BIOLOGICAL TESTING OF SEDIMENT FOR PORT GARDNER, WASHINGTON

DECEMBER 2008

PREPARED FOR:
SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
ENVIRONMENTAL SCIENCES DIVISION
18912 North Creek Parkway, Suite 101
Bothell, Washington 98011

PREPARED BY:
NEWFIELDS
PO Box 216
4729 View Drive
Port Gamble, Washington 98364

1 INTRODUCTION

NewFields conducted toxicity tests with sediment samples collected by Science Applications International Corporation in Port Gardner, Washington. Biological effects were evaluated relative to the biological criteria defined in the Sediment Management Standards (SMS). This report presents the results of the toxicity testing portion of the Port Gardner sediment investigation.

2 METHODS

This section summarizes the test methods that were followed for this biological characterization. Test methods followed guidance provided by the Puget Sound Estuary Program (PSEP 1995), the WDOE Sampling and Analysis Plan Appendix (SAPA; Ecology 2008), and the various updates presented during the Annual Sediment Management Review meetings (SMARM). Sediment toxicity was evaluated using four standard PSEP bioassays: the 10-day amphipod test, the 20-day juvenile polychaete test, the 48 to 96-hour larval development test, and the Microtox® porewater test. NewFields performed the amphipod, juvenile polychaete and benthic larval tests. The Microtox® test was performed by Nautilus Environmental LLC.

2.1 SAMPLE AND ANIMAL RECEIPT

Seventeen test sediments and three reference sediments were received by NewFields on October 9 and 16, 2008. Four additional reference sediments were received on November 25 and 26, 2008. Sediment samples were stored in a walk-in cold room at 4 ± 2ºC in the dark. Test sediment was not sieved prior to testing. All tests were conducted within the eight week holding time.

Amphipods (*Eohaustorius estuarius*) were supplied by Northwest Aquatic Sciences in Newport, Oregon. Animals were held in native sediment at 15°C prior to test initiation. Juvenile polychaete worms (*Neanthes arenaceodentata*) were supplied by Donald Reish, Ph.D., Long Beach, California. Juvenile polychaetes were held in seawater at 20°C. (*Neanthes* were cultured in water-only and were not held in sediment prior to testing.) *Mytilus* sp. (mussel) broodstock were provided by Carlsbad Aquafarms in Carlsbad, California. Broodstock were held in unfiltered seawater at 16°C from Hood Canal prior to spawning.

Native Eohaustorius sediment from Yaquina Bay, Oregon was also provided by Northwest Aquatic Sciences for use as control sediment treatments for the amphipod and juvenile polychaete tests.

2.2 10-DAY AMPHIPOD BIOASSAY

The 10-day acute toxicity test with *E. estuarius* was initiated on October 28, 2008. To prepare the test exposures, approximately 175 mL of sediment was placed in clean, acid and solvent-rinsed 1-L glass jars, which were then filled with 775 mL of 0.45-µm filtered seawater at 28 ppt. Seven replicate chambers were prepared for each test treatment, the three reference sediments, and the native control sediment. The control and reference sediments were tested with the test treatments. Five replicates were used to evaluate sediment toxicity while the remaining two replicates were designated as sacrificial surrogate chambers. One surrogate chamber was sacrificed at test initiation to measure overlying and interstitial ammonia and sulfides. The remaining surrogate chamber was used for measuring daily water quality throughout the test, as well as overlying and interstitial ammonia and sulfides at test termination. Total ammonia as nitrogen was monitored using an Orion meter fitted with an ammonia ion-specific probe. Total sulfides as S^{2-} were monitored using a HACH DR/4000V Spectrophotometer.

Test chambers were placed in randomly assigned positions in a 15°C water bath and allowed to equilibrate overnight. Trickle-flow aeration was provided to prevent dissolved oxygen concentrations from dropping below acceptable levels.

Immediately prior to test initiation, water quality parameters were measured in the surrogate chamber for each treatment. Dissolved oxygen (DO), temperature, pH, and salinity were then monitored in the surrogate chambers daily until test termination. Target test parameters were:

Dissolved Oxygen:	≥5 mg/L
pH:	7.8 ± 0.5 units
Temperature:	15 ± 1°C
Salinity:	28 ± 1‰

The tests were initiated by randomly allocating 20 *E. estuarius* into each test chamber, ensuring that each of the amphipods successfully buried into the sediment. Amphipods that did not bury within approximately one hour were replaced with healthy amphipods. The 10-day amphipod bioassay was conducted as a static test with no feeding during the exposure period. At test termination, sediment from each test chamber was sieved through a 0.5-mm screen and all recovered amphipods transferred into a Petri dish. A water-only, 4-day reference-toxicant test was conducted concurrently with the sediment test, using cadmium chloride. The cadmium reference-toxicant test was used to ensure animals used in the test were healthy and of similar sensitivity to prior tests.

2.3 20-DAY JUVENILE POLYCHAETE BIOASSAY

The 20-day chronic toxicity test with *N. arenaceodentata* was initiated on October 23, 2008. Test exposures were prepared with approximately 175 mL of sediment placed in clean, acid and solvent-rinsed 1-L glass jars, which were then filled with 775 mL of 0.45-µm filtered seawater at 28 ppt. Seven replicate chambers were prepared for each test treatment, the two reference sediments, and control sediment. Five replicates were used to evaluate sediment toxicity while the remaining two replicates were designated as sacrificial surrogate chambers. One surrogate chamber was sacrificed at test initiation to measure overlying and interstitial ammonia and sulfides. The remaining surrogate chamber was used for measuring daily water quality throughout the test, as well as overlying and interstitial ammonia and sulfides at test termination. Total ammonia as nitrogen was monitored using an Orion meter fitted with an ammonia ion-specific probe. Total sulfides as S^{2-} were monitored using a HACH DR/4000V Spectrophotometer.

Test chambers were placed in randomly assigned positions in a water bath at 20°C and allowed to equilibrate overnight. Trickle-flow aeration was provided to prevent dissolved oxygen concentrations from dropping below acceptable levels.

Immediately prior to test initiation, water quality parameters were measured. Dissolved oxygen, temperature, pH, and salinity were then monitored in the surrogates daily until test termination. Target test parameters were:

Dissolved Oxygen:	≥5.5 mg/L
pH:	7.8 ± 0.5 units
Temperature:	20 ± 1°C
Salinity:	28 ± 2‰

The juvenile polychaete test was initiated by randomly allocating five *N. arenaceodentata* into each test chamber, and observing whether each of the worms successfully buried into the sediment. Worms that did not bury within approximately one hour were replaced with healthy

worms. The 20-day test was conducted as a static-renewal test, with exchanges of 300 mL of water occurring every third day. *N. arenaceodentata* were fed every other day with 40 mg of TetraMarin® (approximately 8 mg dry weight per worm). At test termination, sediment from each test chamber was sieved through a 0.5-mm screen and all recovered worms transferred into a Petri dish. The number of surviving and dead worms was determined. All surviving worms were then transferred to pre-weighed, aluminum foil weigh-boats, and then dried in a drying oven at 60°C for approximately 24 hours. Each weigh-boat was removed, cooled in a dessicator, and then weighed on a microbalance to 0.01 mg. A water-only, 4-day reference-toxicant test was conducted concurrently with the sediment test, using cadmium chloride. The cadmium reference-toxicant test was used to ensure animals used in the test were healthy and of similar sensitivity to prior tests.

2.4 LARVAL DEVELOPMENTAL BIOASSAY

Test sediment was evaluated using the benthic larval development test with the mussel, *Mytilus* sp. The larval tests were initiated in two separate batches on November 7 and 26, 2008. A sea water control, a sediment control (18g clean sand added to sea water), and the three reference sediments were tested with the test treatments for the first batch. The second batch was tested with a sea water control, a sediment control, and four reference samples received November 25 and 26, 2008. To prepare the test exposures, 18 g (± 0.5 g) of test sediment were placed in clean, acid and solvent-rinsed 1-L glass jars, which were then filled to 900 mL with 0.45-µm of filtered seawater. Six replicate chambers were prepared for each test treatment and the two reference sediments. The six control chambers contained filtered seawater without sediment. Five of the replicates were used to evaluate the test; the sixth replicate was used as a water quality surrogate. Each chamber was shaken for 10 seconds and then placed in predetermined randomly-assigned positions in a water bath at 16°C.

To collect gametes for each test, mussels were placed in clean seawater and acclimated at 12°C for approximately 20 minutes. The water bath temperature was then increased over a period of 15 minutes to 20°C. Mussels were held at 20°C and monitored for spawning individuals. Spawning females were removed from the water bath and placed in individual containers with seawater. Spawning males were removed and placed in a separate water bath with other males. Gametes from at least two males and one female were used to initiate the test. Egg-sperm solutions were periodically homogenized with a perforated plunger during the fertilization process. Approximately one hour after fertilization, embryo solutions were checked for fertilization rate. Only those embryo stocks with >90% fertilization were used to initiate the tests. Embryo solutions were rinsed free of excess sperm and then combined to create one embryo stock solution. Density of the embryo stock solution was determined by counting the number of embryos in a subsample of homogenized stock solution. This was used to determine the volume of embryo stock solution to deliver approximately 27,000 embryos to each test chamber.

The test was initiated by randomly allocating an aliquot of the embryo stock solution into each test chamber four hours after sediments were shaken and within two hours of egg fertilization. Embryos were held in suspension during initiation using a perforated plunger. The actual stocking densities for the two batches were 26.6 and 29.1 embryos/mL respectively, within the target stocking density of 20 - 40 embryos/mL.

Dissolved oxygen, temperature, pH, and salinity were monitored daily in water quality surrogates to prevent loss or transfer of larvae by adhesion to water-quality probes. Overlying water ammonia and sulfides were measured on Day 0 and at termination. Total ammonia as nitrogen was monitored using an Orion meter fitted with an ammonia ion-specific probe. Total

sulfides as S^{2-} were monitored using a HACH DR/4000V Spectrophotometer. Target test parameters were as follows:

Dissolved Oxygen:	≥4.0 mg/L
pH:	8.0 ± 0.5 units
Temperature:	16 ± 1°C
Salinity:	28 ± 2‰

The 48-96 hour test was conducted as a static test without aeration. The test was terminated approximately 48 hours after initiation, when 90% of the control larvae had achieved the prodissoconch I stage. At termination, the overlying seawater was decanted into a clean 1-L jar and mixed with a perforated plunger. From this container, a 10 mL subsample was transferred to a scintillation vial and preserved in 5% buffered formalin. Larvae were subsequently stained with a dilute solution of Rose Bengal in 70% alcohol to help visualization of larvae. The number of normal and abnormal larvae was enumerated on an inverted microscope. Normal larvae included all D-shaped prodissoconch I stage larvae. Abnormal larvae included abnormally shaped prodissoconch I larvae and all early stage larvae. A 48-hour water-only reference-toxicant test with copper sulfate was conducted concurrently with the sediment test.

2.5 MICROTOX® TEST

The Microtox® test was performed by Nautilus Environmental LLC. The Microtox test exposed the luminescent marine bacterium *Vibrio fischeri* to porewater extracted from test sediments. Bacterial light output was measured using the Microtox Model 500 Analyzer at 5 and 15 minutes of exposure. Light output from the test porewater was compared to that of the reference treatments at both time intervals. A complete description of the Microtox test methods is presented in Appendix A.

2.6 DATA ANALYSIS AND QA/QC

All water quality and endpoint data were entered into Excel spreadsheets. Water quality parameters were summarized by calculating the mean, minimum, and maximum values for each test treatment. Endpoint data were calculated for each replicate and mean values and standard deviations were determined for each test treatment.

All hand-entered data was reviewed for data entry errors, which were corrected prior to summary calculations. A minimum of 10% of all calculations and data sorting were reviewed for errors. Review counts were conducted on any apparent outliers.

For the larval test, the normalized combined mortality and abnormality endpoint was used to evaluate the test sediment. This was based on the number of normal larvae in the treatment and reference divided by the number of normal larvae in the control, as defined in Ecology (2005).

For SMS suitability determinations, comparisons were made according to SAPA (Ecology 2008) and Fox et al. (1998). Data reported as percent mortality or survival were transformed using an arcsine square root transformation prior to statistical analysis. All data were tested for normality using the Wilk-Shapiro test and equality of variance using Levene's test. Determinations of statistical significance were based on one-tailed Student's t-tests with an alpha of 0.05. A comparison of the larval endpoint, relative to the reference was made using an alpha level of 0.10. For samples failing to meet assumptions of normality, a Mann-Whitney test was

conducted to determine significance. For those samples failing to meet the assumptions of normality and equality of variance, a t-test on rankits was used.

3 RESULTS

The results of the sediment testing, including a summary of test results and water quality observations are presented in this section. Data for each of the replicates, as well as laboratory bench sheets are provided in Appendix B and statistical analyses are provided in Appendix C.

3.1 10-DAY AMPHIPOD BIOASSAY

A summary of test conditions is shown in Table 1, *E. estuarius* survival is presented in Table 2, and a summary of water quality observations is presented in Table 3. Mean percent survival in the control was 93%, above the 90% acceptance criterion. This indicates that the test conditions were suitable for adequate amphipod survival. The LC_{50} for the cadmium reference-toxicant test was 6.85 mg Cd/L, which is within the control chart limits (3.95 to 12.2 mg Cd/L), indicating that the test organisms used in this study were of similar sensitivity to those previously tested at NewFields. Temperature and dissolved oxygen were within target limits throughout the test. Salinity and pH levels were slightly outside limits for some treatments; however, this did not appear to affect test survival as evidenced by high survival in all treatments. Initial and final overlying and interstitial ammonia and sulfides were all below NOEC levels.

Mean mortality in the reference treatments were 1% (CR-22S), 2% (CR-23) and 3% (CR-20/24) which met the SMS (<25% mortality) performance criteria and indicated that the reference treatments were acceptable for suitability determination. Mean percentage survival in the test treatments ranged between 90% and 100% (Table 2).

Table 1. Test Condition Summary for *Eohaustorius estuarius*.

Test Conditions: PSEP *E. estuarius* (SMS)		
Sample Identification	CR-22S, CR-23, CR-20/24, A1-01, A1-03, A1-07, A1-10, A1-16, A1-24, A2-10, A2-11, A2-13, A2-14, A2-18, A2-21, A2-25, A2-36, A3-05E, A3-07B, A4-08B	
Date sampled	10/6 – 10/9/2008	
Date received	10/9/2008 and 10/16/2008	
Sample storage conditions	4°C, dark	
Weeks of holding	3 weeks	
Source of control sediment	Northwest Aquatic Sciences (Yaquina Bay)	
Test Species	***E. estuarius***	
Supplier	Northwest Aquatic Sciences	
Date acquired	10/24/2008	
Acclimation/holding time	4 days	
Age class	3-5 mm	
Test Procedures	PSEP 1995 with SMARM revisions	
Regulatory Program	SMS	
Test location	NewFields Northwest Laboratory	
Test type/duration	10-Day static	
Test dates	10/28/2008-11/7/2008	
Control water	0.45 µm-filtered North Hood Canal sea water	
Test temperature	Recommended: 15 ± 1 °C	Achieved: 14.8 – 16.2 °C
Test Salinity	Recommended: 28 ± 2 ppt	Achieved: 26-29 ppt
Test dissolved oxygen	Recommended: > 5 mg/L	Achieved: 6.4-8.3 mg/L
Test pH	Recommended: 7.8 ± 0.5	Achieved: 7.4-8.1
SMS control performance standard	Recommended: Control ≤ 10% mortality	Achieved: 7%
SMS reference performance standard	Recommended: Reference mortality < 25%	Achieved: 1% CR-22S; 2% CR-23; 3% CR-20/24
SMS pass/fail SQS	Treatment – Reference < 25% mortality = **PASS**	All Pass
SMS pass/fail CSL	Treatment – Reference < 30% mortality = **PASS**	All Pass
Reference Toxicant LC50	6.85 mg/L	
Acceptable Range	3.95-12.2 mg/L	
Test Lighting	Continuous	
Test chamber	1-Liter Glass Chamber	
Replicates/treatment	5 + 2 surrogates (one that is used for WQ measurements throughout the test)	
Organisms/replicate	20	
Exposure volume	175 mL sediment/ 950 mL water	
Feeding	None	
Water renewal	None	
Deviations from Test Protocol	Salinity and pH out of range for some treatments	

Table 2. Test Results for *Eohaustorius estuarius*.

Sample ID	*Eohaustorius estuarius*	
	Mean survival (%)	SD
Control	93	4.5
CR-22-S	99	2.2
CR-23-S	98	2.7
CR-20/24-S	97	2.7
A1-01	91	6.5
A1-03	98	2.7
A1-07	97	2.7
A1-10	95	3.5
A1-16	95	8.7
A1-24	98	4.5
A2-10	98	4.5
A2-11	97	6.7
A2-13	90	3.5
A2-14	99	2.2
A2-18	99	2.2
A2-21	95	5.0
A2-25	96	2.2
A2-36	99	2.2
A3-05E	100	0.0
A3-07B	97	2.7
A4-08B	99	2.2

Table 3. Water Quality Summary for *Eohaustorius estuarius*.

Treatment	Dissolved Oxygen (mg/L)			Temperature (°C)			pH (units)			Salinity (ppt)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	8.0	7.6	8.4	15.2	15.0	15.6	8.1	7.8	8.7	28.0	28.0	28.0
CR-22-S	8.3	8.0	8.6	15.2	14.8	15.7	8.0	7.7	8.1	28.0	28.0	28.0
CR-23-S	7.8	6.4	8.3	15.5	15.1	16.0	7.9	7.6	8.1	28.0	28.0	28.0
CR-20/24-S	8.2	8.1	8.5	15.2	14.8	15.7	8.0	7.8	8.2	28.0	28.0	28.0
A1-01	8.1	7.9	8.3	15.2	14.8	15.7	8.0	7.6	8.2	28.0	28.0	28.0
A1-03	8.1	7.7	8.4	15.3	14.9	15.5	8.0	7.7	8.4	28.1	28.0	29.0
A1-07	7.9	7.4	8.3	15.2	14.8	15.7	8.0	7.6	8.5	28.0	28.0	28.0
A1-10	8.0	6.8	8.4	15.3	15.0	16.2	8.0	7.7	8.6	28.0	27.0	29.0
A1-16	8.1	8.0	8.7	15.3	15.1	15.7	8.0	7.7	8.3	28.0	28.0	28.0
A1-24	8.2	7.9	8.8	15.2	14.8	15.9	7.9	7.6	8.0	28.0	28.0	28.0
A2-10	8.2	8.0	8.4	15.1	14.8	15.5	8.0	7.7	8.2	28.0	28.0	28.0
A2-11	8.1	7.9	8.4	15.2	15.0	15.6	8.0	7.7	8.2	27.9	27.0	28.0
A2-13	8.1	7.5	8.4	15.2	15.1	15.6	8.0	7.7	8.2	28.0	28.0	28.0
A2-14	8.2	8.0	8.4	15.2	14.8	15.6	7.9	7.6	8.2	27.6	27.0	28.0
A2-18	8.3	8.1	8.5	15.3	14.9	15.9	8.0	7.7	8.2	28.0	28.0	28.0
A2-21	8.0	6.6	8.3	15.2	14.8	15.5	8.1	7.7	8.6	26.8	26.0	29.0
A2-25	8.1	7.9	8.4	15.2	14.9	15.8	7.9	7.6	8.2	27.3	27.0	28.0
A2-36	8.2	7.9	8.4	15.3	14.9	15.8	7.9	7.5	8.0	26.7	26.0	28.0
A3-05E	8.3	7.9	8.5	15.2	14.8	15.6	7.9	7.6	8.1	27.3	27.0	28.0
A3-07B	8.1	7.9	8.4	15.2	14.8	15.8	7.8	7.4	8.0	27.1	27.0	28.0
A4-08B	8.2	8.0	8.4	15.2	15.0	15.5	8.0	7.6	8.3	27.2	27.0	28.0

3.2 20-DAY JUVENILE POLYCHAETE BIOASSAY

A summary of *N. arenaceodentata* test conditions is shown in Table 4. Summaries of test endpoints and water quality measurements are included as Tables 5 and 6. No mortality was observed in the *N. arenaceodentata* control sediment and mean individual growth (MIG) in the control sediment was 0.634 mg/ind/day. This value falls within the test acceptability criteria of <10% mean mortality and ≥0.38 mg/ind/day mean individual growth (Kendall 1996), indicating that the test conditions were suitable for adequate polychaete survival and growth.

The LC_{50} value for the cadmium chloride reference-toxicant test was 6.84 mg/L. This value was within the control chart limits of 2.41 – 16.9 mg/L. This indicates that the test organisms used in this study were of similar sensitivity to those previously tested at NewFields.

Temperature was below the recommended limit (20±1°C) in all test treatments for one day (16.8°C). Proper test temperature was attained by the next day. The airline for the water quality surrogate for treatment A1-07 was not functional one day and the dissolved oxygen fell to 1.4 mg/L. The airline was fixed and oxygen levels returned to normal. There seemed to be no impact on the survival or growth of the animals. Initial and final overlying and interstitial ammonia and sulfides were all below NOEC levels.

Neanthes survival and growth met the recommended SMS performance standards for each of the reference treatments. Survival in the test treatments ranged from 92 to 100%; MIG in the test treatments ranged from 0.356 to 0.705 mg/ind/day.

Table 4. Test Condition Summary for *Neanthes arenaceodentata*.

Test Conditions: PSEP *N. arenaceodentata* (SMS)		
Sample Identification	CR-22S, CR-23, CR-20/24, A1-01, A1-03, A1-07, A1-10, A1-16, A1-24, A2-10, A2-11, A2-13, A2-14, A2-18, A2-21, A2-25, A2-36, A3-05E, A3-07B, A4-08B	
Date sampled	10/6 – 10/9/2008	
Date received at NewFields Northwest	10/9/2008 and 10/16/2008	
Sample storage conditions	4°C, dark	
Weeks of holding	2 weeks	
Source of control sediment	Northwest Aquatic Sciences (Yaquina Bay)	
Test Species	***N. arenaceodentata***	
Supplier	Don Reish/ CalState Long Beach	
Date acquired	10/21/2008	
Acclimation/holding time	2 days	
Age class	Juvenile	
Test Procedures	PSEP 1995 with SMARM revisions	
Regulatory Program	SMS	
Test location	NewFields Northwest Laboratory	
Test type/duration	20-Day static renewal	
Test dates	10/23/2008-11/12/2008	
Control water	0.45 µm-filtered North Hood Canal sea water	
Test temperature	Recommended: 20 ± 1 °C	Achieved: 16.8 – 20.5 °C
Test Salinity	Recommended: 28 ± 2 ppt	Achieved: 26 – 29 ppt
Test dissolved oxygen	Recommended: > 6.0 mg/L	Achieved: 1.4 – 10.0 mg/L
Test pH	Recommended: 8.0 ± 1.0	Achieved: 7.0 – 8.3
Initial biomass	Recommended: 0.5 – 1.0 mg DW Minimum: 0.25 mg DW	Achieved: 0.446 mg DW
SMS control performance standard	Recommended: Control ≤ 10% mortality	Achieved: 0% mortality
	Recommended: Growth (MIG) ≥ 0.72 mg/ind/day Minimum: MIG ≥ 0.38 mg/ind/day	Achieved: 0.634 mg/ind/day
SMS reference performance standard	Recommended: Reference MIG/Control MIG ≥ 80%	Achieved: CR-22-S = 98.0 %, CR-23 = 91.2%, CR-20/24 = 100.1%
SMS pass/fail SQS	Treatment growth/Reference growth > 70% = **PASS**	Fail: A2-11, A1-14, A2-21
SMS pass/fail CSL	Treatment growth/Reference growth >50% = **PASS**	All Pass
Reference Toxicant LC50	6.84 mg/L	
Acceptable Range	2.41 – 16.9 mg/L	
Test Lighting	Continuous	
Test chamber	1-Liter Glass Chamber	
Replicates/treatment	5 + 2 surrogates (one that is used for WQ measurements throughout the test)	
Organisms/replicate	5	
Exposure volume	175 mL sediment/ 950 mL water	
Feeding	40 mg/jar every other day	
Water renewal	Water is renewed every third day (1/3 volume of exposure chamber)	
Deviations from Test Protocol	Temperature out of range in all treatments, DO low for one day in A1-07	

Table 5. Test Results for *Neanthes arenaceodentata*.

Treatment	Mean Percent Survival	SD	Mean Individial Growth Rate (mg/ind/d)	SD
Control	100	0.0	0.634	0.1
CR-22-S	100	0.0	0.621	0.2
CR-23-S	100	0.0	0.578	0.1
CR-20/24-S	100	0.0	0.677	0.1
A1-01	100	0.0	0.493	0.1
A1-03	96	8.9	0.546	0.1
A1-07	92	11.0	0.705	0.2
A1-10	100	0.0	0.593	0.1
A1-16	96	8.9	0.546	0.1
A1-24	100	0.0	0.660	0.2
A2-10	100	0.0	0.642	0.2
A2-11	100	0.0	0.422	0.1
A2-13	96	8.9	0.480	0.1
A2-14	92	11.0	0.356	0.1
A2-18	100	0.0	0.566	0.1
A2-21	100	0.0	0.379	0.1
A2-25	100	0.0	0.537	0.0
A2-36	100	0.0	0.474	0.2
A3-05E	96	8.9	0.453	0.2
A3-07B	100	0.0	0.525	0.2
A4-08B	100	0.0	0.412	0.1

Table 6. Water Quality Summary for *Neanthes arenaceodentata*.

Treatment	Dissolved Oxygen (mg/L)			Temperature (°C)			pH (units)			Salinity (ppt)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.3	6.5	9.7	20.0	16.8	20.5	7.8	7.4	8.0	27.7	27.0	28.0
CR-22-S	7.3	6.4	9.5	20.0	16.8	20.5	7.9	7.6	8.1	27.8	27.0	28.0
CR-23-S	7.5	6.6	9.6	20.0	16.8	20.4	7.9	7.7	8.2	27.9	27.0	29.0
CR-20/24-S	7.3	6.4	9.8	19.9	16.8	20.4	7.9	7.5	8.1	27.9	27.0	28.0
A1-01	7.5	6.5	9.3	19.9	16.8	20.4	8.0	7.6	8.3	28.0	27.0	29.0
A1-03	7.5	6.5	9.6	19.8	16.9	20.4	7.8	7.3	8.3	27.9	27.0	29.0
A1-07	7.1	1.4	9.5	20.0	16.8	20.5	8.0	7.6	8.1	28.0	27.0	29.0
A1-10	7.4	6.4	9.8	20.0	16.8	20.5	7.9	7.5	8.2	27.9	27.0	28.0
A1-16	7.5	6.7	9.5	19.9	16.8	20.4	7.9	7.5	8.3	28.0	27.0	29.0
A1-24	7.4	6.5	9.6	20.0	16.8	20.5	8.0	7.7	8.2	27.8	27.0	28.0
A2-10	7.5	6.6	9.9	20.0	16.8	20.5	7.9	7.6	8.1	27.9	27.0	29.0
A2-11	7.4	6.3	10.0	20.0	16.8	20.5	7.9	7.5	8.1	27.8	26.0	28.0
A2-13	7.0	5.7	9.1	19.9	16.8	20.4	7.8	7.5	8.1	27.6	27.0	28.0
A2-14	6.9	1.4	9.5	19.9	16.8	20.4	7.8	7.2	8.1	28.0	27.0	29.0
A2-18	7.2	6.3	9.7	19.9	16.8	20.4	7.8	7.5	8.0	27.7	27.0	28.0
A2-21	7.5	6.6	9.7	19.9	16.8	20.4	8.0	7.6	8.2	27.5	26.0	29.0
A2-25	7.4	6.4	9.6	20.0	16.8	20.4	7.9	7.5	8.1	27.9	26.0	29.0
A2-36	7.2	4.1	9.4	20.0	16.8	20.5	7.8	7.2	8.0	27.3	26.0	28.0
A3-05E	7.3	6.4	9.6	20.0	16.8	20.5	7.8	7.3	8.0	27.4	26.0	28.0
A3-07B	7.4	6.3	9.5	20.0	16.8	20.5	7.7	7.0	8.0	27.1	26.0	28.0
A4-08B	7.5	6.6	9.2	19.9	16.8	20.4	7.9	7.5	8.1	27.2	26.0	29.0

3.3 LARVAL DEVELOPMENT BIOASSAY BATCH 1

A summary of test conditions for the larval development bioassay are shown in Table 7, a summary of the test results from the *Mytilus sp.* test is presented in Table 8 and a summary of water quality observations is shown in Table 9. The larval test was validated by 5.3% mean combined mortality in the control treatment, within the acceptability criteria of <30%. Water quality parameters remained within the target limits throughout the 72-hour test, with the exception of dissolved oxygen and pH. Aeration was provided immediately and subsequent measures of DO were within the target range. These minor deviations did not normal development. Ammonia and sulfide values detected in the test chambers were below the NOEC values for *Mytilus sp*.

The EC50 for the copper reference-toxicant test for proportion normal was 10.3 µg Cu/L, within the control chart limits (3.42 to 18.7 µg Cu/L). The results of the reference-toxicant test indicate that the test organisms used in this study were similar in sensitivity to those previously tested at NewFields.

Mean control-normalized normal survival in the reference sediments in CR-22-S was greater than 65% indicating this reference was suitable for comparisons against treatment performances. CR-23 and CR-20/24 did not meet the performance standard ($N_R \geq 0.65$). However, CR-20/24 may still be suitable for comparison as mean control-normalized normal survival was 63.5%, within 1.5% of the criteria. Control-normalized survival in the test treatments ranged from 14.2% in treatment A3-07B to 91.1% in treatment A2-11.

Table 7. Test Condition Summary for *Mytilus sp*.

Test Conditions: PSEP *Mytilus sp.* (SMS)		
Sample Identification	CR-22S, CR-23, CR-20/24, A1-01, A1-03, A1-07, A1-10, A1-16, A1-24, A2-10, A2-11, A2-13, A2-14, A2-18, A2-21, A2-25, A2-36, A3-05E, A3-07B, A4-08B	
Date sampled	10/6 – 10/9/2008	
Date received at NewFields Northwest	10/9/2008 and 10/16/2008	
Sample storage conditions	4°C, dark	
Weeks of holding	4 weeks	
Test Species	*Mytilus sp.*	
Supplier	Carlsbad Aquafarms	
Date acquired	11/6/2008	
Acclimation/holding time	1 day	
Age class	<2-hour old embryos	
Test Procedures	PSEP 1995 with SMARM revisions	
Regulatory Program	SMS	
Test location	NewFields Northwest Laboratory	
Test type/duration	48-96 Hour static test	
Test dates	11/7-11/10/2008 – 72 hours	
Control water	0.45 µm-filtered North Hood Canal sea water	
Test temperature	Recommended: 16 ± 1 °C	Achieved: 15.5-16.9 °C
Test Salinity	Recommended: 28 ± 2 ppt	Achieved: 27-28 ppt
Test dissolved oxygen	Recommended: > 4.8 mg/L	Achieved: 4.3-7.6 mg/L
Test pH	Recommended: 7.8 ± 0.5	Achieved: 7.1-7.9
Stocking Density	Recommended: 20 – 30 embryos/mL	Achieved: 26.6 embryos/mL
SMS control performance standard	Recommended: Control normal survival ≥ 70%	Achieved: 94.7%
SMS reference performance standard	Recommended: Reference Normalized ≥ 65% x Control	Achieved: CR-22-S 79.1%, CR-23 60.1%, CR-20/24 67.0%
Reference Toxicant LC50	10.3 ug/L	
Acceptable Range	3.42-18.7 ug/L	
Test Lighting	14 light:10 Dark	
Test chamber	1-Liter Glass Chamber	
Replicates/treatment	5 + 1 surrogate (used for WQ measurements throughout the test)	
Exposure volume	18 g sediment/ 900 mL water	
Feeding	None	
Water renewal	None	
Deviations from Test Protocol	DO, and pH out of range in some treatments	

Table 8. Test Results for *Mytilus sp*.

Treatment	Normalized Percent Normal	SD
Control	94.7	3.3
CR-22-S	75.0	3.4
CR-23-S	56.9	2.6
CR-20/24-S	63.5	11.4
A1-01	75.8	4.7
A1-03	37.4	20.1
A1-07	61.7	6.2
A1-10	27.9	18.0
A1-16	73.1	2.2
A1-24	46.1	13.0
A2-10	86.8	4.0
A2-11	91.1	6.2
A2-13	62.9	27.5
A2-14	55.2	9.1
A2-18	79.2	5.0
A2-21	30.0	4.6
A2-25	69.1	6.5
A2-36	18.2	5.9
A3-05E	79.7	11.7
A3-07B	14.2	7.2
A4-08B	17.9	5.0
Sediment Control	88.2	10.8

Table 9. Water Quality Summary for *Mytilus sp*.

Treatment	Dissolved Oxygen (mg/L)			Temperature (°C)			pH (units)			Salinity (ppt)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.8	7.6	8.0	16.2	15.8	16.4	7.7	7.6	7.8	28.0	28.0	28.0
CR-22-S	7.1	5.9	7.7	16.4	15.7	16.9	7.7	7.6	7.8	28.0	28.0	28.0
CR-23-S	6.9	5.9	7.8	16.4	15.9	16.7	7.6	7.5	7.7	28.0	28.0	28.0
CR-20/24-S	6.0	4.3	7.7	16.2	15.8	16.9	7.6	7.4	7.7	28.0	28.0	28.0
A1-01	6.8	5.5	8.0	16.4	15.8	16.6	7.6	7.5	7.8	28.0	28.0	28.0
A1-03	5.7	4.4	7.2	16.1	15.8	16.4	7.5	7.5	7.6	28.0	28.0	28.0
A1-07	6.6	4.7	8.1	15.9	15.5	16.3	7.7	7.6	7.9	28.0	28.0	28.0
A1-10	6.4	4.3	7.6	16.2	15.8	16.5	7.6	7.6	7.6	28.0	28.0	28.0
A1-16	5.9	5.1	8.0	16.1	16.0	16.4	7.6	7.4	7.7	28.0	28.0	28.0
A1-24	7.6	7.3	8.0	16.3	15.8	16.5	7.7	7.5	7.7	28.0	28.0	28.0
A2-10	6.4	4.7	8.3	15.9	15.7	16.2	7.4	7.2	7.6	28.0	28.0	28.0
A2-11	5.7	4.2	8.0	16.1	15.7	16.4	7.6	7.4	7.7	28.0	28.0	28.0
A2-13	7.2	6.8	7.4	16.4	15.8	16.7	7.7	7.6	7.7	28.0	28.0	28.0
A2-14	5.9	5.1	7.2	16.2	15.9	16.5	7.5	7.4	7.7	28.0	28.0	28.0
A2-18	5.6	4.5	7.1	16.0	15.6	16.4	7.4	7.2	7.5	28.0	28.0	28.0
A2-21	6.2	4.8	8.1	16.3	16.0	16.8	7.3	7.1	7.5	28.0	28.0	28.0
A2-25	6.0	5.1	7.8	16.0	15.6	16.2	7.5	7.5	7.6	28.0	28.0	28.0
A2-36	6.2	4.7	7.7	16.1	15.6	16.4	7.5	7.4	7.6	28.0	28.0	28.0
A3-05E	6.6	5.3	7.6	16.3	15.7	16.6	7.5	7.4	7.5	27.8	27.0	28.0
A3-07B	6.5	6.0	7.1	16.2	15.9	16.4	7.4	7.3	7.5	28.0	28.0	28.0
A4-08B	6.5	5.9	7.1	16.1	15.6	16.6	7.4	7.4	7.4	27.5	27.0	28.0
Sediment Control	7.8	7.5	8.1	16.3	15.9	16.5	7.7	7.6	7.7	28.0	28.0	28.0

3.4 LARVAL DEVELOPMENT BIOASSAY BATCH 2

Test conditions for the larval development bioassay are shown in Table 10, a summary of the test results from the *Mytilus sp.* test is presented in Table 11 and a summary of water quality observations is shown in Table 12. The larval test was validated by 4.3% mean combined mortality in the control treatment, within the acceptability criteria of <30%. Water quality parameters remained within the target limits throughout the 48-hour test. Ammonia and sulfide values detected in the test chambers were below the NOEC values for *Mytilus sp*.

The EC50 for the copper reference-toxicant test for proportion normal was 10.6 µg Cu/L, within the control chart limits (3.57 to 18.6 µg Cu/L). The results of the reference-toxicant test indicate that the test organisms used in this study were similar in sensitivity to those previously tested at NewFields.

Mean normalized combined normality in all the reference sediments did not meet reference performance standards ($R_N \geq 65\%$). Reference survival data was used for standard SMS comparisons and in addition treatment survival was compared to control to see if any met reference performance criteria. Survival in test sediments ranged from 20.1-63.3%.

Table 10. Test Condition Summary for *Mytilus* sp.

Test Conditions: PSEP *Mytilus sp.* (SMS)		
Sample Identification	CR-23, CR-20/24, SB-REF-76, SB-REF-48, A1-01, A1-03, A1-07, A2-13, A2-18, A2-21, A2-25, A3-07B, A4-08B	
Date sampled	10/6 – 10/8/2008, 11/25/08	
Date received at NewFields Northwest	10/9/2008, 11/25 and 11/26/2008	
Sample storage conditions	4°C, dark	
Weeks of holding	7 weeks	
Test Species	*Mytilus sp.*	
Supplier	Carlsbad Aquafarm	
Date acquired	10/18/2008	
Acclimation/holding time	8 days	
Age class	<2-hour old embryos	
Test Procedures	PSEP 1995 with SMARM revisions	
Regulatory Program	SMS	
Test location	NewFields Northwest Laboratory	
Test type/duration	48-96 Hour static test	
Test dates	11/26-11/28/2008 – 48 hours	
Control water	0.45 µm-filtered North Hood Canal sea water	
Test temperature	Recommended: 16 ± 1 °C	Achieved: 16.0-16.8 °C
Test Salinity	Recommended: 28 ± 2 ppt	Achieved: 27 ppt
Test dissolved oxygen	Recommended: > 4.8 mg/L	Achieved: 5.1-7.8 mg/L
Test pH	Recommended: 7.8 ± 0.5	Achieved: 7.5-7.9
Stocking Density	Recommended: 20 – 30 embryos/mL	Achieved:29.1 embryos/mL
SMS control performance standard	Recommended: Control normal survival ≥ 70%	Achieved: 95.7%
SMS reference performance standard	Recommended: Reference Normalized ≥ 65% x Control	Achieved: CR-23 33.2%, CR-20/24 62.2%, SB-REF-76 61.7%, SB-REF-48 47.0%
Reference Toxicant LC50	10.6 ug/L	
Acceptable Range	3.57-18.7 ug/L	
Test Lighting	14 light:10 Dark	
Test chamber	1-Liter Glass Chamber	
Replicates/treatment	5 + 1 surrogate (used for WQ measurements throughout the test)	
Exposure volume	18 g sediment/ 900 mL water	
Feeding	None	
Water renewal	None	
Deviations from Test Protocol	None	

Table 11. Test Results for Mytilus sp.

Treatment	Normalized Percent Normal	SD
Control	95.7	4.2
CR-20/24-65-S	59.5	12.2
CR-23-49	31.7	4.3
SB-REF-76	59.0	4.3
SB-REF-48	45.0	3.5
A2-21-S	46.2	4.0
A1-07-S	48.5	12.5
A1-03-S	25.9	4.8
A1-01-S	20.1	7.6
A2-13-S	63.3	12.7
A2-18-S	55.7	14.0
A2-25-S	59.5	8.4
A4-08B-S	26.2	3.7
A3-07B-S	41.2	7.0
Sediment Control	87.3	3.1

Table 12. Water Quality Summary for *Mytilus sp*.

Treatment	Dissolved Oxygen (mg/L)			Temperature (°C)			pH (units)			Salinity (ppt)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Control	7.6	7.5	7.8	16.6	16.6	16.6	7.7	7.6	7.9	27.0	27.0	27.0
CR-20/24-65-S	6.3	5.9	7.0	16.6	16.5	16.7	7.7	7.7	7.8	27.0	27.0	27.0
CR-23-49	6.6	6.0	7.3	16.5	16.1	16.8	7.7	7.5	7.8	27.0	27.0	27.0
SB-REF-76	6.5	6.2	6.9	16.4	16.3	16.5	7.7	7.7	7.7	27.0	27.0	27.0
SB-REF-48	6.7	6.5	7.0	16.6	16.6	16.7	7.7	7.7	7.8	27.0	27.0	27.0
A2-21-S	6.7	6.2	7.0	16.5	16.5	16.6	7.6	7.6	7.7	27.0	27.0	27.0
A1-07-S	5.7	5.1	6.0	16.3	16.0	16.5	7.7	7.6	7.7	27.0	27.0	27.0
A1-03-S	6.3	5.9	7.1	16.3	16.2	16.4	7.6	7.5	7.6	27.0	27.0	27.0
A1-01-S	6.8	6.1	7.3	16.5	16.4	16.6	7.7	7.6	7.7	27.0	27.0	27.0
A2-13-S	6.9	6.8	7.1	16.6	16.5	16.7	7.7	7.6	7.7	27.0	27.0	27.0
A2-18-S	7.1	7.1	7.2	16.5	16.4	16.7	7.7	7.6	7.7	27.0	27.0	27.0
A2-25-S	6.7	6.5	6.9	16.6	16.5	16.7	7.6	7.5	7.6	27.0	27.0	27.0
A4-08B-S	6.5	6.3	6.7	16.3	16.2	16.5	7.6	7.6	7.6	27.0	27.0	27.0
A3-07B-S	6.9	6.6	7.3	16.6	16.6	16.6	7.6	7.5	7.7	27.0	27.0	27.0
Sediment Control	7.5	7.5	7.6	16.4	16.2	16.6	7.6	7.6	7.7	27.0	27.0	27.0

4 DISCUSSION

Sediments were evaluated based on Sediment Management Standards (SMS) criteria. The biological criteria are based on both statistical significance (a statistical comparison) and the degree of biological response (a numerical comparison). The SMS criteria are derived from the Washington Department of Ecology Sampling and Analysis Plan Appendix (WDOE 2008). Comparisons were made for each treatment against each of the reference samples. Two numerical comparisons were made under SMS, the Sediment Quality Standards (SQS) and the Cleanup Standards Limit (CSL).

4.1 AMPHIPOD TEST SUITABILITY DETERMINATION

Under the SMS program, a test treatment will fail SQS if mean mortality in the test treatment is >25% more than the mean mortality in the appropriate reference sediment and the difference is statistically significant ($p \leq 0.05$). Treatments fail the CSL if mean mortality in the test treatment >30% relative to the reference sediment and the difference is statistically significant.

All test treatments met the SQS and CSL criteria for *E. estuarius* (Table 10).

Table 10. SMS Comparison for *Eohaustorius estuarius*.

Treatment	Mean mortality (%)	Reference Comparison	Statistically Less than Reference	M_T-M_R	Fails SQS?	Fails CSL?
Control	7	NA	NA	NA	NA	NA
CR-22-S	1	NA	NA	NA	NA	NA
CR-23-S	2	NA	NA	NA	NA	NA
CR-20/24-S	3	NA	NA	NA	NA	NA
A1-01	9	CR-23	**Yes**	7	No	No
A1-03	2	CR-23	No	0	No	No
A1-07	3	CR-23	No	1	No	No
A1-10	5	CR-23	No	3	No	No
A1-16	5	CR-22S	No	4	No	No
A1-24	2	CR-22S	No	1	No	No
A2-10	2	CR-22S	No	1	No	No
A2-11	3	CR-22S	No	2	No	No
A2-13	10	CR-20/24	**Yes**	7	No	No
A2-14	1	CR-22S	No	0	No	No
A2-18	1	CR-23	No	-1	No	No
A2-21	5	CR-23	No	3	No	No
A2-25	4	CR-23	No	2	No	No
A2-36	1	CR-22S	No	0	No	No
A3-05E	0	CR-22S	No	-1	No	No
A3-07B	3	CR-23	No	1	No	No
A4-08B	1	CR-23	No	-1	No	No

SQS: Statistical Significance; M_T-M_R >25%
CSL: Statistical Significance; M_T-M_R >30%

4.2 JUVENILE POLYCHAETE TEST SUITABILITY DETERMINATION

Juvenile polychaete test treatments fail to meet SQS criteria when the mean individual growth rate (MIG) in the test sediment is less than 70% of the mean individual growth in the reference sediment and the comparison is statistically significant ($p \leq 0.05$). The CSL criteria state that the test treatment fails if mean individual growth in the test sediment is less than 50% of mean individual growth in the reference and is statistically significant. A2-14 and A2-21 failed SQS standards. MIG for A2-11 was less than 70% that of CR-22S, but the difference was not statistically significant and therefore A2-11 met SQS and SCL criteria. All other treatments passed SQS and CSL criteria when compared to respective references.

Table 11. SMS Comparison for *Neanthes arenaceodentata*.

Treatment	Survival (%)	Reference Comparison	MIG (mg/ind/day)	Statistically Less than Reference?	MIG_T/MIG_R	Fails SQS ?	Fails CSL ?
Control	100	NA	0.634	NA	NA	NA	NA
CR-22-S	100	NA	0.621	NA	NA	NA	NA
CR-23-S	100	NA	0.578	NA	NA	NA	NA
CR-20/24-S	100	NA	0.677	NA	NA	NA	NA
A1-01	100	CR-23	0.493	No	0.853	No	No
A1-03	96	CR-23	0.546	No	0.945	No	No
A1-07	92	CR-23	0.705	No	1.220	No	No
A1-10	100	CR-23	0.593	No	1.025	No	No
A1-16	96	CR-22S	0.546	No	0.879	No	No
A1-24	100	CR-22S	0.660	No	1.063	No	No
A2-10	100	CR-22S	0.642	No	1.033	No	No
A2-11	100	CR-22S	0.422	No	0.680	**Yes**	No
A2-13	96	CR-20/24	0.480	**Yes**	0.710	No	No
A2-14	92	CR-22S	0.356	**Yes**	0.574	**Yes**	No
A2-18	100	CR-23	0.566	No	0.979	No	No
A2-21	100	CR-23	0.379	**Yes**	0.656	**Yes**	No
A2-25	100	CR-23	0.537	No	0.930	No	No
A2-36	100	CR-22S	0.474	No	0.763	No	No
A3-05E	96	CR-22S	0.453	No	0.729	No	No
A3-07B	100	CR-23	0.525	No	0.908	No	No
A4-08B	100	CR-23	0.412	**Yes**	0.712	No	No

SQS: Statistical Significance; $MIG_T < 0.7 * MIG_R$

CSL: Statistical Significance; $MIG_T < 0.5 * MIG_R$

4.3 LARVAL TEST SUITABILITY DETERMINATION BATCH 1

Larval test treatments fail SQS criteria if the percentage of normal larvae in the test treatment is significantly lower ($p \leq 0.1$) than that of the reference and if the normal larval development in the test treatment is less than 85% of the normal development in the reference. Treatments fail CSL criteria if the normal development is less than 70% of the response observed in the reference and if the difference is statistically significant.

When compared to reference CR-22-S, ten of the 17 treatments do not meet SQS criteria; A1-03, A1-07, A1-10, A1-24, A2-13, A2-14, A2-21, A2-36, A3-07B, and A4-08B. Seven of these fail to meet CSL; A1-03, A1-10, A1-24, A2-21, A2-36, A3-07B, and A4-08B. These seven samples also fail SQS when compared to CR-23 and CR-20/24, and all of these samples, with the exception of A1-24 fail CSL.

All test treatments except, A2-10 and A2-11, fail SQS when compared to the control. Of those samples, treatments A2-10, A2-11, A1-01, A1-16, A2-18, and A3-05E pass CSL. The treatments that meet CSL, as well as A2-25, meet reference performance standards ($R_N \geq 65\%$).

Table 12. SMS Comparison for *Mytilus sp.* using CR-22-S.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R CR-22	Fails SQS?	Fails CSL?
Control	94.7	3.3	NA	NA	NA	NA
CR-22-S	75.0	3.4	NA	NA	No*	
CR-23-S	56.9	2.6	NA	NA	**Yes***	
CR-20/24-S	63.5	11.4	NA	NA	**Yes***	
A1-01	75.8	4.7	No	1.01	No	No
A1-03	37.4	20.1	**Yes**	0.50	**Yes**	**Yes**
A1-07	61.7	6.2	**Yes**	0.82	**Yes**	No
A1-10	27.9	18.0	**Yes**	0.37	**Yes**	**Yes**
A1-16	73.1	2.2	**Yes**	0.98	No	No
A1-24	46.1	13.0	**Yes**	0.62	**Yes**	**Yes**
A2-10	86.8	4.0	No	1.16	No	No
A2-11	91.1	6.2	No	1.22	No	No
A2-13	62.9	27.5	**Yes**	0.84	**Yes**	No
A2-14	55.2	9.1	**Yes**	0.74	**Yes**	No
A2-18	79.2	5.0	No	1.06	No	No
A2-21	30.0	4.6	**Yes**	0.40	**Yes**	**Yes**
A2-25	69.1	6.5	**Yes**	0.92	No	No
A2-36	18.2	5.9	**Yes**	0.24	**Yes**	**Yes**
A3-05E	79.7	11.7	No	1.06	No	No
A3-07B	14.2	7.2	**Yes**	0.19	**Yes**	**Yes**
A4-08B	17.9	5.0	**Yes**	0.24	**Yes**	**Yes**
Sediment Control	88.2	10.8	NA	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T<0.85*N_R$

CSL: Statistical Significance; $N_T<0.70*N_R$

Table 13. SMS Comparison for *Mytilus sp.* using CR-23.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R CR-23	Fails SQS?	Fails CSL?
Control	94.7	3.3	NA	NA	NA	NA
CR-22-S	75.0	3.4	NA	NA	No*	
CR-23-S	56.9	2.6	NA	NA	**Yes***	
CR-20/24-S	63.5	11.4	NA	NA	**Yes***	
A1-01	75.8	4.7	No	1.33	No	No
A1-03	37.4	20.1	**Yes**	0.66	**Yes**	**Yes**
A1-07	61.7	6.2	No	1.08	No	No
A1-10	27.9	18.0	**Yes**	0.49	**Yes**	**Yes**
A1-16	73.1	2.2	No	1.28	No	No
A1-24	46.1	13.0	**Yes**	0.81	**Yes**	No
A2-10	86.8	4.0	No	1.53	No	No
A2-11	91.1	6.2	No	1.60	No	No
A2-13	62.9	27.5	No	1.10	No	No
A2-14	55.2	9.1	**Yes**	0.97	No	No
A2-18	79.2	5.0	No	1.39	No	No
A2-21	30.0	4.6	**Yes**	0.53	**Yes**	**Yes**
A2-25	69.1	6.5	No	1.21	No	No
A2-36	18.2	5.9	**Yes**	0.32	**Yes**	**Yes**
A3-05E	79.7	11.7	No	1.40	No	No
A3-07B	14.2	7.2	**Yes**	0.25	**Yes**	**Yes**
A4-08B	17.9	5.0	**Yes**	0.31	**Yes**	**Yes**
Sediment Control	88.2	10.8	NA	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_{CT}<0.85*N_{CR}$

CSL: Statistical Significance; $N_{CT}<0.70*N_{CR}$

Table 14. SMS Comparison for *Mytilus sp.* using CR-20/24.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R CR-20/24	Fails SQS?	Fails CSL?
Control	94.7	3.3	NA	NA	NA	NA
CR-22-S	75.0	3.4	NA	NA	No*	
CR-23-S	56.9	2.6	NA	NA	Yes*	
CR-20/24-S	63.5	11.4	NA	NA	Yes*	
A1-01	75.8	4.7	No	1.19	No	No
A1-03	37.4	20.1	**Yes**	0.59	**Yes**	**Yes**
A1-07	61.7	6.2	**Yes**	0.97	No	No
A1-10	27.9	18.0	**Yes**	0.44	**Yes**	**Yes**
A1-16	73.1	2.2	No	1.15	No	No
A1-24	46.1	13.0	**Yes**	0.73	**Yes**	No
A2-10	86.8	4.0	No	1.37	No	No
A2-11	91.1	6.2	No	1.43	No	No
A2-13	62.9	27.5	**Yes**	0.99	No	No
A2-14	55.2	9.1	**Yes**	0.87	No	No
A2-18	79.2	5.0	No	1.25	No	No
A2-21	30.0	4.6	**Yes**	0.47	**Yes**	**Yes**
A2-25	69.1	6.5	No	1.09	No	No
A2-36	18.2	5.9	**Yes**	0.29	**Yes**	**Yes**
A3-05E	79.7	11.7	No	1.26	No	No
A3-07B	14.2	7.2	**Yes**	0.22	**Yes**	**Yes**
A4-08B	17.9	5.0	**Yes**	0.28	**Yes**	**Yes**
Sediment Control	88.2	10.8	NA	NA	NA	NA

Table 15. SMS Comparison for *Mytilus sp.* using Control.

Treatment	Normalized Percent Normal Development	Standard Deviation	Fails SQS?	Fails CSL?	<65% Control?
Control	94.7	3.3	NA	NA	NA
CR-22-S	75.0	3.4	NA	NA	No
CR-23	56.9	2.6	NA	NA	**Yes**
CR20/24	63.5	11.4	NA	NA	**Yes**
A1-01	75.8	4.7	**Yes**	No	No
A1-03	37.4	20.1	**Yes**	**Yes**	**Yes**
A1-07	61.7	6.2	**Yes**	**Yes**	**Yes**
A1-10	27.9	18.0	**Yes**	**Yes**	**Yes**
A1-16	73.1	2.2	**Yes**	No	No
A1-24	46.1	13.0	**Yes**	**Yes**	**Yes**
A2-10	86.8	4.0	No	No	No
A2-11	91.1	6.2	No	No	No
A2-13	62.9	27.5	**Yes**	**Yes**	**Yes**
A2-14	55.2	9.1	**Yes**	**Yes**	**Yes**
A2-18	79.2	5.0	**Yes**	No	No
A2-21	30.0	4.6	**Yes**	**Yes**	**Yes**
A2-25	69.1	6.5	**Yes**	**Yes**	No
A2-36	18.2	5.9	**Yes**	**Yes**	**Yes**
A3-05E	79.7	11.7	**Yes**	No	No
A3-07B	14.2	7.2	**Yes**	**Yes**	**Yes**
A4-08B	17.9	5.0	**Yes**	**Yes**	**Yes**
Sediment Control	88.2	10.8	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T < 0.85 * N_R$

CSL: Statistical Significance; $N_T < 0.70 * N_R$

4.4 LARVAL TEST SUITABILITY DETERMINATION BATCH 2

Larval test treatments fail SQS criteria if the percentage of normal larvae in the test treatment is significantly lower ($p \leq 0.1$) than that of the reference and if the normal larval development in the test treatment is less than 85% of the normal development in the reference. Treatments fail CSL criteria if the normal development is less than 70% of the response observed in the reference and if the difference is statistically significant.

In comparison to CR-20/24, 3 treatments meet SQS criteria; A2-13, A2-18, and A2-25. Along with these three A1-07 and A2-21 meet CSL.

A1-01, A1-03, and A4-08E fail SQS when compared to CR-23, and all treatments pass CSL. However, CR-23 had the lowest mean normalized combined normality of references tested.

A2-13, A2-18 and A2-25 meet both SQS and CSL when compared to SB-REF-76, while A1-07 and A2-21 fail SQS, but pass CSL. All other treatments failed to meet both criteria.

A1-01, A1-03, and A4-08B do not meet either SQS or CSL, but all others pass when compared to SB-REF-48.

All treatments fail SQS and CSL when compared to the control, and do not meet performance criteria for a reference site ($R_N \geq 65\%$).

Table 16. SMS Comparison for *Mytilus sp.* using CR-20/24.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R CR-20/24	Fails SQS?	Fails CSL?
Control	95.7	4.2	NA	NA	NA	NA
CR-20/24-65-S	59.5	12.2	NA	NA	**Yes***	
CR-23-49	31.7	4.3	NA	NA	**Yes***	
SB-REF-76	59.0	4.3	NA	NA	**Yes***	
SB-REF-48	45.0	3.5	NA	NA	**Yes***	
A2-21-S	46.2	4.0	**Yes**	0.78	**Yes**	No
A1-07-S	48.5	12.5	**Yes**	0.82	**Yes**	No
A1-03-S	25.9	4.8	**Yes**	0.44	**Yes**	**Yes**
A1-01-S	20.1	7.6	**Yes**	0.34	**Yes**	**Yes**
A2-13-S	63.3	12.7	No	1.06	No	No
A2-18-S	55.7	14.0	**Yes**	0.94	No	No
A2-25-S	59.5	8.4	No	1.00	No	No
A4-08B-S	26.2	3.7	**Yes**	0.44	**Yes**	**Yes**
A3-07B-S	41.2	7.0	**Yes**	0.69	**Yes**	**Yes**
Sediment Control	87.3	3.1	NA	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T < 0.85 * N_R$

CSL: Statistical Significance; $N_T < 0.70 * N_R$

Table 17. SMS Comparison for *Mytilus sp.* using CR-23.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R CR-23	Fails SQS?	Fails CSL?
Control	95.7	4.2	NA	NA	NA	NA
CR-20/24-65-S	59.5	12.2	NA	NA	**Yes***	
CR-23-49	31.7	4.3	NA	NA	**Yes***	
SB-REF-76	59.0	4.3	NA	NA	**Yes***	
SB-REF-48	45.0	3.5	NA	NA	**Yes***	
A2-21-S	46.2	4.0	No	1.45	No	No
A1-07-S	48.5	12.5	No	1.53	No	No
A1-03-S	25.9	4.8	**Yes**	0.82	**Yes**	No
A1-01-S	20.1	7.6	**Yes**	0.63	**Yes**	No
A2-13-S	63.3	12.7	No	1.99	No	No
A2-18-S	55.7	14.0	No	1.75	No	No
A2-25-S	59.5	8.4	No	1.88	No	No
A4-08B-S	26.2	3.7	**Yes**	0.83	**Yes**	No
A3-07B-S	41.2	7.0	No	1.30	No	No
Sediment Control	87.3	3.1	NA	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T<0.85*N_R$

CSL: Statistical Significance; $N_T<0.70*N_R$

Table 18. SMS Comparison for *Mytilus sp.* Using SB-REF-76.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R SB-REF-76	Fails SQS?	Fails CSL?
Control	95.7	4.2	NA	NA	NA	NA
CR-20/24-65-S	59.5	12.2	NA	NA	**Yes***	
CR-23-49	31.7	4.3	NA	NA	**Yes***	
SB-REF-76	59.0	4.3	NA	NA	**Yes***	
SB-REF-48	45.0	3.5	NA	NA	**Yes***	
A2-21-S	46.2	4.0	**Yes**	0.78	**Yes**	No
A1-07-S	48.5	12.5	**Yes**	0.82	**Yes**	No
A1-03-S	25.9	4.8	**Yes**	0.44	**Yes**	**Yes**
A1-01-S	20.1	7.6	**Yes**	0.34	**Yes**	**Yes**
A2-13-S	63.3	12.7	No	1.07	No	No
A2-18-S	55.7	14.0	**Yes**	0.94	No	No
A2-25-S	59.5	8.4	No	1.01	No	No
A4-08B-S	26.2	3.7	**Yes**	0.44	**Yes**	**Yes**
A3-07B-S	41.2	7.0	**Yes**	0.699	**Yes**	**Yes**
Sediment Control	87.3	3.1	NA	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T<0.85*N_R$

CSL: Statistical Significance; $N_T<0.70*N_R$

Table 19. SMS Comparison for *Mytilus sp.* Using SB-REF-48.

Treatment	Normalized Percent Normal Development	SD	Statistically Less than Reference	N_T/N_R SB-REF-48	Fails SQS?	Fails CSL?
Control	95.7	4.2	NA	NA	NA	NA
CR-20/24-65-S	59.5	12.2	NA	NA	**Yes***	
CR-23-49	31.7	4.3	NA	NA	**Yes***	
SB-REF-76	59.0	4.3	NA	NA	**Yes***	
SB-REF-48	45.0	3.5	NA	NA	**Yes***	
A2-21-S	46.2	4.0	No	1.03	No	No
A1-07-S	48.5	12.5	No	1.08	No	No
A1-03-S	25.9	4.8	**Yes**	0.58	**Yes**	**Yes**
A1-01-S	20.1	7.6	**Yes**	0.45	**Yes**	**Yes**
A2-13-S	63.3	12.7	No	1.41	No	No
A2-18-S	55.7	14.0	No	1.24	No	No
A2-25-S	59.5	8.4	No	1.32	No	No
A4-08B-S	26.2	3.7	**Yes**	0.58	**Yes**	**Yes**
A3-07B-S	41.2	7.0	**Yes**	0.92	No	No
Sediment Control	87.3	3.1	NA	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T < 0.85 * N_R$

CSL: Statistical Significance; $N_T < 0.70 * N_R$

Table 20. SMS Comparison for *Mytilus sp.* using Control.

Treatment	Mean Percent Combined Normal	Standard Deviation	Fails SQS?	Fails CSL?	<65% Control?
Control	95.7	4.2	NA	NA	NA
CR-20/24-65-S	59.5	12.2	NA	**Yes***	
CR-23-49	31.7	4.3	NA	**Yes***	
SB-REF-76	59.0	4.3	NA	**Yes***	
SB-REF-48	45.0	3.5	**Yes**	**Yes***	
A2-21-S	46.2	4.0	**Yes**	**Yes**	**Yes**
A1-07-S	48.5	12.5	**Yes**	**Yes**	**Yes**
A1-03-S	25.9	4.8	**Yes**	**Yes**	**Yes**
A1-01-S	20.1	7.6	**Yes**	**Yes**	**Yes**
A2-13-S	63.3	12.7	**Yes**	**Yes**	**Yes**
A2-18-S	55.7	14.0	**Yes**	**Yes**	**Yes**
A2-25-S	59.5	8.4	**Yes**	**Yes**	**Yes**
A4-08B-S	26.2	3.7	**Yes**	**Yes**	**Yes**
A3-07B-S	41.2	7.0	**Yes**	**Yes**	**Yes**
Sediment Control	87.3	3.1	NA	NA	NA

*Reference criteria: $N_R \geq 0.65$

SQS: Statistical Significance; $N_T < 0.85 * N_R$

CSL: Statistical Significance; $N_T < 0.70 * N_R$

4.5 MICROTOX® TEST SUITABILITY DETERMINATION

The SMS program criteria state that a test sediment fails the SQS criteria when the mean light output of the test sediment is less than 80% of the mean light output of the reference sediment and the two means are statistically different ($p \leq 0.05$). No criteria exist for the Microtox® test for CSL.

