	Min	Max					
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
625	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
1250	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
2500	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
5000	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
10000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Graphical Method

Trim Level	EC50
0.0%	7071.07

7071.07



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1530

Species: C. dubia

End Date & Time: 06/28/12 1520

Dilution Water: DC

Test Type: 48hrs. SNR

I

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.0		21.0
	B	10	10	9	20.0		21.0
978 625	A	10	10	10	20.0		21.0
	B	10	10	10	20.0		21.0
1956 4250	A	10	9	8	20.0		21.0
	B	10	10	9	20.0		21.0
3913 2500	A	10	2	0	20.0		21.0
	B	10	1	0	20.0		21.0
7825 5000	A	10	0 ¹⁰	-	20.0		21.0
	B	10	0 ¹⁰	-	20.0		21.0
15650 10000	A	10	0 ¹⁰	-	20.5		21.0
	B	10	0 ¹⁰	-	20.5		21.0
Initials		WMP	WMP	WMP	WMP		WMP
Date		6/26	06/27	06/28	6/26		06/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	30	30	0.02
100%	-	-	-
Initials	WMP	WMP	WMP
Date	06/26	06/26	06/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	6.7	7.8	62	82	9.6	8.2
978 625	6.8	7.7	1469	1589	9.4	8.3
1956 4250	6.9	7.6	2646	2746	9.4	8.4
3913 2500	7.0	7.6	5810	5890	9.3	8.3
7825 5000	7.2	7.5	11740	11880	9.2	8.5
15650 10000	7.8	7.5	23750	23460	8.6	8.2
Initials	WMP	WMP	WMP	WMP	WMP	WMP
Date	6/26	06/28	6/26	06/28	6/26	06/28

Observations: Lot # 1154H-6

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcDC1Cd	Sample ID: DC #1
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: MY-Mysidepsis bahia <i>A. de la</i>

Conc-ppm	1	2
Control	1.0000	0.9000
978	1.0000	1.0000
1956	0.8000	0.9000
3913	0.0000	0.0000
7825	0.0000	0.0000
15650	0.0000	0.0000

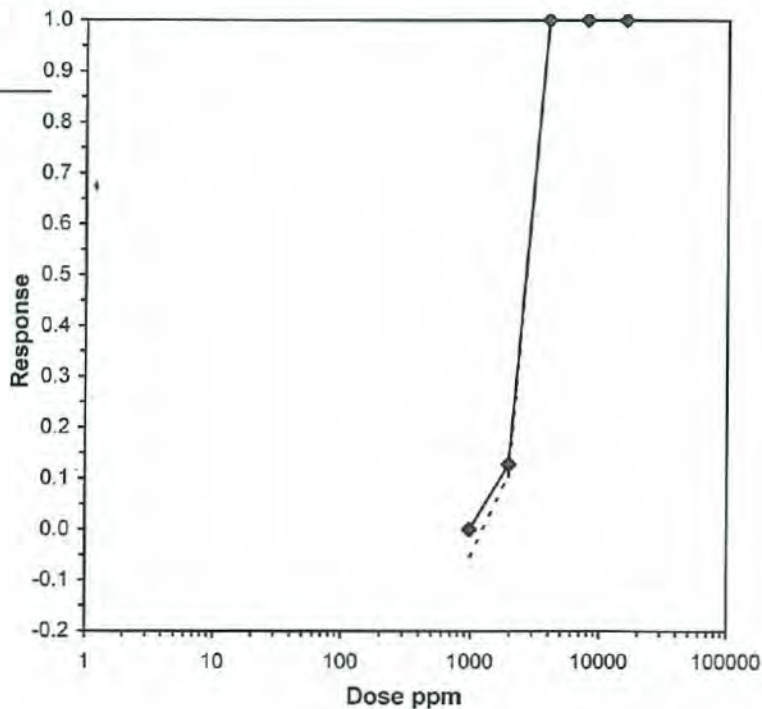
DC #1

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2	1	20	
978	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2	0	20	
1956	0.8500	0.8947	1.1781	1.1071	1.2490	8.517	2	3	20	
3913	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
7825	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
15650	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%	2531.27	2282.04	2807.72
5.0%	2588.17	2286.93	2929.08
10.0%	2623.02	2217.11	3103.23
20.0%	2629.04	2455.71	2814.6
Auto-0.0%	2531.27	2282.04	2807.72



