0069744

# SAF-RC-051
# 100 & 300 Area Component of the RCBRA - Incremental Soil Sampling FINAL DATA PACKAGE

**COMPLETE COPY OF DATA PACKAGE TO:**

| | | |
|---|---|---|
| Jill Thomson | H0-23 | ____NB 5/16/06<br>INITIAL/DATE |
| Jeanette Duncan | H9-02 | ___NB 5/16/06<br>INITIAL/DATE |

**COMMENTS:**

SDG _F1192 SAF-RC-051

Rad only X Chem only Rad & Chem

X Complete Partial

RECEIVED
JUN 0 1 2006
EDMC

## Sediment Phytotoxicity EEDP-04-11 (Pak Choi) Test

## Waste Site: Ref and Cr Sediments

RECEIVED
MAY 2006

# BIOASSAY REPORT
## SEDIMENT BIOASSAYS
**Conducted March 2 through April 11, 2006**

Prepared for

ELR CONSULTING, INC.
WASHINGTON HANFORD CLOSURE
RICHLAND, WASHINGTON

Prepared by

CH2M HILL
2300 NW Walnut Boulevard
Corvallis, Oregon 97330

May 4, 2006
Lab I.D. B1539 -01 to -18, -30, -31
SDG NUMBER B1539

F1192

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## INTRODUCTION

CH2M HILL conducted bioassays using the Pak Choi (*Brassica chinensis*, Li-Ren-Choi variety) plant on sediment samples provided by ELR Consulting for Washington Closure Hanford, Richland, Washington. The tests were conducted from March 2 through April 11, 2006.

## METHODS AND MATERIALS

### TEST METHODS

The Pak Choi test method was adapted from: *Phytotoxicity of dredged sediment from urban canal as land application*, Chen et. al., Environmental Pollution 117 (2002) 233-241.

Additional guidance was provided by: *The Water-Culture Method for Growing Plants Without Soil*, California Agricultural Experiment Station Circular No. 347, Hoagland and Arnon, (1950).

### TEST SEEDS

The Pak Choi seeds were obtained from Snow Seed Organic, Salinas, California.

### CONTROL SEDIMENT

The control sediment used in the tests was artificial sediment comprised of 70 grade silica sand (70 percent by weight), kaolin clay (20 percent), and peat moss (10 percent). Calcium carbonate (0.4 percent of total weight) was added to adjust soil pH to 7.0 ± 0.5.

### HYDRATION WATERS

The water used to hydrate the control and test sediments was de-ionized water. In accordance with the test methods, supplemental nutrients were supplied to the test chambers by the addition of half-strength Hoagland's solution.

### TEST CONCENTRATIONS

The concentrations tested were 100 percent sample (i.e., no dilution of the bulk sediment samples was made) with artificial control sediment as the laboratory control. The Pak Choi test sediments were run in quadruplicate with one plant per replicate.

## TEST DESIGN

Test chambers were 13 cm diameter x 13 cm deep cylindrical plastic pots with drainage holes in the bottom. Polyester fiber was used to cover the drain holes and allow moisture transfer. Approximately 1.5 kg of test sediment was placed on top of the fiber of each replicate. Each test container was placed inside an individual 3-liter (18 cm diameter x 14 cm deep) hydration chamber.

## SAMPLE COLLECTION

The sediment samples were collected from February 5 through 27, 2006. The samples were stored in the dark at 4°C until test preparation and initiation occurred. Chain of Custody for sample collection is provided in Appendix C.

## SAMPLE CROSS-REFERENCE TABLE

Table 1 provides a cross-reference of the client identification (ID) numbers, sampling dates, sampling locations, Pak Choi test sample identification (SDG) numbers, and Analytical SDG numbers.

**Table 1**
**Sample Cross-Reference**

| Client ID | Sample Date | Sample Location | Pak Choi test SDG | Analytical Lab SDG |
|---|---|---|---|---|
| J11143 | 2/5/2006 | REF #16 | B1539-01 | F1162-01 |
| J11146 | 2/8/2006 | U-2 | B1539-02 | F1187-01 |
| J11144 | 2/8/2006 | 300-2 | B1539-03 | F1187-02 |
| J11145 | 2/8/2006 | U-1 | B1539-04 | F1187-03 |
| J116N1 | 2/9/2006 | REF 12, SEDIMENT | B1539-05 | F1192-01 |
| J116N3 | 2/9/2006 | REF 13, SEDIMENT | B1539-06 | F1192-02 |
| J112B7 | 2/12/2006 | Cr 5, SEDIMENT | B1539-07 | F1192-03 |
| J116N2 | 2/9/2006 | REF 12, SEDIMENT | B1539-08 | F1192-04 |
| J116M4 | 2/12/2006 | Cr 9, SEDIMENT | B1539-09 | F1192-05 |
| J116N0 | 2/9/2006 | REF14, SEDIMENT | B1539-10 | F1192-06 |
| J11731 | 2/9/2006 | REF11, SEDIMENT FULL QC | B1539-11 | F1192-07 |
| J116M5 | 2/12/2006 | Cr10, SEDIMENT | B1539-12 | F1192-08 |
| J116M8 | 2/12/2006 | Cr 6, SEDIMENT FULL QC | B1539-13 | F1192-09 |
| J11752 | 2/13/2006 | U 5, SEDIMENT | B1539-14 | F1207-01 |
| J11745 | 2/13/2006 | U 6, SEDIMENT | B1539-15 | F1207-02 |
| J11750 | 2/13/2006 | U 8, SEDIMENT | B1539-16 | F1207-03 |
| J11751 | 2/13/2006 | U 3, SEDIMENT | B1539-17 | F1207-04 |
| J11753 | 2/13/2006 | U 7, SEDIMENT | B1539-18 | F1207-05 |
| J116X2 | 2/27/2006 | Sr 3, SEDIMENT | B1539-30 | F1280-01 |
| J116W9 | 2/27/2006 | Sr 1, SEDIMENT FULL QC | B1539-31 | F1280-02 |

## SAMPLE PREPARATION

Test sediments were homogenized prior to allocation to each replicate. For each replicate, approximately 1.5 kg wet weight of sediment was added to each test chamber. The sediments were initially hydrated with Milli-Q equivalent de-ionized water via subirrigation. In addition, a sub sample of the sediment was added to a surrogate chamber and hydrated for pH measurements.

## WATERING SCHEDULE

Test chambers were hydrated with deionized water prior to test initiation and daily thereafter for the first 10 days via subirrigation. Test sediments were hydrated by placing the test chamber into a hydration chamber containing deionized water and allowing the water to percolate into the bottom of the chamber. After a minimum of 15 minutes, the test chambers were lifted, excess water removed from the hydration chamber, and the test chamber placed back into the hydration chamber.

Starting 11 days after planting, test soils were supplemented with nutrients by the addition of 50 ml of half strength Hoagland's solution three days a week (Monday, Wednesday, and Fridays). The half strength Hoagland's solution was applied directly to the sediment surface. Hydration with deionized water via subirrigation was performed on Sunday, Tuesday, Thursday, and Saturdays.

## TEST INITIATION

Following sample preparation, four Pak Choi seeds were planted into each test chamber. Seeds were planted at a depth of 1 ½ times the seeds diameter (approx. 1 mm) and covered gently with sediment. A small amount of hydration water (approx. 10 ml) was sprayed onto the sediment surface to ensure seeds received moisture.

## TEST MONITORING

Sediment pH was taken at test initiation and termination by placing approximately 30 g of sediment into a specimen cup, adding 100 ml of hydration water, and mixing. The slurry was allowed to settle for one hour and the supernatant pH was determined.

Temperature was monitored in the incubator continuously throughout the testing period.

The Pak Choi tests were monitored on Day 12, Day 18, and Day 22 for germination.

On Day 18, seedlings were transplanted in those test concentrations that had one or more test replicates with no germinated seeds and at least one replicate with more than one germinated seed. Transplant details are noted on the bench sheets included in Appendix A.

On Day 22, test chambers that had more than one seedling growing were thinned to reduce the number of seedlings to one.

## TEST TERMINATION

For each test chamber, all of the above ground biomass (i.e. "shoots") from the single plant was collected and placed into tared aluminum tins. The shoots were weighed to determine the wet weight immediately following removal from the test chamber. The shoots were then dried in an oven at 70 °C for a minimum of 48 hours. The shoots were then placed into a desiccator for a minimum of 2 hours and weighed to determine dry weight.

## DATA ANALYSIS

For each test chamber, the following endpoints were calculated:

- Average Above Ground Biomass (Wet)
  (Calculated as the total wet weight of the shoots in each replicate test chamber)
- Average Above Ground Biomass (Dry)
  (Calculated as the total dry weight of the shoots in each replicate test chamber)

Statistical analysis for each endpoint listed comprised of entering the data obtained from each replicate chamber of a test sediment and comparing the result to the data from the replicate chambers of the laboratory control. For each endpoint, a single tailed t-test from the CETIS (version 1.1.2, Tidepool software) program was used to determine whether statistically significant reductions were observed in the test sediments when compared with the lab control. The Equal Variance t Two-Sample test was used as the primary default statistical measure. However, when the assumptions of equality of variance or normality necessary for Equal Variance t Two-Sample test was not met, the Unequal Variance t Two-Sample test or Wilcoxon Rank Sum Two Sample test was used.

The endpoint data and the results statistical analysis are summarized in Table 2. The data represents the average value of all replicates within each test sediment.

## RESULTS AND DISCUSSION

Table 2 summarizes the results of the Pak Choi tests initiated on March 2, 2006.

The results for samples J11143, J11731, J116X2 indicated a statistically significant reduction in both wet weight and dry weight above ground biomass when compared to the laboratory control.

The results for sample J116N3 indicated no statistically significant reduction in wet weight above ground biomass, however a statistically significant reduction in dry weight above ground biomass was observed when compared to the laboratory control.

With the exception of samples J11143, J116N3, J11731, and J116X2 (as listed above), all other sediment samples tested indicated no statistically significant reduction in wet weight or dry weight above ground biomass when compared to the laboratory control.

**Table 2:**
***Pak choi* Chronic Test Results**
**for Washington Closure Hanford**
**Initiated on March 2, 2006**

E, significantly different from lab control by use of Equal Variance t Two-Sample Test

ns indicates a non statisticaly significant result; [5], indicates significant at alpha (p) = 0.05;

--, indicates no statistical test performed.

| Lab ID: | Sample Number: | *Pak choi* Above Ground Biomass (Wet Wt.) Endpoint (g) | Statistically significant difference when compared to Lab Control? | *Pak choi* Above Ground Biomass (Dry Wt.) Endpoint (g) | Statistically significant difference when compared to Lab Control? |
|---|---|---|---|---|---|
| Tests initiated on March 2, 2006 | | | | | |
| Laboratory Control | | 5.81 | -- | 0.317 | -- |
| B1539-01 | J11143 | 0.43 | E [5] | 0.025 | E [5] |
| B1539-02 | J11146 | 3.46 | ns | 0.186 | ns |
| B1539-03 | J11144 | 4.76 | ns | 0.262 | ns |
| B1539-04 | J11145 | 5.01 | ns | 0.281 | ns |
| B1539-05 | J116N1 | 8.85 | ns | 0.425 | ns |
| B1539-06 | J116N3 | 2.58 | ns | 0.137 | E [5] |
| B1539-07 | J112B7 | 9.32 | ns | 0.455 | ns |
| B1539-08 | J116N2 | 8.81 | ns | 0.423 | ns |
| B1539-09 | J116M4 | 3.37 | ns | 0.172 | ns |
| B1539-10 | J116N0 | 4.71 | ns | 0.236 | ns |
| B1539-11 | J11731 | 2.07 | E [5] | 0.115 | E [5] |
| B1539-12 | J116M5 | 4.55 | ns | 0.219 | ns |
| B1539-13 | J116M8 | 6.51 | ns | 0.326 | ns |
| B1539-14 | J11752 | 6.73 | ns | 0.339 | ns |
| B1539-15 | J11745 | 4.72 | ns | 0.227 | ns |
| B1539-16 | J11750 | 8.54 | ns | 0.408 | ns |
| B1539-17 | J11751 | 6.89 | ns | 0.338 | ns |
| B1539-18 | J11753 | 5.60 | ns | 0.328 | ns |
| B1539-30 | J116X2 | 1.25 | E [5] | 0.090 | E [5] |
| B1539-31 | J116W9 | 3.68 | ns | 0.191 | ns |

## CERTIFICATION STATEMENT

I certify that this data package is in compliance with the Statement of Work, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature:

**APPENDIX A**
**RAW DATA SHEETS**

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials [illegible] Day 12 Initials [illegible] Day 18 Initials BM/MS Day 22 Initials [illegible]

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day 22

| CONC. | REP. | Seeds germinated ? (Y/N) DAY 12 | DAY 18 | DAY 22 | pH DAY 0 | DAY 40 |
|---|---|---|---|---|---|---|
| Control | A | Y | Y | Y | 6.6 | 7.2 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-01 100 % | A | N | QN | N | 6.7 | 6.9 |
| | B | N | N | N | | |
| | C | N | N | N | | |
| | D | N | Y (1) | Y | | |
| B1539-02 100 % | A | Y | Y | Y | 6.5 | 6.8 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | N | N | N | | |
| B1539-03 100 % | A | N | N | Y | 6.4 | 6.6 |
| | B | Y | Y | Y | | |
| | C | N | N | Y | | |
| | D | Y | Y | Y | | |
| B1539-04 100 % | A | Y | Y | Y | 6.3 | 7.1 |
| | B | N | N | Y | | |
| | C | N | N | Y | | |
| | D | Y | Y | Y | | |
| B1539-05 100 % | A | Y | Y | Y | 6.5 | 7.0 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |

Day 40 1 plant just sprouting

| Initials [illegible] Date 3-31-06 | Initials MS Date 4-11-06 | Initials [illegible] Date 4-13-06 |
|---|---|---|
| Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| 3.80825 | 11.16570 | 4.22156 |
| 3.83486 | 7.36134 | 4.05215 |
| 3.83167 | 7.07674 | 4.00236 |
| 3.81356 | 12.94072 | 4.28210 |
| 3.83243 | 4.03801 | 3.84548 |
| 3.82970 | 3.87465 | 3.83153 |
| 3.82816 | No plant | NO PLANT |
| 3.83589 | 4.87463 | 3.89699 |
| 3.89000 | 7.62857 | 4.07967 |
| 3.78938 | 5.64807 | 3.89342 |
| 3.75440 | 8.53004 | 4.01787 |
| 3.77055 | No Plant | NO PLANT |
| 3.76635 | 8.09082 | 4.00790 |
| 3.76189 | 8.81041 | 4.02268 |
| 3.76560 | 6.98899 | 3.96468 |
| 3.79941 | 10.23545 | 4.14668 |
| 3.83582 | 11.35976 | 4.27188 |
| 3.82796 | 7.68739 | 4.02406 |
| 3.81085 | 8.27324 | 4.04450 |
| 3.82891 | 8.03181 | 4.08621 |
| 3.81186 | 12.05970 | 4.21499 |
| 3.79979 | 12.60790 | 4.20307 |
| 3.78951 | 13.15001 | 4.25364 |
| 4.00516 | 12.99363 | 4.43617 |

Comments: D4/18 BM/MS - Transplanted 1 from -03 B to A, 1 from -03 B to C
-04: 1 plant from D to B, 1 from D to C - rep C also had 1 plant just germinating

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials Bm Day 12 Initials Bm Day 18 Initials Bm/MS Day 22 Initials Bm

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day 22

| CONC. | REP. | Seeds germinated ? ( Y / N ) DAY 12 (3-14-06) | DAY 18 | DAY 22 | pH DAY 0 | DAY 40 |
|---|---|---|---|---|---|---|
| B1539-06 100 % | A | Y | Y | Y | 6.6 | 7.0 |
| | B | N | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-07 100 % | A | Y | Y | Y | 6.6 | 7.1 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-08 100 % | A | Y | Y | Y | 6.5 | 6.9 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-09 100 % | A | Y | Y | Y | 6.7 | 7.4 |
| | B | Y | Y | Y | | |
| | C | N | N | Y | | |
| | D | Y | Y | Y | | |
| B1539-10 100 % | A | Y | Y | Y | 6.6 | 6.7 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-11 100 % | A | Y | Y | Y | 6.3 | 7.1 |
| | B | N | N | Y | | |
| | C | N | Y | Y | | |
| | D | N | N | Y | | |

| Initials [illegible] Date 3-31-06 | Initials Bm/MS Date 4-11-06 | Initials NJ Date 4-19-06 |
|---|---|---|
| Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| 3.80011 | 6.52813 | 3.92978 |
| 3.81481 | 4.25781 | 3.84206 |
| 3.82185 | 8.39032 | 4.07631 |
| 3.82797 | 6.39948 | 3.96541 |
| 3.81212 | 13.94406 | 4.30478 |
| 3.81767 | 13.87888 | 4.31360 |
| 3.83148 | 15.18302 | 4.38835 |
| 3.83998 | 9.58856 | 4.11534 |
| 3.83502 | 13.36019 | 4.29128 |
| 3.81135 | 11.49645 | 4.19226 |
| 3.79878 | 14.77086 | 4.31553 |
| 3.81021 | 10.86518 | NJ ~~4.14~~ 4.15 001 |
| 3.81703 | 7.32146 | 3.99321 |
| 3.81287 | 5.68931 | 3.91583 |
| 3.81586 | 7.13022 | 3.98919 |
| 3.84209 | 8.60826 | 4.07645 |
| 3.78606 | 10.65026 | 4.13272 |
| 3.80274 | 7.45848 | 3.98875 |
| 3.80613 | 7.29634 | NJ ~~3.99~~ 3.99182 |
| 3.80602 | 8.61858 | 4.03023 |
| 3.82302 | 6.10828 | 3.95395 |
| 3.80976 | 7.49417 | 3.99813 |
| 3.83009 | 4.48955 | 3.87745 |
| 3.74590 | 5.40205 | 3.83860 |

Comments: -06 B: One plant w/ 3 leaves - obviously not Pakchoy removed Day 12
-09: 2 from B to C
-11: 1 plant from A to B, 1 plant from A to D

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials Bm Day 12 Initials Bm Day 18 Initials Bm/ms Day 22 Initials Bm

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day 22

| CONC. | REP. | Seeds germinated ? ( Y / N ) DAY 12 | DAY 14 | DAY 22 | pH DAY 0 | DAY 40 |
|---|---|---|---|---|---|---|
| B1539-12 100 % | A | Y | Y | Y | 6.7 | 6.8 |
| | B | N | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-13 100 % | A | N | N | N | 6.6 | 6.9 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-14 100 % | A | Y | Y | Y | 6.5 | 7.2 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-15 100 % | A | Y | Y | Y | 6.4 | 6.7 |
| | B | N | N | Y | | |
| | C | N | N | Y | | |
| | D | Y | Y | Y | | |
| B1539-16 100 % | A | Y | Y | Y | 6.5 | 6.9 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-17 100 % | A | Y | Y | Y | 6.5 | 6.8 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |

| Initials SB Date 3-31-06 | Initials Bm/ms Date 4-11-06 | Initials GW Date 4-17-06 |
|---|---|---|
| Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| 3.78304 | 7.48637 | 3.95136 |
| 3.76281 | 5.37300 | 3.83832 |
| 3.76475 | 10.31660 | 4.07492 |
| 3.75680 | 10.07572 | 4.07831 |
| 3.75145 | No Plant | — |
| 3.76189 | 9.99373 | 4.07760 |
| 3.74675 | 7.71655 | 3.95557 |
| 3.83288 | 13.14622 | 4.28618 |
| 3.85557 | 10.92254 | 4.21696 |
| 3.85405 | 11.55612 | 4.24229 |
| 3.82533 | 9.98135 | 4.12505 |
| 3.82175 | 9.83373 | 4.12660 |
| 3.81147 | 10.14142 | 4.11961 |
| 3.82478 | 9.03781 | 4.06999 |
| 3.81312 | 7.11565 | 3.96480 |
| 4.27122 | 8.31226 | 4.47253 |
| 4.26498 | 12.81465 | 4.65781 |
| 4.27792 | 11.55094 | 4.62200 |
| 4.28303 | 11.81586 | 4.65202 |
| 4.27919 | 15.08474 | 4.80551 |
| 4.27332 | 10.21140 | 4.55605 |
| 4.26840 | 12.19364 | 4.64929 |
| 4.26112 | 9.93260 | 4.53112 |
| 4.22869 | 12.26542 | 4.64589 |

Comments: -15- 1 from D to Reps B & C

~~-13- 1 from C to A.~~ the 2 plants in rep C are too interfwined.

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials Bm Day 12 Initials Bm Day 18 Initials Bm/MS Day 22 Initials Bm

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day 22

| CONC. | REP. | Seeds germinated ? ( Y / N ) DAY 12 | DAY 18 | DAY 22 | pH DAY 0 | DAY 40 |
|---|---|---|---|---|---|---|
| B1539-18 100 % | A | Y | Y | Y | 6.4 | 7.1 |
| | B | N | N | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-30 100 % | A | Y | Y | Y | 6.2 | 7.1 |
| | B | Y | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| B1539-31 100 % | A | N | N | Y | 6.6 | 7.0 |
| | B | N | Y | Y | | |
| | C | Y | Y | Y | | |
| | D | Y | Y | Y | | |
| | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |

| Initials BM | Initials Bm/MS | Initials BM |
|---|---|---|
| Date 3-31-06 | Date 4-11-06 | Date 4-14-06 |
| Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| 4.18501 | 13.01045 | 4.68923 |
| 4.23608 | 7.01349 | 4.38575 |
| 4.25454 | 11.91664 | 4.70382 |
| 4.20796 | 7.35840 | 4.41735 |
| 4.25127 | 5.06486 | 4.31295 |
| 4.28046 | 5.86428 | 4.40799 |
| 4.24301 | 5.94206 | 4.34917 |
| 4.32187 | 5.21250 | 4.38561 |
| 4.32800 | 7.31201 | 4.47291 |
| 4.28805 | 6.96000 | 4.42959 |
| 4.17971 | 10.36465 | 4.49656 |
| 4.31241 | 7.19864 | 4.47215 |
| | | |
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| | | |
| | | |
| | | |
| | | |
| | | |

Comments: 3-20-06 Bm/MS 31: 1 plant from B to A
18: 2 from D to B.

