Aquatic Toxicity Report

Laboratory:
American Aquatic Testing, Inc.
890 North Graham Street
Allentown, PA 18109

December 2012

TESTING SUMMARY:

TEST SPECIES	***P. promelas***	***C.dubia***
COMMON NAME	Fathead minnow	Water flea
TEST DATE	18 December, 2012	18 December, 2012
TEST ENDPOINT	LC_{50}	LC_{50}
TEST RESULT	**4049.9 mg/L**	**3268.5 mg/L**
CONFIDENCE LIMITS	3389.8-4840.8	2816.8-3844.5
NOEL (No-Observed-Effect-Level)	**2500 mg/L**	**2500 mg/L**
TEST PARAMETERS	See Table I	See Table II

Client:	Delta Products Group P.O. Box 6466 Aurora, IL 60598-0466
Contact:	Mark Ostermeier (630) 357-5544
Laboratory:	American Aquatic Testing, Inc. 890 North Graham St. Allentown, PA 18109
Contact:	Christopher Nally (610) 434 – 9015

CHEMICAL PRODUCT IDENTIFICATION

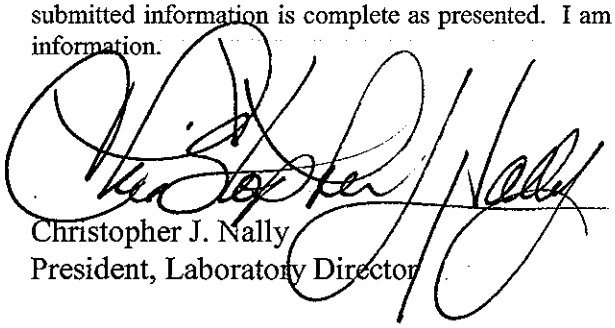
PRODUCT NAME: **Safe D Scale PLUS pH ADJUSTED**

TESTING SUMMARY:

TEST SPECIES	***P. promelas***	***C.dubia***
COMMON NAME	Fathead minnow	Water flea
TEST DATE	18 December, 2012	18 December, 2012
TEST ENDPOINT	LC_{50}	LC_{50}
TEST RESULT	**4049.9 mg/L**	**3268.5 mg/L**
CONFIDENCE LIMITS	3389.8-4840.8	2816.8-3844.5
NOEL (No-Observed-Effect-Level)	**2500 mg/L**	**2500 mg/L**
TEST PARAMETERS	See Table I	See Table II

REPORT CERTIFICATION

I certify under penalty of law that this report is an accurate and truthful representation of the toxicity testing which was performed by American Aquatic Testing, Inc., located at 890 North Graham St. Allentown, Pennsylvania. I further certify that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is complete as presented. I am aware that there are significant penalties for submitting false information.



Christopher J. Nally
President, Laboratory Director

TABLE I: Summary of Conditions for *Pimephales promelas* Toxicity Test [1]*

1.	Test type;	Static, daily renewal
2.	Temperature;	20.0 +/- 1.0 ° C
3.	Light quality;	Wide-spectrum fluorescent illumination
4.	Light intensity;	50 - 100 foot-candles
5.	Photoperiod;	16 hours light, 08 hours dark
6.	Test chamber size;	1000 mL glass beakers
7.	Test solution volume;	500 mL
8.	Renewal;	Daily
9.	Age of test organisms;	8 days old
10.	Number organisms / replicate;	10
11.	Replicates;	02
12.	Feeding;	0.1 mL of *Artemia* nauplii two hours prior to 48 hour exchange
13.	Cleaning;	Siphon daily before solution renewal
14.	Aeration;	None unless dissolved oxygen concentrations $\leq$ 40 % saturation, then ~ 100 bubbles / min.
15.	Dilution water;	EPA Moderately hard water
16.	Test media concentrations;	0, 625,1250,2500,5000,10000 ppm
17.	Water quality;	Conductivity, dissolved oxygen, pH, temperature
18.	Test duration;	96 hours
19.	Effects measured;	LC_{50} and NOEL
20.	Test acceptability;	Minimum control survival 90 %

* Test conducted according to AAT, Inc. Standard Operating Procedure (SOP) GENCHR001.1, with references to SOP's GENTOX001.1, GENTOX002.1, GENLAB002.0, GENCUL001.0