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1530

Species: C. dubia

II

End Date & Time: 6/28/12 1525

Dilution Water: DC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.0		21.0
	B	10	10	10	20.0		21.0
978 625	A	10	10	9	20.0		21.0
	B	10	10	10	20.0		21.0
1950 1250	A	10	10	9	20.0		21.0
	B	10	9	10	20.0		21.0
3913 2500	A	10	0	—	20.5		21.0
	B	10	2	0	20.5		21.0
7825 5000	A	10	0 ^o	—	20.5		21.0
	B	10	0 ^o	—	20.5		21.0
15650 10000	A	10	0 ^o	—	21.0		20.5
	B	10	0 ^o	—	21.0		20.5
Initials		MWP	JK	JK	MWP		JK
Date		6/26	6/27	6/28	6/26		6/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	30	30	0.02
100%	—	—	—
Initials	JK	JK	JK
Date	6/26	6/26	6/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	6.7	7.9	62	107	9.6	8.2
978 625	6.9	7.5	880	1891	9.4	8.1
1950 1250	7.0	7.5	2543	2662	9.3	8.2
3913 2500	7.2	7.4	6060	6340	9.3	8.1
7825 5000	7.4	7.4	11850	12130	9.1	8.4
15650 10000	7.8	7.5	23680	23470	8.6	8.3
Initials	MWP	JK	MWP	JK	MWP	JK
Date	6/26	6/28	6/26	6/28	6/26	6/28

Observations:

Lot # 11554-C

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcDC2Cd	Sample ID: DC #2
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027f	Test Species: C. dubia

Conc-ppm	1	2
Control	1.0000	1.0000
978	0.9000	1.0000
1956	0.9000	1.0000
3913	0.0000	0.0000
7825	0.0000	0.0000
15650	0.0000	0.0000

DC #2

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
978	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2	1	20	
1956	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2	1	20	
3913	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
7825	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
15650	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

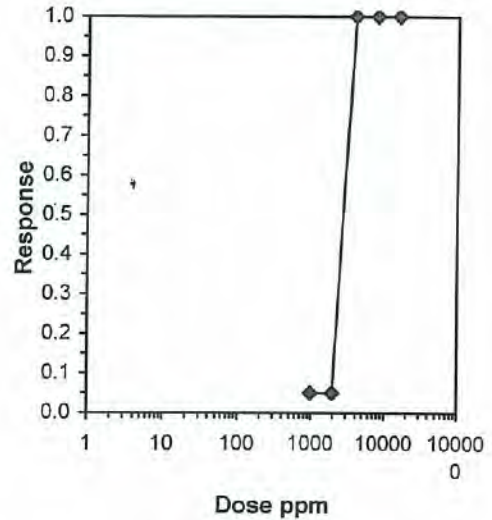
Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%			
5.0%	2716.53	2616.7	2820.17
10.0%	2716.53	2616.7	2820.17
20.0%	2716.53	2616.7	2820.17
Auto-5.0%	2716.53	2616.7	2820.17