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials _____ Day ___ Initials _____ Day ___ Initials _____ Day ___ Initials _____

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day _____

| CONC. | REP. | Seeds germinated ? ( Y / N ) DAY | DAY | DAY | pH DAY 0 | DAY 40 | Initials _____ Date _____ Tare Weight (g) | Initials _____ Date _____ Total Wet Weight (g) | Initials _____ Date _____ Total Dry Weight (g) |
|---|---|---|---|---|---|---|---|---|---|
| Control | A | | | | | | 3.80825 | 11.16570 | 4.22156 |
| | B | | | | | | 3.83486 | 7.36134 | 4.05215 |
| | C | | | | | | 3.83167 | 7.07674 | 4.00236 |
| | D | | | | | | 3.81356 | 12.94072 | 4.28210 |
| B1539-01 100 % | A | | | | | | 3.83243 | 4.03801 | 3.84548 |
| | B | | | | | | 3.82970 | 3.87465 | 3.83153 |
| | C | | | | | | | | |
| | D | | | | | | 3.83589 | 4.87463 | 3.89699 |
| B1539-02 100 % | A | | | | | | 3.89000 | 7.62857 | 4.07967 |
| | B | | | | | | 3.78938 | 5.64807 | 3.89342 |
| | C | | | | | | 3.75440 | 8.53004 | 4.01787 |
| | D | | | | | | | | |
| B1539-03 100 % | A | | | | | | 3.76635 | 8.09082 | 4.00790 |
| | B | | | | | | 3.76189 | 8.81041 | 4.02268 |
| | C | | | | | | 3.76560 | 6.98899 | 3.96468 |
| | D | | | | | | 3.79941 | 10.23545 | 4.14668 |
| B1539-04 100 % | A | | | | | | 3.83582 | 11.35976 | 4.27188 |
| | B | | | | | | 3.82796 | 7.68739 | 4.02406 |
| | C | | | | | | 3.81085 | 8.27324 | 4.04450 |
| | D | | | | | | 3.82881 | 8.03181 | 4.08621 |
| B1539-05 100 % | A | | | | | | 3.81186 | 12.05970 | 4.21499 |
| | B | | | | | | 3.79979 | 12.60790 | 4.20307 |
| | C | | | | | | 3.78951 | 13.15001 | 4.25364 |
| | D | | | | | | 4.00516 | 12.99363 | 4.43617 |

Comments: Weight data inputted by Bm. April 24, 2006

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials _____ Day ___ Initials _____ Day ___ Initials _____ Day ___ Initials _____

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day _____

| | | Seeds germinated ? ( Y / N ) | | | pH | |
|---|---|---|---|---|---|---|
| CONC. | REP. | DAY | DAY | DAY | DAY 0 | DAY 40 |
| B1539-06 100 % | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| B1539-07 100 % | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| B1539-08 100 % | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| B1539-09 100 % | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| B1539-10 100 % | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |
| B1539-11 100 % | A | | | | | |
| | B | | | | | |
| | C | | | | | |
| | D | | | | | |

| Initials _____ Date _____ | Initials _____ Date _____ | Initials _____ Date _____ |
|---|---|---|
| Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| 3.80011 | 6.52813 | 3.92978 |
| 3.81481 | 4.25781 | 3.84206 |
| 3.82185 | 8.39032 | 4.07631 |
| 3.82797 | 6.39948 | 3.96541 |
| 3.81212 | 13.94406 | 4.30478 |
| 3.81767 | 13.87888 | 4.31360 |
| 3.83148 | 15.18302 | 4.38835 |
| 3.83998 | 9.58856 | 4.11534 |
| 3.83502 | 13.36019 | 4.29128 |
| 3.81135 | 11.49645 | 4.19226 |
| 3.79878 | 14.77086 | 4.31553 |
| 3.81021 | 10.86518 | 4.15001 |
| 3.81703 | 7.32146 | 3.99321 |
| 3.81287 | 5.68931 | 3.91583 |
| 3.81586 | 7.13022 | 3.98919 |
| 3.84209 | 8.60826 | 4.07645 |
| 3.78606 | 10.65026 | 4.13272 |
| 3.80274 | 7.45848 | 3.98875 |
| 3.80613 | 7.29634 | 3.99182 |
| 3.80602 | 8.61858 | 4.03023 |
| 3.82302 | 6.10828 | 3.95395 |
| 3.80976 | 7.48417 | 3.99813 |
| 3.83009 | 4.48955 | 3.87745 |
| 3.74590 | 5.40205 | 3.83860 |

Comments: _____

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials _____ Day ___ Initials _____ Day ___ Initials _____ Day ___ Initials _____

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day _____

| | | Seeds germinated ? ( Y / N ) | | | pH | | Initials _____ Date _____ | Initials _____ Date _____ | Initials _____ Date _____ |
|---|---|---|---|---|---|---|---|---|---|
| CONC. | REP. | DAY | DAY | DAY | DAY 0 | DAY 40 | Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| B1539-12 100 % | A | | | | | | 3.78304 | 7.48637 | 3.95136 |
| | B | | | | | | 3.76281 | 5.37300 | 3.83832 |
| | C | | | | | | 3.76475 | 10.31660 | 4.07492 |
| | D | | | | | | 3.75680 | 10.07572 | 4.07831 |
| B1539-13 100 % | A | | | | | | | | |
| | B | | | | | | 3.76189 | 9.99373 | 4.07760 |
| | C | | | | | | 3.74675 | 7.71665 | 3.95557 |
| | D | | | | | | 3.83288 | 13.14622 | 4.28618 |
| B1539-14 100 % | A | | | | | | 3.85557 | 10.92254 | 4.21696 |
| | B | | | | | | 3.85405 | 11.55612 | 4.24229 |
| | C | | | | | | 3.82533 | 9.98135 | 4.12505 |
| | D | | | | | | 3.82175 | 9.83373 | 4.12660 |
| B1539-15 100 % | A | | | | | | 3.81147 | 10.14142 | 4.11961 |
| | B | | | | | | 3.82478 | 9.03781 | 4.06999 |
| | C | | | | | | 3.81312 | 7.11565 | 3.96480 |
| | D | | | | | | 4.27122 | 8.31226 | 4.47253 |
| B1539-16 100 % | A | | | | | | 4.26498 | 12.81465 | 4.65781 |
| | B | | | | | | 4.27792 | 11.55094 | 4.62200 |
| | C | | | | | | 4.28303 | 11.81586 | 4.65202 |
| | D | | | | | | 4.27919 | 15.08474 | 4.80551 |
| B1539-17 100 % | A | | | | | | 4.27332 | 10.21140 | 4.55605 |
| | B | | | | | | 4.26840 | 12.19364 | 4.64929 |
| | C | | | | | | 4.26112 | 9.93260 | 4.53112 |
| | D | | | | | | 4.22869 | 12.26542 | 4.64589 |

Comments: _____

## Pak Choi GROWTH TEST

Client ELR Consulting - Washington Closure Hanford Project

Test Start Date 3/2/2006

Day 0 Initials _____ Day ___ Initials _____ Day ___ Initials _____ Day ___ Initials _____

Number of seedlings planted per rep = 4 Seedlings thinned to 1 plant on Day _____

| | | Seeds germinated ? ( Y / N ) | | | pH | | Initials _____ Date _____ | Initials _____ Date _____ | Initials _____ Date _____ |
|---|---|---|---|---|---|---|---|---|---|
| CONC. | REP. | DAY | DAY | DAY | DAY 0 | DAY 40 | Tare Weight (g) | Total Wet Weight (g) | Total Dry Weight (g) |
| B1539-18 100 % | A | | | | | | 4.18501 | 13.01045 | 4.68923 |
| | B | | | | | | 4.23608 | 7.01349 | 4.38575 |
| | C | | | | | | 4.25454 | 11.91664 | 4.70382 |
| | D | | | | | | 4.20796 | 7.35840 | 4.41735 |
| B1539-30 100 % | A | | | | | | 4.25127 | 5.06486 | 4.31295 |
| | B | | | | | | 4.28046 | 5.86428 | 4.40799 |
| | C | | | | | | 4.24301 | 5.94206 | 4.34917 |
| | D | | | | | | 4.32187 | 5.21250 | 4.38561 |
| B1539-31 100 % | A | | | | | | 4.32800 | 7.31201 | 4.47291 |
| | B | | | | | | 4.28805 | 6.96000 | 4.42959 |
| | C | | | | | | 4.17971 | 10.36465 | 4.49656 |
| | D | | | | | | 4.31241 | 7.19884 | 4.47215 |
| | A | | | | | | | | |
| | B | | | | | | | | |
| | C | | | | | | | | |
| | D | | | | | | | | |
| | A | | | | | | | | |
| | B | | | | | | | | |
| | C | | | | | | | | |
| | D | | | | | | | | |
| | A | | | | | | | | |
| | B | | | | | | | | |
| | C | | | | | | | | |
| | D | | | | | | | | |

Comments: _____

# CETIS Test Summary

Report Date: 24 Apr-06 4:45 PM
Test Link: 04-4830-4313/B153901pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 20-3232-0308 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 03-1056-8558 | Code: | B1539-01 | Client: | |
| Sample Date: | 05 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 25d 0h | Station: | | | |

Comments: J11143

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 12-1505-8980 | AG Average Dry Wt. | < 100 | 100 | N/A | 55.52% | Equal Variance t Two-Sample |
| 04-3055-2855 | AG Average Wet Wt. | < 100 | 100 | N/A | 60.08% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.02533 | 0.00183 | 0.06110 | 0.01818 | 0.03148 | 124.31 |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 0.42976 | 0.04495 | 1.03874 | 0.30800 | 0.53348 | 124.13 |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.01305 | 0.00183 | Missing | 0.06110 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 0.20558 | 0.04495 | Missing | 1.03874 |

# CETIS Analysis Detail

**Plant Chronic test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 04-4830-4313 | 04-4830-4313 | 20 Apr-06 11:52 AM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 55.52% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 3.34002 | 2.01505 | 0.0103 | 0.17624 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.1462977 | 0.146298 | 1 | 11.16 | 0.02055 | Significant Effect |
| Error | 0.0655706 | 0.013114 | 5 | | | |
| Total | 0.21186831 | 0.1594119 | 6 | | | |

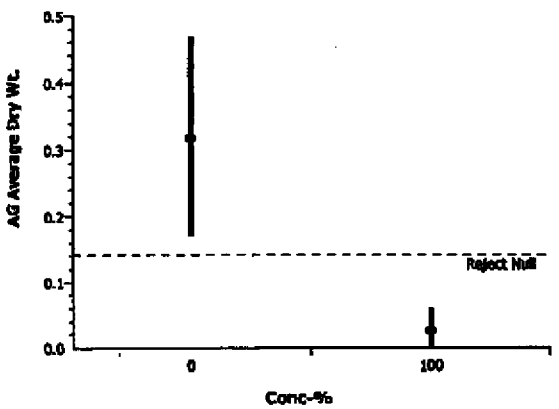
**ANOVA Assumptions**

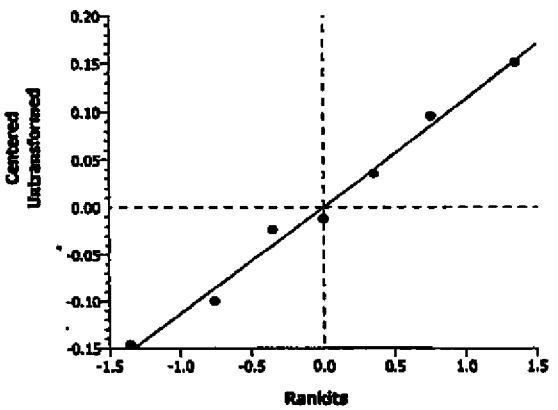
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 21.38274 | 199.16640 | 0.09002 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.97893 | | 0.95418 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 3 | 0.02533 | 0.00183 | 0.06110 | 0.03148 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 04-4830-4313 | 04-4830-4313 | 24 Apr-06 4:45 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 60.08% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 3.10582 | 2.01505 | 0.0133 | 3.49331 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 49.69801 | 49.69801 | 1 | 9.65 | 0.02668 | Significant Effect |
| Error | 25.7606 | 5.152121 | 5 | | | |
| Total | 75.4586086 | 54.850126 | 6 | | | |

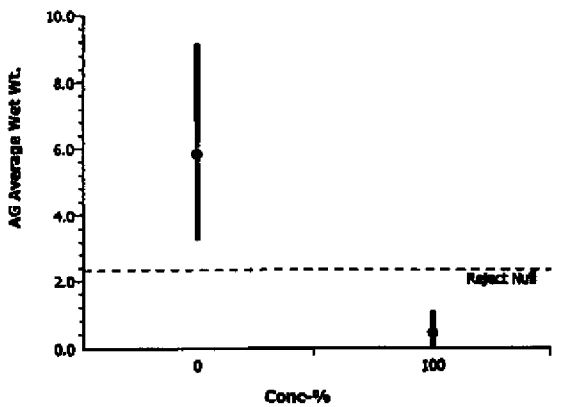
**ANOVA Assumptions**

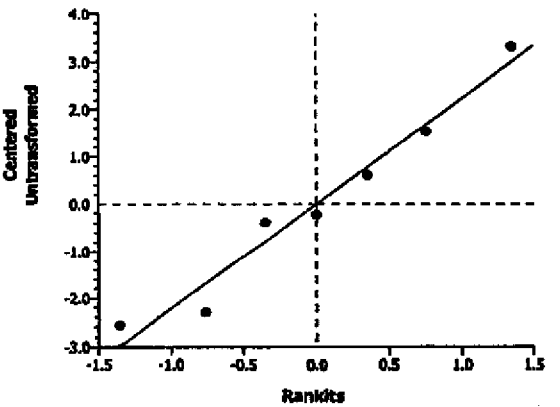
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 29.50547 | 199.16640 | 0.06592 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.95743 | | 0.79640 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 3 | 0.42976 | 0.04495 | 1.03874 | 0.53348 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:12 PM
Test Link: 05-4354-2065/B153902pcc

**Plant Chronic test** — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 19-1435-8517 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 09-8130-6916 | Code: | B1539-02 | Client: | |
| Sample Date: | 08 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 22d 0h | Station: | | | |

Comments: J11146

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 03-7107-5057 | AG Average Dry Wt. | 100 | > 100 | N/A | 59.90% | Equal Variance t Two-Sample |
| 18-0393-6141 | AG Average Wet Wt. | 100 | > 100 | N/A | 64.37% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.18573 | 0.10404 | 0.26347 | 0.04607 | 0.07979 | 42.96% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 3.45763 | 1.85869 | 4.77564 | 0.85369 | 1.47863 | 42.76% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.18967 | 0.10404 | 0.26347 | Missing |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 3.73857 | 1.85869 | 4.77564 | Missing |

# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 05-4354-2065 | 05-4354-2065 | 24 Apr-06 3:11 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 59.90% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.39603 | 2.01505 | 0.1108 | 0.19014 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0297480 | 0.029748 | 1 | 1.95 | 0.22152 | Non-Significant Effect |
| Error | 0.0763203 | 0.015264 | 5 | | | |
| Total | 0.10606837 | 0.0450121 | 6 | | | |

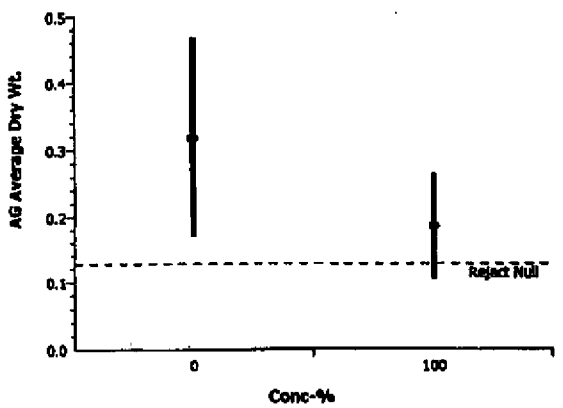
**ANOVA Assumptions**

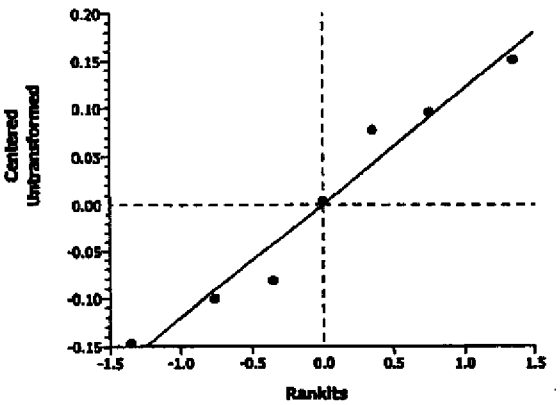
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.32949 | 199.16640 | 0.47899 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93751 | | 0.61643 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 3 | 0.18573 | 0.10404 | 0.26347 | 0.07979 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic Test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 05-4354-2065 | 05-4354-2065 | 24 Apr-06 3:11 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 64.37% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.26880 | 2.01505 | 0.1302 | 3.74232 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 9.518832 | 9.518832 | 1 | 1.61 | 0.26037 | Non-Significant Effect |
| Error | 29.5641 | 5.912819 | 5 | | | |
| Total | 39.0829306 | 15.431652 | 6 | | | |

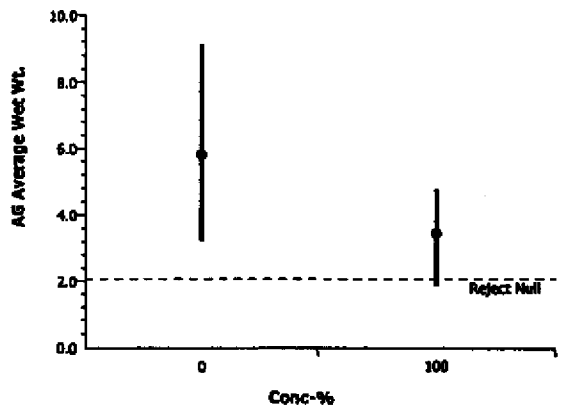
**ANOVA Assumptions**

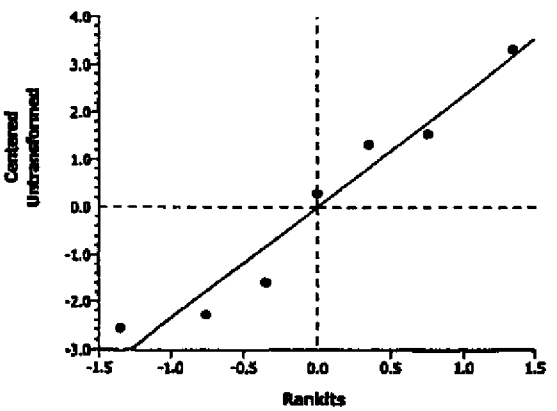
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.84072 | 199.16640 | 0.42688 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.92793 | | 0.53344 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 3 | 3.45763 | 1.85869 | 4.77564 | 1.47863 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:15 PM
Test Link: 03-2714-8703/B153903pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 08-8062-2943 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 05-2776-3110 | Code: | B1539-03 | Client: | |
| Sample Date: | 08 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 22d 0h | Station: | | | |

Comments: J11144

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 05-5125-1500 | AG Average Dry Wt. | 100 | > 100 | N/A | 48.47% | Equal Variance t Two-Sample |
| 07-8099-7600 | AG Average Wet Wt. | 100 | > 100 | N/A | 53.40% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.26217 | 0.19908 | 0.34727 | 0.03116 | 0.06231 | 23.77% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 4.75810 | 3.22339 | 6.43604 | 0.67350 | 1.34700 | 28.31% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.24155 | 0.26079 | 0.19908 | 0.34727 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 4.32447 | 5.04852 | 3.22339 | 6.43604 |

# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 03-2714-8703 | 03-2714-8703 | 24 Apr-06 3:15 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 48.47% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.69820 | 1.94318 | 0.2556 | 0.15386 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0061129 | 0.006113 | 1 | 0.49 | 0.51119 | Non-Significant Effect |
| Error | 0.0752374 | 0.01254 | 6 | | | |
| Total | 0.0813503 | 0.0186524 | 7 | | | |