TABLE II: Summary of Conditions for *C. dubia* Toxicity Test [1]*

1.	Test type;	Static, daily renewal
2.	Temperature;	20.0 +/- 1.0 ° C
3.	Light quality;	Wide-spectrum fluorescent illumination
4.	Light intensity;	50 - 100 foot-candles
5.	Photoperiod;	16 hours light, 08 hours dark
6.	Test chamber size;	1000 mL
7.	Test solution volume;	80 mL
8.	Renewal;	Daily
9.	Age of test organisms;	< 1 day
10.	Number organisms / replicate;	10
11.	Replicates;	2
12.	Feeding;	YWT/algae solution prior to test initiation
13.	Cleaning;	None
14.	Aeration;	None unless dissolved oxygen concentrations ≤ 40 % saturation, then ~ 100 bubbles / min.
15.	Dilution water;	EPA Moderately hard water
16.	Test media concentrations;	0, 625,1250,2500,5000,10000 ppm
17.	Water quality;	Conductivity, dissolved oxygen, pH, temperature
18.	Test duration;	48 hours
19.	Effects measured;	LC_{50} and NOEL
20.	Test acceptability;	Minimum control survival 90 %

* Test conducted according to AAT, Inc. Standard Operating Procedure (SOP) GENCHR001.1, with references to SOP's GENTOX001.1, GENTOX002.1, GENLAB002.0, GENCUL002.0

REFERENCES

[1] **Weber, Cornelius I.**, et al. 1993 Methods for Measuring the Acute Toxicity of effluents and Receiving Waters to Freshwater and Marine Organisms, 4th Edition, EPA/600/4-90-027F, Environmental Monitoring Systems Laboratory, Office of Research and Development Cincinnati, Ohio 45268

APPENDIX A

RAW DATA – TOXICITY TESTING

Safe D Scale PLUS

Acute Test

American Aquatic Testing, Inc.

Job #: 311-01-01
Species: P. promelas
Hatch Date: 12/10/12

Start Date & Time: 12-18-12 1410
End Date & Time: 12/22/12 1700
Dilution Water: EPA Mod. Hard

Concentration ppm	Rep.	Live Count					Appearance & Behavior				
		0 hr.	24 hr.	48 hr.	72 hr.	96 hr.	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.
Control	A	10	10	10	10	10	1	1	1	1	1
	B	10	10	10	10	10	1	1	1	1	1
625	A	10	10	10	10	10	1	1	1	1	1
	B	10	10	10	10	10	1	1	1	1	1
1250	A	10	10	10	10	10	1	1	1	1	1
	B	10	10	10	10	10	1	1	1	1	1
2500	A	10	10	10	10	10	1	1	1	1	1
	B	10	10	10	8^7	8	1	1	1	3	3
5000	A	10	10	9^1	5^4	2^3	1	2	3	3	3
	B	10	10	9^1	7^2	4^3	1	2	3	2	2
10000	A	10	2^8	0^2	-	-	1	2	3	2	2
	B	10	1^9	0^1	-	-	1	2	-	-	-
Initials		TAP	TAP	TAP	TAP	AN	TAP	TAP	TAP	TAP	TAP
Date		12/18	12/19	12/20	12/21	12/22	12/18	12/19	12/20	12/21	12/22

Observation Key: 1–Normal, 2–Inactive, 3–Irritated, 4–Surfacing, 5–Abnormal body orientation, 6–Abnormal skin color, 7–Abnormal skin condition, 8–Abnormal respiration

Weight and Length Data

Length in Millimeters		Weight in Grams	
1	11	1	11
2	12	2	12
3	13	3	13
4	14	4	14
5	15	5	15
6	16	6	16
7	17	7	17
8	18	8	18
9	19	9	19
10	20	10	20