A1-10 failed to meet SQS and was significantly less than the reference station CR-23. A2-14 and A2-36 also failed SQS, but data may be skewed due to excessive turbidity in the sample.

Table 21. SMS Comparison for *Vibrio fischeri*.

Sample	Mean Output (%)		Fail SQS?
	5-minute reading	15 minute reading	
Test 1			
Control	93 ± 2	85 ± 4	NA
CR-22S-S	97 ± 1	90 ± 1	NA
PG-A3-05E-S	94 ± 2	82 ± 3	No
PG-A2-14-S[1]	72 ± 1	63 ± 1	**Yes**
PG-A2-36-S[1]	56 ± 6	49 ± 5	**Yes**
Test 2			
Control	93 ± 2	85 ± 3	NA
CR-22S-S	100 ± 1	97 ± 1	NA
PG-A1-24-S	98 ± 1	93 ± 1	No
PG-A1-16-S	100 ± 2	95 ± 2	No
PG-A2-10-S	100 ± 1	93 ± 1	No
PG-A2-11-S	98 ± 1	91 ± 2	No
Test 3			
Control	94 ± 5	83 ± 4	NA
CR-20/24-S	74 ± 2	73 ± 1	NA
PG-A2-13-S[2]	108 ± 6	103 ± 3	No
Test 4			
Control	88 ± 1	83 ± 3	NA
CR-23-S	96 ± 2	91 ± 2	NA
PG-A2-18-S	95 ± 3	87 ± 3	No
Test 5			
Control	89 ± 2	82 ± 3	NA
CR-23-S	95 ± 2	86 ± 2	NA
PG-A2-25-S	94 ± 4	82 ± 2	No
PG-A2-215-S	95 ± 1	86 ± 3	No
PG-A1-10-S	65 ± 5	57 ± 4	**Yes**
PG-A1-07-S	91 ± 4	79 ± 4	No
Test 6			
Control	93 ± 3	85 ± 2	NA
CR-23-S	101 ± 2	95 ± 1	NA
PG-A3-07B-S	95 ± 2	86 ± 4	No
PG-A4-08B-S	94 ± 3	88 ± 2	No
PG-A1-01-S	100 ± 1	96 ± 3	No
PG-A1-03-S	99 ± 3	96 ± 3	No

[1]Sample turbidity greater than 100 NTU, toxicity may be artifactual.

[2]Reference did not meet acceptability criteria, comparison made against control

5 REFERENCES

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APPENDIX A

MICROTOX REPORT

Nautilus Environmental

Toxicological Evaluation of Sediment Port Gardner

Microtox

Report date: December 19, 2008

Submitted to:

NEWFIELDS NORTHWEST
Port Gamble, WA

Washington Laboratory
5009 Pacific Hwy East
Suite 2
Tacoma, WA 98424

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SIGNATURE PAGE

Eric Tollefson
Project Manager

Mary Ann Rempel-Hester
Laboratory Manager

This report has been prepared based on data and/or samples provided by our client and the results of this study are for their sole benefit. Any reliance on the data by a third party is at the sole and exclusive risk of that party.

1.0 INTRODUCTION

Sediment samples were collected and evaluated for toxicity as part of a project being conducted by NewFields Northwest. Sediment samples were tested for toxicity using Microtox tests.

2.0 METHODS

2.1 Samples

Seventeen sediment and three reference site subsamples were collected by NewFields personnel on October 6, 7, 8, and 9 2008 and were delivered on October 28, 2008 to the Nautilus Environmental laboratory in Tacoma, WA. The condition of the sample containers was inspected upon receipt and the identities compared with the information provided on the chain-of-custody forms. The samples were stored at 4±2°C in the dark prior to test initiation.

2.2 Test Procedures

The luminescent marine bacterium *Vibrio fischeri* was used as the test organism for the Microtox test. The bacteria were exposed to porewater extracted from sediment samples and light readings were measured after 5 minutes and 15 minutes of exposure. Test equipment included the Microtox Model 500 Analyzer, which measures light output and is equipped with a 15°C chamber to maintain test temperature in the samples and a 4°C chamber to keep the rehydrated bacteria chilled.

Vials of freeze-dried bacteria (Microtox® Acute Reagent Lot # 8H1052, Expiration date 8/2010) were obtained from Strategic Diagnostics, Inc. and stored at -20°C until use. On the day of the test, a vial was rehydrated with 1.0 ml of Microtox Reconstitution Solution, mixed thoroughly, and allowed to equilibrate for 30 minutes at 4°C. The bacteria were used within 2 hours of rehydration.

The tests were conducted in accordance with WDOE (2008) test protocol. These methods are summarized in Table 1. Approximately 50 ml of porewater was extracted from each sample by centrifuging for 30 minutes at 4500 G. The DO in each sample was between 50 and 100 percent saturation and, as a result, the samples did not require aeration. The pH was adjusted to 7.8 to 8.2 using NaOH or HCl, if necessary. Sample salinity was adjusted to 20 ± 2 when necessary

using artificial seasalt. The control was deionized water adjusted to 20 ppt with artificial seasalt. Each porewater was tested within 3 hours of extraction.

Tests were conducted using five replicates. Disposable glass cuvettes were placed in the Microtox test wells and 1 ml of salinity adjusted porewater was added. The rehydrated bacteria (reagent) were thoroughly mixed and 10 µl was added to each test cuvette. After an initial incubation period of 5 minutes, the control cuvette was placed in the read chamber of the Microtox Analyzer to set the instrument. Initial light readings (I_0) were then taken by placing each cuvette in the read chamber of the Microtox Analyzer and measurements were recorded on a data sheet. Light output was measured in each cuvette after an additional 5 minutes (I_5) and 15 minutes (I_{15}) of exposure.

Test acceptability criterion was final mean control light output greater than or equal to 80 percent of initial control mean output. The reference sample acceptability criterion was a final mean output greater than or equal to 80 percent of control final mean output. The data were evaluated statistically by conducting one-tailed t-tests (or Mann-Whitney U tests for non-normal distributed data) on the change in output over time for porewater extracts compared to the reference. Where the reference did not meet acceptability criteria, comparisons were made against the control.

A reference toxicant test using phenol was conducted in conjunction with the porewater tests to ensure that the sensitivity of the test was within the acceptable range of historical values determined in this laboratory.

Table 1. Summary of methods for the Microtox test.

Test dates	November 3 and 4 2008
Test organism source	Strategic Diagnostics
Batch number and expiration date	Lot#8H1052, Expiry 8/2010
Control	Saltwater (20 ppt) prepared with Crystal Sea artificial seasalt
Sample preparation	Centrifugation at 4500 G for 30 minutes; salinity adjustment to 20 ppt using Crystal Sea salt; pH adjustment to 7.8-8.2 ppt
Test chamber	Glass cuvette
Test volume	1 mL
Volume of inoculum/replicate	10 µL
Number of replicates/sample	5
Test temperature	15 ± 1°C
Aeration	None
Reference toxicant	Phenol

3.0 RESULTS

The results of toxicity tests conducted using Microtox are provided in Tables 2 and 3.

Table 2. Results of Microtox tests showing change in light output of samples as a percentage of change in light output of control after 5 and 15 minute of exposure.

Sample	Change in light output as a % of Control (5 minutes)	Change in light output as a % of Control (15 minutes)
Test #1		
CR-22S-S	104	106
PG-A3-05E-S	101	96
PG-A2-14-S	77	74
PG-A2-36-S	60	58
Test #2		
CR-22S-S	107	114
PG-A1-24-S	106	110
PG-A1-16-S	108	112
PG-A2-10-S	107	110
PG-A2-11-S	105	108
Test #3		
CR-20/24-S	79	88
PG-A2-13-S	115	124
Test #4		
CR-23-S	109	109
PG-A2-18-S	108	105
Test #5		
CR-23-S	106	105
PG-A2-25-S	105	100
PG-A2-21-S	106	105
PG-A1-10-S	73	69
PG-A1-07-S	102	96
Test #6		
CR-23-S	109	112
PG-A3-07B-S	102	102
PG-A4-08B-S	101	104
PG-A1-01-S	107	113
PG-A1-03-S	107	114

Table 3. Statistical analyses of Microtox results. Shaded data indicates > 20% difference and underlined data indicate statistically significant difference ($p<0.05$) relative to the control or reference

Sample	5-minute reading		15 minute reading	
	Mean % of initial light output	Comparison To	Mean % of initital light output	Comparison To
Test 1				
Control	93 ± 2	---	85 ± 4	---
CR-22S-S	97 ± 1	---	90 ± 1	---
PG-A3-05E-S	94 ± 2	CR-22S-S	82 ± 3	CR-22S-S
PG-A2-14-S	72 ± 1	CR-22S-S	63 ± 1	CR-22S-S
PG-A2-36-S	56 ± 6	CR-22S-S	49 ± 5	CR-22S-S
Test 2				
Control	93 ± 2	---	85 ± 3	---
CR-22S-S	100 ± 1	---	97 ± 1	---
PG-A1-24-S	98 ± 1	CR-22S-S	93 ± 1	CR-22S-S
PG-A1-16-S	100 ± 2	CR-22S-S	95 ± 2	CR-22S-S
PG-A2-10-S	100 ± 1	CR-22S-S	93 ± 1	CR-22S-S
PG-A2-11-S	98 ± 1	CR-22S-S	91 ± 2	CR-22S-S
Test 3				
Control	94 ± 5	---	83 ± 4	---
CR-20/24-S	74 ± 2	---	73 ± 1	---
PG-A2-13-S	108 ± 6	Control	103 ± 3	CR-20/24-S
Test 4				
Control	88 ± 1	---	83 ± 3	---
CR-23-S	96 ± 2	---	91 ± 2	---
PG-A2-18-S	95 ± 3	CR-23-S	87 ± 3	CR-23-S
Test 5				
Control	89 ± 2	---	82 ± 3	---
CR-23-S	95 ± 2	---	86 ± 2	---
PG-A2-25-S	94 ± 4	CR-23S-S	82 ± 2	CR-23S-S
PG-A2-21-S	95 ± 1	CR-23S-S	86 ± 3	CR-23S-S
PG-A1-10-S	65 ± 5	CR-23S-S	57 ± 4	CR-23S-S
PG-A1-07-S	91 ± 4	CR-23S-S	79 ± 4	CR-23S-S
Test 6				
Control	93 ± 3	---	85 ± 2	---
CR-23-S	101 ± 2	---	95 ± 1	---
PG-A3-07B-S	95 ± 2	CR-23S-S	86 ± 4	CR-23S-S
PG-A4-08B-S	94 ± 3	CR-23S-S	88 ± 2	CR-23S-S
PG-A1-01-S	100 ± 1	CR-23S-S	96 ± 3	CR-23S-S
PG-A1-03-S	99 ± 3	CR-23S-S	96 ± 3	CR-23S-S

3.1 QA/QC

The Microtox tests met control acceptance criteria and there were no deviations from protocol. Samples PG-A2-14-S and PG-A2-36-S had a turbidity greater than 100 NTU (337 NTU and 272 NTU, respectively), therefore toxicity may be artifactual.

Results of reference toxicant tests conducted in conjunction with this testing program are provided in Table 4. The results of these tests fell within the range of mean ± two standard deviations. This puts the results within the acceptable range of historical results for *Vibrio fischeri*, indicating that the sensitivity of the test organisms was appropriate.

Table 4. Reference toxicant test results.

Exposure Duration	Test date	Toxicant	EC50	Acceptable Range	CV (%)
5 Minutes	November 3, 2008	Phenol	35.4 mg/L	19.9 - 50.7	21.8
15 Minutes			54.1 mg/L	25.0 - 64.8	22.1
5 Minutes	November 4, 2008	Phenol	36.0 mg/L	20.7 - 50.7	21.0
15 Minutes			53.9 mg/L	26.1 - 65.6	21.5

4.0 DISCUSSION

Samples PG-A2-14-S, PG-A2-36-S and PG-A1-10-S exceeded sediment quality standards for microtox analysis per WDOE 2008 guidelines. However, the decrease in light output observed for samples PG-A2-14-S and PG-A2-36-S may have been influenced by the turbidity of the samples, and not due to the toxicity of the samples.

5.0 REFERENCES

American Society of Testing and Materials (ASTM). 2000. Test Method for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates. ASTM Designation E 1706-00.

U.S. Environmental Protection Agency (USEPA). 2000. Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates. EPA/600/R-99/064.

Washington Department of Ecology (WDOE). 2008. Sediment Sampling and Analysis Plan Appendix: Guidance on the Development of Sediment Sampling and Analysis Plans Meeting the Requirements of the Sediment Management Standards Publication No. 03-09-043. Revised February 2008.

APPENDIX A – Results Summaries and Statistical Analysis

Appendix Table A. Microtox 100 Percent Sediment Porewater Test
Sites CR22S, A3-05E, A2-14, A2-36
NewFields Northwest
Test Date: November 3, 2008

Site	Reading	Light Reading Replicate 1	2	3	4	5	Mean	St.Dev.	$T_{(mean)}/C_{(mean)}$	Quality Control Steps: Change in control light readings compared to initial control $F_{c(mean)}/I_{c(mean)}$	Quality Control Steps: Evaluation of initial light output in site sediments $I_{(0)T(mean)}/I_{(0)C(mean)}$
CON	$I_{(0)}$	**90**	**91**	**88**	**85**	**90**	89				
	$I_{(5)}$	**83**	**82**	**81**	**81**	**85**	82			0.93	
	$I_{(15)}$	**78**	**73**	**75**	**77**	**75**	76			0.85	
	$C_{(5)}$	0.92	0.90	0.92	0.95	0.94	0.93	0.02			
	$C_{(15)}$	0.87	0.80	0.85	0.91	0.83	0.85	0.04			
CR22S	$I_{(0)}$	**85**	**88**	**81**	**82**	**81**	83				0.94
	$I_{(5)}$	**83**	**84**	**78**	**80**	**79**	81				
	$I_{(15)}$	**78**	**78**	**73**	**73**	**74**	75				
	$T_{(5)}$	0.98	0.95	0.96	0.98	0.98	0.97	0.01	1.04		
	$T_{(15)}$	0.92	0.89	0.90	0.89	0.91	0.90	0.01	1.06		
A3-05E	$I_{(0)}$	**75**	**72**	**74**	**68**	**69**	72				0.81
	$I_{(5)}$	**70**	**68**	**67**	**66**	**64**	67				
	$I_{(15)}$	**62**	**57**	**58**	**59**	**57**	59				
	$T_{(5)}$	0.93	0.94	0.91	0.97	0.93	0.94	0.02	1.01		
	$T_{(15)}$	0.83	0.79	0.78	0.87	0.83	0.82	0.03	0.96		
A2-14	$I_{(0)}$	**68**	**63**	**64**	**65**	**67**	65				0.74
	$I_{(5)}$	**64**	**63**	**64**	**63**	**65**	64				
	$I_{(15)}$	**56**	**54**	**57**	**56**	**57**	56				
	$T_{(5)}$	0.72	0.71	0.72	0.71	0.73	0.72	0.01	0.77		
	$T_{(15)}$	0.63	0.61	0.64	0.63	0.64	0.63	0.01	0.74		
A2-36	$I_{(0)}$	**59**	**52**	**45**	**56**	**58**	54				0.61
	$I_{(5)}$	**54**	**46**	**41**	**52**	**54**	49				
	$I_{(15)}$	**46**	**41**	**38**	**47**	**47**	44				
	$T_{(5)}$	0.61	0.52	0.46	0.59	0.61	0.56	0.06	0.60		
	$T_{(15)}$	0.52	0.46	0.43	0.53	0.53	0.49	0.05	0.58		

$I_{(0)}$ is the light reading after the initial five minute incubation period

$I_{(5)}$ is the light reading five minutes after $I_{(0)}$

$I_{(15)}$ is the light reading fifteen minutes after $I_{(0)}$

$C_{(t)}$, $R_{(t)}$, and $T_{(t)}$ are the changes in light readings from the intial reading in each sample container for the control, reference sediment

Quality Control Steps:

1. Is control final mean output greater than or equal to 80% control initial mean output?

$I_{(5)}$:$F_{c(mean)}/I_{c(mean)}$: **93%** **YES**

$I_{(15)}$:$F_{c(mean)}/I_{c(mean)}$: **85%** **YES**

YES: Control results are acceptable and can be used for statistical analyses.

NO: Control results are unacceptable (retest required).

2. Are test initial mean values greater than or equal to 80% of control initial mean values?

S1 $I_{T(mean)}/I_{C(mean)}$: **94%** **YES**

S2 $I_{T(mean)}/I_{C(mean)}$: **81%** **YES**

S3 $I_{T(mean)}/I_{C(mean)}$: **74%** **NO**

S4 $I_{T(mean)}/I_{C(mean)}$: **61%** **NO**

YES: Use initial site values to calculate change in final light readings

NO: Use control initial mean value to calculate change in final light readings for each site.

Appendix Table A. Microtox 100 Percent Sediment Porewater Test
Sites CR22S, A1-24, A1-16, A2-10, A2-11
NewFields Northwest
Test Date: November 3, 2008

Site	Light Reading Replicate								$T_{(mean)}/C_{(mean)}$	Quality Control Steps: Change in control light readings compared to initial control $F_{c(mean)}/I_{c(mean)}$	Quality Control Steps: Evaluation of initial light output in site sediments $I_{(0)T(mean)}/I_{(0)C(mean)}$
	Reading	1	2	3	4	5	Mean	St.Dev.			
CON	$I_{(0)}$	96	98	97	99	98	98				
	$I_{(5)}$	88	91	92	94	90	91			0.93	
	$I_{(15)}$	83	86	79	85	81	83			0.85	
	$C_{(5)}$	0.92	0.93	0.95	0.95	0.92	0.93	0.02			
	$C_{(15)}$	0.86	0.88	0.81	0.86	0.83	0.85	0.03			
CR22S	$I_{(0)}$	96	95	94	95	97	95				0.98
	$I_{(5)}$	95	95	94	96	98	96				
	$I_{(15)}$	92	91	93	91	94	92				
	$T_{(5)}$	0.99	1.00	1.00	1.01	1.01	1.00	0.01	1.07		
	$T_{(15)}$	0.96	0.96	0.99	0.96	0.97	0.97	0.01	1.14		
A1-24	$I_{(0)}$	103	99	101	105	100	102				1.04
	$I_{(5)}$	102	98	100	101	99	100				
	$I_{(15)}$	96	93	94	99	92	95				
	$T_{(5)}$	0.99	0.99	0.99	0.96	0.99	0.98	0.01	1.06		
	$T_{(15)}$	0.93	0.94	0.93	0.94	0.92	0.93	0.01	1.10		
A1-16	$I_{(0)}$	99	95	90	95	93	94				0.97
	$I_{(5)}$	97	95	90	99	93	95				
	$I_{(15)}$	93	89	88	90	88	90				
	$T_{(5)}$	0.98	1.00	1.00	1.04	1.00	1.00	0.02	1.08		
	$T_{(15)}$	0.94	0.94	0.98	0.95	0.95	0.95	0.02	1.12		
A2-10	$I_{(0)}$	106	100	101	105	106	104				1.06
	$I_{(5)}$	106	99	102	104	105	103				
	$I_{(15)}$	97	95	95	98	99	97				
	$T_{(5)}$	1.00	0.99	1.01	0.99	0.99	1.00	0.01	1.07		
	$T_{(15)}$	0.92	0.95	0.94	0.93	0.93	0.93	0.01	1.10		
A2-11	$I_{(0)}$	104	104	105	103	108	105				1.07
	$I_{(5)}$	101	104	102	101	106	103				
	$I_{(15)}$	98	95	94	92	99	96				
	$T_{(5)}$	0.97	1.00	0.97	0.98	0.98	0.98	0.01	1.05		
	$T_{(15)}$	0.94	0.91	0.90	0.89	0.92	0.91	0.02	1.08		

$I_{(0)}$ is the light reading after the initial five minute incubation period

$I_{(5)}$ is the light reading five minutes after $I_{(0)}$

$I_{(15)}$ is the light reading fifteen minutes after $I_{(0)}$

$C_{(t)}$, $R_{(t)}$, and $T_{(t)}$ are the changes in light readings from the intial reading in each sample container for the control, reference sediment

Quality Control Steps:

1. Is control final mean output greater than or equal to 80% control initial mean output?

$I_{(5)}$:$F_{c(mean)}/I_{c(mean)}$: **93%** **YES**

$I_{(15)}$:$F_{c(mean)}/I_{c(mean)}$: **85%** **YES**

YES: Control results are acceptable and can be used for statistical analyses.
NO: Control results are unacceptable (retest required).

2. Are test initial mean values greater than or equal to 80% of control initial mean values?

S1 $I_{T(mean)}/I_{C(mean)}$: **98%** **YES**

S2 $I_{T(mean)}/I_{C(mean)}$: **104%** **YES**

S3 $I_{T(mean)}/I_{C(mean)}$: **97%** **YES**

S4 $I_{T(mean)}/I_{C(mean)}$: **106%** **YES**

S5 $I_{T(mean)}/I_{C(mean)}$: **107%** **YES**

YES: Use initial site values to calculate change in final light readings
NO: Use control initial mean value to calculate change in final light readings for each site.

Appendix Table A. Microtox 100 Percent Sediment Porewater Test
Sites CR-20/24-S, A2-13
NewFields Northwest
Test Date: November 3, 2008

Site	Reading	Light Reading Replicate 1	2	3	4	5	Mean	St.Dev.	$T_{(mean)}$/ $C_{(mean)}$	Quality Control Steps: Change in control light readings compared to initial control $F_{c(mean)}/I_{c(mean)}$	Quality Control Steps: Evaluation of initial light output in site sediments $I_{(0)T(mean)}/I_{(0)C(mean)}$
CON	$I_{(0)}$	96	94	94	93	93	94				
	$I_{(5)}$	86	84	88	92	92	88			0.94	
	$I_{(15)}$	74	75	79	81	81	78			0.83	
	$C_{(5)}$	0.90	0.89	0.94	0.99	0.99	0.94	0.05			
	$C_{(15)}$	0.77	0.80	0.84	0.87	0.87	0.83	0.04			
CR-20/24-S	$I_{(0)}$	60	67	64	65	63	64				0.68
	$I_{(5)}$	68	72	68	71	69	70				
	$I_{(15)}$	68	70	70	69	67	69				
	$T_{(5)}$	0.72	0.77	0.72	0.76	0.73	0.74	0.02	0.79		
	$T_{(15)}$	0.72	0.74	0.74	0.73	0.71	0.73	0.01	0.88		
A2-13	$I_{(0)}$	86	81	72	79	82	80				0.85
	$I_{(5)}$	91	85	86	84	86	86				
	$I_{(15)}$	88	81	78	82	83	82				
	$T_{(5)}$	1.06	1.05	1.19	1.06	1.05	1.08	0.06	1.15		
	$T_{(15)}$	1.02	1.00	1.08	1.04	1.01	1.03	0.03	1.24		

$I_{(0)}$ is the light reading after the initial five minute incubation period

$I_{(5)}$ is the light reading five minutes after $I_{(0)}$

$I_{(15)}$ is the light reading fifteen minutes after $I_{(0)}$

$C_{(t)}$, $R_{(t)}$, and $T_{(t)}$ are the changes in light readings from the intial reading in each sample container for the control, reference sediment

Quality Control Steps:

1. Is control final mean output greater than or equal to 80% control initial mean output?

$I_{(5)}$:$F_{c(mean)}/I_{c(mean)}$: **94%** **YES**

$I_{(15)}$:$F_{c(mean)}/I_{c(mean)}$: **83%** **YES**

YES: Control results are acceptable and can be used for statistical analyses.
NO: Control results are unacceptable (retest required).

2. Are test initial mean values greater than or equal to 80% of control initial mean values?

S1 $I_{T(mean)}/I_{C(mean)}$: **68%** **NO**

S2 $I_{T(mean)}/I_{C(mean)}$: **85%** **YES**

YES: Use initial site values to calculate change in final light readings
NO: Use control initial mean value to calculate change in final light readings for each site.

Appendix Table A. Microtox 100 Percent Sediment Porewater Test
Sites CR-22, A2-18
NewFields Northwest
Test Date: November 4, 2008

Site	Light Reading								$T_{(mean)}/C_{(mean)}$	Quality Control Steps	
		Replicate								Change in control light readings compared to initial control	Evaluation of initial light output in site sediments
	Reading	1	2	3	4	5	Mean	St.Dev.		$F_{c(mean)}/I_{c(mean)}$	$I_{(0)T(mean)}/I_{(0)C(mean)}$
CON	$I_{(0)}$	96	102	105	108	102	103				
	$I_{(5)}$	85	89	92	95	91	90			0.88	
	$I_{(15)}$	78	83	92	90	84	85			0.83	
	$C_{(5)}$	0.89	0.87	0.88	0.88	0.89	0.88	0.01			
	$C_{(15)}$	0.81	0.81	0.88	0.83	0.82	0.83	0.03			
CR-23	$I_{(0)}$	109	110	108	106	116	110				1.07
	$I_{(5)}$	103	110	102	103	111	106				
	$I_{(15)}$	95	101	98	99	105	100				
	$T_{(5)}$	0.94	1.00	0.94	0.97	0.96	0.96	0.02	1.09		
	$T_{(15)}$	0.87	0.92	0.91	0.93	0.91	0.91	0.02	1.09		
A2-18	$I_{(0)}$	85	91	91	88	82	87				0.85
	$I_{(5)}$	82	85	85	81	81	83				
	$I_{(15)}$	75	77	78	76	75	76				
	$T_{(5)}$	0.96	0.93	0.93	0.92	0.99	0.95	0.03	1.08		
	$T_{(15)}$	0.88	0.85	0.86	0.86	0.91	0.87	0.03	1.05		

$I_{(0)}$ is the light reading after the initial five minute incubation period

$I_{(5)}$ is the light reading five minutes after $I_{(0)}$

$I_{(15)}$ is the light reading fifteen minutes after $I_{(0)}$

$C_{(t)}$, $R_{(t)}$, and $T_{(t)}$ are the changes in light readings from the intial reading in each sample container for the control, reference sediment

Quality Control Steps:

1. Is control final mean output greater than or equal to 80% control initial mean output?

$I_{(5)}$:$F_{c(mean)}/I_{c(mean)}$: **88%** **YES**

$I_{(15)}$:$F_{c(mean)}/I_{c(mean)}$: **83%** **YES**

YES: Control results are acceptable and can be used for statistical analyses.
NO: Control results are unacceptable (retest required).

2. Are test initial mean values greater than or equal to 80% of control initial mean values?

S1 $I_{T(mean)}/I_{C(mean)}$: **107%** **YES**

S2 $I_{T(mean)}/I_{C(mean)}$: **85%** **YES**

YES: Use initial site values to calculate change in final light readings
NO: Use control initial mean value to calculate change in final light readings for each site.

Appendix Table A. Microtox 100 Percent Sediment Porewater Test
Sites CR-23, A2-25, A2-215, A1-10, A1-07
NewFields Northwest
Test Date: November 4, 2008

Site	Reading	Light Reading Replicate 1	2	3	4	5	Mean	St.Dev.	$T_{(mean)}/C_{(mean)}$	Quality Control Steps: Change in control light readings compared to initial control $F_{c(mean)}/I_{c(mean)}$	Quality Control Steps: Evaluation of initial light output in site sediments $I_{(0)T(mean)}/I_{(0)C(mean)}$
CON	$I_{(0)}$	94	96	96	102	101	98				
	$I_{(5)}$	87	83	85	90	91	87			0.89	
	$I_{(15)}$	81	75	77	83	85	80			0.82	
	$C_{(5)}$	0.93	0.86	0.89	0.88	0.90	0.89	0.02			
	$C_{(15)}$	0.86	0.78	0.80	0.81	0.84	0.82	0.03			
CR-23	$I_{(0)}$	101	104	107	100	101	103				1.05
	$I_{(5)}$	95	96	99	98	97	97				
	$I_{(15)}$	86	88	91	86	90	88				
	$T_{(5)}$	0.94	0.92	0.93	0.98	0.96	0.95	0.02	1.06		
	$T_{(15)}$	0.85	0.85	0.85	0.86	0.89	0.86	0.02	1.05		
A2-25	$I_{(0)}$	96	93	93	94	91	93				0.96
	$I_{(5)}$	97	86	84	87	83	87				
	$I_{(15)}$	76	77	75	77	77	76				
	$T_{(5)}$	1.01	0.92	0.90	0.93	0.91	0.94	0.04	1.05		
	$T_{(15)}$	0.79	0.83	0.81	0.82	0.85	0.82	0.02	1.00		
A2-21	$I_{(0)}$	80	77	81	82	80	80				0.82
	$I_{(5)}$	76	73	76	77	76	76				
	$I_{(15)}$	68	66	70	68	72	69				
	$T_{(5)}$	0.95	0.95	0.94	0.94	0.95	0.95	0.01	1.06		
	$T_{(15)}$	0.85	0.86	0.86	0.83	0.90	0.86	0.03	1.05		
A1-10	$I_{(0)}$	73	64	66	73	71	69				0.71
	$I_{(5)}$	69	58	60	66	65	64				
	$I_{(15)}$	59	54	50	58	56	55				
	$T_{(5)}$	0.71	0.59	0.61	0.67	0.66	0.65	0.05	0.73		
	$T_{(15)}$	0.60	0.55	0.51	0.59	0.57	0.57	0.04	0.69		
A1-07	$I_{(0)}$	82	86	94	88	92	88				0.90
	$I_{(5)}$	79	75	81	81	85	80				
	$I_{(15)}$	68	63	72	69	75	69				
	$T_{(5)}$	0.96	0.87	0.86	0.92	0.92	0.91	0.04	1.02		
	$T_{(15)}$	0.83	0.73	0.77	0.78	0.82	0.79	0.04	0.96		

$I_{(0)}$ is the light reading after the initial five minute incubation period

$I_{(5)}$ is the light reading five minutes after $I_{(0)}$

$I_{(15)}$ is the light reading fifteen minutes after $I_{(0)}$

$C_{(t)}$, $R_{(t)}$, and $T_{(t)}$ are the changes in light readings from the intial reading in each sample container for the control, reference sediment

Quality Control Steps:

1. Is control final mean output greater than or equal to 80% control initial mean output?

$I_{(5)}$:$F_{c(mean)}/I_{c(mean)}$: **89%** **YES**

$I_{(15)}$:$F_{c(mean)}/I_{c(mean)}$: **82%** **YES**

YES: Control results are acceptable and can be used for statistical analyses.
NO: Control results are unacceptable (retest required).

2. Are test initial mean values greater than or equal to 80% of control initial mean values?

S1 $I_{T(mean)}/I_{C(mean)}$: **105%** **YES**

S2 $I_{T(mean)}/I_{C(mean)}$: **96%** **YES**

S3 $I_{T(mean)}/I_{C(mean)}$: **82%** **YES**

S4 $I_{T(mean)}/I_{C(mean)}$: **71%** **NO**

S5 $I_{T(mean)}/I_{C(mean)}$: **90%** **YES**

YES: Use initial site values to calculate change in final light readings
NO: Use control initial mean value to calculate change in final light readings for each site.

Appendix Table A. Microtox 100 Percent Sediment Porewater Test
Sites CR-23, A307B, A408B, A1-01, A1-03
NewFields Northwest
Test Date: November 4, 2008

Site	Light Reading								$T_{(mean)}/C_{(mean)}$	Quality Control Steps	
		Replicate								Change in control light readings compared to initial control	Evaluation of initial light output in site sediments
	Reading	1	2	3	4	5	Mean	St.Dev.		$F_{c(mean)}/I_{c(mean)}$	$I_{(0)T(mean)}/I_{(0)C(mean)}$
CON	$I_{(0)}$	93	96	96	95	92	94				
	$I_{(5)}$	85	86	90	90	89	88			0.93	
	$I_{(15)}$	80	78	82	81	78	80			0.85	
	$C_{(5)}$	0.91	0.90	0.94	0.95	0.97	0.93	0.03			
	$C_{(15)}$	0.86	0.81	0.85	0.85	0.85	0.85	0.02			
CR-23	$I_{(0)}$	99	97	99	102	104	100				1.06
	$I_{(5)}$	100	98	99	102	108	101				
	$I_{(15)}$	95	92	94	97	98	95				
	$T_{(5)}$	1.01	1.01	1.00	1.00	1.04	1.01	0.02	1.09		
	$T_{(15)}$	0.96	0.95	0.95	0.95	0.94	0.95	0.01	1.12		
A307B	$I_{(0)}$	84	88	89	88	90	88				0.93
	$I_{(5)}$	82	81	84	84	87	84				
	$I_{(15)}$	76	75	73	79	76	76				
	$T_{(5)}$	0.98	0.92	0.94	0.95	0.97	0.95	0.02	1.02		
	$T_{(15)}$	0.90	0.85	0.82	0.90	0.84	0.86	0.04	1.02		
A408B	$I_{(0)}$	92	88	90	85	82	87				0.93
	$I_{(5)}$	83	85	84	81	79	82				
	$I_{(15)}$	79	78	82	74	73	77				
	$T_{(5)}$	0.90	0.97	0.93	0.95	0.96	0.94	0.03	1.01		
	$T_{(15)}$	0.86	0.89	0.91	0.87	0.89	0.88	0.02	1.04		
A1-01	$I_{(0)}$	80	79	77	76	76	78				0.82
	$I_{(5)}$	79	78	77	77	77	78				
	$I_{(15)}$	73	78	72	74	74	74				
	$T_{(5)}$	0.99	0.99	1.00	1.01	1.01	1.00	0.01	1.07		
	$T_{(15)}$	0.91	0.99	0.94	0.97	0.97	0.96	0.03	1.13		
A1-03	$I_{(0)}$	81	82	79	81	80	81				0.85
	$I_{(5)}$	84	82	78	79	78	80				
	$I_{(15)}$	81	79	76	75	76	77				
	$T_{(5)}$	1.04	1.00	0.99	0.98	0.98	0.99	0.03	1.07		
	$T_{(15)}$	1.00	0.96	0.96	0.93	0.95	0.96	0.03	1.14		

$I_{(0)}$ is the light reading after the initial five minute incubation period

$I_{(5)}$ is the light reading five minutes after $I_{(0)}$

$I_{(15)}$ is the light reading fifteen minutes after $I_{(0)}$

$C_{(t)}$, $R_{(t)}$, and $T_{(t)}$ are the changes in light readings from the intial reading in each sample container for the control, reference sediment

Quality Control Steps:

1. Is control final mean output greater than or equal to 80% control initial mean output?

$I_{(5)}$:$F_{c(mean)}/I_{c(mean)}$: **93%** **YES**

$I_{(15)}$:$F_{c(mean)}/I_{c(mean)}$: **85%** **YES**

YES: Control results are acceptable and can be used for statistical analyses.
NO: Control results are unacceptable (retest required).

2. Are test initial mean values greater than or equal to 80% of control initial mean values?

S1 $I_{T(mean)}/I_{C(mean)}$: **106%** **YES**

S2 $I_{T(mean)}/I_{C(mean)}$: **93%** **YES**

S3 $I_{T(mean)}/I_{C(mean)}$: **93%** **YES**

S4 $I_{T(mean)}/I_{C(mean)}$: **82%** **YES**

S5 $I_{T(mean)}/I_{C(mean)}$: **85%** **YES**

YES: Use initial site values to calculate change in final light readings
NO: Use control initial mean value to calculate change in final light readings for each site.

Project Name: Port Gardner

Sample:	x1
Samp ID:	A3-05E
Alias:	5-minute reading
Replicates:	5
Mean:	0.936
SD:	0.022
Tr Mean:	5.552
Trans SD:	0.065

Ref Samp:	x2
Ref ID:	CR22S
Alias:	5-minute reading
Replicates:	5
Mean:	0.97
SD:	0.014
Tr Mean:	5.652
Trans SD:	0.041

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.035
SS:	0.024
K:	5
b:	0.151
Alpha Level:	0.05
Calculated Value:	0.9547
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.045
Test Residual SD:	0.041
Ref. Residual Mean:	0.035
Ref. Residual SD:	0.013
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.5175
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	2.914
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.93	5.534	0.98	5.681	0.018	0.029			-0.078
2	0.94	5.564	0.95	5.593	0.012	0.059			-0.059
3	0.91	5.474	0.96	5.623	0.078	0.029			-0.029
4	0.97	5.652	0.98	5.681	0.101	0.029			-0.018
5	0.93	5.534	0.98	5.681	0.018	0.029			-0.018
6									0.012
7									0.029
8									0.029
9									0.029
10									0.101

Project Name: Port Gardner

Sample:	x1
Samp ID:	A3-05E
Alias:	15-minute reading
Replicates:	5
Mean:	0.82
SD:	0.036
Tr Mean:	5.194
Trans SD:	0.114

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.902
SD:	0.013
Tr Mean:	5.45
Trans SD:	0.039

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.055
SS:	0.059
K:	5
b:	0.237
Alpha Level:	0.05
Calculated Value:	0.9623
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.089
Test Residual SD:	0.056
Ref. Residual Mean:	0.031
Ref. Residual SD:	0.018
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	2.1913
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin

Experimental Hypothesis

Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	5
Experimental Alpha Level:	0.05
Calculated Value:	4.718
Critical Value:	>= 2.015
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.83	5.227	0.92	5.504	0.033	0.054			-0.128
2	0.79	5.099	0.89	5.413	0.095	0.036			-0.095
3	0.78	5.067	0.9	5.444	0.128	0.006			-0.036
4	0.87	5.352	0.89	5.413	0.157	0.036			-0.036
5	0.83	5.227	0.91	5.474	0.033	0.024			-0.006
6									0.024
7									0.033
8									0.033
9									0.054
10									0.157

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-14
Alias:	5-minute reading
Replicates:	5
Mean:	0.718
SD:	0.008
Tr Mean:	4.861
Trans SD:	0.028

Ref Samp:	x2
Ref ID:	CR22S
Alias:	5-minute reading
Replicates:	5
Mean:	0.97
SD:	0.014
Tr Mean:	5.652
Trans SD:	0.041

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.023
SS:	0.01
K:	5
b:	0.095
Alpha Level:	0.05
Calculated Value:	0.899
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.022
Test Residual SD:	0.015
Ref. Residual Mean:	0.035
Ref. Residual SD:	0.013
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.5232
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	35.2482
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.72	4.868	0.98	5.681	0.007	0.029			-0.059
2	0.71	4.834	0.95	5.593	0.027	0.059			-0.029
3	0.72	4.868	0.96	5.623	0.007	0.029			-0.027
4	0.71	4.834	0.98	5.681	0.027	0.029			-0.027
5	0.73	4.901	0.98	5.681	0.041	0.029			0.007
6									0.007
7									0.029
8									0.029
9									0.029
10									0.041

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-14
Alias:	15-minute reading
Replicates:	5
Mean:	0.63
SD:	0.012
Tr Mean:	4.552
Trans SD:	0.045

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.902
SD:	0.013
Tr Mean:	5.45
Trans SD:	0.039

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.027
SS:	0.014
K:	5
b:	0.116
Alpha Level:	0.05
Calculated Value:	0.9528
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.029
Test Residual SD:	0.03
Ref. Residual Mean:	0.031
Ref. Residual SD:	0.018
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.149
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	33.7264
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.63	4.552	0.92	5.504	0	0.054			-0.073
2	0.61	4.479	0.89	5.413	0.073	0.036			-0.036
3	0.64	4.589	0.9	5.444	0.036	0.006			-0.036
4	0.63	4.552	0.89	5.413	0	0.036			-0.006
5	0.64	4.589	0.91	5.474	0.036	0.024			0
6									0
7									0.024
8									0.036
9									0.036
10									0.054

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-36
Alias:	5-minute reading
Replicates:	5
Mean:	0.558
SD:	0.066
Tr Mean:	4.278
Trans SD:	0.259

Ref Samp:	x2
Ref ID:	CR22S
Alias:	5-minute reading
Replicates:	5
Mean:	0.97
SD:	0.014
Tr Mean:	5.652
Trans SD:	0.041

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.121
SS:	0.276
K:	5
b:	0.499
Alpha Level:	0.05
Calculated Value:	0.903
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.212
Test Residual SD:	0.104
Ref. Residual Mean:	0.035
Ref. Residual SD:	0.013
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	3.7772
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	4
Experimental Alpha Level:	0.05
Calculated Value:	11.699
Critical Value:	>= 2.132
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.61	4.479	0.98	5.681	0.202	0.029			-0.389
2	0.52	4.135	0.95	5.593	0.142	0.059			-0.142
3	0.46	3.889	0.96	5.623	0.389	0.029			-0.059
4	0.59	4.405	0.98	5.681	0.128	0.029			-0.029
5	0.61	4.479	0.98	5.681	0.202	0.029			0.029
6									0.029
7									0.029
8									0.128
9									0.202
10									0.202

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-36
Alias:	15-minute reading
Replicates:	5
Mean:	0.494
SD:	0.046
Tr Mean:	4.027
Trans SD:	0.191

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.902
SD:	0.013
Tr Mean:	5.45
Trans SD:	0.039

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.089
SS:	0.152
K:	5
b:	0.376
Alpha Level:	0.05
Calculated Value:	0.9275
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.162
Test Residual SD:	0.061
Ref. Residual Mean:	0.031
Ref. Residual SD:	0.018
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	4.5933
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	4
Experimental Alpha Level:	0.05
Calculated Value:	16.3157
Critical Value:	>= 2.132
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.52	4.135	0.92	5.504	0.108	0.054			-0.267
2	0.46	3.889	0.89	5.413	0.138	0.036			-0.138
3	0.43	3.76	0.9	5.444	0.267	0.006			-0.036
4	0.53	4.175	0.89	5.413	0.148	0.036			-0.036
5	0.53	4.175	0.91	5.474	0.148	0.024			-0.006
6									0.024
7									0.054
8									0.108
9									0.148
10									0.148

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-24
Alias:	5-minute reading
Replicates:	5
Mean:	0.984
SD:	0.013
Tr Mean:	N/A
Trans SD:	N/A

Ref Samp:	x2
Ref ID:	CR22S
Alias:	5-minute reading
Replicates:	5
Mean:	1.002
SD:	0.008
Tr Mean:	N/A
Trans SD:	N/A

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.021
SS:	0.008
K:	5
b:	0.08
Alpha Level:	0.05
Calculated Value:	0.7606
Critical Value:	<= 0.842
Normally Distributed:	No
Override Option:	Not Invoked

Levene's Results:

Test Residual Mean:	0.028
Test Residual SD:	0.023
Ref. Residual Mean:	0.018
Ref. Residual SD:	0.013
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.8059
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Mann-Whitney
Balanced Design:	Yes
Transformation:	rank-order
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Mann-Whitney N1:	5
Mann-Whitney N2:	5
Degrees of Freedom:	
Experimental Alpha Level:	0.05
Calculated Value:	23
Critical Value:	>= 21.000
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.99	4	0.99	4	0.017	0.035	1		-0.07
2	0.99	4	1	7.5	0.017	0.006	4		-0.035
3	0.99	4	1	7.5	0.017	0.006	4		-0.006
4	0.96	1	1.01	9.5	0.07	0.023	4		-0.006
5	0.99	4	1.01	9.5	0.017	0.023	4		0.017
6							4		0.017
7							7.5		0.017
8							7.5		0.017
9							9.5		0.023
10							9.5		0.023

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-24
Alias:	15-minute reading
Replicates:	5
Mean:	0.932
SD:	0.008
Tr Mean:	5.54
Trans SD:	0.025

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.968
SD:	0.013
Tr Mean:	5.646
Trans SD:	0.038

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.021
SS:	0.008
K:	5
b:	0.087
Alpha Level:	0.05
Calculated Value:	0.9062
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.019
Test Residual SD:	0.013
Ref. Residual Mean:	0.028
Ref. Residual SD:	0.022
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.796
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	5.2244
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.93	5.534	0.96	5.623	0.006	0.023			-0.036
2	0.94	5.564	0.96	5.623	0.024	0.023			-0.023
3	0.93	5.534	0.99	5.71	0.006	0.064			-0.023
4	0.94	5.564	0.96	5.623	0.024	0.023			-0.023
5	0.92	5.504	0.97	5.652	0.036	0.006			-0.006
6									-0.006
7									0.006
8									0.024
9									0.024
10									0.064

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-16
Alias:	15-minute reading
Replicates:	5
Mean:	0.952
SD:	0.016
Tr Mean:	N/A
Trans SD:	N/A

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.968
SD:	0.013
Tr Mean:	N/A
Trans SD:	N/A

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.028
SS:	0.015
K:	5
b:	0.109
Alpha Level:	0.05
Calculated Value:	0.7914
Critical Value:	<= 0.842
Normally Distributed:	No
Override Option:	Not Invoked

Levene's Results:

Test Residual Mean:	0.033
Test Residual SD:	0.031
Ref. Residual Mean:	0.028
Ref. Residual SD:	0.022
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.2852
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Mann-Whitney
Balanced Design:	Yes
Transformation:	rank-order
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Mann-Whitney N1:	5
Mann-Whitney N2:	5
Degrees of Freedom:	
Experimental Alpha Level:	0.05
Calculated Value:	21
Critical Value:	>= 21.000
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.94	1.5	0.96	6	0.035	0.023	1.5		-0.035
2	0.94	1.5	0.96	6	0.035	0.023	1.5		-0.035
3	0.98	9	0.99	10	0.082	0.064	3.5		-0.023
4	0.95	3.5	0.96	6	0.006	0.023	3.5		-0.023
5	0.95	3.5	0.97	8	0.006	0.006	6		-0.023
6							6		-0.006
7							6		-0.006
8							8		0.006
9							9		0.064
10							10		0.082

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-10
Alias:	15-minute reading
Replicates:	5
Mean:	0.934
SD:	0.011
Tr Mean:	5.546
Trans SD:	0.034

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.968
SD:	0.013
Tr Mean:	5.646
Trans SD:	0.038

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.023
SS:	0.01
K:	5
b:	0.097
Alpha Level:	0.05
Calculated Value:	0.8968
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.026
Test Residual SD:	0.017
Ref. Residual Mean:	0.028
Ref. Residual SD:	0.022
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.1497
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	4.4029
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.92	5.504	0.96	5.623	0.042	0.023			-0.042
2	0.95	5.593	0.96	5.623	0.048	0.023			-0.023
3	0.94	5.564	0.99	5.71	0.018	0.064			-0.023
4	0.93	5.534	0.96	5.623	0.012	0.023			-0.023
5	0.93	5.534	0.97	5.652	0.012	0.006			-0.012
6									-0.012
7									0.006
8									0.018
9									0.048
10									0.064

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-11
Alias:	5-minute reading
Replicates:	5
Mean:	0.98
SD:	0.012
Tr Mean:	5.681
Trans SD:	0.036

Ref Samp:	x2
Ref ID:	CR22S
Alias:	5-minute reading
Replicates:	5
Mean:	1.002
SD:	0.008
Tr Mean:	5.745
Trans SD:	0.024

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.02
SS:	0.007
K:	5
b:	0.082
Alpha Level:	0.05
Calculated Value:	0.92
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.023
Test Residual SD:	0.024
Ref. Residual Mean:	0.018
Ref. Residual SD:	0.013
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.3979
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	3.3173
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.97	5.652	0.99	5.71	0.029	0.035			-0.035
2	1	5.739	1	5.739	0.058	0.006			-0.029
3	0.97	5.652	1	5.739	0.029	0.006			-0.029
4	0.98	5.681	1.01	5.768	0	0.023			-0.006
5	0.98	5.681	1.01	5.768	0	0.023			-0.006
6									0
7									0
8									0.023
9									0.023
10									0.058

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-11
Alias:	15-minute reading
Replicates:	5
Mean:	0.912
SD:	0.019
Tr Mean:	5.48
Trans SD:	0.058

Ref Samp:	x2
Ref ID:	CR22S
Alias:	15-minute reading
Replicates:	5
Mean:	0.968
SD:	0.013
Tr Mean:	5.646
Trans SD:	0.038

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.032
SS:	0.019
K:	5
b:	0.134
Alpha Level:	0.05
Calculated Value:	0.9335
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.043
Test Residual SD:	0.032
Ref. Residual Mean:	0.028
Ref. Residual SD:	0.022
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.8926
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	5.3742
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.94	5.564	0.96	5.623	0.084	0.023			-0.066
2	0.91	5.474	0.96	5.623	0.006	0.023			-0.036
3	0.9	5.444	0.99	5.71	0.036	0.064			-0.023
4	0.89	5.413	0.96	5.623	0.066	0.023			-0.023
5	0.92	5.504	0.97	5.652	0.024	0.006			-0.023
6									-0.006
7									0.006
8									0.024
9									0.064
10									0.084

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-18
Alias:	5-minute reading
Replicates:	5
Mean:	0.946
SD:	0.029
Tr Mean:	5.581
Trans SD:	0.085

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	0.962
SD:	0.025
Tr Mean:	5.628
Trans SD:	0.073

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.051
SS:	0.05
K:	5
b:	0.209
Alpha Level:	0.05
Calculated Value:	0.8747
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.068
Test Residual SD:	0.037
Ref. Residual Mean:	0.054
Ref. Residual SD:	0.041
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.5918
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	0.9456
Critical Value:	>= 1.860
Accept Null Hypothesis:	Yes
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.96	5.623	0.94	5.564	0.042	0.065			-0.077
2	0.93	5.534	1	5.739	0.047	0.111			-0.065
3	0.93	5.534	0.94	5.564	0.047	0.065			-0.065
4	0.92	5.504	0.97	5.652	0.077	0.024			-0.047
5	0.99	5.71	0.96	5.623	0.129	0.006			-0.047
6									-0.006
7									0.024
8									0.042
9									0.111
10									0.129

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-18
Alias:	15-minute reading
Replicates:	5
Mean:	0.872
SD:	0.024
Tr Mean:	5.358
Trans SD:	0.073

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.908
SD:	0.023
Tr Mean:	5.468
Trans SD:	0.069

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.046
SS:	0.041
K:	5
b:	0.2
Alpha Level:	0.05
Calculated Value:	0.9892
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.056
Test Residual SD:	0.037
Ref. Residual Mean:	0.046
Ref. Residual SD:	0.046
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.3875
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	2.4377
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.88	5.383	0.87	5.352	0.025	0.116			-0.116
2	0.85	5.29	0.92	5.504	0.068	0.036			-0.068
3	0.86	5.321	0.91	5.474	0.037	0.006			-0.037
4	0.86	5.321	0.93	5.534	0.037	0.066			-0.037
5	0.91	5.474	0.91	5.474	0.116	0.006			0.006
6									0.006
7									0.025
8									0.036
9									0.066
10									0.116

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-25
Alias:	5-minute reading
Replicates:	5
Mean:	0.934
SD:	0.044
Tr Mean:	5.545
Trans SD:	0.129

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	0.946
SD:	0.024
Tr Mean:	5.581
Trans SD:	0.071

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.068
SS:	0.087
K:	5
b:	0.274
Alpha Level:	0.05
Calculated Value:	0.8617
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.089
Test Residual SD:	0.082
Ref. Residual Mean:	0.057
Ref. Residual SD:	0.032
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.8259
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	0.5527
Critical Value:	>= 1.860
Accept Null Hypothesis:	Yes
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	1.01	5.768	0.94	5.564	0.223	0.017			-0.101
2	0.92	5.504	0.92	5.504	0.041	0.077			-0.077
3	0.9	5.444	0.93	5.534	0.101	0.047			-0.071
4	0.93	5.534	0.98	5.681	0.011	0.1			-0.047
5	0.91	5.474	0.96	5.623	0.071	0.042			-0.041
6									-0.017
7									-0.011
8									0.042
9									0.1
10									0.223

Project Name: Port Gardner

Sample:	x1
Samp ID:	A2-25
Alias:	15-minute reading
Replicates:	5
Mean:	0.82
SD:	0.022
Tr Mean:	5.195
Trans SD:	0.071

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.86
SD:	0.017
Tr Mean:	5.321
Trans SD:	0.053

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.041
SS:	0.032
K:	5
b:	0.169
Alpha Level:	0.05
Calculated Value:	0.9009
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.051
Test Residual SD:	0.043
Ref. Residual Mean:	0.037
Ref. Residual SD:	0.034
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.5698
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	3.1628
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.79	5.099	0.85	5.29	0.096	0.031			-0.096
2	0.83	5.227	0.85	5.29	0.032	0.031			-0.031
3	0.81	5.164	0.85	5.29	0.031	0.031			-0.031
4	0.82	5.195	0.86	5.321	0	0			-0.031
5	0.85	5.29	0.89	5.413	0.095	0.092			-0.031
6									0
7									0
8									0.032
9									0.092
10									0.095

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-10
Alias:	5-minute reading
Replicates:	5
Mean:	0.648
SD:	0.048
Tr Mean:	4.615
Trans SD:	0.172

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	0.946
SD:	0.024
Tr Mean:	5.581
Trans SD:	0.071

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.085
SS:	0.139
K:	5
b:	0.371
Alpha Level:	0.05
Calculated Value:	0.9898
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.138
Test Residual SD:	0.077
Ref. Residual Mean:	0.057
Ref. Residual SD:	0.032
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	2.1785
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	5
Experimental Alpha Level:	0.05
Calculated Value:	11.6038
Critical Value:	>= 2.015
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.71	4.834	0.94	5.564	0.219	0.017			-0.209
2	0.59	4.405	0.92	5.504	0.209	0.077			-0.135
3	0.61	4.479	0.93	5.534	0.135	0.047			-0.077
4	0.67	4.695	0.98	5.681	0.08	0.1			-0.047
5	0.66	4.66	0.96	5.623	0.045	0.042			-0.017
6									0.042
7									0.045
8									0.08
9									0.1
10									0.219

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-10
Alias:	15-minute reading
Replicates:	5
Mean:	0.564
SD:	0.036
Tr Mean:	4.305
Trans SD:	0.138

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.86
SD:	0.017
Tr Mean:	5.321
Trans SD:	0.053

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.068
SS:	0.088
K:	5
b:	0.284
Alpha Level:	0.05
Calculated Value:	0.9188
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.105
Test Residual SD:	0.073
Ref. Residual Mean:	0.037
Ref. Residual SD:	0.034
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.8834
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	5
Experimental Alpha Level:	0.05
Calculated Value:	15.3349
Critical Value:	>= 2.015
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.6	4.443	0.85	5.29	0.137	0.031			-0.21
2	0.55	4.253	0.85	5.29	0.052	0.031			-0.052
3	0.51	4.095	0.85	5.29	0.21	0.031			-0.031
4	0.59	4.405	0.86	5.321	0.1	0			-0.031
5	0.57	4.33	0.89	5.413	0.025	0.092			-0.031
6									0
7									0.025
8									0.092
9									0.1
10									0.137

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-07
Alias:	5-minute reading
Replicates:	5
Mean:	0.906
SD:	0.041
Tr Mean:	5.461
Trans SD:	0.124

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	0.946
SD:	0.024
Tr Mean:	5.581
Trans SD:	0.071

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.066
SS:	0.082
K:	5
b:	0.281
Alpha Level:	0.05
Calculated Value:	0.9687
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.099
Test Residual SD:	0.055
Ref. Residual Mean:	0.057
Ref. Residual SD:	0.032
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.5064
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	1.8848
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.96	5.623	0.94	5.564	0.162	0.017			-0.14
2	0.87	5.352	0.92	5.504	0.109	0.077			-0.109
3	0.86	5.321	0.93	5.534	0.14	0.047			-0.077
4	0.92	5.504	0.98	5.681	0.043	0.1			-0.047
5	0.92	5.504	0.96	5.623	0.043	0.042			-0.017
6									0.042
7									0.043
8									0.043
9									0.1
10									0.162

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-07
Alias:	15-minute reading
Replicates:	5
Mean:	0.786
SD:	0.04
Tr Mean:	5.085
Trans SD:	0.131

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.86
SD:	0.017
Tr Mean:	5.321
Trans SD:	0.053

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.065
SS:	0.08
K:	5
b:	0.271
Alpha Level:	0.05
Calculated Value:	0.9113
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.101
Test Residual SD:	0.067
Ref. Residual Mean:	0.037
Ref. Residual SD:	0.034
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.9056
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	5
Experimental Alpha Level:	0.05
Calculated Value:	3.7178
Critical Value:	>= 2.015
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.83	5.227	0.85	5.29	0.142	0.031			-0.184
2	0.73	4.901	0.85	5.29	0.184	0.031			-0.051
3	0.77	5.034	0.85	5.29	0.051	0.031			-0.031
4	0.78	5.067	0.86	5.321	0.018	0			-0.031
5	0.82	5.195	0.89	5.413	0.11	0.092			-0.031
6									-0.018
7									0
8									0.092
9									0.11
10									0.142

Project Name: Port Gardner

Sample:	x1
Samp ID:	A307B
Alias:	5-minute reading
Replicates:	5
Mean:	0.952
SD:	0.024
Tr Mean:	5.599
Trans SD:	0.07

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	1.012
SD:	0.016
Tr Mean:	5.773
Trans SD:	0.047

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.039
SS:	0.029
K:	5
b:	0.162
Alpha Level:	0.05
Calculated Value:	0.9134
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.054
Test Residual SD:	0.036
Ref. Residual Mean:	0.032
Ref. Residual SD:	0.03
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.0606
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	4.611
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.98	5.681	1.01	5.768	0.082	0.006			-0.095
2	0.92	5.504	1.01	5.768	0.095	0.006			-0.035
3	0.94	5.564	1	5.739	0.035	0.034			-0.034
4	0.95	5.593	1	5.739	0.006	0.034			-0.034
5	0.97	5.652	1.04	5.853	0.053	0.08			-0.006
6									-0.006
7									-0.006
8									0.053
9									0.08
10									0.082

Project Name: Port Gardner

Sample:	x1
Samp ID:	A307B
Alias:	15-minute reading
Replicates:	5
Mean:	0.862
SD:	0.036
Tr Mean:	5.326
Trans SD:	0.112

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.95
SD:	0.007
Tr Mean:	5.593
Trans SD:	0.021

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.052
SS:	0.052
K:	5
b:	0.221
Alpha Level:	0.05
Calculated Value:	0.9341
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.094
Test Residual SD:	0.04
Ref. Residual Mean:	0.012
Ref. Residual SD:	0.016
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	4.237
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	4
Experimental Alpha Level:	0.05
Calculated Value:	5.2198
Critical Value:	>= 2.132
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.9	5.444	0.96	5.623	0.117	0.029			-0.131
2	0.85	5.29	0.95	5.593	0.036	0			-0.068
3	0.82	5.195	0.95	5.593	0.131	0			-0.036
4	0.9	5.444	0.95	5.593	0.117	0			-0.03
5	0.84	5.259	0.94	5.564	0.068	0.03			0
6									0
7									0
8									0.029
9									0.117
10									0.117

Project Name: Port Gardner

Sample:	x1
Samp ID:	A408B
Alias:	5-minute reading
Replicates:	5
Mean:	0.942
SD:	0.028
Tr Mean:	5.569
Trans SD:	0.083

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	1.012
SD:	0.016
Tr Mean:	5.773
Trans SD:	0.047

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.044
SS:	0.036
K:	5
b:	0.183
Alpha Level:	0.05
Calculated Value:	0.932
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.064
Test Residual SD:	0.041
Ref. Residual Mean:	0.032
Ref. Residual SD:	0.03
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.4234
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	4.8078
Critical Value:	>= 1.860
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.9	5.444	1.01	5.768	0.125	0.006			-0.125
2	0.97	5.652	1.01	5.768	0.083	0.006			-0.035
3	0.93	5.534	1	5.739	0.035	0.034			-0.034
4	0.95	5.593	1	5.739	0.024	0.034			-0.034
5	0.96	5.623	1.04	5.853	0.054	0.08			-0.006
6									-0.006
7									0.024
8									0.054
9									0.08
10									0.083

Project Name: Port Gardner

Sample:	x1
Samp ID:	A408B
Alias:	15-minute reading
Replicates:	5
Mean:	0.884
SD:	0.019
Tr Mean:	5.395
Trans SD:	0.06

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.95
SD:	0.007
Tr Mean:	5.593
Trans SD:	0.021

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.029
SS:	0.016
K:	5
b:	0.124
Alpha Level:	0.05
Calculated Value:	0.9646
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.047
Test Residual SD:	0.029
Ref. Residual Mean:	0.012
Ref. Residual SD:	0.016
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	2.335
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	5
Experimental Alpha Level:	0.05
Calculated Value:	7.0274
Critical Value:	>= 2.015
Accept Null Hypothesis:	No
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.86	5.321	0.96	5.623	0.074	0.029			-0.074
2	0.89	5.413	0.95	5.593	0.019	0			-0.043
3	0.91	5.474	0.95	5.593	0.079	0			-0.03
4	0.87	5.352	0.95	5.593	0.043	0			0
5	0.89	5.413	0.94	5.564	0.019	0.03			0
6									0
7									0.019
8									0.019
9									0.029
10									0.079

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-01
Alias:	5-minute reading
Replicates:	5
Mean:	1
SD:	0.01
Tr Mean:	5.739
Trans SD:	0.029

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	1.012
SD:	0.016
Tr Mean:	5.773
Trans SD:	0.047

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.025
SS:	0.012
K:	5
b:	0.102
Alpha Level:	0.05
Calculated Value:	0.8617
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.023
Test Residual SD:	0.013
Ref. Residual Mean:	0.032
Ref. Residual SD:	0.03
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.6006
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin

Experimental Hypothesis

Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	1.3972
Critical Value:	>= 1.860
Accept Null Hypothesis:	Yes
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.99	5.71	1.01	5.768	0.029	0.006			-0.034
2	0.99	5.71	1.01	5.768	0.029	0.006			-0.034
3	1	5.739	1	5.739	0	0.034			-0.029
4	1.01	5.768	1	5.739	0.029	0.034			-0.029
5	1.01	5.768	1.04	5.853	0.029	0.08			-0.006
6									-0.006
7									0
8									0.029
9									0.029
10									0.08

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-01
Alias:	15-minute reading
Replicates:	5
Mean:	0.956
SD:	0.031
Tr Mean:	5.61
Trans SD:	0.093

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.95
SD:	0.007
Tr Mean:	5.593
Trans SD:	0.021

