ATTACHMENT 1

FIELD XRF SOIL SAMPLE SCREEN RESULTS

Ultralife Battery Field XRF Soil Sample Screen Results – May 10, 2007

Test Pit Name: TP-16

Sample Depth Interval: 0.0 to 1.0 ft

Element	Field Measurement in parts per million
Ti	2,373
Mn	499
Fe	16,109
Co	327
Zn	87
Br	20
Pb	30
Rb	37
Sr	128
Zr	304
As	<18

Ultralife Battery Field XRF Soil Sample Screen Results – May 10, 2007

Test Pit Name: TP-16

Sample Depth Interval: 3.0 to 5.0 ft

Element	Field Measurement in parts per million
Ti	4,145
Cr	477
Mn	509
Fe	11,004
Co	300
Ni	148
Cu	95
Zn	90
Hg	74
Pb	33
Rb	53
Sr	153
Zr	259
Ag	74
As	<20

Test Pit Name: TP-17

Sample Depth Interval: 1.0 to 2.0 ft

Element	Field Measurement in parts per million
Ti	1,126
Fe	16,557
Ni	138
Zn	80
Rb	47
Sr	113
Zr	241
As	<18
Hg	<45

Test Pit Name: TP-17

Sample Depth Interval: 3.0 to 5.0 ft

Element	Field Measurement in parts per million
Ti	2,624
Fe	12,180
Zn	77
Rb	51
Sr	136
Zr	275
As	<17

Test Pit Name: TP-18

Sample Depth Interval: 1.0 to 1.5 ft

Element	Field Measurement in parts per million
Ti	2,164
Mn	306
Fe	11,353
Zn	92
Pb	39
Rb	43
Sr	99
Zr	248
As	<19
Hg	<48

Test Pit Name: TP-18

Sample Depth Interval: 3.0 to 5.0 ft

Element	Field Measurement in parts per million
Ti	2,815
Fe	15,463
Rb	43
Sr	125
Zr	388
As	<19
Hg	<50

Test Pit Name: TP-19

Sample Depth Interval: 0.0 to 0.5 ft

Element	Field Measurement in parts per million
Ti	3,122
Mn	1,648
Fe	18,641
Zn	69
Rb	33
Sr	126
Zr	278
As	<17
Hg	<43

Test Pit Name: TP-19

Sample Depth Interval: 3.0 to 5.0 ft

Element	Field Measurement in parts per million
Ti	2,823
Mn	455
Fe	10,703
Zn	57
Rb	44
Sr	180
Zr	227
As	<18
Hg	<45

Test Pit Name: TP-20

Sample Depth Interval: 1.0 to 1.5 ft

Element	Field Measurement in parts per million
Ti	2,723
Fe	15,454
Zn	79
Rb	42
Sr	118
Zr	249
As	<18
Hg	56

Test Pit Name: TP-20

Sample Depth Interval: 4.5 to 5.0 ft

Element	Field Measurement in parts per million
Ti	3,542
Mn	551
Fe	15,446
Ni	153
Zn	69
Pb	32
Rb	51
Sr	143
As	<20
Hg	<50

Test Pit Name: TP-21

Sample Depth Interval: 1.0 to 1.5 ft

Element	Field Measurement in parts per million
Ti	3,886
Mn	324
Fe	14,819
Ni	155
Zn	105
Pb	29
Rb	45
Sr	124
Zr	373
As	<19

Test Pit Name: TP-21

Sample Depth Interval: 3.0 to 5.0 ft

Element	Field Measurement in parts per million
Ti	3,075
Mn	549
Fe	11,481
Ni	122
Cu	94
Zn	87
Hg	75
Pb	37
Rb	46
Sr	156
Zr	263
Ag	85
As	<20

Test Pit Name: TP-22

Sample Depth Interval: 1.0 to 1.5 ft

Element	Field Measurement in parts per million
Ti	2,375
Mn	596
Fe	18,130
Zn	70
Rb	43
Sr	120
Zr	255
Hg	<42
As	<17

Test Pit Name: TP-22

Sample Depth Interval: 3.0 to 3.5 ft

Element	Field Measurement in parts per million
Ti	1,173
Fe	5,781
Rb	29
Sr	134
Zr	255
Hg	<40
As	<16

Test Pit Name: TP-23

Sample Depth Interval: 1.0 to 1.5 ft

Element	Field Measurement in parts per million
Ti	3,195
Mn	2,319
Fe	22,058
Ni	161
Zn	93
Rb	46
Sr	138
Zr	274
Hg	<49
As	<19

Test Pit Name: TP-23

Sample Depth Interval: 4.5 to 5.0 ft

Element	Field Measurement in parts per million
Ti	3,560
Mn	295
Fe	8,386
Zn	47
Rb	44
Sr	165
Zr	293
Hg	81
As	<19

Test Pit Name: TP-24

Sample Depth Interval: 0.0 to 0.5 ft

Element	Field Measurement in parts per million
Ti	1,238
Mn	347
Fe	14,440
Rb	34
Sr	109
Zr	217
Hg	<43
As	<16

Test Pit Name: TP-24

Sample Depth Interval: 2.0 to 2.5 ft

Element	Field Measurement in parts per million
Ti	1,907
Mn	282
Fe	9,705
Rb	34
Sr	145
Zr	182
Hg	<43
As	<16

Test Pit Name: TP-25

Sample Depth Interval: 1.0 to 1.5 ft

Element	Field Measurement in parts per million
Ti	2,272
Mn	1,143
Fe	15,690
Zn	82
Rb	40
Sr	112
Zr	296
Hg	<44
As	<17

Test Pit Name: TP-25

Sample Depth Interval: 4.5 to 5.0 ft

Element	Field Measurement in parts per million
Ti	3,310
Fe	10,424
Zn	52
Rb	45
Sr	143
Zr	325
Hg	<44
As	<17

ATTACHMENT 2

BIOASSAY TOXICITY TESTING

Cosper Environmental Services, Inc.

83 Carlough Road
Bohemia, NY 11716
Phone (631) 563-8899
Fax (631) 563-2999
Cosper@worldnet.att.net

BIOASSAY TOXICITY TESTING
Of
Ultralife Sediment

Final Report

Prepared For:

Columbia Analytical Services
1 Mustard St. Suite 250
Rochester, NY 14609

Compiled 4 April 2008

Sediment Toxicity Test Bioassay Report

Summary

Test Type
Quality Control Summary
Certification
Organism Data
Test Design (1st Phase- Survival and Growth)
Test Design (2nd Phase- Reproduction)
Reference Toxicant Test Design and Results
Sediment Sampling
Sediment Test Summary
Water Chemistries
Data Analysis

Addenda

A. Statistical Analysis

B. Statistics and Reference Toxicant Data Sheets

C. Test Results as Computer Generated Data Sheets

D. Copies of Laboratory Bench Sheets

E. Chain of Custody Form

F. Meter Calibration Information and Chemical Properties of Synthetic Freshwater

COSPER ENVIRONMENTAL SERVICES, INC.

Sediment Toxicity Test Bioassay Report
Summary

Project Name:	**Ultralife Sediment**
Client:	**Columbia Analytical Services**
Contact:	**Carlton Beechler**
Contact Phone:	**(585) 288-5380**
Certified Laboratory:	**Cosper Environmental Services, Inc.** **83 Carlough Road** **Bohemia, New York 11716-2903** **(631) 563-8899 FAX: 563-2999**

Test Dates: **01/31/08 – 03/13/08**

Test Type:

ASTM STANDARDS 2001, Volume 11.5, Biological Effects and Environmental Fate; Biotechnology; Pesticides. E 1706 Test Method for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates. A6. Guidance for Conducting a *Hyalella azteca* 42-Day Test For Measuring Effects of Sediment-Associated Contaminants on Survival, Growth, and Reproduction.

Organism: **Amphipod, *Hyalella azteca***

Quality Control Summary:

Test Acceptability:

Control Survival for Hyallela azteca ≥ 80% on Day 28: **Yes**

Certification:

Accuracy of report certified by: Elizabeth Cosper 4/7/08

Elizabeth Cosper, Ph. D.
President

Date

COSPER ENVIRONMENTAL SERVICES, INC.

Sediment Toxicity Test

Organism Data:

Test organism: ***Hyalella azteca***

Test Organism Source: **In House**

Test Organism Age: **7 to 8 days**

Holding and Handling Procedures: ***Hyalella azteca*** **were separated from cultured stock and placed in holding chambers. They were fed 10mL of YCT and 10mL of *Selenastrum capricornutum* the first day and 5mL of YCT and 5mL of *Selenastrum capricornutum* the third and fifth day after collection. The <24 hour old amphipods were removed and isolated for 7-8 days. Water quality was also monitored (e.g., temperature and dissolved oxygen). On Day 0 of the sediment test, 10 7-8 day organisms were transferred into each test chamber after sediment addition and overlying water renewal.**

Feeding Regime: **Each test replicate was fed 0.5-1.0mL YCT (Yeast, alfalfa, and trout chow) daily. Daily feeding amount was altered depending on test chamber D.O. levels.**

Test Design (1st Phase-Survival and Growth):

Number of Replicates per Sediment Tested: **12**

Number of Test Organisms per Replicate: **10**

Volume of Overlying Water (mL): **175**

Volume of Test Sediment (mL): **100**

Exposure Concentration: **A negative control provided by Cosper Environmental Services (CES Control), Reference Sediment, and 100% Sediment**

Test Chamber Type and Size: **500mL Glass Jars**

Test Chamber Cleaning: **All dead organisms and old food were removed from test vessel daily**

Test Type: **Renewal, Overlying water renewed every 12 hours**

Test Duration: **28 days**

Light Regime: **16 hours light / 8 hours dark**

Dissolved Oxygen: **Maintained above 2.5 mg/L**

Test Temperature: **23±1°C**

Source of Negative Control Sediment (CES Control): **30% 2mm screened Top Soil**
70% grade 70 Silica Sand

COSPER ENVIRONMENTAL SERVICES, INC.

Sediment Toxicity Test

Test Design (2nd Phase-Reproduction):

Number of Replicates per Sediment Tested: **8**
Number of Test Organisms per Replicate: **Surviving number**
Volume of Water (mL): **175-275**
Exposure Concentration: **Control and 100% Sediment**
Test Chamber Type and Size: **500mL plastic deli cups**
Test Chamber Cleaning: **All dead organisms and old food were removed from test vessel daily**
Test Type: **Renewal, Overlying water renewed every 12 hours**
Test Duration: **28 days**
Light Regime: **16 hours light / 8 hours dark**
Dissolved Oxygen: **Maintained above 2.5 mg/L**
Test Temperature: **23±1°C**

Reference Toxicant Test Design and Results: *Hyalella azteca*

Number of Replicates: **2**
Number of Test Organisms per Replicate: **5**
Volume of Water per replicate (mL): **200**
Exposure Concentration: **Control, 0.063, 0.125, 0.250, 0.500, 1.00 ppt**
Test Type: **Static**
Test Duration: **48 hours**
Test Temperature: **23±1°C**
Toxicant Source:**Potassium Chloride (KCl) / Fisher Scientific**
Dilution Water Source: **EPA prescribed Synthetic Fresh Water.**
Date of Last *Hyalella azteca* SRT test: **01/31/08 – 02/02/08** LC50: **0.250ppt** * Average LC50: **0.301ppt**

*For data sheets and statistics see Addendum B

COSPER ENVIRONMENTAL SERVICES, INC.

Sediment Toxicity Test

Sediment Sampling:

Sampling Location: **Ultralife Site**
Type of Sample: **Freshwater Sediment Samples**

Collection Date / Samples Collected: **12/27/07: Sedge 01-12:30, Sedge 02-14:00, Reference Sedge 0 -15:30**

Number of Samples Collected/Delivered: **Four bottles were collected from each site for a total of 12 bottles.**
Maximum Sample Holding Time: **< Eight weeks**
Sample Storage Temperature: **4°C**

Sediment Testing Summary:

The sediment samples were tested simultaneously. The four bottles collected from each site were mixed as composite samples for testing. A negative control provided by Cosper Environmental Services (CES Control) was conducted along with test sediments.

Hyalella azteca

1st Phase (Survival and Growth):

Samples with Significantly **LESS** Survival than CES Control: **None**
Samples with Significantly **LESS** Survival than Reference site: **None**
Samples with Significantly **GREATER** Survival than CES Control: **None**
Samples with Significantly **GREATER** Survival than Reference site: **None**
Samples with Significantly **LESS** Growth than CES Control: **None**
Samples with Significantly **LESS** Growth than Reference site: **CES Control**
Samples with Significantly **GREATER** Growth than CES Control: **None**
Samples with Significantly **GREATER** Growth than Reference site: **None**

2nd Phase (Reproduction):

Samples with Significantly **LESS** Reproduction than CES Control: **Sedge 01**
Samples with Significantly **LESS** Reproduction than Reference site: **None**
Samples with Significantly **GREATER** Reproduction than CES Control: **None**
Samples with Significantly **GREATER** Reproduction than Reference site: **None**

Water Chemistries:

Overlying Water Source: **EPA prescribed Synthetic Fresh Water**
Preparation Location: **Cosper Environmental Services, Bohemia, NY**
Collection Date: **Synthetic Fresh Water was made up every three days.**

Average Chemical Properties:

pH: **7.73**
D.O.: **8.1**
Conductivity: **292**
Alkalinity (mg/l): **61**
Hardness (mg/l): **92**

For weekly and monthly water chemistries, see Addendum F.

Data Analysis:

Analysis of Variance (ANOVA) tests were performed on all data using TOXSTAT Statistical Program. All survival and growth data were compared to both the control and the reference site.

The results of individual statistical tests can be found in Addendum A.

Addenda

A. Statistical Analysis
B. Reference Toxicant Data Sheets and Statistics
C. Computer Generated Data Sheets
D. Copies of Laboratory Bench Sheets
E. Chain of Custody Forms
F. Meter Calibration Information and Chemical Properties of Synthetic Freshwater

Addendum A

Statistical Analysis

28 Day Hyalella Sediment Phase Test With CES Control

Survival:

Sedmiment
File: D:\STATS\TOXSTAT\SEDSURVI. Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 60.833

W = 0.933

Critical W (P = 0.05) (n = 48) = 0.947
Critical W (P = 0.01) (n = 48) = 0.929

Data PASS normality test at P=0.01 level. Continue analysis.

Sedmiment
File: D:\STATS\TOXSTAT\SEDSURVI. Transform: NO TRANSFORMATION

Hartley's test for homogeneity of variance
Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
Additional transformations are useless.

TITLE: Sedmiment
FILE: D:\STATS\TOXSTAT\SEDSURVI.
TRANSFORM: NO TRANSFORMATION NUMBER OF GROUPS: 4

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	Sedge 02	1	8.0000	8.0000
1	Sedge 02	2	8.0000	8.0000
1	Sedge 02	3	9.0000	9.0000
1	Sedge 02	4	8.0000	8.0000
1	Sedge 02	5	10.0000	10.0000
1	Sedge 02	6	7.0000	7.0000
1	Sedge 02	7	10.0000	10.0000
1	Sedge 02	8	9.0000	9.0000
1	Sedge 02	9	9.0000	9.0000
1	Sedge 02	10	7.0000	7.0000

1	Sedge 02	11	8.0000	8.0000
1	Sedge 02	12	9.0000	9.0000
2	Sedge 01	1	5.0000	5.0000
2	Sedge 01	2	8.0000	8.0000
2	Sedge 01	3	9.0000	9.0000
2	Sedge 01	4	10.0000	10.0000
2	Sedge 01	5	5.0000	5.0000
2	Sedge 01	6	8.0000	8.0000
2	Sedge 01	7	8.0000	8.0000
2	Sedge 01	8	9.0000	9.0000
2	Sedge 01	9	6.0000	6.0000
2	Sedge 01	10	7.0000	7.0000
2	Sedge 01	11	7.0000	7.0000
2	Sedge 01	12	7.0000	7.0000
3	Ref Sedge	1	8.0000	8.0000
3	Ref Sedge	2	9.0000	9.0000
3	Ref Sedge	3	10.0000	10.0000
3	Ref Sedge	4	8.0000	8.0000
3	Ref Sedge	5	8.0000	8.0000
3	Ref Sedge	6	6.0000	6.0000
3	Ref Sedge	7	5.0000	5.0000
3	Ref Sedge	8	10.0000	10.0000
3	Ref Sedge	9	8.0000	8.0000
3	Ref Sedge	10	8.0000	8.0000
3	Ref Sedge	11	9.0000	9.0000
3	Ref Sedge	12	8.0000	8.0000
4	CES Control	1	10.0000	10.0000
4	CES Control	2	10.0000	10.0000
4	CES Control	3	10.0000	10.0000
4	CES Control	4	10.0000	10.0000
4	CES Control	5	10.0000	10.0000
4	CES Control	6	10.0000	10.0000
4	CES Control	7	10.0000	10.0000
4	CES Control	8	10.0000	10.0000
4	CES Control	9	10.0000	10.0000
4	CES Control	10	10.0000	10.0000
4	CES Control	11	10.0000	10.0000
4	CES Control	12	10.0000	10.0000

Sedmiment
File: D:\STATS\TOXSTAT\SEDSURVI. Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Sedge 02	12	7.000	10.000	8.500
2	Sedge 01	12	5.000	10.000	7.417
3	Ref Sedge	12	5.000	10.000	8.083
4	CES Control	12	10.000	10.000	10.000

Sedmiment
File: D:\STATS\TOXSTAT\SEDSURVI. Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Sedge 02	1.000	1.000	0.289	11.76
2	Sedge 01	2.447	1.564	0.452	21.09
3	Ref Sedge	2.083	1.443	0.417	17.86
4	CES Control	0.000	0.000	0.000	0.00

Sedmiment
File: D:\STATS\TOXSTAT\SEDSURVI. Transform: NO TRANSFORMATION

STEEL'S MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Sedge 02	8.500				
2	Sedge 01	7.417	120.00	114.00	12.00	
3	Ref Sedge	8.083	140.00	114.00	12.00	
4	CES Control	10.000	210.00	114.00	12.00	

Critical values use k = 3, are 1 tailed, and alpha = 0.05

28 Day Hyalella Sediment Phase Test Without CES Control

Survival:

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 60.833

W = 0.964

Critical W (P = 0.05) (n = 36) = 0.935
Critical W (P = 0.01) (n = 36) = 0.912

Data PASS normality test at P=0.01 level. Continue analysis.

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 2.18

Table Chi-square value = 9.21 (alpha = 0.01, df = 2)
Table Chi-square value = 5.99 (alpha = 0.05, df = 2)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

TITLE: Sedmiment
FILE: SedSurvival
TRANSFORM: NO TRANSFORMATION NUMBER OF GROUPS: 3

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	Sedge 02	1	8.0000	8.0000
1	Sedge 02	2	8.0000	8.0000
1	Sedge 02	3	9.0000	9.0000
1	Sedge 02	4	8.0000	8.0000
1	Sedge 02	5	10.0000	10.0000
1	Sedge 02	6	7.0000	7.0000
1	Sedge 02	7	10.0000	10.0000
1	Sedge 02	8	9.0000	9.0000
1	Sedge 02	9	9.0000	9.0000
1	Sedge 02	10	7.0000	7.0000
1	Sedge 02	11	8.0000	8.0000
1	Sedge 02	12	9.0000	9.0000

2	Sedge 01	1	5.0000	5.0000
2	Sedge 01	2	8.0000	8.0000
2	Sedge 01	3	9.0000	9.0000
2	Sedge 01	4	10.0000	10.0000
2	Sedge 01	5	5.0000	5.0000
2	Sedge 01	6	8.0000	8.0000
2	Sedge 01	7	8.0000	8.0000
2	Sedge 01	8	9.0000	9.0000
2	Sedge 01	9	6.0000	6.0000
2	Sedge 01	10	7.0000	7.0000
2	Sedge 01	11	7.0000	7.0000
2	Sedge 01	12	7.0000	7.0000
3	Ref Sedge	1	8.0000	8.0000
3	Ref Sedge	2	9.0000	9.0000
3	Ref Sedge	3	10.0000	10.0000
3	Ref Sedge	4	8.0000	8.0000
3	Ref Sedge	5	8.0000	8.0000
3	Ref Sedge	6	6.0000	6.0000
3	Ref Sedge	7	5.0000	5.0000
3	Ref Sedge	8	10.0000	10.0000
3	Ref Sedge	9	8.0000	8.0000
3	Ref Sedge	10	8.0000	8.0000
3	Ref Sedge	11	9.0000	9.0000
3	Ref Sedge	12	8.0000	8.0000

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Sedge 02	12	7.000	10.000	8.500
2	Sedge 01	12	5.000	10.000	7.417
3	Ref Sedge	12	5.000	10.000	8.083

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Sedge 02	1.000	1.000	0.289	11.76
2	Sedge 01	2.447	1.564	0.452	21.09
3	Ref Sedge	2.083	1.443	0.417	17.86

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	2	7.167	3.583	1.944
Within (Error)	33	60.833	1.843	
Total	35	68.000		

Critical F value = 3.32 (0.05,2,30)
Since F < Critical F FAIL TO REJECT Ho: All equal

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Sedge 02	8.500	8.500		
2	Sedge 01	7.417	7.417	1.954	
3	Ref Sedge	8.083	8.083	0.752	

Dunnett table value = 1.99 (1 Tailed Value, P=0.05, df=30,2)

Sedmiment
File: SedSurvival Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Sedge 02	12			1.083
2	Sedge 01	12	1.103	13.0	0.417
3	Ref Sedge	12	1.103	13.0	

28 Day Hyalella Sediment Phase Test With CES Control

Growth:

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.029

W = 0.956

Critical W (P = 0.05) (n = 16) = 0.887
Critical W (P = 0.01) (n = 16) = 0.844

Data PASS normality test at P=0.01 level. Continue analysis.

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 6.18

Table Chi-square value = 11.34 (alpha = 0.01, df = 3)
Table Chi-square value = 7.81 (alpha = 0.05, df = 3)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

TITLE: Sediment - Growth
FILE: D:\STATS\TOXSTAT\AD-0015G.STA
TRANSFORM: NO TRANSFORMATION NUMBER OF GROUPS: 4

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	Sedge 02	1	0.2078	0.2078
1	Sedge 02	2	0.2840	0.2840
1	Sedge 02	3	0.2880	0.2880
1	Sedge 02	4	0.2044	0.2044
2	Sedge 01	1	0.2767	0.2767
2	Sedge 01	2	0.1910	0.1910
2	Sedge 01	3	0.1662	0.1662
2	Sedge 01	4	0.1722	0.1722
3	Ref Sedge	1	0.4489	0.4489
3	Ref Sedge	2	0.3460	0.3460
3	Ref Sedge	3	0.3040	0.3040
3	Ref Sedge	4	0.4311	0.4311
4	CES Control	1	0.1080	0.1080
4	CES Control	2	0.1180	0.1180
4	CES Control	3	0.1060	0.1060
4	CES Control	4	0.1300	0.1300

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Sedge 02	4	0.204	0.288	0.246
2	Sedge 01	4	0.166	0.277	0.202
3	Ref Sedge	4	0.304	0.449	0.382
4	CES Control	4	0.106	0.130	0.116

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Sedge 02	0.002	0.046	0.023	18.77
2	Sedge 01	0.003	0.051	0.026	25.40
3	Ref Sedge	0.005	0.069	0.034	18.03
4	CES Control	0.000	0.011	0.006	9.52

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	0.149	0.050	20.646
Within (Error)	12	0.029	0.002	
Total	15	0.178		

Critical F value = 3.49 (0.05,3,12)
Since F > Critical F REJECT Ho: All equal

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA

Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Sedge 02	0.246	0.246		
2	Sedge 01	0.202	0.202	1.283	
3	Ref Sedge	0.382	0.382	-3.933	
4	CES Control	0.116	0.116	3.763	*

Dunnett table value = 2.29 (1 Tailed Value, P=0.05, df=12,3)

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA

Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Sedge 02	4			0.045
2	Sedge 01	4	0.079	32.3	-0.136
3	Ref Sedge	4	0.079	32.3	0.131
4	CES Control	4	0.079	32.3	

28 Day Hyalella Sediment Phase Test Without CES Control

Growth:

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.029

W = 0.900

Critical W (P = 0.05) (n = 12) = 0.859
Critical W (P = 0.01) (n = 12) = 0.805

Data PASS normality test at P=0.01 level. Continue analysis.