Initials	
Date	

Chamber Volume (L): _____ Average Weight (g): _____ Standard Dev.: _____

Loading Factor (g/L): _____

Length of Shortest Fish (mm): _____ Length of Longest Fish (mm): _____

Mean Length (mm): _____ Standard Deviation: _____

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 311-01-01

Species: P. promelas

Dilution Water: EPA Mod. Hard

Start Date & Time: 12-18-12 1410

End Date & Time: 12-22-12 1700

Test Type: 96hr. SDR

Concentration ppm	Rep.	Dissolved Oxygen (mg/L)					Temperature (C)				
		0 hr.	24 hr.	48 hr.	72 hr.	96 hr.	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.
Control	A	8.4	8.5	7.9	8.6	8.0	20.0	20.5	20.5	20.0	20.0
	B	8.4	8.5	7.9	8.5	8.1	20.0	20.5	20.5	20.0	20.0
625	A	8.4	8.5	7.9	8.5	8.1	20.0	20.5	20.5	20.0	20.0
	B	8.4	8.5	7.9	8.5	8.0	20.0	20.5	20.5	20.0	20.0
1250	A	8.4	8.5	7.9	8.6	8.1	20.0	20.5	20.5	20.0	20.0
	B	8.4	8.5	7.9	8.6	8.0	20.0	20.5	20.5	20.0	20.0
2500	A	8.4	8.5	7.9	8.5	8.0	20.0	20.5	20.5	20.0	20.0
	B	8.4	8.5	8.0	8.5	8.0	20.0	20.5	20.5	20.0	20.0
5000	A	8.4	8.5	8.0	8.5	7.8	20.0	20.5	20.5	20.0	20.0
	B	8.4	8.5	8.0	8.5	7.7	20.0	20.5	20.5	20.0	20.0
10000	A	8.4	8.6	8.1 ②	–	–	20.0	20.5	20.0 ②	–	–
	B	8.4	8.6	8.2 ②	–	–	20.0	20.5	20.0 ②	–	–
Initials		TAP	TAP	TAP	TAP		TAP	TAP	TAP	TAP	
Date		12/18	12/19	12/20	12/21	12/22	12/18	12/19	12/20	12/21	12/22

Concentration ppm	pH (std units)					Conductivity (umhos)				
	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.
Control	8.0	8.0	8.0	8.0	7.8	263	269	263	255	261
625	6.9	6.0	6.0	6.0	6.6	363	360	342	353	359
1250	~~6.5~~ ①	6.0	6.2	6.1	6.5	552	529	516	521	530
2500	6.5	6.1	6.0	6.0	6.5	864	887	875	856	860
5000	6.0	6.0	6.1	6.0	6.6	1497	1488	1493	1490	1499
10000	6.0	6.1	6.9 ②	–	–	2708	2700	2715 ②	–	–
Initials	TAP	TAP	TAP	TAP		TAP	TAP	TAP	TAP	
Date	12/18	12/19	12/20	12/21	12/22	12/18	12/19	12/20	12/21	12/22

Concentration	Alkalinity (mg/L)					Hardness (mg/L)				
	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.
Control										
100%										
Initials										
Date										

Concentration	Chlorine (mg/L)			
	Sample 1	Sample 2	Sample 3	Sample 4
Control				
100%				
Initials				
Date				

Observations: ① 6.4 - TAP 12/18

② Reading done prior to exchange due to total mortality - TAP 12/20

ACFWPAR.WK3

Project Number: 311-01-01
Species: P. promelas & C. dubia

Beginning Date & Time: 12-18-12 1410
Ending Date & Time: 12/22/12 1700

Salinity and pH Adjustments
American Aquatic Testing, Inc.

Sample Number	Initial Salinity	Final Salinity	Initial pH	Final pH	Adjusted pH	mls of acid (base) add. ①	Initials	Date
625 ppm	—	—	3.1	-	6.0	0.70	TAP	12/18
1250 ppm	—	—	2.6	-	6.4	2.5	TAP	12/18
2500 ppm	—	—	2.3	-	6.5	5.75	TAP	12/18
5000 ppm	—	-	2.1	-	6.0	12.2	TAP	12/18
10000 ppm	—	—	1.7	-	6.0	25.5	TAP	12/18
625 ppm	-	-	3.5	-	6.0	0.65	TAP	12/19
1250 ppm	-	-	2.8	-	6.0	2.3	TAP	12/19
2500 ppm	-	-	2.4	-	6.1	5.25	TAP	12/19
5000 ppm	-	-	2.0	-	6.0	12.1	TAP	12/19
10000 ppm	-	-	1.7	-	6.1	25.25	TAP	12/19
625 ppm	-	-	3.4	-	6.0	0.60	TAP	12/20
1250 ppm	-	-	~~3.0~~ ②	-	6.2	2.5	TAP	12/20
2500 ppm	-	-	2.3	-	6.0	5.75	TAP	12/20
5000 ppm	-	-	2.0	-	6.1	12.25	TAP	12/20
625 ppm	-	-	3.2	-	6.0	0.70	TAP	12/21
1250 ppm	-	-	2.7	-	6.1	2.40	TAP	12/21