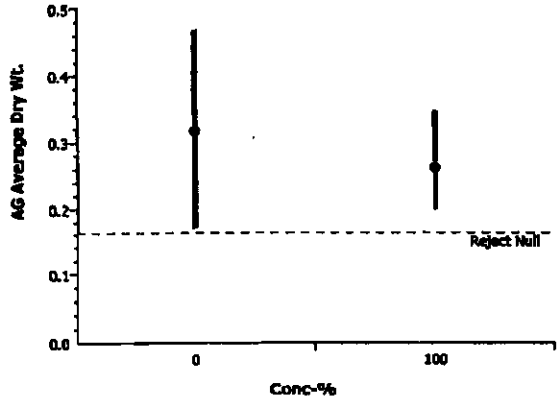
**ANOVA Assumptions**

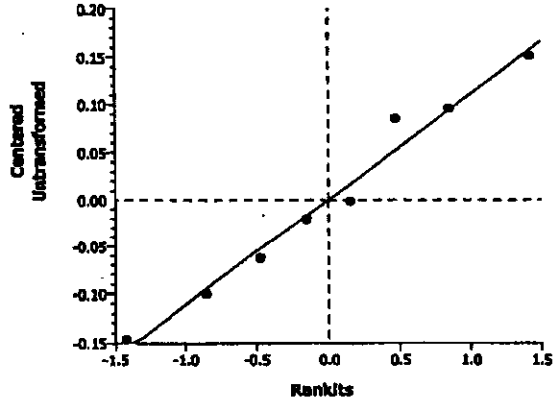
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 5.45848 | 47.46723 | 0.19697 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.96360 | | 0.84358 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.26217 | 0.19908 | 0.34727 | 0.06231 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 03-2714-8703 | 03-2714-8703 | 24 Apr-06 3:15 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 53.40% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.66088 | 1.94318 | 0.2666 | 3.10476 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 2.229996 | 2.229996 | 1 | 0.44 | 0.53323 | Non-Significant Effect |
| Error | 30.63461 | 5.105768 | 6 | | | |
| Total | 32.8646035 | 7.3357639 | 7 | | | |

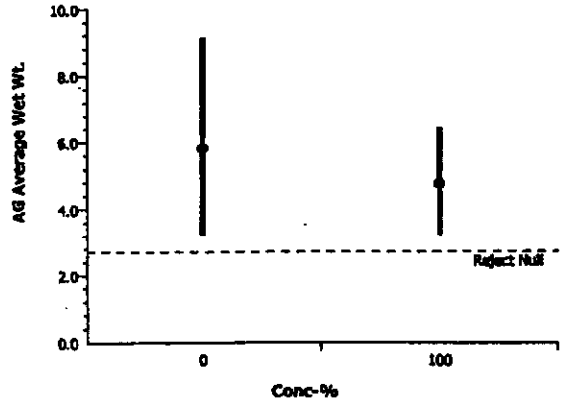
**ANOVA Assumptions**

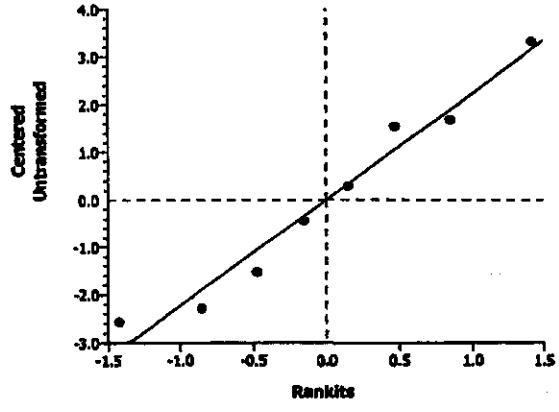
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 4.62806 | 47.46723 | 0.24028 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.94948 | | 0.70597 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 4.75810 | 3.22339 | 6.43604 | 1.34700 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:17 PM
Test Link: 08-6488-8417/B153904pcc

**Plant Chronic test** — **CH2M Hill**

| | | | | | |
|---|---|---|---|---|---|
| **Test No:** | 20-7964-1273 | **Test Type:** | Plant Chronic test | **Duration:** | 40d 0h |
| **Start Date:** | 02 Mar-06 | **Protocol:** | ASTM E1963-02 (2002) | **Species:** | Pak Choi |
| **Ending Date:** | 11 Apr-06 | **Dil Water:** | | **Source:** | |
| **Setup Date:** | 02 Mar-06 12:00 AM | **Brine:** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample No:** | 00-7618-1382 | **Code:** | B1539-04 | **Client:** | |
| **Sample Date:** | 08 Feb-06 | **Material:** | Sediment | **Project:** | |
| **Receive Date:** | | **Source:** | Hanford | | |
| **Sample Age:** | 22d 0h | **Station:** | | | |

**Comments:** J11145

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 12-9194-3369 | AG Average Dry Wt. | 100 | > 100 | N/A | 55.21% | Equal Variance t Two-Sample |
| 07-6209-5985 | AG Average Wet Wt. | 100 | > 100 | N/A | 56.08% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.28080 | 0.19610 | 0.43606 | 0.05327 | 0.10654 | 37.94% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 5.01219 | 3.85943 | 7.52394 | 0.84631 | 1.69261 | 33.77% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.43606 | 0.19610 | 0.23365 | 0.25740 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 7.52394 | 3.85943 | 4.46239 | 4.20300 |

# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 08-6488-8417 | 08-6488-8417 | 24 Apr-06 3:17 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 55.21% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.40636 | 1.94318 | 0.3493 | 0.17528 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0026872 | 0.002687 | 1 | 0.17 | 0.69857 | Non-Significant Effect |
| Error | 0.0976386 | 0.016273 | 6 | | | |
| Total | 0.10032576 | 0.0189603 | 7 | | | |

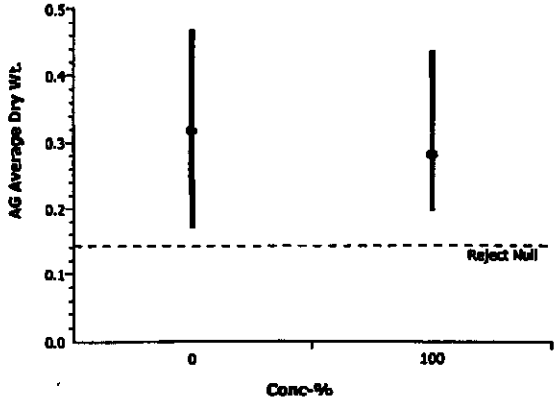
**ANOVA Assumptions**

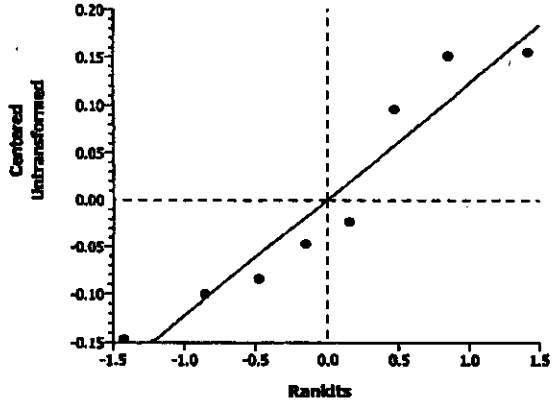
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.86746 | 47.46723 | 0.62078 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.89235 | | 0.24605 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.28080 | 0.19610 | 0.43606 | 0.10654 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 08-6488-8417 | 08-6488-8417 | 24 Apr-06 3:17 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 56.08% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.47787 | 1.94318 | 0.3248 | 3.26056 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 1.285926 | 1.285926 | 1 | 0.23 | 0.64965 | Non-Significant Effect |
| Error | 33.78622 | 5.631037 | 6 | | | |
| Total | 35.0721503 | 6.9169632 | 7 | | | |

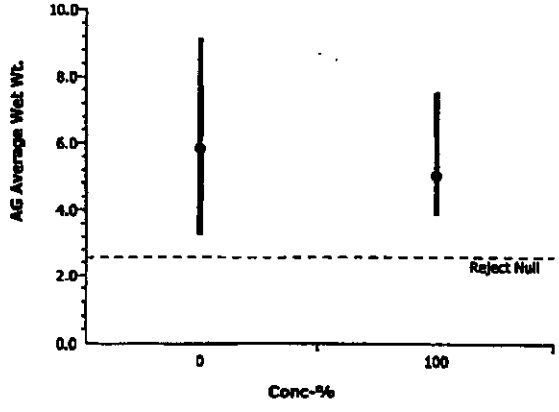
**ANOVA Assumptions**

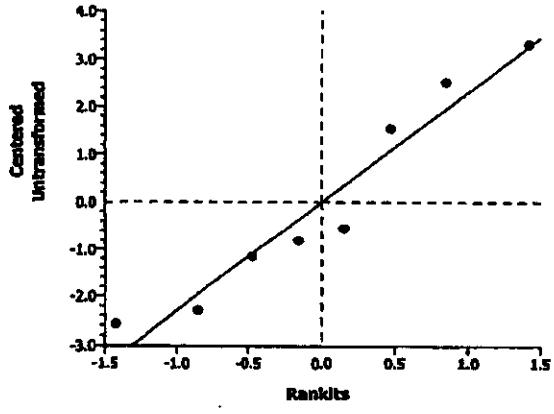
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 2.93100 | 47.46723 | 0.40071 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.91624 | | 0.40009 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 5.01219 | 3.85943 | 7.52394 | 1.69261 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:19 PM
Test Link: 15-5597-1476/B153905pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 09-2021-3135 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 02-0777-7071 | Code: | B1539-05 | Client: | |
| Sample Date: | 09 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 21d 0h | Station: | | | |

Comments: J116N1

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 11-0255-7339 | AG Average Dry Wt. | 100 | > 100 | N/A | 45.43% | Equal Variance t Two-Sample |
| 05-9959-3176 | AG Average Wet Wt. | 100 | > 100 | N/A | 49.04% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.42539 | 0.40313 | 0.46413 | 0.01448 | 0.02896 | 6.81% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 8.85123 | 8.24784 | 9.36050 | 0.23168 | 0.46337 | 5.24% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.40313 | 0.40328 | 0.46413 | 0.43101 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 8.24784 | 8.80811 | 9.36050 | 8.98847 |

# CETIS Analysis Detail

| Plant Chronic test | CH2M Hill |
|---|---|

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 15-5597-1476 | 15-5597-1476 | 24 Apr-06 3:18 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 45.43% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.4542 | 1.94318 | 0.9019 | 0.14422 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0232979 | 0.023298 | 1 | 2.11 | 0.19613 | Non-Significant Effect |
| Error | 0.0661048 | 0.011017 | 6 | | | |
| Total | 0.08940264 | 0.0343153 | 7 | | | |

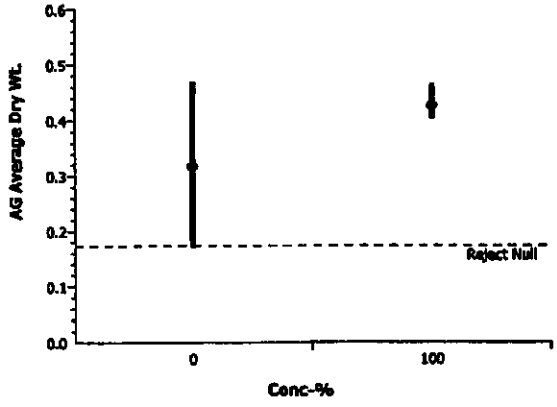
**ANOVA Assumptions**

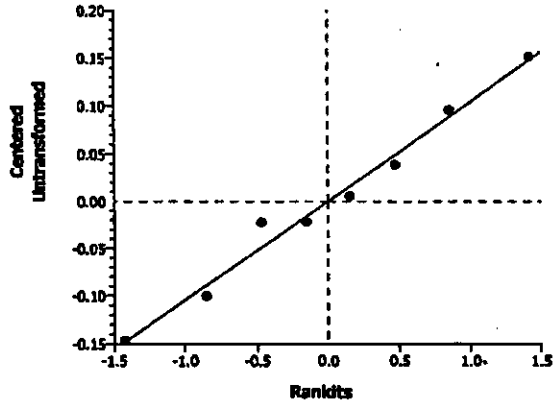
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 25.26810 | 47.46723 | 0.02493 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.97956 | | 0.96070 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.42539 | 0.40313 | 0.46413 | 0.02896 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 15-5597-1476 | 15-5597-1476 | 24 Apr-06 3:19 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 49.04% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -2.0699 | 1.94318 | 0.9581 | 2.85122 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 18.44905 | 18.44905 | 1 | 4.28 | 0.08390 | Non-Significant Effect |
| Error | 25.83554 | 4.305923 | 6 | | | |
| Total | 44.2845917 | 22.754972 | 7 | | | |

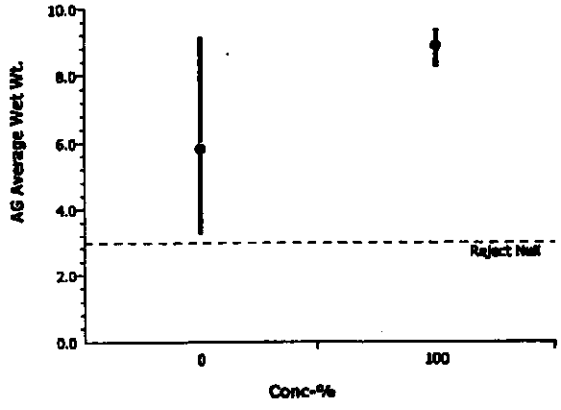
**ANOVA Assumptions**

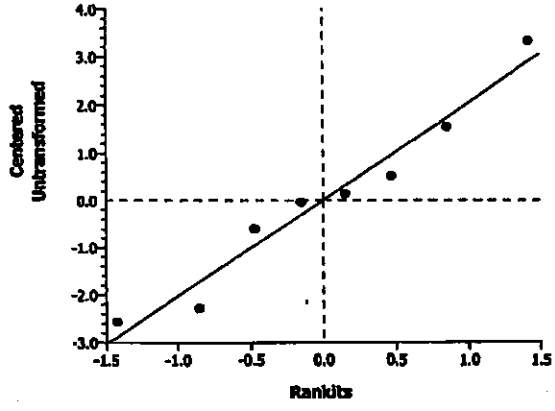
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 39.10920 | 47.46723 | 0.01327 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.95831 | | 0.79388 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 8.85123 | 8.24784 | 9.36050 | 0.46337 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:26 PM
Test Link: 11-2571-2856/B153906pcc

**Plant Chronic test** — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 02-2968-6400 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 08-2170-6135 | Code: | B1539-06 | Client: | |
| Sample Date: | 09 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 21d 0h | Station: | | | |

Comments: J116N3

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 05-6624-5793 | AG Average Dry Wt. | < 100 | 100 | N/A | 52.86% | Equal Variance t Two-Sample |
| 03-7050-9740 | AG Average Wet Wt. | 100 | > 100 | N/A | 56.04% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.13721 | 0.02725 | 0.25446 | 0.04645 | 0.09291 | 67.71% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 2.57775 | 0.44300 | 4.56847 | 0.84374 | 1.68748 | 65.46% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.12967 | 0.02725 | 0.25446 | 0.13744 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 2.72802 | 0.44300 | 4.56847 | 2.57151 |

# CETIS Analysis Detail

**Plant Chronic test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 11-2571-2856 | 11-2571-2856 | 24 Apr-06 3:26 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 52.86% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 2.08737 | 1.94318 | 0.0409 | 0.16780 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0649819 | 0.064982 | 1 | 4.36 | 0.08190 | Non-Significant Effect |
| Error | 0.0894837 | 0.014914 | 6 | | | |
| Total | 0.15446559 | 0.0798958 | 7 | | | |

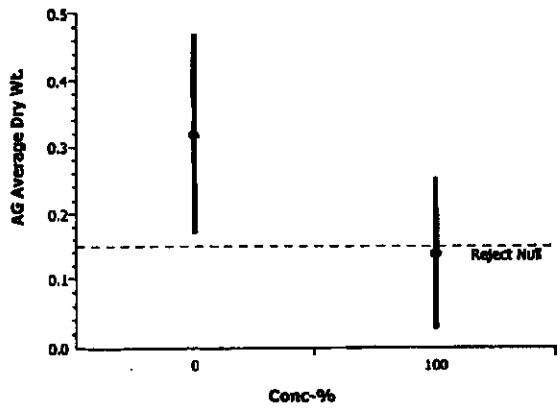
**ANOVA Assumptions**

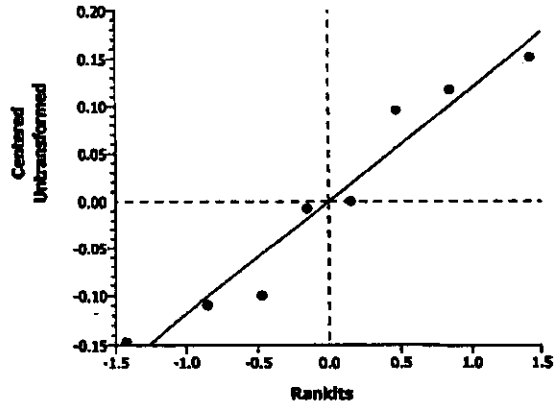
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 2.45555 | 47.46723 | 0.48000 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.91952 | | 0.42599 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.13721 | 0.02725 | 0.25446 | 0.09291 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 11-2571-2856 | 11-2571-2856 | 24 Apr-06 3:26 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 56.04% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.93020 | 1.94318 | 0.0509 | 3.25805 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 20.94714 | 20.94714 | 1 | 3.73 | 0.10182 | Non-Significant Effect |
| Error | 33.73415 | 5.622359 | 6 | | | |
| Total | 54.6812954 | 26.569501 | 7 | | | |

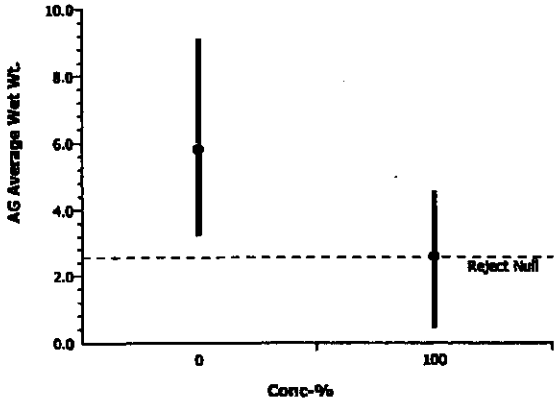
**ANOVA Assumptions**

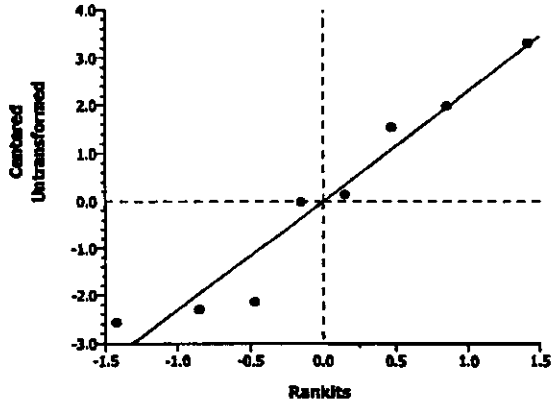
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 2.94887 | 47.46723 | 0.39816 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.91810 | | 0.41460 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 2.57775 | 0.44300 | 4.56847 | 1.68748 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:29 PM
Test Link: 09-2231-4814/B153907pcc

**Plant Chronic test** — **CH2M Hill**

| | | | | | |
|---|---|---|---|---|---|
| **Test No:** | 08-3310-9649 | **Test Type:** | Plant Chronic test | **Duration:** | 40d 0h |
| **Start Date:** | 02 Mar-06 | **Protocol:** | ASTM E1963-02 (2002) | **Species:** | Pak Choi |
| **Ending Date:** | 11 Apr-06 | **Dil Water:** | | **Source:** | |
| **Setup Date:** | 02 Mar-06 12:00 AM | **Brine:** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample No:** | 00-6777-1542 | **Code:** | B1539-07 | **Client:** | |
| **Sample Date:** | 12 Feb-06 | **Material:** | Sediment | **Project:** | |
| **Receive Date:** | | **Source:** | Hanford | | |
| **Sample Age:** | 18d 0h | **Station:** | | | |

**Comments:** J112B7

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 20-6525-7167 | AG Average Dry Wt. | 100 | > 100 | N/A | 58.43% | Equal Variance t Two-Sample |
| 09-6893-6539 | AG Average Wet Wt. | 100 | > 100 | N/A | 63.47% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.45521 | 0.27536 | 0.55687 | 0.06174 | 0.12348 | 27.13% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.8140 | 3.2451 | 9.1272 | 1.4489 | 2.8978 | 49.84% |
| 100 | | 4 | 9.3233 | 5.7486 | 11.352 | 1.2278 | 2.4557 | 26.34% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.49266 | 0.49593 | 0.55687 | 0.27536 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 10.1319 | 10.0612 | 11.3515 | 5.74858 |

# CETIS Analysis Detail

| Plant Chronic test | CH2M Hill |
|---|---|

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 09-2231-4814 | 09-2231-4814 | 24 Apr-06 3:29 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 58.43% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.4431 | 1.94318 | 0.9005 | 0.18548 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0379488 | 0.037949 | 1 | 2.08 | 0.19909 | Non-Significant Effect |
| Error | 0.1093293 | 0.018222 | 6 | | | |
| Total | 0.14727813 | 0.0561704 | 7 | | | |

