DATA EVALUATION RECORD

1. **CHEMICAL:** Metolachlor.
    Shaughnessey No. 108801.

2. **TEST MATERIAL:** CGA-154281; I.D. No. FL851341; 99.3% purity.

3. **STUDY TYPE:** 72-4. Freshwater Invertebrate Flow-Through
    Chronic Toxicity Test. Species Tested: *Daphnia magna*.

4. **CITATION:** Hamaker, T.L. 1986. Flow-Through *Daphnia magna*
    Chronic Toxicity Test With CGA-154281. Study No. D801.
    Prepared by Environmental Research and Technology, Inc.,
    Fort Collins, CO. Submitted by Agricultural Division, Ciba-
    Geigy Corporation, Greensboro, NC. EPA MRID No. 400288-29.

5. **REVIEWED BY:**

    Conchi Rodriguez   **Signature:** *Conchi Rodriguez*
    Biologist
    Ecological Effects Branch   **Date:** 6/19/93
    Environmental Fate and Effects Division

6. **APPROVED BY:**

    Harry T. Craven   **Signature:** *Harry T. Craven* 6/19/93
    Supervisor
    Ecological Effects Branch   **Date:**
    Environmental Fate and Effects Division

7. **CONCLUSIONS:** This study does not satisfy the guideline
    requirements for freshwater invertebrate life cycle study.
    A proportional diluter was used to prepare the test
    solutions but the actual test concentrations were not
    verified analytically.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

11. MATERIALS AND METHODS:

A. **Test Animals:** *Daphnia magna* (<24 hours old) were obtained from in-house cultures. The cultures were maintained under static conditions (20°C) and fed algae and trout chow. Adult daphnids were isolated into test dilution water prior to test initiation. Neonates used in testing were obtained from these adults.

B. **Test System:** A closed-cell pressure operated intermittent-flow proportional diluter was used. The test solutions were allowed to flow through the test system for 24 hours prior to test initiation. Flow into the test chambers resulted in greater than five volume replacements. A flow splitting box was used to distribute the test solutions to the four replicate test chambers per concentration.

The test chambers were 1-1 glass beakers with 297-μm screen collars. As fresh solution entered the beakers, the test solution overflowed and was collected in the surrounding aquaria for disposal.

The dilution water was reconstituted water prepared from dechlorinated tap water. The water was adjusted to a hardness of 100 mg/l as $CaCO_3$ with the addition of inorganic salts and aerated before use in the test.

The test stock solution was prepared by dissolving the test material in methanol.

C. **Dosage:** Twenty-one-day flow-through test. Based on the 48-hour EC_{50} (3.5 mg/l, nominal) from a definitive static acute toxicity test, five nominal concentrations (0.088, 0.177, 0.354, 0.707, and 1.414 mg/l), a solvent control, and a dilution water control were used. The solvent control and highest test concentration solutions had a methanol concentration of 100 mg/l.

D. **Design:** Ten daphnids were randomly distributed to each replicate. The daphnids were fed *Selenastrum capricornutum* through a food reservoir.

On days 0, 3, 6, and 8, live and dead daphnids were recorded and dead organisms were removed. Beginning on day 10 and continuing approximately every other day until the end of the test, live and dead adult daphnids were counted and neonates were counted and removed. Chambers were cleaned with a stiff brush and laboratory

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DATA EVALUATION RECORD

1. **CHEMICAL:** Metalochlor.
   Shaughnessey No. 108801.

2. **TEST MATERIAL:** CGA-154281; I.D. No. FL851341; 99.3% purity.

3. **STUDY TYPE:** 72-4. Freshwater Invertebrate Flow-Through Chronic Toxicity Test. Species Tested: *Daphnia magna*.

4. **CITATION:** Hamaker, T.L. 1986. Flow-Through *Daphnia magna* Chronic Toxicity Test With CGA-154281. Study No. D801. Prepared by Environmental Research and Technology, Inc., Fort Collins, CO. Submitted by Agricultural Division, Ciba-Geigy Corporation, Greensboro, NC. EPA MRID No. 400288-29.

5. **REVIEWED BY:**

   Louis M. Rifici, M.S.   **Signature:** *Louis M Rifici*
   Associate Scientist
   KBN Engineering and   **Date:** 3/12/93
   Applied Sciences, Inc.