Observations: ① 1 N Sodium Hydroxide ② 2.7 - TAP 12/20

Project Number: 311-01-01
Species: P. promelas

Beginning Date & Time: 12-18-12 1410
Ending Date & Time: 12/22/12 1700

Salinity and pH Adjustments
American Aquatic Testing, Inc.

Sample Number	Initial Salinity	Final Salinity	Initial pH	Final pH	Adjusted pH	mls of acid/base add.	Initials	Date
2500 ppm	—	—	2.3	—	6.0	5.80	TAP	12/21
5000 ppm	—	—	2.1	—	6.0	12.25	TAP	12/21

Observations :

Acute Fish Test-24 Hr Survival

Start Date:	12/18/2012	Test ID:	3110101Pp	Sample ID:	Delta
End Date:	12/22/2012	Lab ID:	AAT, INC	Sample Type:	PREPARED
Sample Date:		Protocol:	EPAA 91-EPA/600/4-90/027F	Test Species:	PP-Pimephales promelas
Comments:					

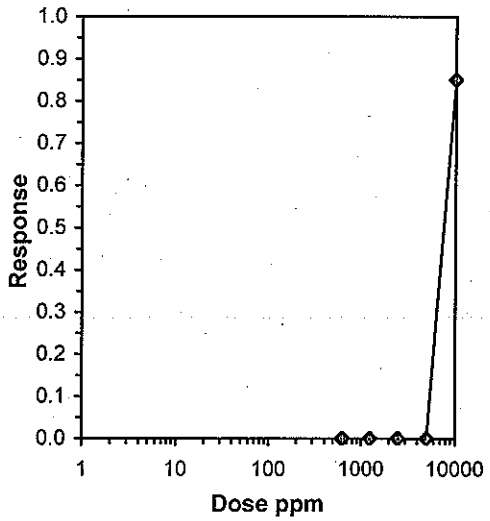
Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	1.0000	1.0000
5000	1.0000	1.0000
10000	0.2000	0.1000

Conc-ppm	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
Control	1.0000	1.0000	0	20	20	2			0	20
625	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
1250	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
2500	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
5000	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
*10000	0.1500	0.1500	17	3	20	2	0.0000	0.0500	17	20

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	5000	10000	7071.07	
Treatments vs Control				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%			
5.0%			
10.0%			
20.0%	7517.03	6962.73	8115.46
Auto-15.0%	7517.03	6962.73	8115.46



Acute Fish Test-48 Hr Survival

Start Date:	12/18/2012	Test ID:	3110101Pp	Sample ID:	Delta
End Date:	12/22/2012	Lab ID:	AAT, INC	Sample Type:	PREPARED
Sample Date:		Protocol:	EPAA 91-EPA/600/4-90/027F	Test Species:	PP-Pimephales promelas
Comments:					

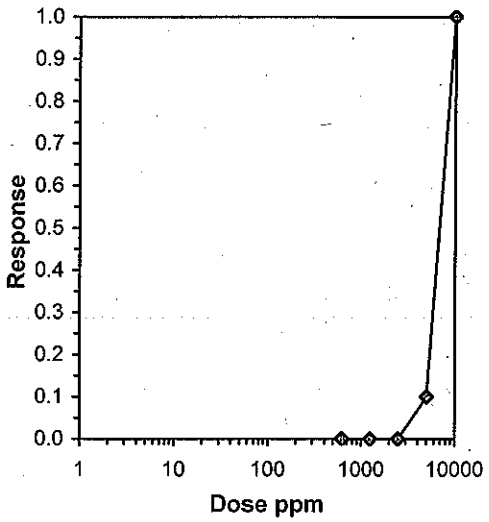
Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	1.0000	1.0000
5000	0.9000	0.9000
10000	0.0000	0.0000