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.044
SS:	0.036
K:	5
b:	0.184
Alpha Level:	0.05
Calculated Value:	0.9362
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.073
Test Residual SD:	0.043
Ref. Residual Mean:	0.012
Ref. Residual SD:	0.016
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	2.9893
Critical Value:	>= 1.860
Variances Homogeneous:	No

Test Results:

Statistic:	Approximate t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	4
Experimental Alpha Level:	0.05
Calculated Value:	-0.4036
Critical Value:	>= 2.132
Accept Null Hypothesis:	Yes
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	0.91	5.474	0.96	5.623	0.136	0.029			-0.136
2	0.99	5.71	0.95	5.593	0.1	0			-0.047
3	0.94	5.564	0.95	5.593	0.047	0			-0.03
4	0.97	5.652	0.95	5.593	0.042	0			0
5	0.97	5.652	0.94	5.564	0.042	0.03			0
6									0
7									0.029
8									0.042
9									0.042
10									0.1

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-03
Alias:	5-minute reading
Replicates:	5
Mean:	0.998
SD:	0.025
Tr Mean:	N/A
Trans SD:	N/A

Ref Samp:	x2
Ref ID:	CR-23
Alias:	5-minute reading
Replicates:	5
Mean:	1.012
SD:	0.016
Tr Mean:	N/A
Trans SD:	N/A

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.039
SS:	0.029
K:	5
b:	0.155
Alpha Level:	0.05
Calculated Value:	0.8227
Critical Value:	<= 0.842
Normally Distributed:	No
Override Option:	Not Invoked

Levene's Results:

Test Residual Mean:	0.051
Test Residual SD:	0.044
Ref. Residual Mean:	0.032
Ref. Residual SD:	0.03
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	0.7834
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Mann-Whitney
Balanced Design:	Yes
Transformation:	rank-order
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Mann-Whitney N1:	5
Mann-Whitney N2:	5
Degrees of Freedom:	
Experimental Alpha Level:	0.05
Calculated Value:	19.5
Critical Value:	>= 21.000
Accept Null Hypothesis:	Yes
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	1.04	9.5	1.01	7.5	0.12	0.006	1.5		-0.052
2	1	5	1.01	7.5	0.006	0.006	1.5		-0.052
3	0.99	3	1	5	0.023	0.034	3		-0.034
4	0.98	1.5	1	5	0.052	0.034	5		-0.034
5	0.98	1.5	1.04	9.5	0.052	0.08	5		-0.023
6							5		-0.006
7							7.5		-0.006
8							7.5		0.006
9							9.5		0.08
10							9.5		0.12

Project Name: Port Gardner

Sample:	x1
Samp ID:	A1-03
Alias:	15-minute reading
Replicates:	5
Mean:	0.96
SD:	0.025
Tr Mean:	5.622
Trans SD:	0.075

Ref Samp:	x2
Ref ID:	CR-23
Alias:	15-minute reading
Replicates:	5
Mean:	0.95
SD:	0.007
Tr Mean:	5.593
Trans SD:	0.021

Shapiro-Wilk Results:

Residual Mean:	0
Residual SD:	0.036
SS:	0.024
K:	5
b:	0.144
Alpha Level:	0.05
Calculated Value:	0.8571
Critical Value:	<= 0.842
Normally Distributed:	Yes
Override Option:	N/A

Levene's Results:

Test Residual Mean:	0.047
Test Residual SD:	0.053
Ref. Residual Mean:	0.012
Ref. Residual SD:	0.016
Deg. of Freedom:	8
Alpha Level:	0.1
Calculated Value:	1.4188
Critical Value:	>= 1.860
Variances Homogeneous:	Yes

Test Results:

Statistic:	Student's t
Balanced Design:	Yes
Transformation:	ArcSin
Experimental Hypothesis	
Null:	x1 >= x2
Alternate:	x1 < x2
Degrees of Freedom:	8
Experimental Alpha Level:	0.05
Calculated Value:	-0.8393
Critical Value:	>= 1.860
Accept Null Hypothesis:	Yes
Power:	
Min. Difference for Power:	

Replicate Number	Test Data	Trans. Test Data	Reference Data	Trans. Reference Data	Levene's Test Residuals	Levene's Reference Residuals	Mann-Whitney Ranks	Rankits	Shipiro-Wilk Residuals
1	1	5.739	0.96	5.623	0.117	0.029			-0.088
2	0.96	5.623	0.95	5.593	0	0			-0.03
3	0.96	5.623	0.95	5.593	0	0			-0.029
4	0.93	5.534	0.95	5.593	0.088	0			0
5	0.95	5.593	0.94	5.564	0.029	0.03			0
6									0
7									0
8									0
9									0.029
10									0.117

APPENDIX B – Laboratory Bench Sheets

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Raw Data Sheet
Microtox
100% Sediment Porewater Toxicity

Client Name: Newfields **Test Date:** 11/3/08

Sample ID: CR22S, A3-05E, A2-14, A2-36 **Test No.:** 0811-T046 → 0811-T049

Site	Light Reading	Time	Replicate 1	2	3	4	5
CON	$I_{(0)}$	5 min	90	91	88	85	90
	$I_{(5)}$	10min	83	82	81	81	85
	$I_{(15)}$	20 min	78	73	75	77	75
CR22S	$I_{(0)}$	5 min	85	88	81	82	81
	$I_{(5)}$	10min	83	84	78	80	79
	$I_{(15)}$	20 min	78	78	73	73	74
A3-05E	$I_{(0)}$	5 min	75	72	74	68	69
	$I_{(5)}$	10min	70	68	67	66	64
	$I_{(15)}$	20 min	62	57	58	59	57
A2-14	$I_{(0)}$	5 min	68	63	64	65	67
	$I_{(5)}$	10min	64	63	64	63	65
	$I_{(15)}$	20 min	56	54	57	56	57
A2-36	$I_{(0)}$	5 min	59	52	45	56	58
	$I_{(5)}$	10min	54	46	41	52	54
	$I_{(15)}$	20 min	46	41	38	47	47
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					

Comments:

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Raw Data Sheet
Microtox
100% Sediment Porewater Toxicity

Client Name: Neufields **Test Date:** 11/3/08

Sample ID: CR225, A1-24, A1-16, A2-10, A2-11 **Test No.:** 0811-T050 → 0811-T052

Site	Light Reading	Time	Replicate 1	2	3	4	5
CON	$I_{(0)}$	5 min	96	98	97	99	98
	$I_{(5)}$	10min	88	91	92	~~87~~ 94	90
	$I_{(15)}$	20 min	83	86	79	85	81
CR225	$I_{(0)}$	5 min	96	95	94	95	97
	$I_{(5)}$	10min	95	95	94	96	98
	$I_{(15)}$	20 min	92	91	93	91	94
A1-24	$I_{(0)}$	5 min	103	99	101	105	100
	$I_{(5)}$	10min	102	98	100	101	99
	$I_{(15)}$	20 min	96	93	94	99	92
A1-16	$I_{(0)}$	5 min	99	95	90	95	93
	$I_{(5)}$	10min	97	95	90	99	93
	$I_{(15)}$	20 min	93	89	88	90	88
A2-10	$I_{(0)}$	5 min	106	100	101	105	106
	$I_{(5)}$	10min	106	99	102	104	105
	$I_{(15)}$	20 min	97	95	95	98	99
A2-11	$I_{(0)}$	5 min	104	104	105	103	108
	$I_{(5)}$	10min	101	104	102	101	106
	$I_{(15)}$	20 min	98	95	94	92	99

Comments:

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Raw Data Sheet
Microtox
100% Sediment Porewater Toxicity

Client Name: Newfields **Test Date:** 11/3/08

Sample ID: CR-20/24-5, A2-13 **Test No.:** 0811-T054 + 0811-T055

Site	Light Reading	Time	Replicate 1	2	3	4	5
CON	$I_{(0)}$	5 min	96	94	94	93	93
	$I_{(5)}$	10min	86	84	88	92	92
	$I_{(15)}$	20 min	74	75	79	81	81
CR-20/24-5	$I_{(0)}$	5 min	60	67	64	65	63
	$I_{(5)}$	10min	68	72	68	71	69
	$I_{(15)}$	20 min	68	70	70	69	67
A2-13	$I_{(0)}$	5 min	86	81	72	79	82
	$I_{(5)}$	10min	91	85	86	84	86
	$I_{(15)}$	20 min	88	81	78	82	83
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					

Comments:

Nautilus Environmental
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Tacoma, WA 98424

Raw Data Sheet
Microtox
100% Sediment Porewater Toxicity

Client Name: Newfields **Test Date:** 11/4/08

Sample ID: CR-23, A2-18 **Test No.:** 0811-T025 - 0811-T057

Site	Light Reading	Time	Replicate 1	2	3	4	5
CoN	$I_{(0)}$	5 min	96	102	105	108	102
	$I_{(5)}$	10min	85	89	92	95	91
	$I_{(15)}$	20 min	78	83	92	90	84
CR-23	$I_{(0)}$	5 min	109	110	108	106	116
	$I_{(5)}$	10min	103	110	102	103	111
	$I_{(15)}$	20 min	95	101	98	99	105
A2-18	$I_{(0)}$	5 min	85	91	91	88	82
	$I_{(5)}$	10min	82	85	85	81	81
	$I_{(15)}$	20 min	75	77	78	76	75
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					
	$I_{(0)}$	5 min					
	$I_{(5)}$	10min					
	$I_{(15)}$	20 min					

Comments:

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Raw Data Sheet
Microtox
100% Sediment Porewater Toxicity

Client Name: Newfields **Test Date:** 11/4/08

Sample ID: CR-23, A2-25, A2-21-S, A1-10, A1-07 **Test No.:** 0811-T058 → 0811-T061

Site	Light Reading	Time	Replicate 1	2	3	4	5
CON	$I_{(0)}$	5 min	94	96	96	102	101
	$I_{(5)}$	10min	87	83	85	90	91
	$I_{(15)}$	20 min	81	75	77	83	85
CR-23	$I_{(0)}$	5 min	101	104	107	100	101
	$I_{(5)}$	10min	95	96	99	98	97
	$I_{(15)}$	20 min	86	88	91	86	90
A2-25	$I_{(0)}$	5 min	96	93	93	94	91
	$I_{(5)}$	10min	97	86	84	87	83
	$I_{(15)}$	20 min	76	77	75	77	77
A2-215	$I_{(0)}$	5 min	80	77	81	82	80
	$I_{(5)}$	10min	76	73	76	77	76
	$I_{(15)}$	20 min	68	66	70	68	72
A1-10	$I_{(0)}$	5 min	73	64	66	73	71
	$I_{(5)}$	10min	69	58	60	66	65
	$I_{(15)}$	20 min	59	54	50	58	56
A1-07	$I_{(0)}$	5 min	82	86	94	88	92
	$I_{(5)}$	10min	79	75	81	81	85
	$I_{(15)}$	20 min	68	63	72	69	75

Comments:

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Raw Data Sheet
Microtox
100% Sediment Porewater Toxicity

Client Name: Newfields **Test Date:** 11/4/08

Sample ID: CR-23, A-307-B, A-408-B, A1-01, A1-03 **Test No.:** 0811-T062 → 0811-T065

Site	Light Reading	Time	Replicate 1	2	3	4	5
CONTROL	$I_{(0)}$	5 min	93	96	96	95	92
	$I_{(5)}$	10min	85	86	90	90	89
	$I_{(15)}$	20 min	80	78	82	81	78
CR-23	$I_{(0)}$	5 min	99	97	99	102	104
	$I_{(5)}$	10min	100	98	99	102	108
	$I_{(15)}$	20 min	95	92	94	97	98
A 307 B	$I_{(0)}$	5 min	84	88	89	88	90
	$I_{(5)}$	10min	82	81	84	84	87
	$I_{(15)}$	20 min	76	75	73	79	76
A 408 B	$I_{(0)}$	5 min	92	88	90	85	82
	$I_{(5)}$	10min	83	85	84	81	79
	$I_{(15)}$	20 min	79	78	82	74	73
A1-01	$I_{(0)}$	5 min	80	79	77	76	76
	$I_{(5)}$	10min	79	78	77	77	77
	$I_{(15)}$	20 min	73	78	72	74	74
A1-03	$I_{(0)}$	5 min	81	82	79	81	80
	$I_{(5)}$	10min	84	82	78	79	78
	$I_{(15)}$	20 min	81	79	76	75	76

Comments:

APPENDIX C – Water Quality Results

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Physical and Chemical Measurements of Porewaters Sediment Bioassays

Analyst: (M)

Client : Newfields

Test Date: 11/3/08

Test Type: Microtox 100% Porewater Toxicity Test

Test No: 0811-T046-T055

Test Species: *Vibrio fischeri*

Site	Initial Salinity (ppt)	Final Salinity (ppt)	Initial D.O. (mg/L)	Final D.O (mg/L)	Initial pH	Adjusted pH	NaOH or HCl Vol. Used	Final Porewater Conc.	Ammonia
CON	∅	19.1	7.0	7.0	8.78	8.00	60 µl 0.1N HCl	99.8	—
CR22S	30.4	30.4	~~6.6~~ 6.5 (M)	~~6.6~~ 6.5 (M)	7.80	7.93	20 µl 0.1N NaOH	99.9	36.7
CR20b4S	31.0	31.0	6.9	6.9	7.62	7.96	45 µl 0.1 N NaOH	99.8	28.1
PG A1-24 S	30.9	30.9	6.8	6.8	7.67	7.94	50 µl 0.1 N NaOH	99.8	13.3
PG A1-16 S	30.8	30.8	6.8	6.8	7.72	7.90	30 µl 0.1N NaOH	99.9	11.8
PG A2-10 S	29.8	29.8	6.7	6.7	7.44	7.91	90 µl 0.1 N NaOH	99.6	15.7
PG A2-11 S	29.8	29.8	6.9	6.9	7.40	7.90	120 µl 0.1 N NaOH	99.5	13.9

Sample Description: _____

Comments: _____

QA Check: MPa

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Physical and Chemical
Measurements of Porewaters
Sediment Bioassays

Analyst: (M)

Client : Newfields

Test Date: 11/3/08

Test Type: Microtox 100% Porewater Toxicity Test

Test No: 0811-T046-T055

Test Species: *Vibrio fischeri*

Site	Initial Salinity (ppt)	Final Salinity (ppt)	Initial D.O. (mg/L)	Final D.O (mg/L)	Initial pH	Adjusted pH	NaOH or HCl Vol. Used	Final Porewater Conc.	Ammonia
PG A2-13 S	30.2	30.2	7.0	7.0	7.46	7.93	75 µl 0.1 N NaOH	99.7	28.1
PG A2-36 S	19.4	19.4	6.9	6.9	6.91	7.99	265 µl 0.1 N NaOH	~~99~~ 98.9	10.9
PG A2-14 S	27.1	27.1	6.7	6.7	7.07	7.96	270 µl 0.1 N NaOH	98.9	18.3
PG A3-05E-S	21.7	21.7	6.6	6.6	7.13	7.99	200 µl 0.1 N NaOH	99.2	13.4

Sample Description: _____

Comments: _____

QA Check: _____

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Physical and Chemical
Measurements of Porewaters
Sediment Bioassays

Analyst: (M)

Client : Newfields

Test Date: 11/4/08

Test Type: Microtox 100% Porewater Toxicity Test

Test No: 0811-TOS6-TO65

Test Species: *Vibrio fischeri*

Site	Initial Salinity (ppt)	Final Salinity (ppt)	Initial D.O. (mg/L)	Final D.O (mg/L)	Initial pH	Adjusted pH	NaOH or HCl Vol. Used	Final Porewater Conc.	Ammonia
CON	0.0	19.1	7.9	7.9	8.82	8.10	100 µl 0.1 N HCl	99.6	~~14.0~~ —
CR23	30.7	30.7	7.7	7.7	7.32	7.96	90 µl 0.1 N NaOH	99.6	14.0
A307B	15.3	20.5	7.5	7.5	6.63	7.98	700 µl 0.1 N NaOH	97.2	7.5
A408B	13.7	22.0	7.7	7.7	6.76	7.96	600 µl 0.1 N NaOH	97.6	7.8
A1-01	31.4	31.4	7.8	7.8	7.60	7.99	75 µL 0.1 N NaOH	99.7	6.6
A1-03	29.8	29.8	7.1	7.1	7.41	7.94	110 µL 0.1 N NaOH	99.6	10.6
A1-07	30.3	30.3	7.0	7.0	7.60	7.96	85 µL 0.1 N NaOH	99.6	16.3

Sample Description: _____

Comments: _____

QA Check: MAR

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy. E., Suite 2
Tacoma, WA 98424

Physical and Chemical
Measurements of Porewaters
Sediment Bioassays

Analyst: (M)

Client : Newfields

Test Date: 11/4/08

Test Type: Microtox 100% Porewater Toxicity Test

Test No: 0811-T056-T065

Test Species: *Vibrio fischeri*

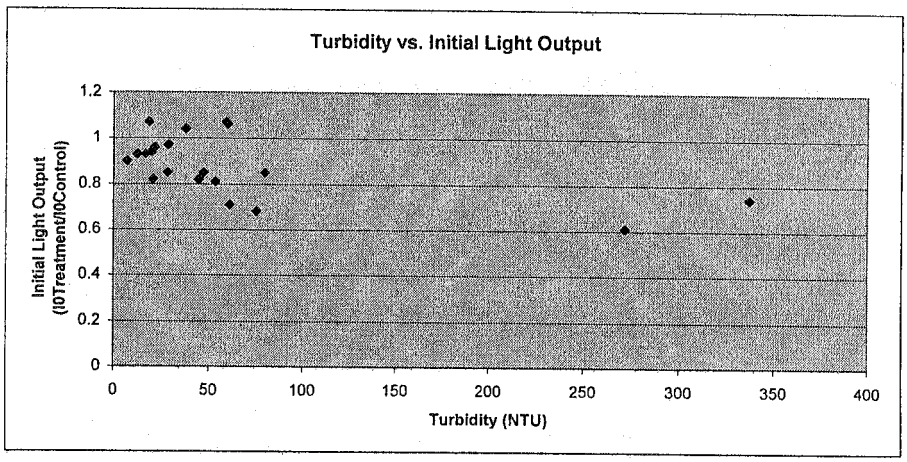
Site	Initial Salinity (ppt)	Final Salinity (ppt)	Initial D.O. (mg/L)	Final D.O (mg/L)	Initial pH	Adjusted pH	NaOH or HCl Vol. Used	Final Porewater Conc.	Ammonia
A1-10	30.5	30.5	7.9	7.9	7.34	7.91	110µL 0.1N NaOH	99.6	8.6
A2-21S	11.4	19.2	7.9	7.9	7.49	7.96	110µL 0.1N NaOH	99.6	8.7
(M) A2-~~18~~ -25	24.1	24.1	7.7	7.7	7.01	7.98	275µL 0.1N NaOH	98.9	7.8
(M) A2-~~25~~ -18	27.6	27.6	7.6	7.6	7.27	7.91	160µL 0.1N NaOH	99.4	15.5

Sample Description: _____

Comments: _____

QA Check: MAR

ID	NTU	I(0)T(mean)/I(0)C(mean)
CR22S	19.8	0.94
PG-A3-05E	53.5	0.81
PG-A2-14-S	337	0.74
PG-A2-36-S	272	0.61
PG-A1-24-S	37.9	1.04
PG-A1-16-S	28.7	0.97
PG-A2-10-S	60.1	1.06
PG-A2-11-S	59.2	1.07
CR-20/24-S	75.3	0.68
PG-A2-13-S	79.8	0.85
CR-23	18.5	1.07
A2-25	21.3	0.96
A2-21	20.5	0.82
A1-10	61	0.71
A1-07	6.89	0.9
A-307-B	12.2	0.93
A-408-B	16.7	0.93
PG-A1-01-S	44.6	0.82
A1-03	47.2	0.85
A2-18	28.1	0.85



Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy E., Suite 2
Tacoma, WA 98424

Turbidity Measurements

Client: Newfields
Date: 11/3/08
Analyst: qt

Sample ID	Measurement (NTU)
Standard 0-10	4.98
Standard 0-100	49.8
Standard 0-1000	484
DI	0.25
CON	1.08
CR225	19.8
PG-A3-05E	53.5
PG-A2-14-S	337.0
~~0508-168~~ PG-A2-36-S	272.0
PG-A1-24-S	37.9
PG-A1-16-S	28.7
PG-A2-10-S	60.1
PG-A2-11-S	59.2
DUP CR-20/24-S	75.3
PG-A2-13-S	79.8
Standard 0-10	5.02
Standard 0-100	49.6
Standard 0-1000	482
DI	0.24

Measure standards and DI at beginning and end of analysis.

Nautilus Environmental
Washington Laboratory
5009 Pacific Hwy E., Suite 2
Tacoma, WA 98424

Turbidity Measurements

Client: Newfield
Date: 11/4/08
Analyst: QA

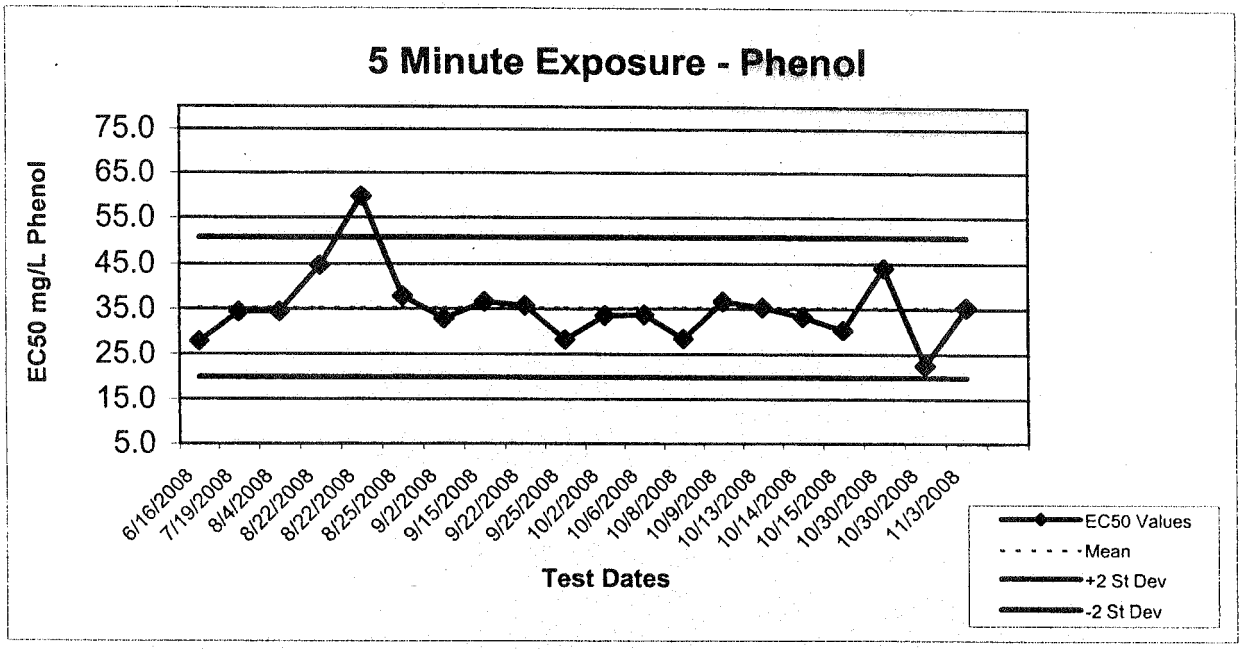
Sample ID	Measurement (NTU)
Standard 0-10	4.97
Standard 0-100	49.6
Standard 0-1000	484
DI	0.22
CON	0.44
CR-23	18.5
A2-25	21.3
A2-21S	20.5
A1-10	61.0
A1-07	6.89
A-307-B	12.2
A-408-B	16.7
~~GB~~ PG-A1-01-S	44.6
A1-03	47.2
A2-18	28.1
Standard 0-10	4.95
Standard 0-100	49.5
Standard 0-1000	482
DI	0.23

Measure standards and DI at beginning and end of analysis.

APPENDIX D – Reference Toxicant Tests

Reference Toxicant Control Chart
Microtox 5-Minute Exposure

CV% = 21.8

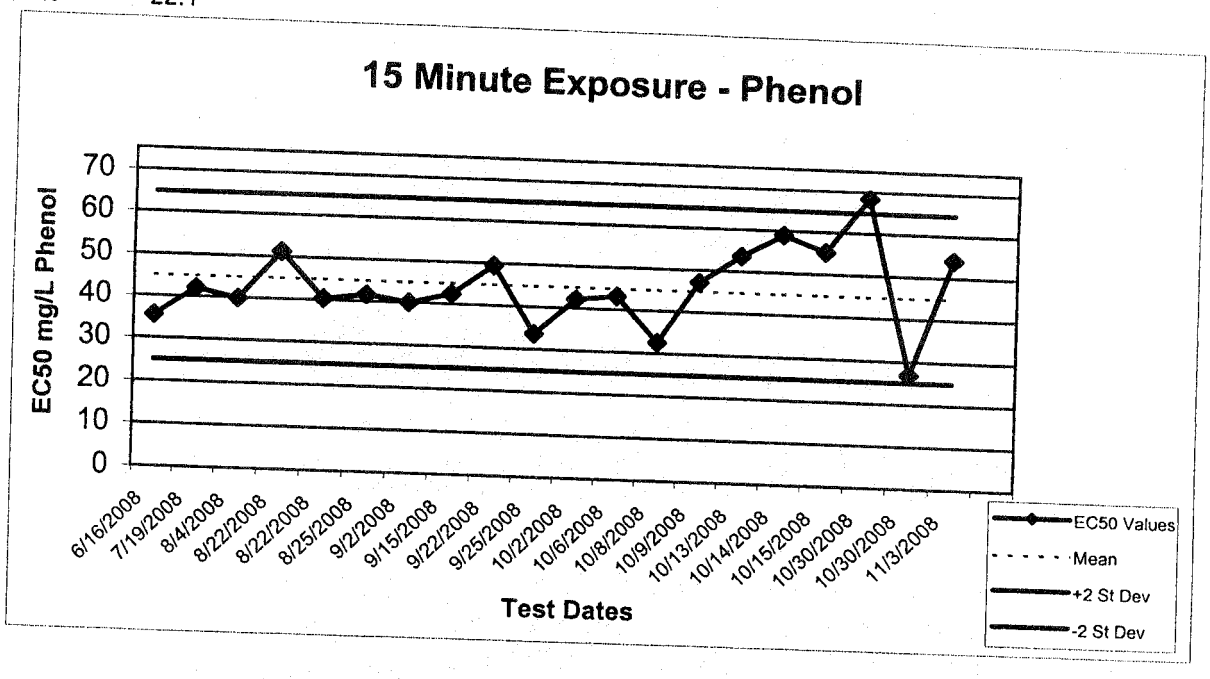


Date	Time	EC50 %	EC50 mg/L Phenol [a]	Mean	StDev	-2 SD	+2 SD
6/16/2008	1249	27.3	27.8	35.3	7.7	19.9	50.7
7/19/2008	1335	33.7	34.4	35.3	7.7	19.9	50.7
8/4/2008	1352	33.8	34.5	35.3	7.7	19.9	50.7
8/22/2008	856	43.8	44.7	35.3	7.7	19.9	50.7
8/22/2008	1108	58.6	59.8	35.3	7.7	19.9	50.7
8/25/2008	1343	37.1	37.8	35.3	7.7	19.9	50.7
9/2/2008	1327	32.3	32.9	35.3	7.7	19.9	50.7
9/15/2008	843	35.9	36.6	35.3	7.7	19.9	50.7
9/22/2008	1246	35.1	35.8	35.3	7.7	19.9	50.7
9/25/2008	1323	27.7	28.3	35.3	7.7	19.9	50.7
10/2/2008	1237	19.8	33.6	35.3	7.7	19.9	50.7
10/6/2008	1251	19.9	33.8	35.3	7.7	19.9	50.7
10/8/2008	1309	16.7	28.5	35.3	7.7	19.9	50.7
10/9/2008	1236	21.6	36.7	35.3	7.7	19.9	50.7
10/13/2008	1346	20.8	35.3	35.3	7.7	19.9	50.7
10/14/2008	1218	19.6	33.3	35.3	7.7	19.9	50.7
10/15/2008	1242	17.9	30.4	35.3	7.7	19.9	50.7
10/30/2008	1114	25.9	44.0	35.3	7.7	19.9	50.7
10/30/2008	1228	13.3	22.6	35.3	7.7	19.9	50.7
11/3/2008	1440	20.8	35.4	35.3	7.7	19.9	50.7

a - Highest concentration of Phenol is 170 mg/L as of 10/1/08, 102 mg/L previously

Reference Toxicant Control Chart
Microtox 15-Minute Exposure

CV% = 22.1



Date	Time	EC50 %	EC50 mg/L Phenol [a]	Mean	StDev	-2 SD	+2 SD
6/16/2008	1249	34.8	35.5	44.9	9.9	25.0	64.8
7/19/2008	1335	41.2	42.0	44.9	9.9	25.0	64.8
8/4/2008	1352	39.1	39.9	44.9	9.9	25.0	64.8
8/22/2008	856	50.2	51.2	44.9	9.9	25.0	64.8
8/22/2008	1108	39.6	40.4	44.9	9.9	25.0	64.8
8/25/2008	1343	40.8	41.6	44.9	9.9	25.0	64.8
9/2/2008	1327	39.3	40.1	44.9	9.9	25.0	64.8
9/15/2008	843	41.6	42.4	44.9	9.9	25.0	64.8
9/22/2008	1246	48.5	49.5	44.9	9.9	25.0	64.8
9/25/2008	1323	33.0	33.7	44.9	9.9	25.0	64.8
10/2/2008	1237	24.8	42.1	44.9	9.9	25.0	64.8
10/6/2008	1251	25.4	43.2	44.9	9.9	25.0	64.8
10/8/2008	1309	19.2	32.6	44.9	9.9	25.0	64.8
10/9/2008	1236	27.7	47.1	44.9	9.9	25.0	64.8
10/13/2008	1346	31.6	53.6	44.9	9.9	25.0	64.8
10/14/2008	1218	34.7	59.0	44.9	9.9	25.0	64.8
10/15/2008	1242	32.5	55.3	44.9	9.9	25.0	64.8
10/30/2008	1114	40.2	68.3	44.9	9.9	25.0	64.8
10/30/2008	1228	15.8	26.9	44.9	9.9	25.0	64.8
11/3/2008	1440	31.8	54.1	44.9	9.9	25.0	64.8

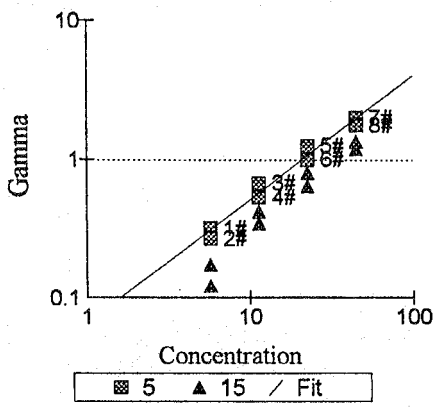
a - Highest concentration of Phenol is 170 mg/L as of 10/1/08, 102 mg/L previously

MicrotoxOmni Test Report

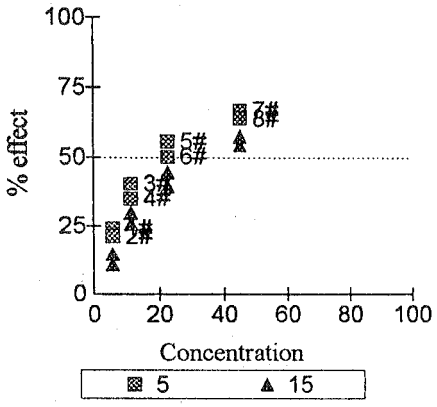
Date: 11/03/2008 02:40 PM

Test Protocol: Basic Test
Sample: 170mg/L Phenol
Toxicant: 170mg/L Phenol
Reagent Lot no.: 8H1052
Test description: Reference Toxicant
Test name: RT110308VF
Database file: \\Fif-ws3\alldata\Nautilus\former staff Folders\Karen\Microtox\MicrotoxOmni\Edge Analytical.mdb

Plot of Gamma vs Concentration



Plot of %Effect vs Concentration



			5 Mins Data:			15 Mins Data:		
Sample	Conc	Io	It	Gamma	% effect	It	Gamma	% effect
Control	0.000	97.72	75.97	0.7774 #		45.95	0.4702 #	
Control	0.000	105.17	81.48	0.7747 #		52.34	0.4977 #	
1	5.625	101.17	59.46	0.3205 #	24.27%	41.70	0.1741 #	14.83%
2	5.625	102.58	62.56	0.2726 #	21.42%	44.24	0.1221 #	10.88%
3	11.25	105.05	48.50	0.6810 #	40.51%	35.66	0.4256 #	29.86%
4	11.25	100.36	50.64	0.5381 #	34.98%	36.01	0.3488 #	25.86%
5	22.50	101.97	35.12	1.253 #	55.62%	27.29	0.8083 #	44.70%
6	22.50	102.33	39.54	1.009 #	50.21%	30.01	0.6502 #	39.40%
7	45.00	104.77	27.08	2.003 #	66.70%	21.55	1.353 #	57.50%
8	45.00	106.61	29.90	1.767 #	63.86%	23.53	1.193 #	54.39%

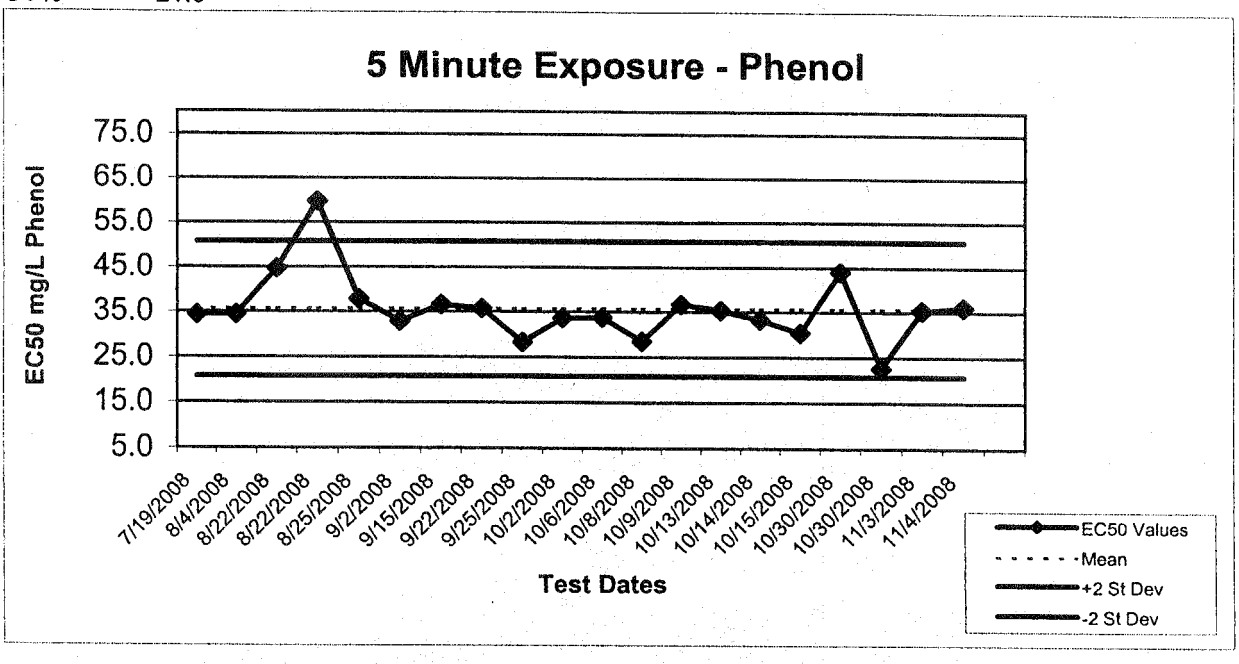
- used in calculation; * - invalid data; D - deleted from calcs.

Calculations on 5 Mins data:
EC50 Concentration:20.77% (95% confidence range: 18.30 to 23.56)
95% Confidence Factor: 1.135
Estimating Equation:LOG C =1.096 x LOG G +1.317
Coeff. of Determination (R^2):0.9762
Slope: 0.8904
Correction Factor: 0.7761

Calculations on 15 Mins data:
EC50 Concentration:31.79% (95% confidence range: 25.85 to 39.09)
95% Confidence Factor: 1.230
Estimating Equation:LOG C =0.9348 x LOG G +1.502
Coeff. of Determination (R^2):0.9610
Slope: 1.028
Correction Factor: 0.4839

Reference Toxicant Control Chart
Microtox 5-Minute Exposure

CV% = 21.0

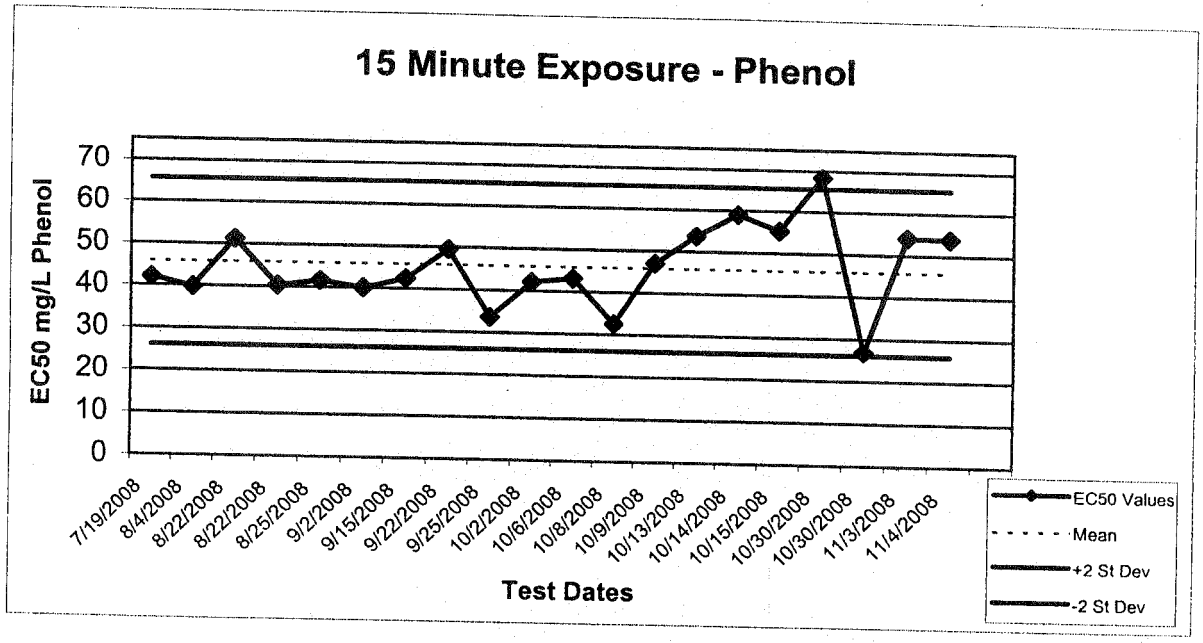


Date	Time	EC50 %	EC50 mg/L Phenol [a]	Mean	StDev	-2 SD	+2 SD
7/19/2008	1335	33.7	34.4	35.7	7.5	20.7	50.7
8/4/2008	1352	33.8	34.5	35.7	7.5	20.7	50.7
8/22/2008	856	43.8	44.7	35.7	7.5	20.7	50.7
8/22/2008	1108	58.6	59.8	35.7	7.5	20.7	50.7
8/25/2008	1343	37.1	37.8	35.7	7.5	20.7	50.7
9/2/2008	1327	32.3	32.9	35.7	7.5	20.7	50.7
9/15/2008	843	35.9	36.6	35.7	7.5	20.7	50.7
9/22/2008	1246	35.1	35.8	35.7	7.5	20.7	50.7
9/25/2008	1323	27.7	28.3	35.7	7.5	20.7	50.7
10/2/2008	1237	19.8	33.6	35.7	7.5	20.7	50.7
10/6/2008	1251	19.9	33.8	35.7	7.5	20.7	50.7
10/8/2008	1309	16.7	28.5	35.7	7.5	20.7	50.7
10/9/2008	1236	21.6	36.7	35.7	7.5	20.7	50.7
10/13/2008	1346	20.8	35.3	35.7	7.5	20.7	50.7
10/14/2008	1218	19.6	33.3	35.7	7.5	20.7	50.7
10/15/2008	1242	17.9	30.4	35.7	7.5	20.7	50.7
10/30/2008	1114	25.9	44.0	35.7	7.5	20.7	50.7
10/30/2008	1228	13.3	22.6	35.7	7.5	20.7	50.7
11/3/2008	1440	20.8	35.4	35.7	7.5	20.7	50.7
11/4/2008	1310	21.2	36.0	35.7	7.5	20.7	50.7

a - Highest concentration of Phenol is 170 mg/L as of 10/1/08, 102 mg/L previously

Reference Toxicant Control Chart
Microtox 15-Minute Exposure

CV% = 21.5



Date	Time	EC50 %	EC50 mg/L Phenol [a]	Mean	StDev	-2 SD	+2 SD
7/19/2008	1335	41.2	42.0	45.8	9.9	26.1	65.6
8/4/2008	1352	39.1	39.9	45.8	9.9	26.1	65.6
8/22/2008	856	50.2	51.2	45.8	9.9	26.1	65.6
8/22/2008	1108	39.6	40.4	45.8	9.9	26.1	65.6
8/25/2008	1343	40.8	41.6	45.8	9.9	26.1	65.6
9/2/2008	1327	39.3	40.1	45.8	9.9	26.1	65.6
9/15/2008	843	41.6	42.4	45.8	9.9	26.1	65.6
9/22/2008	1246	48.5	49.5	45.8	9.9	26.1	65.6
9/25/2008	1323	33.0	33.7	45.8	9.9	26.1	65.6
10/2/2008	1237	24.8	42.1	45.8	9.9	26.1	65.6
10/6/2008	1251	25.4	43.2	45.8	9.9	26.1	65.6
10/8/2008	1309	19.2	32.6	45.8	9.9	26.1	65.6
10/9/2008	1236	27.7	47.1	45.8	9.9	26.1	65.6
10/13/2008	1346	31.6	53.6	45.8	9.9	26.1	65.6
10/14/2008	1218	34.7	59.0	45.8	9.9	26.1	65.6
10/15/2008	1242	32.5	55.3	45.8	9.9	26.1	65.6
10/30/2008	1114	40.2	68.3	45.8	9.9	26.1	65.6
10/30/2008	1228	15.8	26.9	45.8	9.9	26.1	65.6
11/3/2008	1440	31.8	54.1	45.8	9.9	26.1	65.6
11/4/2008	1310	31.7	53.9	45.8	9.9	26.1	65.6

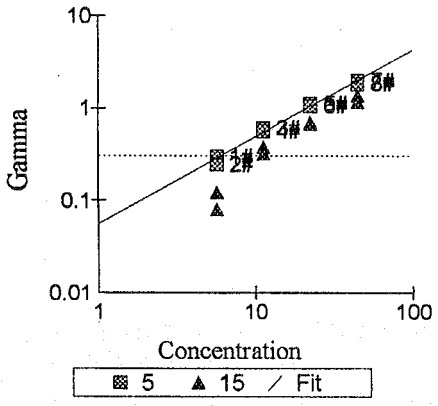
a - Highest concentration of Phenol is 170 mg/L as of 10/1/08, 102 mg/L previously

MicrotoxOmni Test Report

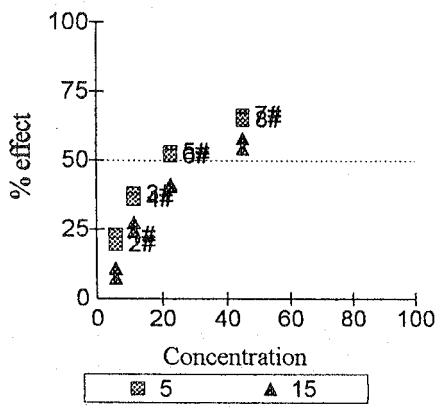
Date: 11/04/2008 01:10 PM

Test Protocol: Basic Test
Sample: 170mg/L Phenol
Toxicant: 170mg/L Phenol
Reagent Lot no.: 8H1052
Test description: Reference Toxicant
Test name: RT110408VF
Database file: \\Fif-ws3\alldata\Nautilus\former staff Folders\Karen\Microtox\MicrotoxOmni\Edge Analytical.mdb

Plot of Gamma vs Concentration



Plot of %Effect vs Concentration



			5 Mins Data:			15 Mins Data:		
Sample	Conc	Io	It	Gamma	% effect	It	Gamma	% effect
Control	0.000	95.36	76.77	0.8051 #		45.53	0.4775 #	
Control	0.000	100.88	80.63	0.7993 #		50.20	0.4976 #	
1	5.625	102.49	63.30	0.2988 #	23.01%	44.55	0.1216 #	10.84%
2	5.625	103.20	66.48	0.2452 #	19.69%	46.57	0.0803 #	7.441%
3	11.25	103.39	51.41	0.6132 #	38.01%	36.55	0.3791 #	27.49%
4	11.25	102.28	52.52	0.5622 #	35.99%	37.72	0.3220 #	24.36%
5	22.50	102.10	38.42	1.132 #	53.09%	29.21	0.7041 #	41.32%
6	22.50	101.67	39.39	1.070 #	51.70%	29.51	0.6797 #	40.47%
7	45.00	101.64	27.21	1.996 #	66.63%	20.78	1.385 #	58.07%
8	45.00	104.98	29.54	1.851 #	64.92%	23.42	1.185 #	54.24%

- used in calculation; * - invalid data; D - deleted from calcs.

Calculations on 5 Mins data:
EC50 Concentration:21.19% (95% confidence range: 19.35 to 23.20)
95% Confidence Factor: 1.095
Estimating Equation:LOG C =1.052 x LOG G +1.326
Coeff. of Determination (R^2):0.9879
Slope: 0.9391
Correction Factor: 0.8022

Calculations on 15 Mins data:
EC50 Concentration:31.65% (95% confidence range: 25.22 to 39.73)
95% Confidence Factor: 1.255
Estimating Equation:LOG C =0.7893 x LOG G +1.500
Coeff. of Determination (R^2):0.9528
Slope: 1.207
Correction Factor: 0.4875

APPENDIX E – Chain-of Custody Forms

NEWFIELDS

NewFields Northwest, LLC.
Shipping: 4729 NE View Dr.
Mailing: P.O. Box 216
Port Gamble, WA. 98364
Tel: (360) 297-6040, Fax: (360)297-7268

CHAIN OF CUSTODY

13331 1 of 1

References

Destination Lab: Nautilus	**Sample Originator:** NewFields	**Report Results To:** NewFields	**Phone:** "
Destination Contact: Eric Tollefson	**Contact Name:** Brian Hester	**Contact Name:** Collin Ray / Bill Gardiner	**Fax:** "
Date: 10/28/08	**Address:** See Above	**Address:** cray@newfields.com bgardiner@newfields.com →	**Email:**
Turn-Around-Time Standard			
Project Name Port Gardner Sediment Investigation Phase 2	**Phone:** "	**Invoicing To:** NewFields	
Contract/PO:	**Fax:** "	**Comments or Special Instructions:** Reference Correlations will be emailed seperately.	
	E-mail bhester@newfields.com		

No.	Sample ID	Matrix	No. & Type of Container	Date & Time	Analysis: Microtox	Preservation	Sample Temp Upon Receipt	LAB ID
1	CR-225-S	SS	1G	10/9/08	X	4°C	7.2	508-153
2	CR-23-S						5.8	508-154
3	CR-20/24 S						6.1	508-155
4	PG-A2-21-S			10/6/08			4.7	508-156
5	PG-A1-24-S						5.0	508-157
6	PG-A1-10-S						5.8	508-158
7	PG-A1-07-S						4.2	508-159
8	PG-A1-03-S						3.8	508-160
9	PG-A1-01-S						6.8	508-161
10	PG-A1-16-S						4.0	508-162
11	PG-A2-10-S						4.8	508-163
12	PG-A2-11-S						7.2	508-164
13	PG-A2-13-S						6.8	508-165
14	PG-A2-18-S			10/7/08			4.1	508-166
15	PG-A2-25-S						5.2	508-167
16	PG-A2-36-S						7.0	508-168
17	PG-A2-14-S						7.5	508-169
18	PG-A4-08B-S			10/8/08			4.7	508-170
19	PG-A3-07B-S						4.5	508-171
20	PG-A3-05E-S						5.2	508-172

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Brian Hester	Print Name: MaryAnn Leopold-Hester	Print Name:	Print Name:
Signature:	Signature:	Signature:	Signature:
Affiliation: NewFields	Affiliation: Nautilus	Affiliation:	Affiliation:
Date/Time: 10/28/08 0700	Date/Time: 10/28/08 0700	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
WW = Waste Water
SB = Salt & Brackish Water
SS = Soil & Sediment
TS = plant & Animal Tissue
OT = Other

WHITE – return to originator • YELLOW – lab • PINK – retained by originator

APPENDIX B

LABORATORY DOCUMENTS

NEWFIELDS

10-DAY SOLID PHASE TEST OBSERVATION DATA

COPY

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TEST END DATE**	
1101-005-860	C. Ray / B. Gardiner	28-Oct-08	7-Nov-08	

#E = Emergence
#M = Number of Mortality
G = Growth
(fungal, bacterial, or algal)
D = No Air Flow (DO?)
N = Normal

Client/NewFields ID	Rep	Jar #	Initial # of Organisms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Number Alive
				ENDPOINT DATA AND OBSERVATIONS										
			20	Date 10/29	Date 10/30	Date 10/31	Date 11/1	Date 11/2	Date 11/3	Date 11/4	Date 11/5	Date 11/6	Date 11/7	
				Technician TD	Technician CW	Technician CR	Technician CR	Technician CR	Technician ↓	Technician MMB	Technician TS	Technician MMB	Technician TS	
Control	1	100		N	N	N	N	N	N	N	N	N	N	19
	2	84												19
	3	3												19
	4	55							↓					17
	5	17			IE① N	↓			IE				↓	19
CR-22-S	1	119			N	N			N				N	20
	2	74												19
	3	34												20
	4	96												20
	5	7			↓	↓			↓				↓	20
CR-23-S	1	19		↓	↓	IE							N	20
	2	30		IE	IE	N							IE	19
	3	86		N		↓							N	20
	4	87											②IE IE	19
	5	92				↓							N	20
CR-20/24-S	1	101				N							N	20
	2	95												19
	3	2												19
	4	77												20
	5	113		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	19

① wrong cell
② IE 11/7/08 TS

NEWFIELDS

10-DAY SOLID PHASE TEST OBSERVATION DATA

COPY

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	PROJECT MANAGER	TEST START DATE	TEST END DATE	
1101-005-860	C. Ray / B. Gardiner	28-Oct-08	7-Nov-08	

#E = Emergence
#M = Number of Mortality
G = Growth
(fungal, bacterial, or algal)
D = No Air Flow (DO?)
N = Normal

Client/NewFields ID	Rep	Jar #	Initial # of Organisms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Number Alive
				ENDPOINT DATA AND OBSERVATIONS										
			20	Date 10/29	Date 10/30	Date 10/31	Date 11/1	Date 11/2	Date 11/3	Date 11/4	Date 11/5	Date 11/6	Date 11/7	
				Technician JT	Technician CW	Technician CR	Technician CR	Technician CR	Technician JW	Technician MMB	Technician TS	Technician MMB	Technician JT	
A1-01	1	22		1E	2E	2E	N	2E	1E	N	2E	2E	1E	17
	2	58		1E	1E	N		N	N	N	N	N	1E	18 lm
	3	18		N	N	N				1E			1E	19
	4	63		1E	N	N				N			1E	20
	5	21		1E	2E	1E				2E			N	17
A1-03	1	51		N	N	N				N			N	20
	2	82			1E	N								19
	3	105			4E	5E	4E	1E						20
	4	124			1E	1E	N	N						19
	5	42		1E	1E	N								20
A1-07	1	46		6E	2E	13E,G								15
	2	35		N	2E	N								20
	3	90			1E	N	1E							20
	4	71			1E	N	N		1E					19
	5	85			N	N			N					19
A1-10	1	27			N	N				N			N	19
	2	8		2E	1E	1E		1E		1E			N	18 lm
	3	70		N	N	1E		N		N			N	19
	4	12			N	N		N		N	1E		2E	20
	5	83			N	1E		N		1E	N		1E	19

Sum

Sum=19

1st

NEWFIELDS

10-DAY SOLID PHASE TEST OBSERVATION DATA

COPY

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	PROJECT MANAGER	TEST START DATE	TEST END DATE	
1101-005-860	C. Ray / B. Gardiner	28-Oct-08	7-Nov-08	

#E = Emergence
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G = Growth
(fungal, bacterial, or algal)
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Client/NewFields ID	Rep	Jar #	Initial # of Organisms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Number Alive
				ENDPOINT DATA AND OBSERVATIONS										
				Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	
			20	10/29	10/30	10/31	11/1	11/2	11/3	11/4	11/5	11/6	11/7	
				Technician	Technician	Technician	Technician	Technician	Technician	Technician	Technician	Technician	Technician	
				TS	CW	CR	CR	CR	✓	MMB	TS	MMB	TS	
A1-16	1	65		N	N	N	N	N	N	N	N	N	M	20
	2	112											↓	19
	3	68											Im	20
	4	69											M	16
	5	20								↓		↓	↓	20
A1-24	1	89						↓		IM		IM	N	20
	2	102						IE		N		IE		20
	3	78						N				N		20
	4	88												18 Im
	5	72			↓					↓			↓	20
A2-10	1	5			IE					N			N	21
	2	94			N					N			↓	19
	3	76								IE			IE	20
	4	31								N			IE	19 Im
	5	50								N			IE	19
A2-11	1	110								N			N	20
	2	67												20
	3	118												17
	4	37												20
	5	108		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	20

NEWFIELDS

10-DAY SOLID PHASE TEST OBSERVATION DATA

COPY

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	PROJECT MANAGER	TEST START DATE	TEST END DATE	
1101-005-860	C. Ray / B. Gardiner	28-Oct-08	7-Nov-08	

#E = Emergence
#M = Number of Mortality
G = Growth
(fungal, bacterial, or algal)
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Client/NewFields ID	Rep	Jar #	Initial # of Organisms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Number Alive
				ENDPOINT DATA AND OBSERVATIONS										
			20	Date 10/29	Date 10/30	Date 10/31	Date 11/1	Date 11/2	Date 11/3	Date 11/4	Date 11/5	Date 11/6	Date 11/7	
				Technician TS	Technician CW	Technician CR	Technician CR	Technician CR	Technician ✓	Technician MMB	Technician TS	Technician MMB	Technician TS	
A2-13	1	64	N	1E	N	N	N	N	N	N	N	N	N	19
	2	45	N	N										18
	3	16	1E											18
	4	4	1E						1E				1E	18
	5	99	N						N				N	17
A2-14	1	48								N			N	20
	2	62		1E						N				20
	3	11	1E	3E						1E	1E			20
	4	14	N	N						N	N			20
	5	125												19
A2-18	1	103											N	10
	2	39												19
	3	75												20
	4	25	1E	2E										20
	5	44	1E	2E	1E			1E			1E			20
A2-21	1	56	N	N	N			N			N		N	18
	2	80			N									19
	3	49			N									18
	4	43	1E	3E	N									20
	5	61	N	①1EN	1E									20

② 20
surr=19

① wrong cell
② 1E TS 11/7/08

COPY

NEWFIELDS

10-DAY SOLID PHASE TEST OBSERVATION DATA

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TEST END DATE**	
1101-005-860	C. Ray / B. Gardiner	28-Oct-08	7-Nov-08	

#E = Emergence
#M = Number of Mortality
G = Growth
(fungal, bacterial, or algal)
D = No Air Flow (DO?)
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Client/NewFields ID	Rep	Jar #	Initial # of Organisms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Number Alive
				ENDPOINT DATA AND OBSERVATIONS										
			20	Date 10/29	Date 10/30	Date 10/31	Date 11/1	Date 11/2	Date 11/3	Date 11/4	Date 11/5	Date 11/6	Date 11/7	
				Technician TS	Technician CW	Technician CR	Technician CR	Technician CR	Technician ✓	Technician MMB	Technician TS	Technician MMB	Technician TS	
A2-25	1	6		N	N	N	N	N	N	N	N	N	N	19
	2	15		↓	↓	N	↓	↓	↓	↓	↓	↓	↓	20
	3	115		↓	↓	IE	↓	↓	↓	↓	↓	↓	↓	19
	4	79		↓	↓	N	↓	↓	↓	IE	↓	↓	↓	19
	5	52		IE	↓	↓	↓	↓	↓	N	↓	↓	↓	19
A2-36	1	122		N	↓	↓	↓	↓	↓	N	↓	↓	N	20
	2	41		↓	↓	↓	↓	↓	↓	N	↓	↓	↓	20
	3	114		↓	↓	↓	↓	↓	↓	IE	↓	↓	↓	20
	4	73		↓	↓	↓	↓	↓	↓	N	↓	↓	↓	20
	5	60		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	19
A3-05E	1	57		↓	↓	↓	↓	↓	↓	↓	↓	↓	N	20
	2	38		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	20
	3	81		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	20
	4	36		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	20
	5	47		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	20
A3-07B	1	54		↓	IE	↓	↓	↓	↓	↓	↓	↓	N	19
	2	13		↓	N	↓	↓	↓	↓	↓	↓	↓	↓	20
	3	117		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	19
	4	106		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	20
	5	111		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	19

NEWFIELDS

10-DAY SOLID PHASE TEST OBSERVATION DATA

COPY

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	PROJECT MANAGER	TEST START DATE	TEST END DATE	
1101-005-860	C. Ray / B. Gardiner	28-Oct-08	7-Nov-08	

#E = Emergence
#M = Number of Mortality
G = Growth
(fungal, bacterial, or algal)
D = No Air Flow (DO?)
N = Normal

Client/NewFields ID	Rep	Jar #	Initial # of Organisms	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Number Alive
				ENDPOINT DATA AND OBSERVATIONS										
			20	Date 10/29	Date 10/30	Date 10/31	Date 11/1	Date 11/2	Date 11/3	Date 11/4	Date 11/5	Date 11/6	Date 11/7	
				Technician TS	Technician CW	Technician CR	Technician CR	Technician CR	Technician ✓	Technician MMB	Technician P	Technician MMB	Technician TS	
A4-08B	1	66		N	N	N	N	N	N	N	N	N	N	20
	2	26		↓	↓	↓	IE	↓	↓	IE	↓	↓	↓	19
	3	126		↓	↓	↓	N	↓	↓	N	↓	↓	↓	20
	4	121		↓	↓	↓	N	↓	↓	N	↓	↓	↓	20
	5	33		↓	↓	↓	N	↓	↓	N	↓	↓	↓	20

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	0	WQ	1	3	8.1	3	15.4	3	28	3	7.8	CR	10/28/08
A1-16	0	WQ	9		8.1		15.1		28		8.2		
A1-01	0	WQ	10		7.8		15.1		28		8.2		
A4-08B	0	WQ	23		8.3		15.1		28		8.1		
A2-13	0	WQ	24		8.3		15.1		28		8.0		
A2-11	0	WQ	28		8.2		15.1		28		8.0		
A1-10	0	WQ	29		8.1		15.1		28		8.0		
A2-25	0	WQ	32		8.2		15.1		28		8.2		
A2-36	0	WQ	40		8.2		15.1		28		7.9		
CR-20/24-S	0	WQ	53		8.2		15.1		29		8.0		
A2-18	0	WQ	59		8.4		15.1		28		8.1		
A2-14	0	WQ	91		8.2		15.1		28		7.9		
CR-23-S	0	WQ	93		8.2		15.1		28		8.0		
A2-10	0	WQ	97		8.2		15.1		28		8.0		
Control	0	WQ	98		8.4		15.1		28		8.0		
A3-05E	0	WQ	104		8.4		15.1		28		8.0		
A3-07B	0	WQ	107		8.0		15.1		28		7.8		
A1-24	0	WQ	109		8.2		15.1		28		7.8		
CR-22-S	0	WQ	116		8.3		15.0		28		8.0		
A1-07	0	WQ	120		7.9		15.1		28		7.9		
A2-21	0	WQ	123	↓	7.9	↓	15.1	↓	29	↓	7.9		

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	1	WQ	1	4	8.1	4	15.9	1	~~26~~ 26 ①	1	7.6	CS	10/29/08
A1-16	1	WQ	9		8.3		15.7		~~26.7~~ 27		7.7		
A1-01	1	WQ	10		8.2		15.6		~~26.7~~ 28		7.8		
A4-08B	1	WQ	23		8.4		15.5		~~25.6~~ 27		7.8		
A2-13	1	WQ	24		8.3		15.6		~~26.6~~ 28		7.8		
A2-11	1	WQ	28		8.3		15.6		~~26.6~~ 28		7.8		
A1-10	1	WQ	29		8.3		15.5		~~26.1~~ 28		7.8		
A2-25	1	WQ	32		8.3		15.8		~~25.5~~ 27		7.8		
A2-36	1	WQ	40		8.3		15.8		~~26.7~~ 28		7.8		
CR-20/24-S	1	WQ	53		8.3		15.9		~~26.6~~ 28		7.8		
A2-18	1	WQ	59		8.4		15.9		~~26.5~~ 28		7.9		
A2-14	1	WQ	91		8.3		15.6		~~26.4~~ 28		7.8		
CR-23-S	1	WQ	93		8.2		15.7		~~26.5~~ 28		7.8		
A2-10	1	WQ	97		8.4		15.5		~~26.7~~ 28		7.9		
Control	1	WQ	98		8.2		15.7		~~26.7~~ 28		~~7.9~~		
A3-05E	1	WQ	104		8.4		15.6		~~26.1~~ 28		7.8		
A3-07B	1	WQ	107		8.3		15.8		~~25.9~~ 27		7.8		
A1-24	1	WQ	109		8.2		15.9		~~26.7~~ 28		7.8		
CR-22-S	1	WQ	116		8.4		15.7		~~26.7~~ 28		7.9		
A1-07	1	WQ	120		8.1		15.7		~~26.7~~ 28		~~7.8~~		
A2-21	1	WQ	123		8.2		15.5		~~25.5~~ 27		7.8		