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 0.47

Table Chi-square value = 9.21 (alpha = 0.01, df = 2)
Table Chi-square value = 5.99 (alpha = 0.05, df = 2)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

TITLE: Sediment - Growth
FILE: D:\STATS\TOXSTAT\AD-0015G.STA
TRANSFORM: NO TRANSFORMATION NUMBER OF GROUPS: 3

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	Sedge 02	1	0.2078	0.2078
1	Sedge 02	2	0.2840	0.2840
1	Sedge 02	3	0.2880	0.2880
1	Sedge 02	4	0.2044	0.2044
2	Sedge 01	1	0.2767	0.2767
2	Sedge 01	2	0.1910	0.1910
2	Sedge 01	3	0.1662	0.1662
2	Sedge 01	4	0.1722	0.1722
3	Ref Sedge	1	0.4489	0.4489
3	Ref Sedge	2	0.3460	0.3460
3	Ref Sedge	3	0.3040	0.3040
3	Ref Sedge	4	0.4311	0.4311

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Sedge 02	4	0.204	0.288	0.246
2	Sedge 01	4	0.166	0.277	0.202
3	Ref Sedge	4	0.304	0.449	0.382

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Sedge 02	0.002	0.046	0.023	18.77
2	Sedge 01	0.003	0.051	0.026	25.40
3	Ref Sedge	0.005	0.069	0.034	18.03

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	2	0.071	0.036	11.223
Within (Error)	9	0.029	0.003	
Total	11	0.100		

Critical F value = 4.26 (0.05,2,9)
Since F > Critical F REJECT Ho: All equal

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Sedge 02	0.246	0.246		
2	Sedge 01	0.202	0.202	1.118	
3	Ref Sedge	0.382	0.382	-3.428	

Dunnett table value = 2.18 (1 Tailed Value, P=0.05, df=9,2)

Sediment - Growth
File: D:\STATS\TOXSTAT\AD-0015G.STA Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Sedge 02	4			0.045
2	Sedge 01	4	0.087	35.3	-0.136
3	Ref Sedge	4	0.087	35.3	

42 Day Hyalella Sediment Phase Test With CES Control

Reproduction:

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 62.022

W = 0.854

Critical W (P = 0.05) (n = 32) = 0.930
Critical W (P = 0.01) (n = 32) = 0.904

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 3.04

Table Chi-square value = 11.34 (alpha = 0.01, df = 3)
Table Chi-square value = 7.81 (alpha = 0.05, df = 3)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

TITLE: Hyalella 42 Day Sediment Phase Bioassay
FILE: D:\STATS\TOXSTAT\0140B.
TRANSFORM: NO TRANSFORMATION NUMBER OF GROUPS: 4

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	CES Control	1	2.0000	2.0000
1	CES Control	2	2.0000	2.0000
1	CES Control	3	3.5000	3.5000
1	CES Control	4	5.5000	5.5000
1	CES Control	5	3.0000	3.0000
1	CES Control	6	4.0000	4.0000
1	CES Control	7	2.0000	2.0000
1	CES Control	8	1.5000	1.5000

2	Ref Sedge 0	1	0.7500	0.7500
2	Ref Sedge 0	2	0.4000	0.4000
2	Ref Sedge 0	3	3.2500	3.2500
2	Ref Sedge 0	4	1.3000	1.3000
2	Ref Sedge 0	5	6.0000	6.0000
2	Ref Sedge 0	6	1.3000	1.3000
2	Ref Sedge 0	7	2.6000	2.6000
2	Ref Sedge 0	8	0.6000	0.6000
3	Sedge 01	1	0.6000	0.6000
3	Sedge 01	2	0.2000	0.2000
3	Sedge 01	3	1.0000	1.0000
3	Sedge 01	4	0.2000	0.2000
3	Sedge 01	5	2.0000	2.0000
3	Sedge 01	6	2.5000	2.5000
3	Sedge 01	7	0.0000	0.0000
3	Sedge 01	8	0.0000	0.0000
4	Sedge 02	1	0.5000	0.5000
4	Sedge 02	2	2.0000	2.0000
4	Sedge 02	3	1.0000	1.0000
4	Sedge 02	4	2.0000	2.0000
4	Sedge 02	5	0.2500	0.2500
4	Sedge 02	6	5.0000	5.0000
4	Sedge 02	7	0.6000	0.6000
4	Sedge 02	8	0.2500	0.2500

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CES Control	8	1.500	5.500	2.938
2	Ref Sedge 0	8	0.400	6.000	2.025
3	Sedge 01	8	0.000	2.500	0.813
4	Sedge 02	8	0.250	5.000	1.450

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CES Control	1.817	1.348	0.477	45.89
2	Ref Sedge 0	3.569	1.889	0.668	93.29
3	Sedge 01	0.916	0.957	0.338	117.76
4	Sedge 02	2.559	1.600	0.566	110.33

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	19.536	6.512	2.940
Within (Error)	42	62.023	2.215	
Total	31	81.559		

Critical F value = 2.95 (0.05,3,42)
Since F < Critical F FAIL TO REJECT Ho: All equal

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CES Control	2.938	2.938		
2	Ref Sedge 0	2.025	2.025	1.226	
3	Sedge 01	0.813	0.813	2.856	*
4	Sedge 02	1.450	1.450	1.999	

Dunnett table value = 2.17 (1 Tailed Value, P=0.05, df=24,3)

Hyalella 42 Day Sediment Phase Bioassay
File: D:\STATS\TOXSTAT\0140B. Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CES Control	8			
2	Ref Sedge 0	8	1.615	55.0	0.912
3	Sedge 01	8	1.615	55.0	2.125
4	Sedge 02	8	1.615	55.0	1.487

42 Day Hyalella Sediment Phase Test Without CES Control

Reproduction:

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 49.304

W = 0.836

Critical W (P = 0.05) (n = 24) = 0.916
Critical W (P = 0.01) (n = 24) = 0.884

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 2.87

Table Chi-square value = 9.21 (alpha = 0.01, df = 2)
Table Chi-square value = 5.99 (alpha = 0.05, df = 2)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

TITLE: Hyalella 42 Day Sediment Phase Test
FILE: 0141b
TRANSFORM: NO TRANSFORMATION NUMBER OF GROUPS: 3

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	Ref Sedge 0	1	0.7500	0.7500
1	Ref Sedge 0	2	0.4000	0.4000
1	Ref Sedge 0	3	3.2500	3.2500
1	Ref Sedge 0	4	1.3000	1.3000
1	Ref Sedge 0	5	6.0000	6.0000
1	Ref Sedge 0	6	1.3000	1.3000

1	Ref Sedge 0	7	2.6000	2.6000
1	Ref Sedge 0	8	0.6000	0.6000
2	Sedge 01	1	0.6000	0.6000
2	Sedge 01	2	0.2000	0.2000
2	Sedge 01	3	1.0000	1.0000
2	Sedge 01	4	0.2000	0.2000
2	Sedge 01	5	2.0000	2.0000
2	Sedge 01	6	2.5000	2.5000
2	Sedge 01	7	0.0000	0.0000
2	Sedge 01	8	0.0000	0.0000
3	Sedge 02	1	0.5000	0.5000
3	Sedge 02	2	2.0000	2.0000
3	Sedge 02	3	1.0000	1.0000
3	Sedge 02	4	2.0000	2.0000
3	Sedge 02	5	0.2500	0.2500
3	Sedge 02	6	5.0000	5.0000
3	Sedge 02	7	0.6000	0.6000
3	Sedge 02	8	0.2500	0.2500

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Ref Sedge 0	8	0.400	6.000	2.025
2	Sedge 01	8	0.000	2.500	0.813
3	Sedge 02	8	0.250	5.000	1.450

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Ref Sedge 0	3.569	1.889	0.668	93.29
2	Sedge 01	0.916	0.957	0.338	117.76
3	Sedge 02	2.559	1.600	0.566	110.33

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	2	5.886	2.943	1.253
Within (Error)	21	49.304	2.348	
Total	23	55.190		

Critical F value = 3.47 (0.05,2,21)
Since F < Critical F FAIL TO REJECT Ho: All equal

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Ref Sedge 0	2.025	2.025		
2	Sedge 01	0.813	0.813	1.583	
3	Sedge 02	1.450	1.450	0.751	

Dunnett table value = 2.03 (1 Tailed Value, P=0.05, df=20,2)

Hyalella 42 Day Sediment Phase Test
File: 0141b Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Ref Sedge 0	8			
2	Sedge 01	8	1.555	76.8	1.213
3	Sedge 02	8	1.555	76.8	0.575

Addendum B

Reference Toxicant Statistics and Data Sheets

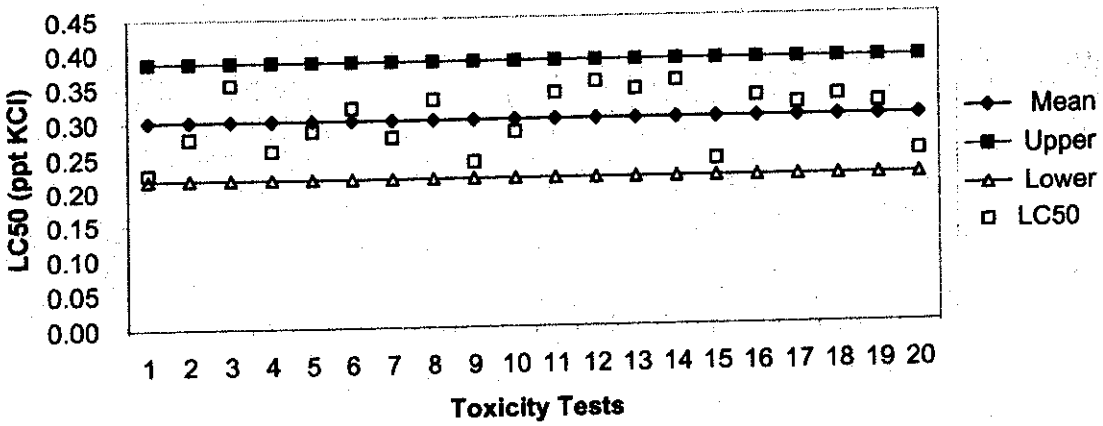
Cosper Environmental Services, Inc
Acute Reference Toxicant Control Chart

Species: *Hyalella azteca*
Toxicant: Potassium Chloride
Period: January/February

Report Generated: 22-Jan-08

Test Sequence	Test Dates	LC50 (ppt)	Mean	Upper Limit	Lower Limit
1	Mar-01	0.226	0.30	0.39	0.20
2	Apr-01	0.277	0.30	0.39	0.20
3	May-01	0.354	0.30	0.39	0.20
4	Jun-01	0.259	0.30	0.39	0.20
5	Jul-01	0.287	0.30	0.39	0.20
6	Aug-01	0.319	0.30	0.39	0.20
7	Sep-01	0.277	0.30	0.39	0.20
8	Oct-01	0.330	0.30	0.39	0.20
9	Nov-01	0.241	0.30	0.39	0.20
10	Feb-02	0.283	0.30	0.39	0.20
11	Mar-02	0.338	0.30	0.39	0.20
12	May-02	0.354	0.30	0.39	0.20
13	Jun-02	0.342	0.30	0.39	0.20
14	Jul-02	0.354	0.31	0.39	0.22
15	Sep-02	0.241	0.30	0.39	0.21
16	Oct-02	0.330	0.30	0.39	0.21
17	Feb-03	0.319	0.30	0.39	0.21
18	Apr-03	0.330	0.30	0.39	0.21
19	Jun-03	0.319	0.30	0.39	0.21
20	Jan-08	0.250	0.30	0.39	0.22

Hyalella azteca Acute Control Chart(LC50)



CT-TOX: BINOMIAL, MOVING AVERAGE, PROBIT, AND SPEARMAN METHODS

SPEARMAN-KARBER

TRIM:	.00%
LC50:	.379
95% LOWER CONFIDENCE:	.345
95% UPPER CONFIDENCE:	.416

CONC. ppt	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
.06	20.	0.	.00	.9537D-04
.13	20.	0.	.00	.9537D-04
.25	20.	0.	.00	.9537D-04
.50	20.	18.	90.00	.2012D-01
1.00	20.	20.	100.00	.9537D-04

THE BINOMIAL TEST SHOWS THAT .25 AND .50 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 99.9798 PERCENT.
AN APPROXIMATE LC50 FOR THIS DATA SET IS .381

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISCALLY SOUND RESULTS.

DATE: 2/6/08 TEST NUMBER: AD-0061 DURATION: 24 hrs
SAMPLE: reftix SPECIES: hyallela

METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	.381	.250	.500	.250
MAA	*******	*******	*******	*******
PROBIT	*******	*******	*******	*******
SPEARMAN	.379	.345	.416	.071

**** = LIMIT DOES NOT EXIST

SPEARMAN-KARBER

TRIM: .00%
LC50: .287
95% LOWER CONFIDENCE: .236
95% UPPER CONFIDENCE: .350

CONC. ppt	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
.06	20.	0.	.00	.9537D-04
.13	20.	5.	25.00	.2069D+01
.25	20.	3.	15.00	.1288D+00
.50	20.	18.	90.00	.2012D-01
1.00	20.	20.	100.00	.9537D-04

THE BINOMIAL TEST SHOWS THAT .25 AND .50 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 99.8510 PERCENT.
AN APPROXIMATE LC50 FOR THIS DATA SET IS .343

RESULTS USING MOVING AVERAGE

SPAN	G	LC50	95% CONFIDENCE LIMIT	
4	.051	.27	.22	.34

****** RESULTS CALCULATED BY PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT
6	1.156	4.24	.01

SINCE THE PROBABILITY IS LESS THAN 0.05,
RESULTS CALCULATED USING THE PROBIT METHOD
PROBABLY SHOULD NOT BE USED.

SLOPE = 3.66
95% CONFIDENCE LIMITS: -.27 AND 7.59

LC50= .28
95% CONFIDENCE LIMITS: 0 AND + INFINITY

LC1 = .06
95% CONFIDENCE LIMITS: 0 AND .16

DATE: 2/6/08 TEST NUMBER: AD-0061 DURATION: 48 hrs
SAMPLE: reftix SPECIES: hyallela

METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	.343	.250	.500	.250
MAA	.274	.223	.341	.119
PROBIT	.278	*******	*******	*******
SPEARMAN	.287	.236	.350	.115

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

**** = LIMIT DOES NOT EXIST

SPEARMAN-KARBER

TRIM:	.00%
LC50:	.259
95% LOWER CONFIDENCE:	.209
95% UPPER CONFIDENCE:	.322

CONC. ppt	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
.06	20.	0.	.00	.9537D-04
.13	20.	5.	25.00	.2069D+01
.25	20.	6.	30.00	.5766D+01
.50	20.	18.	90.00	.2012D-01
1.00	20.	20.	100.00	.9537D-04

THE BINOMIAL TEST SHOWS THAT .13 AND .50 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 97.9104 PERCENT.
AN APPROXIMATE LC50 FOR THIS DATA SET IS .310

RESULTS USING MOVING AVERAGE

SPAN	G	LC50	95% CONFIDENCE LIMIT	
4	.051	.25	.20	.31

****** RESULTS CALCULATED BY PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT
6	.102	1.00	.10

SLOPE = 3.65
95% CONFIDENCE LIMITS: 2.48 AND 4.82

LC50= .25
95% CONFIDENCE LIMITS: .20 AND .32

LC1 = .06
95% CONFIDENCE LIMITS: .03 AND .09

DATE: 2/6/08 TEST NUMBER: AD-0061 DURATION: 72 hrs
SAMPLE: reftix SPECIES: hyallela

METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	.310	.125	.500	.375
MAA	.251	.203	.311	.108
PROBIT	.254	.202	.319	.117
SPEARMAN	.259	.209	.322	.113

**** = LIMIT DOES NOT EXIST

SPEARMAN-KARBER

TRIM:	.00%
LC50:	.250
95% LOWER CONFIDENCE:	.201
95% UPPER CONFIDENCE:	.312

CONC. ppt	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
.06	20.	0.	.00	.9537D-04
.13	20.	6.	30.00	.5766D+01
.25	20.	6.	30.00	.5766D+01
.50	20.	18.	90.00	.2012D-01
1.00	20.	20.	100.00	.9537D-04

THE BINOMIAL TEST SHOWS THAT .06 AND .50 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 99.9798 PERCENT.
AN APPROXIMATE LC50 FOR THIS DATA SET IS .310

RESULTS USING MOVING AVERAGE

SPAN	G	LC50	95% CONFIDENCE LIMIT	
4	.051	.24	.20	.30

****** RESULTS CALCULATED BY PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT
6	.694	2.61	.05

SINCE THE PROBABILITY IS LESS THAN 0.05,
RESULTS CALCULATED USING THE PROBIT METHOD
PROBABLY SHOULD NOT BE USED.

SLOPE = 3.47
95% CONFIDENCE LIMITS: .58 AND 6.35

LC50= .25
95% CONFIDENCE LIMITS: .09 AND .71

LC1 = .05
95% CONFIDENCE LIMITS: .00 AND .12

DATE: 2/6/08
SAMPLE: reftix

TEST NUMBER: AD-0061 DURATION: 96 hrs
SPECIES: hyallela

METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	.310	.063	.500	.437
MAA	.245	.198	.302	.105
PROBIT	.246	.085	.706	.621
SPEARMAN	.250	.201	.312	.111

**** = LIMIT DOES NOT EXIST

Hyalella azteca

~~*Pimephales promelas*~~ 96hr. Fresh Water Acute Toxicity Test

CLIENT: **Reftox Hyalella** TEST ID: **AD-0061** TEST DATES: **01/31/08-02/02/08**

INITIAL:

Conc. (%) Control	Time: / Date:	2:40 BK				SM		JP		BK		BK
		0h				24h		48h		72h		96h
Survival	A	5				5		5		5		5
	B	5				5		5		5		5
	C	5				5		5		5		5
	D	5				5		5		5		5
pH	A	7.78				7.85		7.83		7.89		7.98
	B	7.78				7.85		7.83		7.89		7.98
	C	7.78				7.85		7.83		7.89		7.98
	D	7.78				7.85		7.83		7.89		7.98
D.O. (mg/l)	A	8.1				7.8		7.8		7.9		7.9
	B	8.1				7.8		7.8		7.9		7.9
	C	8.1				7.8		7.8		7.9		7.9
	D	8.1				7.8		7.8		7.9		7.9
Conductivity (µS)	A	300										340
	B	300										340
	C	300										340
	D	300										340
Temp. (°C)	A	23				23.0		23.1		23.0		23.1
	B	23				23.0		23.1		23.0		23.1
	C	23				23.0		23.1		23.0		23.1
	D	23				23.0		23.1		23.0		23.1
Hardness (mg/l)	A	92										96
	B	92										96
	C	92										96
	D	92										96
Alkalinity (mg/l)	A	64										62
	B	64										62
	C	64										62
	D	64										65
Final Temp (°C)	A											
	B											
	C											
	D											

Hyalella azteca

~~*Pimephales promelas*~~ 96hr. Fresh Water Acute Toxicity Test

CLIENT: **Reftox Hvalella** TEST ID: **AD-0061** TEST DATES: **01/31/08-02/02/08**

Conc. (%) **0.063ppt**		<----------Hour---------->										
		0h				**24h**		**48h**		**72h**		**96h**
Survival	A	5				5		5		5		5
	B	5				5		5		5		5
	C	5				5		5		5		5
	D	5				5		5		5		5
pH	A	7.76				7.88		7.90		7.94		7.96
	B	7.76				7.88		7.90		7.94		7.94
	C	7.76				7.88		7.90		7.94		7.90
	D	7.76				7.88		7.90		7.94		7.94
D.O. (mg/l)	A	7.9				7.6		7.6		7.7		7.6
	B	7.9				7.6		7.6		7.7		7.6
	C	7.9				7.6		7.6		7.7		7.6
	D	7.9				7.6		7.6		7.7		7.6
Conductivity (µS)	A	470				500						500
	B	470				500						500
	C	470				500		/		/		500
	D	470				500		/		/		500
Temp. (°C)	A	23				23.0		23.1		23.0		23.1
	B	23				23.0		23.1		23.0		23.1
	C	23				23.0		23.1		23.0		23.1
	D	23				23.0		23.1		23.0		23.1
Hardness (mg/l)	A											
	B											
	C											
	D											
Alkalinity (mg/l)	A											
	B											
	C											
	D											
Final Temp (°C)	A											
	B											
	C											
	D											

Hyalella azteca

~~*Pimephales promelas*~~ 96hr. Fresh Water Acute Toxicity Test

CLIENT: **Reftox Hyalella** TEST ID: **AD-0061** TEST DATES: **01/31/08-02/02/08**

Conc. (%) **0.125ppt**		<----------Hour---------->										
		0h				**24h**		**48h**		**72h**		**96h**
Survival	A	5				5		4		4		4
	B	5				5		3		3		3
	C	5				5		4		4		4
	D	5				5		4		4		3
pH	A	7.86				7.94		7.88		7.89		7.91
	B	7.86				7.94		7.88		7.89		7.91
	C	7.86				7.94		7.88		7.89		7.91
	D	7.86				7.94		7.88		7.89		7.91
D.O. (mg/l)	A	7.5				7.4		7.5		7.4		7.4
	B	7.5				7.4		7.5		7.4		7.4
	C	7.5				7.4		7.5		7.4		7.4
	D	7.5				7.4		7.5		7.4		7.4
Conductivity (µS)	A	559										560
	B	559										560
	C	559										560
	D	559										560
Temp. (°C)	A	23				23.0		23.0		23.1		23.1
	B	23				23.0		23.0		23.1		23.1
	C	23				23.0		23.0		23.1		23.1
	D	23				23.0		23.0		23.1		23.1
Hardness (mg/l)	A											
	B											
	C											
	D											
Alkalinity (mg/l)	A											
	B											
	C											
	D											
Final Temp (°C)	A											
	B											
	C											
	D											

Pimephales promelas 96hr. Fresh Water Acute Toxicity Test

CLIENT: ~~Reftox Hyalella~~ Hyalella azteca TEST ID: **AD-0061** TEST DATES: **01/31/08-02/02/08**

Conc. (%) **0.250ppt**		<----------Hour---------->										
		0h				**24h**		**48h**		**72h**		**96h**
Survival	A	5				5		5		4		4
	B	5				5		3		3		3
	C	5				5		4		3		3
	D	5				5		5		4		4
pH	A	7.90				7.98		7.85		7.90		7.96
	B	7.90				7.98		7.85		7.90		7.96
	C	7.90				7.98		7.85		7.90		7.96
	D	7.90				7.98		7.85		7.90		7.96
D.O. (mg/l)	A	7.6				7.2		7.2		7.3		7.4
	B	7.6				7.2		7.2		7.3		7.4
	C	7.6				7.2		7.2		7.3		7.4
	D	7.6				7.2		7.2		7.3		7.4
Conductivity (µS)	A	830										910
	B	830										910
	C	830										910
	D	830										910
Temp. (°C)	A	23				23.1		23.0		23.0		23.1
	B	23				23.1		23.0		23.0		23.1
	C	23				23.1		23.0		23.0		23.1
	D	23				23.1		23.0		23.0		23.1
Hardness (mg/l)	A											
	B											
	C											
	D											
Alkalinity (mg/l)	A											
	B											
	C											
	D											
Final Temp (°C)	A											
	B											
	C											
	D											