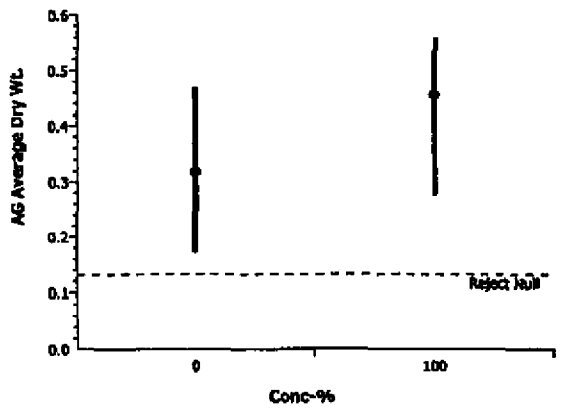
**ANOVA Assumptions**

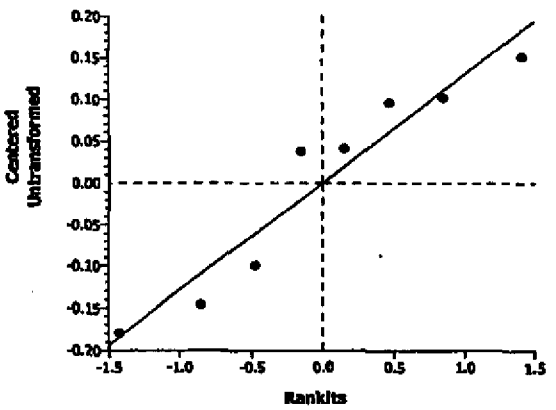
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.39017 | 47.46723 | 0.79308 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.89793 | | 0.27678 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.45521 | 0.27536 | 0.55687 | 0.12348 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 09-2231-4814 | 09-2231-4814 | 24 Apr-06 3:29 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 63.47% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.8478 | 1.94318 | 0.9429 | 3.69043 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 24.63006 | 24.63006 | 1 | 3.41 | 0.11414 | Non-Significant Effect |
| Error | 43.2822 | 7.2137 | 6 | | | |
| Total | 67.912262 | 31.843762 | 7 | | | |

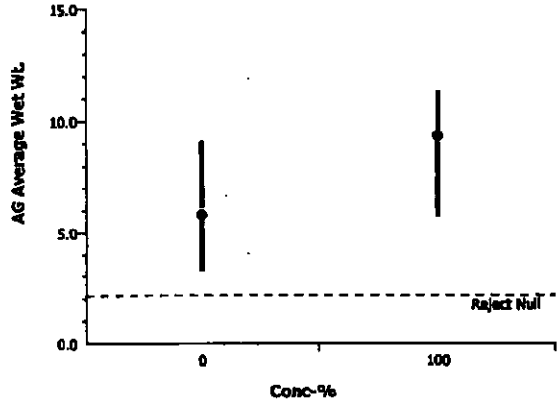
**ANOVA Assumptions**

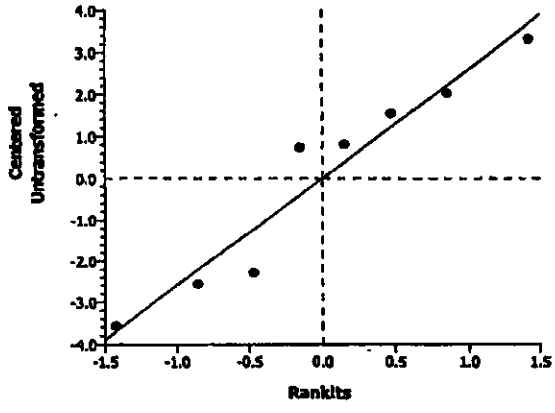
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.39250 | 47.46723 | 0.79206 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.91599 | | 0.39818 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 9.32332 | 5.74858 | 11.3515 | 2.45566 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:31 PM
Test Link: 07-5605-8906/B153908pcc

**Plant Chronic test** — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 11-6615-2748 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 01-6266-6440 | Code: | B1539-08 | Client: | |
| Sample Date: | 09 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 21d 0h | Station: | | | |

Comments: J116N2

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 07-4298-5434 | AG Average Dry Wt. | 100 | > 100 | N/A | 50.65% | Equal Variance t Two-Sample |
| 18-6606-8888 | AG Average Wet Wt. | 100 | > 100 | N/A | 56.85% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.42343 | 0.33980 | 0.51675 | 0.03936 | 0.07872 | 18.59% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.8140 | 3.2451 | 9.1272 | 1.4489 | 2.8978 | 49.84% |
| 100 | | 4 | 8.8093 | 7.055 | 10.972 | 0.8912 | 1.7825 | 20.23% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.45626 | 0.38091 | 0.51675 | 0.33980 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 9.52517 | 7.68510 | 10.9721 | 7.05497 |

# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 07-5605-8906 | 07-5605-8906 | 24 Apr-06 3:31 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 50.65% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.2806 | 1.94318 | 0.8762 | 0.16080 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0224603 | 0.022460 | 1 | 1.64 | 0.24761 | Non-Significant Effect |
| Error | 0.0821764 | 0.013696 | 6 | | | |
| Total | 0.10463666 | 0.0361564 | 7 | | | |

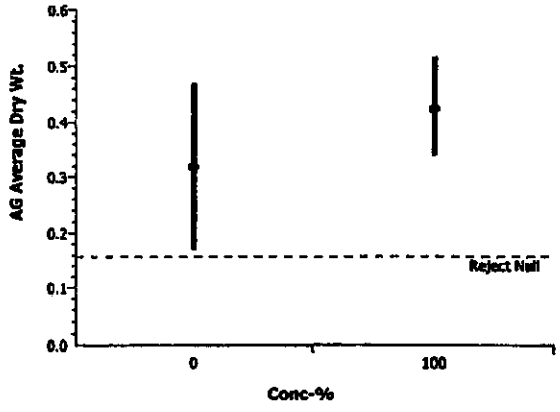
**ANOVA Assumptions**

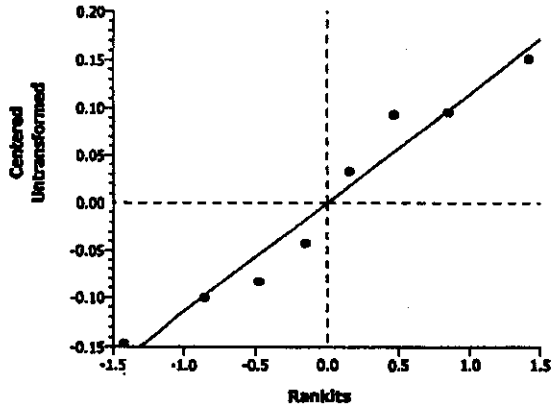
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.42086 | 47.46723 | 0.33939 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93682 | | 0.58011 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.42343 | 0.33980 | 0.51675 | 0.07872 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 07-5605-8906 | 07-5605-8906 | 24 Apr-06 3:31 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 56.85% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.7608 | 1.94318 | 0.9356 | 3.30545 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 17.94353 | 17.94353 | 1 | 3.10 | 0.12874 | Non-Significant Effect |
| Error | 34.723 | 5.787167 | 6 | | | |
| Total | 52.6665306 | 23.730698 | 7 | | | |

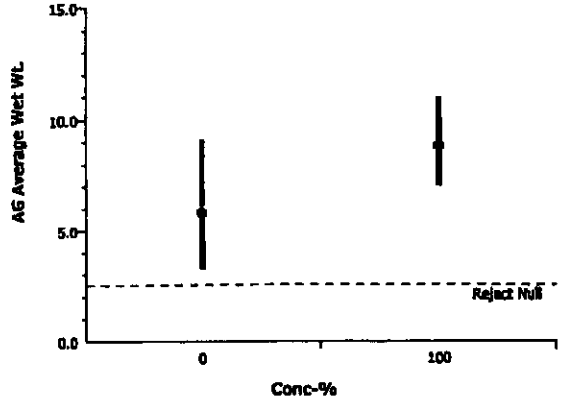
**ANOVA Assumptions**

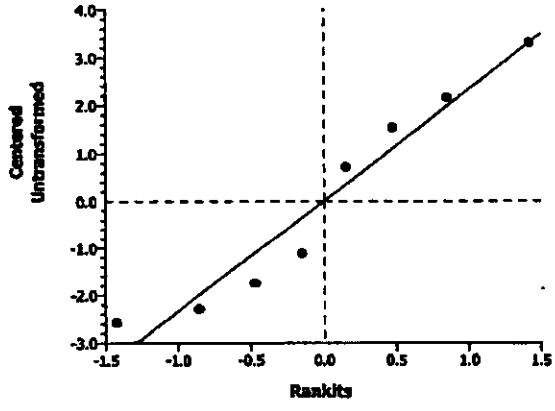
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 2.64294 | 47.46723 | 0.44589 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.91872 | | 0.41957 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 8.80933 | 7.05497 | 10.9720 | 1.78247 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:32 PM
Test Link: 05-0380-7129/B153909pcc

**Plant Chronic test** — **CH2M Hill**

| | | | | | |
|---|---|---|---|---|---|
| **Test No:** | 06-4027-7320 | **Test Type:** | Plant Chronic test | **Duration:** | 40d 0h |
| **Start Date:** | 02 Mar-06 | **Protocol:** | ASTM E1963-02 (2002) | **Species:** | Pak Choi |
| **Ending Date:** | 11 Apr-06 | **Dil Water:** | | **Source:** | |
| **Setup Date:** | 02 Mar-06 12:00 AM | **Brine:** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample No:** | 03-4917-8822 | **Code:** | B1539-09 | **Client:** | |
| **Sample Date:** | 12 Feb-06 | **Material:** | Sediment | **Project:** | |
| **Receive Date:** | | **Source:** | Hanford | | |
| **Sample Age:** | 18d 0h | **Station:** | | | |

**Comments:** J116M4

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 09-5253-8712 | AG Average Dry Wt. | 100 | > 100 | N/A | 47.50% | Equal Variance t Two-Sample |
| 06-6909-0471 | AG Average Wet Wt. | 100 | > 100 | N/A | 52.31% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.17171 | 0.10296 | 0.23436 | 0.02689 | 0.05377 | 31.32% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 3.36535 | 1.87644 | 4.76617 | 0.59169 | 1.18337 | 35.16% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.17618 | 0.10296 | 0.17333 | 0.23436 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 3.50443 | 1.87644 | 3.31436 | 4.76617 |

# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 05-0380-7129 | 05-0380-7129 | 24 Apr-06 3:32 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 47.50% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.87821 | 1.94318 | 0.0547 | 0.15079 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0424861 | 0.042486 | 1 | 3.53 | 0.10943 | Non-Significant Effect |
| Error | 0.0722622 | 0.012044 | 6 | | | |
| Total | 0.11474833 | 0.0545298 | 7 | | | |

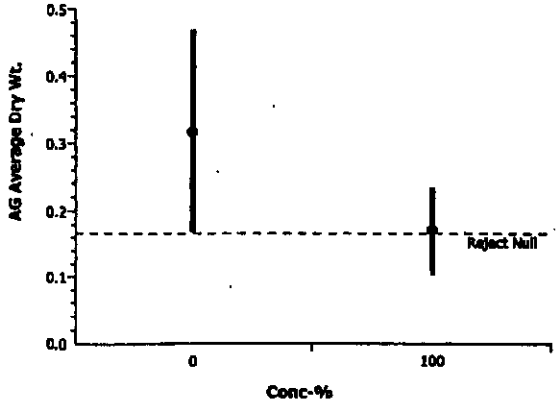
**ANOVA Assumptions**

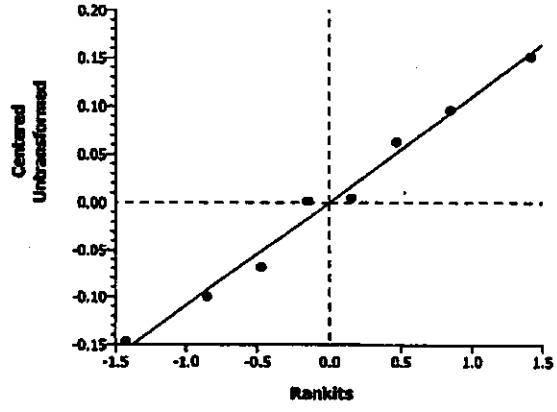
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 7.33070 | 47.46723 | 0.13601 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.97467 | | 0.93191 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.17171 | 0.10296 | 0.23436 | 0.05377 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 05-0380-7129 | 05-0380-7129 | 24 Apr-06 3:32 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 52.31% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.56461 | 1.94318 | 0.0844 | 3.04117 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 11.99216 | 11.99216 | 1 | 2.45 | 0.16871 | Non-Significant Effect |
| Error | 29.39251 | 4.898751 | 6 | | | |
| Total | 41.3846674 | 16.890913 | 7 | | | |

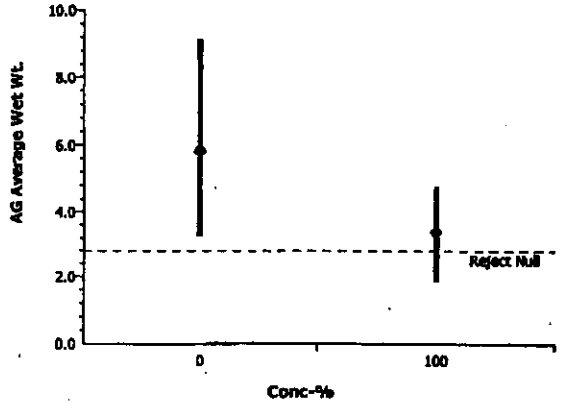
**ANOVA Assumptions**

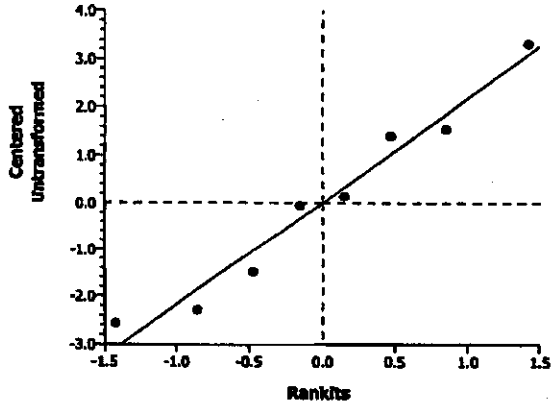
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 5.99639 | 47.46723 | 0.17539 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.95119 | | 0.72324 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 3.36535 | 1.87644 | 4.76617 | 1.18337 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:36 PM
Test Link: 10-3384-6085/B153910pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 11-8551-9760 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 02-6903-7024 | Code: | B1539-10 | Client: | |
| Sample Date: | 09 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 21d 0h | Station: | | | |

Comments: J116N0

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 18-3416-1292 | AG Average Dry Wt. | 100 | > 100 | N/A | 50.29% | Equal Variance t Two-Sample |
| 11-4727-8981 | AG Average Wet Wt. | 100 | > 100 | N/A | 54.95% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.23564 | 0.18569 | 0.34666 | 0.03809 | 0.07619 | 32.33% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 4.70568 | 3.49021 | 6.86420 | 0.77730 | 1.55460 | 33.04% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.34666 | 0.18601 | 0.18569 | 0.22421 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 6.86420 | 3.65574 | 3.49021 | 4.81256 |

# CETIS Analysis Detail

**Plant Chronic test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 10-3384-6085 | 10-3384-6085 | 24 Apr-06 3:36 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 50.29% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.99581 | 1.94318 | 0.1789 | 0.15965 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0133874 | 0.013387 | 1 | 0.99 | 0.35779 | Non-Significant Effect |
| Error | 0.0810022 | 0.013500 | 6 | | | |
| Total | 0.0943896 | 0.0268877 | 7 | | | |

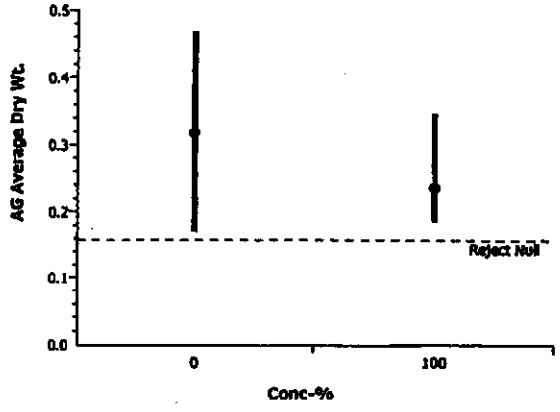
**ANOVA Assumptions**

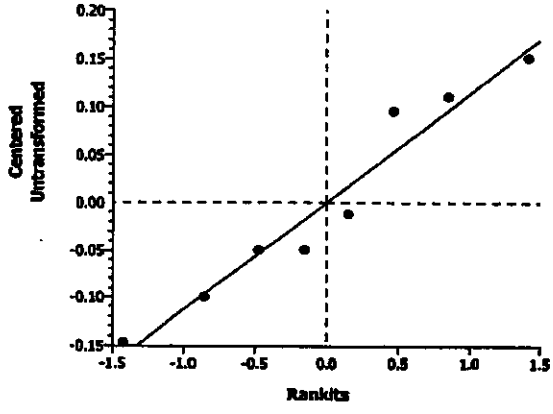
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.65151 | 47.46723 | 0.31570 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93162 | | 0.53092 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.23564 | 0.18569 | 0.34666 | 0.07619 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 10-3384-6085 | 10-3384-6085 | 24 Apr-06 3:36 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 54.95% |

**Group Comparisons**

| Control vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|
| Dilution Sediment | 100 | 0.67409 | 1.94318 | 0.2627 | 3.19503 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 2.456934 | 2.456934 | 1 | 0.45 | 0.52536 | Non-Significant Effect |
| Error | 32.44178 | 5.406964 | 6 | | | |
| Total | 34.8987179 | 7.8638978 | 7 | | | |

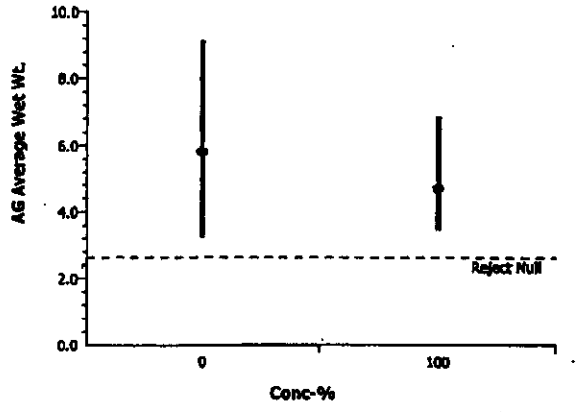
**ANOVA Assumptions**

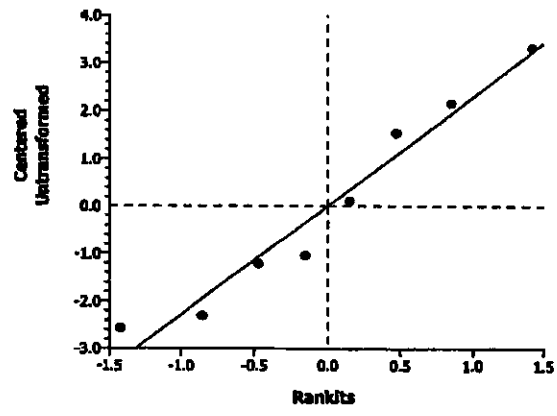
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.47450 | 47.46723 | 0.33362 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93712 | | 0.58296 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 4.70568 | 3.49021 | 6.86420 | 1.55460 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:39 PM
Test Link: 03-7766-0693/B153911pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 09-2955-3969 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 06-7043-7897 | Code: | B1539-11 | Client: | |
| Sample Date: | 09 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 21d 0h | Station: | | | |

Comments: J11731

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 04-1671-6358 | AG Average Dry Wt. | < 100 | 100 | N/A | 48.16% | Equal Variance t Two-Sample |
| 12-6558-2304 | AG Average Wet Wt. | < 100 | 100 | N/A | 52.82% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.11484 | 0.04736 | 0.18837 | 0.02987 | 0.05975 | 52.03% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 2.06882 | 0.65946 | 3.67441 | 0.63123 | 1.26245 | 61.02% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.13093 | 0.18837 | 0.04736 | 0.09270 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 2.28526 | 3.67441 | 0.65946 | 1.65615 |

# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 03-7766-0693 | 03-7766-0693 | 24 Apr-06 3:38 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 48.16% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 2.57502 | 1.94318 | 0.0210 | 0.15290 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0821077 | 0.082108 | 1 | 6.63 | 0.04205 | Significant Effect |
| Error | 0.0742973 | 0.012383 | 6 | | | |
| Total | 0.15640499 | 0.0944906 | 7 | | | |

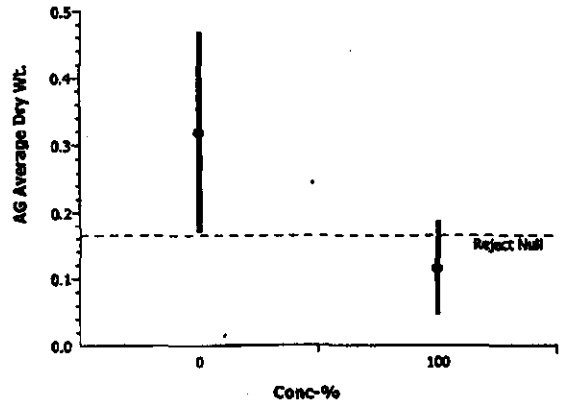
**ANOVA Assumptions**

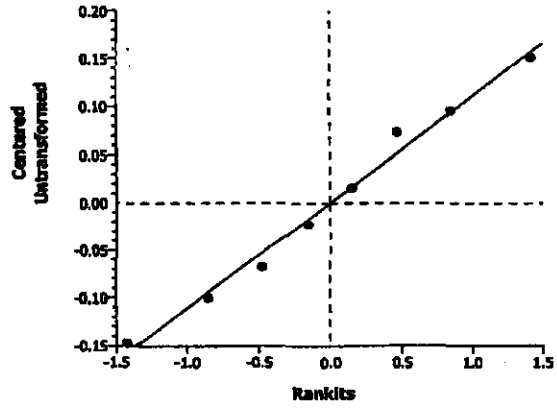
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 5.93766 | 47.46723 | 0.17755 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.97445 | | 0.93047 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.11484 | 0.04736 | 0.18837 | 0.05975 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 03-7766-0693 | 03-7766-0693 | 24 Apr-06 3:39 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 52.82% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 2.36976 | 1.94318 | 0.0278 | 3.07104 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 28.05334 | 28.05334 | 1 | 5.62 | 0.05554 | Non-Significant Effect |
| Error | 29.97277 | 4.995461 | 6 | | | |
| Total | 58.0261097 | 33.048802 | 7 | | | |