① missed correction factor

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	2	WQ	1	3	8.3	3	15.1	3	28	3	7.9	CW	10 30
A1-16	2	WQ	9		8.1		15.1		28		7.9		
A1-01	2	WQ	10		8.4		15.1		28		7.8		
A4-08B	2	WQ	23		8.3		15.1		27		7.8		
A2-13	2	WQ	24		8.1		15.2		28		7.9		
A2-11	2	WQ	28		8.1		15.2		28		7.9		
A1-10	2	WQ	29		6.8		15.3		28		7.7		
A2-25	2	WQ	32		8.0		15.2		28		7.8		
A2-36	2	WQ	40		8.4		15.2		27		7.7		
CR-20/24-S	2	WQ	53		8.2		15.2		28		7.9		
A2-18	2	WQ	59		8.4		15.3		28		7.9		
A2-14	2	WQ	91		8.3		15.1		28		7.8		
CR-23-S	2	WQ	93		8.1		15.2		28		7.8		
A2-10	2	WQ	97		8.3		15.1		28		7.9		
Control	2	WQ	98		8.3		15.1		~~27~~ 28 ①		7.9		
A3-05E	2	WQ	104		8.3		15.1		27		7.9		
A3-07B	2	WQ	107		8.1		15.1		27		7.7		
A1-24	2	WQ	109		8.1		15.1		28		7.8		
CR-22-S	2	WQ	116		8.2		15.2		28		6.0		
A1-07	2	WQ	120		8.0		15.1		28		7.8		
A2-21	2	WQ	123	↓	8.1	↓	15.2	↓	27	↓	7.8	↓	↓

① wrong cell CW

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	3	WQ	1	3	8.0	3	15.5	3	28	3	7.7	CR	10/31/08
A1-16	3	WQ	9		8.2		15.3		28		7.8		
A1-01	3	WQ	10		8.1		15.2		28		7.9		
A4-08B	3	WQ	23		8.3		15.1		27		7.9		
A2-13	3	WQ	24		8.2		15.1		28		7.8		
A2-11	3	WQ	28		8.2		15.1		28		7.9		
A1-10	3	WQ	29		8.2		15.2		28		7.9		
A2-25	3	WQ	32		7.9		15.2		27		7.8		
A2-36	3	WQ	40		8.2		15.3		27		7.9		
CR-20/24-S	3	WQ	53		8.1		15.3		28		8.1		
A2-18	3	WQ	59		8.3		15.3		28		8.1		
A2-14	3	WQ	91		8.1		15.2		28		8.1		
CR-23-S	3	WQ	93		8.0		15.2		28		8.1		
A2-10	3	WQ	97		8.3		15.1		28		8.1		
Control	3	WQ	98		8.3		15.1		28		8.1		
A3-05E	3	WQ	104		8.3		15.1		27		8.1		
A3-07B	3	WQ	107		8.0		15.2		27		8.0		
A1-24	3	WQ	109		7.9		15.1		28		8.0		
CR-22-S	3	WQ	116		8.2		15.1		28		8.1		
A1-07	3	WQ	120		7.9		15.2		28		7.9		
A2-21	3	WQ	123		8.0		15.2		27		8.0		

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	4	WQ	1	3	7.9	3	15.2	3	28	3	7.8	CR	11/1/08
A1-16	4	WQ	9		8.1		15.2		28		7.8		
A1-01	4	WQ	10		7.9		15.2		28		7.9		
A4-08B	4	WQ	23		8.3		15.1		27		7.9		
A2-13	4	WQ	24		8.2		15.2		28		7.9		
A2-11	4	WQ	28		8.0		15.2		28		7.9		
A1-10	4	WQ	29		8.1		15.2		28		7.9		
A2-25	4	WQ	32		8.0		15.2		27		7.9		
A2-36	4	WQ	40		8.0		15.2		27		8.0		
CR-20/24-S	4	WQ	53		7.8		15.2		28		7.9		
A2-18	4	WQ	59		8.2		15.2		28		8.0		
A2-14	4	WQ	91		8.1		15.2		28		8.0		
CR-23-S	4	WQ	93		8.0		15.2		28		7.9		
A2-10	4	WQ	97		8.2		15.1		28		8.0		
Control	4	WQ	98		8.0		15.1		28		8.0		
A3-05E	4	WQ	104		8.1		15.1		27		7.9		
A3-07B	4	WQ	107		8.2		15.1		27		7.9		
A1-24	4	WQ	109		8.0		15.1		28		8.0		
CR-22-S	4	WQ	116		8.1		15.1		28		8.0		
A1-07	4	WQ	120		8.1		15.1		28		8.0		
A2-21	4	WQ	123		8.2		15.1		27		8.0		

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	5	WQ	1	3	8.0	3	12.4①/15.2	3	28	3	8.1	CR	11/2/08
A1-16	5	WQ	9		8.1		15.1		28		7.8		
A1-01	5	WQ	10		8.3		15.0		28		7.9		
A4-08B	5	WQ	23		8.4		15.0		28		7.9		
A2-13	5	WQ	24		8.4		15.1		28		7.9		
A2-11	5	WQ	28		8.4		15.0		28		7.9		
A1-10	5	WQ	29		8.4		15.0		29		7.9		
A2-25	5	WQ	32		8.4		14.9		28		7.9		
A2-36	5	WQ	40		8.4		14.9		27		7.9		
CR-20/24-S	5	WQ	53		8.4		14.9		28		7.9		
A2-18	5	WQ	59		8.4		14.9		28		8.0		
A2-14	5	WQ	91		8.4		14.8		28		7.9		
CR-23-S	5	WQ	93		8.3		14.8		28		7.9		
A2-10	5	WQ	97		8.4		14.8		28		8.0		
Control	5	WQ	98		8.5		14.8		28		8.0		
A3-05E	5	WQ	104		8.5		14.8		28		8.0		
A3-07B	5	WQ	107		8.4		14.8		27		7.9		
A1-24	5	WQ	109		8.4		14.8		28		7.9		
CR-22-S	5	WQ	116		8.5		14.8		28		8.1		
A1-07	5	WQ	120		8.3		14.8		28		8.0		
A2-21	5	WQ	123		8.3		14.8		28		8.0		

①Temp. control not functioning - boilers fixed - temp. brought back to 15±1°C CR 11/2

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	6	WQ	1	3	7.9	3	15.1	3	28	3	7.7	JO	11/3/08
A1-16	6	WQ	9		8.0		15.3		28		7.7		
A1-01	6	WQ	10		7.7		15.3		28		7.8		
A4-08B	6	WQ	23		8.0		15.2		27		7.6		
A2-13	6	WQ	24		7.5		15.3		28		7.7		
A2-11	6	WQ	28		7.9		15.4		28		7.7		
A1-10	6	WQ	29		7.9		15.2		28		7.7		
A2-25	6	WQ	32		7.9		15.2		27		7.6		
A2-36	6	WQ	40		7.9		15.3		26		7.5		
CR-20/24-S	6	WQ	53		7.9		15.3		28		7.7		
A2-18	6	WQ	59		8.2		15.2		28		7.7		
A2-14	6	WQ	91		8.0		15.1		28		7.6		
CR-23-S	6	WQ	93		8.0		15.1		28		7.6		
A2-10	6	WQ	97		8.0		15.1		28		7.7		
Control	6	WQ	98		8.1		15.1		28		7.7		
A3-05E	6	WQ	104		7.9		15.1		27		7.6		
A3-07B	6	WQ	107		8.0		15.1		27		7.4		
A1-24	6	WQ	109		7.9		15.1		28		7.6		
CR-22-S	6	WQ	116		8.1		15.1		28		7.8		
A1-07	6	WQ	120		7.4		15.1		28		7.6		
A2-21	6	WQ	123		6.6		15.1		26		7.7		

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	7	WQ	1	3	6.4	3	15.3	3	28	3	8.1	JO	11/4/08
A1-16	7	WQ	9		8.0		15.2		28		8.3		
A1-01	7	WQ	10		7.8		15.2		28		8.5		
A4-08B	7	WQ	23		8.1		15.1		27		8.3		
A2-13	7	WQ	24		7.9		15.2		28		8.2		
A2-11	7	WQ	28		8.0		15.1		28		8.2		
A1-10	7	WQ	29		8.0		15.1		28		7.9		
A2-25	7	WQ	32		8.1		15.1		27		7.9		
A2-36	7	WQ	40		8.2		15.2		26		8.0		
CR-20/24-S	7	WQ	53		7.9		15.3		28		8.0		
A2-18	7	WQ	59		8.1		15.2		28		8.0		
A2-14	7	WQ	91		8.0		15.3		27		8.0		
CR-23-S	7	WQ	93		7.9		15.1		28		8.1		
A2-10	7	WQ	97		8.0		15.1		28		8.1		
Control	7	WQ	98		8.2		15.3		28		8.1		
A3-05E	7	WQ	104		8.1		15.2		27		8.0		
A3-07B	7	WQ	107		7.9		15.1		27		7.9		
A1-24	7	WQ	109		8.0		15.3		28		8.0		
CR-22-S	7	WQ	116		8.1		15.1		28		8.1		
A1-07	7	WQ	120		7.7		15.1		28		8.2		
A2-21	7	WQ	123		7.9		15.1		26		8.2		

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT	SPECIES		NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*		Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	PROJECT MANAGER	TEST START DATE	TIME	TEST END DATE	TIME
1101-005-860	C. Ray / B. Gardiner	0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	8	WQ	1	3	8.0	3	15.6	3	28	3	7.8	JO	11/5/08
A1-16	8	WQ	9		8.7		15.2		28		8.0		
A1-01	8	WQ	10		8.0		15.2		28		8.5		
A4-08B	8	WQ	23		8.1		15.1		27		8.2		
A2-13	8	WQ	24		8.2		15.3		28		8.1		
A2-11	8	WQ	28		8.0		①~~15.1~~		28		8.0		
A1-10	8	WQ	29		8.0		15.2		28		8.2		
A2-25	8	WQ	32		8.4		15.1		27		8.1		
A2-36	8	WQ	40		8.1		15.2		26		8.0		
CR-20/24-S	8	WQ	53		7.7		15.1		28		8.1		
A2-18	8	WQ	59		8.5		15.4		28		8.1		
A2-14	8	WQ	91		8.2		15.0		27		8.0		
CR-23-S	8	WQ	93		8.0		15.1		28		8.0		
A2-10	8	WQ	97		8.3		15.1		28		8.1		
Control	8	WQ	98		8.2		15.0		28		8.1		
A3-05E	8	WQ	104		8.4		15.2		27		8.0		
A3-07B	8	WQ	107		8.1		15.1		27		7.9		
A1-24	8	WQ	109		8.8		15.0		28		8.0		
CR-22-S	8	WQ	116		8.2		15.2		28		8.1		
A1-07	8	WQ	120		7.7		15.1		28		8.3		
A2-21	8	WQ	123		8.1		15.1		~~27~~② 26		8.3		

① WE JJO 11/5/08

② IE JJO 11/5/08

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	9	WQ	1	3	7.8	3	16.0	3	28	3	7.9	JO	11/6/08
A1-16	9	WQ	9		8.0		15.2		28		8.1		
A1-01	9	WQ	10		7.8		15.1		28		8.6		
A4-08B	9	WQ	23		8.1		15.1		27		8.2		
A2-13	9	WQ	24		8.1		15.2		28		8.1		
A2-11	9	WQ	28		8.0		15.1		28		8.1		
A1-10	9	WQ	29		7.8		16.2		27		8.1		
A2-25	9	WQ	32		8.1		15.3		27		8.1		
A2-36	9	WQ	40		8.2		15.3		26		8.0		
CR-20/24-S	9	WQ	53		8.0		15.2		28		8.1		
A2-18	9	WQ	59		8.2		15.2		28		8.1		
A2-14	9	WQ	91		8.2		15.1		27		8.1		
CR-23-S	9	WQ	93		8.3		15.1		28		8.1		
A2-10	9	WQ	97		8.4		① ~~2~~ 15.1		28		8.2		
Control	9	WQ	98		8.3		15.1		28		8.1		
A3-05E	9	WQ	104		8.2		15.1		27		8.0		
A3-07B	9	WQ	107		8.2		15.2		27		7.9		
A1-24	9	WQ	109		8.1		15.1		28		8.0		
CR-22-S	9	WQ	116		8.3		15.1		28		8.1		
A1-07	9	WQ	120		8.0		15.1		28		8.4		
A2-21	9	WQ	123		8.0		15.1		26		8.5		

DIE JKO 11/6/08

NEWFIELDS

10 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATA SHEET

CLIENT	PROJECT
SAIC	Port Gardner
NEWFIELDS JOB NUMBER	PROJECT MANAGER
1101-005-860	C. Ray / B. Gardiner

SPECIES		NEWFIELDS LABORATORY	PROTOCOL
Eohaustorius estuarius		Port Gamble Bath 1	PSEP 1995
TEST START DATE	TIME	TEST END DATE	TIME
0-Jan-00		10-Jan-00	

Test Conditions				WATER QUALITY DATA									
				DO (mg/L) >5.0 mg/L		Temperature (°C) 15±1		Salinity ppt) 28±1		pH 7.8±0.5		Tech	Date
Client/NewFields ID	Day	Rep	Jar#	meter	mg/L	meter	deg C	meter	ppt	meter	unit		
A1-03	10	WQ	1	3	7.6	3	15.8	3	28	3	8.0	JO	11/7/08
A1-16	10	WQ	9		8.0		15.4		28		8.2		
A1-01	10	WQ	10		7.6		15.4		28		8.7		
A4-08B	10	WQ	23		8.0		15.4		27		7.8		
A2-13	10	WQ	24		7.9		15.4		28		8.2		
A2-11	10	WQ	28		8.0		15.3		27		8.2		
A1-10	10	WQ	29		8.0		15.3		28		8.6		
A2-25	10	WQ	32		8.2		15.3		27		8.2		
A2-36	10	WQ	40		8.2		15.4		26		8.0		
CR-20/24-S	10	WQ	53		8.1		15.4		28		8.4		
A2-18	10	WQ	59		8.3		15.4		28		8.2		
A2-14	10	WQ	91		8.3		15.3		27		8.2		
CR-23-S	10	WQ	93		8.2		15.3		28		8.2		
A2-10	10	WQ	97		8.2		15.2		28		8.2		
Control	10	WQ	98		8.6		15.4		28		8.1		
A3-05E	10	WQ	104		8.2		15.3		27		8.1		
A3-07B	10	WQ	107		8.2		15.2		27		7.9		
A1-24	10	WQ	109		8.1		15.2		28		8.0		
CR-22-S	10	WQ	116		8.1		15.2		28		8.2		
A1-07	10	WQ	120		8.1		15.4		28		8.5		
A2-21	10	WQ	123		8.2		15.4		26		8.6		

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
Port Gardiner	Eohs		10

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST:** 05
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	Temperature:	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
A1-01		10/28 ✓	~~0.002~~ 0.00	20	10/28 ✓	N			0.002
CR 20/24			~~0.017~~ 0.652						0.017
CR 23			~~0.028~~ 0.333						0.028
CR 22			~~0.029~~ 1.45						0.029
∅			~~0.005~~ 0.00						0.005
A2-10			~~0.007~~ 0.278						0.007
A1-24			~~0.019~~ 0.330						0.019
A1-16			~~0.014~~ 0.408						0.014
A1-10			~~0.039~~ 0.176						0.039
A1-07			~~0.065~~ 0.442						0.065
A1-03			~~0.022~~ 0.160						0.022
A2-21			0.021 0.0295						0.021
A2-18			~~0.018~~ ~~0.0295~~ 0.0647						0.018
A2-14			~~0.0647~~ 0.415						0.014
A2-13			~~0.415~~ 0.554						0.010
A2-11			~~0.554~~ 0.233						0.025

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A4-08B		10/28 ✓	~~0.233~~ 0.00	20	10/28 ✓	N			0.016
A3-07B		↓	0.00	↓	↓	↓			0.013
A3-05E			~~0.00~~ 0.256						0.018
A2-36			~~0.256~~ 0.0044						0.047
A2-25		↓	0.00	↓	↓	↓			0.068

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
Port Gardner	Eohs		Ø

PRETEST (INITIAL) / FINAL / OTHER (circle one) **DAY of TEST:** Ø
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
A4-08B		10/28	0.68	19.6	10/28				0.034
A3-07B			1.08						0.031
A3-05E			2.23						0.026
A2-36			1.74						0.070
A2-25			0.811						0.025
A2-21			1.89						0.051
A2-18			1.41						0.034
A2-14			4.21						0.049
A2-13			2.90						0.050
A2-11			1.97						0.084
A2-10			0.749						0.101
A1-24			1.38						0.074
A1-16			2.75						0.080
A1-10			1.45						0.048
A1-07			2.96						0.798
GRA1-03			1.45						0.046

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A1-01			1.22						0.049
CR 20/24			1.94						0.027
CR 23			1.22						0.048
CR22			5.04						0.107
Initial Control			ND						0.020

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	Eohs		10

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST:** 10
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	
07 November 2008	20.0	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	11/7/08 JO	<0.5	19.5	11/7/08 JO	N			0.004
CR-22-S			3.60						0.006
CR-23-S			0.725						0.013
CR-20/24-S			1.43						0.012
A1-01			<0.5						0.015
A1-03			0.705						0.009
A1-07			2.01						0.014
A1-10			0.962						0.029
A1-16			<0.5						0.006
A1-24			0.782						0.018
A2-10			<0.5						0.008
A2-11			<0.5						0.007
A2-13			1.40						0.043
A2-14			<0.5						0.012
A2-18			<0.5						0.017
A2-21			<0.5						0.012

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-25	Saour.	11/7/08 JO	<0.5	19.5	11/7/08 JO	N			0.013
A2-36	↓	↓	<0.5	↓	↓	↓			0.013
A3-05E			<0.5						0.007
A3-07B			<0.5						0.016
A4-08B	↓	↓	<0.5	↓	↓	↓			0.010

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	Eohs		10

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST:** 10
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	
07 November 2008	20.0	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	11/7/08 JO	<0.5	20.5	11/7/08 JO	N	7.0	28	0.064
CR-22-S			3.52				7.3	28	0.439
CR-23-S			0.705				7.4	28	0.102
CR-20/24-S			3.14				7.2	28	0.094
A1-01			0.577				7.3	28	0.040
A1-03			0.889				7.1	28	0.179
A1-07			(1)				(1)	(1)	(1)
A1-10			1.21				6.9	28	0.094
A1-16			<0.5				7.0	28	0.244
A1-24			1.24				7.1	28	0.099
A2-10			<0.5				7.0	28	0.422
A2-11			0.562				7.0	28	0.291
A2-13			1.79				7.0	28	0.150
A2-14			<0.5				7.0	27	0.057
A2-18			(2) ~~<0.5~~				(1)	(1)	(1)
A2-21			<0.5				6.8	26	0.092

(1) Surr broken down so no pore water sample JHO 11/7
(2) WC JHO 11/7

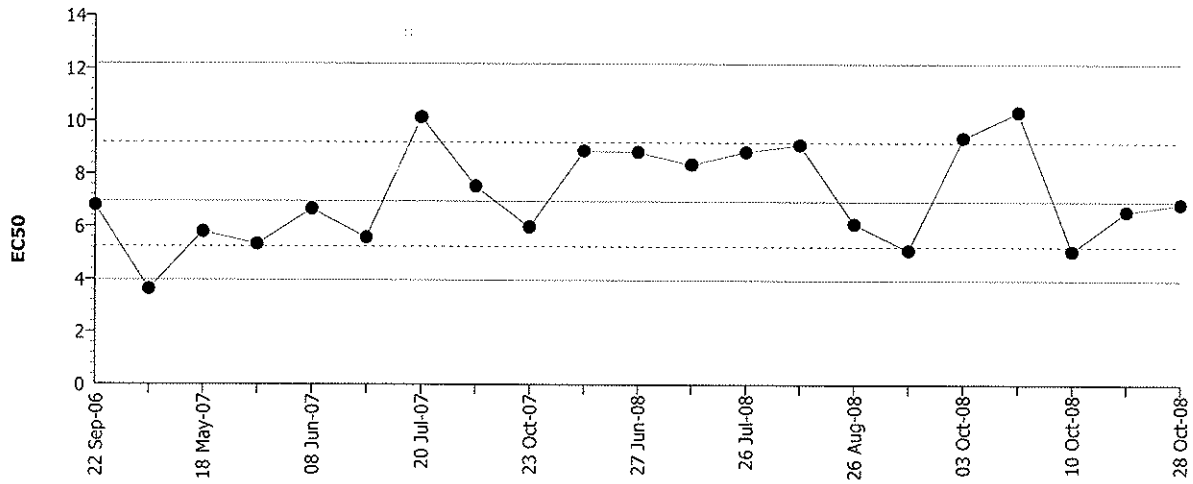
Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-25	Surr.	11/7/08 JO	<0.5	20.5	11/7/08 JO	N	6.9	27	0.155
A2-36	↓	↓	0.814	↓	↓	↓	6.7	25	0.160
A3-05E			<0.5				6.6	27	0.362
A3-07B			<0.5				6.7	27	0.131
A4-08B	↓	↓	<0.5	↓	↓	↓	6.7	26	0.108

CETIS QC Chart

Report Date: 04 Nov-08 1:21 PM

Eohaustorius 10-d Survival and Reburial Sediment Test — **NewFields**

Test Type: Survival-Reburial **Organism:** Eohaustorius estuarius (Amphipod) **Material:** Cadmium chloride
Protocol: EPA/600/R-94/025 (1994) **Endpoint:** Proportion Survived **Source:** Reference Toxicant-REF



Mean:	6.94243	**Count:**	20	**-1s Warning Limit:**	5.23934	**-2s Action Limit:**	3.95405
Sigma:		**CV:**	32.51%	**+1s Warning Limit:**	9.19912	**+2s Action Limit:**	12.1894

Quality Control Data

Point	Year	Month	Day	Data	Delta	Sigma	Warning	Action	Test Link	Analysis
1	2006	Sep	22	6.78907	-0.15336	-0.07937			05-2196-6286	15-5008-9467
2			27	3.60821	-3.33422	-2.32520	(-)	(-)	14-2711-1162	15-3243-2698
3	2007	May	18	5.78633	-1.15610	-0.64718			10-9949-6658	01-0514-6184
4			22	5.32422	-1.61821	-0.94291			02-6215-7262	07-0555-3037
5		Jun	8	6.65260	-0.28983	-0.15151			08-1478-6281	07-1616-4889
6			12	5.57512	-1.36731	-0.77930			12-4873-2529	01-1576-1244
7		Jul	20	10.14752	3.20509	1.34862	(+)		03-1740-6698	15-0085-4047
8		Sep	17	7.52045	0.57802	0.28414			13-0115-1998	01-0589-8584
9		Oct	23	5.97296	-0.96947	-0.53440			06-8083-9702	00-5598-3388
10	2008	May	30	8.87317	1.93074	0.87182			13-3382-4100	20-7672-2429
11		Jun	27	8.83113	1.88870	0.85495			14-3368-4084	04-4152-2772
12		Jul	16	8.35797	1.41554	0.65930			09-4785-0917	05-8512-9332
13			26	8.84336	1.90093	0.85987			04-2285-3356	06-1210-3839
14		Aug	1	9.11399	2.17155	0.96697			16-8866-7768	08-6766-3207
15			26	6.09565	-0.84678	-0.46215			05-3187-8218	10-7868-4568
16		Sep	23	5.09679	-1.84564	-1.09801	(-)		02-2340-6976	12-6046-2683
17		Oct	3	9.37148	2.42905	1.06596	(+)		12-9882-1875	12-8093-3143
18			9	10.36136	3.41893	1.42272	(+)		07-7236-5738	09-5362-0444
19			10	5.07151	-1.87092	-1.11567	(-)		08-5307-5163	12-8225-3680
20			21	6.56493	-0.37750	-0.19865			02-5567-7485	08-9907-2675
21			28	6.85362	-0.08881	-0.04575			11-3814-9085	05-5479-4141

CETIS Analysis Detail

Eohaustorius 10-d Survival and Reburial Sediment Test NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3814-9085	11-3814-9085	04 Nov-08 1:20 PM	CETISv1.1.2

Method	Alt H	Data Transform	Zeta	NOEL	LOEL	Toxic Units	ChV	PMSD
Dunnett's Multiple Comparison	C > T	Angular (Corrected)		<2.5	2.5		N/A	12.85%

Group Comparisons

Control	vs	Conc-mg/L	Statistic	Critical	P-Value	MSD	Decision(0.05)
Dilution Water		2.5	2.49361	2.46559	0.0478	0.20791	Significant Effect
		5	6.61777	2.46559	0.0001	0.20791	Significant Effect
		10	7.03315	2.46559	0.0001	0.20791	Significant Effect
		20	14.2181	2.46559	0.0000	0.20791	Significant Effect

Test Acceptability

Attribute	Statistic	TAC Range	Overlap	Decision
Control Response	1	0.9 - NL	Yes	Passes acceptability criteria

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P-Value	Decision(0.05)
Between	2.50117	0.6252926	4	58.63	0.00000	Significant Effect
Error	0.1066563	0.0106656	10			
Total	2.60782667	0.6359582	14			

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P-Value	Decision(0.01)
Variances	Modified Levene	2.41136	5.99434	0.11807	Equal Variances
Distribution	Shapiro-Wilk W	0.96366		0.75570	Normal Distribution

Data Summary

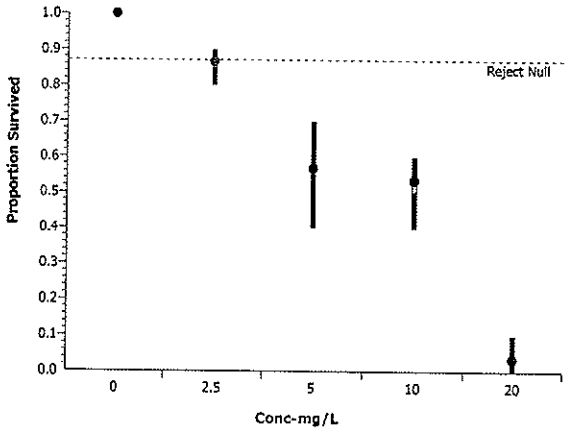
			Original Data				Transformed Data			
Conc-mg/L	Control Type	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
0	Dilution Water	3	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00029
2.5		3	0.86667	0.80000	0.90000	0.05773	1.20175	1.10715	1.24905	0.08192
5		3	0.56667	0.40000	0.70000	0.15275	0.85398	0.68472	0.99116	0.15572
10		3	0.53333	0.40000	0.60000	0.11547	0.81896	0.68472	0.88608	0.11625
20		3	0.03333	0.00000	0.10000	0.05774	0.21310	0.15878	0.32175	0.09409

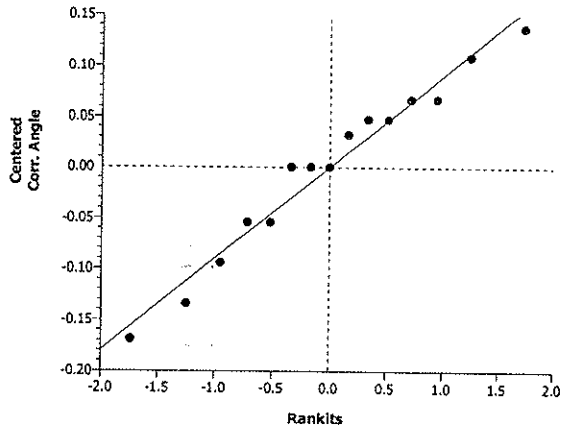
CETIS Analysis Detail

Data Detail

Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	1.00000	1.00000	1.00000							
2.5		0.80000	0.90000	0.90000							
5		0.70000	0.40000	0.60000							
10		0.60000	0.40000	0.60000							
20		0.00000	0.10000	0.00000							

Graphics





CETIS Analysis Detail

Eohaustorius 10-d Survival and Reburial Sediment Test — NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Linear Regression	11-3814-9085	11-3814-9085	04 Nov-08 1:20 PM	CETISv1.1.2

Linear Regression Options

Model Function	Threshold Option	Threshold	Threshold Opt	Reweighted	Pooled Groups	Het Corr
Log-Normal [NED=A+B*log(X)]	Control Threshold	0	Yes	Yes	No	No

Regression Summary

Iters	Log Likelihood	Mu	Sigma	G	Chi-Sq	Critical	P-Value	Decision(0.05)
5	-62.12550	0.96758	0.36070	0.07293	13.59545	22.36203	0.40294	Non-Significant Heterogeneity

Point Estimates

% Effect	Conc-mg/L	95% LCL	95% UCL
10	2.364095	1.438249	3.232049
15	2.89787	1.880537	3.835023
20	3.406807	2.321153	4.404925
25	3.914099	2.773526	4.973509
40	5.553129	4.274404	6.863258
50	6.853618	5.453038	8.470491

Test Acceptability

Attribute	Statistic	TAC Range	Overlap	Decision
Control Response	1	0.9 - NL	Yes	Passes acceptability criteria

Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Statistic	P-Value	Decision(0.05)
Slope	2.772391	0.381981	2.023708	3.521074	7.258	0.00001	Significant
Intercept	2.682503	0.3608371	1.975263	3.389744	7.434	0.00000	Significant

Residual Analysis

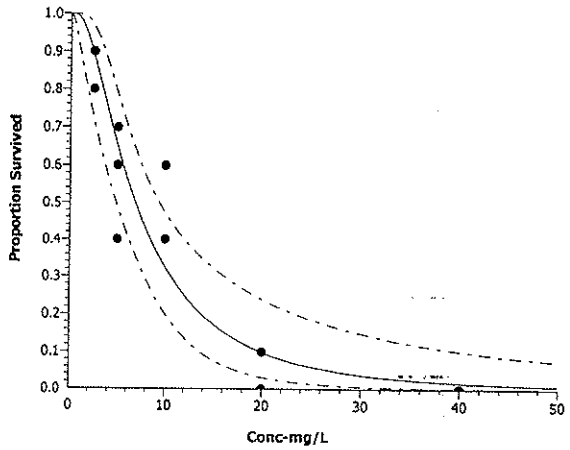
Attribute	Method	Statistic	Critical	P-Value	Decision(0.05)
Variances	Modified Levene	2.28372	3.47805	0.13203	Equal Variances
Distribution	Shapiro-Wilk W	0.9196119		0.19003	Normal Distribution

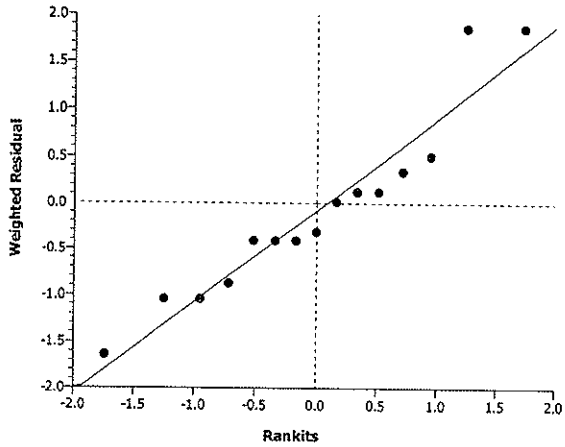
Data Summary

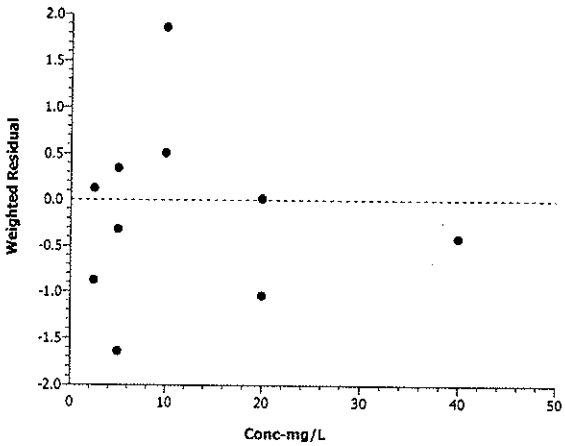
Conc-mg/	Control Type	Count	Calculated Variate(A/B) Mean	Minimum	Maximum	SE	SD	A	B
0	Dilution Water	3	1.00000	1.00000	1.00000	0.00000	0.00000	30	30
2.5		3	0.86667	0.80000	0.90000	0.01179	0.05773	26	30
5		3	0.56667	0.40000	0.70000	0.03118	0.15275	17	30
10		3	0.53333	0.40000	0.60000	0.02357	0.11547	16	30
20		3	0.03333	0.00000	0.10000	0.01179	0.05774	1	30
40		3	0.00000	0.00000	0.00000	0.00000	0.00000	0	30

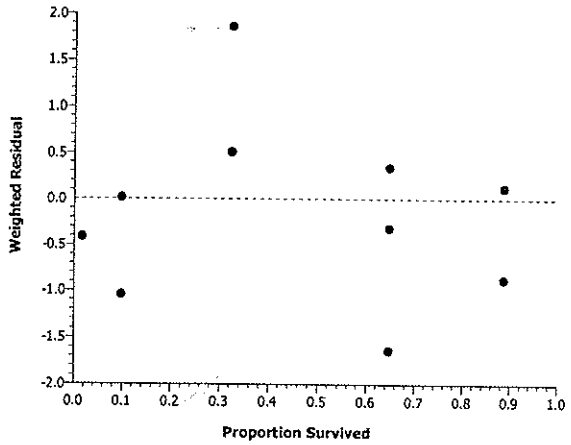
CETIS Analysis Detail

Graphics









NEWFIELDS

Cadmium Reference Toxicant Test
Survival Data Sheet

CLIENT	PROJECT	NEWFIELDS JOB NO.	SPECIES		
			Eohaustorius estuarius		
SAIC	Port Gardner	1101-005-860	PROJECT MANAGER: C. Ray / B. Gardiner	NEWFIELDS LABORATORY: Port Gamble Bath 1	PROTOCOL: PSEP 1995

SURVIVAL & BEHAVIOR DATA

OBSERVATION KEY
N = Normal
LOE = Loss of equilibium
Q = Quinscent
DC = Discoloration
NB = No body
F = Floating on surface

INITIAL # OF ORGANISMS: 10

				DAY 1			DAY 2			DAY 3			DAY 4		
				DATE: 10/29			DATE: 10/30			DATE: 10/31			DATE: 11/1		
				TECHNICIAN: MMB			TECHNICIAN: MMB			TECHNICIAN: MMB			TECHNICIAN: CR		
CLIENT/ NEWFIELDS ID	CONC. value	CONC. units	REP	INITIAL NUMBER	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS
Ref.Tox.- cadmium	0	mg/L	1		10	Ø	3F	10	Ø	3F	10	Ø	1F	10	0	N
			2		10	Ø	2F	10	Ø	2F	10	Ø	1F	10	0	
			3		10	Ø	3F	10	Ø	N	10	Ø	N	10	0	
Ref.Tox.- cadmium	2.5	mg/L	1		10	Ø	3F	10	Ø	3F	10	Ø	1F	8	2	
			2		10	Ø	N	10	Ø	N①	10	Ø	N	9	1	
			3		10	Ø	1F	10	Ø	1F	10	Ø	1F	9	1	
Ref.Tox.- cadmium	5	mg/L	1		10	Ø	N	10	Ø	N	8	2	N	7	1	
			2		10	Ø	2F	9	1	1F	7	2	1F	4	3	1F
			3		10	Ø	2F	10	Ø	1F	8	2	N	6	2	N
Ref.Tox.- cadmium	10	mg/L	1		10	Ø	2F	9	1	1F	9	Ø	N	6	3	
			2		10	Ø	2F	9	1	1F	7	2	N	4	3	
			3		10	Ø	1F	10	Ø	N	9	1	N	6	3	
Ref.Tox.- cadmium	20	mg/L	1		10	Ø	2F,Q	5	5	1F,DC	3	2	N	0	3	
			2		8	2	1F	7	1	3F	2	5	N	1	1	
			3		9	1	N	8	1	N	4	4	N	0	4	
Ref.Tox.- cadmium	40	mg/L	1		10	Ø	2F	2	8	2F,DC	0	2	N			
			2		9	1	2F	5	4	DC	0	5	N			
			3		10	Ø	1F,Q	3	7	1F,DC	0	3	N			

① 4 babies present, removed from chamber MMB 10/30/08

NEWFIELDS

Cadmium Reference Toxicant Test Water Quality Data Sheet

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY	PROTOCOL
SAIC	Port Gardner	*Eohaustorius estuarius*	Port Gamble Bath 1	PSEP 1995
NEWFIELDS JOB NUMBER	**PROJECT MANAGER**	**QUANTITY OF STOCK : 8.0mL**	**QUANTITY OF DILUENT: 1500mL**	**INIT** CR
1101-005-860	C. Ray / B. Gardiner	**ACTUAL:** 6.00mL	**ACTUAL:** 1500.1mL	**DATE PREP** 10/28/08
TEST ID	**LOT #:**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
P080418.29	06510 TC	28Oct08	1645	01Nov08	1630

WATER QUALITY DATA

DILTIN.WAT.BATCH	TEMP REC#	REFERENCE TOX. MATERIAL	REFERENCE TOXXICANT	LOT NO.	96-H LC_{50}
FSW102708.01		cadmium chloride	cadmium		

TEST CONDITIONS				DO (mg/L)	TEMP(°C)	SAL (ppt)	pH	TECHNICIAN	AMMONIA	SULFIDES
				≥ 5.0	15 ± 1	28 ± 1	8.0 ± 0.5			

CLIENT/ NEWFIELDS ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WQ TECH	AMMONIA METER	AMMONIA mg/L	AMMONIA Tech	SULFIDES meter	SULFIDES mg/L	SULFIDES Tech
Ref.Tox.-cadmium	0	mg/L	0	Stock	4	7.9	4	16.4	1	28	1	7.7	CW						
			1	Surr	3	7.1	3	15.5	3	28	3	7.9	TS						
			2	Surr	4	7.2	4	15.9	1	28	1	7.3	MMB						
			3	Surr	4	7.3	4	16.1	1	28	1	7.4	MMB						
			4	Surr	4	8.8	4	17.4	1	28	1	8.0	CS						
Ref.Tox.-cadmium	2.5	mg/L	0	Stock	4	8.0	4	16.1	1	28	1	7.7	CW						
			1	Surr	3	7.4	3	15.4	3	28	3	7.7	TS						
			2	Surr	4	7.7	4	15.8	1	28	1	7.4	MMB						
			3	Surr	4	7.8	4	15.7	1	28	1	7.6	MMB						
			4	Surr	4	9.2	4	16.5	1	28	1	7.9							
Ref.Tox.-cadmium	5	mg/L	0	Stock	4	8.0	4	16.0	1	28	1	7.7	CW						
			1	Surr	3	6.9	3	15.4	3	28	3	7.7	TS						
			2	Surr	4	7.8	4	15.8	1	28	1	7.5	MMB						
			3	Surr	4	8.1	4	15.4	1	28	1	7.7	MMB						
			4	Surr		9.6	4	16.0	1	28	1	7.8							
Ref.Tox.-cadmium	10	mg/L	0	Stock	4	8.0	4	15.9	1	28	1	7.7	CW						
			1	Surr	3	7.1	3	15.3	3	28	3	7.7	TS						
			2	Surr	4	8.1	4	15.7	1	28	1	7.6	MMB						
			3	Surr	4	7.7	4	16.1	1	28	1	6.9	MMB						
			4	Surr	4	9.6	4	15.8	1	28	1	7.8							
Ref.Tox.-cadmium	20	mg/L	0	Stock	4	8.0	4	15.8	1	28	1	7.7	CW						
			1	Surr	3	7.2	3	15.4	3	28	3	7.7	TS						
			2	Surr	4	8.1	4	15.7	1	28	1	7.6	MMB						
			3	Surr	4	8.1	4	15.8	1	28	1	7.3	MMB						
			4	Surr	4	9.8	4	15.8	1	28	1	7.8							
Ref.Tox.-cadmium	40	mg/L	0	Stock	4	8.1	4	15.6	1	28	1	7.7	CW						
			1	Surr	3	7.1	3	15.5	3	28	3	7.7	TS						
			2	Surr	4	8.3	4	15.7	1	28	1	7.7	MMB						
			3	Surr															
			4	Surr															

NEWFIELDS

ORGANISM RECEIPT LOG

Date:	Time:	NewFields Batch No.
10/24/08	1249	NAS 0215

Organism:	Source:
Ecks	Northwestern Aquatic Sciences

Address:	Invoice Attached
on file	Yes (No)

Phone:	Contact:

No. Ordered:	No. Received:	Source Batch:
3000	3300	

Condition of Organisms:	Approximate Size or Age:
Good	3-5 mm

Shipper:	B of L (Tracking No.)
Fedex	8662 6076 9730 0215

Condition of Container:	Received By:
Good	TS

Confirmation of ID of Organism:	Technician (Initials):
Yes (No)	

Notes:

pH (Units)	Temp. (°C)	D.O. (mg/L)	Conductivity or Salinity (Include Units)	Technician (Initials)
NA	14°C	NA	28 ppt	TS

Notes:

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

SPECIES					
Mytilus edulis (mussel)					
CLIENT	**PROJECT**	**JOB NUMBER**	**PROJECT MANAGER**	**NEWFIELDS LAB / LOCATION**	**PROTOCOL**
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS
STOCKING DENSITY	1		258	11/18/08	CR	
	2		280			
266	3		271			
	4		259			
	5		260			
Control /	1	240	16	11/18/08	CR	1
	2	263	12			
94.1%	3	250	12			
	4	257	16			
	5	248	11			
CR-22-S /	1	191	8			6
	2	178	4			
74.8%	3	189	7			
	4	184	3			
	5	201	4			
CR-23-S /	1	135	19			11
	2	140	6			
56.8%	3	152	4			
	4	142	7			
	5	147	13			
CR-20/24-S /	1	143	10			16
	2	163	11			
63.4%	3	174	8			
	4	122	9			
	5	197	13			

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

SPECIES					
Mytilus edulis (mussel)					
CLIENT	PROJECT	JOB NUMBER	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS	
A1-01 /	1	173	18	11/18/08	CR		21
	2	192	17				
	3	206	14				
	4	192	28				
	5	191	14				
A1-03 /	1	~~183~~ ① 144	~~10~~ ① 31				26
	2	45	80				
	3	147	31				
	4	44	51				
	5	91	32				
A1-07 /	1	134	12				31
	2	167	13				
	3	166	20				
	4	143	25				
	5	166	22				
A1-10 /	1	67	61				36
	2	105	64				
	3	24	16				
	4	29	17				
	5	126	37				
A1-16 /	1	192	19				41
	2	182	05				
	3	183	13				
	4	177	9				
	5	186	10	↓	↓		

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① MC CR 11/18/08

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

CLIENT	PROJECT	JOB NUMBER	SPECIES	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	*Mytilus edulis (mussel)*	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS	
A1-24 /	1	168	14	11/18/08	CR		46
	2	87	30				
	3	126	35				
	4	105	36				
	5	94	38				
A2-10 /	1	205	18				51
	2	227	6				
	3	224	10				
	4	210	5				
	5	226	7				
A2-11 /	1	208	11				56
	2	235	6				
	3	241	3				
	4	218	11				
	5	244	8				
A2-13 /	1	35	43	↓	↓	recount 32/53	61
	2	183	38	12/9/08	↓		
	3	185	29				
	4	198	34				
	5	190	36	↓	↓		
A2-14 /	1	116	63	11/18/08	CR		66
	2	177	48				
	3	129	66				
	4	138	29				
	5	135	64	↓	↓		

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

SPECIES					
Mytilus edulis (mussel)					
CLIENT	**PROJECT**	**JOB NUMBER**	**PROJECT MANAGER**	**NEWFIELDS LAB / LOCATION**	**PROTOCOL**
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS	
A2-18 /	1	194	22	11/18/08	CR		71
	2	193	29	12/9/08	↓		
	3	185	23	↓	↓		
	4	216	17				
	5	208	19				
A2-21 /	1	65	65	11/18/08	CR		76
	2	87	79	12/9/08	↓		
	3	61	78	↓	↓		
	4	82	76				
	5	82	69				
A2-25 /	1	164	56	11/18/08	CR		81
	2	203	37	12/9/08	↓		
	3	168	31	↓	↓		
	4	169	55				
	5	165	55				
A2-36 /	1	23	96	11/18/08	CR		86
	2	47	109	↓	↓		
	3	55	102				
	4	42	135				
	5	62	124				
A3-05E /	1	180	22	↓	↓		91
	2	161	10				
	3	222	24				
	4	231	14				
	5	209	10				

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

CLIENT	PROJECT	JOB NUMBER	SPECIES	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	*Mytilus edulis (mussel)*	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS	
A3-07B /	1	29	134	11/18/08	CR		96
	2	33	112	12/9/08	↓		
	3	30	132	↓	↓		
	4	20	155	↓	↓		
	5	67	105	↓	↓		
A4-08B /	1	39	80	11/18/08	CR		101
	2	63	131	12/9/08	↓		
	3	38	124	↓	↓		
	4	53	116	↓	↓		
	5	32	155	↓	↓		

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

SPECIES					
Mytilus edulis (mussel)					
CLIENT	**PROJECT**	**JOB NUMBER**	**PROJECT MANAGER**	**NEWFIELDS LAB / LOCATION**	**PROTOCOL**
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS
Sediment Control /	1	241	8	11/18/08	CR	
	2	253	5	11/19/08	d	
	3	182	7			
	4	211	11			
	5	224	14			

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LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08	1630	11/10/08	1600

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ~~.46~~ ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
Control /	0	41	WQ Surr	4	8.0	4	16.2	1	28	1	7.7		-			✓	11/7
Control /	1	41	WQ Surr	3	7.6	3	15.8	3	28	3	7.6					do	11/8
Control /	2	41	WQ Surr	4	7.7	4	16.4	1	28	1	7.7					do	11/9
Control /	3	41	WQ Surr	4	8.0	4	16.4	1	28	1	7.8					do	11/10
Control /	4	41	WQ Surr														
CR-22-S /	0	114	WQ Surr	4	~~7.8~~ 7.5	4	~~16.4~~ 16.4	1	~~28~~ 28	1	~~7.6~~ 7.7	(2)				✓	11/7
CR-22-S /	1	114	WQ Surr	3	5.9	3	15.7	3	28	3	7.6					do	11/8
CR-22-S /	2	114	WQ Surr	4	7.1	4	16.9	1	28	1	7.6					do	11/9
CR-22-S /	3	114	WQ Surr	4	7.7	4	16.5	1	28	1	7.8					do	11/10
CR-22-S /	4	114	WQ Surr														
CR-23-S /	0	105	WQ Surr	4	7.8	4	16.4	1	28	1	7.6					✓	11/7
CR-23-S /	1	105	WQ Surr	3	5.9	3	15.9	3	28	3	7.6					do	11/8
CR-23-S /	2	105	WQ Surr	4	6.6	4	16.7	1	28	1	7.5					do	11/9
CR-23-S /	3	105	WQ Surr	4	7.3	4	16.6	1	28	1	7.7					do	11/10
CR-23-S /	4	105	WQ Surr														

OWC 11/7/08 ✓

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ~~15~~ ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
CR-20/24-S /	0	28	WQ Surr	4	7.7	4	16.0	1	28	1	7.7					BH	11/7
CR-20/24-S /	1	28	WQ Surr	3	5.6②	3	15.8	3	28	3	7.4					JO	11/8
CR-20/24-S /	2	28	WQ Surr	4	6.4	4	16.9	1	28	1	7.6					JO	11/9
CR-20/24-S /	3	28	WQ Surr	4	4.3④	4	16.1	1	28	1	7.6					JO	11/10
CR-20/24-S /	4	28	WQ Surr														
A1-01 /	0	110	WQ Surr	4	7.1	4	16.4	1	28	1	7.6					✓	11/7
A1-01 /	1	110	WQ Surr	3	5.5	3	15.8	3	28	3	7.5					JO	11/8
A1-01 /	2	110	WQ Surr	4	6.5	4	16.6	1	28	1	7.6					JO	11/9
A1-01 /	3	110	WQ Surr	4	8.0	4	16.6	1	28	1	7.8					JO	11/10
A1-01 /	4	110	WQ Surr														
A1-03 /	0	~~29~~ 91	WQ Surr	4	7.2	4	16.0	1	~~46~~ 29 ①	1	7.5					✓	11/7
A1-03 /	1	~~29~~ 91	WQ Surr	3	5.4	3	15.8	3	28	3	7.5					JO	11/8
A1-03 /	2	~~29~~ 91	WQ Surr	4	5.7	4	16.4	1	28	1	7.6					JO	11/9
A1-03 /	3	~~29~~ 91	WQ Surr	4	4.4④	4	16.0	1	28	1	7.5					JO	11/10
A1-03 /	4	~~29~~ 91	WQ Surr														

① WC 11/7/09 ✓

~~② Begun aeration JHO 11/8/08~~ ③

③ WC JHO 11/8

④ ~~Begun aeration 11/10/08~~ Test ended today not needed 11/10

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ~~15~~ ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A1-07 /	0	58	WQ Surr	4	5.7	4	16.3	1	28	1	7.7					JL	11/7
A1-07 /	1	58	WQ Surr	3	4.7①	3	15.5	3	28	3	7.6					JO	11/8
A1-07 /	2	58	WQ Surr	4	8.1	4	15.9	1	28	1	7.9					JO	11/9
A1-07 /	3	58	WQ Surr	4	7.9	4	15.8	1	28	1	7.7					JO	11/10
A1-07 /	4	58	WQ Surr														
A1-10 /	0	47	WQ Surr	4	7.6	4	16.4	1	28	1	7.6					JL	11/7
A1-10 /	1	47	WQ Surr	3	6.5	3	15.8	3	28	3	7.6					JO	11/8
A1-10 /	2	47	WQ Surr	4	7.1	4	16.5	1	28	1	7.6					JO	11/9
A1-10 /	3	47	WQ Surr	4	4.3②	4	15.9	1	28	1	7.6					JO	11/10
A1-10 /	4	47	WQ Surr														
A1-16 /	0	81	WQ Surr	4	8.0	4	16.4	1	28	1	7.7					JL	11/7
A1-16 /	1	81	WQ Surr	3	5.3	3	16.0	3	28	3	7.4					JO	11/8
A1-16 /	2	81	WQ Surr	4	5.3	4	16.0	1	28	1	7.7					JO	11/9
A1-16 /	3	81	WQ Surr	4	5.1	4	16.1	1	28	1	7.6					JO	11/10
A1-16 /	4	81	WQ Surr														

① Began aeration JHO 11/8/08

② Test ended today aeration not needed 11/10 JHO

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A1-24 /	0	40	WQ Surr	4	8.0	4	16.5	1	28	1	7.7					BH	11/7
A1-24 /	1	40	WQ Surr	3	7.3	3	15.8	3	28	3	7.5					JS	11/8
A1-24 /	2	40	WQ Surr	4	7.4	4	16.4	1	28	1	7.7					JO	11/9
A1-24 /	3	40	WQ Surr	4	7.5	4	16.3	1	28	1	7.7					JO	11/10
A1-24 /	4	40	WQ Surr														
A2-10 /	0	12	WQ Surr	4	7.4	4	15.9	1	28	1	7.5					BH	11/7
A2-10 /	1	12	WQ Surr	3	5.3	3	15.8	3	28	3	①~~6.9~~ 7.3					JO	11/8
A2-10 /	2	12	WQ Surr	4	4.7②	4	16.2	1	28	1	7.2					JO	11/9
A2-10 /	3	12	WQ Surr	4	8.3	4	15.7	1	28	1	7.6					JO	11/10
A2-10 /	4	12	WQ Surr														
A2-11 /	0	32	WQ Surr	4	8.0	4	16.1	1	28	1	7.7					BH	11/7
A2-11 /	1	32	WQ Surr	3	5.1	3	15.7	3	28	3	7.4					JO	11/8
A2-11 /	2	32	WQ Surr	4	5.3	4	16.4	1	28	1	7.6					JO	11/9
A2-11 /	3	32	WQ Surr	4	4.2③	4	16.2	1	28	1	7.5					JO	11/10
A2-11 /	4	32	WQ Surr														

① MC JHO 11/8
② Began aeration 11/9/08 JHO
③ ~~Began aeration 11/10/08 JHO~~ Test ended today not needed 11/10

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A2-13 /	0	94	WQ Surr	4	7.4	4	16.4	1	28	1	7.6					↓	11/7
A2-13 /	1	94	WQ Surr	3	6.8	3	15.8	3	28	3	7.6					JO	11/8
A2-13 /	2	94	WQ Surr	4	7.3	4	16.7	1	28	1	7.7					JO	11/9
A2-13 /	3	94	WQ Surr	4	7.4	4	16.6	1	28	1	7.7					JO	11/10
A2-13 /	4	94	WQ Surr														
A2-14 /	0	99	WQ Surr	4	7.2	4	16.2	1	28 ① ~~24.2~~	1	7.5					↓	11/7
A2-14 /	1	99	WQ Surr	3	5.2	3	15.9	3	28	3	7.5					JO	11/8
A2-14 /	2	99	WQ Surr	4	5.1	4	16.2	1	28	1	7.4					JO	11/9
A2-14 /	3	99	WQ Surr	4	5.9	4	16.5	1	28	1	7.7					JO	11/10
A2-14 /	4	99	WQ Surr														
A2-18 /	0	21	WQ Surr	4	7.1	4	15.6	1	28	1	7.5					BH	11/7
A2-18 /	1	21	WQ Surr	3	5.4	3	15.9	3	28	3	7.2					JO	11/8
A2-18 /	2	21	WQ Surr	4	5.4	4	16.4	1	28	1	7.4					JO	11/9
A2-18 /	3	21	WQ Surr	4	4.5 ②	4	16.2	1	28	1	7.5					JO	11/10
A2-18 /	4	21	WQ Surr														

① IE 11.7.08 ↓

② ~~Began aeration 11/10~~ Test ended today not needed 11/10

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16.15±1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A2-21 /	0	4	WQ Surr	4	6.5	4	16.1	1	28	1	7.3					BH	11/7
A2-21 /	1	4	WQ Surr	3	5.4	3	16.2	3	28	3	7.1					JO	11/8
A2-21 /	2	4	WQ Surr	4	4.8①	4	16.8	1	28	1	7.1					JO	11/9
A2-21 /	3	4	WQ Surr	4	8.1	4	16.0	1	28	1	7.5					JO	11/10
A2-21 /	4	4	WQ Surr														
A2-25 /	0	42	WQ Surr	4	7.8	4	16.2	1	28	1	7.6					JO	11/7
A2-25 /	1	42	WQ Surr	3	5.5	3	15.6	3	28	3	7.5					JO	11/8
A2-25 /	2	42	WQ Surr	4	5.7	4	16.1	1	28	1	7.5					JO	11/9
A2-25 /	3	42	WQ Surr	4	5.1	4	16.1	1	28	1	7.5					JO	11/10
A2-25 /	4	42	WQ Surr														
A2-36 /	0	108	WQ Surr	4	7.7	4	16.4	1	28	1	7.6					JO	11/7
A2-36 /	1	108	WQ Surr	3	5.3	3	15.6	3	28	3	7.5					JO	11/8
A2-36 /	2	108	WQ Surr	4	4.7②	4	16.2	1	28	1	7.4					JO	11/9
A2-36 /	3	108	WQ Surr	4	7.2	4	16.0	1	28	1	7.4					JO	11/10
A2-36 /	4	108	WQ Surr														

① Began aeration 11/9/08 JLO

② Began aeration 11/9/08

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16±1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A3-05E /	0	86	WQ Surr	4	7.6	4	16.4	1	28	1	7.4					✓	11/7
A3-05E /	1	86	WQ Surr	3	5.3	3	15.7	3	28	3	7.4					JO	11/8
A3-05E /	2	86	WQ Surr	4	6.4	4	16.6	1	27	1	7.5					JO	11/9
A3-05E /	3	86	WQ Surr	4	7.1	4	16.4	1	28	1	7.5					JO	11/10
A3-05E /	4	86	WQ Surr														
A3-07B /	0	83	WQ Surr	4	7.1	4	16.1	1	28	1	7.5					✓	11/7
A3-07B /	1	83	WQ Surr	3	6.0	3	15.9	3	28	3	7.3					JO	11/8
A3-07B /	2	83	WQ Surr	4	6.2	4	16.4	1	28	1	7.4					JO	11/9
A3-07B /	3	83	WQ Surr	4	6.6	4	16.4	1	28	1	7.5					JO	11/10
A3-07B /	4	83	WQ Surr														
A4-08B /	0	87	WQ Surr	4	7.1	4	15.9	1	28	1	7.4					✓	11/7
A4-08B /	1	87	WQ Surr	3	5.9	3	15.6	3	27	3	7.4					JO	11/8
A4-08B /	2	87	WQ Surr	4	6.3	4	16.6	1	27	1	7.4					JO	11/9
A4-08B /	3	87	WQ Surr	4	6.6	4	16.3	1	28	1	7.4					JO	11/10
A4-08B /	4	87	WQ Surr														

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	07Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
Sediment Control /	**0**	107	WQ Surr	4	8.1	4	16.4	1	28	1	7.7					JL	11/7
Sediment Control /	**1**	107	WQ Surr	3	7.5	3	15.9	3	28	3	7.6					do	11/8
Sediment Control /	**2**	107	WQ Surr	4	7.7	4	16.2	1	28	1	7.7					do	11/9
Sediment Control /	**3**	107	WQ Surr	4	7.8	4	16.5	1	28	1	7.7					do	11/10
Sediment Control /	**4**	107	WQ Surr														

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
Port Gardner	Bivalve Larval		48 - 96

PRETEST / ~~INITIAL~~ / FINAL / OTHER (circle one) **DAY of TEST:** 0
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature	
Date:	**Temperature:**
11/7/08	20.0

Sample temperature should be within ±1°C of standards temperature at time and date of analysis.