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-20-12 1530

Species: C. dubia

III

End Date & Time: 06/28/12 1535

Dilution Water: DC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.0		21.0
	B	10	9	9	20.0		21.0
978 625	A	10	89	9	20.0		21.0
	B	10	10	10	20.0		21.0
1986 4250	A	10	89	9	20.0		21.0
	B	10	10	10	20.0		21.0
3913 2500	A	10	1	0	20.0		21.0
	B	10	0	-	20.0		20.5
7825 5000	A	10	0 ¹⁰	-	20.5		20.5
	B	10	0 ¹⁰	-	20.5		20.5
15650 10000	A	10	0 ¹⁰	-	21.0		20.5
	B	10	0 ¹⁰	-	21.0		20.5
Initials		WMP	WMP		WMP		WMP
Date		6/26	6/27		6/28		6/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	30	30	0.02
100%	-	-	-
Initials	WMP	WMP	WMP
Date	6/26	6/26	6/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	6.7	7.8	62	92	9.6	8.0
978 625	7.5	7.6	1690	1680	9.2	7.9
1986 4250	7.3	7.5	2696	2806	9.2	7.9
3913 2500	7.3	7.4	5950	6180	9.2	8.2
7825 5000	7.4	7.4	12080	12160	9.1	8.2
15650 10000	7.8	7.3	23240	23810	8.6	7.7
Initials	WMP	WMP	WMP	WMP	WMP	WMP
Date	6/26	6/28	6/26	6/28	6/26	6/28

Observations: Lot # 1156H-C
① 11618 of 6/28

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcDC3Cd	Sample ID: DC #3
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: C. dubia

Comments:

Conc-ppm	1	2
Control	1.0000	0.9000
978	0.9000	1.0000
1956	0.9000	1.0000
3913	0.0000	0.0000
7825	0.0000	0.0000
15650	0.0000	0.0000

DC #3

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2	1	20	
978	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2	1	20	
1956	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2	1	20	
3913	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
7825	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
15650	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

Auxiliary Tests

Normality of the data set cannot be confirmed
 Bartlett's Test indicates equal variances (p = 1.00)

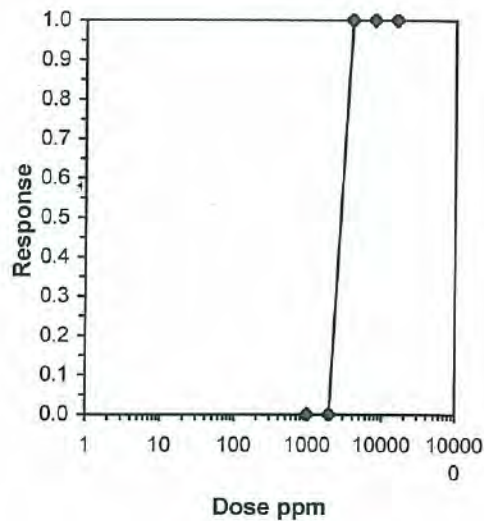
Statistic	Critical	Skew	Kurt
0	9.21035		

Graphical Method

Trim Level EC50

0.0% 2766.56

2766.56



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-20-12 1545

Species: C. dubia

I

End Date & Time: 6/28/12 1545

Dilution Water: WCC

Test Type: 48hrs. SNR

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.5		21.0
	B	10	10	10	20.5		21.0
625	A	10	10	10	21.0		21.0
	B	10	10	10	21.0		21.0
1250	A	10	10	10	21.0		21.0
	B	10	10	10	21.0		21.0
2500	A	10	8	7 ¹	21.0		21.0
	B	10	9	5 ³	21.0		21.0
5000	A	10	0 ¹⁰	-	21.0		21.0
	B	10	0 ¹⁰	-	21.0		21.0
10000	A	10	0 ¹⁰	-	21.0		20.5
	B	10	0 ¹⁰	-	21.0		20.5
Initials		me	cy	cy	cy		cy
Date		6-26	6/27	6/28	6/26		6/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	70	110	0.02
100%	-	-	-
Initials	cy	cy	cy
Date	6/26	6/26	6/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	7.5	7.7	247	249	9.3	8.3
625	7.6	7.8	1337	1336	9.2	8.3
1250	7.6	7.8	1710	1722	9.2	8.4
2500	7.6	7.8	3893	3898	9.2	8.4
5000	7.7	7.8	7470	7470	9.0	8.4
10000	7.8	7.8	14600	14630	8.7	8.4
Initials		cy	cy	cy	cy	cy
Date		6/26	6/26	6/28	6/26	6/28