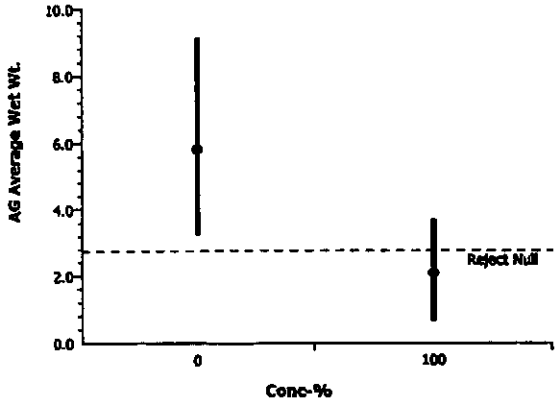
**ANOVA Assumptions**

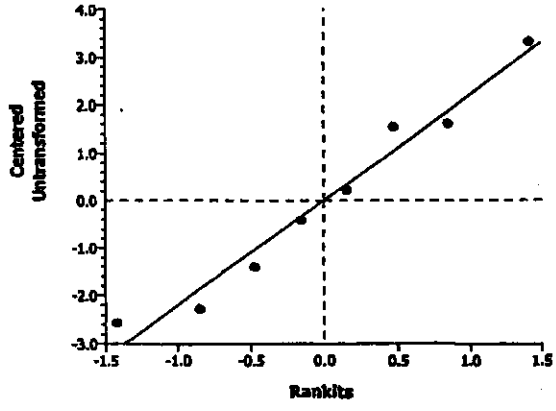
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 5.26867 | 47.46723 | 0.20566 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.95246 | | 0.73602 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 2.06882 | 0.65946 | 3.67441 | 1.26245 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:40 PM
Test Link: 14-6644-6067/B153912pcc

**Plant Chronic test** — **CH2M Hill**

| | | | | | |
|---|---|---|---|---|---|
| **Test No:** | 11-7635-9414 | **Test Type:** | Plant Chronic test | **Duration:** | 40d 0h |
| **Start Date:** | 02 Mar-06 | **Protocol:** | ASTM E1963-02 (2002) | **Species:** | Pak Choi |
| **Ending Date:** | 11 Apr-06 | **Dil Water:** | | **Source:** | |
| **Setup Date:** | 02 Mar-06 12:00 AM | **Brine:** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample No:** | 09-2724-9468 | **Code:** | B1539-12 | **Client:** | |
| **Sample Date:** | 12 Feb-06 | **Material:** | Sediment | **Project:** | |
| **Receive Date:** | | **Source:** | Hanford | | |
| **Sample Age:** | 18d 0h | **Station:** | | | |

**Comments:** J116M5

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 12-6017-1026 | AG Average Dry Wt. | 100 | > 100 | N/A | 57.41% | Equal Variance t Two-Sample |
| 19-0991-8331 | AG Average Wet Wt. | 100 | > 100 | N/A | 62.29% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.21888 | 0.07551 | 0.32151 | 0.05915 | 0.11829 | 54.04% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 4.54607 | 1.61019 | 6.55185 | 1.17245 | 2.34491 | 51.58% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.16832 | 0.07551 | 0.31017 | 0.32151 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 3.70333 | 1.61019 | 6.55185 | 6.31892 |

# CETIS Analysis Detail

| Plant Chronic test | | | | | | CH2M Hill |
|---|---|---|---|---|---|---|
| **Endpoint** | **Analysis Type** | | **Sample Link** | **Control Link** | **Date Analyzed** | **Version** |
| AG Average Dry Wt. | Comparison | | 14-6644-6067 | 14-6644-6067 | 24 Apr-06 3:40 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C >.T | Untransformed | | 100 | >100 | 1 | N/A | 57.41% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.05103 | 1.94318 | 0.1669 | 0.18226 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.019436 | 0.019436 | 1 | 1.10 | 0.33372 | Non-Significant Effect |
| Error | 0.1055661 | 0.017594 | 6 | | | |
| Total | 0.12500212 | 0.0370303 | 7 | | | |

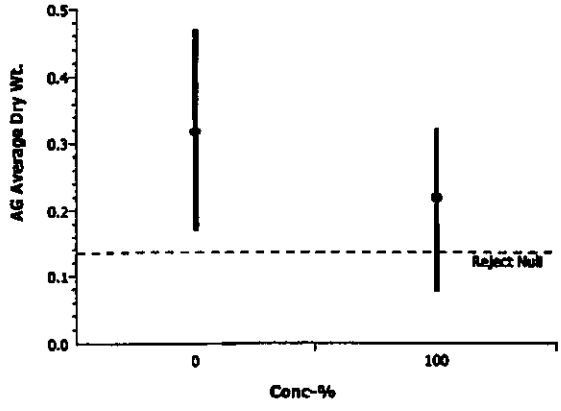
**ANOVA Assumptions**

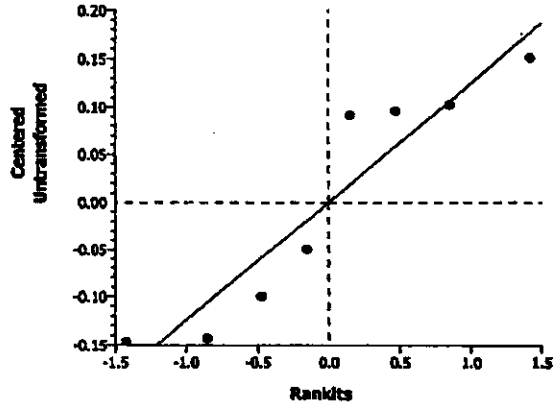
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.51479 | 47.46723 | 0.74119 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.85462 | | 0.10608 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.21888 | 0.07551 | 0.32151 | 0.11829 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 14-6644-6067 | 14-6644-6067 | 24 Apr-06 3:40 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 62.29% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.6803 | 1.94318 | 0.2608 | 3.62179 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 3.215482 | 3.215482 | 1 | 0.46 | 0.52169 | Non-Significant Effect |
| Error | 41.68716 | 6.947861 | 6 | | | |
| Total | 44.9026458 | 10.163342 | 7 | | | |

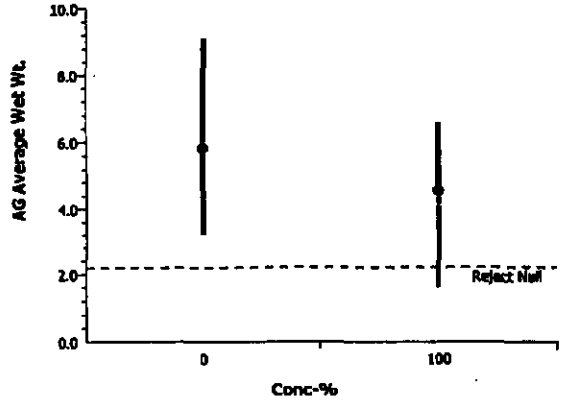
**ANOVA Assumptions**

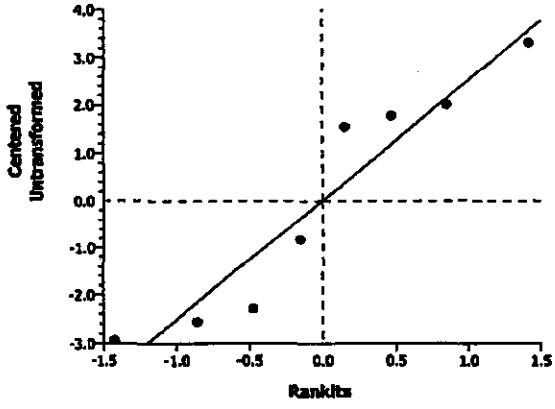
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.52715 | 47.46723 | 0.73635 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.88496 | | 0.20990 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 4.54607 | 1.61019 | 6.55185 | 2.34491 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:47 PM
Test Link: 09-4239-5099/B153913pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 05-3872-7251 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 04-3354-2349 | Code: | B1539-13 | Client: | |
| Sample Date: | 12 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 18d 0h | Station: | | | |

Comments: J116M8

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 10-6520-5888 | AG Average Dry Wt. | 100 | > 100 | N/A | 66.34% | Equal Variance t Two-Sample |
| 08-3581-0839 | AG Average Wet Wt. | 100 | > 100 | N/A | 74.48% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.32594 | 0.20882 | 0.45330 | 0.07076 | 0.12256 | 37.60% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 6.50503 | 3.96990 | 9.31334 | 1.54855 | 2.68217 | 41.23% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | Missing | 0.31571 | 0.20882 | 0.45330 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | Missing | 6.23184 | 3.96990 | 9.31334 |

# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 09-4239-5099 | 09-4239-5099 | 24 Apr-06 3:46 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 66.34% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.0812 | 2.01505 | 0.5308 | 0.21060 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0001234 | 0.000123 | 1 | 0.01 | 0.93844 | Non-Significant Effect |
| Error | 0.0936304 | 0.018726 | 5 | | | |
| Total | 0.09375383 | 0.0188495 | 6 | | | |

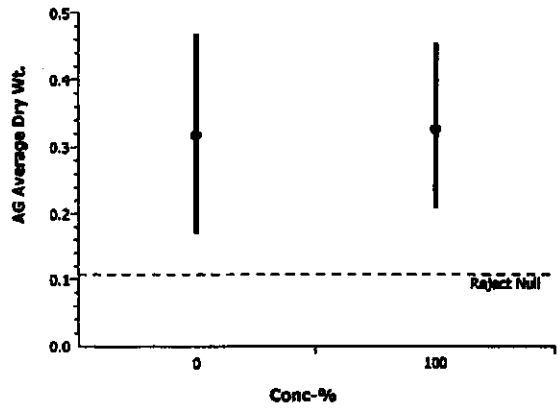
**ANOVA Assumptions**

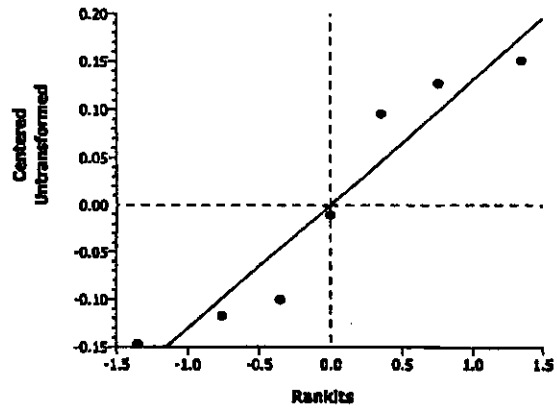
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.41108 | 199.16640 | 0.88064 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.88180 | | 0.23458 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 3 | 0.32594 | 0.20882 | 0.45330 | 0.12256 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 09-4239-5099 | 09-4239-5099 | 24 Apr-06 3:46 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 74.48% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.3216 | 2.01505 | 0.6196 | 4.33006 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.8185077 | 0.818508 | 1 | 0.10 | 0.76079 | Non-Significant Effect |
| Error | 39.57954 | 7.915907 | 5 | | | |
| Total | 40.3980442 | 8.7344146 | 6 | | | |

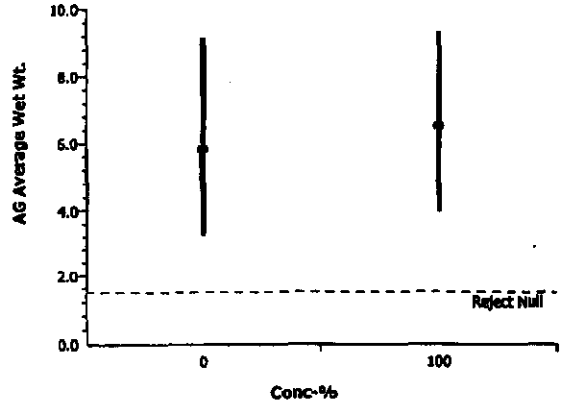
**ANOVA Assumptions**

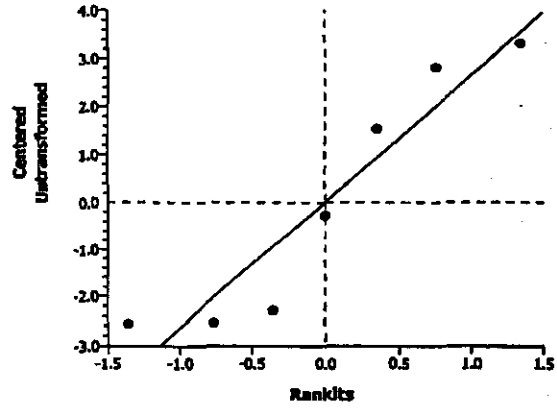
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.16723 | 199.16640 | 0.98445 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.85728 | | 0.14309 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 3 | 6.50503 | 3.96990 | 9.31334 | 2.68217 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:51 PM
Test Link: 08-6311-7974/B153914pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 02-8661-2508 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 15-8395-4899 | Code: | B1539-14 | Client: | |
| Sample Date: | 13 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 17d 0h | Station: | | | |

Comments: J11752

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 10-7890-6458 | AG Average Dry Wt. | 100 | > 100 | N/A | 46.49% | Equal Variance t Two-Sample |
| 04-2795-5212 | AG Average Wet Wt. | 100 | > 100 | N/A | 50.22% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.33855 | 0.29972 | 0.38824 | 0.02167 | 0.04334 | 12.80% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 6.73426 | 6.01198 | 7.70207 | 0.39827 | 0.79653 | 11.83% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.36139 | 0.38824 | 0.29972 | 0.30485 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 7.06697 | 7.70207 | 6.15602 | 6.01198 |

# CETIS Analysis Detail

**Plant Chronic test** — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 08-6311-7974 | 08-6311-7974 | 24 Apr-06 3:51 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 46.49% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.2777 | 1.94318 | 0.6047 | 0.14759 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0008898 | 0.00089 | 1 | 0.08 | 0.79055 | Non-Significant Effect |
| Error | 0.0692223 | 0.011537 | 6 | | | |
| Total | 0.07011205 | 0.0124268 | 7 | | | |

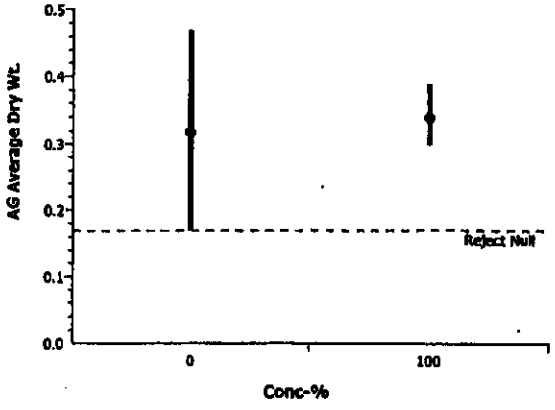
**ANOVA Assumptions**

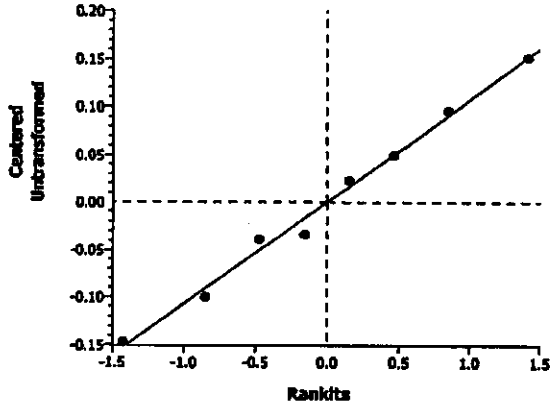
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 11.28602 | 47.46723 | 0.07689 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.98344 | | 0.97789 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.33855 | 0.29972 | 0.38824 | 0.04334 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 08-6311-7974 | 08-6311-7974 | 24 Apr-06 3:51 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 50.22% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.6124 | 1.94318 | 0.7186 | 2.91988 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 1.693611 | 1.693611 | 1 | 0.38 | 0.56274 | Non-Significant Effect |
| Error | 27.09481 | 4.515802 | 6 | | | |
| Total | 28.7884253 | 6.2094134 | 7 | | | |

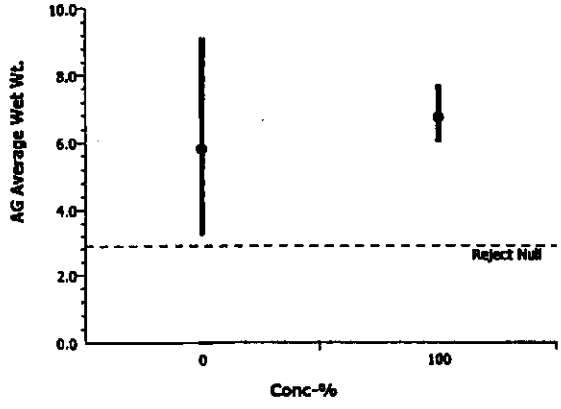
**ANOVA Assumptions**

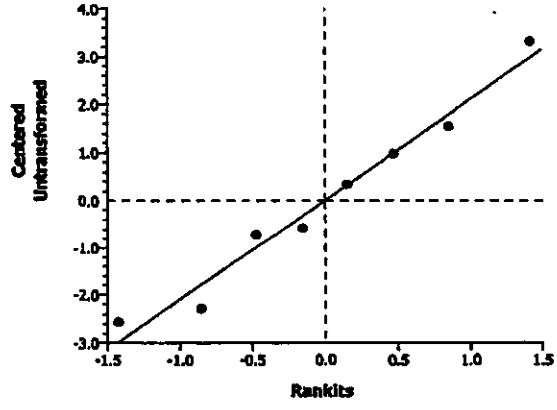
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 13.23494 | 47.46723 | 0.06187 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.96682 | | 0.87192 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 6.73426 | 6.01198 | 7.70207 | 0.79653 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:52 PM
Test Link: 06-8133-9903/B153915pcc

**Plant Chronic test** — **CH2M Hill**

| | | | | | |
|---|---|---|---|---|---|
| **Test No:** | 07-0667-4824 | **Test Type:** | Plant Chronic test | **Duration:** | 40d 0h |
| **Start Date:** | 02 Mar-06 | **Protocol:** | ASTM E1963-02 (2002) | **Species:** | Pak Choi |
| **Ending Date:** | 11 Apr-06 | **Dil Water:** | | **Source:** | |
| **Setup Date:** | 02 Mar-06 12:00 AM | **Brine:** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample No:** | 03-9009-6147 | **Code:** | B1539-15 | **Client:** | |
| **Sample Date:** | 13 Feb-06 | **Material:** | Sediment | **Project:** | |
| **Receive Date:** | | **Source:** | Hanford | | |
| **Sample Age:** | 17d 0h | **Station:** | | | |

**Comments:** J11745

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 05-9315-6809 | AG Average Dry Wt. | 100 | > 100 | N/A | 48.98% | Equal Variance t Two-Sample |
| 18-8468-0563 | AG Average Wet Wt. | 100 | > 100 | N/A | 53.28% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.22658 | 0.15168 | 0.30814 | 0.03323 | 0.06645 | 29.33% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 4.72164 | 3.30253 | 6.32995 | 0.66491 | 1.32981 | 28.16% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.30814 | 0.24521 | 0.15168 | 0.20131 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 6.32995 | 5.21303 | 3.30253 | 4.04104 |

# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 06-8133-9903 | 06-8133-9903 | 24 Apr-06 3:52 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 48.98% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.13564 | 1.94318 | 0.1497 | 0.15549 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0165156 | 0.016516 | 1 | 1.29 | 0.29942 | Non-Significant Effect |
| Error | 0.0768357 | 0.012806 | 6 | | | |
| Total | 0.09335135 | 0.0293216 | 7 | | | |

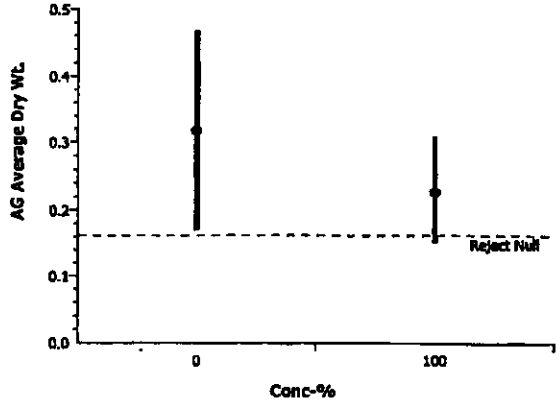
**ANOVA Assumptions**

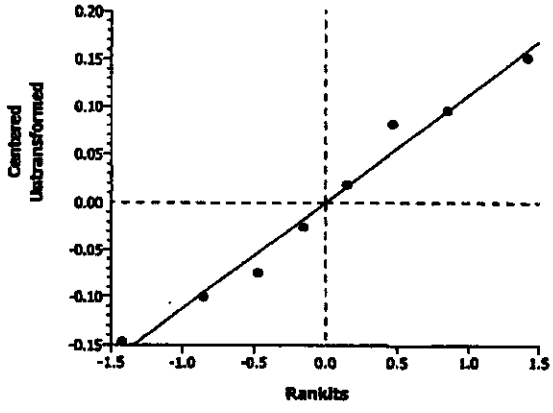
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 4.79994 | 47.46723 | 0.23009 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.96357 | | 0.84334 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.22658 | 0.15168 | 0.30814 | 0.06645 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 06-8133-9903 | 06-8133-9903 | 24 Apr-06 3:52 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 53.28% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.68525 | 1.94318 | 0.2594 | 3.09776 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 2.386685 | 2.386685 | 1 | 0.47 | 0.51877 | Non-Significant Effect |
| Error | 30.49663 | 5.082771 | 6 | | | |
| Total | 32.8833125 | 7.469456 | 7 | | | |