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control		11/07/08 TS	0.00	18.0	11/07/08 VO	N	NA	NA	0.003
CR-22			0.0926	18.0					0.089
CR-23			0.0567	18.0					0.179
CR-20/24			0.0603	18.5					0.094
A1-01			0.0851	18.0					0.106
A1-03			0.0532	18.0					0.165
A1-07			0.140	18.5					0.096
A1-10			0.0307	18.5					0.089
A1-16			0.0573	18.5					0.128
A1-24			0.00	19.0					0.072
A2-10			0.0235	19.0					0.088
A2-11			0.0199 @ 199 QN	19.0					0.055
A2-13			0.0585	19.0					0.094
A2-14			0.0750	19.0					0.093
A2-18			0.0302	19.0					0.083
A2-21			0.0357	19.0					0.090

① 12 11/7/08

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-25		11/7/08 HTS	0.0194	19.0	11/7/08 dlo	N	NA	NA	0.083
A2-36		↓	0.0302	19.0	↓	↓	↓	↓	0.093
A3-05			0.0561	19.0					OK 0.105
A3-07			0.0288	19.0					0.112
A4-08			0.0064	19.0					0.101
Sed ϕ			0.00	19.5					0.008

① IE 11/7/08 dlo

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	Bivalve larvae		

PRETEST / INITIAL / ~~FINAL~~ / OTHER (circle one) **DAY of TEST: ____**
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	11/10/08 JHO	0.00	19	11/10/08 JHO	N			.002
CR-22	Surr.		0.00						.010
CR-20/24	Surr.		0.00						0.011
A1-01	Surr.		0.00						0.010
A1-03	Surr.		0.00						0.016
A1-07	Surr.		0.00						0.009
A1-10	Surr.		0.00						0.010
A1-16	Surr.		0.00						0.016
A1-24	Surr.		0.00						0.009
A2-10	Surr.		0.00						0.007
A2-11	Surr.		0.00						0.011
A2-13	Surr.		0.107						0.006
A2-14	Surr.		0.00						0.014
A2-18	Surr.		0.00						0.007
A2-21	Surr.		0.00						0.006
A2-25	Surr.		0.00						0.006

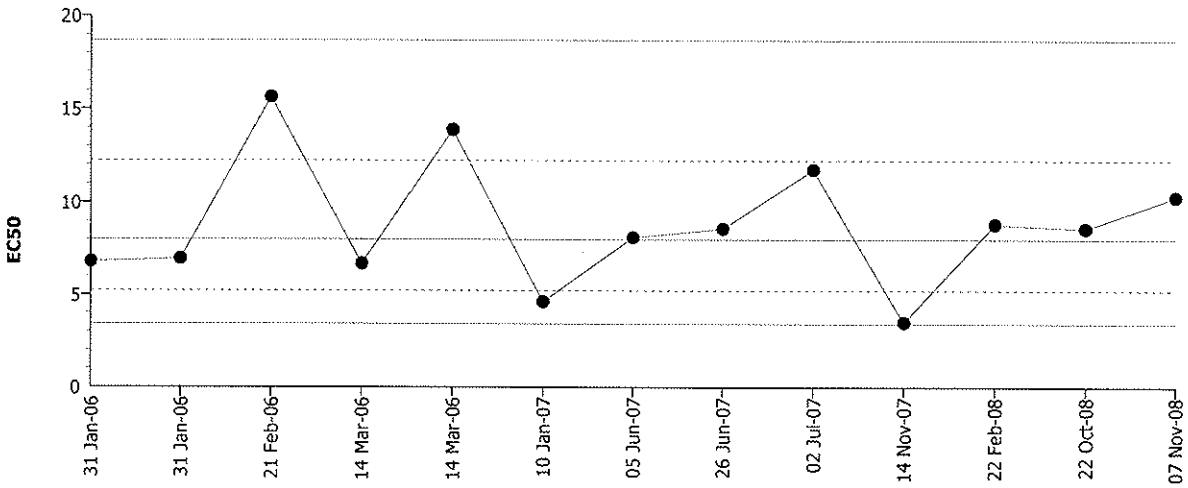
Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-36	Surr.	11/10/08 SHO	0.00	19	11/10/08 JHO	N			0.009
A3-05E	Surr.	↓	0.00	↓	↓	↓			0.007
A3-07B	Surr.		0.00						0.008
A4-08B	Surr.		0.00						0.007
CR-23	Surr.	↓	0.00	↓	↓	↓			0.016
Seed Cntrl	Surr		0.00						0.008

CETIS QC Chart

Report Date: 30 Dec-08 2:47 PM

Mussel Shell Development Test — **NewFields**

Test Type:	Development-Survival	**Organism:**	Mytilus species (Mussel)	**Material:**	Copper sulfate
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Proportion Normal	**Source:**	Reference Toxicant-REF



Mean:	7.99338	**Count:**	12	**-1s Warning Limit:**	5.22741	**-2s Action Limit:**	3.41855
Sigma:		**CV:**	52.91%	**+1s Warning Limit:**	12.2229	**+2s Action Limit:**	18.6904

Quality Control Data

Point	Year	Month	Day	Data	Delta	Sigma	Warning	Action	Test Link	Analysis
1	2006	Jan	31	6.78635	-1.20703	-0.38545			13-7720-1086	09-2249-8461
2			31	6.95016	-1.04322	-0.32929			07-7532-7374	01-6476-6154
3		Feb	21	15.63050	7.63712	1.57902	(+)		13-4991-4803	11-1130-3991
4		Mar	14	6.66272	-1.33066	-0.42874			06-2606-4386	10-2179-5612
5			14	13.87779	5.88441	1.29898	(+)		04-5028-3346	13-6407-7819
6	2007	Jan	10	4.61926	-3.37413	-1.29122	(-)		14-3905-0090	10-4591-2581
7		Jun	5	8.10135	0.10797	0.03159			13-7829-5492	06-3241-4206
8			26	8.58591	0.59252	0.16837			01-3435-1614	05-9641-3061
9		Jul	2	11.74293	3.74955	0.90567			05-4911-0140	17-0573-9257
10		Nov	14	3.49998	-4.49340	-1.94457	(-)		15-3555-7493	11-5553-6060
11	2008	Feb	22	8.81298	0.81960	0.22984			06-6162-8975	04-7060-4398
12		Oct	22	8.57651	0.58313	0.16579			13-5164-0440	04-9649-9989
13		Nov	7	10.28467	2.29129	0.59346			04-0664-9259	15-9012-0568

CETIS Analysis Detail

Mussel Shell Development Test — NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Normal	Comparison	04-0664-9259	04-0664-9259	30 Dec-08 2:42 PM	CETISv1.1.2

Method	Alt H	Data Transform	Zeta	NOEL	LOEL	Toxic Units	ChV	PMSD
Dunnett's Multiple Comparison	C > T	Angular (Corrected)		5	10	20	7.07107	3.87%

Group Comparisons

Control	vs	Conc-µg/L	Statistic	Critical	P-Value	MSD	Decision(0.05)
Dilution Water		2.5	0.84032	2.41651	0.4033	0.08389	Non-Significant Effect
		5	1.28061	2.41651	0.2454	0.08389	Non-Significant Effect
		10	16.0800	2.41651	0.0000	0.08389	Significant Effect

Test Acceptability

Attribute	Statistic	TAC Range	Overlap	Decision
Control Response	0.96176	0.9 - NL	Yes	Passes acceptability criteria

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P-Value	Decision(0.05)
Between	0.6438749	0.214625	3	118.73	0.00000	Significant Effect
Error	0.0144614	0.0018077	8			
Total	0.65833629	0.2164326	11			

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P-Value	Decision(0.01)
Variances	Bartlett	0.53569	11.34487	0.91098	Equal Variances
Distribution	Shapiro-Wilk W	0.89176		0.12417	Normal Distribution

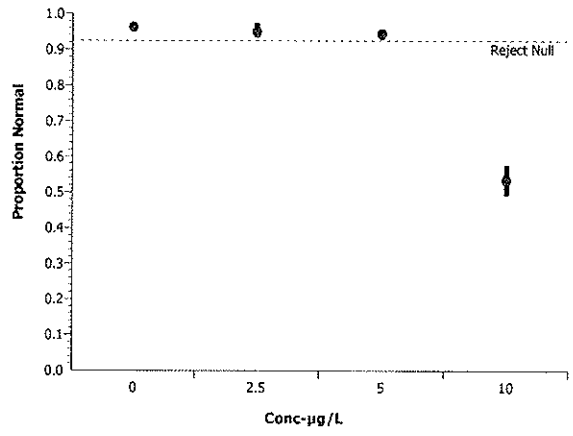
Data Summary

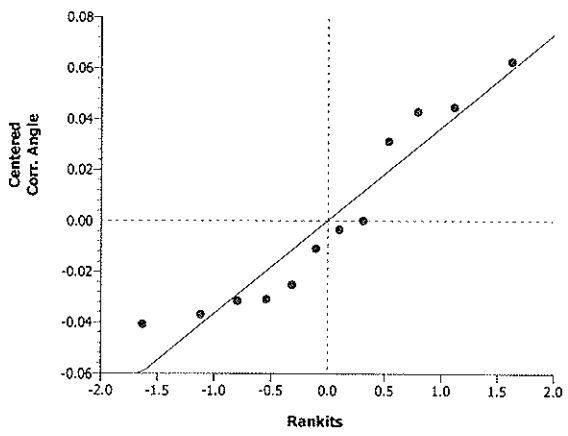
			Original Data				Transformed Data			
Conc-µg/L	Control Type	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
0	Dilution Water	3	0.96176	0.94977	0.97717	0.01402	1.37637	1.34476	1.41912	0.03841
2.5		3	0.94904	0.93359	0.97425	0.02202	1.34720	1.31016	1.40963	0.05438
5		3	0.94344	0.92887	0.95745	0.01430	1.33191	1.30083	1.36302	0.03110
10		3	0.53265	0.49187	0.57692	0.04263	0.81815	0.77727	0.86263	0.04279

Data Detail

Conc-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	0.97717	0.94977	0.95833							
2.5		0.97425	0.93927	0.93359							
5		0.95745	0.94400	0.92887							
10		0.57692	0.49187	0.52915							

Graphics





CETIS Analysis Detail

Report Date: 30 Dec-08 2:44 PM
Analysis: 15-9012-0568

Mussel Shell Development Test — **NewFields**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Normal	Trimmed Spearman-Karber	04-0664-9259	04-0664-9259	30 Dec-08 2:44 PM	CETISv1.1.2

Spearman-Karber Options

Threshold Option	Lower Threshold	Trim	Mu	Sigma
Control Threshold	0.0382263	1.39%	1.01219	0.006160151

Point Estimates

EC50/LC50	95% LCL	95% UCL
10.28467	9.99701	10.58061

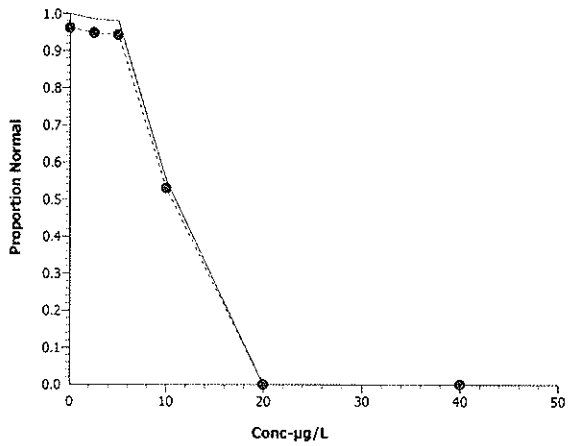
Test Acceptability

Attribute	Statistic	TAC Range	Overlap	Decision
Control Response	0.96176	0.9 - NL	Yes	Passes acceptability criteria

Data Summary

			Calculated Variate(A/B)						
Conc-µg/L	Control Type	Count	Mean	Minimum	Maximum	SE	SD	A	B
0	Dilution Water	3	0.96176	0.94977	0.97717	0.00286	0.01402	629	654
2.5		3	0.94904	0.93359	0.97425	0.00449	0.02202	698	736
5		3	0.94344	0.92887	0.95745	0.00292	0.01430	683	724
10		3	0.53265	0.49187	0.57692	0.00870	0.04263	359	677
20		3	0.00000	0.00000	0.00000	0.00000	0.00000	0	558
40		3	0.00000	0.00000	0.00000	0.00000	0.00000	0	52

Graphics



NEWFIELDS

LARVAL DEVELOPMENT TEST
COPPER REF TOX OBSERVATION SHEET

SPECIES					
Mytilus edulis (mussel)					
CLIENT	**PROJECT**	**JOB NUMBER**	**PROJECT MANAGER**	**NEWFIELDS LAB / LOCATION**	**PROTOCOL**
SAIC	Port Gardner Bath 1	1101-005-860	C. Ray	Port Gamble / Incubator	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	CONC. value	CONC. units	VIAL NUMBER	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS
Ref.Tox. - Copper	0	µg/L		1	214	5		CR	
				2	208	11			
				3	207	9			
Ref.Tox. - Copper	2.5	µg/L		1	227	6			
				2	232	15			
				3	239	17			
Ref.Tox. - Copper	5	µg/L		1	225	10			
				2	236	14			
				3	222	17			
Ref.Tox. - Copper	10	µg/L		1	120	88			
				2	121	125			
				3	118	105			
Ref.Tox. - Copper	20	µg/L		1	0	173			
				2	0	186			
				3	0	199			
Ref.Tox. - Copper	40	µg/L		1	0	12			
				2	0	13			
				3	0	27			
STOCKING DENSITY				1		~~2490~~①			
				2		~~276~~①			
				3		~~260~~①			

①WP- stocking density containers lost

NEWFIELDS

LARVAL DEVELOPMENT TEST
COPPER REF TOX WQ

CLIENT	PROJECT	SPECIES	NEWFIELDS LAB / LOCATION		PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*	Port Gamble .		PSEP (1995)
JOB NUMBER	PROJECT MANAGER	QUANTITY OF TOXICANT: 0.039 mL	QUANTITY OF DILUENT: 500mL		INIT BH
1101-005-860	C. Ray	0.039	ACTUAL: 500		
TEST ID P070930.86	LOT #: 1704237	TEST START DATE: 07Nov08	TIME 1645	TEST END DATE	TIME

WATER QUALITY DATA

DILTIN.WAT.BATCH	TEMP REC#	REFERENCE TOX. MATERIAL	REFERENCE TOXXICANT
		Copper Sulfate	Copper

					DO (mg/L)		TEMP(C)		SAL (ppt)		pH		TECH.	DATE
					>4.8		15 ± 1		28 ± 1		7.8 ± 0.5			
CLIENT/ NEWFIELDS ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit		
Ref.Tox.-Copper	0	µg/L	0	Stock	4	7.8	4	16.4	1	27	1	7.4	BH	11/7
			1	Stock	4	8.2	4	16.5	1	27	1	7.4	JO	11/8
			2	Stock	4	8.2	4	16.0	1	28	1	7.4	JO	11/9
			3	Stock	4	8.2	4	15.9	1	29	1	7.7	JO	11/10
			4	Stock										
Ref.Tox.-Copper	2.5	µg/L	0	Stock	4	7.9	4	15.9	1	28	1	7.6	BH	11/7
			1	Stock	4	8.4	4	16.0	1	28	1	7.5	JO	11/8
			2	Stock	4	8.4	4	~~16.0~~ 15.3	1	29	1	7.6	JO	11/9
			3	Stock	4	8.3	4	15.8	1	29	1		JO	11/10
			4	Stock										
Ref.Tox.-Copper	5	µg/L	0	Stock	4	8.0	4	15.7	1	28	1	7.6	BH	11/7
			1	Stock	4	8.5	4	15.8	1	28	1	7.6	JO	11/8
			2	Stock	4	8.5	4	15.0	1	29	1	7.7	JO	11/9
			3	Stock	4	8.5	4	②16.15.6	1	30	1	7.8	JO	11/10
			4	Stock										
Ref.Tox.-Copper	10	µg/L	0	Stock	4	8.0	4	15.5	1	28	1	7.7	BH	11/7
			1	Stock	4	8.5	4	15.7	1	28	1	7.7	JO	11/8
			2	Stock	4	8.6	4	15.0	1	29	1	7.8	JO	11/9
			3	Stock	4	8.4	4	15.6	1	30	1	7.8	JO	11/10
			4	Stock										
Ref.Tox.-Copper	20	µg/L	0	Stock	4	8.1	4	15.4	1	28	1	7.7	BH	11/7
			1	Stock	4	8.5	4	15.7	1	28	1	7.7	JO	11/8
			2	Stock	4	8.6	4	14.9	1	29	1	7.8	JO	11/9
			3	Stock	4	8.5	4	15.7	1	30	1	7.8	JO	11/10
			4	Stock										
Ref.Tox.-Copper	40	µg/L	0	Stock	4	8.1	4	15.3	1	28	1	7.7	BH	11/7
			1	Stock	4	8.5	4	15.6	1	28	1	7.7	JO	11/8
			2	Stock	4	8.6	4	14.8	1	29	1	7.8	JO	11/9
			3	Stock	4	8.5	4	15.5	1	30	1	7.9	JO	11/10
			4	Stock										

① IE JHO 11/9

② MR JHO 11/10

NEWFIELDS

ORGANISM RECEIPT LOG

Date:	Time:	NewFields Batch No.
11/6/08	1640	CA 4510

Organism:	Source:
Mytilus spp.	Carlsbad aquafarms

Address:	Invoice Attached
on file	Yes (No)

Phone:	Contact:
on file	on file

No. Ordered:	No. Received:	Source Batch:
1 batch	1 batch	Adult (field coll.)

Condition of Organisms:	Approximate Size or Age:
Good	Adult

Shipper:	B of L (Tracking No.)
Fed ex	7980 5649 4510

Condition of Container:	Received By:
Good	✓

Confirmation of ID of Organism:	Technician (Initials):
Yes (No)	

Notes:

pH (Units)	Temp. (°C)	D.O. (mg/L)	Conductivity or Salinity (Include Units)	Technician (Initials)
*				

Notes: * Arrived dry no WQ.

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

.665 = 181.9

SPECIES					
Mytilus edulis (mussel)					
CLIENT	PROJECT	JOB NUMBER	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER	DATE	TECHNICIAN	COMMENTS
291.4 STOCKING DENSITY	1		284	12/2/08	GR	
	2		298			
	3		293			
	4		294			
	5		288			
279.0 96.02% Control /	1	264	12			1
	2	272	9			
	3	295	9			
	4	293	4			
	5	275	12			
~~150.7~~ ~~53.9%~~ CR-20/24-65-S / 166.4 59%	1	144	6			6
	2	132	2			QA Count 123/8 BH
	3	175	2			
	4	161	3			
	5	220	2			
99.8 31.7 CR-23-49 /	1	102	0			11
	2	83	1			
	3	98	3			QA Count 91/6 BH
	4	89	1			
	5	72	6			
165.2 85.0 SB-REF-76 /	1	165	1			QA Count 163/6 BH 16
	2	146	3			
	3	176	1			
	4	175	2			
	5	164	3			

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

SPECIES					
Mytilus edulis (mussel)					
CLIENT	PROJECT	JOB NUMBER	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER	DATE	TECHNICIAN	COMMENTS	
44.96 SB-REF-48 / 125.8	1	124	1	12/2/08	CR		21
	2	139	0				
	3	132	2				
	4	120	1				
	5	114	1			QA Count BH 111/3	
A2-21-S /	1	145	40				26
	2	121	32				
	3	124	29				
	4	137	37				
	5	119	27				
A1-07-S /	1	111	13				31
	2	183	14				
	3	110	12				
	4	164	16				
	5	111	25				
A1-03-S /	1	73	7	12/3/08	CR		36
	2	95	6				
	3	68	8				
	4	66	9				
	5	60	6				
A1-01-S /	1	39	27				41
	2	70	13				
	3	45	13				
	4	87	15				
	5	40	14				

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

CLIENT	PROJECT	JOB NUMBER	SPECIES	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	*Mytilus edulis (mussel)*	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER	DATE	TECHNICIAN	COMMENTS	
A2-13-S /	1	148	37	12/3/08	CR		46
	2	147	30				
	3	213	16				
	4	159	32				
	5	218	25				
A2-18-S /	1	186	9				51
	2	135	6				
	3	97	5				
	4	174	7				
	5	187	5				
A2-25-S /	1	177	23				56
	2	191	22				
	3	169	13				
	4	168	25				
	5	128	15				
A4-08B-S /	1	84	18				61
	2	74	10				
	3	70	26				
	4	58	27				
	5	81	27				
A3-07B-S /	1	94	71				66
	2	132	69				
	3	111	75				
	4	101	52				
	5	139	64				

NEWFIELDS

LARVAL DEVELOPMENT TEST
ENDPOINT DATA

SPECIES					
Mytilus edulis (mussel)					
CLIENT	PROJECT	JOB NUMBER	PROJECT MANAGER	NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	1101-005-860	C. Ray	Port Gamble / .	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	REP	NUMBER NORMAL	NUMBER	DATE	TECHNICIAN	COMMENTS
Sediment Control /	1	238	5	12/3/08	CR	
	2	247	5	↓	↓	
	3	258	5			
	4	238	4			
	5	240	3	↓	↓	
/	1					
	2					
	3					
	4					
	5					
/	1					
	2					
	3					
	4					
	5					
/	1					
	2					
	3					
	4					
	5					
/	1					
	2					
	3					
	4					
	5					

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LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	26Nov08	1840	11/28/08	1830

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT / NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
Control /	0	74	WQ Surr	4	7.5	4	16.6	1	27	1	7.6	CR	<0.5	BH	0.009	BH	11/26
Control /	1	74	WQ Surr	4	7.6	4	16.6	1	27	1	7.7					BH	11/27
Control /	2	74	WQ Surr	4	7.8	4	16.6	1	27	1	7.9			~~CR~~	~~<0.5~~ ①	CR	11/28
Control /	3	74	WQ Surr														
Control /	4	74	WQ Surr														
CR-20/24-65-S /	0	54	WQ Surr	4	7.0	4	16.5	1	27	1	7.7	CR	<0.5	BH	0.102	BH	11/26
CR-20/24-65-S /	1	54	WQ Surr	4	5.9	4	16.6	1	27	1	7.7					BH	11/27
CR-20/24-65-S /	2	54	WQ Surr	4	5.9	4	16.7	1	27	1	7.8			CR		CR	11/28
CR-20/24-65-S /	3	54	WQ Surr														
CR-20/24-65-S /	4	54	WQ Surr														
CR-23-49 /	0	3	WQ Surr	4	7.3	4	16.6	1	27	1	7.5	CR	<0.5	BH	0.135	BH	11/26
CR-23-49 /	1	3	WQ Surr	4	6.6	4	16.1	1	27	1	7.7					BH	11/27
CR-23-49 /	2	3	WQ Surr	4	6.0	4	16.8	1	27	1	7.8					CR	11/28
CR-23-49 /	3	3	WQ Surr														
CR-23-49 /	4	3	WQ Surr														

① WC CR 12/3/08

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	26Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
SB-REF-76 /	0	28A	WQ Surr	4	6.9	4	16.3	1	27	1	7.7	CR	<0.5	BH	0.099	BH	11/26
SB-REF-76 /	1	28A	WQ Surr	4	6.3	4	16.4	1	27	1	7.7					BH	11/27
SB-REF-76 /	2	28A	WQ Surr	4	6.2	4	16.5	1	27	1	7.7					CR	11/28
SB-REF-76 /	3	28A	WQ Surr														
SB-REF-76 /	4	28A	WQ Surr														
SB-REF-48 /	0	62A	WQ Surr	4	7.0	4	16.6	1	27	1	7.7	CR	<0.5	BH	0.105	BH	11/26
SB-REF-48 /	1	62A	WQ Surr	4	6.6	4	16.7	1	27	1	7.8			"		BH	11/27
SB-REF-48 /	2	62A	WQ Surr	4	6.5	4	16.6	1	27	1	7.7					CR	11/28
SB-REF-48 /	3	62A	WQ Surr														
SB-REF-48 /	4	62A	WQ Surr														
A2-21-S /	0	65	WQ Surr	4	7.0	4	16.5	1	27	1	7.7	CR	<0.5	BH	0.050	BH	11/26
A2-21-S /	1	65	WQ Surr	4	6.8	4	16.6	1	27	1	7.6					BH	11/27
A2-21-S /	2	65	WQ Surr	4	6.2	4	16.5	1	27	1	7.6					CR	11/28
A2-21-S /	3	65	WQ Surr														
A2-21-S /	4	65	WQ Surr														

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	26Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A1-07-S /	0	27	WQ Surr	4	5.1	4	16.0	1	27	1	7.7	CR	<0.5	BH	0.057	BH	11/26
A1-07-S /	1	27	WQ Surr	4	6.0	4	16.5	1	27	1	7.7					BH	11/27
A1-07-S /	2	27	WQ Surr	4	5.9	4	16.5	1	27	1	7.6					CR	11/28
A1-07-S /	3	27	WQ Surr														
A1-07-S /	4	27	WQ Surr														
A1-03-S /	0	15	WQ Surr	4	7.1	4	16.2	1	27	1	7.5	CR	<0.5	BH	0.109	MMB	11/26
A1-03-S /	1	15	WQ Surr	4	5.9	4	16.3	1	27	1	7.6					BH	11/27
A1-03-S /	2	15	WQ Surr	4	6.0	4	16.4	1	27	1	7.6					CR	11/28
A1-03-S /	3	15	WQ Surr														
A1-03-S /	4	15	WQ Surr														
A1-01-S /	0	53	WQ Surr	4	7.3	4	16.4	1	27	1	7.7	CR	<0.5	BH	0.065	BH	11/26
A1-01-S /	1	53	WQ Surr	4	6.9	4	16.5	1	27	1	7.7					BH	11/27
A1-01-S /	2	53	WQ Surr	4	6.1	4	16.6	1	27	1	7.6					CR	11/28
A1-01-S /	3	53	WQ Surr														
A1-01-S /	4	53	WQ Surr														

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	26Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O.		TEMP.		SALINITY		pH		AMMONIA		SULFIDE			
				meter	mg/L	meter	°C	meter	ppt	meter	unit	Techn.	mg/L (total)	Techn.	ug/L (Total)		
A2-13-S /	0	59	WQ Surr	4	6.9	4	16.5	1	27	1	7.7	CR	<0.5	BH	0.048	BH	11/26
A2-13-S /	1	59	WQ Surr	4	7.1	4	16.7	1	27	1	7.7					BH	11/27
A2-13-S /	2	59	WQ Surr	4	6.8	4	16.7	1	27	1	7.6					CR	11/28
A2-13-S /	3	59	WQ Surr														
A2-13-S /	4	59	WQ Surr														
A2-18-S /	0	43	WQ Surr	4	7.1	4	16.5	1	27	1	7.7	CR	<0.5	BH	0.058	BH	11/26
A2-18-S /	1	43	WQ Surr	4	7.2	4	16.4	1	27	1	7.7					BH	11/27
A2-18-S /	2	43	WQ Surr	4	7.1	4	16.7	1	27	1	7.6					CR	11/28
A2-18-S /	3	43	WQ Surr														
A2-18-S /	4	43	WQ Surr														
A2-25-S /	0	68	WQ Surr	4	6.9	4	16.5	1	27	1	7.5	CR	<0.5	BH	0.054	BH	11/26
A2-25-S /	1	68	WQ Surr	4	6.8	4	16.7	1	27	1	7.6					BH	11/27
A2-25-S /	2	68	WQ Surr	4	6.5	4	16.7	1	27	1	7.6					CR	11/28
A2-25-S /	3	68	WQ Surr														
A2-25-S /	4	68	WQ Surr														

LARVAL DEVELOPMENT TEST
WATER QUALITY DATA

CLIENT	PROJECT	SPECIES		NEWFIELDS LAB / LOCATION	PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*		Port Gamble / .	PSEP (1995)
JOB NUMBER	**PROJECT MANAGER**	**TEST START DATE**	**TIME**	**TEST END DATE**	**TIME**
1101-005-860	C. Ray	26Nov08			

* Day 3&4 observations needed only if development endpoint not met by day 2

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) >4.8		Temp (°C) 16 ± 1		Sal (ppt) 28 ± 1		pH 7.8 ± 0.5		Ammonia NA		Sulfide NA		TECH	DATE
CLIENT/ NEWFIELDS ID	DAY	Random #	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	AMMONIA Techn.	AMMONIA mg/L (total)	SULFIDE Techn.	SULFIDE ug/L (Total)		
A4-08B-S /	0	7	WQ Surr	4	6.7	4	16.2	1	27	1	7.6	CR	<0.5	BH	0.042	BH	11/26
A4-08B-S /	1	7	WQ Surr	4	~~6.4~~ 6.3	4	~~16.1~~ 16.3	1	~~27~~ 27	1	~~7.3~~ 7.6					~~BH MMB~~ BH	~~11/27~~ 11/27 ① ~~11/27~~
A4-08B-S /	2	7	WQ Surr	4	6.5	4	16.5	1	27	1	7.6					CR	11/28
A4-08B-S /	3	7	WQ Surr														
A4-08B-S /	4	7	WQ Surr														
A3-07B-S /	0	64	WQ Surr	4	7.3	4	16.6	1	27	1	7.6	CR	<0.5	BH	0.061	BH	11/26
A3-07B-S /	1	64	WQ Surr	4	6.6	4	16.6	1	27	1	7.7					BH	11/27
A3-07B-S /	2	64	WQ Surr	4	6.7	4	16.6	1	27	1	7.5					CR	11/28
A3-07B-S /	3	64	WQ Surr														
A3-07B-S /	4	64	WQ Surr														
Sediment Control /	0	16	WQ Surr	4	7.5	4	16.2	1	27	1	7.6	CR	<0.5	BH	0.008	BH	11/26
Sediment Control /	1	16	WQ Surr	4	7.6	4	16.3	1	27	1	7.7					BH	11/27
Sediment Control /	2	16	WQ Surr	4	7.5	4	16.6	1	27	1	7.6					CR	11/28
Sediment Control /	3	16	WQ Surr														
Sediment Control /	4	16	WQ Surr														

① SM, MMB 11/26

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	NA		

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST: _____**
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	Temperature:	
12/3/08	20	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
CR-23	Bulk	12/3/08CR	4.21	20	12/3/08CR	N	7.4	31	
CR-20/24	↓	↓	6.40	20	↓	↓	7.4	31	
SB-Ref-76			2.30	20			7.4	32	
SB-Ref-48			2.27	20			7.1	31	

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project: Batch #2	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	Bivalve Larvae		

PRETEST / ~~INITIAL~~ / ~~FINAL~~ / OTHER (circle one) **DAY of TEST: _____**
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	
11/28/08	18.5	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	CR 11/28/08	<0.5	18.0	11/28/08 CR				0.000
CR-20/24			20.5						0.022
CR-23			<0.5						0.016
SB-REF-76			<0.5						0.016
SB-REF-48			<0.5						0.014
A2-21			<0.5						0.006
A1-07			<0.5						0.007
A1-03			<0.5						0.011
A1-01			<0.5						0.008
A2-13			<0.5						0.011
A2-18			<0.5						0.007
A2-25			<0.5						0.011 ~~0.00~~ (1)
A4-08			<0.5						0.014
A3-07			<0.5						0.009
Sediment Ø			<0.5						0.002

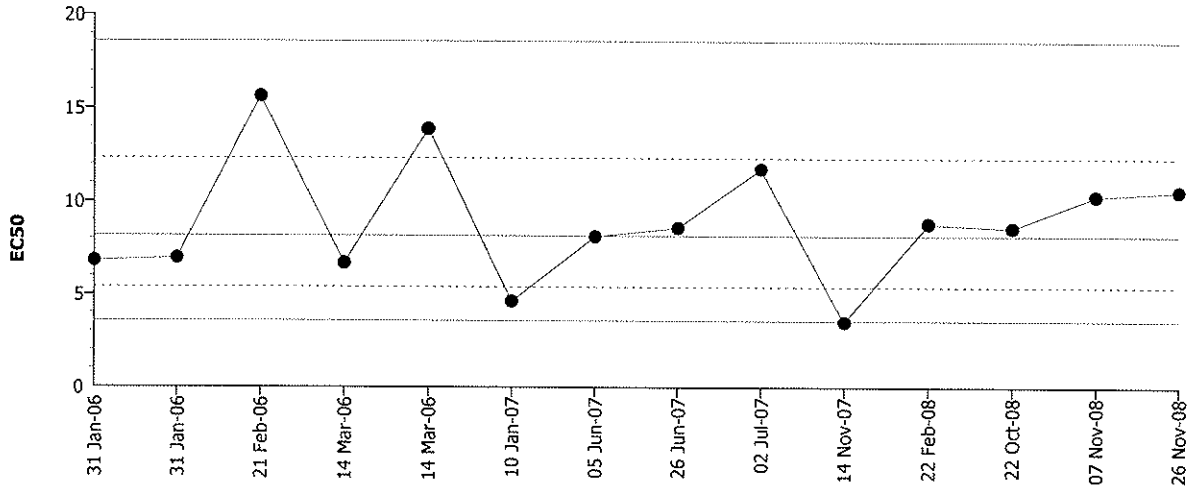
Ø IE CR 11/28

CETIS QC Chart

Report Date: 30 Dec-08 3:01 PM

Mussel Shell Development Test — **NewFields**

Test Type:	Development-Survival	**Organism:**	Mytilus species (Mussel)	**Material:**	Copper sulfate
Protocol:	EPA/600/R-95/136 (1995)	**Endpoint:**	Proportion Normal	**Source:**	Reference Toxicant-REF



Mean:	8.14987	**Count:**	13	**-1s Warning Limit:**	5.39471	**-2s Action Limit:**	3.57096
Sigma:		**CV:**	51.07%	**+1s Warning Limit:**	12.3121	**+2s Action Limit:**	18.6001

Quality Control Data

Point	Year	Month	Day	Data	Delta	Sigma	Warning	Action	Test Link	Analysis
1	2006	Jan	31	6.78635	-1.36352	-0.44376			13-7720-1086	09-2249-8461
2			31	6.95016	-1.19971	-0.38595			07-7532-7374	01-6476-6154
3		Feb	21	15.63050	7.48063	1.57840	(+)		13-4991-4803	11-1130-3991
4		Mar	14	6.66272	-1.48715	-0.48832			06-2606-4386	10-2179-5612
5			14	13.87779	5.72792	1.29014	(+)		04-5028-3346	13-6407-7819
6	2007	Jan	10	4.61926	-3.53061	-1.37613	(-)		14-3905-0090	10-4591-2581
7		Jun	5	8.10135	-0.04852	-0.01447			13-7829-5492	06-3241-4206
8			26	8.58591	0.43604	0.12633			01-3435-1614	05-9641-3061
9		Jul	2	11.74293	3.59306	0.88528			05-4911-0140	17-0573-9257
10		Nov	14	3.49998	-4.64989	-2.04866	(-)	(-)	15-3555-7493	11-5553-6060
11	2008	Feb	22	8.81298	0.66312	0.18960			06-6162-8975	04-7060-4398
12		Oct	22	8.57651	0.42664	0.12367			13-5164-0440	04-9649-9989
13		Nov	7	10.28467	2.13480	0.56389			04-0664-9259	15-9012-0568
14			26	10.55630	2.40643	0.62708			07-6413-7392	10-6034-3466

CETIS Analysis Detail

Mussel Shell Development Test — NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Normal	Comparison	07-6413-7392	07-6413-7392	30 Dec-08 2:56 PM	CETISv1.1.2

Method	Alt H	Data Transform	Zeta	NOEL	LOEL	Toxic Units	ChV	PMSD
Dunnett's Multiple Comparison	C > T	Angular (Corrected)		5	10	20	7.07107	5.24%

Group Comparisons

Control	vs	Conc-µg/L	Statistic	Critical	P-Value	MSD	Decision(0.05)
Dilution Water		2.5	-0.6335	2.46559	0.9395	0.10094	Non-Significant Effect
		5	0.23965	2.46559	0.7145	0.10094	Non-Significant Effect
		10	13.5701	2.46559	0.0000	0.10094	Significant Effect
		20	27.9430	2.46559	0.0000	0.10094	Significant Effect

Test Acceptability

Attribute	Statistic	TAC Range	Overlap	Decision
Control Response	0.95609	0.9 - NL	Yes	Passes acceptability criteria

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P-Value	Decision(0.05)
Between	3.153992	0.7884981	4	313.63	0.00000	Significant Effect
Error	0.0251410	0.0025141	10			
Total	3.17913344	0.7910122	14			

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P-Value	Decision(0.01)
Variances	Bartlett	6.35006	13.27670	0.17449	Equal Variances
Distribution	Shapiro-Wilk W	0.95293		0.57167	Normal Distribution

Data Summary

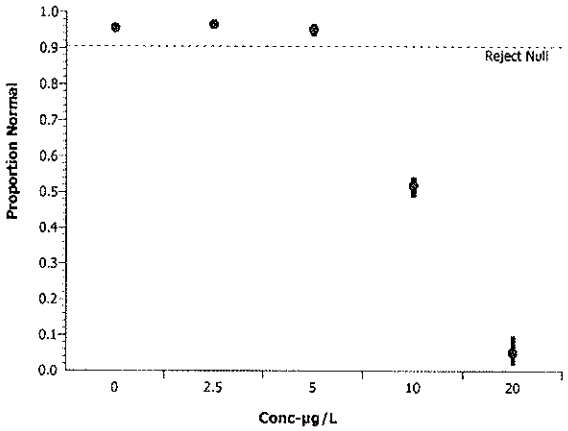
			Original Data				Transformed Data			
Conc-µg/L	Control Type	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
0	Dilution Water	3	0.95609	0.95122	0.96416	0.00703	1.36015	1.34810	1.38033	0.01758
2.5		3	0.96594	0.95720	0.97394	0.00839	1.38609	1.36241	1.40866	0.02315
5		3	0.95111	0.93361	0.96918	0.01779	1.35034	1.31019	1.39432	0.04219
10		3	0.51917	0.48810	0.54478	0.02873	0.80459	0.77349	0.83023	0.02876
20		3	0.05146	0.01724	0.09881	0.04234	0.21617	0.13169	0.31977	0.09549

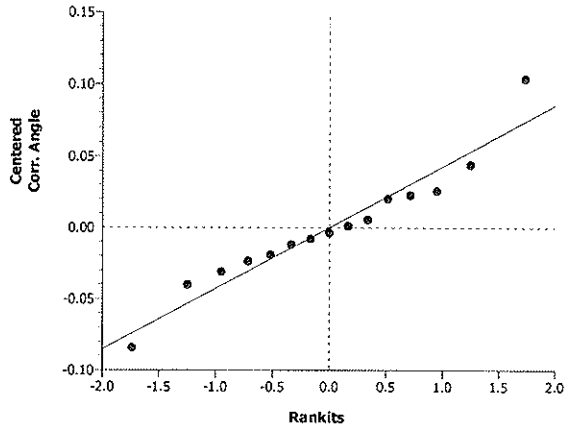
CETIS Analysis Detail

Data Detail

Conc-µg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	0.95122	0.95290	0.96416							
2.5		0.97394	0.95720	0.96667							
5		0.93361	0.95053	0.96918							
10		0.54478	0.52465	0.48810							
20		0.09881	0.03833	0.01724							

Graphics





CETIS Analysis Detail

Mussel Shell Development Test — NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Normal	Linear Regression	07-6413-7392	07-6413-7392	30 Dec-08 2:56 PM	CETISv1.1.2

Linear Regression Options

Model Function	Threshold Option	Threshold	Threshold Opt	Reweighted	Pooled Groups	Het Corr
Log-Normal [NED=A+B*log(X)]	Control Threshold	0.04394299	Yes	Yes	No	No

Regression Summary

Iters	Log Likelihood	Mu	Sigma	G	Chi-Sq	Critical	P-Value	Decision(0.05)
11	-798.85370	-0.19410	0.16588	0.00668	6.54568	9.48773	0.16193	Non-Significant Heterogeneity

Point Estimates

% Effect	Conc-µg/L	95% LCL	95% UCL
10	6.470306	6.092219	6.818376
15	7.105353	6.737174	7.444696
20	7.654232	7.295957	7.985623
25	8.158792	7.809914	8.483322
40	9.58266	9.254876	9.896948
50	10.5563	10.23103	10.8785

Test Acceptability

Attribute	Statistic	TAC Range	Overlap	Decision
Control Response	0.95609	0.9 - NL	Yes	Passes acceptability criteria

Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Statistic	P-Value	Decision(0.05)
Threshold	0.0357111	0.004284305	0.02731386	0.04410834	8.335	0.00000	Significant
Slope	6.02836	0.2513261	5.535761	6.520959	23.986	0.00000	Significant
Intercept	-1.170098	0.255475	-1.670829	-0.6693676	-4.580	0.00052	Significant

Residual Analysis

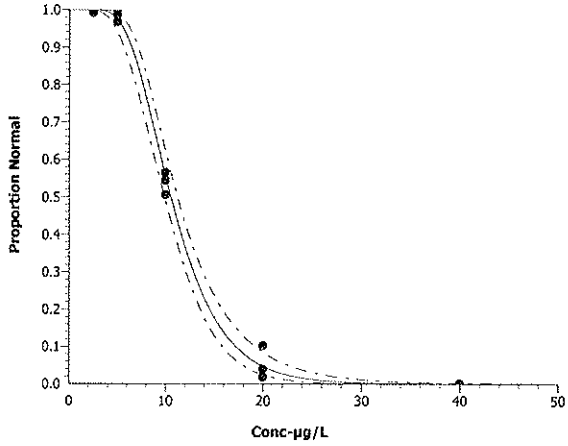
Attribute	Method	Statistic	Critical	P-Value	Decision(0.05)
Variances	Bartlett	18.46065	9.48773	0.00100	Unequal Variances
Distribution	Shapiro-Wilk W	0.8833437		0.05324	Normal Distribution

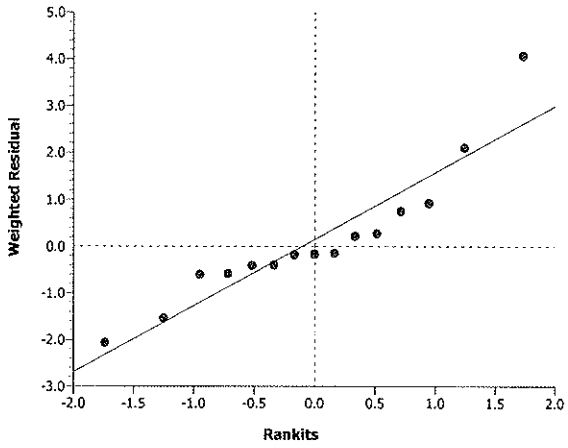
Data Summary

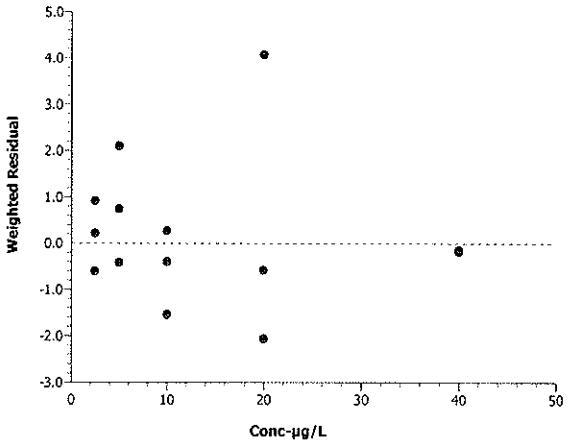
			Calculated Variate(A/B)						
Conc-µg/L	Control Type	Count	Mean	Minimum	Maximum	SE	SD	A	B
0	Dilution Water	3	0.95609	0.95122	0.96416	0.00144	0.00703	805	842
2.5		3	0.96594	0.95720	0.97394	0.00171	0.00839	806	834
5		3	0.95111	0.93361	0.96918	0.00363	0.01779	777	816
10		3	0.51917	0.48810	0.54478	0.00587	0.02873	418	804
20		3	0.05146	0.01724	0.09881	0.00864	0.04234	40	772
40		3	0.00000	0.00000	0.00000	0.00000	0.00000	0	354

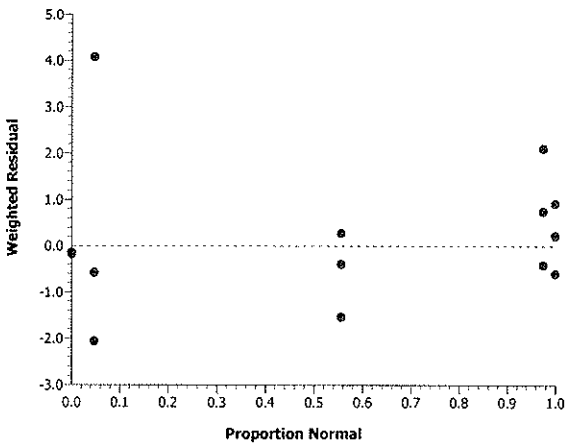
CETIS Analysis Detail

Graphics









NEWFIELDS

LARVAL DEVELOPMENT TEST
COPPER REF TOX OBSERVATION SHEET

SPECIES					
Mytilus edulis (mussel)					
CLIENT	**PROJECT**	**JOB NUMBER**	**PROJECT MANAGER**	**NEWFIELDS LAB / LOCATION**	**PROTOCOL**
SAIC	Port Gardner Batch2	1101-005-860	C. Ray	Port Gamble / Incubator	PSEP (1995)

LARVAL OBSERVATION DATA

CLIENT/ NEWFIELDS ID	CONC. value	CONC. units	VIAL NUMBER	REP	NUMBER NORMAL	NUMBER ABNORMAL	DATE	TECHNICIAN	COMMENTS
Ref.Tox. - Copper	0	µg/L		1	273	14		CR	
				2	263	13			
				3	269	10			
Ref.Tox. - Copper	2.5	µg/L		1	299	8			
				2	246	11			
				3	261	9			
Ref.Tox. - Copper	5	µg/L		1	225	16			
				2	269	14			
				3	283	9			
Ref.Tox. - Copper	10	µg/L		1	146	122			
				2	149	135			
				3	123	129			
Ref.Tox. - Copper	20	µg/L		1	25	228			
				2	11	276			
				3	4	228			
Ref.Tox. - Copper	40	µg/L		1	0	94			
				2	0	122			
				3	0	138		↓	
STOCKING DENSITY				1		249			
				2		276			
				3		260			

NEWFIELDS

LARVAL DEVELOPMENT TEST
COPPER REF TOX WQ

CLIENT	PROJECT	SPECIES	NEWFIELDS LAB / LOCATION		PROTOCOL
SAIC	Port Gardner	*Mytilus edulis (mussel)*	Port Gamble .		PSEP (1995)
JOB NUMBER	PROJECT MANAGER	QUANTITY OF TOXICANT: 0.039 mL	QUANTITY OF DILUENT: 500mL		INIT
1101-005-860	C. Ray	0.039	ACTUAL: 500		
TEST ID: P070930.88	LOT #: 1704237	TEST START DATE: 26Nov08	TIME: 1900	TEST END DATE	TIME

WATER QUALITY DATA

DILTIN.WAT.BATCH	TEMP REC#	REFERENCE TOX. MATERIAL	REFERENCE TOXXICANT
.		Copper Sulfate	Copper

					DO (mg/L)		TEMP(C)		SAL (ppt)		pH			
					>4.8		16.5 ± 1		28 ± 1		7.8 ± 0.5			
CLIENT/ NEWFIELDS ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	TECH.	DATE
Ref.Tox.-Copper	0	µg/L	0	Stock	4	8.1	4	17.0	M1	27	M1	7.6	CW	11/26
			1	Stock	4	8.2	4	16.5	M1	28	M1	7.8	BH	11/27
			2	Stock										
			3	Stock										
			4	Stock										
Ref.Tox.-Copper	2.5	µg/L	0	Stock	4	8.2	4	16.7	1	27	1	7.7	CW	11/26
			1	Stock	4	8.3	4	16.4	1	27	1	7.9	BH	11/27
			2	Stock										
			3	Stock										
			4	Stock										
Ref.Tox.-Copper	5	µg/L	0	Stock	4	8.2	4	16.7	1	27	1	7.7	CW	11/26
			1	Stock	4	8.3	4	16.3	1	28	1	7.9	BH	11/27
			2	Stock										
			3	Stock										
			4	Stock										
Ref.Tox.-Copper	10	µg/L	0	Stock	4	8.2	4	16.7	1	27	1	7.7	CW	11/26
			1	Stock	4	8.3	4	16.4	1	28	1	7.9	BH	11/27
			2	Stock										
			3	Stock										
			4	Stock										
Ref.Tox.-Copper	20	µg/L	0	Stock	4	8.3	4	16.5	1	27	1	7.7	CW	11/26
			1	Stock	4	8.3	4	16.4	1	27	1	7.9	BH	11/27
			2	Stock										
			3	Stock										
			4	Stock										
Ref.Tox.-Copper	40	µg/L	0	Stock	4	8.3	4	16.1	1	27	1	7.8	CW	11/26
			1	Stock	4	8.3	4	16.3	1	28	1	7.9	BH	11/27
			2	Stock										
			3	Stock										
			4	Stock										

NEWFIELDS

ORGANISM RECEIPT LOG

Date:	Time:	NewFields Batch No.
11/18/08	1630	CA 8786

Organism:	Source:
Mytilus sp.	Carlsbad Aquafarms

Address:	Invoice Attached
On File	(Yes) No

Phone:	Contact:
On File	John Davis

No. Ordered:	No. Received:	Source Batch:
1 Batch	1 Batch	field

Condition of Organisms:	Approximate Size or Age:
Good	Adult

Shipper:	B of L (Tracking No.)
FedEx	7971 1676 8786

Condition of Container:	Received By:
Good	BH

Confirmation of ID of Organism:	Technician (Initials):
Yes (No)	

Notes:

pH (Units)	Temp. (°C)	D.O. (mg/L)	Conductivity or Salinity (Include Units)	Technician (Initials)
*				BH

Notes: * shipped dry

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials / INITIAL #	1 (10/25 ✓)	2 (10/26 MRP)	3 (10/27 BH)	4 (10/28 BH)	5 (10/29 TS)	6 (10/30 MMB)	7 (10/31 CR)	8 (11/1 CR)	9 (11/2 CR)	10 (11/3 MMB)	11 (11/4 MMB)	12 (11/5 MMB)	13 (11/6 BH)	14 (11/7 TS)	15 (11/8 MMB)	16 (11/9 MMB)	17 (11/10 ✓)	18 (11/11 MMB)	19 (11/12 CR)	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
Control /	1		5	N	N	N	N	G	G	G	G	G	G	G	G	G	G	N	N	N	N	N			230.24	282.69
	2		5	↓	↓	↓	↓	N	N	N	N	N	N	N	N	N	G	N	N	↓	N	↓			212.68	280.16
	3		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	IS	↓	IS	IS	N	↓	G	↓			248.89	308.49
	4		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	↓	G	N	N	↓	N	↓			219.37	290.36
	5		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	↓	N	N	N	↓	N	↓			248.65	326.14
CR-22-S /	1		5	↓	↓	↓	↓	U, G	G	G	G	G	G	G	G	G	N	N	N	↓	N	↓			222.11	269.72
	2		5	↓	↓	↓	↓	N	N	N	N	N	N	N	N	N	G	N	N	↓	N	↓			246.06	281.30
	3		5	↓	↓	↓	↓	U	↓	↓	↓	↓	↓	↓	↓	↓	N	N	G	↓	G, IS	G			212.57	291.64
	4		5	↓	↓	↓	↓	U	↓	↓	↓	↓	↓	↓	↓	↓	G	G	G	↓	N	N			210.91	282.76
	5		5	↓	↓	↓	↓	N	↓	↓	↓	↓	↓	↓	↓	↓	N	N	N	↓	N	N			233.95	322.24
CR-23-S /	1		5	↓	↓	↓	↓	↓	N	↓	↓	↓	↓	↓	G	G	G	G	G	↓	G	G			224.41	267.97
	2		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	N	↓	G	G	↓	G	N			297.45	369.51
	3		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	↓	N	IS	↓	N	↓			207.51	272.88
	4		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	G	↓	N	N	↓	N	↓			222.64	284.62
	5		5	↓	↓	↓	↓	U	↓	↓	↓	↓	↓	↓	↓	N	↓	N	N	↓	N	↓			265.47	322.66

Zerotimes

	tare wt.	
1	180.07 mg	181.34
2	196.44	198.64
3	172.00	175.22

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
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F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	INITIAL #	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
					10/25 ✓	10/26 MRD	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 ✓	11/11 MMB	11/12 CR				
CR-20/24-S /	1		5		N	N	N	N	G	G	GU	G	G	G	G	G	G		G	G	G/D	G	G			229.89 299.44	301.73
	2		5						G	N	GU	G	G	G	G	G	G				G	G	G			291.87	350.92
	3		5						N		N	N	N	N	G	G	G				G	G	G			273.20	354.09
	4		5						N				N	N	N	N	N		IS	N	N	N	N			215.03	272.68
	5		5						G	G			G	G	G	G	G		N	N		N	N			269.03	349.09
A1-01 /	1		5						N	N			N	G	G	G	G		G	G		G	G			205.44	262.94
	2		5											N	N	N	N					N	N			203.74	251.61
	3		5											N	N	N	N				G	G	G			240.13	326.41
	4		5							G	G	G	G	G	G	G	G				G		N			222.55	279.54
	5		5							N	N	N	N	N	G	G	G				G		G			251.09	340.60
A1-03 /	1		5							N				N	N	N	N		G	G	N	G	N			188.82	264.08
	2		5																N	G		N				304.31	339.12
	3		5						G									N	G	N		N				219.12	271.37
	4		5						N							G	G	G		G		G				234.26	292.13
	5		5													N	N	G		G		G				209.53	285.00

DO = 0.5 mg/L 11/10/08 ✓
replaced air line checked again on 11/11 DO = 7.6 JHO 11/11

TE 11/13/08 ✓

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)	
			INITIAL #	10/25 JL	10/26 MMB	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 JL	11/11 MMB	11/12 CR					
A1-07 /	1		5	F	N	N	N	N	N	N	N	N	N	N	N	N	G	G	G	G	G	G			226.67	276.88	31
	2		5											G	G	G				N	G	N			259.04	331.90	
	3		5											N	N	N				G	N	N			219.21	275.30	
	4		5											G	G	G				G	G	G			206.36	265.45	
	5		5											N	N	N				G	G	G			221.12	317.84	
A1-10 /	1		5										G	N	N	N		30	U	G	G				207.52	282.18	36
	2		5										N					G	G	N	G	N			222.33	280.64	
	3		5															N	N		N				240.66	289.56	
	4		5															G	G		G	G			232.87	303.90	
	5		5															N	IS		N				257.98	312.59	
A1-16 /	1		5														N	N	N		N	N			183.21	247.77	41
	2		5					G									G	G	G		N	N			279.83	349.53	
	3		5					N									N	N	N		N	G			275.09	341.49	
	4		5					N									N	N	N		N	N			257.35	293.39	
	5		5					N									G	G	G		G	G			192.43	231.04	

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
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N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	INITIAL #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)	
					10/25 SZ	10/26 MMB	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 TS	11/11 MMB	11/12 CR					
A1-24 /	1		5		N	N	N	N	N	N	N	N	N	N	N	N	N	G	N	G	N	N	N			170.81	247.20	46
	2		5						G									G	G	N		N				219.06	279.81	
	3		5						N									✗	N	N		N				212.01	304.76	
	4		5															G	N	G		N				255.14	337.15	
	5		5						↓							↓	↓	N	N	N		N				215.00	274.35	
A2-10 /	1		5						N							15	G	G	G	G		G				236.37	310.68	51
	2		5						N							N	N	15	N	N	↓	N	N			220.70	306.14	
	3		5													G	G	N	G	G	G	15 G	G			240.17	310.21	
	4		5													N	N	G	G		N	G	G			255.93	300.51	
	5		5													N	N		N	↓		N	N			272.72	330.50	
A2-11 /	1		5													N	N		N	N		N				284.65	281.19	56
	2		5															N	N	N		N				206.95	242.51	
	3		5															N	N	N		N				261.34	324.43	
	4		5															G	G	G		N				189.70	237.04	
	5		5						G									G	G	N		N				202.79 / ~~212.18~~	232.51	112

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
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N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	INITIAL #	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)	
					10/25 JL	10/26 MCO	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 JL	11/11 MMB	11/12 CR					
A2-13 /	1		5		M	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G			214.87	274.55	61
	2		5						G	G	G	G		G	G						G					221.72	262.28	
	3		5						G	G	G	G		G	G						G					209.71	275.06	
	4		5						N	N	N	N		G	G						G					156.90	206.03	
	5		5						G	G	G	G		G	G						G					253.88	284.01	
A2-14 /	1		5						N	N	N	N	N	N	N	N	N				N					147.38	186.78	66
	2		5												G	G	G				G					250.37	287.03	
	3		5												N	G	G				G					202.88	246.47	
	4		5												G	G	G				N					263.03	291.52	
	5		5												N	N	N									235.76	260.04	
A2-18 /	1		5												N	N	N	N	N	G		N	N			199.16	264.98	F1
	2		5															G	G	G		G	N			198.14	256.85	
	3		5															N	N	N		N	N			199.04	254.17	
	4		5															N	N	N		G	G			201.54	244.39	
	5		5															N	N	N		N	N			216.49	288.14	

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)	
			INITIAL #	10/25 JK	10/26 MCP	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 JK	11/11 MMB	11/12 CR					
A2-21 /	1		5	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			272.47	317.63	76
	2		5					N	N	N	N		N	N	N					N		G			246.50	287.18	
	3		5						N	G	G		G	G	G					G		G			239.41	266.85	
	4		5						G	G	G		G	G	G					G	G	G,S			225.56	275.87	
	5		5						N	N	G		N	G	G					N	N	N			296.03	328.08	
A2-25 /	1		5						N		N	N	N	N	N	N		G	N		G	N			252.82	305.89	81
	2		5															N	G			N			250.72	302.93	
	3		5															G				N			263.47	321.04	
	4		5															G				N			298.28	359.03	
	5		5														N	N	N		N	N			224.63	280.82	
A2-36 /	1		5						N				N	G	G	G	G	G	G	G	G	G			220.45	297.95	86
	2		5						N				N	G	G					S					198.86	220.68	
	3		5					G	G				G	G	G					G					211.55	248.65	
	4		5					G	N				N	N	G					G					246.22	305.19	
	5		5					G	N				G	G	G					G					216.58	269.35	

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
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INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	INITIAL #	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)	
					10/25 K	10/26 MRD	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/9 TS	11/8 MMB	11/9 MMB	11/10 K	11/11 MMB	11/12 CR					
A3-05E /	1		5	K	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	N	G	G			208.81	247.62	91
	2		5						N	N	N	N	N	N	N	N	N				U					197.32	280.00	
	3		5						U												G					187.05	209.74	
	4		5						N										N	N	N					174.74	224.84	
	5		5																N	G						196.27	233.94	
A3-07B /	1		5							N			G	G	G	G	G	N	N	N		N	N			210.38	262.18	96
	2		5										N	N	N	N		G	G	G		G	N			207.73	276.51	
	3		5						G		G	G	G	G	G	G				N		N	N			229.55	294.17	
	4		5						G		G	G	G	G	G	G				G	G	G	G			207.85	271.57	
	5		5						G	G	G	G	G	G	G	G			N	N	N	N	N			216.18	240.69	
A4-08B /	1		5						N	N	N	N	N	N	N	N	N		N	N		N	N			225.65	279.20	101
	2		5							N	N	N	N	N	N	N			N	N		N	N			198.39	256.33	
	3		5						G	G	G	G	G	G	G	G			G	G	G	G	G			239.16	279.41	
	4		5						G	N	N	N	N	N	N	N		N	N	N	N	N	N			202.21	241.13	
	5		5						G	G	G	G	G	G	G	G		G	G	G		G	G			288.72	315.01	

DIE CR 10/31

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

Date and Initials				10/25 X	10/26 MRP	10/27 BH	10/28 BH	10/29 JS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 JS	11/8 MMB	11/9 MMB	11/10 X	11/11 MMB	11/12 CR	11/13 CR			
CLIENT/ NEWFIELDS ID	REP	JAR	INITIAL #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
Control /	1		5	N	N	N	N	G	G	G	G	G	G	G	G	G	G	N	N	N	N	N	N	5		
	2		5	↓	↓	↓	↓	N	N	N	N	N	N	N	N	N	G	N	N	↓	N	↓	↓	5		
	3		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	IS	↓	IS	IS	N	↓	G	↓	↓	5		
	4		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	↓	G	N	N	↓	N	↓	↓	5		
	5		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	↓	N	N	N	↓	N	↓	↓	5		
CR-22-S /	1		5	↓	↓	↓	↓	U, G	G	G	G	G	G	G	G	G	N	N	N	↓	N	↓	N	5		
	2		5	↓	↓	↓	↓	N	N	N	N	N	N	N	N	N	G	N	N	↓	N	↓	N	5		
	3		5	↓	↓	↓	↓	U	↓	↓	↓	↓	↓	↓	↓	↓	N	N	G	↓	G, IS	G	G	5		
	4		5	↓	↓	↓	↓	U	↓	↓	↓	↓	↓	↓	↓	↓	G	G	G	↓	N	N	N	5		
	5		5	↓	↓	↓	↓	N	↓	↓	↓	↓	↓	↓	↓	↓	N	N	N	↓	N	N	N	5		
CR-23-S /	1		5	↓	↓	↓	↓	↓	N	↓	↓	↓	↓	↓	G	G	G	G	G	↓	G	G	G	5		
	2		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	N	↓	G	G	↓	G	N	N	5		
	3		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	↓	N	IS	↓	N	↓	↓	5		
	4		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	G	↓	N	N	↓	N	↓	↓	5		
	5		5	↓	↓	↓	↓	U	↓	↓	↓	↓	↓	↓	↓	N	↓	N	N	↓	N	↓	↓	5		

Zerotimes — tare wt.