Observations: Lot # 1154H-G

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcWC1Cd	Sample ID: WCC #1
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: C. dubia

Comments:

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	0.7000	0.5000
5000	0.0000	0.0000
10000	0.0000	0.0000

WCC #1

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
625	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
1250	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
2500	0.6000	0.6000	0.8883	0.7854	0.9912	16.379	2	8	20	
5000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
10000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

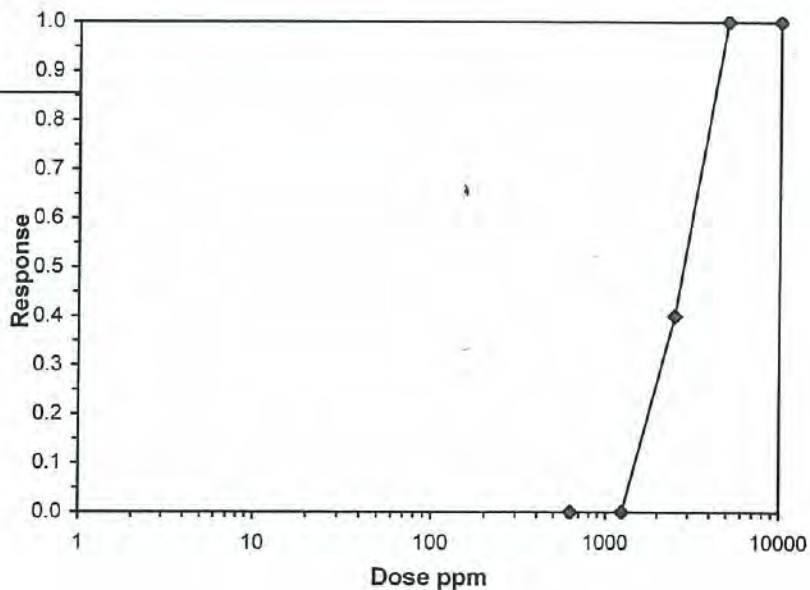
Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Trimmed Spearman-Kärber

Trim Level	EC50	95% CL	
0.0%	2679.43	2301.92	3118.86
5.0%	2697.98	2277.41	3196.23
10.0%	2716.44	2239.39	3295.13
20.0%	2752.64	2099.89	3608.31
Auto-0.0%	2679.43	2301.92	3118.86



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-26-12 1545

Species: C. dubia

End Date & Time: 06/28/12 1650

Dilution Water: WCC

Test Type: 48hrs. SNR

II

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.5		21.0
	B	10	10	10	20.5		21.0
625	A	10	10	10	21.0		21.0
	B	10	10	10	21.0		21.0
1250	A	10	10	9	21.0		21.0
	B	10	10	10	21.0		21.0
2500	A	10	8	7	21.0		21.0
	B	10	9	9	21.0		21.0
5000	A	10	0 ¹⁰	-	21.0		20.5
	B	10	0 ¹⁰	-	21.0		20.5
10000	A	10	0 ¹⁰	-	21.0		20.5
	B	10	0 ¹⁰	-	21.0		20.5
Initials		WMS	CA	CA	CA		CA
Date		6/26	06/27	06/28	06/26		06/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	70	110	0.00
100%	-	-	-
Initials	CA	CA	CA
Date	06/26	06/26	06/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	7.5	7.9	247	285	9.3	8.3
625	7.6	7.9	1337	1069	9.2	8.3
1250	7.6	7.9	1710	1761	9.2	8.2
2500	7.6	7.8	3893	3905	9.2	8.4
5000	7.7	7.8	7470	8090	9.0	8.4
10000	7.8	7.8	14600	14590	8.7	8.1
Initials		CA	CA	CA	CA	CA
Date		06/26	06/26	06/26	06/26	06/28