Conc-ppm	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
Control	1.0000	1.0000	0	20	20	2			0	20
625	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
1250	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
2500	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
5000	0.9000	0.9000	2	18	20	2	0.2436	0.0500	2	20
10000	0.0000	0.0000	20	0	20	2			20	20

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	5000	10000	7071.07	
Treatments vs Control				

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	6597.54	6011.66	7240.51
5.0%	6745.97	6006.61	7576.34
10.0%	6803.95	6424.37	7205.96
20.0%	6803.95	6424.37	7205.96
Auto-0.0%	6597.54	6011.66	7240.51



Acute Fish Test-72 Hr Survival

Start Date:	12/18/2012	Test ID:	3110101Pp	Sample ID:	Delta
End Date:	12/22/2012	Lab ID:	AAT, INC	Sample Type:	PREPARED
Sample Date:		Protocol:	EPAA 91-EPA/600/4-90/027F	Test Species:	PP-Pimephales promelas
Comments:					

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	1.0000	0.8000
5000	0.5000	0.7000
10000	0.0000	0.0000

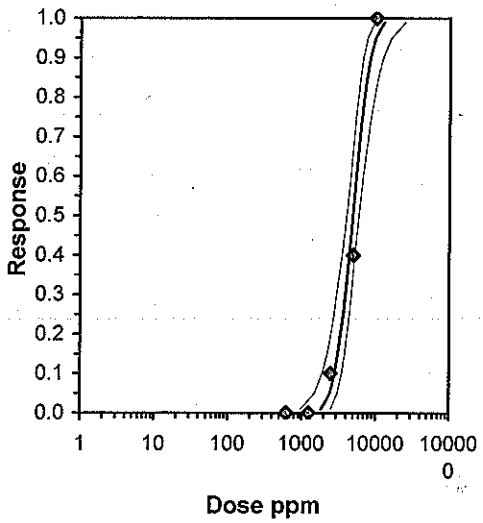
Conc-ppm	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
Control	1.0000	1.0000	0	20	20	2			0	20
625	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
1250	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
2500	0.9000	0.9000	2	18	20	2	0.2436	0.0500	2	20
*5000	0.6000	0.6000	8	12	20	2	0.0016	0.0500	8	20
10000	0.0000	0.0000	20	0	20	2			20	20

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	2500	5000	3535.53	
Treatments vs Control				

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	5.52367	1.09153	3.38427	7.66307	0	2.92774	7.81472	0.4	3.68941	0.18104	5
Intercept	-15.379	4.02979	-23.277	-7.4807							
TSCR											

Point	Probits	ppm	95% Fiducial Limits	
EC01	2.674	1854.61	969.589	2524.93
EC05	3.355	2463.94	1519.53	3143.62
EC10	3.718	2866.83	1921.67	3549.94
EC15	3.964	3175.25	2244.21	3865.91
EC20	4.158	3443.87	2531.77	4148.37
EC25	4.326	3692.36	2800.34	4418.61
EC40	4.747	4400.96	3555.26	5260.46
EC50	5.000	4891.17	4046.84	5925.17
EC60	5.253	5435.99	4551.63	6754.16
EC75	5.674	6479.21	5408.85	8590.76
EC80	5.842	6946.71	5758.32	9506.82
EC85	6.036	7534.39	6176.28	10729.8
EC90	6.282	8344.95	6723.29	12535.8
EC95	6.645	9709.47	7589.33	15859.5
EC99	7.326	12899.5	9445.37	24864.4



Acute Fish Test-96 Hr Survival

Start Date:	12/18/2012	Test ID:	3110101Pp	Sample ID:	Delta
End Date:	12/22/2012	Lab ID:	AAT, INC	Sample Type:	PREPARED
Sample Date:		Protocol:	EPAA 91-EPA/600/4-90/027F	Test Species:	PP-Pimephales promelas
Comments:					

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	1.0000	0.8000
5000	0.2000	0.4000
10000	0.0000	0.0000