Hyalella azteca

Pimephales promelas 96hr. Fresh Water Acute Toxicity Test

CLIENT: **Reftox Hyalella** TEST ID: **AD-0061** TEST DATES: **01/31/08-02/02/08**

Conc. (%) **0.50ppt**		<----------Hour---------->										
		0h				**24h**		**48h**		**72h**		**96h**
Survival	A	5						1		1		1
	B	5				0		0		—		—
	C	5				0		0		—		—
	D	5				1		1		1		0
pH	A	7.93				8.04		7.91		7.96		7.97
	B	7.93				8.04		7.91		—		~~7.99~~
	C	7.93				8.04		7.91		—		~~7.99~~
	D	7.93				8.04		7.91		7.96		7.95
D.O. (mg/l)	A	7.5				7.2		7.2		7.1		7.0
	B	7.5				7.2		7.2		~~7.1~~		~~7.0~~
	C	7.5				7.2		7.2		~~7.1~~		~~7.0~~
	D	7.5				7.2		7.2		7.1		7.0
Conductivity (µS)	A	1200										1200
	B	1200										~~1200~~
	C	1200										~~1200~~
	D	1200										1200
Temp. (°C)	A	23				23.1		23.0		23.1		23.1
	B	23				23.1		23.0		~~23.1~~		~~23.1~~
	C	23				23.1		23.0		~~23.1~~		~~23.1~~
	D	23				23.1		23.0		23.1		23.1
Hardness (mg/l)	A											
	B											
	C											
	D											
Alkalinity (mg/l)	A											
	B											
	C											
	D											
Final Temp (°C)	A											
	B											
	C											
	D											

Hyallela azteca

Pimephales promelas 96hr. Fresh Water Acute Toxicity Test

CLIENT: **Reftox Hyalella** TEST ID: **AD-0061** TEST DATES: **01/31/08-02/02/08**

Conc. (%) 1.0ppt		<----------Hour---------->											
		0h				24h		48h		72h		96h	
Survival	A	5				0		0					
	B	5				0		0					
	C	5				0		0					
	D	5				0		0					
pH	A	8.06				8.12							
	B	8.06				8.12							
	C	8.06				8.12							
	D	8.06				8.12							
D.O. (mg/l)	A	7.6				7.2							
	B	7.6				7.2							
	C	7.6				7.2							
	D	7.6				7.2							
Conductivity (µS)	A	2.39				2.56							
	B	2.39				2.56							
	C	2.39				2.56							
	D	2.39				2.56							
Temp. (°C)	A	23				23.1							
	B	23				23.1							
	C	23				23.1							
	D	23				23.1							
Hardness (mg/l)	A	96				100							
	B	96				100							
	C	96				100							
	D	96				100							
Alkalinity (mg/l)	A	160				164							
	B	160				164							
	C	160				164							
	D	160				164							
Final Temp (°C)	A												
	B												
	C												
	D												

000034

Addendum C

Test Results as Computer Generated Data Sheets

Cosper Environmental Services

***Hyalella azteca* 28 Day Sediment Phase Bioassay Test**

Sediment: CES Control CES#: AD-140

Test Start: 1/31/08
Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level
5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Survival

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	10																												10
B	10																												10
C	10																												10
D	10																												10
E	10																												10
F	10																												10
G	10																												10
H	10																												10
I	10																												10
J	10																												10
K	10																												10
L	10																												

Organism Observations

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
B		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
C		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
D		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3	6
E		6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
F		6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	3
G		6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	7	6	6	6	6	6	6	3	3	6	6
H		6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6
I		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6
J		7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6
K		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
L		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6*	6	6	7	6	6	6	6	6	6	6	6

Temperature (°C)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	23.2																												23.2
B	23.2																												23.7
C	23.2																												22.9
D	23.2																												23.0
E	23.2																												23.1
F	23.2	22.8	23.0	23.6	23.7	22.5	23.2	22.5	22.5	22.5	23.1	19.5	22.4	23.2	23.3	23.4	21.5	23.0	23.9	23.9	22.4	23.2	24.5	23.8	23.6	24.4	23.5	23.2	23.6
G	23.2																												23.5
H	23.2																												23.4
I	23.2																												23.4
J	23.2																												23.0
K	23.2																												22.8
L	23.2																												22.9

pH (mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.56				7.23		7.60		7.53			7.60		7.68		7.68			7.66		7.66		7.68			7.88			7.79
B	7.50				7.21		7.65		7.56			7.64		7.68		7.65			7.65		7.66		7.75			7.87			7.80
C	7.56				7.28		7.67		7.56			7.66		7.68		7.63			7.66		7.64		7.79			7.88			7.80
D	7.58				7.30		7.67		7.56			7.68		7.70		7.65			7.66		7.65		7.83			7.86			7.81
E	7.56				7.28		7.67		7.56			7.67		7.72		7.65			7.68		7.66		7.85			7.87			7.82
F	7.56				7.27		7.67		7.58			7.68		7.72		7.63			7.69		7.66		7.85			7.88			7.79
G	7.48				7.24		7.66		7.56			7.66		7.72		7.73			7.68		7.66		7.80			7.88			7.78
H	7.48				7.21		7.53		7.55			7.62		7.72		7.73			7.66		7.68		7.81			7.87			7.80
I	7.48				7.28		7.53		7.55			7.67		7.70		7.73			7.66		7.68		7.90			7.86			7.80
J	7.51				7.20		7.50		7.55			7.68		7.70		7.69			7.68		7.66		7.79			7.87			7.81
K	7.54				7.24		7.50		7.55			7.68		7.68		7.67			7.69		7.68		7.83			7.88			7.82
L	7.54				7.23		7.55		7.55			7.68		7.70		7.69			7.67		7.68		7.84			7.89			7.83

Cosper Enviro....ental Services

***Hyalella azteca* 28 Day Sediment Phase Bioassay Test**

Sediment: CES Control CES#: AD-140 Test Start: 1/31/08

Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

D.O. (>2.5 mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	6.1				6.4		4.7		6.6			6.5		5.1		3.4			4.1		4.5		6.3			6.3			6.0
B	6.2				6.4		4.5		6.7			6.5		5.0		3.4			4.0		4.5		6.4			6.3			6.0
C	6.1				6.3		4.7		6.8			6.6		4.9		3.3			4.0		4.4		6.5			6.3			5.9
D	6.0				6.3		4.9		6.6			6.6		5.0		3.3			4.1		4.5		6.4			6.4			5.9
E	5.9				6.2		5.0		6.4			6.6		5.0		3.4			4.0		4.5		6.3			6.4			5.8
F	5.9				6.3		4.6		6.5			6.5		5.0		3.4			4.0		4.4		6.3			6.3			5.7
G	6.0				6.3		4.7		6.5			6.5		5.1		3.4			4.0		4.5		6.4			6.3			5.7
H	6.0				6.4		4.4		6.7			6.5		5.0		3.3			4.0		4.5		6.2			6.4			6.1
I	6.1				6.3		4.9		6.7			6.5		5.0		3.3			4.0		4.5		6.2			6.3			6.1
J	6.0				6.3		4.8		6.8			6.6		5.0		3.4			4.0		4.5		6.2			6.4			6.2
K	6.1				6.3		4.8		6.6			6.5		5.0		3.4			4.0		4.5		6.2			6.3			6.1
L	6.1				6.3		4.5		6.5			6.5		5.0		3.4			4.0		4.5		6.1			6.4			6.1

Conductivity (µ)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	186							329							305							298							300
B	187							338							320							300							310
C	187							320							325							300							315
D	185							340							321							299							315
E	186							350							326							300							298
F	180							347							329							300							298
G	193							344							313							299							310
H	195							345							317							300							307
I	199							340							321							299							308
J	186							390							322							300							310
K	187							398							321							300							310
L	180							330							326							300							320

Summary Results

Replicate	Survival Final	pH (mg/L) Initial	pH (mg/L) Final	D.O. (mg/L) Initial	D.O. (mg/L) Final	Conductivity (µ) Initial	Conductivity (µ) Final	Alkalinity (mg/L) Initial	Alkalinity (mg/L) Final
A	10	7.56	7.79	6.1	6.0	186	300	58	64
B	10	7.50	7.80	6.2	6.0	187	310	Hardness (mg/L)	
C	10	7.56	7.80	6.1	5.9	187	315	100	96
D	10	7.58	7.81	6.0	5.9	185	315	Ammonia (mg/L)	
E	10	7.56	7.82	5.9	5.8	186	298	0.03	1.72
F	10	7.56	7.79	5.9	5.7	180	298		
G	10	7.48	7.78	6.0	5.7	193	310		
H	10	7.48	7.80	6.0	6.1	195	307		
I	10	7.48	7.80	6.1	6.1	199	308		
J	10	7.51	7.81	6.0	6.2	186	310		
K	10	7.54	7.82	6.1	6.1	187	310		
L	10	7.54	7.83	6.1	6.1	180	320		

Weight (mg)

Rep	Survival	Pan ID	Tare Wt. (g)	Total Wt. (g)	Difference (g)	Avg. Dry Wt. Per Surviving Org.(mg)
I	10	67	0.01678	0.01786	0.00108	0.11
J	10	68	0.01381	0.01499	0.00118	0.12
K	10	69	0.01455	0.01561	0.00106	0.11
L	10	70	0.01358	0.01488	0.00130	0.13

Cosper Environmental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: CES Control CES#: AD-140

Test Start: 2/29/08

Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement *

Organism Observations

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	3,5	3,5	3,5	3	3	1,3	1	3	1,4	3	3,4	3	3	3
B	1,3	1,4	1,3	3	3	1,3	1	3	1,4	1,4	1,4	3	1,3	1,3
C	1,3	3,5	1,3	1,3	3	1,3	1	3,4	1,4	1,4	1,4	1,3	1,3	1,3
D	3,4,5	3,5	3,5	1,3	3	3	1	3	1,3	1,3	1,3	1,3	1,3	3
E	1,3,5	3	3	3	3	3	1	3,4	1,3	1,3	1,3	3	3	3
F	1,3,4	1,3	1	3	3	3	1,3	3,4	1,3,4	1,3	1,4	3	1,3	3
G	3,5	3,5	1,3	1,3	3	3	1,3	3	3	3	1,3	3	1,3	3
H	1,3	1,3,5	1,3	3	1,3	1,3	1,3	3	3	3	1,4	3	1,3	3
I														
J														
K														
L														

Temperature (°C)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	22.4	23.1	23.6	22.5	22.3	23.2	23.3	23.5	23.7	23.6	23.5	23.6	23.3	23.3
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														

D.O. (>2.5 mg/L)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	8.0			8.0		7.6		6.4			6.4		6.4	
B	8.0			7.9		7.6		6.4			5.3		6.6	
C	7.9			7.8		7.4		6.5			5.1		6.9	
D	7.9			7.7		7.6		6.5			5.2		7.3	
E	8.0			7.8		7.4		6.5			6.0		7.4	
F	8.0			7.8		7.4		6.4			6.2		7.4	
G	8.0			7.9		7.4		6.3			6.0		7.8	
H	8.0			7.8		7.7		6.5			5.6		7.6	
I														
J														
K														
L														

Conductivity (µ)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A							310							381
B							310							385
C							300							386
D							305							389
E							300							387
F							310							389
G							315							391
H							315							394
I														
J														
K														
L														

Cosper Environmental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: CES Control CES#: AD-140 Test Start: 2/29/08

Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

pH (mg/L)

Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	7.80			7.84		8.00		7.62			7.70		8.01	
	B	7.80			7.83		8.01		7.66			7.71		8.02	
	C	7.81			7.83		8.01		7.70			7.76		8.05	
	D	7.80			7.83		8.00		7.70			7.70		8.00	
	E	7.82			7.84		8.01		7.71			7.74		8.06	
	F	7.80			7.84		8.00		7.71			7.72		8.04	
	G	7.80			7.83		8.00		7.72			7.71		8.00	
	H	7.80			7.83		7.99		7.72			7.76		8.00	
	I														
	J														
	K														
	L														

Reproduction

Day		Surviving Adults (Day 35)	Reproduction (Day 35)	Surviving Adults (Day 42)	Male Female	Reproduction (Day 42)	Total Reproduction	Number of Neonates per Female
Replicate	A	6	6	4	1.3	0	6	2
	B	10	6	5	1.4	2	8	2
	C	7	10	5	1.4	4	14	3.5
	D	7	9	3	1.2	2	11	5.5
	E	6	2	4	3.1	1	3	3
	F	9	20	6	1.5	0	20	4
	G	5	0	2	1.1	2	2	2
	H	6	0	4	2.2	3	3	1.5
	I							
	J							
	K							
	L							
							Total	
							67	

Summary Results

		Survival	pH (mg/L)		DO (mg/L)		Conductivity (µ)		Alkalinity (mg/L)	
		Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Replicate	A	4	7.80	8.01	8.0	6.4	310	381	64	40
	B	5	7.80	8.02	8.0	6.6	310	385	Hardness (mg/L)	
	C	5	7.81	8.05	7.9	6.9	300	386	100	92
	D	3	7.80	8.00	7.9	7.3	305	389	Ammonia (mg/L)	
	E	4	7.82	8.06	8.0	7.4	300	387	1.61	0.12
	F	6	7.80	8.04	8.0	7.4	310	389		
	G	2	7.80	8.00	8.0	7.8	315	391		
	H	4	7.80	8.00	8.0	7.6	315	394		
	I									
	J									
	K									
	L									

000038

Cosper Environmental Services

***Hyalella azteca* 28 Day Sediment Phase Bioassay Test**

Sediment: Reference Sedge 0 CES#: AD-141

Test Start: 1/31/08
Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level
5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Survival

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	10																												8
B	10																												9
C	10																												10
D	10																												8
E	10																												8
F	10																												6
G	10																												5
H	10																												10
I	10																												8
J	10																												8
K	10																												9
L	10																												8

Organism Observations

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6
B		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6
C		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	3	6
D		6	6	6	3	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	3	6	3	2	6	3	3
E		6	6	6	6	6	6	6	6	6	6	6	6	6	3	4	6	6	4	6	6	6	6	3	6	6	6	7	7
F		6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	3	6
G		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	3	6	6	6	6	6	6	7	6
H		6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	3	6	6	6	3	7
I		6	6	7	7	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	3	6	6	6	6	3	3	3	7	6
J		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	7	6	6	6	6	6	6	6	6	6	3	6
K		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	3	3	3
L		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	7	3

Temperature (°C)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	23.3																												23.1
B	23.3																												23.2
C	23.3																												23.3
D	23.3																												23.1
E	23.3																												23.2
F	23.3	22.9	23.1	23.4	23.6	22.5	22.6	22.6	22.3	22.4	22.6	22.6	22.4	22.3	22.7	23.4	22.5	23.0	23.9	23.4	22.3	22.9	24.0	24.0	24.0	24.0	23.7	23.7	23.4
G	23.3																												23.7
H	23.3																												23.8
I	23.3																												23.7
J	23.3																												23.2
K	23.3																												23.5
L	23.3																												23.5

p.H. (mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.69				7.77		7.96		7.77			7.95		7.96		7.94			7.77		8.04		8.07			8.01			8.00
B	7.71				7.79		8.15		7.81			7.99		7.96		8.02			7.78		8.04		8.01			8.02			7.99
C	7.79				7.82		8.15		7.62			8.02		7.96		7.97			7.77		8.05		7.99			8.00			8.00
D	7.75				7.85		8.21		7.67			8.08		7.95		7.91			7.79		8.05		7.98			8.01			8.00
E	7.82				7.82		8.20		7.71			8.10		7.96		7.94			7.80		8.06		7.99			8.03			8.05
F	7.78				7.87		8.17		7.74			8.10		7.95		8.03			7.80		8.04		8.01			8.04			8.07
G	7.76				7.89		8.18		7.74			8.15		7.95		7.99			7.80		8.06		8.07			8.01			8.00
H	7.80				7.83		8.18		7.74			8.15		7.95		7.92			7.80		8.05		8.04			8.02			8.03
I	7.84				7.81		8.18		7.74			8.10		7.95		7.92			7.79		8.08		8.11			8.04			8.04
J	7.81				7.82		8.26		7.73			8.10		7.96		7.96			7.79		8.08		8.07			8.03			8.00
K	7.77				7.82		8.26		7.75			8.11		7.96		7.90			7.80		8.07		8.05			8.02			7.98
L	7.69				7.78		8.27		7.75			8.14		7.96		7.93			7.80		8.06		8.04			8.02			7.88

Cosper Environmental Services

***Hyalella azteca* 28 Day Sediment Phase Bioassay Test**

Sediment: Reference Sedge 0 CES#: AD-141 Test Start: 1/31/08

Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

D.O. (>2.5 mg/L)

Day		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate	A	4.9				5.1		2.7		5.5			4.9		3.4		2.7			3.0		3.4		3.0			5.4			6.0
	B	4.9				5.1		2.8		5.6			5.0		3.4		2.7			3.0		3.4		2.9			5.4			5.7
	C	5.0				5.0		2.7		5.5			5.0		3.4		2.6			3.0		3.3		2.7			5.4			5.6
	D	4.9				5.2		2.9		5.4			5.0		3.5		2.6			2.9		3.3		3.3			5.3			5.6
	E	5.0				5.1		2.6		5.4			4.9		3.5		2.7			2.9		3.4		3.0			5.3			5.6
	F	5.0				5.1		2.8		5.5			4.8		3.4		2.6			3.0		3.4		3.0			5.3			5.5
	G	5.0				5.2		2.9		5.6			4.9		3.4		2.6			2.9		3.3		2.9			5.4			5.7
	H	4.9				5.2		3.0		5.6			5.0		3.5		2.6			3.0		3.3		3.0			5.3			5.9
	I	4.8				5.2		3.0		5.5			4.9		3.5		2.6			3.0		3.3		3.0			5.4			6.0
	J	5.0				5.2		2.8		5.4			4.9		3.4		2.6			3.3		3.3		2.7			5.3			5.5
	K	5.0				5.2		2.7		5.4			4.8		3.4		2.6			3.0		3.3		2.9			5.3			5.6
	L	5.0				5.2		2.7		5.5			4.9		3.4		2.6			3.0		3.3		3.0			5.3			5.6

Conductivity (µ)

Day		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate	A	615							400							415							364							355
	B	552							410							414							369							361
	C	557							320							414							365							370
	D	398							370							413							365							364
	E	500							380							406							365							360
	F	448							390							398							365							360
	G	468							390							407							368							367
	H	600							470							416							367							368
	I	557							520							390							368							370
	J	590							210							410							370							370
	K	580							445							395							370							358
	L	498							499							290							368							360

Summary Results

		Survival	pH (mg/L)		D.O. (mg/L)		Conductivity (µ)		Alkalinity (mg/L)	
		Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Replicate	A	8	7.69	8.00	4.9	6.0	615	355	60	62
	B	9	7.71	7.99	4.9	5.7	552	361	Hardness (mg/L)	
	C	10	7.79	8.00	5.0	5.6	557	370	100	84
	D	8	7.75	8.00	4.9	5.6	398	364	Ammonia (mg/L)	
	E	8	7.82	8.05	5.0	5.6	500	360	0.04	1.55
	F	6	7.78	8.07	5.0	5.5	448	360		
	G	5	7.76	8.09	5.0	5.7	468	367		
	H	10	7.80	8.03	4.9	5.9	600	368		
	I	8	7.84	8.04	4.8	6.0	557	370		
	J	8	7.81	8.00	5.0	5.5	590	370		
	K	9	7.77	7.98	5.0	5.6	580	358		
	L	8	7.69	7.88	5.0	5.6	498	360		

Weight (mg)

Rep	Survival	Pan ID	Tare Wt. (g)	Total Wt. (g)	Difference (g)	Avg. Dry Wt. Per Surviving Org.(mg)
B	9	79	0.01423	0.01827	0.00404	0.45
C	10	80	0.01591	0.01937	0.00346	0.35
H	10	81	0.01291	0.01595	0.00304	0.30
K	9	82	0.01466	0.01854	0.00388	0.43

Cosper Environmental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: Reference Sedge 0 CES#: AD-141 Test Start: 2/29/08

Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Organism Observations

Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate A	3,1	3	3,1	1,3	3	1,3	1,3	1,3	1,3,4	1,4	1,3	1,3	1,3	1,3
B														
C														
D	3	3	3	3	3	3	3	3	1,3,4	3,4	3,4	1,3	1,4	1,4
E	5,1	1,3	3	3	1,3	3	3	1,3	1,3,4	1,3	1,3	3	3	3
F	3	3	3,5	3	1,3	3	3	3	1,3	1,3	1,3	3	3	3
G	3,1	3,5	3,5	3,5	3	1,3	1,3	3	1,3	1,3	1,3	3	3	3
H														
I	3,1	3,1	3,1	3,5	3	3	3	1,3	1,3,4	1,3	1,4	1,4	1,4	1,4
J	3	3,1	3,1	1,3	3,4	3,4	3,4	3	1,3	1,3	1,4	1,3	3	3
K														
L	3	4,3	4,5	3,5	1,3	1,3	3,4	1,3	1,3	1,3	1,4	1,3	3	3

Temperature (°C)

Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate A	22.4	23.2	23.4	22.4	22.3	23.3	23.3	24.0	23.5	23.6	22.5	23.6	23.3	23.3
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														

D.O. (>2.5 mg/L)

Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate A	8.0			7.9		7.6		6.3			5.9		6.6	
B														
C														
D	8.0			7.8		7.6		6.4			6.6		6.2	
E	8.0			7.9		7.7		6.4			6.4		6.2	
F	8.0			7.9		7.6		6.5			6.4		6.0	
G	7.9			7.9		7.6		6.7			6.6		6.7	
H														
I	8.0			8.0		7.9		6.5			6.6		6.7	
J	8.0			8.0		7.6		6.4			6.4		6.5	
K														
L	8.0			7.9		7.6		6.4			6.6		6.8	

Conductivity (µ)

Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate A							290							388
B														
C														
D							310							385
E							310							381
F							300							387
G							300							387
H														
I							310							383
J							310							384
K														
L							310							390

Cosper Envi ental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: Reference Sedge 0 CES#: AD-141

Test Start: 2/29/08

Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement *

p.H. (mg/L)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	7.84			7.86		7.99		7.83			7.86		8.00	
B														
C														
D	7.84			7.87		8.00		7.85			7.94		8.02	
E	7.83			7.87		8.00		7.87			7.92		8.02	
F	7.83			7.85		8.01		7.89			7.94		8.04	
G	7.84			7.86		8.01		7.83			7.92		8.00	
H														
I	7.84			7.87		7.99		7.81			7.86		7.99	
J	7.83			7.87		7.99		7.81			7.89		7.98	
K														
L	7.84			7.86		7.80		7.81			7.89		7.98	

Reproduction

Replicate	Day	Surviving Adults (Day 35)	Reproduction (Day 35)	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42)	Total Reproduction	Number of Neonates per Female
A		7	1	5	1.4	2	3	0.75
B								
C								
D		6	2	6	1.5	0	2	0.4
E		7	12	6	2.4	1	13	3.25
F		4	2	4	1.3	2	4	1.3
G		5	2	4	3.1	4	6	6
H								
I		8	3	5	2.3	1	4	1.3
J		8	3	8	2.6	13	16	2.6
K								
L		7	2	6	3.3	0	2	0.6