Observations: CA #1155H-C

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcWC2Cd	Sample ID: WCC #2
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: C. dubia

Comments:

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	0.9000	1.0000
2500	0.7000	0.9000
5000	0.0000	0.0000
10000	0.0000	0.0000

WCC #2

Conc-ppm	Transform: Arcsin Square Root							Number Resp	Total Number
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
625	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20
1250	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2	1	20
2500	0.8000	0.8000	1.1201	0.9912	1.2490	16.280	2	4	20
5000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20
10000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20

Auxiliary Tests

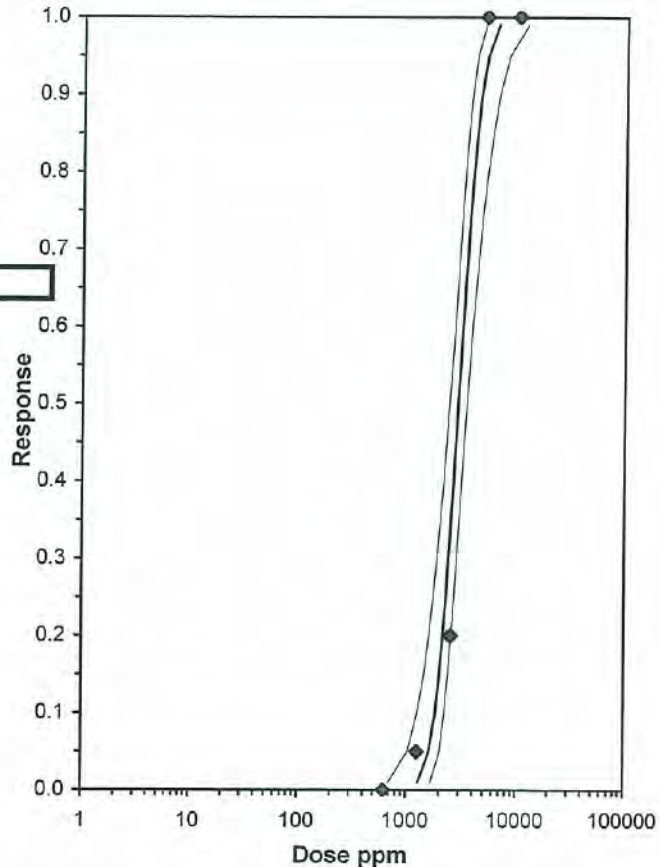
Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	6.68706	1.43569	3.87312	9.501	0	7.54571	7.81472	0.06	3.45846	0.14954	7
Intercept	-18.127	4.9707	-27.87	-8.3844							

Point	Probits	ppm	95% Fiducial Limits	
EC01	2.674	1289.95	695.389	1695.31
EC05	3.355	1631.11	1029.24	2026.02
EC10	3.718	1848.47	1263.13	2237.45
EC15	3.964	2011.26	1446.01	2399.47
EC20	4.158	2150.81	1606.07	2542.88
EC25	4.326	2278.22	1753.28	2679.06
EC40	4.747	2633.75	2156.44	3098.53
EC50	5.000	2873.82	2410.92	3426.01
EC60	5.253	3135.78	2665.54	3830.57
EC75	5.674	3625.14	3082.62	4711.82
EC80	5.842	3839.88	3247.63	5143.81
EC85	6.036	4106.3	3441.66	5713.3
EC90	6.282	4467.93	3690.81	6540.63
EC95	6.645	5063.32	4075.89	8027.07
EC99	7.326	6402.48	4870.9	11881.1