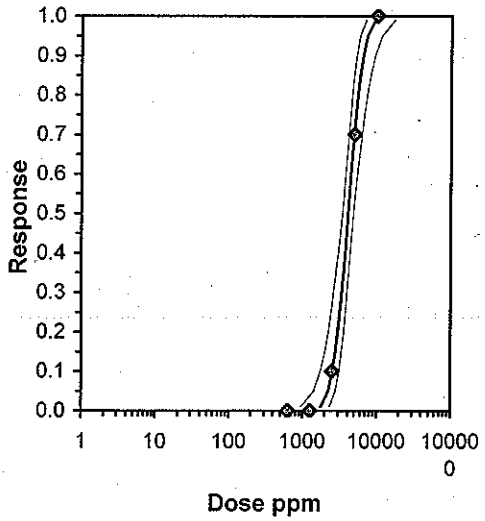
Conc-ppm	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
Control	1.0000	1.0000	0	20	20	2			0	20
625	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
1250	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
2500	0.9000	0.9000	2	18	20	2	0.2436	0.0500	2	20
*5000	0.3000	0.3000	14	6	20	2	0.0000	0.0500	14	20
10000	0.0000	0.0000	20	0	20	2			20	20

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	2500	5000	3535.53	
Treatments vs Control				

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	6.41177	1.33758	3.79012	9.03342	0	0.20124	7.81472	0.98	3.60744	0.15596	3
Intercept	-18.13	4.83008	-27.597	-8.6632							
TSCR											

Point	Probits	ppm	95% Fiducial Limits	
EC01	2.674	1756.38	950.395	2322.03
EC05	3.355	2243.4	1418.75	2799.72
EC10	3.718	2556.04	1748.95	3106.81
EC15	3.964	2791.24	2008.13	3342.78
EC20	4.158	2993.51	2235.62	3551.97
EC25	4.326	3178.69	2445.37	3750.77
EC40	4.747	3697.69	3022.69	4363.22
EC50	5.000	4049.89	3389.79	4840.81
EC60	5.253	4435.64	3759.77	5430.23
EC75	5.674	5159.87	4372.13	6714.65
EC80	5.842	5479.05	4616.38	7345.35
EC85	6.036	5876.09	4904.84	8178.16
EC90	6.282	6416.79	5276.95	9390.84
EC95	6.645	7311.05	5855.32	11577.4
EC99	7.326	9338.29	7059.36	17284



Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 311-01-01

Species: C. dubia

Dilution Water: EPA Mod. Hard

Start Date/Time: 12-18-12 1515

End Date/Time: 12-20-12 1515

Test Type: 48hr. SDR

Concentration ppm	Rep.	Dissolved Oxygen (mg/L)			Temperature (C)			Live Count		
		0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	A	8.4	8.5	8.2	20.0	20.5	20.0	10	10	10
	B	8.4	8.5	8.1	20.0	20.5	20.0	10	10	10
625	A	8.4	8.5	8.1	20.0	20.5	20.0	10	10	10
	B	8.4	8.5	8.1	20.0	20.5	20.0	10	10	10
1250	A	8.4	8.5	8.2	20.0	20.5	20.0	10	10	10
	B	8.4	8.5	8.2	20.0	20.5	20.0	10	10	10
2500	A	8.4	8.5	8.2	20.0	20.5	20.0	10	9	9
	B	8.4	8.5	8.3	20.0	20.5	20.0	10	10	8[2]
5000	A	8.4	8.5	8.2	20.0	20.5	20.0	10	3	1[2]
	B	8.4	8.5	8.2	20.0	20.5	20.0	10	3	0[3]
10000	A	8.4	8.9 ①	-	20.0	20.5 ①	-	10	0	-
	B	8.4	9.0 ①	-	20.0	20.5 ①	-	10	0	-
Initials		TAP	TAP	TAP	TAP	TAP	TAP	MP	TAP	TAP
Date		12/18	12/19	12/20	12/18	12/19	12/20	12/18	12/19	12/20

Concentration	Alkalinity (mg/L)			Hardness (mg/L)			Chlorine (mg/L)
	0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.	Sample 1
Control							
100%							
Initials							
Date							