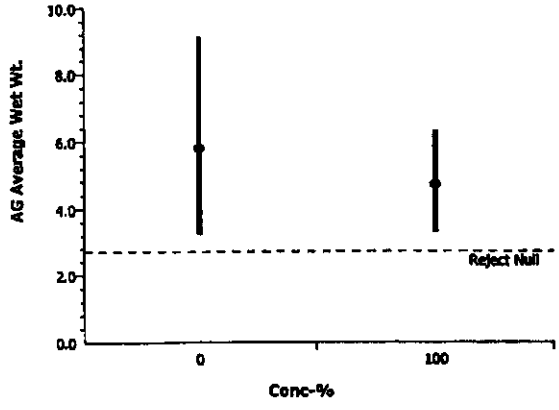
**ANOVA Assumptions**

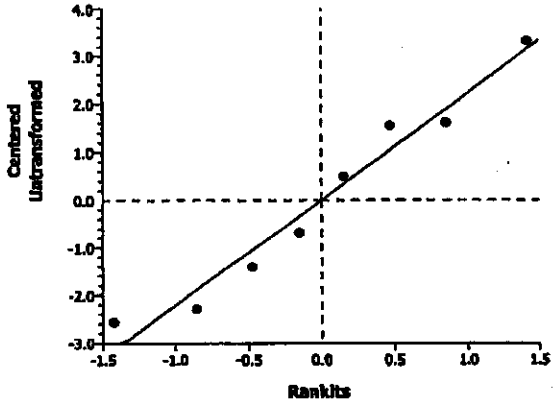
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 4.74842 | 47.46723 | 0.23307 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.94778 | | 0.68887 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 4.72164 | 3.30253 | 6.32995 | 1.32981 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:54 PM
Test Link: 06-8702-6507/B153916pcc

**Plant Chronic test** — CH2M HILL

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 18-9978-6940 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 06-6928-1482 | Code: | B1539-16 | Client: | |
| Sample Date: | 13 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 17d 0h | Station: | | | |

Comments: J11750

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 08-2463-5202 | AG Average Dry Wt. | 100 | > 100 | N/A | 51.04% | Equal Variance t Two-Sample |
| 10-2695-5458 | AG Average Wet Wt. | 100 | > 100 | N/A | 55.38% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.40806 | 0.34408 | 0.52632 | 0.04066 | 0.08132 | 19.93% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.8140 | 3.2451 | 9.1272 | 1.4489 | 2.8978 | 49.84% |
| 100 | | 4 | 8.5403 | 7.2730 | 10.806 | 0.8038 | 1.6075 | 18.82% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.39283 | 0.34408 | 0.36899 | 0.52632 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 8.54967 | 7.27302 | 7.53283 | 10.8055 |

# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 06-8702-6507 | 06-8702-6507 | 24 Apr-06 3:54 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 51.04% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.0866 | 1.94318 | 0.8405 | 0.16202 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0164159 | 0.016416 | 1 | 1.18 | 0.31894 | Non-Significant Effect |
| Error | 0.0834253 | 0.013904 | 6 | | | |
| Total | 0.09984116 | 0.0303201 | 7 | | | |

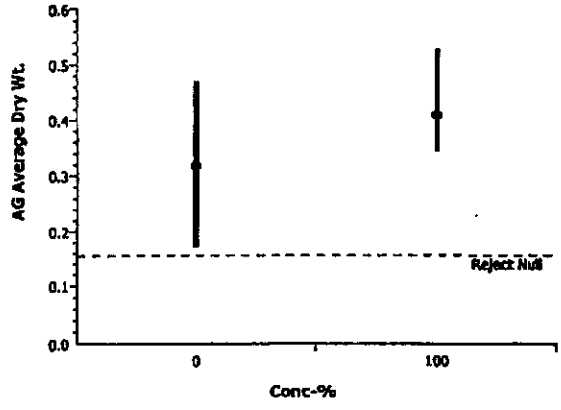
**ANOVA Assumptions**

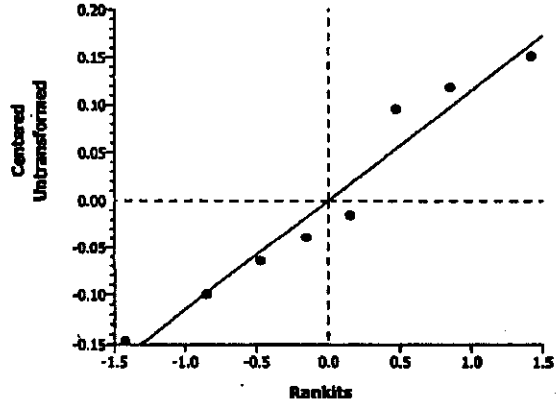
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.20549 | 47.46723 | 0.36429 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93067 | | 0.52221 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.40806 | 0.34408 | 0.52632 | 0.08132 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 06-8702-6507 | 06-8702-6507 | 24 Apr-06 3:54 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 55.38% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -1.6454 | 1.94318 | 0.9245 | 3.21966 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 14.86463 | 14.86463 | 1 | 2.71 | 0.15099 | Non-Significant Effect |
| Error | 32.94385 | 5.490642 | 6 | | | |
| Total | 47.8084831 | 20.355273 | 7 | | | |

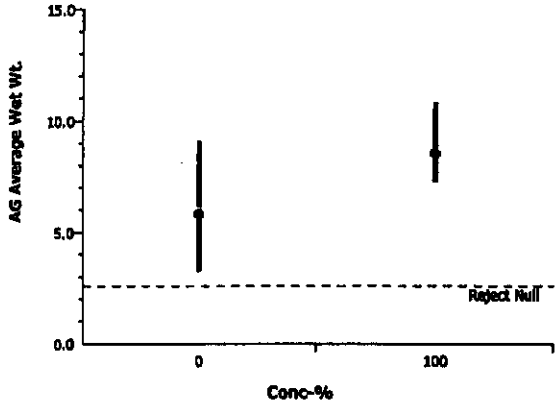
**ANOVA Assumptions**

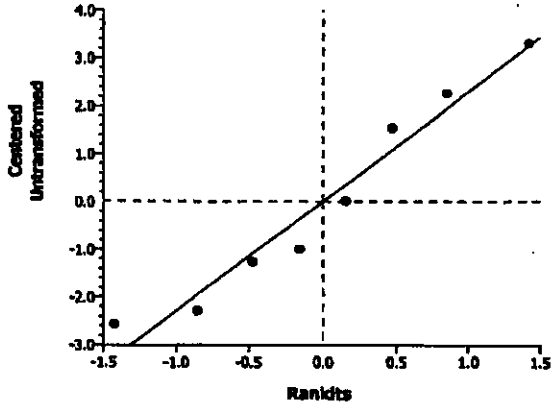
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 3.24948 | 47.46723 | 0.35896 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93456 | | 0.55851 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 8.54027 | 7.27302 | 10.8055 | 1.60753 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:55 PM
Test Link: 15-0347-9430/B153917pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 05-8217-4108 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 14-0550-4973 | Code: | B1539-17 | Client: | |
| Sample Date: | 13 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 17d 0h | Station: | | | |

Comments: J11751

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 10-4786-6677 | AG Average Dry Wt. | 100 | > 100 | N/A | 49.78% | Equal Variance t Two-Sample |
| 13-7591-9588 | AG Average Wet Wt. | 100 | > 100 | N/A | 52.82% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.33770 | 0.27000 | 0.41720 | 0.03628 | 0.07255 | 21.48% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 6.89288 | 5.67148 | 8.03673 | 0.63098 | 1.26196 | 18.31% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.28273 | 0.38089 | 0.27000 | 0.41720 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 5.93808 | 7.92524 | 5.67148 | 8.03673 |

# CETIS Analysis Detail

| Plant Chronic test | | | | | CH2M Hill |
|---|---|---|---|---|---|
| **Endpoint** | **Analysis Type** | **Sample Link** | **Control Link** | **Date Analyzed** | **Version** |
| AG Average Dry Wt. | Comparison | 15-0347-9430 | 15-0347-9430 | 24 Apr-06 3:55 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 49.78% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.2489 | 1.94318 | 0.5941 | 0.15804 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0008199 | 0.00082 | 1 | 0.06 | 0.81170 | Non-Significant Effect |
| Error | 0.0793787 | 0.01323 | 6 | | | |
| Total | 0.08019862 | 0.0140497 | 7 | | | |

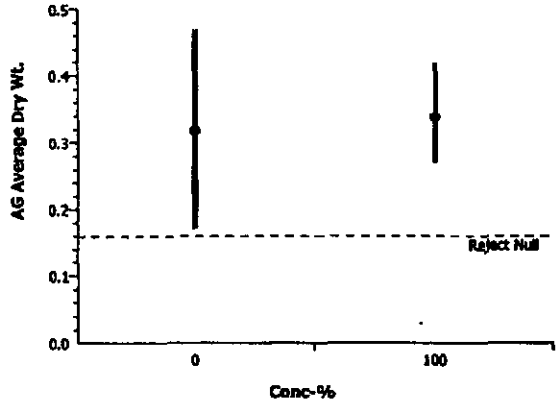
**ANOVA Assumptions**

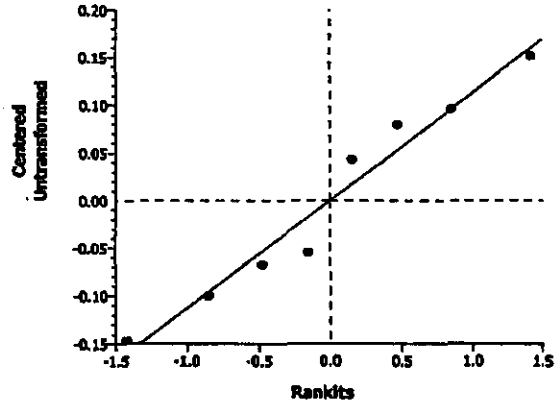
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 4.02694 | 47.46723 | 0.28258 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.94262 | | 0.63706 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.33770 | 0.27000 | 0.41720 | 0.07255 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 15-0347-9430 | 15-0347-9430 | 24 Apr-06 3:55 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 52.82% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.6827 | 1.94318 | 0.7399 | 3.07085 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 2.327803 | 2.327803 | 1 | 0.47 | 0.52029 | Non-Significant Effect |
| Error | 29.96903 | 4.994839 | 6 | | | |
| Total | 32.2968352 | 7.3226416 | 7 | | | |

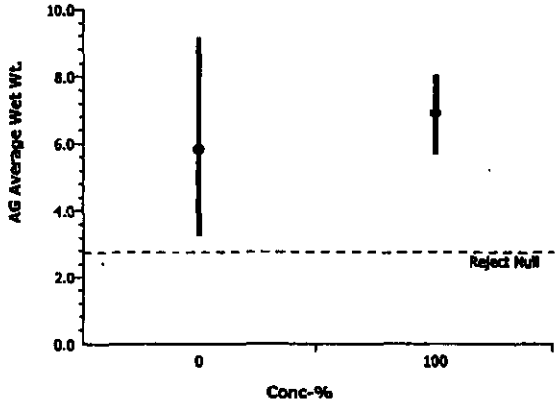
**ANOVA Assumptions**

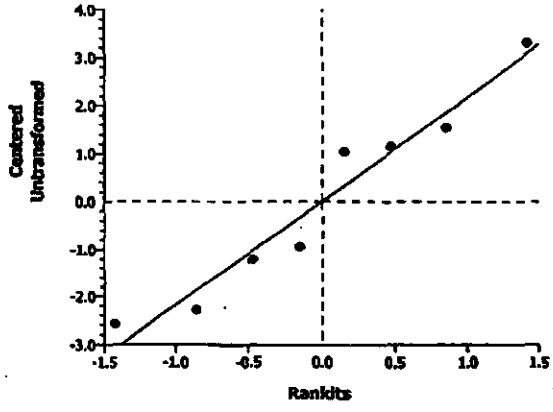
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 5.27280 | 47.46723 | 0.20547 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.93631 | | 0.57515 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 6.89288 | 5.67148 | 8.03673 | 1.26196 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:57 PM
Test Link: 12-2754-1244/B153918pcc

Plant Chronic test — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 03-8348-5695 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 12-8062-0396 | Code: | B1539-18 | Client: | |
| Sample Date: | 13 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 17d 0h | Station: | | | |

Comments: J11753

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 04-6165-5632 | AG Average Dry Wt. | 100 | > 100 | N/A | 69.62% | Equal Variance t Two-Sample |
| 00-9561-6038 | AG Average Wet Wt. | 100 | > 100 | N/A | 70.78% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.32814 | 0.14967 | 0.50422 | 0.08738 | 0.17477 | 53.26% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 5.60385 | 2.77741 | 8.82544 | 1.54443 | 3.08885 | 55.12% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.50422 | 0.14967 | 0.44928 | 0.20939 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 8.82544 | 2.77741 | 7.66210 | 3.15044 |

# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 12-2754-1244 | 12-2754-1244 | 24 Apr-06 3:56 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 69.62% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | -0.0939 | 1.94318 | 0.5359 | 0.22100 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0002282 | 0.000228 | 1 | 0.01 | 0.92823 | Non-Significant Effect |
| Error | 0.1552205 | 0.025870 | 6 | | | |
| Total | 0.15544869 | 0.0260983 | 7 | | | |

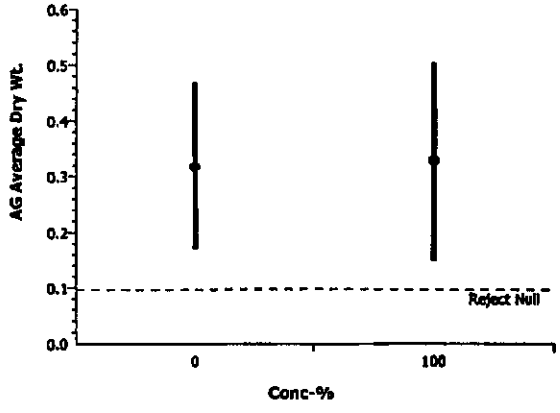
**ANOVA Assumptions**

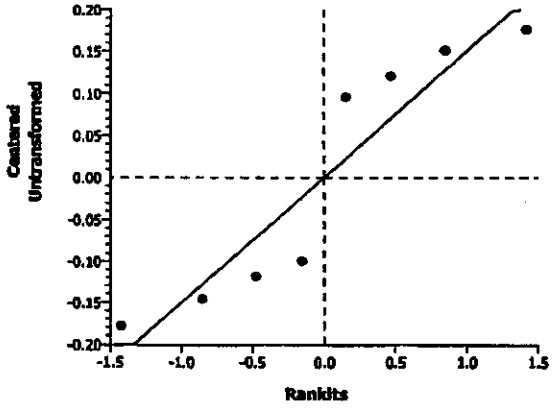
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.44103 | 47.46723 | 0.77122 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.84338 | | 0.08158 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.32814 | 0.14967 | 0.50422 | 0.17477 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 12-2754-1244 | 12-2754-1244 | 24 Apr-06 3:57 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 70.78% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 0.09926 | 1.94318 | 0.4621 | 4.11502 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0883614 | 0.088361 | 1 | 0.01 | 0.92417 | Non-Significant Effect |
| Error | 53.81443 | 8.969072 | 6 | | | |
| Total | 53.9027955 | 9.0574338 | 7 | | | |

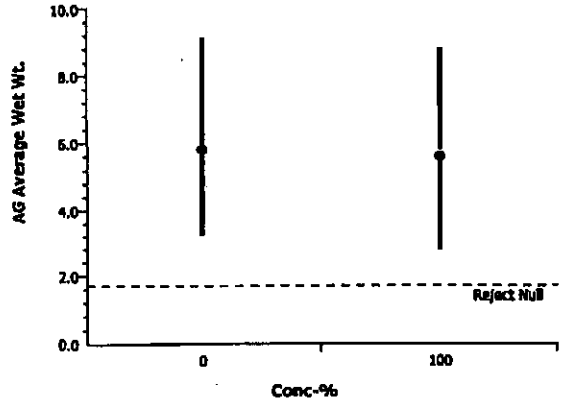
**ANOVA Assumptions**

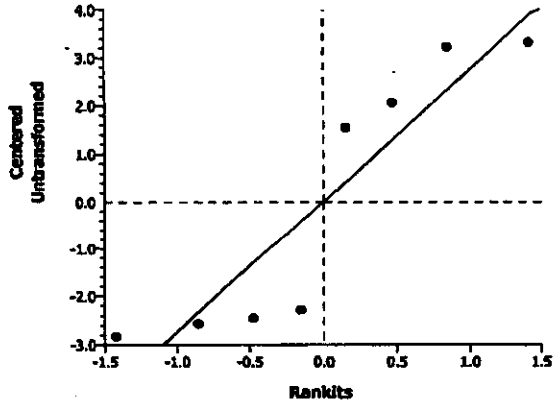
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 1.13622 | 47.46723 | 0.91886 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.79791 | | 0.02719 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 5.60385 | 2.77741 | 8.82544 | 3.08885 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:58 PM
Test Link: 18-1465-6350/B153930pcc

**Plant Chronic test** — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| **Test No:** | 03-0089-6547 | **Test Type:** | Plant Chronic test | **Duration:** | 40d 0h |
| **Start Date:** | 02 Mar-06 | **Protocol:** | ASTM E1963-02 (2002) | **Species:** | Pak Choi |
| **Ending Date:** | 11 Apr-06 | **Dil Water:** | | **Source:** | |
| **Setup Date:** | 02 Mar-06 12:00 AM | **Brine:** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample No:** | 10-7678-7313 | **Code:** | B1539-30 | **Client:** | |
| **Sample Date:** | 27 Feb-06 | **Material:** | Sediment | **Project:** | |
| **Receive Date:** | | **Source:** | Hanford | | |
| **Sample Age:** | 72h | **Station:** | | | |

**Comments:** J116X2

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 01-5302-6525 | AG Average Dry Wt. | < 100 | 100 | N/A | 45.65% | Equal Variance t Two-Sample |
| 10-6767-0209 | AG Average Wet Wt. | < 100 | 100 | N/A | 49.03% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.08978 | 0.06168 | 0.12753 | 0.01623 | 0.03246 | 36.16% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 1.24677 | 0.81359 | 1.69905 | 0.22961 | 0.45922 | 36.83% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.06168 | 0.12753 | 0.10616 | 0.06374 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 0.81359 | 1.58382 | 1.69905 | 0.89063 |

# CETIS Analysis Detail

Plant Chronic test — CH2M Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 18-1465-6350 | 18-1465-6350 | 24 Apr-06 3:58 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 45.65% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 3.05276 | 1.94318 | 0.0112 | 0.14493 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.1036761 | 0.103676 | 1 | 9.32 | 0.02243 | Significant Effect |
| Error | 0.0667491 | 0.011125 | 6 | | | |
| Total | 0.17042519 | 0.114801 | 7 | | | |

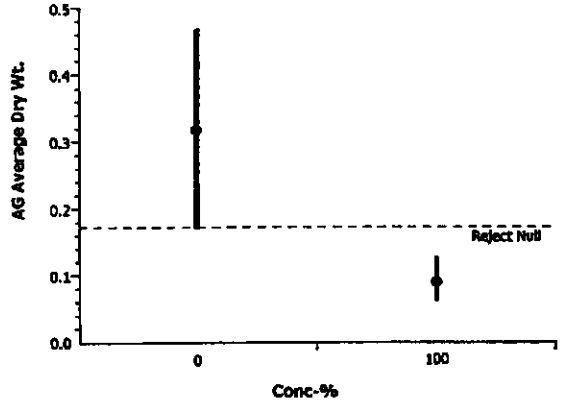
**ANOVA Assumptions**

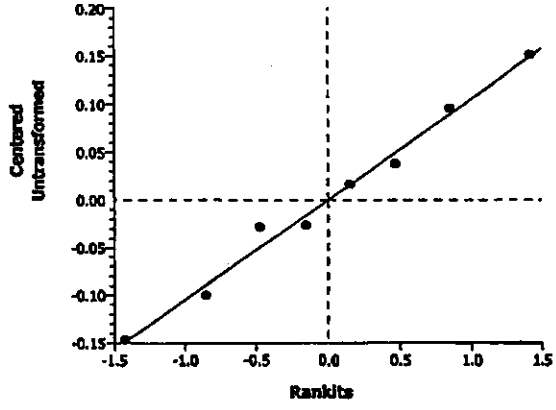
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 20.11617 | 47.46723 | 0.03449 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.98295 | | 0.97600 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.08978 | 0.06168 | 0.12753 | 0.03246 | | | | |

**Graphics**



# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 18-1465-6350 | 18-1465-6350 | 24 Apr-06 3:58 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | <100 | 100 | | N/A | 49.03% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 3.1134 | 1.94318 | 0.0104 | 2.85059 | Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 41.71986 | 41.71986 | 1 | 9.69 | 0.02076 | Significant Effect |
| Error | 25.82405 | 4.304009 | 6 | | | |
| Total | 67.5439091 | 46.023865 | 7 | | | |