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 123-01-17

Start Date & Time: 6-20-12 1545

Species: C. dubia

End Date & Time: 06/28/12 1600

Dilution Water: WCE

Test Type: 48hrs. SNR

III

Concentration ppm	Rep.	Live Count			Temperature (C)		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	10	10	10	20.5	/	21.0
	B	10	10	10	20.5		21.0
625	A	10	9	9	21.0		21.0
	B	10	10	10	21.0		21.0
1250	A	10	10	9 ¹	21.0		21.0
	B	10	10	10	21.0		21.0
2500	A	10	9	6 ²	21.0		20.5
	B	10	7 ¹	9	21.0		20.5
5000	A	10	0 ⁰	-	21.0		20.5
	B	10	0 ⁰	-	21.0		20.5
10000	A	10	0 ⁰	-	21.0	20.5	
	B	10	0 ⁰	-	21.0	20.5	
Initials		WMP	WMP	WMP	WMP	WMP	WMP
Date		6/26	6/27	6/28	6/26	6/26	6/28

Concentration	Alkalinity (mg/L)	Hardness (mg/L)	Chlorine (mg/L)
Control	70	110	0.00
100%	-	-	-
Initials	WMP	WMP	WMP
Date	6/26	6/26	6/26

Concentration ppm	pH (std units)		Conductivity (umhos)		Dissolved Oxygen	
	0 hr.	48 hr.	0 hr.	48 hr.	0 hr.	48 hr.
Control	7.5	7.9	247	307	9.3	8.4
625	7.6	7.9	1337	1323	9.2	8.3
1250	7.6	7.9	2170	1889	9.2	8.4
2500	7.6	7.9	3893	4179	9.2	8.5
5000	7.7	7.8	7470	8120	9.0	8.5
10000	7.8	7.8	14500	14520	6.7	8.4
Initials	WMP	WMP	WMP	WMP	WMP	WMP
Date	6/26	6/28	6/28	6/28	6/26	6/28

Observations: Lot # 1156H-C

Acute Fish Test-48 Hr Survival

Start Date: 6/26/2012	Test ID: drbcWC3Cd	Sample ID: WCC #3
End Date: 6/28/2012	Lab ID: AAT, INC	Sample Type: PREPARED
Sample Date:	Protocol: EPAA 91-EPA/600/4-90/027F	Test Species: C. dubia

Comments:

Conc-ppm	1	2
Control	1.0000	1.0000
625	0.9000	1.0000
1250	0.9000	1.0000
2500	0.6000	0.9000
5000	0.0000	0.0000
10000	0.0000	0.0000

WCC #3

Conc-ppm	Mean	N-Mean	Transform: Arcsin Square Root					N	Number Resp	Total Number
			Mean	Min	Max	CV%				
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2	0	20	
625	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2	1	20	
1250	0.9500	0.9500	1.3305	1.2490	1.4120	8.661	2	1	20	
2500	0.7500	0.7500	1.0676	0.8861	1.2490	24.041	2	5	20	
5000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	
10000	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2	20	20	

Auxiliary Tests

Normality of the data set cannot be confirmed
 Equality of variance cannot be confirmed

Statistic Critical Skew Kurt

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	4.43286	2.13702	-2.3681	11.2338	0	22.8221	7.81472	4.4E-05	3.42384	0.22559	6
Intercept	-10.177	7.3355	-33.522	13.1675							

Point	Probits	ppm	95% Fiducial Limits	
EC01	2.674	792.588		
EC05	3.355	1129.23		
EC10	3.718	1363.77		
EC15	3.964	1548.95		
EC20	4.158	1713.89		
EC25	4.326	1869.33		
EC40	4.747	2326.44		
EC50	5.000	2653.65		
EC60	5.253	3026.89		
EC75	5.674	3767.05		
EC80	5.842	4108.69		
EC85	6.036	4546.23		
EC90	6.282	5163.53		
EC95	6.645	6235.96		
EC99	7.326	8884.66		

Significant heterogeneity detected (p = 4.40E-05)