Concentration ppm	pH (std units)			Conductivity (umhos)		
	0 hr.	24 hr.	48 hr.	0 hr.	24 hr.	48 hr.
Control	8.0	8.0	7.6	263	269	285
625	6.0	6.0	7.5	363	360	374
1250	6.4	6.0	7.4	552	529	550
2500	6.5	6.1	7.3	864	887	930
5000	6.0	6.0	7.2	1497	1488	1545
10000	6.0	6.7 ①	—	2708	2811 ②	—
Initials	TAP	TAP	TAP	TAP	TAP	TAP
Date	12/18	12/19	12/20	12/18	12/19	12/20

Observations: ① Reading done prior to exchange due to total mortality - TAP 12/18
② 2811 - TAP 12/19

ACF48PAR.WK3

Acute Fish Test-24 Hr Survival

Start Date:	12/18/2012	Test ID:	3110101Cd	Sample ID:	Delta
End Date:	12/22/2012	Lab ID:	AAT, INC	Sample Type:	PREPARED
Sample Date:		Protocol:	EPAA 91-EPA/600/4-90/027F	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	0.9000	1.0000
5000	0.3000	0.3000
10000	0.0000	0.0000

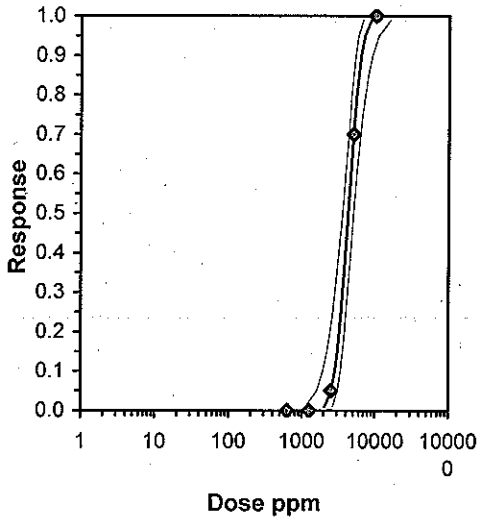
Conc-ppm	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
Control	1.0000	1.0000	0	20	20	2			0	20
625	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
1250	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
2500	0.9500	0.9500	1	19	20	2	0.5000	0.0500	1	20
*5000	0.3000	0.3000	14	6	20	2	0.0000	0.0500	14	20
10000	0.0000	0.0000	20	0	20	2			20	20

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	2500	5000	3535.53	
Treatments vs Control				

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	7.43072	1.67529	4.14716	10.7143	0	0.07012	7.81472	1	3.62453	0.13458	3
Intercept	-21.933	6.08404	-33.858	-10.008							
TSCR											

Point	Probits	ppm	95% Fiducial Limits	
EC01	2.674	2048.59	1110.73	2650.9
EC05	3.355	2530.27	1602.04	3106.42
EC10	3.718	2831.78	1939.86	3393.7
EC15	3.964	3055.25	2201.23	3612.12
EC20	4.158	3245.37	2428.3	3804.36
EC25	4.326	3417.87	2635.94	3986.1
EC40	4.747	3894.32	3199.37	4542.3
EC50	5.000	4212.37	3550.91	4974.33
EC60	5.253	4556.39	3898.59	5506.84
EC75	5.674	5191.54	4457.02	6662.26
EC80	5.842	5467.5	4674.02	7225.62
EC85	6.036	5807.72	4926.61	7964.79
EC90	6.282	6266.03	5247.37	9031.58
EC95	6.645	7012.69	5736.52	10928.7
EC99	7.326	8661.59	6726.65	15752.6



Acute Fish Test-48 Hr Survival

Start Date:	12/18/2012	Test ID:	3110101Cd	Sample ID:	Delta
End Date:	12/22/2012	Lab ID:	AAT, INC	Sample Type:	PREPARED
Sample Date:		Protocol:	EPAA 91-EPA/600/4-90/027F	Test Species:	CD-Ceriodaphnia dubia
Comments:					

Conc-ppm	1	2
Control	1.0000	1.0000
625	1.0000	1.0000
1250	1.0000	1.0000
2500	0.9000	0.8000
5000	0.1000	0.0000
10000	0.0000	0.0000