Total
50

Summary Results

Replicate	Survival Final	p.H. (mg/L) Initial	p.H. (mg/L) Final	D.O. (mg/L) Initial	D.O. (mg/L) Final	Conductivity (µ) Initial	Conductivity (µ) Final	Alkalinity (mg/L) Initial	Alkalinity (mg/L) Final
A	5	7.84	8.00	8.0	6.6	290	388	40	44
B								Hardness (mg/L)	
C								220	208
D	6	7.84	8.02	8.0	6.2	310	385	Ammonia (mg/L)	
E	6	7.83	8.02	8.0	6.2	310	381	1.53	0.10
F	4	7.83	8.04	8.0	6.0	300	387		
G	4	7.84	8.00	7.9	6.7	300	387		
H									
I	5	7.84	7.99	8.0	6.7	310	383		
J	8	7.83	7.98	8.0	6.5	310	384		
K									
L	6	7.84	7.98	8.0	6.8	310	390		

Cosper Envir ntal Services

Hyalella azteca 28 Day Sediment Phase Bioassay Test

Sediment: Sedge 01 CES#: AD-142

Test Start: 1/31/08

Test End: 2/28/08

Organism Observation Keys:

0- No effect noted; 1- Erratic Swimming Behavior; 2- Sediment Avoidance; 3- Float on surface, on sides; 4- Depressed activity level; 5- Contact sediment but don not burrow; 6- Unable to Observe Organism; 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Survival

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	10																												5
B	10																												8
C	10																												9
D	10																												10
E	10																												5
F	10																												8
G	10																												8
H	10																												9
I	10																												6
J	10																												7
K	10																												7
L	10																												7

Organisms Observations

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6
B		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6
C		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6
D		6	6	6	3	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	3	6	7
E		6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	3	3	3
F		6	6	6	6	6	6	6	6	6	6	6	6	6	3	4	6	6	4	6	6	6	6	3	6	3	6	7	7
G		6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	3	6	6	7	6
H		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	3	6	6	6	6	6	6	3	3
I		6	6	7	7	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	7	6
J		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	3	6	6	6	3	7
K		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	3	3	7	6
L		6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	3	6

Temperature (°C)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	22.9																												23.0
B	22.9																												23.1
C	22.9																												23.0
D	22.9																												23.2
E	22.9																												23.5
F	22.9	22.9	23.2	23.5	23.5	22.5	22.9	22.6	22.3	22.4	24.0	23.5	22.5	23.4	23.6	23.4	22.7	22.0	23.8	23.4	22.4	23.1	24.0	24.0	23.6	23.4	23.9	23.3	22.9
G	22.9																												23.8
H	22.9																												23.5
I	22.9																												23.4
J	22.9																												23.4
K	22.9																												23.1
L	22.9																												23.0

p.H. (mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.62				7.53		7.69		7.52			7.84		8.06		8.02			8.10		8.08		8.10			7.80			7.79
B	7.66				7.60		7.80		7.61			7.84		8.06		8.02			8.12		8.07		8.05			7.81			7.81
C	7.68				7.64		7.86		7.65			7.88		8.06		8.00			8.10		8.08		8.09			7.82			7.82
D	7.72				7.64		7.90		7.67			7.88		8.06		8.01			8.13		8.10		8.11			7.81			7.85
E	7.78				7.66		7.90		7.69			7.89		8.06		8.01			8.14		8.12		8.07			7.80			7.87
F	7.78				7.69		7.95		7.73			7.89		8.07		8.02			8.15		8.14		8.09			7.80			7.90
G	7.77				7.69		7.95		7.73			7.89		8.07		8.04			8.10		8.12		8.10			7.81			7.79
H	7.80				7.69		7.95		7.73			7.91		8.05		8.03			8.19		8.12		8.09			7.81			7.81
I	7.78				7.69		7.95		7.73			7.91		8.06		8.00			8.12		8.10		8.11			7.80			7.88
J	7.78				7.68		7.95		7.73			7.94		8.06		8.02			8.12		8.11		8.07			7.80			7.91
K	7.76				7.68		7.97		7.72			7.94		8.06		8.02			8.13		8.12		8.07			7.80			7.83
L	7.78				7.68		8.01		7.75			7.99		8.06		8.08			8.12		8.12		8.10			7.80			7.84

Cosper Enviro...ental Services

Hyalella azteca **28 Day Sediment Phase Bioassay Test**

Sediment: Sedge 01 CES#: AD-142

Test Start: 1/31/08

Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

D.O. (>2.5 mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	5.8				5.4		4.2		5.8			5.5		4.1		3.2			3.8		3.9		4.1			5.9			6.0
B	5.7				5.4		4.3		5.7			5.6		4.1		3.3			3.7		3.9		4.3			5.9			5.9
C	5.8				5.4		4.4		5.9			5.6		4.0		3.3			3.8		3.9		4.3			5.8			5.9
D	5.9				5.5		4.2		6.0			5.5		4.0		3.3			3.8		3.8		4.0			5.8			5.7
E	6.0				5.4		4.3		5.5			5.6		4.0		3.3			3.7		3.8		4.1			5.8			6.0
F	5.7				5.5		4.4		5.3			5.6		4.0		3.2			3.7		3.9		4.0			5.9			6.1
G	5.7				5.5		4.5		5.5			5.5		4.0		3.2			3.7		3.9		3.9			5.9			5.7
H	5.8				5.5		4.1		5.9			5.5		4.1		3.2			3.8		3.8		3.9			5.8			5.7
I	5.9				5.5		4.0		5.8			5.5		4.0		3.3			3.7		3.8		3.7			5.8			5.8
J	5.8				5.4		4.5		5.7			5.5		4.0		3.3			3.7		3.9		3.8			5.9			5.8
K	5.8				5.5		4.3		5.6			5.5		4.0		3.3			3.8		3.8		3.7			5.8			5.9
L	5.8				5.5		4.3		5.7			5.5		4.0		3.3			3.8		3.8		3.9			5.8			5.9

Conductivity (µ)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	319							371							350							316							320
B	370							371							351							316							310
C	372							369							362							318							315
D	385							377							353							320							321
E	374							370							370							320							316
F	390							375							348							318							317
G	320							375							281							318							316
H	315							320							352							320							320
I	360							382							354							320							319
J	355							342							356							316							319
K	340							376							344							317							321
L	329							378							346							316							322

Summary Results

Replicate	Survival Final	pH (mg/L) Initial	pH (mg/L) Final	D.O. (mg/L) Initial	D.O. (mg/L) Final	Conductivity (µ) Initial	Conductivity (µ) Final	Alkalinity (mg/L) Initial	Alkalinity (mg/L) Final
A	5	7.62	7.79	5.8	6.0	319	320	58	64
B	8	7.66	7.81	5.7	5.9	370	310	Hardness (mg/L)	
C	9	7.68	7.82	5.8	5.9	372	315	100	88
D	10	7.72	7.85	5.9	5.7	385	321	Ammonia (mg/L)	
E	5	7.78	7.87	6.0	6.0	374	316	0.04	1.40
F	8	7.78	7.90	5.7	6.1	390	317		
G	8	7.77	7.79	5.7	5.7	320	316		
H	9	7.80	7.81	5.8	5.7	315	320		
I	6	7.78	7.88	5.9	5.8	360	319		
J	7	7.78	7.91	5.8	5.8	355	319		
K	7	7.76	7.83	5.8	5.9	340	321		
L	7	7.78	7.84	5.8	5.9	329	322		

Weight (mg)

Rep	Survival	Pan ID	Tare Wt. (g)	Total Wt. (g)	Difference (g)	Avg. Dry Wt. Per Surviving Org.(mg)
C	9	71	0.01427	0.01676	0.00249	0.28
D	10	72	0.01495	0.01686	0.00191	0.19
F	8	73	0.01412	0.01545	0.00133	0.17
H	9	74	0.01395	0.01550	0.00155	0.17

Cosper Environmental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: Sedge 01 CES#: AD-142

Test Start: 2/29/08
Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level
5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Organism Observations

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	1,3	1,3	1,3	1,3	3	3	1,3	1,3	1,3	1,3	1,3,4	1,3	1,3	1,3
B	3,4	5,3	5,3	1,3	1,3	1,3	1,3	3	1,3	1,3	3,4	1,3	1,3	3
C														
D														
E	1,3	3	3	3	3	3	3	3	3	3	1,4	1,3	1,3	1,3
F														
G	3	1,3	3	3	3	3	3	3	3	3	1,4	1,3	1,3	1,3
H														
I	1,3,5	3	3	1,3	1,3	3	3	3	1,3,4	1,3	1,3	3	3	3
J	1,4	3	3	3	3	3	3	3	1,3,4	1,3	1,3	1,3	3	3
K	3,1	1,3	3	1,3	1,3	3	3	1,3	1,3	1,4	1,4	1,3	1,4	1,3
L	1,3	3	3	1,3	3	1,3	1,3	1,3	1,3,4	1,4	1,3	1,4	1,4	1,3

Temperature (°C)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	22.4	23.5	23.3	22.4	22.2	23.3	23.3	24.0	23.5	23.6	23.7	23.7	23.3	23.3
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														

D.O. (>2.5 mg/L)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	8.0			8.0		7.9		6.4			7.6		6.9	
B	8.0			8.0		7.9		6.4			7.6		7.0	
C														
D														
E	8.0			8.1		7.9		6.8			7.0		7.0	
F														
G	8.0			8.1		7.9		6.8			7.0		7.0	
H														
I	7.9			8.1		7.6		6.8			7.4		7.4	
J	8.0			8.1		7.6		6.8			7.4		7.6	
K	8.0			8.1		7.6		6.4			7.0		7.4	
L	8.0			8.1		7.4		6.4			7.4		7.4	

Conductivity (µ)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A							300							378
B							300							382
C														
D														
E							310							387
F														
G							300							387
H														
I							305							387
J							300							388
K							300							384
L							310							386

Cosper Environmental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: Sedge 01 CES#: AD-142

Test Start: 2/29/08

Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement *

p.H. (mg/L)

Replicate \ Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	7.80			7.88		7.92		7.34			7.92		8.04	
B	7.81			7.88		7.92		7.48			7.96		8.06	
C														
D														
E	7.82			7.87		7.96		7.56			7.54		8.02	
F														
G	7.81			7.89		7.96		7.66			7.76		8.00	
H														
I	7.82			7.88		7.96		7.70			7.76		7.98	
J	7.83			7.88		7.96		7.74			7.74		8.00	
K	7.82			7.87		7.96		7.81			7.71		7.90	
L	7.82			7.88		7.96		7.82			7.72		7.95	

Reproduction

Replicate \ Day	Surviving Adults (Day 35)	Reproduction (Day 35)	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42)	Total Reproduction	Number of Neonates per Female
A	5	1	4	1.3	1	2	0.6
B	7	0	6	1.5	1	1	0.2
C							
D							
E	4	0	3	2.1	1	1	1
F							
G	7	0	7	2.5	1	1	0.2
H							
I	4	0	4	3.1	2	2	2
J	5	0	3	1.2	5	5	2.5
K	6	0	6	4.2	0	0	0
L	7	0	5	3.2	0	0	0
						Total	
						12	

Summary Results

Replicate	Survival	p.H. (mg/L)		D.O. (mg/L)		Conductivity (µ)		Alkalinity (mg/L)	
	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
A	4	7.80	8.04	8.0	6.9	300	378	68	76
B	6	7.81	8.06	8.0	7.0	300	382	**Hardness (mg/L)**	
C								164	140
D								**Ammonia (mg/L)**	
E	3	7.82	8.02	8.0	7.0	310	387	1.36	0.10
F									
G	7	7.81	8.00	8.0	7.0	300	387		
H									
I	3	7.82	7.98	7.9	7.4	305	387		
J	3	7.83	8.00	8.0	7.6	300	388		
K	6	7.82	7.90	8.0	7.4	300	384		
L	5	7.82	7.95	8.0	7.4	310	386		

Cosper Envi ental Services

Hyalella azteca 28 D. ...ment Phase Bioassay Test

Sediment: Sedge 02 CES#: AD-143

Test Start: 1/31/08

Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Survival

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	10																												8
B	10																												8
C	10																												9
D	10																												8
E	10																												10
F	10																												7
G	10																												10
H	10																												9
I	10																												9
J	10																												7
K	10																												8
L	10																												9

Organisms Observations

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	3	6	6	6	6	6	6	6	6	6	6
B		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
C		6	6	6	6	6	6	6	6	6	6	3	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
D		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
E		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
F		6	6	6	6	6	6	6	6	6	6	3	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
G		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
H		6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6
I		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	8	3	3	3	3	3	3	6
J		6	7	6	6	6	6	6	6	6	6	3	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	7	6
K		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6
L		6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6	6	6	6	6	6	6

Temperature (°C)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	23.3																												23.0
B	23.3																												23.1
C	23.3																												23.1
D	23.3																												23.5
E	23.3																												23.5
F	23.3	23.0	23.4	23.5	23.7	22.7	22.7	22.8	22.4	22.4	22.6	22.8	22.6	22.3	22.8	23.1	21.7	23.6	23.8	24.5	22.2	23.1	24.5	24.3	24.0	23.7	23.9	23.6	23.2
G	23.3																												23.1
H	23.3																												22.9
I	23.3																												23.3
J	23.3																												23.4
K	23.3																												23.5
L	23.3																												23.7

p.H. (mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.88				7.78		7.92		7.59			8.06		8.04		7.91			8.00		8.04		8.07			8.00			7.99
B	7.91				7.78		8.00		7.64			8.08		8.04		7.96			8.00		8.05		8.09			8.01			7.99
C	7.97				7.80		8.07		7.68			8.08		8.04		8.02			8.01		8.08		8.04			8.00			8.01
D	7.89				7.82		8.09		7.68			8.08		8.04		8.02			8.01		8.08		8.05			8.02			8.04
E	7.84				7.77		8.06		7.68			8.08		8.04		8.22			8.01		8.10		8.05			8.03			7.96
F	7.93				7.81		8.11		7.71			8.04		8.05		8.27			8.03		8.09		8.10			8.03			7.98
G	7.90				7.82		8.11		7.64			8.08		8.05		8.12			8.04		8.08		8.11			8.00			8.01
H	7.96				7.82		8.11		7.64			8.07		8.05		8.10			8.03		8.09		8.11			8.00			8.01
I	7.94				7.82		8.11		7.69			8.10		8.05		8.10			8.04		8.08		8.07			8.00			8.00
J	7.97				7.82		8.10		7.73			8.11		8.04		7.98			8.03		8.08		8.08			8.00			8.00
K	7.96				7.82		8.12		7.76			8.11		8.04		7.98			8.04		8.08		8.08			8.00			7.99
L	7.85				7.84		8.14		7.78			8.10		8.04		8.18			8.04		8.09		8.10			8.01			7.99
																8.02			8.04		8.08		8.03			8.02			

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Cosper Environmental Services

***Hyalella azteca* 28 Day Sediment Phase Bioassay Test**

Sediment: Sedge 02 CES#: AD-143 Test Start: 1/31/08 Test End: 2/28/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

D.O. (>2.5 mg/L)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	6.8				6.1		3.2		6.2			5.7		4.5		3.5			4.3		3.5		3.9			5.3			5.8
B	6.8				6.0		3.5		6.5			5.8		4.4		3.5			4.4		3.5		4.0			5.3			5.7
C	6.9				6.0		3.3		6.4			5.8		4.4		3.5			4.4		3.5		3.9			5.4			5.7
D	6.8				6.0		3.0		6.6			5.7		4.3		3.5			4.3		3.4		3.5			5.3			5.6
E	6.8				6.1		3.1		6.3			5.8		4.4		3.5			4.3		3.5		3.6			5.3			5.6
F	6.9				6.1		3.2		6.5			5.8		4.4		3.5			4.3		3.5		3.5			5.4			5.8
G	6.8				6.1		3.3		6.4			5.7		4.3		3.4			4.4		3.5		3.5			5.3			5.9
H	6.7				6.1		3.3		6.3			5.7		4.5		3.6			4.4		3.4		3.5			5.3			5.9
I	6.6				6.1		3.2		6.5			5.8		4.4		3.5			4.3		3.5		3.7			5.3			5.7
J	6.7				5.9		3.2		6.4			5.7		4.3		3.6			4.3		3.5		3.8			5.4			5.8
K	6.8				5.9		3.2		6.7			5.7		4.3		3.5			4.4		3.5		3.7			5.2			5.8
L	6.8				6.0		3.4		6.6			5.7		4.3		3.5			4.4		3.5		3.7			5.3			5.4

Conductivity (µ)

Replicate	Day 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	382							386							360							323						330
B	406							390							360							325						340
C	398							410							358							325						335
D	394							400							356							325						331
E	329							340							358							325						331
F	345							376							358							326						335
G	301							399							360							327						332
H	405							395							356							328						34
I	350							392							347							328						329
J	378							385							366							328						341
K	401							351							360							329						328
L	397							385							362							329						328

Summary Results

Replicate	Survival Final	pH (mg/L) Initial	pH (mg/L) Final	D.O. (mg/L) Initial	D.O. (mg/L) Final	Conductivity (µ) Initial	Conductivity (µ) Final	Alkalinity (mg/L) Initial	Alkalinity (mg/L) Final
A	8	7.88	7.99	6.8	5.8	382	330	60	64
B	8	7.91	7.99	6.8	5.7	406	340	Hardness (mg/L)	
C	9	7.97	8.01	6.9	5.7	398	335	96	88
D	8	7.89	8.04	6.8	5.6	394	331	Ammonia (mg/L)	
E	10	7.84	7.96	6.8	5.6	329	331	0.03	1.46
F	7	7.93	7.98	6.9	5.8	345	335		
G	10	7.90	8.01	6.8	5.9	301	332		
H	9	7.96	8.01	6.7	5.9	405	34		
I	9	7.94	8.00	6.6	5.7	350	329		
J	7	7.97	8.00	6.7	5.8	378	341		
K	8	7.96	7.99	6.8	5.8	401	328		
L	9	7.85	7.99	6.8	5.4	397	328		

Weight (mg)

Rep	Survival	Pan ID	Tare Wt. (g)	Total Wt. (g)	Difference (g)	Avg. Dry Wt. Per Surviving Org.(mg)
C	9	75	0.01499	0.01686	0.00187	0.21
E	10	76	0.01372	0.01656	0.00284	0.28
G	10	77	0.01476	0.01764	0.00288	0.29
H	9	78	0.01566	0.01750	0.00184	0.20

Cosper Enviro...nental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: Sedge 02 CES#: AD-143 Test Start: 2/29/08
Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level
5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

Organism Observations

Replicate	Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
	A	3	1,3	3	3	3,4	3	1	1,3	1,3	1,3	1,3	1,3	1,3	1,3
	B	3,1	1,3	3	3	1,3	3,4	1	1,4,3	1,4	1,4	1,3	1,3	1,3	1,3
	C														
	D	1,3	4,3	3	3	3,4	3	5	1,4	1,3	1,4	1,4	1,4	1,4	1,4
	E														
	F	3	3	3	3	3	3	3	3	1,4	1,4	1,4	1,4	1,4	1,4
	G														
	H														
	I	1,4,3	1	3	3	3,4	3	3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
	J	4,1	1,3	3	1,3	3,4	3	3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
	K	3	3	3	1,3	3	3	3	3	3	3	3	1,3	1,3	1,3
	L	3,1,5	1,3	3	1,3	3,4	3	3	3	3	3	3	1,4	1,4	1,4

Temperature (°C)

Replicate	Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
	A	22.3	23.3	23.3	22.5	22.4	23.3	23.3	24.0	23.4	23.6	23.6	23.6	23.2	23.3
	B														
	C														
	D														
	E														
	F														
	G														
	H														
	I														
	J														
	K														
	L														

D.O. (>2.5 mg/L)

Replicate	Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
	A	8.2			8.0		8.0		6.5			6.9		6.7	
	B	8.1			8.0		8.0		6.5			6.9		6.7	
	C														
	D	8.1			7.9		7.9		6.5			6.8		6.7	
	E														
	F	8.0			7.9		7.6		6.8			6.8		6.7	
	G														
	H														
	I	8.0			7.9		7.6		6.9			6.9		6.8	
	J	8.1			8.0		7.6		6.8			6.9		6.7	
	K	8.0			8.0		7.6		7.0			6.8		6.5	
	L	8.0			7.9		7.9		7.0			6.8		6.5	

Conductivity (µ)

Replicate	Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
	A							300							379
	B							300							381
	C														
	D							310							382
	E														
	F							310							381
	G														
	H														
	I							299							382
	J							300							384
	K							300							386
	L							300							383

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Cosper Env. ..mental Services

***Hyalella azteca* 42 Day Sediment Phase Bioassay Test**

Sediment: Sedge 02 CES#: AD-143

Test Start: 2/29/08

Test End: 3/13/08

Organism Observation Keys:

0- No effect noted 1- Erratic Swimming Behavior 2- Sediment Avoidance 3- Float on surface, on sides 4- Depressed activity level

5- Contact sediment but don not burrow 6- Unable to Observe Organism 7- Burrowed with one end exposed

* Concentrations of DO should be measured more often if DO drops more than 1 mg/l since the previous measurement. *

p.H. (mg/L)

Replicate	Day 29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	7.82			7.80		7.98		7.49			7.76		8.02	
B	7.81			7.79		7.98		7.58			7.86		7.99	
C														
D	7.81			7.81		7.97		7.74			7.78		7.89	
E														
F	7.80			7.80		7.98		7.81			7.81		8.00	
G														
H														
I	7.82			7.80		7.98		7.85			7.79		7.98	
J	7.82			7.81		7.98		7.90			7.94		7.98	
K	7.80			7.81		7.98		7.85			7.94		7.95	
L	7.80			7.80		7.98		7.88			7.94		7.95	

Reproduction

Replicate	Day	Surviving Adults (Day 35)	Reproduction (Day 35)	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42)	Total Reproduction	Number of Neonates per Female
A		7	1	5	3,2	0	1	0.5
B		7	2	6	2,4	0	2	2
C								
D		8	5	6	1,5	0	5	1
E								
F		5	0	4	3,1	2	2	2
G								
H								
I		9	1	7	3,4	0	1	0.25
J		3	2	2	1,1	3	5	5
K		7	0	5	2,3	2	2	0.6
L		8	1	6	2,4	0	1	0.25
							Total	
							19	

Summary Results

Replicate	Survival Final	p.H (mg/L) Initial	p.H (mg/L) Final	D.O. (mg/L) Initial	D.O. (mg/L) Final	Conductivity (µ) Initial	Conductivity (µ) Final	Alkalinity (mg/L) Initial	Alkalinity (mg/L) Final
A	5	7.82	8.02	8.2	6.7	300	379	52	60
B	6	7.81	7.99	8.1	6.7	300	381	**Hardness (mg/L)**	
C								160	148
D	6	7.81	7.89	8.1	6.7	310	382	**Ammonia (mg/L)**	
E								1.41	0.13
F	4	7.80	8.00	8.0	6.7	310	381		
G									
H									
I	7	7.82	7.98	8.0	6.8	299	382		
J	2	7.82	7.98	8.1	6.7	300	384		
K	5	7.80	7.95	8.0	6.5	300	386		
L	6	7.80	7.95	8.0	6.5	300	383		

Addendum D

Copies of Laboratory Bench Sheets

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: CES Control CES ID#: AD-0140 Test Dates: 1/31/08 - 2/28/08