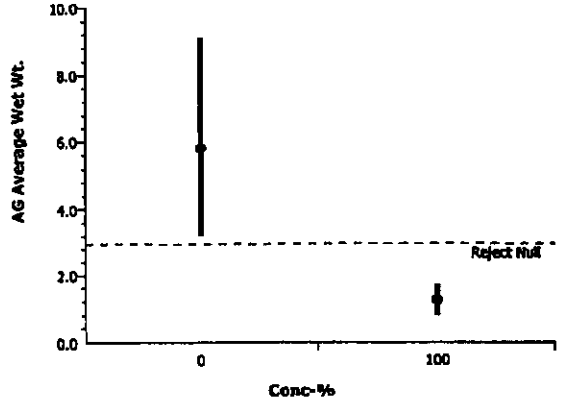
**ANOVA Assumptions**

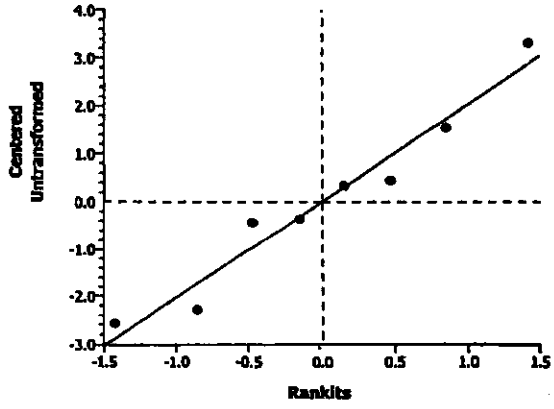
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 39.81947 | 47.46723 | 0.01292 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.95457 | | 0.75713 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 1.24677 | 0.81359 | 1.69905 | 0.45922 | | | | |

**Graphics**



# CETIS Test Summary

Report Date: 24 Apr-06 3:59 PM
Test Link: 02-4977-5786/B153931pcc

**Plant Chronic test** — CH2M Hill

| | | | | | |
|---|---|---|---|---|---|
| Test No: | 02-0475-5855 | Test Type: | Plant Chronic test | Duration: | 40d 0h |
| Start Date: | 02 Mar-06 | Protocol: | ASTM E1963-02 (2002) | Species: | Pak Choi |
| Ending Date: | 11 Apr-06 | Dil Water: | | Source: | |
| Setup Date: | 02 Mar-06 12:00 AM | Brine: | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sample No: | 04-9697-6278 | Code: | B1539-31 | Client: | |
| Sample Date: | 27 Feb-06 | Material: | Sediment | Project: | |
| Receive Date: | | Source: | Hanford | | |
| Sample Age: | 72h | Station: | | | |

Comments: J116W9

**Comparison Summary**

| Analysis | Endpoint | NOEL | LOEL | ChV | PMSD | Method |
|---|---|---|---|---|---|---|
| 14-6291-8849 | AG Average Dry Wt. | 100 | > 100 | N/A | 51.51% | Equal Variance t Two-Sample |
| 07-0817-8932 | AG Average Wet Wt. | 100 | > 100 | N/A | 55.92% | Equal Variance t Two-Sample |

**AG Average Dry Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.07279 | 0.14559 | 45.86% |
| 100 | | 4 | 0.19076 | 0.14154 | 0.31685 | 0.04222 | 0.08443 | 44.26% |

**AG Average Wet Wt. Summary**

| Conc-% | Control Type | Reps | Mean | Minimum | Maximum | SE | SD | CV |
|---|---|---|---|---|---|---|---|---|
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 1.44889 | 2.89778 | 49.84% |
| 100 | | 4 | 3.68183 | 2.67195 | 6.18494 | 0.83691 | 1.67382 | 45.46% |

**AG Average Dry Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 0.41331 | 0.21729 | 0.17069 | 0.46854 |
| 100 | | 0.14491 | 0.14154 | 0.31685 | 0.15974 |

**AG Average Wet Wt. Detail**

| Conc-% | Control Type | Rep 1 | Rep 2 | Rep 3 | Rep 4 |
|---|---|---|---|---|---|
| 0 | Dilution Sedim | 7.35745 | 3.52648 | 3.24507 | 9.12716 |
| 100 | | 2.98401 | 2.67195 | 6.18494 | 2.88643 |

# CETIS Analysis Detail

**Plant Chronic test** — **CH2M Hill**

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Dry Wt. | Comparison | 02-4977-5786 | 02-4977-5786 | 24 Apr-06 3:59 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 51.51% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.50562 | 1.94318 | 0.0914 | 0.16352 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 0.0321045 | 0.032104 | 1 | 2.27 | 0.18287 | Non-Significant Effect |
| Error | 0.0849739 | 0.014162 | 6 | | | |
| Total | 0.11707832 | 0.0462668 | 7 | | | |

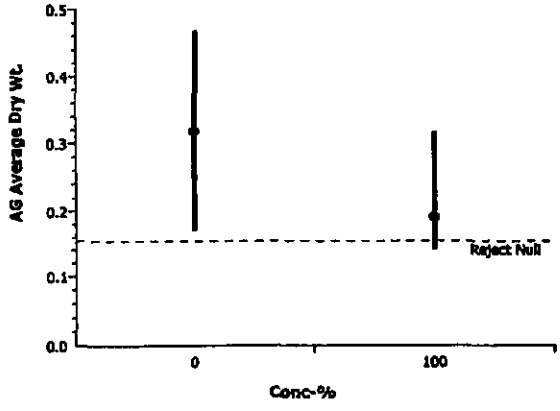
**ANOVA Assumptions**

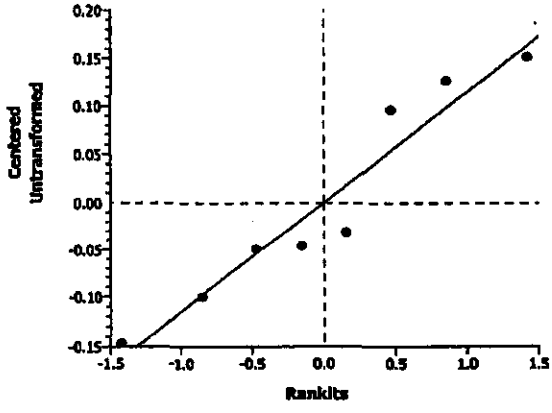
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 2.97337 | 47.46723 | 0.39470 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.90967 | | 0.35172 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 0.31746 | 0.17069 | 0.46854 | 0.14559 | | | | |
| 100 | | 4 | 0.19076 | 0.14154 | 0.31685 | 0.08443 | | | | |

**Graphics**



# CETIS Analysis Detail

Plant Chronic test — CH2M-Hill

| Endpoint | Analysis Type | Sample Link | Control Link | Date Analyzed | Version |
|---|---|---|---|---|---|
| AG Average Wet Wt. | Comparison | 02-4977-5786 | 02-4977-5786 | 24 Apr-06 3:59 PM | CETISv1.1.2 |

| Method | Alt H | Data Transform | Zeta | NOEL | LOEL | Toxic Units | ChV | PMSD |
|---|---|---|---|---|---|---|---|---|
| Equal Variance t Two-Sample | C > T | Untransformed | | 100 | >100 | 1 | N/A | 55.92% |

**Group Comparisons**

| Control | vs | Conc-% | Statistic | Critical | P-Value | MSD | Decision(0.05) |
|---|---|---|---|---|---|---|---|
| Dilution Sediment | | 100 | 1.27431 | 1.94318 | 0.1248 | 3.25139 | Non-Significant Effect |

**ANOVA Table**

| Source | Sum of Squares | Mean Square | DF | F Statistic | P-Value | Decision(0.05) |
|---|---|---|---|---|---|---|
| Between | 9.092616 | 9.092616 | 1 | 1.62 | 0.24968 | Non-Significant Effect |
| Error | 33.59644 | 5.599407 | 6 | | | |
| Total | 42.6890593 | 14.692023 | 7 | | | |

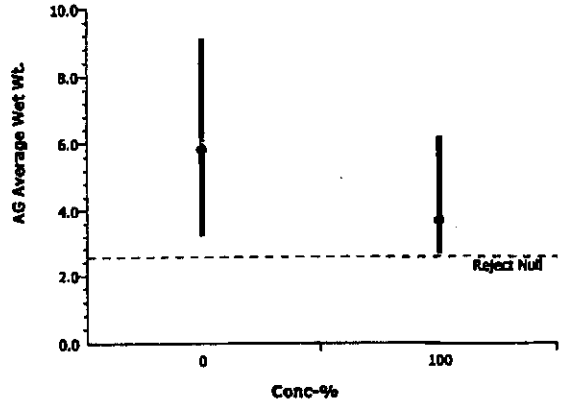
**ANOVA Assumptions**

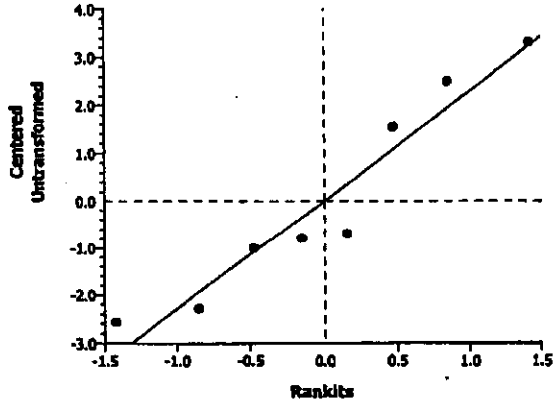
| Attribute | Test | Statistic | Critical | P-Value | Decision(0.01) |
|---|---|---|---|---|---|
| Variances | Variance Ratio F | 2.99718 | 47.46723 | 0.39139 | Equal Variances |
| Distribution | Shapiro-Wilk W | 0.90924 | | 0.34871 | Normal Distribution |

**Data Summary**

| | | | Original Data | | | | Transformed Data | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conc-% | Control Type | Count | Mean | Minimum | Maximum | SD | Mean | Minimum | Maximum | SD |
| 0 | Dilution Sedim | 4 | 5.81404 | 3.24507 | 9.12716 | 2.89778 | | | | |
| 100 | | 4 | 3.68183 | 2.67195 | 6.18494 | 1.67382 | | | | |

**Graphics**



# APPENDIX B
# CHAIN OF CUSTODY

F1162

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-6 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: JE Bernhard | Company Contact: JOAN KESSNER<br>Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH | Price Code: 9N<br>Data Turnaround: 21 Days |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: ~~300-1~~ REF #16 JEB 2-5-06 | SAF No.: RC-047 | Air Quality: |
| Ice Chest No.: SHWS-336 | Field Logbook No.: EL-1596 JEB 2-5-06<br>COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT | |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | Bill of Lading/Air Bill No.: SEE OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | | | Cool 4C | None | None | | | | | | | |
| Type of Container | | | G/P | P/G | P/G | | | | | | | |
| No. of Container(s) | | | 1 | 1 | 1 | | | | | | | |
| Volume | | | 1000g | 3000g | 19000g | | | | | | | |
| SAMPLE ANALYSIS | | | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | |
| J11143 | OTHER SOLID | 02-05-06 | 1130 | X | X | X | | | | | | -1 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Date/Time | Sign/Print Names: Received By/Stored In | Date/Time |
|---|---|---|---|
| Relinquished By/Removed From: JAMES BERNHARD | 1400 02-05-06 | EAS LOCKED STORAGE | 1400 02-05-06 |
| Relinquished By/Removed From: EAS LOCKED STORAGE | 0745 02-06-06 | R2 Stoffler R.J. Stoffler | 0745 2-6-06 |
| Relinquished By/Removed From: R2 Stoffler R.J. Stoffler | 1500 2-6-06 | Fed Ex | |
| Relinquished By/Removed From: FED EX | | K McKinley | 2/7/06 1020 |
| Relinquished By/Removed From | | Received By/Stored In | |
| Relinquished By/Removed From | | Received By/Stored In | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1539-01 For Pak Choi

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By: K McKinley | Title | Date/Time: 2/7/06 1020 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-9 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: JAMES BERNHARD | Company Contact: JOAN KESSNER | Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH |
| Price Code: 9N | Data Turnaround: 21 Days | Air Quality: ☐ | |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: U-2 | SAF No.: RC-047 | |
| Ice Chest No.: AFS-04-050 | Field Logbook No.: EL-15997 JRC 2-8-06 | COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | | Bill of Lading/Air Bill No.: SEE OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | |
|---|---|---|---|
| Preservation | Cool 4C | None | None |
| Type of Container | G/P | P/G | P/G |
| No. of Container(s) | 1 JRC 2-8-06 | 1 | 1 |
| Volume | 1000g | 3000g | 19000g |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 |

| Sample No. | Matrix * | Sample Date | Sample Time | | | |
|---|---|---|---|---|---|---|
| J11146 | OTHER SOLID | 2-8-06 | 1245 | X | X | X |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| JC JAMES BERNHARD | 1700 2-8-06 | JC EAS LOCKED STORAGE | 1700 2-8-06 |
| JC JAMES BERNHARD | 0715 2-9-06 | RZ Stoffler R.Z. Stoffler | 0715 2-9-06 |
| RZ Stoffler R.Z. Stoffler | 1500 2-9-06 | Fed Ex | |
| Fed Ex | | Scott Mudge | 1400 2-10-06 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1539-02 for Hydrolin
B1539-02 for outsedge / pak cini
COC seals intact

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-7 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: JAMES BERNHARD | Company Contact: JOAN KESSNER | Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH |
| Price Code: 9N | Data Turnaround: 21 Days | Air Quality: ☐ | |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: 300-2 | | SAF No.: RC-047 |
| Ice Chest No.: AFS-04-050 | Field Logbook No.: EL-15987 SEA 2-8-06 | COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | | Bill of Lading/Air Bill No.: SEE OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | | |
| No. of Container(s) | 2 SEA 2-8-06 | 1 | 1 | | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11144 | OTHER SOLID | 2-8-06 | 1430 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| JAMES BERNHARD | 1700 2-8-06 | EAS LOCKED STORAGE | 1700 2-8-06 |
| JAMES BERNHARD | 0715 2-9-06 | RZ Stellar | 0715 2-9-06 |
| RZ Stellar | 1500 2-9-06 | Fed Ex | |
| Fed Ex | | Scott Mulkey | 1400 2-10-06 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1533-03 for Hyulleda
B1539-03 for Hulsedge / Pak Choi
COC seals intact on arrival

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-8 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: JEB JAMES BERNHARD | Company Contact: JOAN KESSNER | Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH |
| Price Code: 9N | Data Turnaround: 21 Days | Air Quality: [ ] | |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: U-1 | SAF No.: RC-047 | |
| Ice Chest No.: AFS-04-050 | Field Logbook No.: EL-15987 SEB 2-8-06 | COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | | Bill of Lading/Air Bill No.: SEE OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 1 SEB 2-8-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11145 | OTHER SOLID | 2-8-06 | 1130 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** / **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| JAMES BERNHARD | 2-8-06 1700 | EAS LOCKED STORAGE | 2-8-06 1700 |
| JAMES BERNHARD | 2-9-06 0715 | RZ Stoffler | 2-9-06 0715 |
| RZ Stoffler | 2-9-06 1500 | Fed Ex | |
| Fed Ex | | Brett Mulkey | 2-10-06 1400 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-04 for Hyatt/Ale
B1539-04 for Nitrogen/pulechi

COC seals intact on arrival

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

Ship Date: 09FEB06
ActWgt: 38 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**FRI**
Deliver By:
10FEB06

TRK# 7918 5661 0690 FORM 0201

**PDX** AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 09FEB06
ActWgt: 78 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

LIZ TEPPER
CH2M HILL
APPLIED SCIENCE LABORATORY
2300 NW WALNUT BLVD.
CORVALLIS, OR 97339

[redacted]

PRIORITY OVERNIGHT

FRI
Deliver By:
10FEB06

TRK# 7918 5661 0680 FORM 0201

PDX AA

97339 -OR-US

86 CVOA

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 09FEB06
ActWgt: 55LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

LIZ TEPPER
CH2M HILL
APPLIED SCIENCE LABORATORY
2300 NW WALNUT BLVD.
CORVALLIS, OR 97339

[redacted]

PRIORITY OVERNIGHT

FRI

Deliver By: 10FEB06

TRK# 7918 5661 0705 FORM 0201

PDX AA

97339 -OR-US

86 CVOA

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-50 | Page 1 of 1 |
|---|---|---|---|
| Collector TILLER JAMES BERNHARD | Company Contact JOAN KESSNER; Telephone No. 375-4688 | Project Coordinator KESSNER, JH | Price Code 9N; Data Turnaround 21 Days |
| Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location REF/2 SEDIMENT | SAF No. RC-047 | Air Quality ☐ |
| Ice Chest No. ERC-99-065 | Field Logbook No. EL-1597; COA BESRAS6520 | Method of Shipment GROUND TRANSPORT | |
| Shipped To CH2MHILL | Offsite Property No. A060151 | Bill of Lading/Air Bill No. SEE OSPC | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 2 XB 1-9-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J116N1 | OTHER SOLID | 2-9-06 | 1530 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Date/Time | Sign/Print Names | Date/Time |
|---|---|---|---|
| Relinquished By/Removed From JAMES BERNHARD | 1530 2-9-06 | Received By/Stored In EAS LOCKED STORAGE | 1530 2-9-06 |
| Relinquished By/Removed From EAS LOCKED STORAGE | 0745 02-13-06 | Received By/Stored In R2 Steffler R.2. Steffl | 0745 2-13-06 |
| Relinquished By/Removed From R2 Steffler R.2. Steffl | 1500 2-13-06 | Received By/Stored In Fed Ex | |
| Relinquished By/Removed From FED-X | 2-14 | Received By/Stored In Mike Stanaway | 2-14-06 1100 |
| Relinquished By/Removed From | | Received By/Stored In | |
| Relinquished By/Removed From | | Received By/Stored In | |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-05 = Hyalella
B1539-05 = Nutsedge/Pakchoi
F1142-01
Coc intact.

Matrix *
SeSoil
SEsSediment
SOsSolid
SlsSludge
W = Water
OsOil
AsAir
DSsDrum Solids
DLsDrum Liquids
TsTissue
WIsWipe
LsLiquid
VsVegetation
XsOther

| LABORATORY SECTION | Received By | Title | Date/Time |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-52 | Page 1 of 1 |
|---|---|---|---|
| Collector: TILLER JAMES BERNHARD | Company Contact: JOAN KESSNER; Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH | Price Code: 9N; Data Turnaround: 21 Days |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: REF/3SEDIMENT | SAF No.: RC-047 | Air Quality ☐ |
| Ice Chest No.: ERC-99-065 | Field Logbook No.: EL-1597; COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT | |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | Bill of Lading/Air Bill No.: SEE OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 2 2-9-06 KK | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J116N3 | OTHER SOLID | 2-9-06 | 1400 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Date/Time | Sign/Print Names | Date/Time |
|---|---|---|---|
| Relinquished By/Removed From: JAMES BERNHARD | 1400 2-9-06 | Received By/Stored In: EAS LOCKED STORAGE | 1400 2-9-06 |
| Relinquished By/Removed From: EAS LOCKED STORAGE | 0745 02-13-06 | Received By/Stored In: RZ Stoffler | 0745 2-13-06 |
| Relinquished By/Removed From: RZ Stoffler | 1500 2-13-06 | Received By/Stored In: Fed Ex | |
| Relinquished By/Removed From: Fed-X | | Received By/Stored In: Mike Sanaway | 2-14-06 1100 |
| Relinquished By/Removed From | | Received By/Stored In | |
| Relinquished By/Removed From | | Received By/Stored In | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-06 Hyalella
B1539-06 Nutsedge/Pickerel
Custody seals intact

F1192-02

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHFEE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-27 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: TILLER JAMES BERNHARD | Company Contact: JOAN KESSNER | Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH |
| Price Code: 9N | Data Turnaround: 21 Days | Air Quality: [ ] | |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: Cr 5, SEDIMENT | | SAF No.: RC-047 |
| Ice Chest No.: ERC-96-012 | Field Logbook No.: EL-1598 7 & 1310 6 | COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | | Bill of Lading/Air Bill No.: SEE OSPC |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | Poly Bag | Poly Bag | | | | | | | | |
| No. of Container(s) | 2 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J112B7 | OTHER SOLID | 2-12-06 | 1200 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|---|
| Relinquished By/Removed From | JAMES BERNHARD | 1900 2-12-06 | EAS LOCKED STORAGE | 1900 2-12-06 |
| Relinquished By/Removed From | EAS LOCKED STORAGE | 0745 02-13-06 | RZ Steffler | 0745 2-13-06 |
| Relinquished By/Removed From | RZ Steffler | 1500 2-13-06 | Fed Ex | |
| Relinquished By/Removed From | Fed-X | | | 2-14-06 |
| Relinquished By/Removed From | | | Received By/Stored In | |
| Relinquished By/Removed From | | | Received By/Stored In | |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

Cooler temp for Chemical analysis = 1.4 °C

B1538-07 Hydrella

B1539-07 Nutsedge/Pickerel

Custody seals intact

F1192-03

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-51 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N | Data Turnaround<br>21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>REF/SEDIMENT | | SAF No.<br>RC-047 | Air Quality ☐ | |
| Ice Chest No. ERC-96-012 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 2 SEB 2-9-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J116N2 | OTHER SOLID | 2-9-06 | 1445 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From<br>JAMES BERNHARD | Date/Time 1830<br>2-9-06 | Received By/Stored In<br>EAS LOCKED STORAGE | Date/Time 1530<br>2-9-06 |
| Relinquished By/Removed From<br>EAS LOCKED STORAGE | Date/Time 02-12-06 0745 | Received By/Stored In<br>R.Z. Steffler | Date/Time 0745<br>2-12-06 |
| Relinquished By/Removed From<br>R.Z. Steffler | Date/Time 1500<br>2-12-06 | Received By/Stored In<br>Fed Ex | Date/Time |
| Relinquished By/Removed From<br>Fed-X | Date/Time | Received By/Stored In<br>Mike Sanmiy | Date/Time<br>2-14-06 1100 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-08 MS Hyalella