1	180.07 mg	181.34
2	196.44	198.64

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB N0.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
			INITIAL #	10/25 ✓	10/26 MRP	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 ✓	11/11 MMB	11/12 CR	11/13 CR			
CR-20/24-S /	1		5	N	N	N	N	G	G	GU	G	G	G	G	G	G	G	G	G	GD	G	G	G	5		
	2		5					G	N	GU	G	G	G	G	G	G				G	G	G	G	5		
	3		5					N	↓	N	N	N	N	G	G	G		↓	↓	G	G	G	N	5		
	4		5					N				N	N	N	N	N		IS	N	N	N	N		5		
	5		5					G	G			G	G	G	G	G		N	N		N	N	↓	5		
A1-01 /	1		5					N	N			N	G	G	G	G		G	G		G	G	G	5		
	2		5						↓			↓	N	N	N	N					N	N	N	5		
	3		5							↓	↓		N	N	N	N				G	G	G	G	5		
	4		5						G	G	G	G	G	G	G	G				G		N	G	5		
	5		5						N	N	N	N	N	G	G	G		↓	↓	G	↓	G	G	5		
A1-03 /	1		5						N				N	N	N	N		G	G	N	G	N	N	5		
	2		5					↓	↓				↓	↓	↓	↓	↓	N	G		N			4		
	3		5					G							↓	↓	N	G	N		N			5		
	4		5					N							G	G	G		G		G			5		
	5		5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	N	N	G	↓	G	↓	G	↓	↓	5		

① DO - 0.5 mg/L 11/10/08 ✓
replaced air line checked again on 11/11 DO = 7.6 JHO 11/11

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
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INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
			INITIAL #	10/25 JV	10/26 MEP	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 JV	11/11 MMB	11/12 CR	11/13 CR			
A1-07 /	1		5	N	N	N	N	N	N	N	N	N	N	N	N	N	G	G	G	G	G	G	G	5		
	2		5											G	G	G				N	G	N	N	5		
	3		5											N	N	N				G	N	N	G	4		
	4		5											G	G	G				G	G	G	N	4		
	5		5											N	N	N				G	G	G	N	5		
A1-10 /	1		5										G	N	N	N				G	G	G	N	5		
	2		5										N					G	G	N	G	N		5		
	3		5															N	N		N	G		5		
	4		5															G	G		G	G	G	5		
	5		5															N	S		S	N	N	5		
A1-16 /	1		5														N	N	N		N	N	N	5		
	2		5					G									G	G	G		N	N	N	5		
	3		5					N									N	N	N		N	G	G	5		
	4		5					N									N	N	N		N	N	G	5		
	5		5					N									G	G	G		G	G	N	4		

45
44

① WC, A1.16 Rep. 5 = 4 remaining

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB N0.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
			INITIAL #	10/25 JK	10/26 MAP	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 JK	11/8 MMB	11/9 MMB	11/10 JK	11/11 MMB	11/12 CR	11/13 CR			
A1-24 /	1		5	N	N	N	N	N	N	N	N	N	N	N	N	N	G	N	G		N	N	N	5		
	2		5					G									G	G	N		N		N	5		
	3		5					N									D	N	N		N		G	5		
	4		5														G	N	G		N		N	5		
	5		5														N	N	N		N		N	5		
A2-10 /	1		5					N							N	G	G	G	G		G		N	5		
	2		5					N							N	N	N	N	N		N	N	N	5		
	3		5												G	G	N	G	G		N	G	G	5		
	4		5												N	N	G	G		N	G	G	G	5		
	5		5												N	N		N			N	N	N	5		
A2-11 /	1		5												N	N		N	N		N		N	5		
	2		5														N	N	N		N		N	5		
	3		5														N	N	N		N		G	5		
	4		5														G	G	G		N		N	5		
	5		5	G				G									G	G	N		N		N	5		

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NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	INITIAL #	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
					10/25 JL	10/26 MCD	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 JL	11/11 MMB	11/12 CR	11/13 CR			
A2-13 /	1		5		M	N	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	5		
	2		5						G	G	G	G		G	G						G				5		
	3		5						G	G	G	G		G	G						G				5		
	4		5						N	N	N	N		G	G						G				5		
	5		5						G	G	G	G		G	G						G				4		
A2-14 /	1		5						N	N	N	N	N	N	N	N	N				N				5		
	2		5												G	G	G				G				5		
	3		5												N	G	G				G				4		
	4		5												G	G	G				N				5		
	5		5												N	N	N								4		
A2-18 /	1		5												N	N	N	N	N	G		N	N	N	5		
	2		5															G	G	G		G	N	G	0		
	3		5															N	N	N		N	N	N	5		
	4		5															N	N	N		G	G	G	5		
	5		5															N	N	N		N	N	N	5		

Surr.: 5

① No neanthes in treatment, 1 flatworm present. Surrogate survival = 5

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB N0.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

ENDPOINT DATA & OBSERVATIONS

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
			INITIAL #	10/25 JK	10/26 MCP	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/7 TS	11/8 MMB	11/9 MMB	11/10 JK	11/11 MMB	11/12 CR				
A2-21 /	1		5	N	N	N	N	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	5G	5		
	2		5					N	N	N	N		N	N	N					N		G	5	5		
	3		5						N	G	G		G	G	G					G		G	5	5		
	4		5						G	G	G		G	G	G					G		G	5	5		
	5		5						N	N	G		N	G	G					N	N	N	5	5		
A2-25 /	1		5						N		N	N	N	N	N	N		G	N		G	N	N	5		
	2		5															N	G			N		5		
	3		5															G				N		5		
	4		5															G				N		5		
	5		5														N	N	N		N	N		5		
A2-36 /	1		5						N				N	G	G	G	G	G	G	G	G	G	G	5		
	2		5						N				N	G	G									5		
	3		5					G	G				G	G	G					G				5		
	4		5					G	N				N	G	G					G				5		
	5		5					G	N				G	G	G					G				5		

NEWFIELDS

20-DAY SOLID PHASE BIOASSAY
OBSERVATION DATASHEET

COPY

CLIENT	PROJECT	JOB NO.	PROJECT MANAGER	NEWFIELDS LABORATORY	PROTOCOL	SPECIES
WDOE	Port Gardner	0	Collin Ray	Port Gamble	PSEP 1995	*Neanthes arenaceodentata*

ENDPOINT DATA & OBSERVATIONS

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
A=Algal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 5

CLIENT/ NEWFIELDS ID	REP	JAR	Date and Initials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	NUMBER REMAINING	TARE WEIGHT (mg)	TOTAL WEIGHT (mg)
			INITIAL #	10/25 JK	10/26 MRD	10/27 BH	10/28 BH	10/29 TS	10/30 MMB	10/31 CR	11/1 CR	11/2 CR	11/3 MMB	11/4 MMB	11/5 MMB	11/6 BH	11/9 TS	11/8 MMB	11/9 MMB	11/10 JK	11/11 MMB	11/12 CR	11/13 CR			
A3-05E /	1		5	N	N	N	N	G3	G	G	G	G	G	G	G	G	G	G	G	N	G	G	G3	5		
	2		5					3	N	N	N	N	2	2	2	N				5			3	5		
	3		5					3												G				4		
	4		5					2										N	N	N				5		
	5		5															N	G					5		
A3-07B /	1		5						N			G	G	G	G	G	N	N	N		N	N	N	5		
	2		5									N	N	N	N		G	G	G		G	N		5		
	3		5					G		G	G	G	G	G	G				N		N	N		5		
	4		5					G		G	G	G	G	G	G				G	G	G	G	G	5		
	5		5					G	G	G	G	G	G	G	G			N	N	N	N	N	N	5		
A4-08B /	1		5					N	N	N	N	N	N	N	N	N		N	N		N	N	N	5		
	2		5					N	N	N	N	N	N	N	N			N	N		N	N	N	5		
	3		5					G	G	G	G	G	G	G	G			G	G	G	G	G	G	5		
	4		5					G	N	N	N	N	N	N	N		N	N	N	N	N	N	N	5		
	5		5					G	G	G	G	G	G	G	G		G	G	G		G	G	N	5		

DIE CR 10/31

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
Control /	0	Surr	98	3	9.7	3	19.9	3	27	3	7.8		TS	CS 10/24/08
Control /	1	Surr	98	4	7.1	4	20.4	1	27	1	7.6			✓ 10/25
Control /	2	Surr	98	4	7.2	4	20.3	1	27	1	7.4		CS	CS 10/26
Control /	3	Surr	98	4	7.3	4	20.3	1	28	1	7.7	BH		BH 10/27
Control /	4	Surr	98	4	7.6	4	20.2	1	28	1	7.8		BH	BH 10/28
Control /	5	Surr	98	4	7.2	4	20.2	1	28	1	7.9			CS 10/29
Control /	6	Surr	98	3	6.8	3	19.9	3	28	3	7.8	MMB	MMB	CS 10/30
Control /	7	Surr	98	3	6.5	3	20.2	3	28	3	7.8			CR 10/31
Control /	8	Surr	98	4	8.8	4	20.3	1	28	1	7.9		CR	CS 11/01
Control /	9	Surr	98	4	7.7	4	16.8	1	28	1	7.9	CR		CR 11/2
Control /	10	Surr	98	3	6.7	3	19.9	3	27	3	7.5		MMB	JO 11/3
Control /	11	Surr	98	3	6.5	3	20.1	3	27	3	7.8			JO 11/4
Control /	12	Surr	98	3	6.7	3	20.0	3	27	3	8.0	MMB	MMB	JO 11/5
Control /	13	Surr	98	3	6.8	3	20.1	3	28	3	7.9			JO 11/6
Control /	14	Surr	98	3	6.9	3	20.2	3	28	3	8.0		TS	JO 11/7
Control /	15	Surr	98	3	6.5	3	20.2	3	28	3	7.9	MMB		JO 11/8
Control /	16	Surr	98	4	6.9	4	20.4	1	28	1	7.8		MMB	JO 11/9
Control /	17	Surr	98	4	7.5	4	20.4	1	28	1	7.9			JO 11/10
Control /	18	Surr	98	4	7.4	4	20.2	1	28	1	7.9	JO	MMB	JO 11/11
Control /	19	Surr	98	4	7.3	4	20.5	1	28	1	7.9			CR 11/12
Control /	20	Surr	98	4	7.6	4	20.1	1	28	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
CR-22-S /	0	Surr	116	3	9.5	3	19.8	3	27	3	7.8		TS	CW 10/24/08
CR-22-S /	1	Surr	116	4	7.5	4	20.3	1	27	1	7.9			CW 10/25
CR-22-S /	2	Surr	116	4	7.4	4	20.3	1	27	1	7.7			CS 10/26
CR-22-S /	3	Surr	116	4	7.6	4	20.2	1	28	1	7.9	BH		BH 10/27
CR-22-S /	4	Surr	116	4	7.8	4	20.2	1	28	1	7.9		BH	BH 10/28
CR-22-S /	5	Surr	116	4	7.4	4	20.0	1	28	1	7.9			CS 10/29
CR-22-S /	6	Surr	116	3	6.8	3	19.9	3	28	3	7.9	MMB	MMB	CW 10/30
CR-22-S /	7	Surr	116	3	6.8	3	20.1	3	27	3	7.9			CR 10/31
CR-22-S /	8	Surr	116	4	8.9	4	20.3	1	28	1	8.0		CR	CS 11/01
CR-22-S /	9	Surr	116	4	7.8	4	16.8	1	28	1	8.0	CR		CR 11/2
CR-22-S /	10	Surr	116	3	6.7	3	19.8	3	28	3	7.6		MMB	JO 11/3
CR-22-S /	11	Surr	116	3	6.8	3	20.0	3	27	3	8.0			JO 11/4
CR-22-S /	12	Surr	116	3	6.4	3	20.0	3	28	3	8.1	MMB	MMB	JO 11/5
CR-22-S /	13	Surr	116	3	6.6	3	20.1	3	28	3	8.0			JO 11/6
CR-22-S /	14	Surr	116	3	6.7	3	19.9	3	28	3	8.0		TS	JO 11/7
CR-22-S /	15	Surr	116	3	6.5	3	20.1	3	28	3	8.0	MMB		JO 11/8
CR-22-S /	16	Surr	116	4	6.9	4	20.4	1	28	1	7.9		MMB	JO 11/9
CR-22-S /	17	Surr	116	4	7.5	4	20.4	1	28	1	7.9			JO 11/10
CR-22-S /	18	Surr	116	4	7.2	4	20.1	1	28	1	7.9	JO	MMB	JO 11/11
CR-22-S /	19	Surr	116	4	7.3	4	20.5	1	28	1	8.0			CR 11/12
CR-22-S /	20	Surr	116	4	7.9	4	20.1	1	28	1	7.9			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
CR-23-S /	0	Surr	93	3	9.6	3	19.8	3	27	3	7.8		TS	CW 10/24/08
CR-23-S /	1	Surr	93	4	7.8	4	20.3	1	27	1	7.9			CS 10/25
CR-23-S /	2	Surr	93	4	7.9	4	20.2	1	27	1	7.7		✓	CS 10/26
CR-23-S /	3	Surr	93	4	7.7	4	20.2	1	28	1	7.8	BH		BH 10/27
CR-23-S /	4	Surr	93	4	7.9	4	20.2	1	28	1	7.9		BH	BH 10/28
CR-23-S /	5	Surr	93	4	7.6	4	20.1	1	28	1	8.0			CS 10/29
CR-23-S /	6	Surr	93	3	6.9	3	19.9	3	28	3	8.1	MMB	MMB	CW 10/30
CR-23-S /	7	Surr	93	3	7.0	3	20.1	3	28	3	8.2			CR 10/31
CR-23-S /	8	Surr	93	4	9.1	4	20.3	1	28	1	8.1		CR	CS 11/01
CR-23-S /	9	Surr	93	4	7.9	4	16.8	1	28	1	8.1	CR		CR 11/2
CR-23-S /	10	Surr	93	3	6.8	3	19.7	3	28	3	7.7		MMB	JO 11/3
CR-23-S /	11	Surr	93	3	6.9	3	20.0	3	28	3	8.2			JO 11/4
CR-23-S /	12	Surr	93	3	6.7	3	20.0	3	28	3	8.1	MMB	MMB	JO 11/5
CR-23-S /	13	Surr	93	3	7.0	3	20.0	3	28	3	7.9			JO 11/6
CR-23-S /	14	Surr	93	3	6.8	3	20.1	3	28	3	8.0		TS	JO 11/7
CR-23-S /	15	Surr	93	3	6.6	3	20.1	3	28	3	7.8	MMB		JO 11/8
CR-23-S /	16	Surr	93	4	7.2	4	20.3	1	28	1	7.9		MMB	JO 11/9
CR-23-S /	17	Surr	93	4	7.6	4	20.3	1	28	1	7.9			JO 11/10
CR-23-S /	18	Surr	93	4	7.5	4	20.1	1	29	1	7.8	JO	MMB	JO 11/11
CR-23-S /	19	Surr	93	4	7.4	4	20.4	1	28	1	7.9			CR 11/12
CR-23-S /	20	Surr	93	4	7.7	4	20.1	1	28	1	7.7			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
CR-20/24-S /	0	Surr	53	3	9.8	3	① 27 19.8	3	27	3	7.8		TS	CW 10/24/08
CR-20/24-S /	1	Surr	53	4	7.6	4	20.3	1	27	1	7.9			✓ 10/25
CR-20/24-S /	2	Surr	53	4	7.2	4	20.1	1	27	1	7.5		✓	CS 10/26
CR-20/24-S /	3	Surr	53	4	7.6	4	20.2	1	28	1	7.8	BH		BH 10/27
CR-20/24-S /	4	Surr	53	3	7.1	3	19.9	3	28	3	7.9		BH	CR 10/28
CR-20/24-S /	5	Surr	53	4	7.5	4	20.1	1	28	1	7.9			CS 10/29
CR-20/24-S /	6	Surr	53	3	7.0	3	19.9	3	28	3	8.0	MMB	MMB	CW 10/30
CR-20/24-S /	7	Surr	53	3	6.8	3	20.1	3	28	3	8.1			CR 10/31
CR-20/24-S /	8	Surr	53	4	8.8	4	20.2	1	28	1	8.1		CR	CS 11/01
CR-20/24-S /	9	Surr	53	4	7.8	4	16.8	1	28.	1	8.1	CR		CR 11/2
CR-20/24-S /	10	Surr	53	3	6.9	3	19.7	3	28	3	7.6		MMB	JO 11/3
CR-20/24-S /	11	Surr	53	3	6.7	3	19.9	3	28	3	8.0			JO 11/4
CR-20/24-S /	12	Surr	53	3	6.8	3	19.9	3	28	3	8.0	MMB	MMB	JO 11/5
CR-20/24-S /	13	Surr	53	3	6.6	3	20.0	3	28	3	7.9			JO 11/6
CR-20/24-S /	14	Surr	53	3	6.9	3	20.0	3	28	3	8.0		TS	JO 11/7
CR-20/24-S /	15	Surr	53	3	6.4	3	20.1	3	28	3	7.9	MMB		JO 11/8
CR-20/24-S /	16	Surr	53	4	7.2	4	20.4	1	28	1	7.9		MMB	JO 11/9
CR-20/24-S /	17	Surr	53	4	7.4	4	20.3	1	28	1	7.8			JO 11/10
CR-20/24-S /	18	Surr	53	4	7.2	4	20.1	1	28	1	7.8	JO	MMB	JO 11/11
CR-20/24-S /	19	Surr	53	4	7.2	4	20.4	1	28	1	7.8			CR 11/12
CR-20/24-S /	20	Surr	53	4	7.5	4	20.0	1	28	1	7.7			BH 11/13

① wrong cell - CW

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A1-01 /	0	Surr	10	3	9.3	3	19.8	3	27	3	8.0		TS	TS 10/24
A1-01 /	1	Surr	10	4	7.8	4	20.3	1	27	1	7.9			CS 10/25
A1-01 /	2	Surr	10	4	6.8	4	20.0	1	27	1	7.6		CS	CS 10/26
A1-01 /	3	Surr	10	4	7.8	4	20.1	1	28	1	7.9	BH		BH 10/27
A1-01 /	4	Surr	10	3	7.3	3	19.9	3	28	3	8.2		BH	CR 10/28
A1-01 /	5	Surr	10	4	8.1	4	20.0	1	~~26.7~~ 28	1	8.1			CS 10/29
A1-01 /	6	Surr	10	3	7.1	3	19.9	3	28	3	8.2	MMB	MMB	CR 10/30
A1-01 /	7	Surr	10	3	7.1	3	20.1	3	28	3	8.3			CR 10/31
A1-01 /	8	Surr	10	4	9.1	4	20.3	1	28	1	8.1		CK	CS 11/01
A1-01 /	9	Surr	10	4	8.0	4	16.8	1	28	1	8.2	CR		CR 11/2
A1-01 /	10	Surr	10	3	7.0	3	19.9	3	28	3	7.8		MMB	JO 11/3
A1-01 /	11	Surr	10	3	7.1	3	20.0	3	28	3	8.1			JO 11/4
A1-01 /	12	Surr	10	3	6.5	3	20.1	3	28	3	8.2	MMB	MMB	JO 11/5
A1-01 /	13	Surr	10	3	6.9	3	20.2	3	28	3	8.0			JO 11/6
A1-01 /	14	Surr	10	3	7.0	3	20.1	3	28	3	8.1		TS	JO 11/7
A1-01 /	15	Surr	10	3	6.6	3	20.1	3	28	3	8.0	MMB		JO 11/8
A1-01 /	16	Surr	10	4	7.4	4	20.4	1	28	1	8.0		MMB	JO 11/9
A1-01 /	17	Surr	10	4	7.8	4	20.3	1	29	1	8.0			JO 11/10
A1-01 /	18	Surr	10	4	7.6	4	20.1	1	29	1	7.9	JO	MMB	JO 11/11
A1-01 /	19	Surr	10	4	7.5	4	20.3	1	29	1	7.9			CR 11/12
A1-01 /	20	Surr	10	4	7.8	4	20.2	1	28	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	1300 /	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A1-03 /	0	Surr	1	3	9.6	3	19.8	3	27	3	8.1		TS	TS 10/24
A1-03 /	1	Surr	1	4	7.9	4	20.3	1	27	1	8.1			✓ 10/25
A1-03 /	2	Surr	1	4	7.5	4	20.1	1	27	1	7.3		✓	CS 10/26
A1-03 /	3	Surr	1	4	7.7	4	20.1	1	28	1	7.9	BH		BH 10/27
A1-03 /	4	Surr	1	3	7.1	3	19.7	3	28	3	8.3		BH	CR 10/28
A1-03 /	5	Surr	1	4	7.6	4	19.7	1	~~26.5~~ 28	1	7.7			CS 10/29
A1-03 /	6	Surr	1	3	6.9	3	19.9	3	28	3	8.1	MMB	MMB	CW 10/30
A1-03 /	7	Surr	1	3	7.1	3	20.1	3	28	3	8.2			CR 10/31
A1-03 /	8	Surr	1	4	9.0	4	20.3	1	28	1	7.8		CR	CS 11/01
A1-03 /	9	Surr	1	4	8.0	4	16.9	1	28	1	8.0	CR		CR 11/2
A1-03 /	10	Surr	1	3	7.0	3	19.7	3	28	3	7.6		MMB	JO 11/3
A1-03 /	11	Surr	1	3	6.8	3	19.9	3	28	3	7.9			JO 11/4
A1-03 /	12	Surr	1	3	7.3	3	19.7	3	28	3	7.3	MMB	MMB	JO 11/5
A1-03 /	13	Surr	1	3	7.1	3	19.8	3	28	3	7.5			JO 11/6
A1-03 /	14	Surr	1	3	6.8	3	19.9	3	28	3	7.8		TS	JO 11/7
A1-03 /	15	Surr	1	3	6.5	3	20.0	3	28	3	7.8	MMB		JO 11/8
A1-03 /	16	Surr	1	4	7.3	4	20.4	1	28	1	7.9		MMB	JO 11/9
A1-03 /	17	Surr	1	4	7.7	4	20.2	1	29	1	7.7			JO 11/10
A1-03 /	18	Surr	1	4	7.5	4	20.0	~~1~~	28	1	7.7	JO	MMB	JO 11/11
A1-03 /	19	Surr	1	4	7.5	4	20.0	1	28	1	7.6			CR 11/12
A1-03 /	20	Surr	1	4	7.6	4	19.9	1	28	1	7.7			BH 11/13

① FE JHO 11/11

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A1-07 /	0	Surr	120	3	9.5	3	19.7	3	27	3	7.8		TS	CW 10/24/08
A1-07 /	1	Surr	120	4	7.7	4	20.3	1	27	1	7.9			✓ 12/25
A1-07 /	2	Surr	120	4	7.7	4	20.1	1	27	1	7.7		✓	CS 10/26
A1-07 /	3	Surr	120	4	7.7	4	20.2	1	28	1	7.9	BH		BH 10/27
A1-07 /	4	Surr	120	4	7.8	4	20.2	1	28	1	7.9		BH	BH 10/28
A1-07 /	5	Surr	120	4	7.4	4	20.0	1	28	1	8.0			CS 10/29
A1-07 /	6	Surr	120	3	7.0	3	19.9	3	28	3	8.1	MMB	MMB	CW 10/30
A1-07 /	7	Surr	120	3	7.0	3	20.1	3	28	3	8.1			CR 10/31
A1-07 /	8	Surr	120	4	01.4	4	20.3	1	28	1	7.6		CR	CS 11/01
A1-07 /	9	Surr	120	4	7.9	4	16.8	1	28	1	8.1	CR		CR 11/2
A1-07 /	10	Surr	120	3	6.8	3	19.8	3	28	3	7.7		MMB	JO 11/3
A1-07 /	11	Surr	120	3	6.6	3	20.1	3	28	3	8.1			JO 11/4
A1-07 /	12	Surr	120	3	6.8	3	20.0	3	28	3	8.1	MMB	MMB	JO 11/5
A1-07 /	13	Surr	120	3	6.7	3	20.0	3	28	3	8.0			JO 11/6
A1-07 /	14	Surr	120	3	7.0	3	19.9	3	28	3	8.1		TS	JO 11/7
A1-07 /	15	Surr	120	3	6.5	3	20.1	3	28	3	8.0	MMB		JO 11/8
A1-07 /	16	Surr	120	4	6.6	4	20.4	1	28	1	8.0		MMB	JO 11/9
A1-07 /	17	Surr	120	4	7.5	4	20.4	1	29	1	8.0			JO 11/10
A1-07 /	18	Surr	120	4	7.4	4	20.1	1	29	1	8.0	JO	MMB	JO 11/11
A1-07 /	19	Surr	120	4	7.4	4	20.5	1	29	1	8.0			CR 11/12
A1-07 /	20	Surr	120	4	7.7	4	20.1	1	29	1	7.9			BH 11/13

① Air line replaced

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A1-10 /	0	Surr	29	3	9.8	3	19.8	3	27	3	7.7		TS	CW 10/24/08
A1-10 /	1	Surr	29	4	7.8	4	20.4	1	27	1	7.9			✓ 10/25
A1-10 /	2	Surr	29	4	7.6	4	19.9	1	27	1	7.5		✓	CS 10/26
A1-10 /	3	Surr	29	4	7.7	4	20.2	1	28	1	7.8	BH		BH 10/27
A1-10 /	4	Surr	29	3	7.2	3	20.0	3	28	3	8.1		BH	CR 10/28
A1-10 /	5	Surr	29	4	7.6	4	20.2	1	~~26.4~~ 28	1	8.1			CS 10/29
A1-10 /	6	Surr	29	3	6.9	3	20.0	3	28	3	8.2	MMB	MMB	CW 10/30
A1-10 /	7	Surr	29	3	7.0	3	20.2	3	28	3	8.2			CR 10/31
A1-10 /	8	Surr	29	4	9.0	4	20.3	1	28	1	8.1		CR	CS 11/01
A1-10 /	9	Surr	29	4	7.9	4	16.8	1	28	1	8.1	CR		CR 11/2
A1-10 /	10	Surr	29	3	6.8	3	19.8	3	28	3	7.7		MMB	JO 11/3
A1-10 /	11	Surr	29	3	6.7	3	20.1	3	28	3	8.0			JO 11/4
A1-10 /	12	Surr	29	3	6.7	3	20.1	3	28	3	8.0	MMB	MMB	JO 11/5
A1-10 /	13	Surr	29	3	6.7	3	20.1	3	28	3	7.9			JO 11/6
A1-10 /	14	Surr	29	3	6.9	3	20.1	3	28	3	8.0		TS	JO 11/7
A1-10 /	15	Surr	29	3	6.4	3	20.2	3	28	3	7.9	MMB		JO 11/8
A1-10 /	16	Surr	29	4	7.1	4	20.4	1	28	1	7.8		MMB	JO 11/9
A1-10 /	17	Surr	29	4	7.6	4	20.4	1	28	1	7.9			JO 11/10
A1-10 /	18	Surr	29	4	7.5	4	20.2	1	28	1	7.9	JO	MMB	JO 11/11
A1-10 /	19	Surr	29	4	7.5	4	20.5	1	28	1	7.9			CR 11/12
A1-10 /	20	Surr	29	4	7.6	4	20.2	1	28	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O.		TEMP		SALINITY		pH		WATER RENEWAL	Feeding	TECH/DATE
				meter	mg/L	meter	°C	meter	ppt	meter	unit			
A1-16 /	0	Surr	9	3	9.5	3	19.8	3	27	3	8.0		TS	TS 10/24
A1-16 /	1	Surr	9	4	7.8	4	20.3	1	27	1	8.0			✓ 10/25
A1-16 /	2	Surr	9	4	7.5	4	19.9	1	27	1	7.5		✓	CS 10/26
A1-16 /	3	Surr	9	4	7.8	4	20.1	1	28	1	7.9	D/I		BH 10/22
A1-16 /	4	Surr	9	3	7.1	3	19.8	3	28	3	8.3		BH	CR 10/28
A1-16 /	5	Surr	9	4	7.7	4	19.9	1	~~26.5~~ 28	1	8.0			CS 10/29
A1-16 /	6	Surr	9	3	7.2	3	19.9	3	28	3	8.1	MMB	MMB	CW 10/30
A1-16 /	7	Surr	9	3	7.2	3	20.1	3	28	3	8.3			CR 10/31
A1-16 /	8	Surr	9	4	9.1	4	20.3	1	28	1	8.0		CR	CS 11/01
A1-16 /	9	Surr	9	4	8.0	4	16.8	1	26	1	8.0	CR		CR 11/2
A1-16 /	10	Surr	9	3	6.9	3	19.6	3	28	3	7.7		MMB	JO 11/3
A1-16 /	11	Surr	9	3	6.7	3	20.0	3	28	3	8.0			JO 11/4
A1-16 /	12	Surr	9	3	6.8	3	19.9	3	28	3	7.8	MMB	MMB	JO 11/5
A1-16 /	13	Surr	9	3	6.7	3	20.0	3	28	3	7.8			JO 11/6
A1-16 /	14	Surr	9	3	6.9	3	20.1	3	28	3	8.0		TS	JO 11/7
A1-16 /	15	Surr	9	3	6.7	3	20.0	3	28	3	7.9	MMB		JO 11/8
A1-16 /	16	Surr	9	4	7.3	4	20.4	1	28	1	8.0		MMB	JO 11/9
A1-16 /	17	Surr	9	4	7.7	4	20.2	1	29	1	7.9			JO 11/10
A1-16 /	18	Surr	9	4	7.6	4	20.0	1	29	1	7.9	JO	MMB	JO 11/11
A1-16 /	19	Surr	9	4	7.5	4	20.3	1	28	1	7.8			CR 11/12
A1-16 /	20	Surr	9	4	7.7	4	20.0	1	28	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A1-24 /	0	Surr	109	3	9.6	3	19.8	3	27	3	7.8		TS	CW 10/24/08
A1-24 /	1	Surr	109	4	7.5	4	20.3	1	27	1	7.8			J 10/25
A1-24 /	2	Surr	109	4	7.6	4	20.3	1	27	1	7.8		J	CS 10/26
A1-24 /	3	Surr	109	4	7.6	4	20.2	1	28	1	7.9	BH		BH 10/27
A1-24 /	4	Surr	109	4	7.8	4	20.2	1	27	1	7.8		BH	BH 10/28
A1-24 /	5	Surr	109	4	7.6	4	20.1	1	28	1	7.9			CS 10/29
A1-24 /	6	Surr	109	3	7.0	3	19.9	3	28	3	8.1	MMB	MMB	CW 10/30
A1-24 /	7	Surr	109	3	7.1	3	20.1	3	28	3	8.1			CR 10/31
A1-24 /	8	Surr	109	4	9.0	4	20.3	1	28	1	8.1		CR	CS 11/01
A1-24 /	9	Surr	109	4	7.7	4	16.8	1	28	1	8.1	CR		CR 11/2
A1-24 /	10	Surr	109	3	6.9	3	20.0	3	28	3	7.7		MMB	JO 11/3
A1-24 /	11	Surr	109	3	6.7	3	20.1	3	28	3	8.1			JO 11/4
A1-24 /	12	Surr	109	3	6.9	3	20.0	3	28	3	8.2	MMB	MMB	JO 11/5
A1-24 /	13	Surr	109	3	6.6	3	20.1	3	28	3	8.0			JO 11/6
A1-24 /	14	Surr	109	3	7.0	3	20.0	3	28	3	8.2		J	JO 11/7
A1-24 /	15	Surr	109	3	6.5	3	20.1	3	28	3	8.1	MMB		JO 11/8
A1-24 /	16	Surr	109	4	7.0	4	20.4	1	28	1	8.0		MMB	JO 11/9
A1-24 /	17	Surr	109	4	7.5	4	20.4	1	28	1	8.0			JO 11/10
A1-24 /	18	Surr	109	4	7.3	4	20.2	1	28	1	8.0	JO	MMB	JO ~~11/10~~ ① 11/11
A1-24 /	19	Surr	109	4	7.4	4	20.5	1	28	1	8.0			CR 11/12
A1-24 /	20	Surr	109	4	7.6	4	20.1	1	28	1	7.9			BH 11/13

① WD JJO 11/11

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A2-10 /	0	Surr	97	3	9.9	3	19.9	3	27	3	7.8		TS	CW 10/24/08
A2-10 /	1	Surr	97	4	7.8	4	20.3	1	27	1	7.9			CW 10/25
A2-10 /	2	Surr	97	4	7.7	4	20.3	1	27	1	7.6		JT	CS 10/26
A2-10 /	3	Surr	97	4	7.8	4	20.2	1	28	1	7.8	BH		BH 10/27
A2-10 /	4	Surr	97	4	8.0	4	20.2	1	28	1	7.9		BH	BH 10/28
A2-10 /	5	Surr	97	4	7.7	4	20.1	1	28	1	8.0			CS 10/29
A2-10 /	6	Surr	97	3	7.2	3	19.9	3	28	3	8.0	MMB	MMB	CW 10/30
A2-10 /	7	Surr	97	3	7.1	3	20.2	3	28	3	8.1			CR 10/31
A2-10 /	8	Surr	97	4	9.1	4	20.3	1	28	1	8.0		CR	CS ~~10/31~~ MMB 11/1
A2-10 /	9	Surr	97	4	8.0	4	16.8	1	28	1	8.1	CR		CR 11/2
A2-10 /	10	Surr	97	3	6.8	3	19.8	3	28	3	7.7		MMB	JO 11/3
A2-10 /	11	Surr	97	3	6.9	3	20.2	3	28	3	8.1			JO 11/4
A2-10 /	12	Surr	97	3	6.8	3	20.0	3	28	3	8.1	MMB	MMB	JO 11/5
A2-10 /	13	Surr	97	3	6.8	3	20.1	3	28	3	8.0			JO 11/6
A2-10 /	14	Surr	97	3	6.9	3	20.2	3	28	3	7.8		JT	JO 11/7
A2-10 /	15	Surr	97	3	6.6	3	20.2	3	28	3	7.9	MMB		JO 11/8
A2-10 /	16	Surr	97	4	7.1	4	20.4	1	28	1	7.8		MMB	JO 11/9
A2-10 /	17	Surr	97	4	7.6	4	20.4	1	29	1	7.9			JO 11/10
A2-10 /	18	Surr	97	4	7.4	4	20.2	1	28	1	7.8	JO	MMB	JO 11/11
A2-10 /	19	Surr	97	4	7.5	4	20.5	1	28	1	7.9			CR 11/12
A2-10 /	20	Surr	97	4	7.7	4	20.1	1	28	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O.		TEMP		SALINITY		pH		WATER RENEWAL	Feeding	TECH/DATE
				meter	mg/L	meter	°C	meter	ppt	meter	unit			
A2-11 /	0	Surr	28	3	10.0	3	19.9	3	27	3	7.9		JS	CW 10/24/08
A2-11 /	1	Surr	28	4	7.7	4	20.4	1	27	1	7.9			JS 10/25
A2-11 /	2	Surr	28	4	7.5	4	20.4	1	26	1	7.5		JS	CS 10/26
A2-11 /	3	Surr	28	4	7.7	4	20.2	1	28	1	7.9	BH		BH 10/27
A2-11 /	4	Surr	28	3	7.2	3	19.9	3	28	3	8.1		BH	CR 10/28
A2-11 /	5	Surr	28	4	7.6	4	20.1	1	~~26.4~~ 28	1	7.9			CS 10/29
A2-11 /	6	Surr	28	3	7.1	3	20.0	3	28	3	8.0	MMB	MMB	CW 10/30
A2-11 /	7	Surr	28	3	6.9	3	20.2	3	28	3	8.0			CR 10/31
A2-11 /	8	Surr	28	4	9.1	4	20.3	1	28	1	7.9		CR	CS 11/01
A2-11 /	9	Surr	28	4	7.8	4	16.8	1	28	1	7.9	CR		CR 11/2
A2-11 /	10	Surr	28	3	7.0	3	19.9	3	28	3	7.6		MMB	JO 11/3
A2-11 /	11	Surr	28	3	6.7	3	20.1	3	28	3	8.0			JO 11/4
A2-11 /	12	Surr	28	3	6.7	3	19.9	3	28	3	7.9	MMB	MMB	JO 11/5
A2-11 /	13	Surr	28	3	6.7	3	20.0	3	28	3	7.8			JO 11/6
A2-11 /	14	Surr	28	3	6.9	3	20.0	3	28	3	7.9		JS	JO 11/7
A2-11 /	15	Surr	28	3	6.3	3	20.2	3	28	3	7.9	MMB		JO 11/8
A2-11 /	16	Surr	28	4	7.2	4	20.4	1	28	1	7.9		MMB	JO 11/9
A2-11 /	17	Surr	28	4	7.5	4	20.4	1	28	1	7.9			JO 11/10
A2-11 /	18	Surr	28	4	7.4	4	20.2	1	28	1	7.9	JO	MMB	JO 11/11
A2-11 /	19	Surr	28	4	7.4	4	20.5	1	28	1	7.9			CR 11/12
A2-11 /	20	Surr	28	4	7.6	4	20.2	1	28	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A2-13 /	0	Surr	24	3	9.1	3	19.8	3	27	3	7.6		TS	CW 10/24/08
A2-13 /	1	Surr	24	4	7.5	4	20.3	1	27	1	7.8			JO 10/25
A2-13 /	2	Surr	24	4	7.6	4	20.0	1	27	1	7.6			CS 10/26
A2-13 /	3	Surr	24	4	7.6	4	20.2	1	27	1	7.8	BH		BH 10/27
A2-13 /	4	Surr	24	3	6.9	3	19.9	3	28	3	8.1		BH	CR 10/28
A2-13 /	5	Surr	24	4	6.9	4	20.1	1	~~26.1~~ 27	1	7.9			CS 10/29
A2-13 /	6	Surr	24	3	6.5	3	20.0	3	27	3	8.0	MMB	MMB	CW 10/30
A2-13 /	7	Surr	24	3	6.2	3	20.1	3	28	3	7.9			CR 10/31
A2-13 /	8	Surr	24	4	7.9	4	20.3	1	28	1	7.9		CR	CS 11/01
A2-13 /	9	Surr	24	4	7.5	4	16.8	1	28	1	7.9	CR		CR 11/2
A2-13 /	10	Surr	24	3	6.4	3	19.6	3	27	3	7.5		MMB	JO 11/3
A2-13 /	11	Surr	24	3	6.2	3	20.1	3	27	3	7.9			JO 11/4
A2-13 /	12	Surr	24	3	6.2	3	19.9	3	28	3	7.8	MMB	MMB	JO 11/5
A2-13 /	13	Surr	24	3	6.1	3	20.0	3	28	3	7.7			JO 11/6
A2-13 /	14	Surr	24	3	6.1	3	20.1	3	28	3	7.9		TS	JO 11/7
A2-13 /	15	Surr	24	3	5.7①	3	20.2	3	28	3	7.7	MMB		JO 11/8
A2-13 /	16	Surr	24	4	7.1	4	20.4	1	28	1	7.9		MMB	JO 11/9
A2-13 /	17	Surr	24	4	7.5	4	20.3	1	28	1	7.9			JO 11/10
A2-13 /	18	Surr	24	4	7.5	4	20.1	1	28	1	7.9	JO	MMB	JO 11/11
A2-13 /	19	Surr	24	4	7.4	4	20.4	1	28	1	7.9			CR 11/12
A2-13 /	20	Surr	24	4	7.7	4	20.1	1	28	1	7.8			BH 11/13

① Increased aeration flow JHO 11/4

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A2-14 /	0	Surr	91	3	9.5	3	19.9	3	27.	3	7.6		TS	CW 10/24/08
A2-14 /	1	Surr	91	4	7.1	4	20.3	1	27	1	7.7			↓ 10/25
A2-14 /	2	Surr	91	4	7.4	4	20.3	1	27	1	7.6		↓	CS 10/26
A2-14 /	3	Surr	91	4	7.4	4	20.2	1	27	1	7.7	BH		BH 10/27
A2-14 /	4	Surr	91	4	7.6	4	20.0	1	28	1	7.8		BH	BH 10/28
A2-14 /	5	Surr	91	4	7.1	4	20.0	1	28	1	~~7.8~~			CS 10/29
A2-14 /	6	Surr	91	3	6.7	3	20.0	3	28	3	7.8	MMB	MMB	CW 10/30
A2-14 /	7	Surr	91	3	5.6①	3	20.1	3	28	3	7.7			CR 10/31
A2-14 /	8	Surr	91	4	9.0	4	20.3	1	28	1	8.0		CR	CS 11/01
A2-14 /	9	Surr	91	4	7.8	4	16.8	1	28	1	7.9	CR		CR 11/2
A2-14 /	10	Surr	91	3	3.3②	3	19.6	3	28	3	7.2		MMB	JO 11/3
A2-14 /	11	Surr	91	3	6.9	3	19.9	3	28	3	8.1			JO 11/4
A2-14 /	12	Surr	91	3	7.0	3	19.8	3	28	3	8.0	MMB	MMB	JO 11/5
A2-14 /	13	Surr	91	3	6.4	3	20.0	3	28	3	7.9			JO 11/6
A2-14 /	14	Surr	91	3	7.2	3	20.0	3	28	3	8.0		TS	JO 11/7
A2-14 /	15	Surr	91	3	1.4①	3	20.1	3	28	3	7.4	MMB		JO 11/8
A2-14 /	16	Surr	91	4	7.2	4	20.3	1	28	1	7.9		MMB	JO 11/9
A2-14 /	17	Surr	91	4	7.5	4	20.4	1	29	1	7.9			JO 11/10
A2-14 /	18	Surr	91	4	7.4	4	20.0	1	29	1	7.9	JO	MMB	JO 11/11
A2-14 /	19	Surr	91	4	7.5	4	20.4	1	29	1	7.9			CR 11/12
A2-14 /	20	Surr	91	4	7.7	4	19.9	1	29	1	7.8			CH 11/13

① Aeration increased CR 10/31
② Increase aeration flow JHO 11/3
③ air tube out of water. Replaced 11/4 dosg JHO

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A2-18 /	0	Surr	59	3	9.7	3	19.7	3	27.	3	7.7		TS	CW 10/24/08
A2-18 /	1	Surr	59	4	7.6	4	20.3	1	27	1	7.8			✓ 10/25
A2-18 /	2	Surr	59	4	7.2	4	20.0	1	27	1	7.5		✓	CS 10/26
A2-18 /	3	Surr	59	4	7.5	4	20.1	1	27	1	7.7	BH		BH 10/27
A2-18 /	4	Surr	59	3	6.9	3	19.8	3	28	3	7.8		BH	CR 10/28
A2-18 /	5	Surr	59	4	7.4	4	20.0	1	28	1	7.8			CS 10/29
A2-18 /	6	Surr	59	3	6.8	3	19.9	3	28	3	7.7	MMB	MMB	CW 10/30
A2-18 /	7	Surr	59	3	6.7	3	20.0	3	28	3	7.9			CR 10/31
A2-18 /	8	Surr	59	4	7.9	4	20.2	1	28	1	7.9		CR	CS 11/1
A2-18 /	9	Surr	59	4	7.8	4	16.8	1	28	1	8.0	CR		CR 11/2
A2-18 /	10	Surr	59	3	6.7	3	19.6	3	27	3	7.5		MMB	JO 11/3
A2-18 /	11	Surr	59	3	6.5	3	20.0	3	27	3	7.9			JO 11/4
A2-18 /	12	Surr	59	3	6.6	3	19.9	3	27	3	7.9	MMB	MMB	JO 11/5
A2-18 /	13	Surr	59	3	6.5	3	19.9	3	28	3	7.8			JO 11/6
A2-18 /	14	Surr	59	3	6.7	3	20.1	3	28	3	7.9		TS	JO 11/7
A2-18 /	15	Surr	59	3	6.3	3	20.0	3	28	3	7.8	MMB		JO 11/8
A2-18 /	16	Surr	59	4	6.9	4	20.3	1	28	1	7.8		MMB	JO 11/9
A2-18 /	17	Surr	59	4	7.4	4	20.3	1	28	1	7.8			JO 11/10
A2-18 /	18	Surr	59	4	7.3	4	20.1	1	28	1	7.8	JO	MMB	JO 11/11
A2-18 /	19	Surr	59	4	7.1	4	20.4	1	28	1	7.7			CR 11/12
A2-18 /	20	Surr	59	4	7.4	4	20.0	1	28	1	7.6			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
				D.O.		TEMP		SALINITY		pH				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	meter	mg/L	meter	°C	meter	ppt	meter	unit	WATER RENEWAL	Feeding	TECH/DATE
A2-21 /	0	Surr	123	3	9.7	3	19.6	3	26	3	7.8		TS	CW 10/24/08
A2-21 /	1	Surr	123	4	7.7	4	20.3	1	26	1	7.9			CW 10/25
A2-21 /	2	Surr	123	4	7.8	4	20.0	1	26	1	7.6			CS 10/26
A2-21 /	3	Surr	123	4	7.7	4	20.2	1	26	1	BH 8.0	BH		BH 10/27
A2-21 /	4	Surr	123	4	7.8	4	20.2	1	28	1	7.9		BH	BH 10/28
A2-21 /	5	Surr	123	4	7.6	4	20.0	1	27	1	8.1			CS 10/29
A2-21 /	6	Surr	123	3	7.1	3	19.9	3	27	3	8.2	MMB	MMB	CW 10/30
A2-21 /	7	Surr	123	3	6.9	3	20.0	3	27	3	8.2			CR 10/31
A2-21 /	8	Surr	123	4	8.9	4	20.2	1	27	1	8.2		CR	CS 11/01
A2-21 /	9	Surr	123	4	8.0	4	16.8	1	28	1	~~8.7~~ ② 8.2	CR		CR 11/2
A2-21 /	10	Surr	123	3	6.9	3	19.8	3	27	3	7.8		MMB	JO 11/3
A2-21 /	11	Surr	123	3	7.0	3	19.9	3	28	3	8.2			JO 11/4
A2-21 /	12	Surr	123	3	6.8	3	19.9	3	28	3	8.2	MMB	MMB	JO 11/5
A2-21 /	13	Surr	123	3	7.0	3	20.0	3	28	3	8.1			JO 11/6
A2-21 /	14	Surr	123	3	6.9	3	19.9	3	28	3	8.2		TS	JO 11/7
A2-21 /	15	Surr	123	3	6.6	3	20.1	3	28	3	8.1	MMB		JO 11/8
A2-21 /	16	Surr	123	4	7.0	4	20.4	1	28	1	8.0		MMB	JO 11/9
A2-21 /	17	Surr	123	4	7.6	4	20.3	1	29	1	8.0			JO 11/10
A2-21 /	18	Surr	123	4	7.5	4	20.1	1	29	1	8.0	JO	MMB	JO 11/11
A2-21 /	19	Surr	123	4	7.5	4	20.4	1	28	1	8.0			CR 11/12
A2-21 /	20	Surr	123	4	7.7	4	20.0	1	28	1	7.8			BH 11/13

① MR 10.27.08 BK
② IE CR 11/2

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A2-25 /	0	Surr	32	3	9.6	3	19.8	3	27	3	7.7.		TS	CW 10/24/08
A2-25 /	1	Surr	32	4	7.6	4	20.4	1	26	1	7.8			J 10/25
A2-25 /	2	Surr	32	4	7.5	4	20.0	1	27	1	7.5		J	CS 10/26
A2-25 /	3	Surr	32	4	7.8	4	20.1	1	27	1	7.8	BH		BH 10/27
A2-25 /	4	Surr	32	3	7.3	3	19.9	3	28	3	8.1		BH	CR 10/28
A2-25 /	5	Surr	32	4	7.6	4	20.2	1	~~28~~ 26.2	1	8.0			CS 10/29
A2-25 /	6	Surr	32	3	7.1	3	20.0	3	28	3	7.9	MMB	MMB	CW 10/30
A2-25 /	7	Surr	32	3	7.0	3	20.1	3	28	3	8.1			CR 10/31
A2-25 /	8	Surr	32	4	9.1	4	20.3	1	28	1	8.0		CR	CS 11/01
A2-25 /	9	Surr	32	4	8.0	4	16.8	1	28	1	8.0	CR		CR 11/2
A2-25 /	10	Surr	32	3	6.8	3	19.7	3	28	3	7.6		MMB	JO 11/3
A2-25 /	11	Surr	32	3	6.8	3	20.0	3	28	3	8.0			JO 11/4
A2-25 /	12	Surr	32	3	7.2	3	20.0	3	28	3	8.0	MMB	MMB	JO 11/5
A2-25 /	13	Surr	32	3	6.7	3	20.1	3	28	3	7.9			JO 11/6
A2-25 /	14	Surr	32	3	6.8	3	20.1	3	28	3	8.0		TS	JO 11/7
A2-25 /	15	Surr	32	3	6.4	3	20.1	3	28	3	7.9	MMB		JO 11/8
A2-25 /	16	Surr	32	4	6.8	4	20.4	1	28	1	7.8		MMB	JO 11/9
A2-25 /	17	Surr	32	4	7.5	4	20.4	1	29	1	7.9			JO 11/10
A2-25 /	18	Surr	32	4	7.5	4	20.2	1	29	1	7.9	JO	MMB	JO 11/11
A2-25 /	19	Surr	32	4	7.4	4	20.4	1	28	1	7.9			CR 11/12
A2-25 /	20	Surr	32	4	7.7	4	20.1	1	29	1	7.8			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A2-36 /	0	Surr	40	3	9.4	3	19.9	3	26	3	7.5		TS	CW 10/24
A2-36 /	1	Surr	40	4	7.4	4	20.4	1	26	1	7.7			JT 10/25
A2-36 /	2	Surr	40	4	4.1 ①	4	20.1	1	26	1	7.2		JT	CS 10/26
A2-36 /	3	Surr	40	4	7.8	4	20.2	1	27	1	7.8	BH		BH 10/27
A2-36 /	4	Surr	40	3	7.2	3	19.8	3	27	3	7.9		BH	CR 10/28
A2-36 /	5	Surr	40	4	7.6	4	20.1	1	27	1	7.9			CS 10/29
A2-36 /	6	Surr	40	3	7.1	3	20.0	3	27	3	8.0	MMB	MMB	CW 10/30
A2-36 /	7	Surr	40	3	6.9	3	20.1	3	27	3	8.0			CR 10/31
A2-36 /	8	Surr	40	4	9.0	4	20.3	1	27	1	8.0		CR	CS 11/01
A2-36 /	9	Surr	40	4	7.9	4	16.8	1	28	1	8.0	CR		CR 11/2
A2-36 /	10	Surr	40	3	5.6 ②	3	19.9	3	27	3	7.4		MMB	JO 11/3
A2-36 /	11	Surr	40	3	6.7	3	20.1	3	27	3	8.0			JO 11/4
A2-36 /	12	Surr	40	3	6.8	3	20.0	3	27	3	8.0	MMB	MMB	JO 11/5
A2-36 /	13	Surr	40	3	6.7	3	20.1	3	28	3	7.9			JO 11/6
A2-36 /	14	Surr	40	3	7.0	3	20.1	3	28	3	8.0		TS	JO 11/7
A2-36 /	15	Surr	40	3	6.5	3	20.2	3	28	3	7.9	MMB		JO 11/8
A2-36 /	16	Surr	40	4	7.2	4	20.4	1	28	1	7.9		MMB	JO 11/9
A2-36 /	17	Surr	40	4	7.6	4	20.4	1	28	1	7.9			JO 11/10
A2-36 /	18	Surr	40	4	7.5	4	20.2	1	28	1	7.9	JO	MMB	JO 11/11
A2-36 /	19	Surr	40	4	7.4	4	20.5	1	28	1	7.9			CR 11/12
A2-36 /	20	Surr	40	4	7.7	4	20.1	1	28	1	7.7			BH 11/13

① Aeration low. corrected 10/26/08 BH

② Aeration tube out of jar. corrected 11/3/08 JMO

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A3-05E /	0	Surr	104	3	9.6	3	19.9	3	27	3	7.8		JS	CW 10/24/08
A3-05E /	1	Surr	104	4	7.5	4	20.4	1	26	1	7.7			✓ 10/25
A3-05E /	2	Surr	104	4	7.2	4	20.3	1	26	1	7.3		✓	CS 10/26
A3-05E /	3	Surr	104	4	7.6	4	20.2	1	27	1	7.7	BH		BH 10/27
A3-05E /	4	Surr	104	4	7.8	4	20.2	1	27	1	7.8		BH	BH 10/28
A3-05E /	5	Surr	104	4	7.5	4	20.1	1	27	1	7.9			CS 10/29
A3-05E /	6	Surr	104	3	7.0	3	19.9	3	27	3	7.9	MMB	MMB	CW 10/30
A3-05E /	7	Surr	104	3	6.9	3	20.1	3	27	3	7.9			CR 10/31
A3-05E /	8	Surr	104	4	7.9	4	20.3	1	28	1	7.9		CR	CS 11/01
A3-05E /	9	Surr	104	4	7.8	4	16.8	#1	28	1	7.9	CR		CR 11/2
A3-05E /	10	Surr	104	3	6.8	3	19.9	3	27	3	7.5		MMB	JO 11/3
A3-05E /	11	Surr	104	3	6.7	3	20.1	3	27	3	7.9			JO 11/4
A3-05E /	12	Surr	104	3	6.7	3	20.0	3	28	3	7.9	MMB	MMB	JO 11/5
A3-05E /	13	Surr	104	3	6.7	3	20.1	3	28	3	7.9			JO 11/6
A3-05E /	14	Surr	104	3	6.9	3	20.1	3	28	3	8.0		JS	JO 11/7
A3-05E /	15	Surr	104	3	6.4	3	20.2	3	28	3	7.9	MMB		JO 11/8
A3-05E /	16	Surr	104	4	6.9	4	20.4	1	28	1	7.8		MMB	JO 11/9
A3-05E /	17	Surr	104	4	7.5	4	20.4	1	28	1	7.9			JO 11/10
A3-05E /	18	Surr	104	4	7.3	4	20.2	1	28	1	7.8	JO	MMB	JO 11/11
A3-05E /	19	Surr	104	4	7.3	4	20.5	1	28	1	7.8			CR 11/12
A3-05E /	20	Surr	104	4	7.6	4	20.1	1	28	1	7.7			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A3-07B /	0	Surr	107	3	9.5	3	19.9	3	26	3	7.6		TS	aw 10/24/08
A3-07B /	1	Surr	107	B	7.4	B	20.4	1	26	1	7.7			JL 10/25
A3-07B /	2	Surr	107	4	7.5	4	20.3	1	26	1	7.0		J	CS 10/26
A3-07B /	3	Surr	107	4	7.6	4	20.3	1	26	1	7.7	BH		BH 10/27
A3-07B /	4	Surr	107	4	7.8	4	20.2	1	27	1	7.8		BH	BH 10/28
A3-07B /	5	Surr	107	4	7.3	4	20.2	1	27	1	7.8			CS 10/29
A3-07B /	6	Surr	107	3	7.7	3	19.9	3	27	3	7.7	MMB	MMB	aw 10/30
A3-07B /	7	Surr	107	3	6.5	3	20.0	3	27	3	7.8			CR 10/31
A3-07B /	8	Surr	107	4	8.7	4	20.3	1	27	1	7.9		CR	CS 11/01
A3-07B /	9	Surr	107	4	7.7	4	16.8	1	27	1	7.8	CR		CR 11/2
A3-07B /	10	Surr	107	3	6.5	3	19.8	3	27	3	7.4		MMB	JO 11/3
A3-07B /	11	Surr	107	3	6.3	3	20.2	3	27	3	7.8			JO 11/4
A3-07B /	12	Surr	107	3	6.8	3	20.0	3	27	3	7.8	MMB	MMB	JO 11/5
A3-07B /	13	Surr	107	3	6.7	3	20.0	3	27	3	7.9			JO 11/6
A3-07B /	14	Surr	107	3	7.0	3	20.1	3	28	3	8.0		TS	JO 11/7
A3-07B /	15	Surr	107	3	6.6	3	20.1	3	28	3	7.9	MMB		JO 11/8
A3-07B /	16	Surr	107	4	7.1	4	20.3	1	28	1	7.8		MMB	JO 11/9
A3-07B /	17	Surr	107	4	7.5	4	20.4	1	28	1	7.9			JO 11/10
A3-07B /	18	Surr	107	4	7.3	4	20.2	1	28	1	7.8	JO	MMB	JO 11/11
A3-07B /	19	Surr	107	4	7.4	4	20.5	1	28	1	7.8			CR 11/12
A3-07B /	20	Surr	107	4	7.7	4	20.1	1	28	1	7.7			BH 11/13

NEWFIELDS

20 DAY SOLID PHASE BIOASSAY
WATER QUALITY DATASHEET

CLIENT	PROJECT	START TIME/ END TIME	DILUTION WATER BATCH	PROTOCOL	TEST START DATE
WDOE	Port Gardner	/	FSW102308.01	PSEP 1995	23-Oct-2008
JOB NUMBER	**PROJECT MANAGER**	**NEWFIELDS LABORATORY**	**TEMP. RECDR./HOBO#**	**TEST SPECIES**	**TEST END DATE**
0	Collin Ray			*Neanthes arenaceodentata*	12-Nov-2008

WATER QUALITY DATA

TEST CONDITIONS				DO (mg/L) > 6.0		TEMP (C) 20 ± 1		SALINITY (ppt) 28 ± 1		pH 8.0±1.0				
CLIENT/NEWFIELDS ID	DAY	REP	JAR	D.O. meter	D.O. mg/L	TEMP meter	TEMP °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WATER RENEWAL	Feeding	TECH/DATE
A4-08B /	0	Surr	23	3	9.1	3	19.8	3	26	3	7.8		TS	TS 10/24
A4-08B /	1	Surr	23	4	7.7	4	20.4	1	26	1	7.8			✓ 10/25
A4-08B /	2	Surr	23	4	7.5	4	19.9	1	26	1	7.5		✓	CS 10/26
A4-08B /	3	Surr	23	4	7.8	4	20.1	1	26	1	7.8	BH		BH 10/27
A4-08B /	4	Surr	23	3	7.3	3	19.9	3	27	3	8.1		BH	CR 10/28
A4-08B /	5	Surr	23	4	7.7	4	20.0	1	~~25~~ 27	1	7.9			CS 10/29
A4-08B /	6	Surr	23	3	7.1	3	19.9	3	27	3	7.8	MMB	MMB	CR 10/30
A4-08B /	7	Surr	23	3	7.2	3	20.1	3	~~28~~ 27	3	8.1			CR 10/31
A4-08B /	8	Surr	23	4	9.2	4	20.4	1	27	1	8.0		CR	CS 11/01
A4-08B /	9	Surr	23	4	8.0	4	16.8	1	27	1	8.0	CR		CR 11/02
A4-08B /	10	Surr	23	3	7.1	3	19.7	3	27	3	7.7		MMB	JO 11/3
A4-08B /	11	Surr	23	3	7.0	3	20.0	3	27	3	8.1			JO 11/4
A4-08B /	12	Surr	23	3	6.7	3	20.1	3	27	3	7.9	MMB	MMB	JO 11/5
A4-08B /	13	Surr	23	3	6.8	3	20.0	3	28	3	8.0			JO 11/6
A4-08B /	14	Surr	23	3	6.9	3	20.2	3	28	3	8.0		TS	JO 11/7
A4-08B /	15	Surr	23	3	6.6	3	20.1	3	28	3	7.9	MMB		JO 11/8
A4-08B /	16	Surr	23	4	7.3	4	20.4	1	28	1	7.9		MMB	JO 11/9
A4-08B /	17	Surr	23	4	7.7	4	20.3	1	28	1	7.9			JO 11/10
A4-08B /	18	Surr	23	4	7.6	4	20.1	1	29	1	7.9	JO	MMB	JO 11/11
A4-08B /	19	Surr	23	4	7.5	4	20.4	1	28	1	7.8			CR 11/12
A4-08B /	20	Surr	23	4	7.8	4	20.2	1	28	1	7.7			BH 11/13

DIE CR 10/31

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
Port Gardner	Neanthes		20d

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST:** 0
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control		10/24 CS	ND	19.8	10/24 CS	N			0
CR-22			ND						0.020
CR-20/24			0.52						0.043
A1-01			ND						0.036
A1-03			ND						0.010
A1-07			ND						0.006
A1-10			ND						0.024
A1-16			ND						0.027
A1-24			ND						0.024
A2-10			ND						~~0.008~~ 0.006
A2-11			ND						0.006
A2-13			ND						0.005
A2-14			ND						0.013
A2-18			ND						0.009
A2-21			ND						0.013
A2-25			ND						0.024

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-36		10/24 CS	ND	19.8	10/24 CS				0.017
A3-05E			ND						0.029
A3-07B			ND						0.027
A4-08B			ND						0.063
CR 23			ND						0.028

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC / Port Gardner	Neanthes		20

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST:** 0
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	Temperature:	
~~23 Oct.~~		
24 Oct. '08		

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	10/24/08, MMB				Y	6.8	27	0.047
CR-22							7.0	27	~~0.627~~
CR-20/24							7.3	28	0.125
A1-01							7.3	28	0.349
A1-03							7.3	27	0.336
A1-07							7.3	28	0.385
A1-10							7.3	27	0.169
A1-16									~~0.387~~ 0.191
A1-24									0.201
A2-10									0.277
A2-11									0.271
A2-13									0.155
A2-14									0.122
A2-18									0.152
A2-21									0.081
A2-25	↓	↓				↓			0.067

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-36	Surr.	10/24/08, MMB				Y			0.208
A3-05E	↓	↓				↓			0.286
A3-07B									0.077
A4-08B									0.070
CR.23	↓	↓				↓			0.202

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC / Port Gardner	Neanthes		20

PRETEST / INITIAL / FINAL / OTHER (circle one) **DAY of TEST:** 0
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	Temperature:	
~~23 Oct.~~		
24 Oct. '08		

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	10/24/08, MMB	ND	20.4	10/28 CS	Y	6.8	27	
22			7.08				7.0	27	
20/24			3.04				7.3	28	
01			0.713				7.3	28	
03			1.30				7.3	27	
07			1.37				7.3	28	
10			QCS 1.04				7.3	27	
16			1.08				7.4	27	
24			0.939				7.5	27	
10			~~2.19~~ 1.15				7.3	27	
11			~~2.14~~ 0.816				7.3	27	
13			~~0.606~~ 1.85				7.2	27	
4			1.20				7.0	26	
8			ND				7.1	27	
21			0.777				7.0	26	
25			ND				7.0	27	

Data user Error

nple ID or scription	Conc. or Rep	Date of Sampling and Initials	Ammonia Va (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserv (Y/N	pH	Sal (ppt)	Sulf. mg/L
36	Surv.	10/24/08, MMB	0.939			Y	6.8	26	
05E	↓	↓	2.23			↓	6.8	26	
07B			1.14				6.6	26	
08B			1.19				6.6	25	
2.23	↓	↓	1.40			↓	7.2	27	

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Initial PW

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	Neanthes		20

PRETEST / ~~INITIAL~~ / FINAL / OTHER (circle one) **DAY of TEST:** 20
OVERLYING (OV) / POREWATER (PW) (circle one)

Calibration Standards Temperature	
Date:	**Temperature:**
13 Nov. 108	20

Sample temperature should be within ±1°C of standards temperature at time and date of analysis.