Survival

Initials																												
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate A	10																												10
B	10																												10
C	10																												10
D	10																												10
E	10																												10
F	10																												10
G	10																												10
H	10																												10
I	10																												10
J	10																												10
K	10																												10
L	10																												10

Organism Observations

Initials		MS	SZ	RK	MS	MS	MS	MS	RK	MS	SZ	RK	MS	MS	MS	MS	MS	MS	RK	MS	RK	MS	MS	V	SZ	RK	MS	SW	J	V
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate A		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
B		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
C		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
D		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
E		6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3	6	6
F		6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6
G		6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6
H		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3	6	6
I		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6
J		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6
K		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	6	6
L		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6

Organism Observation Keys:

0- No effect noted
1- Erractic Swimming behavior
2- Sediment avoidance
3- Float on surface, on sides
4- Depressed activity level
5- Contact sediment but don not burrow
6- Unable to observe organism
7- Burrowed with one end exposed

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: CES Control CES ID#: AD-0140 Test Dates: 1/31/08 - 2/28/08

Temperature (23 ± 1°C)

Initials																													
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	23.2																												
B	23.2																												
C	23.2																												
D	23.2																												
E	23.2																												
F	23.2	22.8	23.0	23.6	23.7	22.5	23.2	22.5	22.5	22.5	23.1	23.0	22.4	23.2	23.3	23.4	22.5	23.0	23.9	23.9	22.4	23.7	23.0	23.5	23.4	24.0	23.5	23.7	23.0
G	23.2																												
H	23.2																												
I	23.2																												
J	23.2																												
K	23.2																												
L	23.2																												

D.O. (>2.5 mg/L)

Initials																													
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	6.1				6.4		7.33	4.7	6.6			6.5		5.1		3.4			4.1		4.5		6.3			6.3			6.0
B	6.2				6.4		7.31	4.5	6.7			6.5		5.0		3.4			4.0		4.5		6.4			6.3			5.9
C	6.1				6.3		7.38	4.7	6.8			6.6		4.9		3.3			4.0		4.4		6.5			6.3			5.9
D	6.0				6.3		7.30	4.9	6.6			6.6		5.0		3.3			4.1		4.5		6.4			6.4			5.9
E	6.1				6.2		7.28	5.0	6.4			6.6		5.0		3.4			4.0		4.5		6.3			6.3			5.7
F	6.1				6.3		7.21	4.6	6.5			6.5		5.0		3.4			4.0		4.4		6.3			6.3			5.7
G	6.2				6.3		7.24	4.7	6.5			6.5		5.1		3.4			4.0		4.5		6.4			6.3			6.1
H	6.0				6.4		7.21	4.4	6.7			6.5		5.0		3.3			4.0		4.5		6.2			6.3			6.1
I	6.1				6.3		7.28	4.9	6.7			6.5		5.0		3.3			4.0		4.5		6.2			6.4			6.1
J	6.0				6.3		7.23	4.5	6.8			6.6		5.0		3.4			4.0		4.5		6.2			6.3			6.1
K	6.1				6.3		7.24	4.8	6.6			6.5		5.0		3.4			4.0		4.5		6.2			6.4			6.1
L	6.1				6.3		7.23	4.5	6.7			6.5		5.0		3.4			4.0		4.5		6.1			6.4			6.1

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: CES Control CES ID#: AD-0140 Test Dates: 1/31/08 - 2/28/08

Conductivity

Initials	MS							RK							RK							MS							
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	286							339							305							318							300
B	287							338							320							300							310
C	287							330							325							300							315
D	285							340							321							299							315
E	286							350							320							300							218
F	280							347							327							300							298
G	293							344							313							299							310
H	295							345							317							300							317
I	299							340							321							293							305
J	286							354							322							350							310
K	287							358							321							300							310
L	280							330							326							304							320

Replicate

pH

Initials	MS				MS		MS		MS			MS		MS		MS			MS		MS							
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.56				7.23		7.60		7.53			7.60		7.68		7.68			7.66		7.65		7.63			7.55			7.77
B	7.50				7.21		7.66		7.56			7.64		7.68		7.65			7.60		7.66		7.75			7.57			7.80
C	7.56				7.28		7.67		7.56			7.68		7.68		7.63			7.66		7.69		7.79			7.55			7.70
D	7.58				7.30		7.67		7.56			7.68		7.70		7.65			7.66		7.65		7.83			7.56			7.70
E	7.56				7.28		7.67		7.56			7.67		7.72		7.65			7.68		7.66		7.85			7.57			7.72
F	7.56				7.21		7.67		7.58			7.68		7.72		7.68			7.64		7.66		7.85			7.55			7.71
G	7.46				7.24		7.66		7.56			7.66		7.72		7.73			7.68		7.66		7.80			7.85			7.72
H	7.48				7.21		7.53		7.55			7.68		7.70		7.73			7.66		7.68		7.81			7.57			7.58
I	7.48				7.28		7.53		7.55			7.67		7.70		7.73			7.66		7.68		7.90			7.80			7.68
J	7.51				7.20		7.50		7.55			7.68		7.70		7.69			7.65		7.66		7.74			7.87			7.73
K	7.54				7.24		7.50		7.55			7.68		7.68		7.67			7.69		7.65		7.83			7.85			7.82
L	7.54				7.23		7.55		7.58			7.68		7.70		7.68			7.67		7.68		7.84			7.87			7.80

Replicate

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: CES Control CES ID#: AD-0140 Test Dates: 2/29/08 - 3/13/08

Organism Observations

Initials	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	5,3	5,3	5,3	3	3	1,3	1	3	1,4	3	3,4	3	3	3
B	1,3	1,4	1,3	3	3	1,3	1	3	1,4	1,4	1,4	3	1,3	1,3
C	1,3	5,3	1,3	1,3	3	1,3	1	3,4	1,4	1,4	1,4	1,3	1,3	1,3
D	3,4,5	5,3	5,3	1,3D	3	3	1	3	1,3	1,3	1,3	1,3	1,3	3
E	1,3,5	3	3	3	3	3	1	3,4	1,3	1,3	1,3	3	3	3
F	4,3,1	1,3	1	3	3	3	1,3	3,4	1,3,4	1,3	1,4	3	1,3	3
G	5,3	5,3	1,3	1,3	3	3	1,3	3	3	3	1,3	3	1,3	3
H	1,3	1,3,5	1,3	3	1,3	1,3	1,3	3	3	3	1,4	3	1,3	3
I														
J														
K														
L														

1-Swimming
2-Erractic Swimming Behavior
3-Depressed Activity Level (on bottom)
4-Mating
D-Dead
5-Floating on surface

Reproduction

Replicate	Surviving Adults (Day 35)	Reproduction (Day 35)	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42)	Total Reproduction	# of Neonates per Female
A	6	6	4	1/3	0	6	2
B	10	6	5	1/4	2	8	2
C	7	10	5	1/4	4	14	3.5
D	7	9	3	1/2	2	11	5.5
E	6	2	4	3/1	1	3	3
F	9	20	6	1/5	0	20	4
G	5	0	2	1/1	2	2	2
H	6	8	4	2/2	3	3	1.5
I							
J							
K							
L							

Hyalella azteca 28 D. . Sediment Toxicity Test

Sediment: CES control CES ID#: AD-0140 Test Dates: 2/29/08 - 3/13/08

Temperature (23 ± 1°C)

Initials	MS	SL	JK	BK	MS	BK	SM	[illegible]	[illegible]	BK	BK	BK	BK	JK
Day	Fri 29	Sat. 30	Sun. 31	Mon. 32	Tues. 33	Wed. 34	Thurs 35	Fri. 36	Sat. 37	Sun. 38	Mon. 39	Tues. 40	Wed. 41	Thurs. 42
A	22.4	23.1	23.6	22.5	22.3	23.8	23.3	23.5	23.7	23.6	23.5	23.0	23.3	23.3
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														

Replicate

D.O. (>2.5 mg/L)

Initials	MS			MS		BK		[illegible]			BK		BK	
Day	Fri 29	Sat. 30	Sun. 31	Mon. 32	Tues. 33	Wed. 34	Thurs 35	Fri. 36	Sat. 37	Sun. 38	Mon. 39	Tues. 40	Wed. 41	Thurs. 42
A	8.0			8.0		7.6		6.4			6.4		6.4	
B	8.0			7.9		7.6		6.4			5.3		6.6	
C	7.9			7.8		7.4		6.5			5.1		6.9	
D	7.9			7.7		7.6		6.5			5.2		7.3	
E	8.0			7.8		7.4		6.5			6.0		7.4	
F	8.0			7.8		7.4		6.4			6.2		7.4	
G	8.0			7.4		7.4		6.3			6.0		7.8	
H	8.0			7.8		7.7		6.5			5.6		7.6	
I	—			—		—		—			—		—	
J	—			—		—		—			—		—	
K	—			—		—		—			—		—	
L	—			—		—		—			—		—	

Replicate

000055

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: CCES Control CES ID#: AD-0140 Test Dates: 2/29/08 - 3/13/08

Conductivity

Initials								RK							RK
		Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A							310							381
	B							310							385
	C							300							386
	D							305							389
	E							300							387
	F							310							389
	G							315							391
	H							315							394
	I							—							—
	J							—							—
	K							—							—
	L							—							—

pH

Initials					MS		BK		BK		BK			√	
		Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	7.50			7.84		8.00		7.62			7.70		8.01	
	B	7.52			7.83		8.01		7.66			7.71		8.02	
	C	7.81			7.83		8.01		7.70			7.76		8.05	
	D	7.80			7.83		8.00		7.70			7.70		8.00	
	E	7.82			7.84		8.01		7.71			7.74		8.06	
	F	7.80			7.84		8.00		7.71			7.72		8.04	
	G	7.80			7.83		8.00		7.72			7.71		8.00	
	H	7.80			7.83		7.99		7.72			7.76		7.98	
	I	—			—		—		—			—		—	
	J	—			—		—		—			—		—	
	K	—			—		—		—			—		—	
	L	—			—		—		—			—		—	

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: Ref Sedge O CES ID#: AD-0191 Test Dates: 1/31/18 - 2/28/08

Survival

Replicate	Initials	Thur 0	Fri 1	Sat 2	Sun 3	Mon 4	Tues 5	Wed 6	Thur 7	Fri 8	Sat 9	Sun 10	Mon 11	Tues 12	Wed 13	Thur 14	Fri 15	Sat 16	Sun 17	Mon 18	Tues 19	Wed 20	Thur 21	Fri 22	Sat 23	Sun 24	Mon 25	Tues 26	Wed 27	Thru 28
A		10																												10
B		10																												10
C		10																												10
D		10																												10
E		10																												10
F		10																												10
G		10																												10
H		10																												10
I		10																												10
J		10																												10
K		10																												10
L		10																												10

Organism Observations

Replicate	Initials	Thur 0	Fri 1	Sat 2	Sun 3	Mon 4	Tues 5	Wed 6	Thur 7	Fri 8	Sat 9	Sun 10	Mon 11	Tues 12	Wed 13	Thur 14	Fri 15	Sat 16	Sun 17	Mon 18	Tues 19	Wed 20	Thur 21	Fri 22	Sat 23	Sun 24	Mon 25	Tues 26	Wed 27	Thru 28
A		0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	3	0
B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0
D		0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	3	3	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L			0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Organism Observation Keys:

0- No effect noted
1- Erractic Swimming behavior
2- Sediment avoidance
3- Float on surface, on sides
4- Depressed activity level
5- Contact sediment but don not burrow
6- Unable to observe organism
7- Burrowed with one end exposed

000057

Hyalella azteca 28 ...y Sediment Toxicity Test

Sediment: Ref Sedge O CES ID#: AD-0191 Test Dates: 1/31/08 - 2/28/08

Temperature (23 ± 1°C)

	Initials		MS	SZ	RK	MS	MS	MJ	RK	MS	SZ	RK	MS	MS	MS	RK	MS	MS	RK	RK	MS	MS	MJ	[illegible]	SZ	RK	MS	[illegible]	RK	
		Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur
Day		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate	A	23.5																												23.[illegible]
	B	23.7																												23.[illegible]
	C	23.7																												23.[illegible]
	D	23.7																												23.1
	E	23.3																												23.[illegible]
	F	23.[illegible]	22.4	23.1	23.4	23.6	22.5	22.6	22.4	22.3	22.4	22.4	22.6	23.4	23.3	22.7	23.4	22.5	23.9	23.9	23.4	23.3	22.9	24.0	24.0	24.0	24.0	23.7	23.7	22.[illegible]
	G	23.3																												23.[illegible]
	H	23.5																												23.[illegible]
	I	23.3																												23.[illegible]
	J	23.3																												23.[illegible]
	K	23.3																												23.[illegible]
	L	23.3																												23.[illegible]

D.O. (>2.5 mg/L)

	Initials					MS		MS		MS			MS		MS		MJ			RK		MS		[illegible]			MJ			
		Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur
Day		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate	A	4.9				5.1		2.7		5.5			4.9		3.4		2.7			3.0		3.4		3.0			5.4			[illegible]
	B	4.7				5.1		2.8		5.6			5.0		3.4		2.7			3.0		3.4		2.9			5.4			[illegible]
	C	5.0				5.0		2.7		5.5			5.0		3.4		2.6			3.0		3.3		2.7			5.4			[illegible]
	D	4.9				5.2		2.9		5.4			5.0		3.5		2.6			2.9		3.3		3.3			5.3			[illegible]
	E	3.0				5.1		2.6		5.4			4.9		3.5		2.7			2.9		3.4		3.0			5.3			[illegible]
	F	5.0				5.1		2.8		5.5			4.8		3.4		2.6			3.0		3.4		3.0			5.3			[illegible]
	G	5.0				5.2		2.9		5.6			4.9		3.4		2.6			2.9		3.3		2.9			5.4			[illegible]
	H	4.4				5.2		3.0		5.6			5.0		3.5		2.6			3.0		3.3		2.0			5.3			[illegible]
	I	3.8				5.2		3.0		5.5			4.9		3.5		2.6			3.0		3.3		3.0			5.4			[illegible]
	J	5.0				5.2		2.8		5.4			4.9		3.4		2.6			3.3		3.3		2.7			5.3			[illegible]
	K	5.0				5.2		2.7		5.4			4.8		3.4		2.6			3.0		3.3		2.9			5.3			[illegible]
	L	5.0				5.2		2.7		5.5			4.9		3.4		2.6			3.0		3.3		3.0			5.3			[illegible]

000058

Hyalella azteca 28 D. Sediment Toxicity Test

Sediment: Ref Sedge O CES ID#: AD-0141 Test Dates: 1/31/08 - 2/28/08

Conductivity

Initials	JP							RK							RK							MS							✓
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.69							400							415							364							355
B	7.71							410							414							369							361
C	7.79							390							414							365							370
D	7.75							370							413							365							369
E	7.82							380							406							365							360
F	7.78							390							398							365							360
G	7.76							390							407							368							367
H	7.80							470							416							367							368
I	7.84							520							390							368							370
J	7.91							510							410							373							370
K	7.77							445							395							372							368
L	7.67							499							390							367							360

pH

Initials	JP				MS		MS		MS			KP		MS		MS			MS		MS		✓			MS			✓
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	615				7.77		7.96		7.71			7.95		7.96		7.94			7.71		8.04		8.07			8.01			8.02
B	562				7.79		8.15		7.81			7.99		7.96		8.02			7.78		8.04		8.01			8.02			7.19
C	557				7.82		8.15		7.62			8.02		7.96		7.97			7.72		8.05		7.99			8.00			8.01
D	398				7.85		8.21		7.61			8.05		7.95		7.91			7.79		8.05		7.98			8.01			8.03
E	500				7.88		8.20		7.71			8.10		7.96		7.94			7.80		8.06		7.99			8.03			8.05
F	448				7.87		8.17		7.74			8.10		7.95		8.03			7.80		8.04		8.01			8.04			8.07
G	468				7.89		8.18		7.74			8.15		7.95		7.99			7.80		8.06		8.07			8.01			8.03
H	600				7.83		8.18		7.71			8.15		7.95		7.92			7.80		8.05		8.04			8.02			8.05
I	557				7.81		8.18		7.71			8.10		7.95		7.97			7.79		8.08		8.11			8.04			8.04
J	540				7.87		8.26		7.73			8.10		7.96		7.96			7.79		8.08		8.07			8.03			8.03
K	580				7.80		8.26		7.75			8.11		7.96		7.90			7.80		8.07		8.05			8.02			7.91
L	498				7.74		8.27		7.74			8.14		7.96		7.93			7.84		8.06		8.07			8.04			7.96

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: Ref Sed 0 CES ID#: AD-0191 Test Dates: 2/24/08 - 3/13/08

MS SJ BK BK BK BK BK SJ SJ BK BK BK BK BK BK

Organism Observations

Initials	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	3,1	3	3.1	1.3	3	1,3	1,3	1,3	1,3,4	1,4	1.4	1.3	1.3	1.3
B	—													
C	—													
D	3	3	3	3	3	3	3	3	1,3,4	3.4	3.4	1.3	1.4	1.4
E	3,1	1,3	3	3	1,3	3	3	1,3	1,3,4	1,3	1.3	3	3	3
F	3	3	3.5	3	1,3	3	3	3	1,3	1.3	1.3	3	3	3
G	3,1	3.5	3.5	3.5	3	1,3	1,3	3	1,3	1.3	1.3	3	3	3
H	—													
I	3,1	3,1	3.1	3.5	3	3	3	1,3	1,3,4	1.3	1.4	1.4	1.4	1.4
J	3	3,1	3,1	1.3	3,4	3,4	3,4	3	1,3	1.3	1.4	1.3	3	3
K	—													
L	3	4.3	4.5	3.5	1.3	1,3 BK	3,4	1,3	1,3	1.3	1.4	1.3	3	3

1-Swimming
2-Erractic Swimming Behavior
3-Depressed Activity Level
4-Mating
D-Dead

Reproduction

Replicate	Surviving Adults (Day 35)	Reproduction (Day 35) Babies	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42) Babies	Total Reproduction	# of Neonates per Female
A	7	1	5	1/4	2	3	0.75
B	—						
C	—						
D	6	2	6	1/5	0	2	0.4
E	7	1,2	6	2/4	1	13	3.25
F	4	3	4	1/3	3	4	1.3
G	5	2	4	3/1	4	6	6
H	—						
I	8	3	5	2/3	1	4	1.3
J	8	3	8	2/6	13	16	2.6
K	—						
L	7	2	6	3/3		2	0.6

Hyalella azteca 2[illegible]ay Sediment Toxicity Test

Sediment: Ref Sedge 0 CES ID#: AD-0141 Test Dates: 2/29/08 - 3/13/08

Conductivity

Initials								RK							RK
		Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A							240							388
	B							~~270~~							-
	C							~~240~~							-
	D							310							395
	E							310							381
	F							300							387
	G							300							387
	H							—							—
	I							310							383
	J							310							384
	K							—							—
	L							310							390

pH

Initials					RMS		BK		P			BK		V	
		Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	7.83			7.86		7.99		7.83			7.96		8.00	
	B	—			—		—		—			—		—	
	C	—			—		—		—			—		—	
	D	7.81			7.87		8.00		7.85			7.94		8.02	
	E	7.83			7.87		8.00		7.87			7.93		8.02	
	F	7.83			7.85		8.01		7.85			7.94		8.04	
	G	7.84			7.86		8.01		7.83			7.93		8.00	
	H	—			—		—		—			—		—	
	I	7.84			7.87		7.99		7.81			7.84		7.99	
	J	7.83			7.87		7.99		7.81			7.87		7.98	
	K	—			—		—		—			—		—	
	L	7.84			7.86		7.90		7.81			7.89		7.98	

Hyalella azteca 28 [illegible] Sediment Toxicity Test

Sediment: RefSedge 0 CES ID#: AD-0141 Test Dates: 2/29/08 - 3/13/08

Temperature (23 ± 1°C)

Initials		MS Fri	SL Sat.	RK Sun.	RK Mon.	MS Tues.	RK Wed.	RK Thurs	RK Fri.	SL Sat.	RK Sun.	RK Mon.	RK Tues.	RK Wed.	RK Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	22.9	23.4	23.4	23.4	22.3	23.3	23.7	24.5	23.5	23.4	22.5	23.4	23.5	23.3
	B														
	C														
	D														
	E														
	F														
	G														
	H														
	I														
	J														
	K														
	L														

D.O. (>2.5 mg/L)

Initials		MS Fri	Sat.	Sun.	MS Mon.	Tues.	RK Wed.	Thurs	RK Fri.	Sat.	Sun.	RK Mon.	Tues.	RK Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	8.0			7.9		7.6		6.3			5.9		6.6	
	B	—			—		—		—			—		—	
	C	—			—		—		—			—		—	
	D	8.0			7.8		7.6		6.4			6.6		6.7	
	E	8.0			7.9		7.7		6.4			6.4		6.7	
	F	8.0			7.9		7.6		6.5			6.4		6.0	
	G	7.9			7.9		7.6		6.7			6.6		6.7	
	H	—			—		—		—			—		—	
	I	8.0			8.0		7.9		6.5			6.6		6.7	
	J	8.0			8.0		7.6		6.4			6.4		6.5	
	K	—			—		—		—			—		—	
	L	8.0			7.9		7.6		6.4			6.0		6.6	

Hyalella azteca 28 D.. Sediment Bioaccumulation Test

Sediment: Sedge 01 CES ID#: AD-0142 Test Dates: 1/31/18 - 2/28/88

Survival

Initials	J																												
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Th
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate A	10																												
B	10																												
C	10																												
D	10																												
E	10																												
F	10																												
G	10																												
H	10																												
I	10																												
J	10																												
K	10																												
L	10																												

Organism Observations

Initials		MS	SZ	RL	MS	MS	J	RL	MS	SZ	RL	MS	MS	MS	RK
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Replicate A		6	6	6	6	6	6	6	6	6	6	6	6	6	6
B		6	6	6	6	6	6	6	6	6	6	6	6	6	6
C		6	6	7	7	6	6	6	6	6	6	6	6	4	7
D		6	6	6	6	6	6	6	6	6	6	6	6	6	6
E		6	6	6	6	6	6	6	6	6	6	6	6	6	3
F		6	6	6	6	6	6	6	6	6	6	6	6	6	3
G		6	6	6	6	6	6	6	6	6	6	6	6	6	3
H		6	6	6	6	6	6	6	6	6	6	6	6	6	6
I		6	6	6	6	6	6	6	6	6	6	6	6	3	6
J		6	7	6	6	6	6	6	6	6	6	6	6	6	3
K		6	6	7	6	6	6	6	6	6	6	6	6	6	7
L		6	6	6	7	6	6	6	6	6	6	6	6	6	3

Initials	MS	MS	RK	MS	RK	MS	M	J	SZ	RK	[illegible]	J	J	J
	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Th
Day	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Replicate A	6	6	6	6	6	6	6	6	6	6	6	6	6	7
B	6	6	6	6	6	6	6	6	6	6	6	6	6	7
C	3	6	6	6	6	6	6	6	6	6	6	6	6	[illegible]
D	6	6	6	6	7	6	6	6	6	6	6	6	6	[illegible]
E	6	6	6	6	6	6	6	6	6	6	6	6	6	[illegible]
F	6	6	6	6	6	6	6	6	6	6	6	6	6	[illegible]
G	6	6	6	6	6	6	6	6	6	5	6	6	6	[illegible]
H	3	6	3	3	3	6	6	6	3	6	3	6	6	[illegible]
I	6	6	6	6	6	6	6	6	6	6	6	6	6	[illegible]
J	6	6	6	6	6	6	6	6	6	6	6	6	6	[illegible]
K	6	6	6	6	6	6	6	6	6	6	6	6	6	[illegible]
L	6	6	6	6	6	6	3	6	3	6	3	6	6	[illegible]