Conc-ppm	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Number Resp	Total Number
Control	1.0000	1.0000	0	20	20	2			0	20
625	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
1250	1.0000	1.0000	0	20	20	2	1.0000	0.0500	0	20
2500	0.8500	0.8500	3	17	20	2	0.1154	0.0500	3	20
*5000	0.0500	0.0500	19	1	20	2	0.0000	0.0500	19	20
10000	0.0000	0.0000	20	0	20	2			20	20

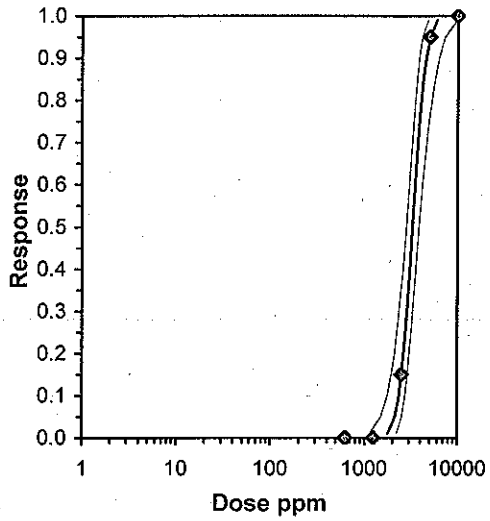
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	2500	5000	3535.53	
Treatments vs Control				

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	8.92015	1.91995	5.15706	12.6832	0	0.00216	7.81472	1	3.51434	0.11211	3
Intercept	-26.348	6.72682	-39.533	-13.164							
TSCR											

Point	Probits	ppm	95% Fiducial Limits	
EC01	2.674	1792.86	1139	2205.78
EC05	3.355	2137.7	1522.57	2531.57
EC10	3.718	2347.87	1769.51	2736.57
EC15	3.964	2501.23	1952.67	2892.58
EC20	4.158	2630.23	2106.75	3029.97
EC25	4.326	2746.18	2243.88	3159.64
EC40	4.747	3061.56	2601.07	3551.02
EC50	5.000	3268.46	2816.83	3844.54
EC60	5.253	3489.36	3028.96	4191.93
EC75	5.674	3890.07	3372.66	4904.59
EC80	5.842	4061.57	3507.39	5238.13
EC85	6.036	4271.04	3664.57	5665.96
EC90	6.282	4550.02	3864.03	6267.76
EC95	6.645	4997.37	4166.62	7302.33
EC99	7.326	5958.55	4769.89	9786.25

Significant heterogeneity detected ($p < 0.01$)



APPENDIX – B

CHAIN-OF-CUSTODY

DOCUMENTATION

AMERICAN AQUATIC TESTING, INC.

890 North Graham St.
ALLENTOWN, PA 18109
610 434 9015

Job #: 311-01-01

Client: THERMAL SOLUTIONS / DELTA PRODUCTS

Address:

Phone #: DAVE BRADLEY

Client Contact:

CHAIN OF CUSTODY

Sample Disposal: **Return to client** [ ] **Lab disposal** [X]

	Initial Chemistry Upon Arrival @ Laboratory						SAMPLE INFORMATION					Toxicity Testing Requested			
Sample #	Temp °C	Dis. O_2	pH	Alk. mg/L	Hard. mg/L	Cl- mg/L	Sample Identification	Sample Type C = Comp G=Grab	Sample Volume	Sample Date	Sample Time	Acute	Chronic	Sediment	Other
01							SAFEDSCALE PLUS	PREPARED	500mL	11/29/12	1000	X			

Samples were:
1. Collected by AAT personnel [ ] Client personnel [X]
2. Transported on ice? Yes [ ] No [X]
3. Received with in holding time? Yes [X] No [ ]
4. Sample matrix is: Liquid [X] Sediment [ ] Soil [ ] Other [ ]

CUSTODY INFORMATION

Sample #	Relinquished by:	Received by:	Date	Time	Relinquished by:	Received for Lab:	Date	Time	Lab Use ISTN#
01	D. BRADLEY						11/29/12	1000	121435

Special Instructions: Dilution water collection date(s) N/A

Will ammonia be analyzed on these samples? Yes / No

Will additional parameters be analyzed on these samples? Yes / No