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	11/13/08 MMB	5.79	20	11/13/08 BH/MMB	N			0.002
CR-22			5.96						0.003
CR-23			<0.5						0.004
CR-20/24			<0.5						0.007
A1-01			<0.5						0.006
A1-03			<0.5						0.002
A1-07			<0.5						0.005
A1-10			<0.5						0.004
A1-16			<0.5						0.006
A1-24			<0.5						0.006
A2-10			<0.5						0.003
A2-11			<0.5						0.008
A2-13			2.40						0.005
A2-14			<0.5						0.003
A2-18			<0.5						0.003
A2-21	↓	↓	<0.5			↓			0.003

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-25	SW07.	11/13/08 MMB	<0.5	20	11/13/08 BH/MMB	N			0.021
A2-36	↓	↓	<0.5	↓	↓	↓			0.005
A3-05E			<0.5						0.002
A3-07B			<0.5						0.005
A4-08B	↓	↓	<0.5	↓	↓	↓			0.015

NEWFIELDS

Ammonia Analysis
Total Ammonia (mg/L)

Client/Project:	Organism:	NewFields Test ID:	Test Duration (days):
SAIC/Port Gardner	Neanthes		20

PRETEST / INITIAL / FINAL / ~~OTHER (circle one)~~ DAY of TEST: _____
OVERLYING (OV) / PORE WATER (PW) (circle one)

Calibration Standards Temperature		Sample temperature should be within ±1°C of standards temperature at time and date of analysis.
Date:	**Temperature:**	
14 Nov. '08		

Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N)	pH	Sal (ppt)	Sulf. mg/L
Control	Surr.	11/14/08, MMB	5.66	20.5	11/14/08, MMB	N	7.3	28	0.016
CR-22			6.27				7.3	28	0.181
CR-23			<0.5				7.3	28	0.062
CR-20/24			<0.5				7.3	28	0.064
A1-01			<0.5				7.0	28	0.147
A1-03			<0.5				7.0	28	0.092
A1-07			<0.5				6.9	28	0.089
A1-10			<0.5				7.0	28	0.072
A1-16			<0.5				7.0	28	0.123
A1-24			<0.5				7.0	28	0.074
A2-10			<0.5				7.0	28	0.112
A2-11			<0.5				6.9	28	0.067
A2-13			2.10				①~~6.8~~ ~~7.0~~	28	0.047
A2-14			<0.5				6.6	28	0.060
A2-18	③						②~~6.5~~	~~28~~	→
A2-21	↓	↓	<0.5	↓	↓	↓	6.5	28	0.057

① IE, MMB 11/14/08 ② WC, MMB 11/14/08 ③ Surr. broken down @ termination, no PW values. MMB 11/14/08

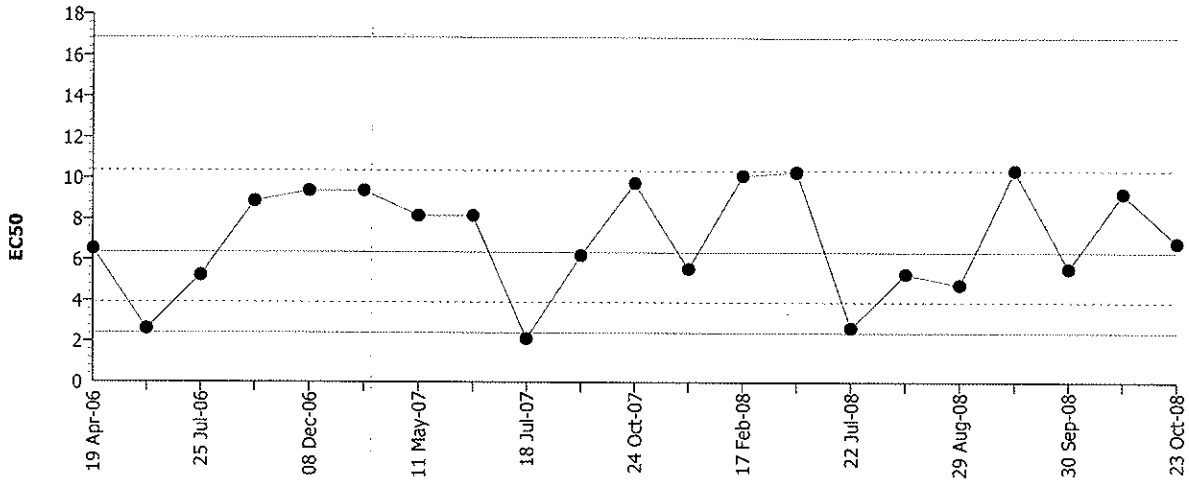
Sample ID or Description	Conc. or Rep	Date of Sampling and Initials	Ammonia Value (mg/L)	Temp °C	Date of Reading and Initials	Sample Preserved (Y/N	pH	Sal (ppt)	Sulf. mg/L
A2-25	Surf.	11/14/08, MMB	<0.5	20.5	11/14/08, MMB	N	6.5	28	0.025
A2-36	↓	↓	<0.5	↓	↓	↓	6.3	28	0.071
A3-05E			0.521				6.3	29	0.081
A3-07B			<0.5				6.3	29	0.081
A4-08B	↓	↓	<0.5	↓	↓	↓	6.4	29	0.042

CETIS QC Chart

Report Date: 06 Nov-08 12:49 PM

Neanthes 10-d Survival and Growth Sediment Test — **NewFields**

Test Type:	Survival-Growth	**Organism:**	Neanthes arenaceodentata (Polycha	**Material:**	Cadmium chloride
Protocol:	PSEP (1995)	**Endpoint:**	Proportion Survived	**Source:**	Reference Toxicant-REF



Mean:	6.378	**Count:**	20	**-1s Warning Limit:**	3.92313	**-2s Action Limit:**	2.41313
Sigma:		**CV:**	62.57%	**+1s Warning Limit:**	10.369	**+2s Action Limit:**	16.8573

Quality Control Data

Point	Year	Month	Day	Data	Delta	Sigma	Warning	Action	Test Link	Analysis
1	2006	Apr	19	6.52448	0.14649	0.04673			06-6982-0696	07-7843-7824
2		Jun	23	2.61220	-3.76580	-1.83688	(-)		11-2423-7791	08-2080-8513
3		Jul	25	5.22653	-1.15147	-0.40971			15-7582-9934	07-9049-7308
4		Aug	31	8.86577	2.48777	0.67771			16-7169-3504	00-9849-6979
5		Dec	8	9.37175	2.99376	0.79192			10-5822-0812	10-0140-9364
6			8	9.37175	2.99376	0.79192			10-5822-0812	08-7192-3895
7	2007	May	11	8.16253	1.78453	0.50765			03-7778-9913	06-1785-2165
8		Jun	26	8.16258	1.78459	0.50766			09-6212-3109	14-8493-4946
9		Jul	18	2.13748	-4.24052	-2.24960	(-)	(-)	09-5163-0637	11-9760-1230
10		Sep	25	6.20193	-0.17607	-0.05760			06-6354-6111	12-2113-4941
11		Oct	24	9.76006	3.38207	0.87546			05-9113-1606	14-0319-5260
12			30	5.55412	-0.82388	-0.28462			03-0327-1386	13-6201-5780
13	2008	Feb	17	10.12762	3.74962	0.95153			11-6935-8907	04-7495-8038
14		Jul	2	10.30107	3.92307	0.98648			07-0160-7176	03-3190-0644
15			22	2.65108	-3.72691	-1.80648	(-)		12-3989-8103	10-4556-3131
16		Aug	5	5.30308	-1.07491	-0.37979			12-5764-3928	08-5080-2403
17			29	4.77241	-1.60559	-0.59676			04-2068-8020	17-2391-7369
18		Sep	26	10.37648	3.99848	1.00149	(+)		12-2518-6391	15-3142-3234
19			30	5.55412	-0.82388	-0.28462			14-9908-4079	13-4530-5299
20		Oct	9	9.26124	2.88325	0.76751			06-2717-9387	09-3671-8537
21			23	6.83792	0.45992	0.14328			19-3732-1210	02-0490-6958

CETIS Analysis Detail

Neanthes 10-d Survival and Growth Sediment Test NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	19-3732-1210	19-3732-1210	06 Nov-08 12:48 PM	CETISv1.1.2

Method	Alt H	Data Transform	Zeta
Dunnett's Multiple Comparison	C > T	Angular (Corrected)	

NOEL	LOEL	Toxic Units	ChV	PMSD
3.75	7.5	26.6667	5.30330	4.70%

Group Comparisons

Control	vs	Conc-mg/L	Statistic	Critical	P-Value	MSD	Decision(0.05)
Dilution Water		1.875	0	2.41651	0.7500	0.05985	Non-Significant Effect
		3.75	0	2.41651	0.7500	0.05985	Non-Significant Effect
		7.5	30.7792	2.41651	0.0000	0.05985	Significant Effect

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P-Value	Decision(0.05)
Between	1.307558	0.4358527	3	473.68	0.00000	Significant Effect
Error	0.0073611	0.0009201	8			
Total	1.31491931	0.4367728	11			

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P-Value	Decision(0.01)
Variances	Modified Levene	2.22222	7.59099	0.16306	Equal Variances
Distribution	Shapiro-Wilk W	0.65002		0.00029	Non-normal Distribution

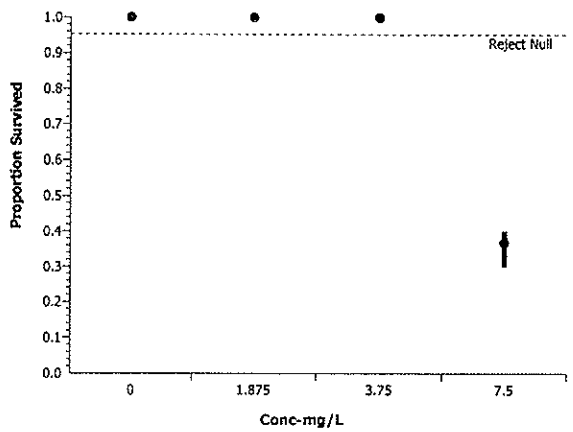
Data Summary

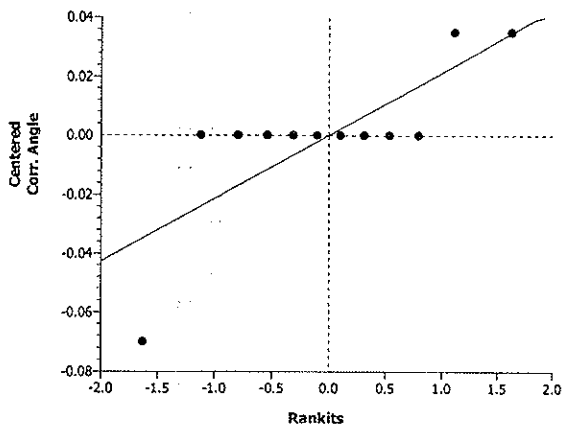
			Original Data				Transformed Data			
Conc-mg/L	Control Type	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
0	Dilution Water	3	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00029
1.875		3	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00029
3.75		3	1.00000	1.00000	1.00000	0.00000	1.41202	1.41202	1.41202	0.00029
7.5		3	0.36667	0.30000	0.40000	0.05774	0.64969	0.57964	0.68472	0.06067

Data Detail

Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Dilution Water	1.00000	1.00000	1.00000							
1.875		1.00000	1.00000	1.00000							
3.75		1.00000	1.00000	1.00000							
7.5		0.40000	0.40000	0.30000							

Graphics





CETIS Analysis Detail

Report Date: 06 Nov-08 12:48 PM
Analysis: 02-0490-6958

Neanthes 10-d Survival and Growth Sediment Test — NewFields

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Trimmed Spearman-Karber	19-3732-1210	19-3732-1210	06 Nov-08 12:48 PM	CETISv1.1.2

Spearman-Karber Options

Threshold Option	Lower Threshold	Trim	Mu	Sigma
Control Threshold	0	0.00%	0.8349239	0.02648506

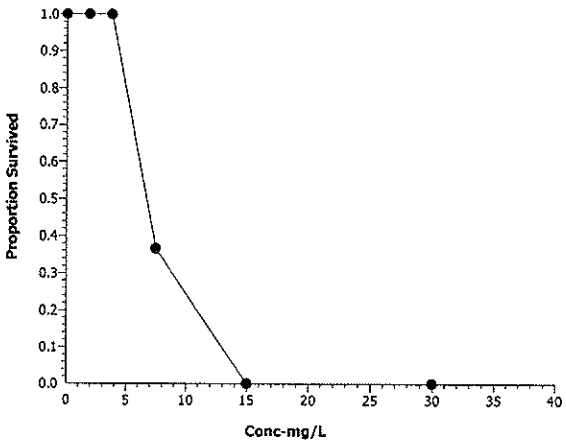
Point Estimates

EC50/LC50	95% LCL	95% UCL
6.83792	6.05276	7.72492

Data Summary

Conc-mg/	Control Type	Count	Calculated Variate(A/B) Mean	Minimum	Maximum	SE	SD	A	B
0	Dilution Water	3	1.00000	1.00000	1.00000	0.00000	0.00000	30	30
1.875		3	1.00000	1.00000	1.00000	0.00000	0.00000	30	30
3.75		3	1.00000	1.00000	1.00000	0.00000	0.00000	30	30
7.5		3	0.36667	0.30000	0.40000	0.01179	0.05774	11	30
15		3	0.00000	0.00000	0.00000	0.00000	0.00000	0	30
30		3	0.00000	0.00000	0.00000	0.00000	0.00000	0	30

Graphics



NEWFIELDS

96-HOUR REFERENCE TOXICANT TEST
OBSERVATION DATASHEET

CLIENT	PROJECT	NEWFIELDS JOB #	SPECIES	PROJECT MANAGER	NEWFIELDS LAB	PROTOCOL
WDOE	Port Gardner	0	*Neanthes arenaceodentata*	Collin Ray	Port Gamble	PSEP 1995

SURVIVAL & BEHAVIOR DATA

#S= Number on the Surface
#M= Number of Mortality
L=Anoxic Surface
F=Fungal Patches
D=No Air Flow (DO?)
U=Excess food
N=Normal
B=No Burrows

INITIAL # OF ORGANISMS: 10

					DAY 1			DAY 2			DAY 3			DAY 4		
					DATE: 10/25			DATE: 10/26			DATE: 10/27			DATE: 10/28		
					TECHNICIAN: ↓			TECHNICIAN: MP			TECHNICIAN: BH			TECHNICIAN: BH		
CLIENT/ NEWFIELDS ID	CONC. value	CONC. units	REP	INITIAL NUMBER	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS	#ALIVE	#DEAD	OBS
Ref.Tox.-cadmium	0	mg/L	1		10	Ø	N	10	0	N	10	0	N	10	0	N
			2		10	Ø	↓	10	0	N	10	0	N	10	0	N
			3		10	Ø	↓	10	0	N	10	0	N	10	0	N
Ref.Tox.-cadmium	1.875	mg/L	1		10	Ø	N	10	0	N	10	0	N	10	0	N
			2		10	Ø	↓	10	0	N	10	0	N	10	0	N
			3		10	Ø	↓	10	0	N	10	0	N	10	0	N
Ref.Tox.-cadmium	3.75	mg/L	1		10	Ø	N	10	0	N	10	0	N	10	0	N
			2		10	Ø	↓	10	0	N	10	0	N	10	0	N
			3		10	Ø	↓	10	0	N	10	0	N	10	0	N
Ref.Tox.-cadmium	7.5	mg/L	1		10	Ø	N	10	0	N	10	0	Q	4	6	Q
			2		10	Ø	↓	10	0	N	10	0	Q	4	6	Q
			3		10	Ø	↓	10	0	N	10	0	Q	3	7	Q
Ref.Tox.-cadmium	15	mg/L	1		10	Ø	N	10	0	N	6	4	Q	0	6	—
			2		10	Ø	↓	10	0	N	5	5	Q	0	5	—
			3		10	Ø	↓	10	0	N	6	4	Q	0	6	—
Ref.Tox.-cadmium	30	mg/L	1		10	Ø	N	0	10	—	—					
			2		10	Ø	↓	0	10	—	—					
			3		10	Ø	↓	0	10	—	—					

NEWFIELDS

96-HOUR REFERENCE TOXICANT TEST WATER QUALITY DATASHEET

CLIENT	PROJECT	SPECIES	NEWFIELDS LABORATORY		PROTOCOL
WDOE	Port Gardner	*Neanthes arenaceodentata*	Port Gamble		PSEP 1995
NEWFIELDS JOB NUMBER	PROJECT MANAGER	QUANTITY OF STOCK : 4.5 mL	QUANTITY OF DILUENT: 1500mL		INIT TS
0	Collin Ray	ACTUAL: 4.51202	ACTUAL: 1500.0		DATE PREP 10/24/08
Test ID	LOT #:	TEST START DATE:	TIME	TEST END DATE	TIME
P080418.27	0651OTC	23Oct08	1445	27Oct08	1500

WATER QUALITY DATA

DILTIN.WAT.BATCH	TEMP REC#	REFERENCE TOX. MATERIAL	REFERENCE TOXICANT
FSW102308.01		cadmium chloride	cadmium

TEST CONDITIONS	DO (mg/L)	TEMP(C)	SAL (ppt)	pH	TECHNICIAN
	> 6.0	20 ± 1	28 ± 1	8.00 ± 1	

CLIENT/ NEWFIELDS ID	CONCENTRATION value	CONCENTRATION units	DAY	REP	D.O. meter	D.O. mg/L	TEMP. meter	TEMP. °C	SALINITY meter	SALINITY ppt	pH meter	pH unit	WQ TECH
Ref.Tox.-cadmium	0	mg/L	0	Stock	3	9.9	3	19.6	3	28	3	8.3	TS
			4	Rep	4	7.8	4	20.0	1	29	1	7.7	BH
Ref.Tox.-cadmium	1.875	mg/L	0	Stock	3	10.0	3	19.5	3	28	3	8.2	TS
			4	Rep	4	7.8	4	20.1	1	29	1	7.8	BH
Ref.Tox.-cadmium	3.75	mg/L	0	Stock	3	10.0	3	19.5	3	28	3	8.1	TS
			4	Rep	4	7.8	4	20.2	1	29	1	7.8	BH
Ref.Tox.-cadmium	7.5	mg/L	0	Stock	3	10.0	3	19.6	3	28	3	8.0	TS
			4	Rep	4	7.5	4	20.0	1	29	1	7.7	CR
Ref.Tox.-cadmium	15	mg/L	0	Stock	3	10.1	3	19.5	3	28	3	7.9	TS
			4	Rep	4	7.5	4	20.2	1	29	1	7.7	CR
Ref.Tox.-cadmium	30	mg/L	0	Stock	3	10.1	3	19.4	3	28	3	7.8	TS
			4	Rep	4	—	4	—	1	—	1	—	CR

NEWFIELDS

ORGANISM RECEIPT LOG

Date:	Time:	NewFields Batch No.
10/21/08	1350	DR 9757

Organism:	Source:
Neanthes	Dan Reich

Address:	Invoice Attached
On File	Yes (No)

Phone:	Contact:
On File	On File

No. Ordered:	No. Received:	Source Batch:

Condition of Organisms:	Approximate Size or Age:
Good	

Shipper:	B of L (Tracking No.)
FedEx	8659 4822 9757

Condition of Container:	Received By:
Good	MMB

Confirmation of ID of Organism:	Technician (Initials):
Yes (No)	MMB

Notes:

pH (Units)	Temp. (°C)	D.O. (mg/L)	Conductivity or Salinity (Include Units)	Technician (Initials)
7.7	19.2	7.9	34 ppt	MMB

Notes:

CHAIN OF CUSTODY

NewFields

SAIC
From Science to Solutions
18912 North Creek Parkway, Suite 101
Bothell, Washington 98011
TEL: 425.485.5800 • FAX: 425.485.5566

CHAIN OF CUSTODY RECORD

Project No.: 01-0236-00-6928 Project Mgr: John Nakayama
Project Name: Port Gardner Sediment Investigation Phase 2
Project Location: Everett, WA
Sample Collectors: LD, JHN, JB, CE, TP, JSN, WH
Client Name: WA Dept of Ecology

Sample ID	Depth	Matrix	Date	Time	# of Containers	SMS Bioassays:	Larval Development	Amphipod Mortality	Neanthes Growth	Saline Microtox					Jar #	Comments
PG-A2-21-S	0-10cm	Marine Sediment	10/6/08	1214	2		X	X	X	X					100100, 100106	
PG-A1-24-S	↓	↓	↓	1346	2		X	X	X	X					100109, 100110	
PG-A1-10-S				1403	2		X	X	X	X					100115, 100116	
PG-A1-07-S				1433	2		X	X	X	X					100121, 100122	
PG-A1-03-S				1515	2		X	X	X	X					100127, 100128	
PG-A1-01-S				1532	2		X	X	X	X					100133, 100134	
PG-A1-16-S				1550	2		X	X	X	X					100139, 100140	
PG-A2-10-S				1622	2		X	X	X	X					100145, 100146	
PG-A2-11-S				1640	2		X	X	X	X					100151, 100152	
PG-A2-13-S			↓	1700	2		X	X	X	X					100157, 100158	
PG-A2-18-S			10/7/08	1245	2		X	X	X	X					10993, 10994	
PG-A2-25-S	↓	↓	↓	1306	2		X	X	X	X					10999 11001	

Shipping Information
Number of Shipping Containers:
Date Shipped:
Carrier:
Waybill No.:

RELINQUISHED BY:
Signature:
Date/Time: 10/8/08 1600
Affiliation: SAIC

RECEIVED BY:
Signature: Brian Hester
Date/Time: ~~10/8/08~~ 10/9/08 0930
Affiliation: NewFields

RELINQUISHED BY:
Signature:
Date/Time:
Affiliation:

RECEIVED BY:
Signature:
Date/Time:
Affiliation:

• White: Lab Returns to Originator Upon Receipt of Samples • Canary: Lab Retains • Pink: Lab Returns to Project Manager with Final Report • Goldenrod: Retained by Sampler

NewFields

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TEL: 425.485.5800 • FAX: 425.485.5566

CHAIN OF CUSTODY RECORD

Project No.: 01-0236-00-6928 Project Mgr: John Nakayama
Project Name: Port Gardner Sediment Investigation Phase 2
Project Location: Everett, WA
Sample Collectors: LD, WH, JSW, CE, TP
Client Name: WA Dept of Ecology

Sample ID	Depth	Matrix	Date	Time	# of Containers	SMS Bioassays:	Larval Development	Amphipod Mortality	Neanthes Growth	Saline Microtox	Comments
PG-A2-36-S	0-10cm	Marine Sediment	10/7/08	1409	2		X	X	X	X	11005, 11006
PG-A2-14-S	↓	↓	↓	1448	2		X	X	X	X	11011, 11012
PG-A4-08B-S			10/8/08	1022	2		X	X	X	X	11017-11018
PG-A3-07B-S				1131	2		X	X	X	X	11023-11024
PG-A3-05E-S	↓	↓	↓	1205	2		X	X	X	X	11029-11030

Shipping Information

Number of Shipping Containers:
Date Shipped:
Carrier:
Waybill No.:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: Brin Hester	Signature:	Signature:
Date/Time: 10/8/08 1600	Date/Time: 10/9/08 0930	Date/Time:	Date/Time:
Affiliation: SAIC	Affiliation: NewFields	Affiliation:	Affiliation:

• White: Lab Returns to Originator Upon Receipt of Samples • Canary: Lab Retains • Pink: Lab Returns to Project Manager with Final Report • Goldenrod: Retained by Sampler

New Fields

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CHAIN OF CUSTODY RECORD

Project No.: 01-023-06-6725 Project Mgr: John Nakayama
Project Name: Port Gardner Sediment Investigation Phase 2
Project Location: Everett, WA, Cara Inlet, WA
Sample Collectors: BME
Client Name: WA Dept of Ecology

Sample ID	Depth	Matrix	Date	Time	# of Containers	SMS Biossays	Larval Development	Amphipod Mortality	Benthos Growth	Saltw Microtox					Jar # Comments
CR-22S-S	0-10cm	Marine Sediment	10/1/08	1530	2		X	X	X	X					11042, 11043
CR-23-S	↓	↓	↓	1415	2		X	X	X	X					11046, 11047
CR-20/24-S	↓	↓	↓	1240	2		X	X	X	X					11050, 11051

Analyses / Tests

Shipping Information

Number of Shipping Containers:
Date Shipped:
Carrier:
Waybill No.:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: Brian Hester	Signature:	Signature:
Date/Time: 10/14/08 1520	Date/Time: 10/16/08 1145	Date/Time:	Date/Time:
Affiliation: SAIC	Affiliation: New Fields	Affiliation:	Affiliation:

• White: Lab Returns to Originator Upon Receipt of Samples • Canary: Lab Retains • Pink: Lab Returns to Project Manager with Final Report • Goldenrod: Retained by Sampler

SAIC
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Bothell, Washington 98011
TEL: 425.485.5800 • FAX: 425.485.5566

CHAIN OF CUSTODY RECORD

Project No.: _____ Project Mgr: John Nakayama
Project Name: Port Gardner 2008
Project Location: Port Garder
Sample Collectors: CE
Client Name: Dept of Ecology

Sample ID	Depth	Matrix	Date	Time	# of Containers	Larval Development	Comments
CR-20/24-65	X	Sediment	11/25/08	14:00	1	X	11415
CR-23-49	X	↓	↓	15:30	1	X	11410

Analyses / Tests

Shipping Information
Number of Shipping Containers:
Date Shipped:
Carrier:
Waybill No.:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature:	Signature:
Date/Time: 11/26/08 11:00	Date/Time: 11/26/08 1310	Date/Time:	Date/Time:
Affiliation: SAIC	Affiliation: NewFields	Affiliation:	Affiliation:

• White: Lab Returns to Originator Upon Receipt of Samples • Canary: Lab Retains • Pink: Lab Returns to Project Manager with Final Report • Goldenrod: Retained by Sampler

NEWFIELDS

NewFields N[illegible]west, LLC.
Shipping: 4729 NE View Dr.
Mailing: P.O. Box 216
Port Gamble, WA. 98364
Tel: (360) 297-6040, Fax: (360)297-7268

CHAIN OF CUST[illegible] Y

13382

Destination Lab: Port Gamble	Sample Originator: SAIC	Report Results To: SAIC	Phone:
Destination Contact: Brian Hester	Contact Name: Tim Hammermeister	Contact Name: Tim Hammermeister	Fax:
Date: 11/25/08	Address:	Address:	Email:
Turn-Around-Time: ASAP	Phone: (425) 482-3306	Analysis: LARVAL DEVELOPMENT	Invoicing To: SAIC
Project Name: Port Gardner Larval Re-Test	Fax:		Comments or Special Instructions:
Contract/PO:	E-mail		

No.	Sample ID	Matrix	No. & Type of Container	Date & Time	Preservation	Sample Temp Upon Receipt	LAB ID
1	SB-REF-76	SED	1-128oz K	11/25/08 1245	X		
2	SB-REF-48	1		11/25/08 1445	X		
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Relinquished by:	Recieved by:	Relinquished by:	Recieved by:
Print Name: Tim Hammermeister	Print Name: Brian Hester	Print Name:	Print Name:
Signature:	Signature:	Signature:	Signature:
Affiliation: SAIC	Affiliation: NewFields	Affiliation:	Affiliation:
Date/Time: 11/25/08 1720	Date/Time: 11/25/08 1725	Date/Time:	Date/Time:

Matrix Codes
FW = Fresh Water
WW = Waste Water
SB = Salt & Brackish Water
SS = Soil & Sediment
TS = plant & Animal Tissue
OT = Other

WHITE – return to originator • YELLOW – lab • PINK – retained by originator

APPENDIX C

STATISTICAL COMPARISONS

-------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=CR-20/24-S ---------

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3108	0.0770	0.0344	1.1731	1.3453
Reference	5	1.4355	0.1235	0.0552	1.3453	1.5708
Diff (1-2)		-0.1246	0.1029	0.0651		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3108	1.2152	1.4065	0.0770	0.0461	0.2213
Reference		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Diff (1-2)	Pooled	-0.1246	-0.2748	0.0255	0.1029	0.0695	0.1972
Diff (1-2)	Satterthwaite	-0.1246	-0.2800	0.0307			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.91	0.0919
Satterthwaite	Unequal	6.7012	-1.91	0.0989

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.57	0.3823

-- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=CR-20/24-S --

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	0.6337	0.0978	0.0438	0.5022	0.7526
Reference	5	0.6767	0.1113	0.0498	0.5542	0.7866
Diff (1-2)		-0.0430	0.1048	0.0663		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		0.6337	0.5122	0.7552	0.0978	0.0586	0.2811
Reference		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Diff (1-2)	Pooled	-0.0430	-0.1958	0.1099	0.1048	0.0708	0.2007
Diff (1-2)	Satterthwaite	-0.0430	-0.1962	0.1103			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.65	0.5350
Satterthwaite	Unequal	7.8705	-0.65	0.5353

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.29	0.8087

--- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=CR-22-S ----

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	0.6337	0.0978	0.0438	0.5022	0.7526
Reference	5	0.6212	0.2216	0.0991	0.3301	0.8606
Diff (1-2)		0.0125	0.1713	0.1083		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		0.6337	0.5122	0.7552	0.0978	0.0586	0.2811
Reference		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Diff (1-2)	Pooled	0.0125	-0.2373	0.2623	0.1713	0.1157	0.3282
Diff (1-2)	Satterthwaite	0.0125	-0.2585	0.2835			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.12	0.9110
Satterthwaite	Unequal	5.5018	0.12	0.9122

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.13	0.1422

--- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=CR-23-S ----

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	0.6337	0.0978	0.0438	0.5022	0.7526
Reference	5	0.5780	0.1068	0.0478	0.4133	0.6983
Diff (1-2)		0.0557	0.1024	0.0648		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		0.6337	0.5122	0.7552	0.0978	0.0586	0.2811
Reference		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Diff (1-2)	Pooled	0.0557	-0.0937	0.2051	0.1024	0.0692	0.1962
Diff (1-2)	Satterthwaite	0.0557	-0.0939	0.2053			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.86	0.4149
Satterthwaite	Unequal	7.9391	0.86	0.4151

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.19	0.8690

--- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=CR-20/24-S ---

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3446	0.0209	0.00933	1.3181	1.3632
Reference	5	1.3227	0.0213	0.00951	1.3056	1.3596
Diff (1-2)		0.0219	0.0211	0.0133		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3446	1.3187	1.3705	0.0209	0.0125	0.0600
Reference		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Diff (1-2)	Pooled	0.0219	-0.00880	0.0527	0.0211	0.0142	0.0404
Diff (1-2)	Satterthwaite	0.0219	-0.00880	0.0527			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.65	0.1384
Satterthwaite	Unequal	7.9972	1.65	0.1384

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.04	0.9720

---- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=CR-22-S -----

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3446	0.0209	0.00933	1.3181	1.3632
Reference	5	1.4092	0.0326	0.0146	1.3689	1.4438
Diff (1-2)		-0.0646	0.0274	0.0173		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3446	1.3187	1.3705	0.0209	0.0125	0.0600
Reference		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Diff (1-2)	Pooled	-0.0646	-0.1045	-0.0247	0.0274	0.0185	0.0525
Diff (1-2)	Satterthwaite	-0.0646	-0.1058	-0.0234			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-3.73	0.0058
Satterthwaite	Unequal	6.8051	-3.73	0.0078

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.44	0.4082

---- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=CR-23-S -----

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3446	0.0209	0.00933	1.3181	1.3632
Reference	5	1.3245	0.0780	0.0349	1.2119	1.4100
Diff (1-2)		0.0201	0.0571	0.0361		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3446	1.3187	1.3705	0.0209	0.0125	0.0600
Reference		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Diff (1-2)	Pooled	0.0201	-0.0632	0.1034	0.0571	0.0386	0.1094
Diff (1-2)	Satterthwaite	0.0201	-0.0755	0.1157			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.56	0.5932
Satterthwaite	Unequal	4.5693	0.56	0.6041

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	13.98	0.0255

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=CR-22-S ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Control	5	17.0	27.50	4.330127	3.40
Reference	5	38.0	27.50	4.330127	7.60

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	17.0000
Normal Approximation	
Z	-2.3094
One-Sided Pr < Z	0.0105
Two-Sided Pr > |Z|	0.0209
t Approximation	
One-Sided Pr < Z	0.0231
Two-Sided Pr > |Z|	0.0463

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	5.8800
DF	1
Pr > Chi-Square	0.0153

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=CR-23-S ----------

The TTEST Procedure

Variable: rankit (Rank for Variable result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	-0.5301	0.5683	0.2541	-1.5466	-0.2760
Reference	5	0.5301	0.7359	0.3291	-0.2760	1.0675
Diff (1-2)		-1.0602	0.6574	0.4158		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		-0.5301	-1.2357	0.1755	0.5683	0.3405	1.6329
Reference		0.5301	-0.3836	1.4438	0.7359	0.4409	2.1146
Diff (1-2)	Pooled	-1.0602	-2.0190	-0.1014	0.6574	0.4441	1.2595
Diff (1-2)	Satterthwaite	-1.0602	-2.0298	-0.0906			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-2.55	0.0342
Satterthwaite	Unequal	7.5192	-2.55	0.0359

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.68	0.6288

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-01 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.4355	0.1235	0.0552	1.3453	1.5708
Test	5	1.3023	0.1660	0.0742	1.1731	1.5708
Diff (1-2)		0.1332	0.1463	0.0925		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Test		1.3023	1.0962	1.5083	0.1660	0.0994	0.4769
Diff (1-2)	Pooled	0.1332	-0.0801	0.3466	0.1463	0.0988	0.2802
Diff (1-2)	Satterthwaite	0.1332	-0.0832	0.3497			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.44	0.1878
Satterthwaite	Unequal	7.3911	1.44	0.1908

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.81	0.5813

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-24 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.4355	0.1235	0.0552	1.3453	1.5708
Test	5	1.5064	0.1439	0.0644	1.2490	1.5708
Diff (1-2)		-0.0710	0.1341	0.0848		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Test		1.5064	1.3278	1.6851	0.1439	0.0862	0.4135
Diff (1-2)	Pooled	-0.0710	-0.2665	0.1246	0.1341	0.0906	0.2569
Diff (1-2)	Satterthwaite	-0.0710	-0.2673	0.1254			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.84	0.4270
Satterthwaite	Unequal	7.8205	-0.84	0.4276

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.36	0.7745

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-14 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.4355	0.1235	0.0552	1.3453	1.5708
Test	5	1.5257	0.1009	0.0451	1.3453	1.5708
Diff (1-2)		-0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Test		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Diff (1-2)	Pooled	-0.0902	-0.2547	0.0742	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	-0.0902	-0.2558	0.0754			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.26	0.2415
Satterthwaite	Unequal	7.6923	-1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-18 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.4355	0.1235	0.0552	1.3453	1.5708
Test	5	1.5257	0.1009	0.0451	1.3453	1.5708
Diff (1-2)		-0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Test		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Diff (1-2)	Pooled	-0.0902	-0.2547	0.0742	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	-0.0902	-0.2558	0.0754			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.26	0.2415
Satterthwaite	Unequal	7.6923	-1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-36 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.4355	0.1235	0.0552	1.3453	1.5708
Test	5	1.5257	0.1009	0.0451	1.3453	1.5708
Diff (1-2)		-0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Test		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Diff (1-2)	Pooled	-0.0902	-0.2547	0.0742	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	-0.0902	-0.2558	0.0754			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.26	0.2415
Satterthwaite	Unequal	7.6923	-1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A4-08B ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.4355	0.1235	0.0552	1.3453	1.5708
Test	5	1.5257	0.1009	0.0451	1.3453	1.5708
Diff (1-2)		-0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Test		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Diff (1-2)	Pooled	-0.0902	-0.2547	0.0742	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	-0.0902	-0.2558	0.0754			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.26	0.2415
Satterthwaite	Unequal	7.6923	-1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-01 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.4931	0.0962	0.0430	0.3405	0.5728
Diff (1-2)		0.1836	0.1040	0.0658		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.4931	0.3736	0.6126	0.0962	0.0577	0.2765
Diff (1-2)	Pooled	0.1836	0.0318	0.3353	0.1040	0.0703	0.1993
Diff (1-2)	Satterthwaite	0.1836	0.0313	0.3359			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.79	0.0236
Satterthwaite	Unequal	7.8365	2.79	0.0241

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.34	0.7849

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-03 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.5464	0.1163	0.0520	0.4128	0.7303
Diff (1-2)		0.1303	0.1138	0.0720		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.5464	0.4020	0.6908	0.1163	0.0697	0.3342
Diff (1-2)	Pooled	0.1303	-0.0358	0.2963	0.1138	0.0769	0.2181
Diff (1-2)	Satterthwaite	0.1303	-0.0358	0.2963			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.81	0.1080
Satterthwaite	Unequal	7.9847	1.81	0.1081

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.09	0.9344

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-07 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.7052	0.1651	0.0739	0.4798	0.9449
Diff (1-2)		-0.0285	0.1408	0.0891		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.7052	0.5002	0.9103	0.1651	0.0989	0.4745
Diff (1-2)	Pooled	-0.0285	-0.2339	0.1768	0.1408	0.0951	0.2698
Diff (1-2)	Satterthwaite	-0.0285	-0.2391	0.1820			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.32	0.7568
Satterthwaite	Unequal	7.0126	-0.32	0.7579

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.20	0.4636

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-10 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.5927	0.1096	0.0490	0.4667	0.7243
Diff (1-2)		0.0840	0.1105	0.0699		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.5927	0.4566	0.7288	0.1096	0.0657	0.3149
Diff (1-2)	Pooled	0.0840	-0.0771	0.2450	0.1105	0.0746	0.2116
Diff (1-2)	Satterthwaite	0.0840	-0.0771	0.2451			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.20	0.2638
Satterthwaite	Unequal	7.9981	1.20	0.2638

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.03	0.9767

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-16 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.5463	0.1403	0.0628	0.3638	0.6747
Diff (1-2)		0.1303	0.1267	0.0801		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.5463	0.3721	0.7206	0.1403	0.0841	0.4032
Diff (1-2)	Pooled	0.1303	-0.0544	0.3151	0.1267	0.0855	0.2426
Diff (1-2)	Satterthwaite	0.1303	-0.0561	0.3167			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.63	0.1424
Satterthwaite	Unequal	7.6058	1.63	0.1443

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.59	0.6644

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-24 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.6603	0.1632	0.0730	0.4978	0.9052
Diff (1-2)		0.0164	0.1397	0.0883		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.6603	0.4577	0.8629	0.1632	0.0978	0.4689
Diff (1-2)	Pooled	0.0164	-0.1873	0.2201	0.1397	0.0943	0.2676
Diff (1-2)	Satterthwaite	0.0164	-0.1921	0.2249			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.19	0.8573
Satterthwaite	Unequal	7.06	0.19	0.8579

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.15	0.4769

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-10 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.6420	0.1572	0.0703	0.4235	0.8321
Diff (1-2)		0.0347	0.1362	0.0861		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.6420	0.4468	0.8372	0.1572	0.0942	0.4518
Diff (1-2)	Pooled	0.0347	-0.1640	0.2333	0.1362	0.0920	0.2610
Diff (1-2)	Satterthwaite	0.0347	-0.1679	0.2372			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.40	0.6978
Satterthwaite	Unequal	7.2046	0.40	0.6989

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.00	0.5199

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-11 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.4222	0.1281	0.0573	0.2749	0.6086
Diff (1-2)		0.2545	0.1200	0.0759		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.4222	0.2632	0.5812	0.1281	0.0767	0.3680
Diff (1-2)	Pooled	0.2545	0.0795	0.4295	0.1200	0.0810	0.2299
Diff (1-2)	Satterthwaite	0.2545	0.0789	0.4301			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.35	0.0100
Satterthwaite	Unequal	7.8474	3.35	0.0103

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.32	0.7922

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-13 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.4805	0.1215	0.0544	0.3543	0.6312
Diff (1-2)		0.1962	0.1165	0.0737		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.4805	0.3295	0.6314	0.1215	0.0728	0.3493
Diff (1-2)	Pooled	0.1962	0.0263	0.3662	0.1165	0.0787	0.2233
Diff (1-2)	Satterthwaite	0.1962	0.0260	0.3664			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.66	0.0287
Satterthwaite	Unequal	7.9389	2.66	0.0289

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.19	0.8687

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-14 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.3565	0.1030	0.0461	0.2626	0.5226
Diff (1-2)		0.3202	0.1072	0.0678		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.3565	0.2286	0.4844	0.1030	0.0617	0.2960
Diff (1-2)	Pooled	0.3202	0.1638	0.4766	0.1072	0.0724	0.2054
Diff (1-2)	Satterthwaite	0.3202	0.1636	0.4768			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.72	0.0015
Satterthwaite	Unequal	7.9525	4.72	0.0015

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.17	0.8844

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-18 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.5660	0.1098	0.0491	0.4062	0.6942
Diff (1-2)		0.1107	0.1106	0.0699		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.5660	0.4297	0.7024	0.1098	0.0658	0.3155
Diff (1-2)	Pooled	0.1107	-0.0506	0.2719	0.1106	0.0747	0.2118
Diff (1-2)	Satterthwaite	0.1107	-0.0506	0.2719			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.58	0.1522
Satterthwaite	Unequal	7.9985	1.58	0.1522

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.03	0.9796

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-21 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.3790	0.0866	0.0387	0.2521	0.4808
Diff (1-2)		0.2977	0.0997	0.0631		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.3790	0.2715	0.4865	0.0866	0.0519	0.2488
Diff (1-2)	Pooled	0.2977	0.1523	0.4431	0.0997	0.0673	0.1910
Diff (1-2)	Satterthwaite	0.2977	0.1507	0.4447			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.72	0.0015
Satterthwaite	Unequal	7.5428	4.72	0.0018

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.65	0.6382

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-25 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.5373	0.0346	0.0155	0.4998	0.5852
Diff (1-2)		0.1394	0.0824	0.0521		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.5373	0.4943	0.5803	0.0346	0.0208	0.0995
Diff (1-2)	Pooled	0.1394	0.0192	0.2596	0.0824	0.0557	0.1579
Diff (1-2)	Satterthwaite	0.1394	0.00340	0.2754			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.67	0.0282
Satterthwaite	Unequal	4.7677	2.67	0.0463

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	10.32	0.0440

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-36 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.4741	0.2122	0.0949	0.1965	0.7527
Diff (1-2)		0.2025	0.1694	0.1072		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.4741	0.2107	0.7376	0.2122	0.1271	0.6097
Diff (1-2)	Pooled	0.2025	-0.0446	0.4496	0.1694	0.1144	0.3246
Diff (1-2)	Satterthwaite	0.2025	-0.0592	0.4643			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.89	0.0954
Satterthwaite	Unequal	6.0464	1.89	0.1073

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.63	0.2392

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A3-05E ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.4529	0.2111	0.0944	0.2613	0.8045
Diff (1-2)		0.2237	0.1688	0.1067		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.4529	0.1908	0.7151	0.2111	0.1265	0.6067
Diff (1-2)	Pooled	0.2237	-0.0224	0.4699	0.1688	0.1140	0.3233
Diff (1-2)	Satterthwaite	0.2237	-0.0368	0.4842			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.10	0.0693
Satterthwaite	Unequal	6.0642	2.10	0.0804

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.60	0.2427

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A3-07B ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.5246	0.1801	0.0806	0.2228	0.6655
Diff (1-2)		0.1521	0.1497	0.0947		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.5246	0.3009	0.7482	0.1801	0.1079	0.5176
Diff (1-2)	Pooled	0.1521	-0.0662	0.3705	0.1497	0.1011	0.2868
Diff (1-2)	Satterthwaite	0.1521	-0.0741	0.3783			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.61	0.1468
Satterthwaite	Unequal	6.6659	1.61	0.1544

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.62	0.3737

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A4-08B ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6767	0.1113	0.0498	0.5542	0.7866
Test	5	0.4116	0.1262	0.0564	0.2406	0.5571
Diff (1-2)		0.2651	0.1190	0.0753		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6767	0.5385	0.8149	0.1113	0.0667	0.3198
Test		0.4116	0.2549	0.5683	0.1262	0.0756	0.3627
Diff (1-2)	Pooled	0.2651	0.0915	0.4386	0.1190	0.0804	0.2280
Diff (1-2)	Satterthwaite	0.2651	0.0911	0.4391			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.52	0.0078
Satterthwaite	Unequal	7.8769	3.52	0.0080

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.29	0.8134

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.2737	0.0439	0.0196	1.2060	1.3158
Diff (1-2)		0.0490	0.0345	0.0218		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.2737	1.2192	1.3282	0.0439	0.0263	0.1261
Diff (1-2)	Pooled	0.0490	-0.00133	0.0993	0.0345	0.0233	0.0661
Diff (1-2)	Satterthwaite	0.0490	-0.00490	0.1028			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.25	0.0550
Satterthwaite	Unequal	5.7798	2.25	0.0675

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.26	0.1894

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	0.9408	0.2304	0.1030	0.6435	1.1403
Diff (1-2)		0.3818	0.1636	0.1035		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		0.9408	0.6547	1.2270	0.2304	0.1381	0.6621
Diff (1-2)	Pooled	0.3818	0.1432	0.6205	0.1636	0.1105	0.3135
Diff (1-2)	Satterthwaite	0.3818	0.0964	0.6673			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.69	0.0061
Satterthwaite	Unequal	4.0681	3.69	0.0204

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	117.39	0.0004

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.2424	0.0490	0.0219	1.1748	1.2987
Diff (1-2)		0.0803	0.0378	0.0239		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.2424	1.1815	1.3033	0.0490	0.0294	0.1409
Diff (1-2)	Pooled	0.0803	0.0252	0.1354	0.0378	0.0255	0.0724
Diff (1-2)	Satterthwaite	0.0803	0.0204	0.1403			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.36	0.0099
Satterthwaite	Unequal	5.4527	3.36	0.0176

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.32	0.1344

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-16 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.3350	0.0518	0.0232	1.2660	1.4065
Diff (1-2)		-0.0123	0.0396	0.0251		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.3350	1.2706	1.3993	0.0518	0.0311	0.1489
Diff (1-2)	Pooled	-0.0123	-0.0701	0.0455	0.0396	0.0268	0.0759
Diff (1-2)	Satterthwaite	-0.0123	-0.0756	0.0510			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.49	0.6370
Satterthwaite	Unequal	5.3099	-0.49	0.6434

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.94	0.1126

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-10 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.3738	0.0551	0.0246	1.2827	1.4177
Diff (1-2)		-0.0512	0.0418	0.0264		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.3738	1.3054	1.4423	0.0551	0.0330	0.1584
Diff (1-2)	Pooled	-0.0512	-0.1121	0.00977	0.0418	0.0282	0.0800
Diff (1-2)	Satterthwaite	-0.0512	-0.1184	0.0161			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.94	0.0889
Satterthwaite	Unequal	5.1652	-1.94	0.1087

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.72	0.0921

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-11 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.3917	0.0474	0.0212	1.3448	1.4597
Diff (1-2)		-0.0690	0.0368	0.0233		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.3917	1.3327	1.4506	0.0474	0.0284	0.1363
Diff (1-2)	Pooled	-0.0690	-0.1226	-0.0154	0.0368	0.0248	0.0704
Diff (1-2)	Satterthwaite	-0.0690	-0.1270	-0.0109			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-2.97	0.0180
Satterthwaite	Unequal	5.545	-2.97	0.0276

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.98	0.1492

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.2507	0.0378	0.0169	1.2010	1.2973
Diff (1-2)		0.0720	0.0307	0.0194		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.2507	1.2037	1.2977	0.0378	0.0227	0.1087
Diff (1-2)	Pooled	0.0720	0.0272	0.1168	0.0307	0.0207	0.0588
Diff (1-2)	Satterthwaite	0.0720	0.0251	0.1190			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.71	0.0060
Satterthwaite	Unequal	6.298	3.71	0.0091

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.17	0.2905

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	0.7904	0.0401	0.0179	0.7241	0.8285
Diff (1-2)		0.5323	0.0321	0.0203		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		0.7904	0.7406	0.8402	0.0401	0.0240	0.1152
Diff (1-2)	Pooled	0.5323	0.4855	0.5791	0.0321	0.0217	0.0615
Diff (1-2)	Satterthwaite	0.5323	0.4828	0.5818			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	26.22	<.0001
Satterthwaite	Unequal	6.0848	26.22	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.56	0.2467

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.0948	0.0653	0.0292	1.0420	1.1673
Diff (1-2)		0.2279	0.0486	0.0307		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.0948	1.0137	1.1758	0.0653	0.0391	0.1876
Diff (1-2)	Pooled	0.2279	0.1571	0.2987	0.0486	0.0328	0.0930
Diff (1-2)	Satterthwaite	0.2279	0.1482	0.3076			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.42	<.0001
Satterthwaite	Unequal	4.8394	7.42	0.0008

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	9.42	0.0517

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-36 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	0.5588	0.0750	0.0335	0.4552	0.6334
Diff (1-2)		0.7639	0.0551	0.0349		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		0.5588	0.4656	0.6519	0.0750	0.0449	0.2155
Diff (1-2)	Pooled	0.7639	0.6835	0.8443	0.0551	0.0372	0.1056
Diff (1-2)	Satterthwaite	0.7639	0.6721	0.8557			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	21.91	<.0001
Satterthwaite	Unequal	4.639	21.91	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	12.44	0.0316

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A3-05E -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	1.2998	0.0528	0.0236	1.2345	1.3554
Diff (1-2)		0.0229	0.0402	0.0254		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		1.2998	1.2343	1.3653	0.0528	0.0316	0.1516
Diff (1-2)	Pooled	0.0229	-0.0358	0.0815	0.0402	0.0272	0.0771
Diff (1-2)	Satterthwaite	0.0229	-0.0415	0.0873			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.90	0.3947
Satterthwaite	Unequal	5.2664	0.90	0.4077

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.15	0.1063

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	1.3227	0.0213	0.00951	1.3056	1.3596
Test	5	0.5485	0.0805	0.0360	0.4265	0.6095
Diff (1-2)		0.7742	0.0589	0.0372		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		1.3227	1.2963	1.3491	0.0213	0.0127	0.0611
Test		0.5485	0.4485	0.6484	0.0805	0.0482	0.2313
Diff (1-2)	Pooled	0.7742	0.6884	0.8601	0.0589	0.0398	0.1128
Diff (1-2)	Satterthwaite	0.7742	0.6757	0.8728			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	20.80	<.0001
Satterthwaite	Unequal	4.556	20.80	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	14.32	0.0245

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-03 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	25.0	27.50	4.166667	5.0
Test	5	30.0	27.50	4.166667	6.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	25.0000
Normal Approximation	
Z	-0.4800
One-Sided Pr < Z	0.3156
Two-Sided Pr > |Z|	0.6312
t Approximation	
One-Sided Pr < Z	0.3213
Two-Sided Pr > |Z|	0.6427

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.3600
DF	1
Pr > Chi-Square	0.5485

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-07 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	27.50	27.50	4.082483	5.50
Test	5	27.50	27.50	4.082483	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-10 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	31.50	27.50	4.183300	6.30
Test	5	23.50	27.50	4.183300	4.70

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	31.5000
Normal Approximation	
Z	0.8367
One-Sided Pr > Z	0.2014
Two-Sided Pr > |Z|	0.4028
t Approximation	
One-Sided Pr > Z	0.2122
Two-Sided Pr > |Z|	0.4244

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.9143
DF	1
Pr > Chi-Square	0.3390

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-16 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	26.50	27.50	4.330127	5.30
Test	5	28.50	27.50	4.330127	5.70

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	26.5000
Normal Approximation	
Z	-0.1155
One-Sided Pr < Z	0.4540
Two-Sided Pr > |Z|	0.9081
t Approximation	
One-Sided Pr < Z	0.4553
Two-Sided Pr > |Z|	0.9106

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0533
DF	1
Pr > Chi-Square	0.8174

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-10 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	27.50	27.50	4.082483	5.50
Test	5	27.50	27.50	4.082483	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-11 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	24.0	27.50	4.183300	4.80
Test	5	31.0	27.50	4.183300	6.20

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	24.0000
Normal Approximation	
Z	-0.7171
One-Sided Pr < Z	0.2366
Two-Sided Pr > |Z|	0.4733
t Approximation	
One-Sided Pr < Z	0.2457
Two-Sided Pr > |Z|	0.4915

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.7000
DF	1
Pr > Chi-Square	0.4028

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-21 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	30.50	27.50	4.472136	6.10
Test	5	24.50	27.50	4.472136	4.90

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	30.5000
Normal Approximation	
Z	0.5590
One-Sided Pr > Z	0.2881
Two-Sided Pr > |Z|	0.5762
t Approximation	
One-Sided Pr > Z	0.2949
Two-Sided Pr > |Z|	0.5898

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4500
DF	1
Pr > Chi-Square	0.5023

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-25 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	30.0	27.50	3.818813	6.0
Test	5	25.0	27.50	3.818813	5.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	30.0000
Normal Approximation	
Z	0.5237
One-Sided Pr > Z	0.3002
Two-Sided Pr > |Z|	0.6005
t Approximation	
One-Sided Pr > Z	0.3066
Two-Sided Pr > |Z|	0.6131

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4286
DF	1
Pr > Chi-Square	0.5127

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A3-07B ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	27.50	27.50	4.082483	5.50
Test	5	27.50	27.50	4.082483	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-10 ------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-14 ------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B -----

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-20/24-S	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-13 ----------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.6641	0.5564	0.2488	0.2577	1.2736
Test	5	-0.6641	0.6382	0.2854	-1.5466	0.2577
Diff (1-2)		1.3281	0.5987	0.3786		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.6641	-0.0268	1.3549	0.5564	0.3334	1.5988
Test		-0.6641	-1.4565	0.1284	0.6382	0.3824	1.8339
Diff (1-2)	Pooled	1.3281	0.4550	2.2013	0.5987	0.4044	1.1470
Diff (1-2)	Satterthwaite	1.3281	0.4521	2.2041			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.51	0.0080
Satterthwaite	Unequal	7.8541	3.51	0.0082

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.32	0.7968

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A3-05E ----------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	-0.4575	0.8353	0.3736	-1.0675	0.4575
Test	5	0.4575	0	0	0.4575	0.4575
Diff (1-2)		-0.9150	0.5906	0.3736		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		-0.4575	-1.4947	0.5796	0.8353	0.5004	2.4003
Test		0.4575	0.4575	0.4575	0	.	.
Diff (1-2)	Pooled	-0.9150	-1.7764	-0.0536	0.5906	0.3990	1.1315
Diff (1-2)	Satterthwaite	-0.9150	-1.9522	0.1221			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-2.45	0.0400
Satterthwaite	Unequal	4	-2.45	0.0705

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	Infty	<.0001

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-24 ------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.7401	0.5567	0.2490	0.1226	1.5466
Test	5	-0.7401	0.5567	0.2490	-1.5466	-0.1226
Diff (1-2)		1.4802	0.5567	0.3521		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.7401	0.0489	1.4314	0.5567	0.3336	1.5998
Test		-0.7401	-1.4314	-0.0489	0.5567	0.3336	1.5998
Diff (1-2)	Pooled	1.4802	0.6683	2.2922	0.5567	0.3760	1.0666
Diff (1-2)	Satterthwaite	1.4802	0.6683	2.2922			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.20	0.0030
Satterthwaite	Unequal	8	4.20	0.0030

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.00	1.0000

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13 ------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-S	5	0.7401	0.5567	0.2490	0.1226	1.5466
Test	5	-0.7401	0.5567	0.2490	-1.5466	-0.1226
Diff (1-2)		1.4802	0.5567	0.3521		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-S		0.7401	0.0489	1.4314	0.5567	0.3336	1.5998
Test		-0.7401	-1.4314	-0.0489	0.5567	0.3336	1.5998
Diff (1-2)	Pooled	1.4802	0.6683	2.2922	0.5567	0.3760	1.0666
Diff (1-2)	Satterthwaite	1.4802	0.6683	2.2922			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.20	0.0030
Satterthwaite	Unequal	8	4.20	0.0030

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.00	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-01 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.3023	0.1660	0.0742	1.1731	1.5708
Diff (1-2)		0.2234	0.1373	0.0868		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.3023	1.0962	1.5083	0.1660	0.0994	0.4769
Diff (1-2)	Pooled	0.2234	0.0232	0.4237	0.1373	0.0928	0.2631
Diff (1-2)	Satterthwaite	0.2234	0.0155	0.4313			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.57	0.0330
Satterthwaite	Unequal	6.6	2.57	0.0388

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.71	0.3580

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-07 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.4355	0.1235	0.0552	1.3453	1.5708
Diff (1-2)		0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Diff (1-2)	Pooled	0.0902	-0.0742	0.2547	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	0.0902	-0.0754	0.2558			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.26	0.2415
Satterthwaite	Unequal	7.6923	1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-10 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.3711	0.1191	0.0533	1.2490	1.5708
Diff (1-2)		0.1546	0.1104	0.0698		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.3711	1.2232	1.5191	0.1191	0.0714	0.3423
Diff (1-2)	Pooled	0.1546	-0.00642	0.3155	0.1104	0.0746	0.2115
Diff (1-2)	Satterthwaite	0.1546	-0.00719	0.3163			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.21	0.0577
Satterthwaite	Unequal	7.7877	2.21	0.0586

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.40	0.7546

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-10 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.4355	0.1235	0.0552	1.3453	1.5708
Diff (1-2)		0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Diff (1-2)	Pooled	0.0902	-0.0742	0.2547	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	0.0902	-0.0754	0.2558			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.26	0.2415
Satterthwaite	Unequal	7.6923	1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-21 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.3970	0.1635	0.0731	1.2490	1.5708
Diff (1-2)		0.1287	0.1358	0.0859		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.3970	1.1940	1.5999	0.1635	0.0979	0.4697
Diff (1-2)	Pooled	0.1287	-0.0694	0.3268	0.1358	0.0917	0.2602
Diff (1-2)	Satterthwaite	0.1287	-0.0765	0.3339			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.50	0.1724
Satterthwaite	Unequal	6.6601	1.50	0.1799

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.63	0.3723

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-25 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.3904	0.1009	0.0451	1.3453	1.5708
Diff (1-2)		0.1353	0.1009	0.0638		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.3904	1.2652	1.5156	0.1009	0.0604	0.2898
Diff (1-2)	Pooled	0.1353	-0.0118	0.2824	0.1009	0.0681	0.1932
Diff (1-2)	Satterthwaite	0.1353	-0.0118	0.2824			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.12	0.0667
Satterthwaite	Unequal	8	2.12	0.0667

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.00	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A3-07B ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.5257	0.1009	0.0451	1.3453	1.5708
Test	5	1.4355	0.1235	0.0552	1.3453	1.5708
Diff (1-2)		0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.5257	1.4005	1.6509	0.1009	0.0604	0.2898
Test		1.4355	1.2821	1.5889	0.1235	0.0740	0.3549
Diff (1-2)	Pooled	0.0902	-0.0742	0.2547	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	0.0902	-0.0754	0.2558			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.26	0.2415
Satterthwaite	Unequal	7.6923	1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-01 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.4931	0.0962	0.0430	0.3405	0.5728
Diff (1-2)		0.1281	0.1709	0.1081		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.4931	0.3736	0.6126	0.0962	0.0577	0.2765
Diff (1-2)	Pooled	0.1281	-0.1211	0.3773	0.1709	0.1154	0.3273
Diff (1-2)	Satterthwaite	0.1281	-0.1428	0.3990			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.19	0.2699
Satterthwaite	Unequal	5.4566	1.19	0.2849

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.30	0.1350

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-03 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.5464	0.1163	0.0520	0.4128	0.7303
Diff (1-2)		0.0748	0.1770	0.1119		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.5464	0.4020	0.6908	0.1163	0.0697	0.3342
Diff (1-2)	Pooled	0.0748	-0.1833	0.3329	0.1770	0.1195	0.3391
Diff (1-2)	Satterthwaite	0.0748	-0.1986	0.3482			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.67	0.5228
Satterthwaite	Unequal	6.0472	0.67	0.5287

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.63	0.2393

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-07 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.7052	0.1651	0.0739	0.4798	0.9449
Diff (1-2)		-0.0840	0.1954	0.1236		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.7052	0.5002	0.9103	0.1651	0.0989	0.4745
Diff (1-2)	Pooled	-0.0840	-0.3690	0.2010	0.1954	0.1320	0.3744
Diff (1-2)	Satterthwaite	-0.0840	-0.3732	0.2051			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.68	0.5159
Satterthwaite	Unequal	7.3949	-0.68	0.5174

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.80	0.5826

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-10 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.5927	0.1096	0.0490	0.4667	0.7243
Diff (1-2)		0.0285	0.1748	0.1106		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.5927	0.4566	0.7288	0.1096	0.0657	0.3149
Diff (1-2)	Pooled	0.0285	-0.2265	0.2835	0.1748	0.1181	0.3349
Diff (1-2)	Satterthwaite	0.0285	-0.2438	0.3008			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.26	0.8031
Satterthwaite	Unequal	5.8456	0.26	0.8054

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.09	0.2013

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-16 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.5463	0.1403	0.0628	0.3638	0.6747
Diff (1-2)		0.0749	0.1855	0.1173		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.5463	0.3721	0.7206	0.1403	0.0841	0.4032
Diff (1-2)	Pooled	0.0749	-0.1957	0.3454	0.1855	0.1253	0.3554
Diff (1-2)	Satterthwaite	0.0749	-0.2045	0.3543			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.64	0.5411
Satterthwaite	Unequal	6.763	0.64	0.5443

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.49	0.3976

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-24 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.6603	0.1632	0.0730	0.4978	0.9052
Diff (1-2)		-0.0391	0.1946	0.1231		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.6603	0.4577	0.8629	0.1632	0.0978	0.4689
Diff (1-2)	Pooled	-0.0391	-0.3229	0.2448	0.1946	0.1315	0.3728
Diff (1-2)	Satterthwaite	-0.0391	-0.3273	0.2492			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.32	0.7591
Satterthwaite	Unequal	7.3515	-0.32	0.7598

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.85	0.5676

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-10 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.6420	0.1572	0.0703	0.4235	0.8321
Diff (1-2)		-0.0208	0.1921	0.1215		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.6420	0.4468	0.8372	0.1572	0.0942	0.4518
Diff (1-2)	Pooled	-0.0208	-0.3010	0.2595	0.1921	0.1298	0.3681
Diff (1-2)	Satterthwaite	-0.0208	-0.3064	0.2649			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.17	0.8685
Satterthwaite	Unequal	7.2122	-0.17	0.8689

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.99	0.5223

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-11 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.4222	0.1281	0.0573	0.2749	0.6086
Diff (1-2)		0.1990	0.1810	0.1145		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.4222	0.2632	0.5812	0.1281	0.0767	0.3680
Diff (1-2)	Pooled	0.1990	-0.0650	0.4630	0.1810	0.1223	0.3468
Diff (1-2)	Satterthwaite	0.1990	-0.0769	0.4749			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.74	0.1203
Satterthwaite	Unequal	6.4035	1.74	0.1297

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.99	0.3133

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-13 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.4805	0.1215	0.0544	0.3543	0.6312
Diff (1-2)		0.1408	0.1787	0.1130		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.4805	0.3295	0.6314	0.1215	0.0728	0.3493
Diff (1-2)	Pooled	0.1408	-0.1199	0.4014	0.1787	0.1207	0.3424
Diff (1-2)	Satterthwaite	0.1408	-0.1336	0.4152			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.25	0.2483
Satterthwaite	Unequal	6.2063	1.25	0.2580

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.33	0.2713

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-14 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.3565	0.1030	0.0461	0.2626	0.5226
Diff (1-2)		0.2647	0.1728	0.1093		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.3565	0.2286	0.4844	0.1030	0.0617	0.2960
Diff (1-2)	Pooled	0.2647	0.0127	0.5168	0.1728	0.1167	0.3311
Diff (1-2)	Satterthwaite	0.2647	-0.00676	0.5363			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.42	0.0417
Satterthwaite	Unequal	5.6512	2.42	0.0542

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.63	0.1669

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-18 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.5660	0.1098	0.0491	0.4062	0.6942
Diff (1-2)		0.0552	0.1749	0.1106		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.5660	0.4297	0.7024	0.1098	0.0658	0.3155
Diff (1-2)	Pooled	0.0552	-0.1999	0.3103	0.1749	0.1181	0.3351
Diff (1-2)	Satterthwaite	0.0552	-0.2171	0.3275			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.50	0.6312
Satterthwaite	Unequal	5.852	0.50	0.6360

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.07	0.2024

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-21 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.3790	0.0866	0.0387	0.2521	0.4808
Diff (1-2)		0.2422	0.1683	0.1064		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.3790	0.2715	0.4865	0.0866	0.0519	0.2488
Diff (1-2)	Pooled	0.2422	-0.00315	0.4876	0.1683	0.1136	0.3223
Diff (1-2)	Satterthwaite	0.2422	-0.0283	0.5128			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.28	0.0524
Satterthwaite	Unequal	5.1927	2.28	0.0699

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.56	0.0958

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-25 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.5373	0.0346	0.0155	0.4998	0.5852
Diff (1-2)		0.0839	0.1586	0.1003		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.5373	0.4943	0.5803	0.0346	0.0208	0.0995
Diff (1-2)	Pooled	0.0839	-0.1474	0.3153	0.1586	0.1071	0.3039
Diff (1-2)	Satterthwaite	0.0839	-0.1896	0.3574			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.84	0.4270
Satterthwaite	Unequal	4.1953	0.84	0.4478

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	40.93	0.0034

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-36 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.4741	0.2122	0.0949	0.1965	0.7527
Diff (1-2)		0.1471	0.2170	0.1372		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.4741	0.2107	0.7376	0.2122	0.1271	0.6097
Diff (1-2)	Pooled	0.1471	-0.1693	0.4635	0.2170	0.1465	0.4157
Diff (1-2)	Satterthwaite	0.1471	-0.1695	0.4636			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.07	0.3150
Satterthwaite	Unequal	7.9848	1.07	0.3151

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.09	0.9347

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A3-05E ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.4529	0.2111	0.0944	0.2613	0.8045
Diff (1-2)		0.1683	0.2164	0.1369		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.4529	0.1908	0.7151	0.2111	0.1265	0.6067
Diff (1-2)	Pooled	0.1683	-0.1474	0.4839	0.2164	0.1462	0.4146
Diff (1-2)	Satterthwaite	0.1683	-0.1475	0.4841			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.23	0.2539
Satterthwaite	Unequal	7.9811	1.23	0.2540

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.10	0.9272

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A3-07B ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.5246	0.1801	0.0806	0.2228	0.6655
Diff (1-2)		0.0967	0.2020	0.1277		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.5246	0.3009	0.7482	0.1801	0.1079	0.5176
Diff (1-2)	Pooled	0.0967	-0.1979	0.3912	0.2020	0.1364	0.3869
Diff (1-2)	Satterthwaite	0.0967	-0.2000	0.3934			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.76	0.4709
Satterthwaite	Unequal	7.679	0.76	0.4718