Organism Observation Keys:

0- No effect noted
1- Erratic Swimming behavior
2- Sediment avoidance
3- Float on surface, on sides
4- Depressed activity level
5- Contact sediment but don not burrow
6- Unable to observe organism
7- Burrowed with one end exposed

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: Sedge 01 CES ID#: AD-0142 Test Dates: 1/31/08 - 2/28/08

Temperature (23 ± 1°C)

Initials	V	MS SZ	RK	MS	MS	MS	RK	MS	MS	RK	MS	MS	MS	RK	MS	MS RK	MS	RK	MS	MS	SZ	SZ	DK	MS	SAR	JF	V
Day	0 Thur	1 Fri	2 Sat	3 Sun	4 Mon	5 Tues	6 Wed	7 Thur	8 Fri	9 Sat	10 Sun	11 Mon	12 Tues	13 Wed	14 Thur	15 Fri	16 Sat	17 Sun	18 Mon	19 Tues	20 Wed	21 Thur	22 Fri	23 Sat	24 Sun	25 Mon	26 Tues	27 Wed	28 Thu
A	22.1																												
B	22.1																												
C	22.1																												
D	22.1																												
E	22.1																												
F	22.1	22.1	23.2	23.5	23.5	23.5	22.9	23.0	22.3	22.4	24.1	23.5	22.5	23.4	23.6	23.4	22.7	22.0	23.8	23.4	22.4	23.	24.0	24.0	23.4	23.4	23.5	23.5	
G	22.1																												
H	22.1																												
I	22.1																												
J	23.1																												
K	22.1																												
L	23.1																												

D.O. (>2.5 mg/L)

Initials	V				MS		MS		MS			MS		MS		MS			MS		MS		MS			MS			V
Day	0 Thur	1 Fri	2 Sat	3 Sun	4 Mon	5 Tues	6 Wed	7 Thur	8 Fri	9 Sat	10 Sun	11 Mon	12 Tues	13 Wed	14 Thur	15 Fri	16 Sat	17 Sun	18 Mon	19 Tues	20 Wed	21 Thur	22 Fri	23 Sat	24 Sun	25 Mon	26 Tues	27 Wed	28 Thu
A	5.2				5.4		4.2		5.8			5.5		4.1		3.9			3.8		3.9		4.1			5.9			6.2
B	5.3				5.4		4.3		5.7			5.6		4.1		3.3			3.7		3.9		4.3			5.9			5.9
C	5.2				5.4		4.4		5.9			5.6		4.0		3.3			3.8		3.9		4.3			5.8			5.9
D	5.3				5.5		4.2		6.0			5.5		4.0		3.3			3.8		3.8		4.0			5.8			5.7
E	5.0				5.4		4.1		5.5			5.6		4.0		3.3			3.7		3.8		4.1			5.5			6.0
F	5.2				5.5		4.4		5.3			5.6		4.0		3.3			3.7		3.9		4.0			5.9			6.1
G	5.2				5.5		4.5		5.5			5.5		4.0		3.2			3.7		3.9		3.9			5.7			5.7
H	5.3				5.5		4.1		5.7			5.5		4.1		3.2			3.8		3.8		3.9			5.7			5.7
I	5.4				5.5		4.0		5.8			5.5		4.0		3.3			3.7		3.8		3.7			5.7			5.8
J	5.3				5.5		4.5		5.7			5.5		4.0		3.3			3.7		3.9		3.8			5.9			5.8
K	5.3				5.5		4.3		5.6			5.5		4.0		3.3			3.8		3.8		3.7			5.9			5.8
L	5.4				5.5		4.3		5.7			5.5		4.0		3.3			3.8		3.8		3.9			5.8			5.9

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: Sedge 01 CES ID#: AD-0142 Test Dates: 1/31/08 - 2/28/08

Conductivity

Initials	V							BK							BK							MJ							V
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Thur	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
A	319							371							350							316							330
B	370							371							351							316							330
C	372							369							360							318							320
D	385							377							353							320							321
E	374							370							370							320							320
F	390							375							348							318							320
G	320							375							281							318							320
H	315							320							352							320							320
I	360							380							354							320							320
J	375							342							356							316							320
K	340							376							344							317							321
L	329							378							346							316							320

Replicate

pH

Initials	MS				MS		MS		MS			MS		MS		MS			MS		MS		V			MS			V
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Thur	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
A	7.62				7.53		7.69		7.52			7.84		8.06		8.02			8.10		8.08		8.10			7.90			7.71
B	7.66				7.60		7.80		7.61			7.84		8.06		8.02			8.12		8.07		8.05			7.81			7.71
C	7.68				7.64		7.86		7.65			7.88		8.06		8.00			8.10		8.08		8.09			7.82			7.72
D	7.72				7.64		7.90		7.67			7.88		8.04		8.01			8.13		8.10		8.11			7.81			7.75
E	7.78				7.66		7.90		7.69			7.89		8.06		8.01			8.14		8.12		8.07			7.80			7.77
F	7.78				7.68		7.95		7.73			7.89		8.07		8.02			8.15		8.14		8.09			7.80			7.76
G	7.77				7.69		7.95		7.73			7.89		8.07		8.04			8.10		8.12		8.10			7.81			7.77
H	7.80				7.69		7.95		7.73			7.91		8.05		8.03			8.14		8.12		8.09			7.81			7.77
I	7.78				7.69		7.95		7.73			7.91		8.06		8.00			8.12		8.10		8.11			7.80			7.77
J	7.75				7.68		7.95		7.73			7.94		8.06		8.02			8.12		8.11		8.07			7.80			7.77
K	7.76				7.69		7.97		7.72			7.94		8.09		8.02			8.13		8.12		8.07			7.80			7.77
L	7.75				7.69		8.01		7.75			7.95		8.04		8.08			8.12		8.12		8.10			7.80			7.78

Replicate

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: Sedge 01 CES ID#: AD-0119 Test Dates: 2/29/08 - 3/13/08

MS SZ BK MS JP MS JP MS JP BK BK BK BK BK

Organism Observations

Initials	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	1,3	1,3	1,3	1,3	3	3	1,3	1,3	1,3	1,3	1,3,4	1,3	1,3	1,3
B	3,4	5,3	5,3	1,3	1,3	1,3	1,3	3	1,3	1,3	3,4	1,3	1,3	3
C	—													
D														
E	1,3	3	3	3	3	3	3	3	3	3	1,4	1,3	1,3	1,3
F														
G	3	1,3	3	3	3	3	3	3	3	3	1,4	1,3	1,3	1,3
H														
I	1,3,5	3	3	1,3	1,3	3	3	3	1,3,4	1,3	1,3	3	3	3
J	1,4	3	3	3	3	3	3	3	1,3,4	1,3	1,3	1,3	3	3
K	3,1	1,3	3	1,3	1,3	3	3	1,3	1,3	1,4	1,4	1,3	1,4	1,3
L	1,3	3	3	1,3	3	1,3	1,3	1,3	1,3,4	1,4	1,3	1,4	1,4	1,3

1-Swimming
2-Erractic Swimming Behavior
3-Depressed Activity Level
4-Mating
D-Dead
5-Floating on Surface

Reproduction

Replicate	Surviving Adults (Day 35)	Reproduction (Day 35) Babies	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42)	Total Reproduction	# of Neonates per Female
A	5	1	4	1/3	1	2	0.6
B	7	0	6	1/5	1	1	0.2
C	—						
D							
E	4	0	3	2/1	1	1	1
F							
G	7	0	7	2/5	1	1	0.2
H							
I	4	0	3,4	3/2	2	2	2
J	5	0	3	1/2	5	5	2.5
K	6	0	0	4/3	0	0	0
L	7	0	5	3/2	0	0	0

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: Sedge 01 CES ID#: 20-0142 Test Dates: 2/29/08 - 3/13/08

Temperature (23 ± 1°C)

Initials	MS	SZ	BK	MS	MS	MS	BK	BW	SP	BK	BK	BK	BK	BK
	Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	22.4	23.5	23.2	22.4	22.8	23.3	23.3	24.5	23.5	23.6	23.7	23.7	23.3	23.3
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														

Replicate

D.O. (>2.5 mg/L)

Initials	MS			MS		BK		BW			BK		BK	
	Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	8.0			8.0		7.9		6.4			7.6		6.9	
B	8.0			8.0		7.9		6.4			7.6		7.0	
C	—			—		—		—			—		—	
D	—			—		—		—			—		—	
E	8.0			8.1		7.9		6.5			7.0		7.0	
F	—			—		—		—			—		—	
G	8.0			8.1		~~7.9~~ 7.9		6.5			7.0		7.0	
H	—			—		—		—			—		—	
I	7.9			8.1		7.4		6.5			7.4		7.4	
J	8.0			8.1		7.4		6.5			7.4		7.6	
K	8.0			8.1		7.4		6.4			7.0		7.4	
L	8.0			8.1		7.4		6.4			7.4		7.4	

Replicate

Hyalella azteca 28 ; Sediment Toxicity Test

Sediment: Sedgr 01 CES ID#: AD-0142 Test Dates: 2/29/08-3/13/08

Conductivity

Initials		Fri	Sat.	Sun.	Mon.	Tues.	Wed.	RK Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	RK Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A							300							378
	B							200							352
	C							—							~~387~~
	D							—							~~378~~
	E							310							387
	F							—							—
	G							300							387
	H							—							—
	I							305							387
	J							300							388
	K							300							384
	L							310							386

pH

Initials		MS Fri	Sat.	Sun.	MS Mon.	Tues.	MS Wed.	Thurs	DHP Fri.	Sat.	Sun.	RK Mon.	Tues.	Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	7.82			7.88		7.92		7.74			7.92		8.04	
	B	7.91			7.88		7.92		7.96			7.94		8.06	
	C	—			—		—		—			—		—	
	D	—			—		—		—			—		—	
	E	7.82			7.81		7.96		7.56			7.54		6.02	
	F	—			—		—		—			—		—	
	G	7.81			7.81		7.96		7.66			7.74		8.00	
	H	—			—		—		—			—		—	
	I	7.82			7.88		7.96		7.70			7.76		7.98	
	J	7.83			7.88		7.96		7.74			7.74		8.00	
	K	7.82			7.87		7.96		7.81			7.71		7.90	
	L	7.88			7.88		7.96		7.82			7.72		7.95	

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: Sedge 2 CES ID#: AD-0143 Test Dates: 1/31/08 - 2/28/08

Survival

Initials																													
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	10																												3
B	10																												3
C	10																												3
D	10																												4
E	10																												4
F	10																												10
G	10																												7
H	10																												10
I	10																												9
J	10																												9
K	10																												7
L	10																												9

Replicate

Organism Observations

Initials																													
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thru
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A		0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0
B		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D		0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3	0	3	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G		0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3	0	0	0	0	0	0	0	0
I		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
J		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Replicate

Organism Observation Keys:

0- No effect noted
1- Erractic Swimming behavior
2- Sediment avoidance
3- Float on surface, on sides
4- Depressed activity level
5- Contact sediment but don not burrow
6- Unable to observe organism
7- Burrowed with one end exposed

Hyalella azteca 28 Day Sediment Toxicity Test

Sediment: Sedge 02 CES ID#: AD-0143 Test Dates: 1/31/08 - 2/28/08

Temperature (23 ± 1°C)

Replicate	Initials	Thur 0	Fri 1	Sat 2	Sun 3	Mon 4	Tues 5	Wed 6	Thur 7	Fri 8	Sat 9	Sun 10	Mon 11	Tues 12	Wed 13	Thur 14	Fri 15	Sat 16	Sun 17	Mon 18	Tues 19	Wed 20	Thur 21	Fri 22	Sat 23	Sun 24	Mon 25	Tues 26	Wed 27	Thru 28
A		23.2																												23.0
B		23.2																												23.1
C		23.2																												23.1
D		23.2																												23.5
E		23.2																												23.5
F		23.3	23.0	23.4	23.5	23.7	23.7	23.7	23.8	22.4	22.4	22.6	22.8	22.6	22.3	22.7	23.1	22.1	23.6	23.8	24.0	22.7	23.1	24.0	24.0	24.0	23.7	23.9	23.6	23.5
G		23.2																												23.5
H		23.2																												23.2
I		23.2																												23.1
J		23.3																												23.4
K		23.2																												23.5
L		23.2																												23.7

D.O. (>2.5 mg/L)

Replicate	Initials	Thur 0	Fri 1	Sat 2	Sun 3	Mon 4	Tues 5	Wed 6	Thur 7	Fri 8	Sat 9	Sun 10	Mon 11	Tues 12	Wed 13	Thur 14	Fri 15	Sat 16	Sun 17	Mon 18	Tues 19	Wed 20	Thur 21	Fri 22	Sat 23	Sun 24	Mon 25	Tues 26	Wed 27	Thru 28
A		6.8				6.1		3.2		6.2		5.1	6.0		4.5		3.5			4.3		3.5		3.9		5.3			5.8
B		6.6				6.0		3.5		6.5			5.8		4.9		3.5			4.4		3.5		4.0		5.3			5.7
C		6.7	7.2			6.0		3.3		6.4			5.8		4.4		3.5			4.4		3.5		3.9		5.4			5.7
D		6.8				6.0		3.0		6.6			5.7		4.3		3.5			4.3		3.4		3.5		5.3			5.6
E		6.7				6.1		3.1		6.3			5.8		4.4		3.5			4.3		3.5		3.6		5.3			5.6
F		6.9				6.1		3.2		6.5			5.8		4.4		3.5			4.3		3.5		3.5		5.3			5.8
G		6.8				6.1		3.3		6.4			5.7		4.3		3.4			4.4		3.5		3.5		5.6			5.9
H		6.7				6.1		3.3		6.3			5.7		4.5		3.6			4.4		3.5		3.5		5.3			5.9
I		6.8				6.1		3.2		6.5			5.8		4.4		3.5			4.3		3.5		3.7		5.3			5.7
J		6.7				5.9		3.2		6.4			5.7		4.3		3.6			4.3		3.5		3.6		5.4			5.8
K		6.8				5.9		3.2		6.7			5.7		4.3		3.5			4.4		3.5		3.7		5.4			5.8
L		6.9				6.0		3.4		6.6			5.7		4.3		3.5			4.4		3.5		3.7		5.3			5.9

000070

Hyalella azteca ... Day Sediment Toxicity Test

Sediment: Sedgr 02 CES ID#: AD-0143 Test Dates: 1/31/08 - 2/28/08

Conductivity

Initials								BK							BK							(h)							
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thu
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	382							380							360							333							3
B	406							390							360							325							3
C	398							410							358							701							3
D	394							400							356							325							3
E	329							340							358							225							3
F	345							376							358							346							3
G	301							379							360							327							3
H	406							375							356							329							3
I	356							392							347							328							3
J	378							385							366							328							3
K	461							351							360							324							3
L	397							385							362							304							3

Replicate

pH

Initials					MS		MS		MS			MS		MS		MS			MS		MS			MS			MS		
	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Mon	Tues	Wed	Thu
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
A	7.83				7.78		7.92		7.59			8.06		8.09		8.02	7.91		8.00		8.04		8.07			8.00			7.7
B	7.91				7.78		8.00		7.64			8.08		8.04		8.02	7.96		8.02		8.05		8.09			8.01			7.9
C	7.97				7.80		8.07		7.68			8.08		8.04		8.00	8.02		8.1		8.08		8.04			8.00			8.0
D	7.89				7.82		8.09		7.68			8.08		8.04		8.02	8.02		8.01		8.06		8.05			8.02			8.0
E	7.81				7.77		8.06		7.68			8.04		8.05		8.02	8.22		8.01		8.10		8.05			8.03			7.9
F	7.93				7.81		8.11		7.71			8.08		8.05		8.01	8.27		8.03		8.09		8.10			8.00			7.9
G	7.96				7.82		8.11		7.69			8.07		8.05		8.07	8.12		8.04		8.08		8.11			8.02			8.0
H	7.96				7.82		8.11		7.69			8.10		8.05		8.06	8.10		8.04		8.09		8.11			8.04			8.0
I	7.95				7.82		8.11		7.69			8.11		8.04		8.00	7.98		8.03		8.08		8.07			8.00			8.0
J	7.97				7.83		8.10		7.73			8.11		8.04		7.93	7.97		8.04		8.08		8.08			8.00			8.0
K	7.96				7.83		8.12		7.76			8.11		8.04		7.91	8.18		8.04		8.09		8.10			8.01			7.9
L	7.85				7.84		8.14		7.78			8.10		8.04		7.97	8.02		8.04		8.08		8.03			8.04			7.9

Replicate

000071

Hyalella azteca 28 Day Sediment Bioaccumulation Test

Sediment: Sedgeon CES ID#: AD-0193 Test Dates: 2/29/08 - 3/13/08

Organism Observations

Initials														
Day	Fri. 29	Sat. 30	Sun. 31	Mon. 32	Tues. 33	Wed. 34	Thur. 35	Fri. 36	Sat. 37	Sun. 38	Mon. 39	Tues. 40	Wed. 41	Thur. 42
A	3	1,3	3	3	3,4	3	1	1,3	1,3	1.3	1.3	1.3	1.3	1.3
B	3,1	1,3	3	3	1,3	3,4	1	1,4	1,4	1.4	1.3	1.3	1.3	1.3
C	—													
D	1,3	4,3	3	3	3,4	3	3	1,4	1,3	1.4	1.4	1.4	1.4	1.4
E	—													
F	3	3	3	3	3	3	3	3	1,4	1.4	1.4	1.4	1.4	1.4
G	—													
H	—													
I	1,4,3,1		3	3	3,4	3	3	1,3	1,3	1.3	1.3	1.3	1.3	1.3
J	4,1	1,3	3	1,3	3,4	3	3	1,3	1,3	1.3	1.3	1.3	1.3	1.3
K	3	3	3	1.3	3	3	3	3	3	3	3	1.3	1.4	1.4
L	3,1,5	1,3	3	1.3	3,4	3	3	3	3	3	3	1.4	1.4	1.4

1-Swimming
2-Erractic Swimming Behavior
3-Depressed Activity Level
4-Mating (on bottom)
D-Dead
5-Floating on Surface

Reproduction

Replicate	Surviving Adults (Day 35)	Reproduction (Day 35) Babies	Surviving Adults (Day 42)	Male / Female	Reproduction (Day 42) Babies	Total Reproduction	# of Neonates per Female
A	7	1	5	3/2	0	1	0.5
B	7	2	6	2/4	0	2	2
C	—						
D	8	5	6	1/5	0	5	1
E	—						
F	5	0	4	3/1	2	2	2
G	—						
H	—						
I	9	1	7	3/4	0	1	0.25
J	3	2	2	1/1	3	5	5
K	7	0	5	2/3	2	2	0.6
L	8	1	6	2/4	0	1	0.25

Hyalella azteca 28-Day Sediment Toxicity Test

Sediment: Sedge 02 CES ID#: AD-0143 Test Dates: 2/29/08 - 3/13/08

Temperature (23 ± 1°C)

Initials	MS	SZ	BK	MS	MS	MS	BK	BK	SZ	BK	BK	BK	BK	BK
	Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	23.3	23.2	23.5	22.5	22.4	23.3	23.3	24.0	23.4	23.4	23.4	23.4	23.2	23.3
B														
C														
D														
E														
F														
G														
H														
I														
J														
K														
L														

Replicate

D.O. (>2.5 mg/L)

Initials	MS			MS		BK		MS			BK		BK	
	Fri	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.
Day	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A	8.2			8.0		8.0		6.5			6.9		6.7	
B	8.1			8.0		8.0		6.5			6.9		6.7	
C	—			—		—		—			—		—	
D	8.1			7.9		7.9		6.5			6.8		6.7	
E	—			—		—		—			—		—	
F	8.0			7.9		7.9		6.5			6.8		6.7	
G	—			—		—		—			—		—	
H	—			—		—		—			—		—	
I	8.0			7.9		7.9		6.9			6.9		6.8	
J	8.1			8.0		7.9		6.9			6.9		6.7	
K	8.0			8.0		7.9		7.0			6.8		6.5	
L	8.0			7.9		7.9		7.0			6.8		6.5	

Replicate

Hyalella azteca 28 D Sediment Toxicity Test

Sediment: Sedge 02 CES ID#: AD - 0143 Test Dates: 2/29/08 - 3/13/08

Conductivity

Initials		Fri	Sat.	Sun.	Mon.	Tues.	Wed.	RK Thurs	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	RK Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A							300							379
	B							300		-					381
	C							—							—
	D							290							382
	E							—							—
	F							310							381
	G							—							—
	H							—							—
	I							270							382
	J							300							384
	K							300							386
	L							300							382

pH

Initials		MP Fri	Sat.	Sun.	MS Mon.	Tues.	MS Wed.	Thurs	Fri.	Sat.	Sun.	BK Mon.	Tues.	S Wed.	Thurs.
Day		29	30	31	32	33	34	35	36	37	38	39	40	41	42
Replicate	A	7.80			7.80		7.98		7.49			7.73		8.02	
	B	7.79			7.71		7.98		7.58			7.56		7.99	
	C	—			—		—		—			—		—	
	D	7.81			7.81		7.97		7.74			7.78		7.89	
	E	—			—		—		—			—		—	
	F	7.82			7.80		7.98		7.81			7.81		8.00	
	G	—			—		—		—			—		—	
	H	—			—		—		—			—		—	
	I	7.82			7.80		7.98		7.85			7.79		7.98	
	J	7.82			7.78		7.98		7.90			7.84		7.98	
	K	7.80			7.81		7.98		7.85			7.84		7.95	
	L	7.80			7.80		7.98		7.88			7.84		7.95	

Hardness and Alkalinity Data

Client: Sediment Test ID: AD-0142/0143 Month / Year: 3/8

Concentration	Hr Day	Vol. Titrant Used		Diff. (ml)	Hardness (mg/l)	Vol. Titrant Used (per 50 ml sample)		Diff. (ml)	Alkalinity (mg/l)
Sedge 01	1	2.5	0.0	2.5	100	2.9	0.0	2.9	58
	28	4.7	2.5	2.2	88	6.1	2.9	3.2	64
	29	8.8	4.7	4.1	164	9.2	6.1	3.1	68
	42	12.3	8.8	3.5	140	13.0	9.2	3.8	76
Sedge 02	1	2.4	0.0	2.4	96	3.0	0.0	3.0	60
	28	4.6	2.4	2.2	88	6.2	3.0	3.2	64
	29	8.6	4.6	4.0	160	8.8	6.2	2.6	52
	42	12.3	8.6	3.7	148	11.8	8.8	3.0	60
Accuracy & Precision	1								
	2								
	3								
	4								
	5								

Hardness Standard = 200.0 mg/L
Alkalinity Standard = 100.0 mg/L

Acceptable Limits in mg/L
SynFresh: Alk (57-64), Hard (80-100)
Culture Fresh: Alk (20-50), Hard (70-100)
SynSalt: Alk (<120)

Addendum E

Chain of Custody Form

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

Columbia Analytical Services, Inc.
An Employee - Owned Company
www.caslab.com
One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475

PAGE 1 OF 1

SR #

CAS Contact

Project Name: Ultralife Sediment
Project Number: Tox Subcontract
Project Manager: Carl Beechler
Report CC:
Company/Address: CAS
1 Mustard St. Suite 250
Rochester, NY 14609
Phone#: (585) 288-5380
FAX#: (585) 288-8475
Sampler's Signature:
Sampler's Printed Name:

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 0

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOA's ☐ 8260 ☐ 624 ☐ CLP	GC/MS SVOA's ☐ 8270 ☐ 625 ☐ CLP	GC VOA's ☐ 8021 ☐ 601/602	PESTICIDES ☐ 8081 ☐ 608 ☐ CLP	PCB's ☐ 8082 ☐ 608 ☐ CLP	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	TOXICITY	REMARKS/ ALTERNATE DESCRIPTION
SEDGE01	1065301	12/27/07	12:30	S	4								X	
SEDGE02	1065302	↓	14:00	↓	4								X	
REFERENCE SEDGE0	1065303	↓	15:30	↓	4								X	

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 24 hr ____ 48 hr ____ 5 day
X STANDARD
REQUESTED FAX DATE:
REQUESTED REPORT DATE: 1/17/08

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Specialized Forms / Custom Report
Edata ____ Yes ____ No

INVOICE INFORMATION
R2741450
PO#
BILL TO:
SUBMISSION #:

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Rachel Jones	Signature: Megan Shaffer	Signature:	Signature:	Signature:	Signature:
Printed Name: Rachel Jones	Printed Name: Megan Shaffer	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: CAS	Firm: CES Temp 1°C	Firm:	Firm:	Firm: 000080	Firm:
Date/Time: 1/2/08 1700	Date/Time: 1/3/08 1500	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

SCOC-1102-08

Addendum F

Meter Calibration Information and Chemical Properties of Synthetic Freshwater

PH METER

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Date/time	Meter	PH 7.00	PH 10.01	Temp.	PH 8.00	Initial
1/29/08	PC-300	7.01	10.01	20.0	8.01	RK
1/30/08	PC 300	7.00	10.01	20.0	8.00	[illegible]
1/31/08	PC-300	7.00	10.01	20.0	8.00	RK

Date/time	METER	EXP. Value	AP/1	AP/2	AP/3	AP/4	AP/5	Initial
2/1/08	PC-300	7.00	7.01	7.01	7.01	7.01	7.00	RK

Date/time	METER	PH 7.00	PH 10.01	Temp.	PH 8.00	Initial
2/1/08	PC-300	7.00	10.01	20.0	7.99	[illegible] 830
2/2/08	PC-300	7.00	10.01	20.0	8.01	SZ 900
2/3/08	PC-300	7.00	10.01	19.5	8.00	[illegible] 900
2/4/08	PC-300	7.01	10.01	19.7	8.01	[illegible] 900
2/5/08	PC300	7.00	10.01	21.0	8.00	[illegible] 800
2/6/08	PC300	7.00	10.01	21°C	8.01	[illegible] 800
2/7/08	PC300	7.00	10.01	20.4	8.00	[illegible] 800
2/8/08	PC-300	7.00	10.01	19.8	8.00	SZ 800
2/9/08	PC-300	7.01	10.01	20.3	8:30	RK
2/10/08	PC-300	7.01	10.01	20.1	8.30	RK 900
2/11/08	PC300	7.01	10.01	20.1	8.01	[illegible] 800
2/12/08	PC300	7.00	10.01	20.2	8.02	[illegible] 800
2/13/08	PC300	7.00	10.01	20.2	8.01	[illegible] 800
2/14/08	PC-300	7.01	10.01	20.3	8.00	RK 8:3
2/15/08	PC300	7.00	10.01	20.1	8.01	[illegible] 900
2/16/08	PC-300	6.99	10.01	20.1	8.00	MD 900
2/17/08	PC-300	7.01	10.01	20.1	8.00	RK
2/18/08	PC-300	7.01	10.01	20.1	8.00	SM 900
2/19/08	PC300	7.01	10.01	20.1	8.00	[illegible] 830
2/20/08	PC-300	7.00	10.01	20.1	8.00	SM 930
2/21/08	PC-300	7.00	10.01	19.6	8.03	[illegible] 900
2/22/08	PC300	7.00	10.01	20.0	8.01	[illegible] 800
2/23/08	PC-300	7.01	10.01	20.0	8.00	SZ 800
2/24/08	PC-300	7.01	10.01	20.0	8.01	[illegible]

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3/23 ramp PC-300, 7.01, 10.01, 19.1, 8.01, BK 8:00

Date/time	METER	PH 7.00	PH 10.0	Temp	PH 8.00	initial
3/24 10:30	PC-300	7.00	10.01	19.9	8.01	BK 8am
3/25 8:30	PC-300	7.01	10.01	20.0	8.02	RK 8:30
3/26 9:00	PC-300	7.01	10.01	20.0	8.01	SM 9:00
3/27 7:00	PC300	7.01	10.01	20.1	8.01	P 8:00
3/28 8:00	PC300	7.00	10.01	20.2	8.01	P 9:00
3/29 8:00	PC-300	7.01	10.01	20.2	8.01	SM 8:00
3/30 8:00	PC-300	7.01	10.01	20.1	8.01	SM 8:00
3/31 8:30	PC-300	7.01	10.01	20.2	8.01	RK 8:00

Date/time	METER	EXP. Value	AP/1	AP/2	AP/3	AP/4	AP/5	initial

4/1/08
4/2/08
4/3/08
4/4/08
4/5/08
4/6/08
4/7/08
4/8/08
4/9/08
4/10/08
4/11/08
4/12/08
4/13/08
4/14/08
4/15/08
4/16/08
4/17/08
4/18/08
4/19/08

4/2
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5/16
5/17
5/18
5/19

000082

2008

METER	pH 7.00	pH 4.00	slope	8:00	Temp	time Date	initial
210A-2	7.01	4.00	102.3	7.98		11:30 1/3/08	[illegible]
210A#2	7.01	4.00	102.6	8.01	20°C	1:30 1/4/08	[illegible]
210A#2	7.01	4.01	101.9	7.90	22°C	1/7/08	[illegible]
210A#2	7.01	4.01	101.6	7.96	22°C	1/8/08	[illegible]
210A#2	7.01						
210A#2	7.02	4.00	102.5	7.96	20°C	1/10/08	[illegible]
210A#2	7.01	4.01	102.4	7.97	21°C	1/11/08	[illegible]
210A#2	7.01	4.01	101.5	7.95	21°C	1/14/08	[illegible]
210A#2	7.02	4.00	103.0	7.95	20°C	1/15/08	[illegible]
210A#2	7.02	4.01	102.4	7.96	19°C	1/17/08	[illegible]
210A#2	7.01	4.00	100.1	7.95	22	1/22/8	[illegible]
210A#2	7.01	4.01	103.1	7.96	22	1/24/8	[illegible]
210A#2	7.01	4.01	102.3	7.92	21°C	1/25/08	[illegible]
210A#2	7.01	4.01	103.6	7.95	21°C	1/30/8	[illegible]
210A#2	7.01	4.01	101.4	7.94	23°C	1/31/8	[illegible]
210A#2	7.01	4.01	100.9	7.95	21°C	2/1/8	[illegible]
210A#2	7.01	4.01	101.9	7.94	21°C	2/5/8	[illegible]
210A#2	7.01	4.01	102.9	7.96	21°C	2/14/8	[illegible]
210A#2	7.01	4.01	102.1	7.95	21°C	2/18/8	[illegible]
210A#2	7.01	4.01	102.8	7.96	22°C	[illegible]	[illegible]
210A#2	7.01	4.01	100.8	7.94	21°C	[illegible] 2/8	[illegible]
210A#2	7.01	4.01	101.3	7.95	[illegible]	2/25/8	[illegible]
210A#2	7.01	4.01	101.1	7.95	21°C	2/26/8	[illegible]

Meter	pH 7.00	pH 4.00	slope	pH 8.0	Temp	Date	Initials
210A#2	7.01	4.01	102.4	8.02	20°C	3/11/08	JBN
210A#2	7.01	4.01	101.6	8.00	20.0°C	3/13/8	✓
210A#2	7.01	4.01	102.7	8.00	21°C	3/20/8	P

D.O METER

000085

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Date	METER	Temp	Calibration	Adjust Reading	Reading	time initial
1/27/08	632	23.1	8.26	0.0	8.2	
1/28/08	632	22.5	8.26	0.0	8.1	
1/29/08	632	21.4	8.26	0.0	8.1	
1/30/08	632	22.3	8.26	0.0	8.2	
1/31/08	632	22.6	8.26	0.0	8.1	

Date/time	Meter	Expected value	AP/1	AP/2	AP/3	AP/4	AP/5	Unit
2/1/08 8:40	632	8.2	8.1	8.1	8.0	8.0	8.0	

Date/time	METER	Temp	Calibration	Adjust Reading	Reading	Initial
2/1/08	632	22.1	8.26	0.0	8.3	
2/2/08	632	22.0	8.26	0.0	8.2	
2/3/08	632	21.6	8.26	0.0	8.2	
2/4/08 9:30	632	21.8	8.26	0.0	8.1	
2/5/08	632	22.6	8.26	0.0	8.1	
2/6/08	632	22.4	8.26	0.0	8.2	
2/7/08	632	22.3	8.26	0.0	8.1	
2/8/08	632	22.5	8.26	0.0	8.2	
2/9/08	632	22.5	8.26	0.0	8.1	
2/10/08 9am	632	22.5	8.26	0.0	8.1	
2/11/08	632	22.5	8.26	0.0	8.2	
2/12/08	632	22.4	8.26	0.0	8.1	
2/13/08	632	22.4	8.26	0.0	8.3	
2/14/08 8:30	632	22.9	8.26	0.0	8.1	
2/15/08	632	22.8	8.26	0.0	8.1	
2/16/08	632	22.2	8.26	0.0	8.1	
2/17/08 8:30	632	22.7	8.26	0.0	8.1	
2/18/08	632	22.3	8.26	0.0	8.1	
2/19/08	632	22.0	8.26	0.0	8.1	
2/20/08	632	22.5	8.26	0.0	8.3	
2/21/08	632	22.8	8.26			

Date/time	METER	Temp	Calibration	Adjust Reading	Reading	initial
[illegible]08	632	22.4	8.26	0.0	8.1	✓8
[illegible]	632	22.3	8.26	0.0	8.2	SZ8
[illegible]	632	22.6	8.26	0.0	8.1	RK 7
[illegible]	632	22.2	8.26	0.0	8.2	✓8
[illegible]	632	22.6	8.26	0.0	8.2	LJH 8
[illegible]	632	22.8	8.26	0.0	8.1	✓8
[illegible] 9am	632	22.7	8.26	0.0	8.2	RK 8
[illegible]	632	23.0	8.26	0.0	8.2	SZ8

Date/time	Meter	Expected Value	AP/1	AP/2	AP/3	AP/4	AP/5	initial
[illegible]08	632	8.2	8.1	8.1	8.0	8.0	8.0	SZ8

Date	METER	Temp	calibration	Adjust Reading	Reading	initial
[illegible]	632	23.6	8.26	0.0	8.2	SZ 8
[illegible]08 9am	632	20.1	8.26	0.0	8.2	RK 930
3/08	632	~~20.~~22.6	8.26	0.0	8.1	✓ 830
[illegible]08	632	22.5	8.26	0.0	8.2	✓ 900
[illegible]08	632	22.8	8.26	0.0	8.2	✓ 900
[illegible]08	632	22.8	8.26	0.0	8.2	✓ 800
[illegible]08	632	21.9	8.26	0.0	8.1	SZ 830
[illegible]	632	21.4	8.26	0.0	8.2	✓ 800
9/08	632	22.6	8.26	0.0	8.2	RK 930
[illegible]	632	22.8	8.26	0.0	8.2	LJH 800
[illegible]	632	22.8	8.26	0.0	8.2	JM 800
[illegible]	632	20.9	8.26	0.0	8.2	✓ 800
[illegible]	632	20.9	8.26	0.0	8.2	✓ 900
[illegible]	632	20.8	8.26	0.0	8.3	LJH 800
[illegible]	632	21.5	8.26	0.0	8.1	SZ 830
[illegible]	632	22.4	8.26	0.0	8.1	RK 9am
[illegible]	632	22.1	8.26	0.0	8.2	✓ 800
[illegible]	632	22.7	8.26	0.0	8.1	JM 800
[illegible]	632	22.9	8.26	0.0	8.1	RK 730

Conductivity | Salinity (ppt) | RIDGES | Fresh | Check

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Date	Meter	Temp	Calibration	Adjust Reading	Reading	time/initial
3/20/08	632	22.6	8.26	0	8.2	SM 800
3/21/08	632	21.7	8.26	0	8.1	SZ 830
3/22/08	632	22.1	8.26	0	8.2	SZ 800
3/23/08	632	22.5	8.26	0	8.1	RK 9am
3/24/08	632	22.6	8.26	0	8.2	RK 83
3/25/08	632	22.6	8.26	0	8.1	RK 9am
3/26/08	632	22.3	8.26	0	8.2	SM 900
3/27/08	632	22.4	8.26	0	8.2	P 900
3/28/08	632	22.5	8.26	0	8.1	SM 800
3/29/08	632	22.2	8.26	0	8.2	SM 800
3/30/08	632	22.3	8.26	0	8.2	RK 8:30
3/31/08	632	22.8	8.26	0	8.2	

Date/time	Meter	Expected value	AP/1	AP/2	AP/3	AP/4	AP/5	initial

Date	Meter	Temp	Calibration	Adjust Reading	Reading	Time/initial

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Date	Meter	RO Reading	KCl Reading	Initial	Time
1/29/08	PC-300	1.9	1413	RK	8:30
1/30/08	PC 300	1.8	1413	✓	8a
1/31/08	PC-300	1.6	1413	RK	8am

Date/time	Meter	EXP. Value	Apl	Apl2	Apl3	Apl4	Apl5
initial	PC-300	1413	1412	1413	1413	1413	1413
2/1/08							

Date/time	Meter	R.O Reading	KCl Reading	Initial	time
2/1/08	PC-300	1.9	1412	SJW	8:00
2/2/08	PC-300	1.7	1413	SZ	8
2/3/08	PC-300	1.9	~~1415~~ 1410	SJW	7:00
2/4/08	PC-300	1.9	1413	RK	9am
2/5/08	PC 300	1.8	1413	✓	8
2/6/08	PC 300	1.8	1413	✓	8
2/7/08	PC300	1.7	1410	✓	8
2/8/08	PC300	1.8	1412	✓	8
2/9/08	PC-300	1.9	1413	SZ	9
2/10/08	PC-300	1.9	1413	RK	830
2/11/08	PC300	1.8	1410	✓	8
2/12/08	PC300	1.8	1411	✓	8
2/13/08	PC300	1.7	1412	✓	8
2/14/08	PC-300	1.9	1413	RK	9am
2/15/08	PC300	1.8	1410	✓	8
2/16/08	PC-300	1.8	1413	MS	9a
2/17/08	P-300	1.9	1413	RK	8am
2/18/08	P-300	1.9	1413	SM	830
2/19/08	PC300	1.8	1410	✓	8
2/20/08	PC-300	1.7	1413	SM	800
2/21/08	PC-300	1.5	1410	SJW	~~two~~ 800
2/22/08	PC300	1.8	1413	✓	8
2/23/08	PC-300	1.6	1414	SZ	9
2/24/08	PC-300	1.6	1413	RK	8am

ate	Meter	R.O Reading	KCl Reading	initial/time
25/08	PC 300	1.7	1410	✓
26/08	PC300	1.7	1413	ZJH 8:00
27/08	PC 300	1.8	1413	✓
28/08	PC-300	1.9	1413	RK 8am
29/08	PC-300	1.7	1413	SZ

nitial Date	Meter	RO Reading	Reading		Initial		
	Meter	Exp. Value	#1	#2	#3	#4	#5
3/3/08	PC-300	1413	1412	1412	1413	1412	1412
RK 8:30 am							

ate/	METER	R.O Reading	KCl Reading	Initial	Time
08	PC300	1.9	1415	SZ	8a
2/08	PC-300	1.9	1413	RK	9am
3/3	PC-300	1.9	1410	SM	830
3/4/8	pC300	1.8	1413	✓	8a
3/5/8	pC 300	1.7	1410	✓	9a
3/6/8	pC300	1.6	1413	✓	9a
3/7/8	pc300	1.9	1413	SZ	830
3/8/8	pC300	1.8	1410	✓	830
3/9/08	PC-300	1.9	1413	RK	8:30
3/10/08	PC-300	1.9	1413	ZJH	8a
3/11/08	PC-300	1.9	1413	SM	8a
3/12/08	pC300	1.8	1410	✓	8a
3/13/08	pC300	1.7	1411	✓	9a
3/14/08	PC-300	1.9	1414	ZJH	8a
3/15/08	PC-300	1.8	145	SZ	830
3/16/08	PC-300	1.9	1410	RK	9am
3/17/08	PC 300	1.7	1411	✓	8a
3/18/08	PC-300	1.8	1410	SM	9a
3/19/08	PC-300	1.9	1410	RK	9am
3/20/08	PC-300	1.8	1410	SM	8a

Salinity (ppt)

RIDGES Fresh

Conductivity Meter

Date	meter	RO Reading	KCl Reading	Initial	Time
3/21/08	PC-300	1.9	1413	SZ	730
3/22/08	PC-300	1.8	1413	SZ	9a
3/23/08	PC-300	1.9	1413	RK	7am
3/24/08	PC-300	1.9	1413	RK	10am
3/25/08	PC-300	1.9	1410	RK	8:30
3/26/08	PC-300	1.9	1413	SM	9:00
3/27/8	PC-300	1.8	1413	"	9a
3/28/8	PC 300	1.7	1410	"	8a
3/29/08	PC-300	1.9	1413	SM	8:00
3/30/08	PC-300	1.9	1413	SM	8:00
3/31/08	PC-300	1.7	1413	RK	9am

Room Temperature

000091

Date	Chronic lab.	Chronic Cerio	SPST	Acute lab.	Cold Room	Initial/Time
1/08						
2/08	23.4	24.6	20.1	20.0	19.6	BK 930
3/08	22.9	25.1	20.2	20.6	19.9	BK 9am
4/08	23.6	25.1	20.4	22.1	20.0	BK 930
5/08	22.5	25.0	20.6	22.0	19.9	RK 9am
6/08	23.0	25.2	20.6	22.1	19.9	RK 8:30
7/08	22.5	25.0	20.5	22.3	20.0	KB 8am
8/08	22.5	24.0	21.0	22.0	20.0	[illegible]
9/8	21.9	25.3	23.0	22.0	20.0	[illegible]
10/8	24.0	23.8	22.1	24.0	20.0	[illegible]
11/8	24.9	23.9	22.0	23.0	20.0	[illegible]
12/8	24.9	23.8	22.5	23.1	20.0	[illegible]
13/08	24.0	23.6	22.0	20.2	19.9	RK 8:30
14/08	22.7	25.1	20.0	20.3	19.9	SR 8
15/08	24.0	25.5	19.8	19.0	19.9	[illegible]
16/08	22.4	25.0	19.9	19.8	20.0	SR 8
17/08	23.3	25.0	19.8	19.8	20.1	[illegible]
18/08	23.5	25.1	19.9	19.9	20.0	[illegible]
19/08	22.5	25.5	20.0	19.9	19.9	BK
20/08	22.6	25.4	20.0	19.9	19.6	RK 8
21/8	23 8	24.8	20.1	20.1	19.9	[illegible]
22/8	23.9	24.9	20.0	19.9	20.0	[illegible]
23/8	22.7	25.0	21.0	20.0	20.0	[illegible]
24/8	22.8	24.0	19.6	20.1	20.0	[illegible]
2408	23.0	24.0	16.0	24.0	19.0	[illegible] 8am
25/08	24.1	24.4	18.3	24.0	19.4	[illegible] 8am
26/08	23.0	25.0	19.9	23.9	19.9	SR 9:30
27/08	22.9	25.1	20.0	22.0	19.9	RK 730
28/08	22.8	25.0	20.1	22.0	20.0	RK 830
29/08	22.4	25.0	20.1	22.0	20.0	RK 830
30/8	22.4	25.1	20.0	23.0	20.0	RK 9am
31/08	22.3	25.0	20.0	23.0	20.1	RK 830

Temperature

Date/time	Chronic Lab.	Chronic Lexip	SPST	ACUTE	Cold Room	Initials
2/1/08	22.3	25.0	20.0	25.0	19.9	BJH
2/2/08	22.4	25.1	20.1	25.1	19.8	SZ
2/3/08	23.8	25.0	20.0	26.2	19.9	BJH
2/4/08	22.3	25.1	20.1	23.9	20.0	RK San
2/5/8	22.5	25.0	20.0	24.0	20.0	BJH
2/6/8	22.4	25.0	20.1	23.8	20.0	S
2/7/8	21.8	22.5	20.2	23.5	20.0	S
2/8/8	22.1	22.9	20.3	23.5	20.0	S
2/9/08	22.5	25.0	20.1	24.0	20.0	SZ
2/10/08	22.4	25.1	20.0	24.0	20.0	RK San
2/11/8	22.3	25.0	20.0	24.0	20.0	S
2/12/8	23.0	22.5	20.0	24.0	20.0	S
2/13/8	22.8	23.9	21.5	27.0	20	S
2/14/8	22.6	23.6	21.5	24.5	20.0	RK San
2/15/8	22.4	22.9	22.0	24.0	20.0	S
2/16/8	22.3	23.5	22.0	23.0	20.0	MB
2/17/8	22.2	23.6	22.0	23.0	20.0	RK San
2/18/8	21.8	24.0	22.0	28.0	20.0	SM
2/19/8	22.3	23.0	21.8	26.0	20.0	S
2/20/8	22.6	23.0	22.0	27.0	20.0	SM
2/21/8	22.3	23.0	21.5	27.0	19.9	BJH
2/22/8	22.3	23.2	22.0	24.0	20.0	S
2/23/8	21.9	23.5	22.5	28.3	20.0	SZ
2/24/8	22.5	23.6	22.0	26.0	20.1	RK San
2/25/8	22.6	23.0	22.7	26.1	20.0	S
2/26/8	22.5	24.5	23.7	27.3	19.9	BJH
2/27/8	22.8	24.6	23.0	27.0	20.0	S
2/28/8	22.3	24.9	23.0	26.9	20.0	RK San
2/29/08	22.4	24.9	23.0	27.0	20.1	SZ
3/1/08	22.4	25.0	23.1	27.0	20.0	SZ
3/2/08	22.9	25.1	23.0	26.0	20.1	RK San
3/3/08	21.6	24.0	22.5	27.0	20.0	SM

Time	Chronic lab	Chronic cerio	spst	Acute	Cold Room	time/initial
08	22.6	25.0	22.8	26.0	20.0	RK 9 (89)
/08	22.5	25.0	~~26.0~~	26.0	20.0	✓ 800
/08	22.5	22.0	22.5 / 23.6	27.0	20.0	✓ 800
/08	22.6	24.3	22.9	28.9	20.0	✓ 900
/08	22.0	24.9	22.8	28.9	20.0	SZ 830
/08	23.0	24.0	23.0	27.8	20.0	✓ 800
/08	23.0	24.0	23.1	27.9	20.0	RK 8am
/08	23.0	24.5	23.3	27.8	20.0	[illegible] 800
/08	22.5	24.0	23.5	27.5	20.0	SM 800
/08	22.0	22.0	23.0	26.0	20.0	✓ 800
/08	22.3	22.0	23.1	26.0	20.0	✓ 800
/08	22.4	22.1	24.0	26.0	19.9	[illegible] 800
/08	22.3	22.9	24.3	26.0	20.0	SZ 800
/08	22.3	22.9	24.0	26.0	20.0	RK 9am
/08	22.5	23.0	24.0	25.8	20.0	✓ 830
/08	22.5	23.0	22.0	25.0	20.0	SM 900
/08	22.3	23.0	23.0	25.0	20.0	SM 900
/08	22.3	22.1	22.9	25.3	20.0	SZ 900
/08	22.2	23.0	22.8	25.2	20.0	SZ 800
/08	22.3	23.0	22.6	25.1	20.1	RK 830
/08	22.3	23.0	22.6	25.0	20.0	RK 9am
/08	22.6	23.0	22.0	25.0	20.1	RK 830
/08	22.2	22.5	23.0	25.0	20.0	SM 900
/08	22.9	22.0	22.5	25.0	20.0	✓ 9
/08	23.0	22.2	22.7	24.9	20.0	✓ 9
/08	22.5	22.1	22.5	25.0	20.0	SM 800
30/08	22.3	22.0	22.5	25.0	20.0	SM 800
/08	22.4	22.0	22.0	25.1	20.0	RK 9am
/08						
2/08						
3/08						
4/08						