B1539-08 MS Nutrient/P-Xchw

custody seals intact

F1192-04

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
Ve=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-43 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N<br>Data Turnaround 21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>Cr9SEDIMENT | | SAF No.<br>RC-047 | Air Quality ☐ |
| Ice Chest No. AFS-04-034 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

~~COOL 4C~~ RZS 2-13-06
Cool 4°C

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | SEE RZ 2-13-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |
| Sample No. / Matrix * / Sample Date / Sample Time | | | | | | | | | | | |
| J116M4 / OTHER SOLID / 2-12-06 / 1400 | X | X | X | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|---|
| Relinquished By/Removed From | JAMES BERNHARD | 2-12-06 1900 | EAS LOCKED STORAGE | 2-12-06 1900 |
| Relinquished By/Removed From | EAS LOCKED STORAGE | 2-12-06 0745 | RZ Steffler | 2-12-06 0745 |
| Relinquished By/Removed From | RZ Steffler | 2-13-06 1500 | Fed Ex | |
| Relinquished By/Removed From | Fed Ex | | | 2-14-06 1100 |
| Relinquished By/Removed From | | | Received By/Stored In | |
| Relinquished By/Removed From | | | Received By/Stored In | |

SPECIAL INSTRUCTIONS

Cooler Temp = 1.4°C

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-09 ms Hyalella
B1539-09 Nutsedge/Pokeweed
Custody seals intact

F1192-05

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Te=Tissue
Wi=Wipe
Liq=Liquid
Ve=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-49 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector TILLER JAMES BERNHARD | Company Contact JOAN KESSNER | Telephone No. 375-4688 | Project Coordinator KESSNER, JH | Price Code 9N | Data Turnaround 21 Days |
| Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location REF/N, SEDIMENT | | SAF No. RC-047 | Air Quality ☐ | |
| Ice Chest No. ERC-96-058 | Field Logbook No. EL-1597 | COA BESRAS6520 | Method of Shipment GROUND TRANSPORT | | |
| Shipped To CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No. SEE OSPC | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | |
|---|---|---|---|
| Preservation | Cool 4C | None | None |
| Type of Container | G/P | P/G | P/G |
| No. of Container(s) | 2 SEE 2-9-06 | 1 | 1 |
| Volume | 1000g | 3000g | 19000g |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 |

| Sample No. | Matrix * | Sample Date | Sample Time | | | |
|---|---|---|---|---|---|---|
| J116N0 | OTHER SOLID | 2-9-06 | 1230 | X | X | X |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From JAMES BERNHARD | Date/Time 2-9-06 1830 | Received By/Stored In EAS LOCKED STORAGE | Date/Time 2-9-06 1830 |
| Relinquished By/Removed From EAS LOCKED STORAGE | Date/Time 02-13-06 0745 | Received By/Stored In RZ Stoffer R.J. Stoffer | Date/Time 2-13-06 0745 |
| Relinquished By/Removed From RZ Stoffer R.J. Stoffer | Date/Time 2-13-06 1500 | Received By/Stored In Fed Ex | Date/Time |
| Relinquished By/Removed From Fed Ex | Date/Time | Received By/Stored In Brett Mulvey | Date/Time 2-14-06 1300 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-10

B1539-10

COC seals intact

F1172-06

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Ve=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-97 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N | Data Turnaround<br>21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>REF//, SEDIMENT FULL QC | | SAF No.<br>RC-047 | Air Quality ☐ | |
| Ice Chest No. ERC-96-058 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 12 SSC 2-9-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11731 | OTHER SOLID | 2-9-06 | 1600 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From JAMES BERNHARD | Date/Time 1830 2-9-06 | Received By/Stored In EAS LOCKED STORAGE | Date/Time 1830 2-9-06 |
| Relinquished By/Removed From EAS LOCKED STORAGE | Date/Time 0745 02-13-06 | Received By/Stored In RZ Stoffler R.Z. Stoffler | Date/Time 0745 2-13-06 |
| Relinquished By/Removed From RZ Stoffler R.Z. Stoffler | Date/Time 1500 WCH 2-13-06 | Received By/Stored In Fed Ex | Date/Time |
| Relinquished By/Removed From Fed Ex | Date/Time | Received By/Stored In Brett Mulkey BRETT Mulkey | Date/Time 1700 2-14-06 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

31532-11

31539-11

COC seals intact

F1192-07

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-44 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector TILLER JAMES BERNHARD | Company Contact JOAN KESSNER | Telephone No. 375-4688 | Project Coordinator KESSNER, JH | Price Code 9N | Data Turnaround 21 Days |
| Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location Cr/OSEDIMENT | | SAF No. RC-047 | Air Quality ☐ | |
| Ice Chest No. ERC-02-501 | Field Logbook No. EL-1597 | COA BESRAS6520 | Method of Shipment GROUND TRANSPORT | | |
| Shipped To CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No. SEE OSPC | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | ~~1~~ 2 2-13-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J116M5 | OTHER SOLID | 2-12-06 | 1530 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Date/Time | Sign/Print Names | Date/Time |
|---|---|---|---|
| Relinquished By/Removed From JAMES BERNHARD | 2-12-06 1600 | Received By/Stored In EAS LOCKED STORAGE | 2-12-06 1600 |
| Relinquished By/Removed From EAS LOCKED STORAGE | 02-13-06 0745 | Received By/Stored In RZ Steffler R.J. Steffler | 2-13-06 0745 |
| Relinquished By/Removed From RZ Steffler R.J. Steffler | 2-13-06 1500 | Received By/Stored In Fed Ex | Date/Time |
| Relinquished By/Removed From Fed Ex | Date/Time | Received By/Stored In Beth Muckey | 2-14-06 1300 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

B1538-12

B1539-12

COC-seals intact

F1192-08

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Ts=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-47 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector TILLER JAMES BERNHARD | Company Contact JOAN KESSNER / Telephone No. 375-4688 | Project Coordinator KESSNER, JH | Price Code 9N / Data Turnaround 21 Days |
| Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location Cr6 SEDIMENT FULL QC | SAF No. RC-047 | Air Quality ☐ |
| Ice Chest No. ERC-02-501 | Field Logbook No. EL-1597 / COA BESRAS6520 | Method of Shipment GROUND TRANSPORT | |
| Shipped To CH2MHILL | Offsite Property No. A060151 | Bill of Lading/Air Bill No. SEE OSPC | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 3 SEE 2-12-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J116M8 | OTHER SOLID | 2-12-06 | 1315 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | |
|---|---|---|
| Relinquished By/Removed From JAMES BERNHARD | Date/Time 1900 2-12-06 | Received By/Stored In EAS LOCKED STORAGE — Date/Time 1900 2-12-06 |
| Relinquished By/Removed From EAS LOCKED STORAGE | Date/Time 0745 02-13-06 | Received By/Stored In RZ Steffler — Date/Time 0745 2-13-06 |
| Relinquished By/Removed From RZ Steffler | Date/Time 1500 2-13-06 | Received By/Stored In Fed Ex — Date/Time |
| Relinquished By/Removed From Fed Ex | Date/Time | Received By/Stored In Brett Minka — Date/Time 1300 2-14-06 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In — Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In — Date/Time |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

31538 - 13

31539 - 13

COC seals intact

F1192-09

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
W/Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

Ship Date: 13FEB06
ActWgt: 72 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**TUE**
Deliver By:
14FEB06

TRK# 7913 7159 9081 FORM 0201

**PDX** AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

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B1538-05-13 & B1539-05-13

From: Origin ID: (509)376-7766
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 13FEB06
ActWgt: 76 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**TUE**
Deliver By:
14FEB06

TRK# 7903 2014 0379 FORM 0201

**PDX** AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

B1539 & B1558-05-13

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 13FEB06
Act Wgt: 26 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**TUE**
Deliver By:
14FEB06

TRK# 7913 7159 9059 FORM 0201

**PDX** AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

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B1538 & B1539 - 05-13

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 13FEB06
ActWgt: 95 LB
System#: 5851986/INET2400
Account#: S ********

REF: A060151

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

**PRIORITY OVERNIGHT**

**TUE**
Deliver By:
14FEB06

TRK# 7903 2014 0368 FORM 0201

**PDX** AA

97339 -OR-US

**86 CVOA**

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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B1538 & B1539 - 05 - 13

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 13FEB06
ActWgt: 78 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**TUE**
Deliver By:
14FEB06

TRK# 7913 7159 9070 FORM 0201

PDX AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

B1538 & B1539 - 05 - 13

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 13FEB06
ActWgt: 88 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**TUE**
Deliver By:
14FEB06

TRK# 7903 2014 0390 FORM 0201

PDX AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

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B 1538 & B 1539 - 05 - 13

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-128 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: TILLER JAMES BERNHARD | Company Contact: JOAN KESSNER | Telephone No.: 375-4688 | Project Coordinator: KESSNER, JH |
| Price Code: 9N | Data Turnaround: 21 Days | Air Quality ☐ | |
| Project Designation: 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location: U5, SEDIMENT | SAF No.: RC-047 | |
| Ice Chest No.: ERC-99-027 | Field Logbook No.: EL-1597 | COA: BESRAS6520 | Method of Shipment: GROUND TRANSPORT |
| Shipped To: CH2MHILL | Offsite Property No.: A060151 | | Bill of Lading/Air Bill No.: SEE OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | JBB 2-13-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11752 | OTHER SOLID | 2-13-06 | 1345 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
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**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| JAMES BERNHARD | 1730 2-13-06 | EAS LOCKED STORAGE | 1730 2-13-06 |
| EAS LOCKED STORAGE | 0700 2-14-06 | RZ Stoffler R.J. Stoffler | 0700 2-14-06 |
| RZ Stoffler R.J. Stoffler | 1600 2-14-06 | Fed Ex | |
| Fed Ex | | TD Thomas Brett Mahony | 11:00 2-16-06 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

3000g logged in as B1539-14 received 2-15-06
19000g logged in as ~~B1539-02~~ B1539-14 received 2-15-06
COC received 2-16-06. COC seals intact @ 3.0°C
1000g containers (2) noted w/COC on 2-16-06
F1207-01 for chemistry

Matrix *: S=Soil; SE=Sediment; SO=Solid; Sl=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Wi=Wipe; L=Liquid; Va=Vegetation; X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-121 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N<br>Air Quality ☐ | Data Turnaround<br>21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>U 6, SEDIMENT | | SAF No.<br>RC-047 | | |
| Ice Chest No. ERC-99-027 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | |
|---|---|---|---|
| Preservation | Cool 4C | None | None |
| Type of Container | G/P | P/G | P/G |
| No. of Container(s) | 1 2-13-06 | 1 | 1 |
| Volume | 1000g | 3000g | 19000g |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDF-04-11 |

| Sample No. | Matrix * | Sample Date | Sample Time | | | |
|---|---|---|---|---|---|---|
| J11745 | OTHER SOLID | 2-13-06 | 1145 | X | X | X |
| | | | | | | |
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**CHAIN OF POSSESSION** — Sign/Print Names

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| JAMES BERNHARD | 1730 2-13-06 | EAS LOCKED STORAGE | 1730 2-13-06 |
| EAS LOCKED STORAGE | 0700 2-14-06 | RZ Steffler RZ Steffler | 2-14-06 / 0700 |
| RZ Steffler RZ Steffler | 1600 2-14-06 | Fed Ex | |
| Fed Ex | | [illegible] Monday | 2-16-06 1100 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

COC seals intact

B1532-15 for Hydrolab (3x1000g)

B1539-15 for Metcalfe / Pikcho (19x1000g)

F1207.02 for Chem lab (2x1000g) @ 3.0°C

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-126 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N<br>Air Quality ☐ | Data Turnaround<br>21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>U 9, SEDIMENT | | SAF No.<br>RC-047 | | |
| Ice Chest No. AFS-04-049 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 58 x 2 2-13-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11750 | OTHER SOLID | 2-13-06 | 1545 | X | X | X | | | | | | | |
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| CHAIN OF POSSESSION | Sign/Print Names | |
|---|---|---|
| Relinquished By/Removed From JAMES BERNHARD Date/Time 2-13-06 1730 | Received By/Stored In EAS LOCKED STORAGE Date/Time 2-13-06 1730 | |
| Relinquished By/Removed From EAS LOCKED STORAGE Date/Time 02-14-06 0700 | Received By/Stored In RZ Stoffler Date/Time 2-14-06 0700 | |
| Relinquished By/Removed From RZ Stoffler Date/Time 2-14-06 1600 | Received By/Stored In Fed Ex Date/Time | |
| Relinquished By/Removed From Fed Ex Date/Time | Received By/Stored In Brett Mackey Date/Time 2-16-06 1100 | |
| Relinquished By/Removed From Date/Time | Received By/Stored In Date/Time | |
| Relinquished By/Removed From Date/Time | Received By/Stored In Date/Time | |

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

COC seals intact

3153B-16 for Hydride (3 cans)

3153B-16 for Nutrients / Pick chem (18 cans)

F1207-03 for Chemistry (2x 1000g) @ 3.0°C

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Ve=Vegetative
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-127 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>U3, SEDIMENT | | SAF No.<br>RC-047 |
| Ice Chest No. AFS-04-049 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC |

Price Code 9N

Air Quality ☐

Data Turnaround 21 Days

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | DS #2 2-13-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11751 | OTHER SOLID | 2-13-06 | 1445 | X | X | X | | | | | | | |
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| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — Sign/Print Names

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| JAMES BERNHARD | 2-13-06 1730 | EAS LOCKED STORAGE | 2-13-06 1730 |
| EAS LOCKED STORAGE | 02-14-06 0700 | RZ Stoffler | 2-14-06 0700 |
| RZ Stoffler | 2-14-06 1600 | Fed Ex | |
| Fed Ex | | Brett Mudley | 2-16-06 1100 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

COC seals intact
B1539-17 for Hydrolic (3000g)
B1539-17 for Nutsedge / Pickchri (1500g)
F1207-04 for Chemistry @ 3.0°C

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-129 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N<br>Air Quality ☐ | Data Turnaround<br>21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>U 7, SEDIMENT | | SAF No.<br>RC-047 | | |
| Ice Chest No. ERC-02-007 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | JBC 2-13-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J11753 | OTHER SOLID | 2-13-06 | 1245 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From<br>JAMES BERNHARD | Date/Time 1730<br>2-13-06 | Received By/Stored In<br>EAS LOCKED STORAGE | Date/Time 1730<br>2-13-06 |
| Relinquished By/Removed From<br>EAS LOCKED STORAGE | Date/Time 0700<br>02-14-06 | Received By/Stored In<br>RZ Stoffler | Date/Time 0700<br>2-14-06 |
| Relinquished By/Removed From<br>RZ Stoffler | Date/Time 1600<br>2-14-06 | Received By/Stored In<br>Fed Ex | Date/Time |
| Relinquished By/Removed From<br>Fed Ex | Date/Time | Received By/Stored In<br>Brett Mulkey | Date/Time 1100<br>2-16-06 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

COC seals intact
D1538-18 for Hydrolic (3000g)
D1539-18 for Nitrogen / Pak Choi (19000g)
F1207-05 for Chemistry @ 3.0°C

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
Ti=Tissue
Wi=Wipe
L=Liquid
Ve=Vegetation
X=Other

| LABORATORY SECTION | Received By | Title | Date/Time |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 14FEB06
ActWgt: 116 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**WED**
Deliver By:
15FEB06

TRK# 7913 7327 4586 FORM 0201

PDX AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Order received 2-10-06

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 14FEB06
ActWgt: 64 LB
System#: 5851986/INET2400
Account#: S *********

REF: A060151

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

LIZ TEPPER
CH2M HILL
APPLIED SCIENCE LABORATORY
2300 NW WALNUT BLVD.
CORVALLIS, OR 97339

PRIORITY OVERNIGHT

WED
Deliver By:
15FEB06

TRK# 7913 7327 4612 FORM 0201

PDX AA

97339 -OR-US

86 CVOA

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

order received 2-16-06

From: Origin ID: (509)376-7768
SHIPPING DEPT
FLUOR HANFORD
2355 STEVENS DR BLDG 1162

RICHLAND, WA 99352

FedEx Express

Ship Date: 14FEB06
ActWgt: 91 LB
System#: 5851966/INET2400
Account#: S *********

REF: A060151

[redacted]

Delivery Address Bar Code

SHIP TO: (541)768-3127 BILL THIRD PARTY

**LIZ TEPPER**
**CH2M HILL**
**APPLIED SCIENCE LABORATORY**
**2300 NW WALNUT BLVD.**
**CORVALLIS, OR 97339**

[redacted]

**PRIORITY OVERNIGHT**

**WED**
Deliver By:
15FEB06

TRK# 7913 7327 4575 FORM 0201

**PDX** AA

97339 -OR-US

**86 CVOA**

[redacted]

Shipping Label

View all labels

Place label in shipping label pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Cooler received 2-16-06

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-80 | Page 1 of 1 |
|---|---|---|---|
| Collector TILLER JAMES BERNHARD | Company Contact JOAN KESSNER / Telephone No. 375-4688 | Project Coordinator KESSNER, JH | Price Code 9N / Data Turnaround 21 Days |
| Project Designation 100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location Sr 3 , SEDIMENT | SAF No. RC-047 | Air Quality ☐ |
| Ice Chest No. ERC-96-014 | Field Logbook No. EL-1597 / COA BESRAS6520 | Method of Shipment GROUND TRANSPORT | |
| Shipped To CH2MHILL | Offsite Property No. A060151 | Bill of Lading/Air Bill No. SEE OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*POTENTIAL RADIOACTIVE <DOT LIMITS*

**Special Handling and/or Storage**

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Coutainer | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | 2 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J116X2 | OTHER SOLID | 2-27-06 | 1130 | X | X | X | | | | | | | | |
| | | | | F1230-31 | B1532-30 | B659-30 | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From JC 21 JAMES BERNHARD | Date/Time 1700 2-27-06 | Received By/Stored In JC 21 EAS LOCKED STORAGE | Date/Time 1700 2-27-06 |
| Relinquished By/Removed From EAS LOCKED STORAGE | Date/Time 0715 03/01/06 | Received By/Stored In RE Steffler R.J. Steffler | Date/Time 0715 3-1-06 |
| Relinquished By/Removed From RE Steffler R.J. Steffler | Date/Time 1600 3-1-06 | Received By/Stored In Fed Ex | Date/Time |
| Relinquished By/Removed From Fed Ex | Date/Time | Received By/Stored In Doug Winn | Date/Time 3-2-06 1230 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

**SPECIAL INSTRUCTIONS**

(1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422

Temp. upon arrival @ lab = 2.7 °C

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-047-77 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>TILLER JAMES BERNHARD | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688 | Project Coordinator<br>KESSNER, JH | Price Code 9N<br>Air Quality ☐ | Data Turnaround<br>21 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>Sr 1, SEDIMENT 300 2-27-06 FULL QC | | SAF No.<br>RC-047 | | |
| Ice Chest No. ERC-96-014 | Field Logbook No.<br>EL-1597 | COA<br>BESRAS6520 | Method of Shipment<br>GROUND TRANSPORT | | |
| Shipped To<br>CH2MHILL | Offsite Property No. A060151 | | Bill of Lading/Air Bill No.<br>SEE OSPC | | |

POSSIBLE SAMPLE HAZARDS/REMARKS

*POTENTIAL RADIOACTIVE <DOT LIMITS*

Special Handling and/or Storage

*COOL 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | None | None | | | | | | | | |
| Type of Container | G/P | P/G | P/G | | | | | | | | |
| No. of Container(s) | X2 300 2-27-06 | 1 | 1 | | | | | | | | |
| Volume | 1000g | 3000g | 19000g | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | Sediment Invertebrate Toxicity ASTM E1706 | Sediment Phytotoxicity EEDP-04-11 | | | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | |
| J116W9 | OTHER SOLID | 2-27-06 | 1000 | X | X | X | | | | | |
| | | | | F12202 02 | 8533-31 | 8539-31 | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | SPECIAL INSTRUCTIONS |
|---|---|---|
| Relinquished By/Removed From: JAMES BERNHARD, Date/Time 2-27-06 1700 | Received By/Stored In: EAS LOCKED STORAGE, Date/Time 2-27-06 1700 | (1) IC Anions - 300.0; Ammonia - 350.3; pH (Soil) - 9045; TOC - 9060; Moisture Content - D2216; Nitrogen by Kjeldahl - 351.2; Particle Size (Dry Sieve) - D422 |
| Relinquished By/Removed From: EAS LOCKED STORAGE, Date/Time 03/01/06 0715 | Received By/Stored In: RZ Steffler, Date/Time 3-1-06 0715 | Temp. upon arrival @ lab = 2.6°C |
| Relinquished By/Removed From: RZ Steffler, Date/Time 3-1-06 1600 | Received By/Stored In: Fed Ex, Date/Time | |
| Relinquished By/Removed From: Fed Ex, Date/Time | Received By/Stored In: Doug Winn, Date/Time 3-2-06 1230 | |
| Relinquished By/Removed From, Date/Time | Received By/Stored In, Date/Time | |
| Relinquished By/Removed From, Date/Time | Received By/Stored In, Date/Time | |

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (08/29/2005)