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.51	0.6976

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A4-08B ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.6212	0.2216	0.0991	0.3301	0.8606
Test	5	0.4116	0.1262	0.0564	0.2406	0.5571
Diff (1-2)		0.2096	0.1804	0.1141		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.6212	0.3460	0.8964	0.2216	0.1328	0.6369
Test		0.4116	0.2549	0.5683	0.1262	0.0756	0.3627
Diff (1-2)	Pooled	0.2096	-0.0534	0.4727	0.1804	0.1218	0.3455
Diff (1-2)	Satterthwaite	0.2096	-0.0658	0.4851			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.84	0.1034
Satterthwaite	Unequal	6.3474	1.84	0.1130

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.08	0.3010

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.2737	0.0439	0.0196	1.2060	1.3158
Diff (1-2)		0.1355	0.0387	0.0245		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.2737	1.2192	1.3282	0.0439	0.0263	0.1261
Diff (1-2)	Pooled	0.1355	0.0791	0.1919	0.0387	0.0261	0.0741
Diff (1-2)	Satterthwaite	0.1355	0.0783	0.1927			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.54	0.0005
Satterthwaite	Unequal	7.3857	5.54	0.0007

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.81	0.5794

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	0.9408	0.2304	0.1030	0.6435	1.1403
Diff (1-2)		0.4684	0.1646	0.1041		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		0.9408	0.6547	1.2270	0.2304	0.1381	0.6621
Diff (1-2)	Pooled	0.4684	0.2284	0.7084	0.1646	0.1112	0.3153
Diff (1-2)	Satterthwaite	0.4684	0.1837	0.7530			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.50	0.0020
Satterthwaite	Unequal	4.1603	4.50	0.0099

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	49.89	0.0023

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.2424	0.0490	0.0219	1.1748	1.2987
Diff (1-2)		0.1668	0.0417	0.0263		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.2424	1.1815	1.3033	0.0490	0.0294	0.1409
Diff (1-2)	Pooled	0.1668	0.1061	0.2276	0.0417	0.0281	0.0798
Diff (1-2)	Satterthwaite	0.1668	0.1045	0.2292			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.33	0.0002
Satterthwaite	Unequal	6.9596	6.33	0.0004

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.26	0.4489

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-10 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	0.9189	0.0967	0.0433	0.8088	1.0742
Diff (1-2)		0.4903	0.0722	0.0457		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		0.9189	0.7988	1.0390	0.0967	0.0580	0.2780
Diff (1-2)	Pooled	0.4903	0.3850	0.5956	0.0722	0.0488	0.1383
Diff (1-2)	Satterthwaite	0.4903	0.3722	0.6084			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	10.74	<.0001
Satterthwaite	Unequal	4.8982	10.74	0.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	8.79	0.0583

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-16 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.3350	0.0518	0.0232	1.2660	1.4065
Diff (1-2)		0.0742	0.0433	0.0274		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.3350	1.2706	1.3993	0.0518	0.0311	0.1489
Diff (1-2)	Pooled	0.0742	0.0111	0.1374	0.0433	0.0292	0.0830
Diff (1-2)	Satterthwaite	0.0742	0.00897	0.1395			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.71	0.0266
Satterthwaite	Unequal	6.7394	2.71	0.0313

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.52	0.3917

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-10 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.3738	0.0551	0.0246	1.2827	1.4177
Diff (1-2)		0.0354	0.0453	0.0286		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.3738	1.3054	1.4423	0.0551	0.0330	0.1584
Diff (1-2)	Pooled	0.0354	-0.0307	0.1014	0.0453	0.0306	0.0868
Diff (1-2)	Satterthwaite	0.0354	-0.0334	0.1042			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.23	0.2520
Satterthwaite	Unequal	6.4961	1.23	0.2597

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.85	0.3340

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-11 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.3917	0.0474	0.0212	1.3448	1.4597
Diff (1-2)		0.0175	0.0407	0.0257		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.3917	1.3327	1.4506	0.0474	0.0284	0.1363
Diff (1-2)	Pooled	0.0175	-0.0418	0.0769	0.0407	0.0275	0.0780
Diff (1-2)	Satterthwaite	0.0175	-0.0432	0.0783			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.68	0.5148
Satterthwaite	Unequal	7.0911	0.68	0.5172

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.12	0.4859

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-14 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	0.9734	0.0676	0.0302	0.9231	1.0907
Diff (1-2)		0.4358	0.0531	0.0336		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		0.9734	0.8895	1.0574	0.0676	0.0405	0.1943
Diff (1-2)	Pooled	0.4358	0.3583	0.5132	0.0531	0.0359	0.1017
Diff (1-2)	Satterthwaite	0.4358	0.3528	0.5188			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	12.98	<.0001
Satterthwaite	Unequal	5.7659	12.98	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.30	0.1869

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.2507	0.0378	0.0169	1.2010	1.2973
Diff (1-2)		0.1585	0.0353	0.0223		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.2507	1.2037	1.2977	0.0378	0.0227	0.1087
Diff (1-2)	Pooled	0.1585	0.1070	0.2101	0.0353	0.0239	0.0677
Diff (1-2)	Satterthwaite	0.1585	0.1068	0.2103			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.10	0.0001
Satterthwaite	Unequal	7.8302	7.10	0.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.35	0.7807

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	0.7904	0.0401	0.0179	0.7241	0.8285
Diff (1-2)		0.6188	0.0366	0.0231		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		0.7904	0.7406	0.8402	0.0401	0.0240	0.1152
Diff (1-2)	Pooled	0.6188	0.5655	0.6721	0.0366	0.0247	0.0700
Diff (1-2)	Satterthwaite	0.6188	0.5651	0.6725			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	26.77	<.0001
Satterthwaite	Unequal	7.6815	26.77	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.51	0.6988

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.0948	0.0653	0.0292	1.0420	1.1673
Diff (1-2)		0.3144	0.0516	0.0326		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.0948	1.0137	1.1758	0.0653	0.0391	0.1876
Diff (1-2)	Pooled	0.3144	0.2392	0.3897	0.0516	0.0349	0.0989
Diff (1-2)	Satterthwaite	0.3144	0.2342	0.3947			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	9.63	<.0001
Satterthwaite	Unequal	5.88	9.63	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.01	0.2076

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-36 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	0.5588	0.0750	0.0335	0.4552	0.6334
Diff (1-2)		0.8504	0.0578	0.0366		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		0.5588	0.4656	0.6519	0.0750	0.0449	0.2155
Diff (1-2)	Pooled	0.8504	0.7661	0.9348	0.0578	0.0391	0.1108
Diff (1-2)	Satterthwaite	0.8504	0.7587	0.9421			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	23.25	<.0001
Satterthwaite	Unequal	5.4608	23.25	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.29	0.1357

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A3-05E -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	1.2998	0.0528	0.0236	1.2345	1.3554
Diff (1-2)		0.1094	0.0439	0.0277		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		1.2998	1.2343	1.3653	0.0528	0.0316	0.1516
Diff (1-2)	Pooled	0.1094	0.0454	0.1734	0.0439	0.0296	0.0840
Diff (1-2)	Satterthwaite	0.1094	0.0431	0.1757			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.94	0.0043
Satterthwaite	Unequal	6.6684	3.94	0.0061

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.62	0.3743

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	1.4092	0.0326	0.0146	1.3689	1.4438
Test	5	0.5485	0.0805	0.0360	0.4265	0.6095
Diff (1-2)		0.8607	0.0614	0.0388		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		1.4092	1.3687	1.4497	0.0326	0.0195	0.0937
Test		0.5485	0.4485	0.6484	0.0805	0.0482	0.2313
Diff (1-2)	Pooled	0.8607	0.7712	0.9503	0.0614	0.0415	0.1176
Diff (1-2)	Satterthwaite	0.8607	0.7625	0.9590			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	22.16	<.0001
Satterthwaite	Unequal	5.28	22.16	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.09	0.1083

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-03 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	30.0	27.50	3.818813	6.0
Test	5	25.0	27.50	3.818813	5.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	30.0000
Normal Approximation	
Z	0.5237
One-Sided Pr > Z	0.3002
Two-Sided Pr > |Z|	0.6005
t Approximation	
One-Sided Pr > Z	0.3066
Two-Sided Pr > |Z|	0.6131

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4286
DF	1
Pr > Chi-Square	0.5127

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-24 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	28.0	27.50	3.354102	5.60
Test	5	27.0	27.50	3.354102	5.40

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	28.0000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0222
DF	1
Pr > Chi-Square	0.8815

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-11 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	28.0	27.50	3.354102	5.60
Test	5	27.0	27.50	3.354102	5.40

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	28.0000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0222
DF	1
Pr > Chi-Square	0.8815

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-13 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	39.50	27.50	4.564355	7.90
Test	5	15.50	27.50	4.564355	3.10

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	39.5000
Normal Approximation	
Z	2.5195
One-Sided Pr > Z	0.0059
Two-Sided Pr > |Z|	0.0118
t Approximation	
One-Sided Pr > Z	0.0164
Two-Sided Pr > |Z|	0.0328

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.9120
DF	1
Pr > Chi-Square	0.0086

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-14 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	27.50	27.50	3.333333	5.50
Test	5	27.50	27.50	3.333333	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-18 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	27.50	27.50	3.333333	5.50
Test	5	27.50	27.50	3.333333	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-36 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	27.50	27.50	3.333333	5.50
Test	5	27.50	27.50	3.333333	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A4-08B ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	27.50	27.50	3.333333	5.50
Test	5	27.50	27.50	3.333333	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-24 ------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B -----

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-22-S	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-16 ----------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.2004	0.5749	0.2571	-0.8280	0.4575
Test	5	-0.2004	0.9360	0.4186	-1.5466	0.4575
Diff (1-2)		0.4008	0.7767	0.4913		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.2004	-0.5134	0.9142	0.5749	0.3444	1.6519
Test		-0.2004	-1.3627	0.9618	0.9360	0.5608	2.6898
Diff (1-2)	Pooled	0.4008	-0.7320	1.5337	0.7767	0.5247	1.4881
Diff (1-2)	Satterthwaite	0.4008	-0.7736	1.5753			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.82	0.4382
Satterthwaite	Unequal	6.6417	0.82	0.4428

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.65	0.3679

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A3-05E ----------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	-0.1718	0.7685	0.3437	-1.5466	0.1718
Test	5	0.1718	0	0	0.1718	0.1718
Diff (1-2)		-0.3437	0.5434	0.3437		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		-0.1718	-1.1261	0.7824	0.7685	0.4605	2.2084
Test		0.1718	0.1718	0.1718	0	.	.
Diff (1-2)	Pooled	-0.3437	-1.1363	0.4489	0.5434	0.3671	1.0411
Diff (1-2)	Satterthwaite	-0.3437	-1.2980	0.6106			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.00	0.3466
Satterthwaite	Unequal	4	-1.00	0.3739

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	Infty	<.0001

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13 ------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-22-S	5	0.7401	0.5567	0.2490	0.1226	1.5466
Test	5	-0.7401	0.5567	0.2490	-1.5466	-0.1226
Diff (1-2)		1.4802	0.5567	0.3521		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-22-S		0.7401	0.0489	1.4314	0.5567	0.3336	1.5998
Test		-0.7401	-1.4314	-0.0489	0.5567	0.3336	1.5998
Diff (1-2)	Pooled	1.4802	0.6683	2.2922	0.5567	0.3760	1.0666
Diff (1-2)	Satterthwaite	1.4802	0.6683	2.2922			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.20	0.0030
Satterthwaite	Unequal	8	4.20	0.0030

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.00	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-01 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.4806	0.1235	0.0552	1.3453	1.5708
Test	5	1.3023	0.1660	0.0742	1.1731	1.5708
Diff (1-2)		0.1783	0.1463	0.0925		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.4806	1.3272	1.6340	0.1235	0.0740	0.3549
Test		1.3023	1.0962	1.5083	0.1660	0.0994	0.4769
Diff (1-2)	Pooled	0.1783	-0.0350	0.3917	0.1463	0.0988	0.2802
Diff (1-2)	Satterthwaite	0.1783	-0.0381	0.3948			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.93	0.0901
Satterthwaite	Unequal	7.3911	1.93	0.0931

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.81	0.5813

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-10 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.4806	0.1235	0.0552	1.3453	1.5708
Test	5	1.3711	0.1191	0.0533	1.2490	1.5708
Diff (1-2)		0.1095	0.1213	0.0767		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.4806	1.3272	1.6340	0.1235	0.0740	0.3549
Test		1.3711	1.2232	1.5191	0.1191	0.0714	0.3423
Diff (1-2)	Pooled	0.1095	-0.0675	0.2864	0.1213	0.0820	0.2325
Diff (1-2)	Satterthwaite	0.1095	-0.0676	0.2865			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.43	0.1917
Satterthwaite	Unequal	7.9896	1.43	0.1917

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.07	0.9459

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-25 ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.4806	0.1235	0.0552	1.3453	1.5708
Test	5	1.3904	0.1009	0.0451	1.3453	1.5708
Diff (1-2)		0.0902	0.1128	0.0713		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.4806	1.3272	1.6340	0.1235	0.0740	0.3549
Test		1.3904	1.2652	1.5156	0.1009	0.0604	0.2898
Diff (1-2)	Pooled	0.0902	-0.0742	0.2547	0.1128	0.0762	0.2160
Diff (1-2)	Satterthwaite	0.0902	-0.0754	0.2558			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.26	0.2415
Satterthwaite	Unequal	7.6923	1.26	0.2429

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.50	0.7040

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-01 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.4931	0.0962	0.0430	0.3405	0.5728
Diff (1-2)		0.0849	0.1017	0.0643		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.4931	0.3736	0.6126	0.0962	0.0577	0.2765
Diff (1-2)	Pooled	0.0849	-0.0634	0.2332	0.1017	0.0687	0.1948
Diff (1-2)	Satterthwaite	0.0849	-0.0637	0.2335			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.32	0.2232
Satterthwaite	Unequal	7.9146	1.32	0.2236

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.23	0.8448

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-03 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.5464	0.1163	0.0520	0.4128	0.7303
Diff (1-2)		0.0316	0.1117	0.0706		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.5464	0.4020	0.6908	0.1163	0.0697	0.3342
Diff (1-2)	Pooled	0.0316	-0.1312	0.1944	0.1117	0.0754	0.2139
Diff (1-2)	Satterthwaite	0.0316	-0.1314	0.1946			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.45	0.6664
Satterthwaite	Unequal	7.9429	0.45	0.6665

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.19	0.8731

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-07 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.7052	0.1651	0.0739	0.4798	0.9449
Diff (1-2)		-0.1272	0.1391	0.0880		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.7052	0.5002	0.9103	0.1651	0.0989	0.4745
Diff (1-2)	Pooled	-0.1272	-0.3300	0.0756	0.1391	0.0939	0.2664
Diff (1-2)	Satterthwaite	-0.1272	-0.3361	0.0817			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.45	0.1861
Satterthwaite	Unequal	6.8484	-1.45	0.1923

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.39	0.4194

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-10 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.5927	0.1096	0.0490	0.4667	0.7243
Diff (1-2)		-0.0147	0.1082	0.0684		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.5927	0.4566	0.7288	0.1096	0.0657	0.3149
Diff (1-2)	Pooled	-0.0147	-0.1725	0.1431	0.1082	0.0731	0.2073
Diff (1-2)	Satterthwaite	-0.0147	-0.1725	0.1431			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.21	0.8353
Satterthwaite	Unequal	7.9947	-0.21	0.8353

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.05	0.9615

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-16 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.5463	0.1403	0.0628	0.3638	0.6747
Diff (1-2)		0.0317	0.1247	0.0789		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.5463	0.3721	0.7206	0.1403	0.0841	0.4032
Diff (1-2)	Pooled	0.0317	-0.1502	0.2136	0.1247	0.0842	0.2389
Diff (1-2)	Satterthwaite	0.0317	-0.1525	0.2158			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.40	0.6984
Satterthwaite	Unequal	7.4701	0.40	0.6992

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.73	0.6099

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A1-24 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.6603	0.1632	0.0730	0.4978	0.9052
Diff (1-2)		-0.0823	0.1379	0.0872		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.6603	0.4577	0.8629	0.1632	0.0978	0.4689
Diff (1-2)	Pooled	-0.0823	-0.2834	0.1189	0.1379	0.0931	0.2642
Diff (1-2)	Satterthwaite	-0.0823	-0.2891	0.1246			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.94	0.3732
Satterthwaite	Unequal	6.8963	-0.94	0.3775

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.33	0.4319

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-10 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.6420	0.1572	0.0703	0.4235	0.8321
Diff (1-2)		-0.0640	0.1344	0.0850		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.6420	0.4468	0.8372	0.1572	0.0942	0.4518
Diff (1-2)	Pooled	-0.0640	-0.2600	0.1320	0.1344	0.0908	0.2575
Diff (1-2)	Satterthwaite	-0.0640	-0.2647	0.1368			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.75	0.4732
Satterthwaite	Unequal	7.044	-0.75	0.4760

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.17	0.4724

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-11 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.4222	0.1281	0.0573	0.2749	0.6086
Diff (1-2)		0.1558	0.1179	0.0746		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.4222	0.2632	0.5812	0.1281	0.0767	0.3680
Diff (1-2)	Pooled	0.1558	-0.0162	0.3278	0.1179	0.0797	0.2259
Diff (1-2)	Satterthwaite	0.1558	-0.0171	0.3288			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.09	0.0701
Satterthwaite	Unequal	7.75	2.09	0.0712

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.44	0.7335

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-13 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.4805	0.1215	0.0544	0.3543	0.6312
Diff (1-2)		0.0976	0.1144	0.0724		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.4805	0.3295	0.6314	0.1215	0.0728	0.3493
Diff (1-2)	Pooled	0.0976	-0.0693	0.2644	0.1144	0.0773	0.2192
Diff (1-2)	Satterthwaite	0.0976	-0.0698	0.2649			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.35	0.2145
Satterthwaite	Unequal	7.8701	1.35	0.2151

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.29	0.8084

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-14 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.3565	0.1030	0.0461	0.2626	0.5226
Diff (1-2)		0.2215	0.1049	0.0664		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.3565	0.2286	0.4844	0.1030	0.0617	0.2960
Diff (1-2)	Pooled	0.2215	0.0685	0.3746	0.1049	0.0709	0.2010
Diff (1-2)	Satterthwaite	0.2215	0.0685	0.3746			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.34	0.0103
Satterthwaite	Unequal	7.9895	3.34	0.0103

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.08	0.9457

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-18 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.5660	0.1098	0.0491	0.4062	0.6942
Diff (1-2)		0.0120	0.1083	0.0685		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.5660	0.4297	0.7024	0.1098	0.0658	0.3155
Diff (1-2)	Pooled	0.0120	-0.1460	0.1700	0.1083	0.0732	0.2075
Diff (1-2)	Satterthwaite	0.0120	-0.1460	0.1700			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.18	0.8653
Satterthwaite	Unequal	7.9939	0.18	0.8653

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.06	0.9586

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-21 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.3790	0.0866	0.0387	0.2521	0.4808
Diff (1-2)		0.1990	0.0972	0.0615		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.3790	0.2715	0.4865	0.0866	0.0519	0.2488
Diff (1-2)	Pooled	0.1990	0.0573	0.3408	0.0972	0.0657	0.1862
Diff (1-2)	Satterthwaite	0.1990	0.0562	0.3419			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.24	0.0119
Satterthwaite	Unequal	7.6709	3.24	0.0126

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.52	0.6938

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-25 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.5373	0.0346	0.0155	0.4998	0.5852
Diff (1-2)		0.0407	0.0794	0.0502		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.5373	0.4943	0.5803	0.0346	0.0208	0.0995
Diff (1-2)	Pooled	0.0407	-0.0751	0.1565	0.0794	0.0536	0.1521
Diff (1-2)	Satterthwaite	0.0407	-0.0897	0.1712			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.81	0.4407
Satterthwaite	Unequal	4.8323	0.81	0.4553

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	9.51	0.0509

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A2-36 -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.4741	0.2122	0.0949	0.1965	0.7527
Diff (1-2)		0.1039	0.1680	0.1062		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.4741	0.2107	0.7376	0.2122	0.1271	0.6097
Diff (1-2)	Pooled	0.1039	-0.1411	0.3489	0.1680	0.1135	0.3218
Diff (1-2)	Satterthwaite	0.1039	-0.1571	0.3649			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.98	0.3568
Satterthwaite	Unequal	5.905	0.98	0.3665

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.95	0.2122

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A3-05E ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.4529	0.2111	0.0944	0.2613	0.8045
Diff (1-2)		0.1251	0.1673	0.1058		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.4529	0.1908	0.7151	0.2111	0.1265	0.6067
Diff (1-2)	Pooled	0.1251	-0.1189	0.3691	0.1673	0.1130	0.3205
Diff (1-2)	Satterthwaite	0.1251	-0.1347	0.3848			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.18	0.2711
Satterthwaite	Unequal	5.9219	1.18	0.2825

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.91	0.2154

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A3-07B ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.5246	0.1801	0.0806	0.2228	0.6655
Diff (1-2)		0.0535	0.1481	0.0937		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.5246	0.3009	0.7482	0.1801	0.1079	0.5176
Diff (1-2)	Pooled	0.0535	-0.1625	0.2694	0.1481	0.1000	0.2837
Diff (1-2)	Satterthwaite	0.0535	-0.1715	0.2784			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.57	0.5838
Satterthwaite	Unequal	6.5035	0.57	0.5873

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.84	0.3356

---- Test=Neanthes 20-day Endpoint=Individual Growth Rate (mg/ind/d) Treatment=A4-08B ----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.5780	0.1068	0.0478	0.4133	0.6983
Test	5	0.4116	0.1262	0.0564	0.2406	0.5571
Diff (1-2)		0.1664	0.1169	0.0739		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.5780	0.4454	0.7106	0.1068	0.0640	0.3069
Test		0.4116	0.2549	0.5683	0.1262	0.0756	0.3627
Diff (1-2)	Pooled	0.1664	-0.00410	0.3369	0.1169	0.0790	0.2240
Diff (1-2)	Satterthwaite	0.1664	-0.00491	0.3378			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	2.25	0.0545
Satterthwaite	Unequal	7.7871	2.25	0.0554

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.40	0.7542

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.2737	0.0439	0.0196	1.2060	1.3158
Diff (1-2)		0.0508	0.0633	0.0400		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.2737	1.2192	1.3282	0.0439	0.0263	0.1261
Diff (1-2)	Pooled	0.0508	-0.0415	0.1432	0.0633	0.0428	0.1213
Diff (1-2)	Satterthwaite	0.0508	-0.0461	0.1477			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.27	0.2402
Satterthwaite	Unequal	6.3003	1.27	0.2494

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.16	0.2910

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.9408	0.2304	0.1030	0.6435	1.1403
Diff (1-2)		0.3837	0.1720	0.1088		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.9408	0.6547	1.2270	0.2304	0.1381	0.6621
Diff (1-2)	Pooled	0.3837	0.1328	0.6346	0.1720	0.1162	0.3296
Diff (1-2)	Satterthwaite	0.3837	0.1024	0.6650			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.53	0.0078
Satterthwaite	Unequal	4.9059	3.53	0.0173

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	8.72	0.0592

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.2424	0.0490	0.0219	1.1748	1.2987
Diff (1-2)		0.0821	0.0652	0.0412		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.2424	1.1815	1.3033	0.0490	0.0294	0.1409
Diff (1-2)	Pooled	0.0821	-0.0129	0.1772	0.0652	0.0440	0.1249
Diff (1-2)	Satterthwaite	0.0821	-0.0161	0.1804			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.99	0.0814
Satterthwaite	Unequal	6.7332	1.99	0.0882

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.53	0.3902

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-10 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.9189	0.0967	0.0433	0.8088	1.0742
Diff (1-2)		0.4056	0.0879	0.0556		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.9189	0.7988	1.0390	0.0967	0.0580	0.2780
Diff (1-2)	Pooled	0.4056	0.2775	0.5338	0.0879	0.0594	0.1684
Diff (1-2)	Satterthwaite	0.4056	0.2765	0.5348			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.30	<.0001
Satterthwaite	Unequal	7.6578	7.30	0.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.54	0.6876

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-16 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.3350	0.0518	0.0232	1.2660	1.4065
Diff (1-2)		-0.0105	0.0662	0.0419		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.3350	1.2706	1.3993	0.0518	0.0311	0.1489
Diff (1-2)	Pooled	-0.0105	-0.1071	0.0862	0.0662	0.0447	0.1269
Diff (1-2)	Satterthwaite	-0.0105	-0.1097	0.0888			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.25	0.8093
Satterthwaite	Unequal	6.9535	-0.25	0.8102

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.27	0.4473

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A1-24 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.0922	0.1142	0.0511	1.0045	1.2898
Diff (1-2)		0.2323	0.0978	0.0618		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.0922	0.9504	1.2339	0.1142	0.0684	0.3280
Diff (1-2)	Pooled	0.2323	0.0897	0.3750	0.0978	0.0660	0.1873
Diff (1-2)	Satterthwaite	0.2323	0.0864	0.3783			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.76	0.0056
Satterthwaite	Unequal	7.069	3.76	0.0070

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.14	0.4795

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-10 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.3738	0.0551	0.0246	1.2827	1.4177
Diff (1-2)		-0.0493	0.0676	0.0427		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.3738	1.3054	1.4423	0.0551	0.0330	0.1584
Diff (1-2)	Pooled	-0.0493	-0.1479	0.0492	0.0676	0.0456	0.1294
Diff (1-2)	Satterthwaite	-0.0493	-0.1498	0.0512			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.15	0.2817
Satterthwaite	Unequal	7.1951	-1.15	0.2853

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.01	0.5170

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-11 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.3917	0.0474	0.0212	1.3448	1.4597
Diff (1-2)		-0.0671	0.0646	0.0408		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.3917	1.3327	1.4506	0.0474	0.0284	0.1363
Diff (1-2)	Pooled	-0.0671	-0.1613	0.0271	0.0646	0.0436	0.1237
Diff (1-2)	Satterthwaite	-0.0671	-0.1649	0.0306			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.64	0.1389
Satterthwaite	Unequal	6.6011	-1.64	0.1468

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.71	0.3583

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-14 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.9734	0.0676	0.0302	0.9231	1.0907
Diff (1-2)		0.3511	0.0730	0.0462		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.9734	0.8895	1.0574	0.0676	0.0405	0.1943
Diff (1-2)	Pooled	0.3511	0.2446	0.4576	0.0730	0.0493	0.1399
Diff (1-2)	Satterthwaite	0.3511	0.2442	0.4580			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.60	<.0001
Satterthwaite	Unequal	7.8411	7.60	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.33	0.7879

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.2507	0.0378	0.0169	1.2010	1.2973
Diff (1-2)		0.0738	0.0613	0.0388		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.2507	1.2037	1.2977	0.0378	0.0227	0.1087
Diff (1-2)	Pooled	0.0738	-0.0156	0.1633	0.0613	0.0414	0.1175
Diff (1-2)	Satterthwaite	0.0738	-0.0219	0.1696			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.90	0.0934
Satterthwaite	Unequal	5.7818	1.90	0.1075

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.25	0.1897

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.7904	0.0401	0.0179	0.7241	0.8285
Diff (1-2)		0.5341	0.0620	0.0392		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.7904	0.7406	0.8402	0.0401	0.0240	0.1152
Diff (1-2)	Pooled	0.5341	0.4436	0.6246	0.0620	0.0419	0.1189
Diff (1-2)	Satterthwaite	0.5341	0.4380	0.6303			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	13.61	<.0001
Satterthwaite	Unequal	5.9747	13.61	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.79	0.2253

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.0948	0.0653	0.0292	1.0420	1.1673
Diff (1-2)		0.2297	0.0720	0.0455		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.0948	1.0137	1.1758	0.0653	0.0391	0.1876
Diff (1-2)	Pooled	0.2297	0.1248	0.3347	0.0720	0.0486	0.1378
Diff (1-2)	Satterthwaite	0.2297	0.1242	0.3352			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.05	0.0010
Satterthwaite	Unequal	7.758	5.05	0.0011

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.43	0.7378

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-36 ------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.5588	0.0750	0.0335	0.4552	0.6334
Diff (1-2)		0.7657	0.0765	0.0484		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.5588	0.4656	0.6519	0.0750	0.0449	0.2155
Diff (1-2)	Pooled	0.7657	0.6541	0.8774	0.0765	0.0517	0.1466
Diff (1-2)	Satterthwaite	0.7657	0.6541	0.8774			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	15.82	<.0001
Satterthwaite	Unequal	7.9874	15.82	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.08	0.9405

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A3-05E -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	1.2998	0.0528	0.0236	1.2345	1.3554
Diff (1-2)		0.0247	0.0666	0.0421		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		1.2998	1.2343	1.3653	0.0528	0.0316	0.1516
Diff (1-2)	Pooled	0.0247	-0.0724	0.1219	0.0666	0.0450	0.1276
Diff (1-2)	Satterthwaite	0.0247	-0.0748	0.1243			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	0.59	0.5737
Satterthwaite	Unequal	7.0242	0.59	0.5758

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.19	0.4668

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.4697	0.1220	0.0546	0.3449	0.6740
Diff (1-2)		0.8548	0.1024	0.0648		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.4697	0.3182	0.6212	0.1220	0.0731	0.3506
Diff (1-2)	Pooled	0.8548	0.7055	1.0042	0.1024	0.0692	0.1962
Diff (1-2)	Satterthwaite	0.8548	0.7008	1.0089			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	13.20	<.0001
Satterthwaite	Unequal	6.8042	13.20	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.44	0.4080

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B -----

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	1.3245	0.0780	0.0349	1.2119	1.4100
Test	5	0.5485	0.0805	0.0360	0.4265	0.6095
Diff (1-2)		0.7761	0.0793	0.0501		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		1.3245	1.2276	1.4214	0.0780	0.0468	0.2243
Test		0.5485	0.4485	0.6484	0.0805	0.0482	0.2313
Diff (1-2)	Pooled	0.7761	0.6604	0.8917	0.0793	0.0535	0.1519
Diff (1-2)	Satterthwaite	0.7761	0.6604	0.8917			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	15.48	<.0001
Satterthwaite	Unequal	7.9925	15.48	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.06	0.9541

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-03 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	27.50	27.50	4.082483	5.50
Test	5	27.50	27.50	4.082483	5.50

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	27.5000
Normal Approximation	
Z	0.0000
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000
t Approximation	
One-Sided Pr < Z	0.5000
Two-Sided Pr > |Z|	1.0000

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0000
DF	1
Pr > Chi-Square	1.0000

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-07 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	30.0	27.50	4.166667	6.0
Test	5	25.0	27.50	4.166667	5.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	30.0000
Normal Approximation	
Z	0.4800
One-Sided Pr > Z	0.3156
Two-Sided Pr > |Z|	0.6312
t Approximation	
One-Sided Pr > Z	0.3213
Two-Sided Pr > |Z|	0.6427

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.3600
DF	1
Pr > Chi-Square	0.5485

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-16 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	28.50	27.50	4.183300	5.70
Test	5	26.50	27.50	4.183300	5.30

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	28.5000
Normal Approximation	
Z	0.1195
One-Sided Pr > Z	0.4524
Two-Sided Pr > |Z|	0.9049
t Approximation	
One-Sided Pr > Z	0.4537
Two-Sided Pr > |Z|	0.9075

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.0571
DF	1
Pr > Chi-Square	0.8111

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A1-24 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	26.0	27.50	3.872983	5.20
Test	5	29.0	27.50	3.872983	5.80

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	26.0000
Normal Approximation	
Z	-0.2582
One-Sided Pr < Z	0.3981
Two-Sided Pr > |Z|	0.7963
t Approximation	
One-Sided Pr < Z	0.4010
Two-Sided Pr > |Z|	0.8021

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.1500
DF	1
Pr > Chi-Square	0.6985

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-10 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	30.0	27.50	4.166667	6.0
Test	5	25.0	27.50	4.166667	5.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	30.0000
Normal Approximation	
Z	0.4800
One-Sided Pr > Z	0.3156
Two-Sided Pr > |Z|	0.6312
t Approximation	
One-Sided Pr > Z	0.3213
Two-Sided Pr > |Z|	0.6427

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.3600
DF	1
Pr > Chi-Square	0.5485

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-11 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	26.0	27.50	3.872983	5.20
Test	5	29.0	27.50	3.872983	5.80

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	26.0000
Normal Approximation	
Z	-0.2582
One-Sided Pr < Z	0.3981
Two-Sided Pr > |Z|	0.7963
t Approximation	
One-Sided Pr < Z	0.4010
Two-Sided Pr > |Z|	0.8021

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.1500
DF	1
Pr > Chi-Square	0.6985

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-14 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	25.0	27.50	3.818813	5.0
Test	5	30.0	27.50	3.818813	6.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	25.0000
Normal Approximation	
Z	-0.5237
One-Sided Pr < Z	0.3002
Two-Sided Pr > |Z|	0.6005
t Approximation	
One-Sided Pr < Z	0.3066
Two-Sided Pr > |Z|	0.6131

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4286
DF	1
Pr > Chi-Square	0.5127

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-18 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	25.0	27.50	3.818813	5.0
Test	5	30.0	27.50	3.818813	6.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	25.0000
Normal Approximation	
Z	-0.5237
One-Sided Pr < Z	0.3002
Two-Sided Pr > |Z|	0.6005
t Approximation	
One-Sided Pr < Z	0.3066
Two-Sided Pr > |Z|	0.6131

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4286
DF	1
Pr > Chi-Square	0.5127

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-21 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	32.0	27.50	4.409586	6.40
Test	5	23.0	27.50	4.409586	4.60

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	32.0000
Normal Approximation	
Z	0.9071
One-Sided Pr > Z	0.1822
Two-Sided Pr > |Z|	0.3643
t Approximation	
One-Sided Pr > Z	0.1940
Two-Sided Pr > |Z|	0.3880

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	1.0414
DF	1
Pr > Chi-Square	0.3075

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-36 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	25.0	27.50	3.818813	5.0
Test	5	30.0	27.50	3.818813	6.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	25.0000
Normal Approximation	
Z	-0.5237
One-Sided Pr < Z	0.3002
Two-Sided Pr > |Z|	0.6005
t Approximation	
One-Sided Pr < Z	0.3066
Two-Sided Pr > |Z|	0.6131

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4286
DF	1
Pr > Chi-Square	0.5127

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A3-07B ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	30.0	27.50	4.166667	6.0
Test	5	25.0	27.50	4.166667	5.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	30.0000
Normal Approximation	
Z	0.4800
One-Sided Pr > Z	0.3156
Two-Sided Pr > |Z|	0.6312
t Approximation	
One-Sided Pr > Z	0.3213
Two-Sided Pr > |Z|	0.6427

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.3600
DF	1
Pr > Chi-Square	0.5485

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A4-08B ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	25.0	27.50	3.818813	5.0
Test	5	30.0	27.50	3.818813	6.0

Average scores were used for ties.

Wilcoxon Two-Sample Test

Statistic	25.0000
Normal Approximation	
Z	-0.5237
One-Sided Pr < Z	0.3002
Two-Sided Pr > |Z|	0.6005
t Approximation	
One-Sided Pr < Z	0.3066
Two-Sided Pr > |Z|	0.6131

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	0.4286
DF	1
Pr > Chi-Square	0.5127

----- Test=Run1 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13 ------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
CR-23-S	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A2-13 ----------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	0.6906	0.5162	0.2308	0.1252	1.0675
Test	5	-0.6906	0.5914	0.2645	-1.5466	0.1252
Diff (1-2)		1.3811	0.5550	0.3510		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		0.6906	0.0497	1.3315	0.5162	0.3092	1.4832
Test		-0.6906	-1.4248	0.0437	0.5914	0.3543	1.6993
Diff (1-2)	Pooled	1.3811	0.5717	2.1906	0.5550	0.3749	1.0633
Diff (1-2)	Satterthwaite	1.3811	0.5691	2.1932			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.93	0.0043
Satterthwaite	Unequal	7.8564	3.93	0.0045

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.31	0.7985

---------- Test=Eohaustorius 10-day Endpoint=Percent Survival Treatment=A3-05E ----------

The TTEST Procedure

Variable: rankit (Rank for Variable Result)

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-S	5	-0.3184	0.8719	0.3899	-1.2736	0.3184
Test	5	0.3184	0	0	0.3184	0.3184
Diff (1-2)		-0.6368	0.6166	0.3899		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-S		-0.3184	-1.4011	0.7643	0.8719	0.5224	2.5056
Test		0.3184	0.3184	0.3184	0	.	.
Diff (1-2)	Pooled	-0.6368	-1.5360	0.2624	0.6166	0.4165	1.1812
Diff (1-2)	Satterthwaite	-0.6368	-1.7194	0.4459			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.63	0.1411
Satterthwaite	Unequal	4	-1.63	0.1778

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	Infty	<.0001

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=CR-20/24-65-S ----------

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Reference	5	1.4386	0.0416	0.0186	1.3694	1.4757
Diff (1-2)		-0.0448	0.0396	0.0251		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Reference		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Diff (1-2)	Pooled	-0.0448	-0.1026	0.0130	0.0396	0.0268	0.0759
Diff (1-2)	Satterthwaite	-0.0448	-0.1027	0.0131			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-1.79	0.1116
Satterthwaite	Unequal	7.9164	-1.79	0.1120

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.23	0.8464

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=CR-23-49 ----------

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Reference	5	1.4370	0.1031	0.0461	1.2898	1.5708
Diff (1-2)		-0.0432	0.0776	0.0491		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Reference		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Diff (1-2)	Pooled	-0.0432	-0.1564	0.0700	0.0776	0.0524	0.1487
Diff (1-2)	Satterthwaite	-0.0432	-0.1690	0.0826			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-0.88	0.4044
Satterthwaite	Unequal	5.0422	-0.88	0.4187

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	7.54	0.0758

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=SB-REF-76 ----------

The TTEST Procedure

Variable: result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Reference	5	1.4635	0.0311	0.0139	1.4284	1.4956
Diff (1-2)		-0.0698	0.0345	0.0218		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Reference		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Diff (1-2)	Pooled	-0.0698	-0.1201	-0.0195	0.0345	0.0233	0.0661
Diff (1-2)	Satterthwaite	-0.0698	-0.1204	-0.0192			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	-3.20	0.0126
Satterthwaite	Unequal	7.7333	-3.20	0.0132

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.46	0.7247

Mann-Whitney Test Results

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=SB-REF-48 ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Control	5	16.0	27.50	4.787136	3.20
Reference	5	39.0	27.50	4.787136	7.80

Wilcoxon Two-Sample Test

Statistic	16.0000
Normal Approximation	
Z	-2.2978
One-Sided Pr < Z	0.0108
Two-Sided Pr > |Z|	0.0216
t Approximation	
One-Sided Pr < Z	0.0236
Two-Sided Pr > |Z|	0.0472

Z includes a continuity correction of 0.5.

Mann-Whitney Test Results

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=SB-REF-48 ----------

The NPAR1WAY Procedure

Kruskal-Wallis Test

Chi-Square	5.7709
DF	1
Pr > Chi-Square	0.0163

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.0664	0.1212	0.0542	0.8768	1.1772
Diff (1-2)		0.3722	0.0906	0.0573		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.0664	0.9159	1.2169	0.1212	0.0726	0.3482
Diff (1-2)	Pooled	0.3722	0.2400	0.5043	0.0906	0.0612	0.1736
Diff (1-2)	Satterthwaite	0.3722	0.2242	0.5201			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.49	0.0002
Satterthwaite	Unequal	4.9307	6.49	0.0014

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	8.48	0.0621

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.2634	0.0402	0.0180	1.2171	1.3246
Diff (1-2)		0.1752	0.0409	0.0259		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.2634	1.2135	1.3134	0.0402	0.0241	0.1156
Diff (1-2)	Pooled	0.1752	0.1155	0.2349	0.0409	0.0276	0.0784
Diff (1-2)	Satterthwaite	0.1752	0.1155	0.2349			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.77	0.0001
Satterthwaite	Unequal	7.9907	6.77	0.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.07	0.9490

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.2379	0.0656	0.0294	1.1277	1.3010
Diff (1-2)		0.2007	0.0550	0.0348		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.2379	1.1564	1.3194	0.0656	0.0393	0.1886
Diff (1-2)	Pooled	0.2007	0.1205	0.2808	0.0550	0.0371	0.1053
Diff (1-2)	Satterthwaite	0.2007	0.1179	0.2834			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.77	0.0004
Satterthwaite	Unequal	6.769	5.77	0.0008

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.49	0.3991

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.1901	0.0810	0.0362	1.1071	1.3033
Diff (1-2)		0.2485	0.0644	0.0407		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.1901	1.0895	1.2906	0.0810	0.0485	0.2326
Diff (1-2)	Pooled	0.2485	0.1547	0.3424	0.0644	0.0435	0.1233
Diff (1-2)	Satterthwaite	0.2485	0.1488	0.3482			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.11	0.0003
Satterthwaite	Unequal	5.9767	6.11	0.0009

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.78	0.2257

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.3693	0.0240	0.0107	1.3475	1.4087
Diff (1-2)		0.0693	0.0340	0.0215		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.3693	1.3395	1.3991	0.0240	0.0144	0.0690
Diff (1-2)	Pooled	0.0693	0.0198	0.1189	0.0340	0.0229	0.0651
Diff (1-2)	Satterthwaite	0.0693	0.0175	0.1211			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.23	0.0121
Satterthwaite	Unequal	6.3957	3.23	0.0165

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.01	0.3116

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.1042	0.0178	0.00796	1.0872	1.1263
Diff (1-2)		0.3344	0.0320	0.0202		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.1042	1.0821	1.1263	0.0178	0.0107	0.0512
Diff (1-2)	Pooled	0.3344	0.2877	0.3810	0.0320	0.0216	0.0613
Diff (1-2)	Satterthwaite	0.3344	0.2835	0.3852			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	16.51	<.0001
Satterthwaite	Unequal	5.4173	16.51	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.46	0.1289

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.2425	0.0362	0.0162	1.2026	1.3002
Diff (1-2)		0.1961	0.0390	0.0247		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.2425	1.1975	1.2874	0.0362	0.0217	0.1040
Diff (1-2)	Pooled	0.1961	0.1392	0.2530	0.0390	0.0263	0.0747
Diff (1-2)	Satterthwaite	0.1961	0.1391	0.2532			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.95	<.0001
Satterthwaite	Unequal	7.8489	7.95	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.32	0.7932

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	0.9212	0.0499	0.0223	0.8553	0.9746
Diff (1-2)		0.5174	0.0460	0.0291		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		0.9212	0.8592	0.9832	0.0499	0.0299	0.1434
Diff (1-2)	Pooled	0.5174	0.4504	0.5844	0.0460	0.0310	0.0880
Diff (1-2)	Satterthwaite	0.5174	0.4500	0.5848			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	17.80	<.0001
Satterthwaite	Unequal	7.7498	17.80	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.44	0.7334

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-20/24-65-	5	1.4386	0.0416	0.0186	1.3694	1.4757
Test	5	1.0797	0.0980	0.0438	0.9721	1.2185
Diff (1-2)		0.3589	0.0753	0.0476		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-20/24-65-		1.4386	1.3869	1.4903	0.0416	0.0249	0.1196
Test		1.0797	0.9581	1.2013	0.0980	0.0587	0.2815
Diff (1-2)	Pooled	0.3589	0.2491	0.4687	0.0753	0.0508	0.1442
Diff (1-2)	Satterthwaite	0.3589	0.2392	0.4786			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.54	<.0001
Satterthwaite	Unequal	5.3984	7.54	0.0005

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	5.54	0.1260

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.0664	0.1212	0.0542	0.8768	1.1772
Diff (1-2)		0.3705	0.1125	0.0712		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.0664	0.9159	1.2169	0.1212	0.0726	0.3482
Diff (1-2)	Pooled	0.3705	0.2064	0.5346	0.1125	0.0760	0.2156
Diff (1-2)	Satterthwaite	0.3705	0.2057	0.5354			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.21	0.0008
Satterthwaite	Unequal	7.7999	5.21	0.0009

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.38	0.7618

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.2634	0.0402	0.0180	1.2171	1.3246
Diff (1-2)		0.1736	0.0783	0.0495		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.2634	1.2135	1.3134	0.0402	0.0241	0.1156
Diff (1-2)	Pooled	0.1736	0.0594	0.2877	0.0783	0.0529	0.1499
Diff (1-2)	Satterthwaite	0.1736	0.0477	0.2994			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.51	0.0080
Satterthwaite	Unequal	5.1901	3.51	0.0161

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.57	0.0955

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.2379	0.0656	0.0294	1.1277	1.3010
Diff (1-2)		0.1991	0.0864	0.0547		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.2379	1.1564	1.3194	0.0656	0.0393	0.1886
Diff (1-2)	Pooled	0.1991	0.0730	0.3251	0.0864	0.0584	0.1656
Diff (1-2)	Satterthwaite	0.1991	0.0690	0.3291			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.64	0.0066
Satterthwaite	Unequal	6.7846	3.64	0.0087

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.47	0.4030

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.1901	0.0810	0.0362	1.1071	1.3033
Diff (1-2)		0.2469	0.0927	0.0586		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.1901	1.0895	1.2906	0.0810	0.0485	0.2326
Diff (1-2)	Pooled	0.2469	0.1117	0.3821	0.0927	0.0626	0.1776
Diff (1-2)	Satterthwaite	0.2469	0.1104	0.3834			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.21	0.0029
Satterthwaite	Unequal	7.5733	4.21	0.0033

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.62	0.6506

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.3693	0.0240	0.0107	1.3475	1.4087
Diff (1-2)		0.0677	0.0749	0.0473		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.3693	1.3395	1.3991	0.0240	0.0144	0.0690
Diff (1-2)	Pooled	0.0677	-0.0415	0.1769	0.0749	0.0506	0.1434
Diff (1-2)	Satterthwaite	0.0677	-0.0589	0.1942			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.43	0.1907
Satterthwaite	Unequal	4.4323	1.43	0.2194

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	18.45	0.0153

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.1042	0.0178	0.00796	1.0872	1.1263
Diff (1-2)		0.3327	0.0740	0.0468		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.1042	1.0821	1.1263	0.0178	0.0107	0.0512
Diff (1-2)	Pooled	0.3327	0.2248	0.4406	0.0740	0.0500	0.1417
Diff (1-2)	Satterthwaite	0.3327	0.2056	0.4598			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.11	0.0001
Satterthwaite	Unequal	4.2385	7.11	0.0017

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	33.52	0.0049

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.2425	0.0362	0.0162	1.2026	1.3002
Diff (1-2)		0.1945	0.0773	0.0489		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.2425	1.1975	1.2874	0.0362	0.0217	0.1040
Diff (1-2)	Pooled	0.1945	0.0818	0.3072	0.0773	0.0522	0.1480
Diff (1-2)	Satterthwaite	0.1945	0.0687	0.3204			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	3.98	0.0041
Satterthwaite	Unequal	4.9711	3.98	0.0107

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	8.11	0.0669

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	0.9212	0.0499	0.0223	0.8553	0.9746
Diff (1-2)		0.5158	0.0810	0.0512		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		0.9212	0.8592	0.9832	0.0499	0.0299	0.1434
Diff (1-2)	Pooled	0.5158	0.3976	0.6339	0.0810	0.0547	0.1552
Diff (1-2)	Satterthwaite	0.5158	0.3892	0.6423			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	10.07	<.0001
Satterthwaite	Unequal	5.777	10.07	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.27	0.1889

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
CR-23-49	5	1.4370	0.1031	0.0461	1.2898	1.5708
Test	5	1.0797	0.0980	0.0438	0.9721	1.2185
Diff (1-2)		0.3573	0.1006	0.0636		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
CR-23-49		1.4370	1.3089	1.5650	0.1031	0.0618	0.2963
Test		1.0797	0.9581	1.2013	0.0980	0.0587	0.2815
Diff (1-2)	Pooled	0.3573	0.2106	0.5039	0.1006	0.0679	0.1927
Diff (1-2)	Satterthwaite	0.3573	0.2105	0.5040			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.62	0.0005
Satterthwaite	Unequal	7.9792	5.62	0.0005

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.11	0.9234

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-48	5	1.4915	0.0464	0.0207	1.4483	1.5708
Test	5	1.0664	0.1212	0.0542	0.8768	1.1772
Diff (1-2)		0.4251	0.0917	0.0580		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-48		1.4915	1.4340	1.5491	0.0464	0.0278	0.1332
Test		1.0664	0.9159	1.2169	0.1212	0.0726	0.3482
Diff (1-2)	Pooled	0.4251	0.2913	0.5589	0.0917	0.0620	0.1758
Diff (1-2)	Satterthwaite	0.4251	0.2772	0.5730			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.33	<.0001
Satterthwaite	Unequal	5.1458	7.33	0.0007

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.84	0.0894

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-48	5	1.4915	0.0464	0.0207	1.4483	1.5708
Test	5	1.2634	0.0402	0.0180	1.2171	1.3246
Diff (1-2)		0.2281	0.0434	0.0274		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-48		1.4915	1.4340	1.5491	0.0464	0.0278	0.1332
Test		1.2634	1.2135	1.3134	0.0402	0.0241	0.1156
Diff (1-2)	Pooled	0.2281	0.1648	0.2914	0.0434	0.0293	0.0831
Diff (1-2)	Satterthwaite	0.2281	0.1646	0.2916			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	8.31	<.0001
Satterthwaite	Unequal	7.8446	8.31	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.33	0.7902

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-48	5	1.4915	0.0464	0.0207	1.4483	1.5708
Test	5	1.2379	0.0656	0.0294	1.1277	1.3010
Diff (1-2)		0.2536	0.0568	0.0359		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-48		1.4915	1.4340	1.5491	0.0464	0.0278	0.1332
Test		1.2379	1.1564	1.3194	0.0656	0.0393	0.1886
Diff (1-2)	Pooled	0.2536	0.1707	0.3365	0.0568	0.0384	0.1089
Diff (1-2)	Satterthwaite	0.2536	0.1691	0.3381			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.06	0.0001
Satterthwaite	Unequal	7.195	7.06	0.0002

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.01	0.5170

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-48	5	1.4915	0.0464	0.0207	1.4483	1.5708
Test	5	1.1901	0.0810	0.0362	1.1071	1.3033
Diff (1-2)		0.3014	0.0660	0.0417		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-48		1.4915	1.4340	1.5491	0.0464	0.0278	0.1332
Test		1.1901	1.0895	1.2906	0.0810	0.0485	0.2326
Diff (1-2)	Pooled	0.3014	0.2052	0.3976	0.0660	0.0446	0.1264
Diff (1-2)	Satterthwaite	0.3014	0.2008	0.4021			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.23	<.0001
Satterthwaite	Unequal	6.3684	7.23	0.0003

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.05	0.3056

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-48	5	1.4915	0.0464	0.0207	1.4483	1.5708
Test	5	0.9212	0.0499	0.0223	0.8553	0.9746
Diff (1-2)		0.5703	0.0482	0.0305		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-48		1.4915	1.4340	1.5491	0.0464	0.0278	0.1332
Test		0.9212	0.8592	0.9832	0.0499	0.0299	0.1434
Diff (1-2)	Pooled	0.5703	0.5001	0.6406	0.0482	0.0325	0.0923
Diff (1-2)	Satterthwaite	0.5703	0.5000	0.6406			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	18.72	<.0001
Satterthwaite	Unequal	7.9566	18.72	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.16	0.8894

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-48	5	1.4915	0.0464	0.0207	1.4483	1.5708
Test	5	1.0797	0.0980	0.0438	0.9721	1.2185
Diff (1-2)		0.4118	0.0766	0.0485		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-48		1.4915	1.4340	1.5491	0.0464	0.0278	0.1332
Test		1.0797	0.9581	1.2013	0.0980	0.0587	0.2815
Diff (1-2)	Pooled	0.4118	0.3000	0.5236	0.0766	0.0518	0.1468
Diff (1-2)	Satterthwaite	0.4118	0.2917	0.5319			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	8.50	<.0001
Satterthwaite	Unequal	5.7054	8.50	0.0002

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.47	0.1763

Mann-Whitney Test Results

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18-S ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
SB-REF-48	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18-S ----------

The NPAR1WAY Procedure

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

Mann-Whitney Test Results

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21-S ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
SB-REF-48	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21-S ----------

The NPAR1WAY Procedure

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

Mann-Whitney Test Results

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25-S ----------

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Result
Classified by Variable group

group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
SB-REF-48	5	40.0	27.50	4.787136	8.0
Test	5	15.0	27.50	4.787136	3.0

Wilcoxon Two-Sample Test

Statistic	40.0000
Normal Approximation	
Z	2.5067
One-Sided Pr > Z	0.0061
Two-Sided Pr > |Z|	0.0122
t Approximation	
One-Sided Pr > Z	0.0167
Two-Sided Pr > |Z|	0.0335

Z includes a continuity correction of 0.5.

Mann-Whitney Test Results

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25-S ----------

The NPAR1WAY Procedure

Kruskal-Wallis Test

Chi-Square	6.8182
DF	1
Pr > Chi-Square	0.0090

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.0664	0.1212	0.0542	0.8768	1.1772
Diff (1-2)		0.3971	0.0885	0.0560		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.0664	0.9159	1.2169	0.1212	0.0726	0.3482
Diff (1-2)	Pooled	0.3971	0.2681	0.5262	0.0885	0.0598	0.1695
Diff (1-2)	Satterthwaite	0.3971	0.2486	0.5456			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.10	0.0001
Satterthwaite	Unequal	4.525	7.10	0.0013

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	15.17	0.0220

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.2634	0.0402	0.0180	1.2171	1.3246
Diff (1-2)		0.2001	0.0360	0.0227		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.2634	1.2135	1.3134	0.0402	0.0241	0.1156
Diff (1-2)	Pooled	0.2001	0.1477	0.2526	0.0360	0.0243	0.0689
Diff (1-2)	Satterthwaite	0.2001	0.1471	0.2532			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	8.80	<.0001
Satterthwaite	Unequal	7.5243	8.80	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.67	0.6308

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.2379	0.0656	0.0294	1.1277	1.3010
Diff (1-2)		0.2256	0.0514	0.0325		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.2379	1.1564	1.3194	0.0656	0.0393	0.1886
Diff (1-2)	Pooled	0.2256	0.1507	0.3005	0.0514	0.0347	0.0984
Diff (1-2)	Satterthwaite	0.2256	0.1452	0.3061			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.95	0.0001
Satterthwaite	Unequal	5.711	6.95	0.0005

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.45	0.1772

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.1901	0.0810	0.0362	1.1071	1.3033
Diff (1-2)		0.2735	0.0613	0.0388		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.1901	1.0895	1.2906	0.0810	0.0485	0.2326
Diff (1-2)	Pooled	0.2735	0.1841	0.3629	0.0613	0.0414	0.1175
Diff (1-2)	Satterthwaite	0.2735	0.1747	0.3723			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	7.05	0.0001
Satterthwaite	Unequal	5.1565	7.05	0.0008

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.77	0.0909

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.3693	0.0240	0.0107	1.3475	1.4087
Diff (1-2)		0.0943	0.0278	0.0176		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.3693	1.3395	1.3991	0.0240	0.0144	0.0690
Diff (1-2)	Pooled	0.0943	0.0537	0.1348	0.0278	0.0188	0.0532
Diff (1-2)	Satterthwaite	0.0943	0.0533	0.1353			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.36	0.0007
Satterthwaite	Unequal	7.516	5.36	0.0008

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.68	0.6275

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.1042	0.0178	0.00796	1.0872	1.1263
Diff (1-2)		0.3593	0.0253	0.0160		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.1042	1.0821	1.1263	0.0178	0.0107	0.0512
Diff (1-2)	Pooled	0.3593	0.3224	0.3963	0.0253	0.0171	0.0486
Diff (1-2)	Satterthwaite	0.3593	0.3206	0.3980			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	22.41	<.0001
Satterthwaite	Unequal	6.3673	22.41	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.05	0.3053

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.2425	0.0362	0.0162	1.2026	1.3002
Diff (1-2)		0.2211	0.0338	0.0213		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.2425	1.1975	1.2874	0.0362	0.0217	0.1040
Diff (1-2)	Pooled	0.2211	0.1719	0.2703	0.0338	0.0228	0.0647
Diff (1-2)	Satterthwaite	0.2211	0.1717	0.2705			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	10.36	<.0001
Satterthwaite	Unequal	7.8235	10.36	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.35	0.7764

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	0.9212	0.0499	0.0223	0.8553	0.9746
Diff (1-2)		0.5424	0.0416	0.0263		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		0.9212	0.8592	0.9832	0.0499	0.0299	0.1434
Diff (1-2)	Pooled	0.5424	0.4817	0.6030	0.0416	0.0281	0.0797
Diff (1-2)	Satterthwaite	0.5424	0.4796	0.6051			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	20.62	<.0001
Satterthwaite	Unequal	6.7007	20.62	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.57	0.3822

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
SB-REF-76	5	1.4635	0.0311	0.0139	1.4284	1.4956
Test	5	1.0797	0.0980	0.0438	0.9721	1.2185
Diff (1-2)		0.3838	0.0727	0.0460		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
SB-REF-76		1.4635	1.4249	1.5022	0.0311	0.0186	0.0894
Test		1.0797	0.9581	1.2013	0.0980	0.0587	0.2815
Diff (1-2)	Pooled	0.3838	0.2778	0.4899	0.0727	0.0491	0.1392
Diff (1-2)	Satterthwaite	0.3838	0.2642	0.5035			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	8.35	<.0001
Satterthwaite	Unequal	4.7987	8.35	0.0005

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	9.92	0.0473

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-01-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.0664	0.1212	0.0542	0.8768	1.1772
Diff (1-2)		0.3273	0.0897	0.0567		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.0664	0.9159	1.2169	0.1212	0.0726	0.3482
Diff (1-2)	Pooled	0.3273	0.1965	0.4582	0.0897	0.0606	0.1719
Diff (1-2)	Satterthwaite	0.3273	0.1793	0.4754			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.77	0.0004
Satterthwaite	Unequal	4.7607	5.77	0.0026

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	10.42	0.0433

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-03-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.2634	0.0402	0.0180	1.2171	1.3246
Diff (1-2)		0.1304	0.0389	0.0246		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.2634	1.2135	1.3134	0.0402	0.0241	0.1156
Diff (1-2)	Pooled	0.1304	0.0736	0.1871	0.0389	0.0263	0.0745
Diff (1-2)	Satterthwaite	0.1304	0.0736	0.1872			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.30	0.0007
Satterthwaite	Unequal	7.9621	5.30	0.0007

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.15	0.8967

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A1-07-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.2379	0.0656	0.0294	1.1277	1.3010
Diff (1-2)		0.1559	0.0535	0.0338		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.2379	1.1564	1.3194	0.0656	0.0393	0.1886
Diff (1-2)	Pooled	0.1559	0.0779	0.2338	0.0535	0.0361	0.1024
Diff (1-2)	Satterthwaite	0.1559	0.0742	0.2375			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	4.61	0.0017
Satterthwaite	Unequal	6.3641	4.61	0.0031

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	3.06	0.3047

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-13-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.1901	0.0810	0.0362	1.1071	1.3033
Diff (1-2)		0.2037	0.0631	0.0399		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.1901	1.0895	1.2906	0.0810	0.0485	0.2326
Diff (1-2)	Pooled	0.2037	0.1117	0.2957	0.0631	0.0426	0.1209
Diff (1-2)	Satterthwaite	0.2037	0.1046	0.3029			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	5.10	0.0009
Satterthwaite	Unequal	5.6446	5.10	0.0026

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.65	0.1658

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-18-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.3693	0.0240	0.0107	1.3475	1.4087
Diff (1-2)		0.0245	0.0315	0.0199		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.3693	1.3395	1.3991	0.0240	0.0144	0.0690
Diff (1-2)	Pooled	0.0245	-0.0215	0.0704	0.0315	0.0213	0.0604
Diff (1-2)	Satterthwaite	0.0245	-0.0229	0.0719			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	1.23	0.2541
Satterthwaite	Unequal	6.802	1.23	0.2600

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	2.45	0.4075

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-21-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.1042	0.0178	0.00796	1.0872	1.1263
Diff (1-2)		0.2895	0.0294	0.0186		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.1042	1.0821	1.1263	0.0178	0.0107	0.0512
Diff (1-2)	Pooled	0.2895	0.2467	0.3324	0.0294	0.0198	0.0563
Diff (1-2)	Satterthwaite	0.2895	0.2435	0.3356			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	15.58	<.0001
Satterthwaite	Unequal	5.7136	15.58	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	4.44	0.1777

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A2-25-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.2425	0.0362	0.0162	1.2026	1.3002
Diff (1-2)		0.1513	0.0369	0.0233		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.2425	1.1975	1.2874	0.0362	0.0217	0.1040
Diff (1-2)	Pooled	0.1513	0.0975	0.2051	0.0369	0.0249	0.0706
Diff (1-2)	Satterthwaite	0.1513	0.0975	0.2051			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.49	0.0002
Satterthwaite	Unequal	7.9894	6.49	0.0002

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.08	0.9453

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A3-07B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	0.9212	0.0499	0.0223	0.8553	0.9746
Diff (1-2)		0.4726	0.0442	0.0279		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		0.9212	0.8592	0.9832	0.0499	0.0299	0.1434
Diff (1-2)	Pooled	0.4726	0.4082	0.5370	0.0442	0.0298	0.0846
Diff (1-2)	Satterthwaite	0.4726	0.4073	0.5379			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	16.92	<.0001
Satterthwaite	Unequal	7.4286	16.92	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	1.77	0.5947

T-test Results, This is a 2-tailed result
See Summary Page for 1-tail Result

---------- Test=Run2 Larval Development Endpoint=Percent Normal Survival Treatment=A4-08B-S ----------

The TTEST Procedure

Variable: Result

group	N	Mean	Std Dev	Std Err	Minimum	Maximum
Control	5	1.3938	0.0375	0.0168	1.3607	1.4545
Test	5	1.0797	0.0980	0.0438	0.9721	1.2185
Diff (1-2)		0.3141	0.0742	0.0469		

group	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Control		1.3938	1.3471	1.4404	0.0375	0.0225	0.1079
Test		1.0797	0.9581	1.2013	0.0980	0.0587	0.2815
Diff (1-2)	Pooled	0.3141	0.2059	0.4223	0.0742	0.0501	0.1421
Diff (1-2)	Satterthwaite	0.3141	0.1945	0.4336			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	8	6.69	0.0002
Satterthwaite	Unequal	5.15	6.69	0.0010

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	6.81	0.0900