R.O. Sunfresh

checks

Date	#1 Refrigerator	#2	unit/time
/08	5.0	defrost	Mj 8am
3/08	52	11	Mj 8am
/08	3.0	3.2	Mj 8am
/08	3.2	3.6	RK 8am
/08	3.6	4.1	RK 830
/08	3.5	2.6	RK 11:30
/08	3. 9	4.0	S 800
/18	4.7	5.0	S 800
1018	5.0	4.8	S 800
1118	4.8	5.0	S 8
1218	4.9	4.9	S 8
13/08	4.6	4.0	RK 9am
14/08	3.6	4.0	SZ 8
15/08	3.3	5.1	[illegible]
/08	5.0	6.0	SZ 730
/08	3.1	Defrosting 5.2	[illegible] 811
1/17/08	4.7	4.5	[illegible] 8:30
1/19/08	4.2	4.0	SK 9am
/20/08	4.1	4.0	RK 8am
1/21/08	5.0	4.9	S 8
1/22/08	4.7	5.0	S 8
1/23/08	4.5	4.7	S 8
/24/18	4.4	5.0	S 8
1/25/08	defrost	5.0	[illegible] 6am
1/26/08	4.0	4.9	SK 9:30am
/27/08	3.9	4.0	RK 7am
/28/08	3.7	4.0	RK 8:30
/29/08	3.6	4.0	RK 8:30
/30/18	3.8	4.1	S 8
/31/08	3.6	4.0	RK 8am
/08	3.8	4.0	[illegible] 8am

Date	Refrigerator #1	#2	unit/time
2/2/08	3.4	4.9	SZ 9
2/3/08	3.6	4.0	RK 730
2/4/08	3.5	4.0	RK 9am
2/5/08	3.7	4.1	S 830
2/6/08	3.9	4.5	S 830
2/7/08	4.1	5.0	S 830
2/8/08	3.9	4.5	S 830
2/9/08	4.1	4.6	SZ 830
2/10/08	4.1	4.0	RK 8:30
2/11/08	4.2	4.1	S 830
2/12/08	4.4	4.0	S 830
2/13/08	4.0	5.0	S 830
2/14/08	4.0	3.9	RK 9am
2/15/08	5.0	4.0	S 830
2/16/08	5.1	4.0	MB 930
2/17/08	4.9	4.0	RK 900
2/18/08	4.7	4.4	SM 900
2/19/08	4.0	4.1	S 830
2/20/08	4.8	5.2	SM 900
2/21/08	5.0	4.8	[illegible] 900
2/22/08	5.0	4.8	[illegible] 800
2/23/08	4.8	5.0	S 800
2/24/08	4.6	4.9	RK 9am
2/25/08	4.8	5.0	S 830
2/26/08	5.0	4.3	[illegible] 900
2/27/08	4.9	5.0	S 830
2/28/08	4.6	4.9	RK 9am
2/29/08	2.8	5.1	SZ 830
3/1/08	3.1	5.3	SZ 830
3/2/08	5.2	4.2	RK 7:30
3/3/08	5.2	4.5	SM 830
3/4/08	5.0	4.1	S 830

ROOM TEMP / FRIDGES

py to etc.)

fresh

DATA LOGGER / FRIDGES / Salinity (ppt)

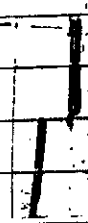
Date	Ref #1	#2	Time / Init	Date	Frig 1	Frig 2	Time / In
3/5/08	4.8	5.1	✓ 830				
3/6/08	3.9	4.0	[illegible] 700				
3/7/08	4.1	5.0	SZ 830				
3/8/08	4.5	4.8	✓ 900				
3/9/08	3.9	4.0	RK 9am				
3/10/08	4.3	4.0	[illegible] 830				
3/11/08	4.5	4.5	SM 830				
3/12/08	4.7	5.0	✓ 900				
3/13/08	4.8	4.8	✓ 900				
3/14/08	4.7	4.5	[illegible] 830				
3/15/08	4.8	4.3	SZ 830				
3/16/08	3.9	4.0	RK 8am				
3/17/08	4.3	4.5	✓ 900				
3/18/08	4.3	4.2	SM 900				
3/19/08	4.2	4.0	RK 8am				
3/20/08	4.4	4.4	SM 830				
3/21/08	5.3	5.0	SZ 830				
3/22/08	5.0	5.2	SZ 900				
3/23/08	4.9	5.0	RK 9am				
3/24/08	4.3	4.2	RK 9am				
3/25/08	4.0	4.1	RK 8:30				
3/26/08	4.0	4.6	SM 9:00				
3/27/08	4.2	4.5	✓ 9:00				
3/28/08	4.7	5.0	✓ 800				
3/29/08	4.4	4.6	SM 800				
3/30/08	4.3	4.5	SM 800				
3/31/08	4.2	4.5	RK 9am				
4/1/08							
4/2/08							
4/3/08							
4/4/08							
4/5/08							

MUST be between (50-100)

Light Meter

Photoperiod 181

te	Room	light	Initial	ROOM	light Perid	Date Initial
Quarter	Chronic	86.0				
slot	chronic cerio	83.0				
	cerio A NOT in use					
	Cerio Culture					
	Acute Room	80.0				
	special studies	84.0				
	cold Room	76.0				
	Chronic Room					
	Chronic cerio					
	cerio culture					
	Acute Room					
	special studies					
	cold Room					
	Chronic Room					
	Chronic Cerio					
	Cerio Culture					
	Acute Room					
	special studies					
	cold Room					
	Chronic Room					
	Chronic cerio					
	Cerio Culture					
	Acute Room					
	Special studies					
	Cold Room					



Light Meter

Pipette Calibratio

000096

Date	H2O type	PH	D.O	Cond	Alk	HARD	Cl2	IRON	NH3
[illegible]/2/08	D.Tap	7.42	5.6	232	74	100	0	0	
	culture	7.65	6.0	266	52	88	0	0	
	filtered	7.27	4.7	209	68	96	0	0	
	unfiltered	7.40	4.9	205	70	88	0.5	0	
[illegible]	synsalt	7.74	6.2	411.3	76	X	0	0	
	DTap	684	8.1	188	64	92	0	0	
	cultur	7.57	7.5	232	60	96	0	0	
[illegible]/11/08	Filtered	734	6.5	198	72	108	0	0	
	unfiltered	6.99	7.9	190	60	92	0.5	0.1	
SJ	Synsalt	7.61	7.2	427	70	X	0	0	
	D.Tap	7.03	7.4	277	70	88	.2	0	
	culture	7.69	7.9	330	62	104	0	0	
[illegible]5/08	Filtered	7.19	7.2	269	68	100	.3	.1	
	unfiltered	7.22	7.1	280	68	104	.5	.1	
SJ	Synsalt	7.73	6.3	45.8	82	X	.0	0	
	DTap	7.16	6.1	325	76	112	0	0	
[illegible]/08	culture	7.89	7.5	376	50	100	0	0	
	Filtered	7.53	7.8	330	68	96	0	0	
	unfiltered	7.49	7.1	269	76	92	0.5	0.1	
[illegible]	synsalt	7.76	8.2	39.8	76	X	0	0	
	D.Tap	7.46	7.2	260	64	100	0	0	
[illegible]	culture	7.89	7.6	380	60	88	0	0	
	filtered	7.56	7.7	340	74	96	0	0	
[illegible]	unfiltered	7.49	7.0	270	76	88	0.5	0.1	
	synsalt	8.04	8.6	42.0	82	X	0	0	

Thermometers | Environmental Chemistries

Date	H_2O Type	PH	DO	Cond	ALK	Hard	Cl2	Iron	Init/Time
	DTap	7.70	4.9	270	76	100	0	0	BK 10:50
	culture	6.75	7.3	360	44	88	0	0	
2/8/08	filtered	7.30	4.9	250	68	96	0.3	0	
	unfiltered	7.49	4.9	260	70	88	0.5	0.2	
	Synsalt	8.01	8.2	45.0	89	X	0	0	
	D.tap	7.69	4.7	262	74	128	0	0	
2/12/08	culture	6.77	7.4	365	22	116	0	0	BK 2:15
BK	filtered	7.29	4.9	272	64	112	0.3	0	
	unfiltered	7.59	4.9	253	66	108	0.5	0.2	
	Synsalt	6.06	6.2	45.9	100	X	0	0	
	D. tap	7.51	7.0	204	60	84	0	0	
	culture	7.99	7.3	270	52	96	0	0	
2/19/08	filtered	701	5.8	215	60	84	0	0	BK 2PM
	unfiltered	7.26	5.7	250	62	92	0.2	.1	
	Synsalt	8.04	7.0	45.2	88	X	0	0	
	Dtap	7.50	7.0	207	~~60~~	~~80~~	0	0	
	culture	7.36	7.2	290	~~50~~ 60	80	0	0	
2/26/08	filtered	7.50	7.0	207	60	84	~~.2~~	0	1:30 PK
BK	unfiltered	7.20	4.9	280	60	86	.5	0	
	Synsalt	8.04	7.6	48.0		X	0	0	
3/4/08	Dtap	7.56	5.7	200	36	72	0	0	3:30
	culture	8.03	7.5	280	20	72	0	0	
	filtered	7.56	5.7	200	36	56	0.3	0	
	unfiltered	7.51	5.8	258	34	52	0.3	0.1	
	Synsalt	7.77	6.8	45.7	86	X	0	0	

Date	H2O type	PH	D.O	Cond	Alk	Hard	Cl2	Iron	time Initial
3/10/08	D.tap	7.24	5.4	213	70	64	0.0	0.0	1:00
	culture	7.63	7.1	320	60	64 → 108	0.0	0.0	LJH
	filtered	7.24	5.4	215	66	108 → 96	0.1	0.0	
	unfiltered	7.62	5.5	218	66	[illegible] → 116	0.3	0.1	
LJH	synsalt	7.92	5.8	45.1	66 → 92	X	0.0	0.0	
3/17	D.tap	7.35	6.7	266	70	104	0	0	LJH
	culture	7.91	6.7 → 7.4	339	60	108	0	0	
	filtered	7.35	7.4 → 6.7	266	64	104	0	0	
	unfiltered	7.64	6. → 6.7	276	66	108	.1	0	
	synsalt	7.98	8.0 → 8.0	276 → 42.1	48	X	.3	0	
							0	0	
3/24	D.tap	7.35	6.7	266	70	104	0	0	*
	cultures	7.91	7.4	339	60	108	0	0	LJH
	filtered	7.35	6.7	266	64	104	0.1	0	
LJH	unfiltered	7.64	6.7	276	66	108	0.3	0	
	synsalt	7.98	8.0	42.1	48	X	0	0	
3/?/08	D.tap								
	culture								
	filtered								
	unfiltered					X			
	synsalt								
	D.tap								
	culture								
	filtered								
	unfiltered								
	synsalt					X			

Thermometers ... n.p. wheels ... ter. Calibratio ... 15

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Daily Reading R.O Sunfresh

000100

Date/time	H2O type	PH	D.O	cond	ALK	HARD	IRON	Cl
1/16/08	R.O	5.19	6.3	1.6	—	—	0	0
9a SZ	Sunfresh	7.53	7.9	274	—	—	0	0
1/17/08	R.O 5.36	204	7.4	1.3	6	4	0	0
9a SZ	Sunfresh	7.57	8.2	299	60	100	0	0
1/18/08	R.O	5.16	6.6	1.6	—	—	0	0
830 SZ	Sunfresh	7.60	8.0	290	—	—	0	0
1/19/08	R.O	5.30	6.4	1.4	2	2	0	0
9a J	Sunfresh	7.70	8.0	290	62	88	0	0
1/20/08	R.O	5.20	6.9	1.6	—	—	0	0
9a J	Sunfresh	7.60	8.2	300	—	—	0	0
1/24/08	R.O	5.35	6.4	1.41	—	—	0	0
830 SZ	Sunfresh	7.56	8.2	300	—	—	0	0
1/22/08	R.O	5.30	6.4	1.6	—	—	0	0
9a BK	Sunfresh	7.66	8.0	300	—	—	0	0
1/23/08	R.O	5.66	5.9	1.9	2	4	0	0
9a BK	Sunfresh	7.70	8.1	300	60	84	0	0
1/24/08	R.O	5.47	6.9	1.8	—	—	0	0
830 J	Sunfresh	7.74	8.2	300	—	—	0	0
8a 1/25/08	R.O	5.47	6.9	1.8	6	4	0	0
9a J	Sunfresh	7.74	8.2	300	60	100	0	0
1/26	R.O	5.46	6.6	1.9	—	—	0	0
830 J	Sunfresh	7.76	8.2	290	—	—	0	0
1/27	R.O	5.50	6.0	1.9	2	4	0	0
9a J	Sunfresh	7.76	8.2	300	60	80	0	0
1/28/08	R.O	5.40	8.0	1.9	—	—	0	0
BK 9a	Sunfresh	7.71	7.6	300	—	—	0	0
1/29/08	R.O	5.70	8.0	1.6	2	2	0	0
BK 9a	Sunfresh	7.76	7.8	300	60	88	0	0
1/30/08	R.O	5.70	8.0	1.6	—	—	0	0
BK 9a	Sunfresh	7.80	8.0	300	—	—	0	0
1/31/08	R.O	5.86	7.6	1.6	—	4	0	0
BK 9a	Sunfresh	7.80	8.2	300	60	88	0	0

Conductivity

PH

Low Temperature

R.O Sunfresh

Daily Reading

000101

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Time	H2O type	pH	DO	Cond	Alk	Hard	Iron	Cl2
1/08	R.O 5.85	~~6.60~~	8.0	1.6	—	—	0	0
30	Sunfresh	7.80	8.2	300	—	—	0	0
2/2/08	R.O	6.56	6.7	1.7	2	4	0	0
130	Sunfresh	7.71	8.1	300	60	80	0	0
2/3/08	R.O	5.14	6.5	1.9	—	—	0	0
2/4	Sunfresh	7.52	8.2	300	—	—	0	0
2/4/08	R.O	6.96	7.1	1.9	4	2	0	0
	Sunfresh	7.80	8.2	300	68	100	0	0
2/5/08	R.O	5.24	6.6	1.9	—	—	0	0
	Sunfresh	7.76	8.0	290	—	—	0	0
2/6/08	R.O	6.72	6.9	1.6	4	2	0	0
	Sunfresh	7.74	8.0	290	66	100	0	0
2/7/08	R.O 6.96	7.80	~~8.2~~	~~300~~	—	—	0	0
	Sunfresh	7.80	8.2	300	—	—	0	0
8/08	R.O	6.76	6.8	1.9	2	4	0	0
30	Sunfresh	7.76	8.1	290	66	100	0	0
2/9/08	R.O	5.36	6.7	1.8	—	—	0	0
	Sunfresh	7.53	8.0	264	—	—	0	0
10/08	R.O	5.40	6.6	1.9	2	4	0	0
	Sunfresh	7.80	8.0	260	60	100	0	0
11/08	R.O	5.70	6.6	1.8	—	—	0	0
	Sunfresh	7.78	8.0	260	—	—	0	0
12/08	R.O	5.40	4.8	1.4	2	0	0	0
30	Sunfresh	7.80	8.2	264	68	100	0	0
13/08	R.O	5.66	4.9	1.6	—	—	0	0
	Sunfresh	7.76	7.9	270	—	—	0	0
1/08	R.O	5.40	4.6	1.9	2	2	0	0
	Sunfresh	7.80	8.2	290	60	100	0	0
5/08	R.O	5.87	5.01	2.0	—	—	0	0
4P	Sunfresh	7.60	8.0	290	—	—	0	0
6/08	R.O	5.70	6.9	1.9	2	4	0	0
	Sunfresh	7.80	7.6	290	66	104	0	0

Daily Reading

000102

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Date/time initial	H2O type	PH	D.O	Cond	ALK	Hard	Iron	Cl2
2/17 PK 9a	R.O 5.60	~~7.80~~	5.6	1.9	6	8	0	0
	Sunfresh	7.80	8.0	300	60	88	0	0
2/18 9a	R.O	5.44	6.8	1.9	—	—	0	0
	Sunfresh	7.80	8.2	300	—	—	0	0
2/19 PK aw	R.O	5.48	6.6	1.9	2	4	0	0
	Sunfresh	7.80	8.2	300	58	88	0	0
2/20 9a	R.O	5.76	5.4	1.6	—	—	0	0
	Sunfresh	7.76	8.0	290	—	—	0	0
2/21 8:30 SM	R.O	6.17	6.9	1.5	4	6	0	0
	Sunfresh	7.80	8.0	279	60	100	0	0
2/22 aw	R.O	6.70	5.6	1.9	—	—	0	0
	Sunfresh	7.80	8.2	300	—	—	0	0
2/23 SK	R.O	6.50	6.0	1.9	24	4	0	0
	Sunfresh	7.66	8.0	300	54	88	0	0
2/24 9a SM	R.O	6.60	6.0	1.9	—	—	0	0
	Sunfresh	7.70	8.1	300	—	—	0	0
2/25 PK 9a	R.O	6.50	6.0	1.9	2	4	0	0
	Sunfresh	7.80	8.1	290	54	88	0	0
2/26 8:30 PK	R.O	5.92	6.5	1.9	—	—	0	0
	Sunfresh	7.46	8.0	290	—	—	0	0
2/27 8a SM	R.O	5.96	6.6	1.9	2	4	0	0
	Sunfresh	7.56	8.2	300	60	98	0	0
2/28 9a SM	R.O	5.18	6.7	1.7	—	—	0	0
	Sunfresh	7.57	8.1	299	—	—	0	0
2/29 9a SM	R.O	5.70	6.7	1.7	2	4	0	0
	Sunfresh	7.70	6.6	300	62	86	0	0
3/1 9a SM	R.O	5.60	6.6	1.9	—	—	0	0
	Sunfresh	7.80	8.2	300	—	—	0	0
3/2 9a SM	R.O	5.70	6.6	1.9	1	2	0	0
	Sunfresh	7.76	8.0	290	58	92	0	0
3/3 SM	R.O	5.45	6.8	1.9	—	—	0	0
	Sunfresh	7.75	8.2	300	—	—	0	0

R.O Sunfresh Temperature

Daily Readings

Initial		H2O type	PH	DO	Cond	Alk	Hard	Iron	Cl2
	8	R.O	5.70	5.9	1.9	—	—	0	0
	SM	Synfresh	7.80	8.2	300			0	0
	5	R.O	5.70	5.8	1.9	—		0	0
	P	Synfresh	7.77	8.1	298			0	0
	6 SM	RO	5.82	5.6	1.7	2	4	0	0
	830	Synfresh	7.84	8.2	300	60	90	0	0
	7	R.O	5.72	6.1	1.9	—	—	0	0
	52	Synfresh	7.74	8.1	265			0	0
	8 P	RO	6.17	6.9	1.5	—	—	0	0
		Synfresh	7.80	8.0	299			0	0
	9 SM	R.O	5.60	6.4	1.9	—	—	0	0
	30	Synfresh	7.80	8.0	290			0	0
	10 P	RO	6.31	6.6	1.9	—	—	0	0
		Synfresh	7.80	8.0	301			0	0
	11 PM	RO	6.35	6.6	1.9	2	2	0	0
		Synfresh	7.73	8.0	300	58	64	0	0
	P	RO	5.20	6.5	1.8	2	4	0	0
		Synfresh	7.80	8.0	300	60	88	0	0
	13 SM	RO	6.61	6.7	1.5	—	—	0	0
		Synfresh	7.84	8.1	300	—	—	0	0
	14	RO	5.93	6.6	1.9	—	—	0	0
	SM	Synfresh	7.69	8.0	300	—	—	0	0
	15 SM	RO	6.65	6.0	1.9	2	4	0	0
		Synfresh	7.66	8.0	300	54	88	0	0
	16 P	R.O	5.70	6.7	1.9	2	6	0	0
		Synfresh	7.80	8.2	300	60	90	0	0
	7 P	RO	5.60	5.5	1.9	—	—	0	
		Synfresh	7.80	7.84	300	—	—	0	0
	SM	RO	5.95	6.6	1.9	—	—	0	0
	M	Synfresh	7.80	8.2	300	—	—	0	0
	9	R.O	5.90	6.6	1.9			0	0
	P	Synfresh	7.40	8.2	300			0	0

Date / Initials	H20 Type	PH	DO	COND.	AK	HARD	IRON	CL2	time
3/20	RO	5.60	6.6	1.9	6	8	0	0	9a
SM	Synfresh	7.80	8.2	300	60	88	0	0	
3/21	RO	5.71	6.7	1.9	—	—	0	0	9a
SZ	Synfresh	7.56	8.2	300	—	—	0	0	
3/22	RO	5.68	6.6	1.8	6	8	0	0	9a
SZ	Synfresh	7.78	8.0	280	60	100	0	0	
~~3/23~~	~~RO~~	~~5.70~~	~~8.0~~	~~1.9~~	—	—	0	0	~~9a~~
	~~Synfresh~~	~~5.70~~	~~8.0~~		—	—	0	0	
3/23	RO	5.70	7.0	1.9	2	2	0	0	9am
	Synfil	7.78	8.0	280	58	88	0	0	BK
3/24	RO	5.70	7.0	1.9	—	—	0	0	9am
BK	Synfresh	7.80	8.2	300	—	—	0	0	BK
3/25	RO	5.70	7.0	1.9	2	4	0	0	9:30a
	Synfresh	7.70	8.0	300	60	100	0	0	BK
3/26	RO	5.70	6.8	1.9	—	—	0	0	930
SM 900	Synfresh	7.80	8.2	280	—	—	0	0	
3/27	RO	5.77	6.9	1.1	2	2	0	0	9a
BAK	Synfresh	7.60	8.2	295	58	88	0	0	
3/28	RO	5.75	6.4	1.1	—	—	—	—	930
BAK	Synfresh	7.79	8.2	295	—	—	—	—	
3/29	RO	5.70	6.6	1.9	2	4	0	0	9a
SM	Synfresh	7.80	8.2	300	60	100	0	0	
3/30	RO	5.70	6.7	1.9	2	2	0	0	9a
SM	Synfresh	7.80	8.2	300	58	88	0	0	
3/31	RO	5.70	6.7	1.7	—	—	0	0	9am
BK	Synfresh	7.67	8.0	290	—	—	0	0	
4/1	RO	5.90	6.8	1.9	2	4	0	0	9:10am
BK	Synfresh	7.62	8.2	300	60	100	0	0	
4/2	RO	5.70	7.0	1.7	2	4	0	0	
	Synfresh	7.49	8.2	294	60	100	0	0	BK 8:3
4/3									

RO Synfresh Temperature