6. **APPROVED BY:**

   Pim Kosalwat, Ph.D.   **Signature:** P. Kosalwat
   Senior Scientist
   KBN Engineering and   **Date:** 3/12/93
   Applied Sciences, Inc.

   Henry T. Craven, M.S.   **Signature:** *Henry T. Craven*
   Supervisor, EEB/EFED   6/18/93
   USEPA   **Date:**
                                  Conchi Rodriguez 6/28/93

7. **CONCLUSIONS:** This test is not scientifically sound. A proportional diluter was used to prepare the test solutions but the actual test concentrations were not verified analytically. Daphnid growth (length) was significantly reduced at 0.707 and 1.414 mg/l nominal concentration. Therefore, the MATC was >0.354 mg/l and <0.707 mg/l nominal concentration. The geometric mean MATC was 0.50 mg/l nominal concentration.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

detergent once per week. At test termination, surviving adults from each chamber were measured to the nearest 0.1 mm.

Test solution temperature was recorded daily. The dissolved oxygen concentration (DO) was measured twice weekly. Hardness, alkalinity, conductivity, and pH were measured weekly.

E. **Statistics:** The survival of dilution water control and solvent control daphnids was compared using a 2X2 contingency table and Chi-square analysis. Survival in the exposures was compared to the pooled control results using a contingency table and Scheffe's multiple comparison test. Daphnid length was subjected to the F_{max} test to determine homogeneity of variance within each treatment level and control group. Significant differences between the length of the pooled control and the treatment daphnids were determined using one-way analysis of variance (ANOVA) and Dunnett's test. Reproduction in the dilution water control and solvent control was compared using one-way ANOVA. The number of young produced per adult per reproductive day in the exposures was compared to the solvent control using ANOVA. The level of significance in all tests was $p \leq 0.05$.

12. **REPORTED RESULTS:** On day 6, replicate A of the 0.707 mg/l treatment was accidentally discarded. At test termination, survival of daphnids exposed to 1.414 mg/l was significantly reduced compared to survival of daphnids in the pooled controls (Table 3-2, attached). Survival in the remaining treatments was $\geq 76.7\%$ and statistically comparable to the pooled control.

The release of the first brood occurred on day 10 and day 13 for the solvent control and dilution water control groups, respectively. For the treatment groups, the release of the first brood occurred on days 11 through 13. The average number of young produced in the dilution water control and solvent control was 42.6 and 35.8 young, respectively. "Methanol may have depressed the reproductive rate somewhat during this test." Reproduction in the treatment groups was not significantly different from solvent control reproduction (Table 3-3, attached).

Mean length for the pooled control and exposure groups was listed in Table C-3 (attached). Compared to the pooled

3

controls, daphnid length was significantly reduced in the two highest test concentrations after 21 days.

During the test, the DO was 5.1-6.8 mg/l. The pH values were 7.8-7.9 and the conductivity was 319-320 "μmhos/cm^2." The temperature was 19.0-20.8°C. Hardness and alkalinity were 100-102 and 74.5-77.0 mg/l as $CaCO_3$, respectively.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:**
The no-observed-effect concentration (NOEC) and lowest-observed-effect concentration (LOEC) were 0.354 and 0.707 mg/l nominal concentrations, respectively. The geometric mean maximum acceptable toxicant concentration (MATC) was 0.50 mg/l nominal concentration.

The laboratories Quality Assurance officer stated that "The flow-through *Daphnia magna* chronic toxicity test with CGA 154281 was conducted in accordance with Good Laboratory Practice Guidelines."

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. **Test Procedure:** This study is not scientifically sound. Significant deviations from the guidelines are as follows:

A proportional diluter was used to prepare the test solutions but the actual test concentrations were not verified analytically.

Forty percent mortality occurred in the solvent control replicate B. More than 30% mortality in the control is considered unacceptable.

The dilution water was reconstituted water prepared from dechlorinated water. Residual chlorine in the dilution water should have been measured and reported.

No transitional period between light and dark photoperiod was used in the test.

A description of the test material (i.e., physical state, color) was not included in the report.

B. **Statistical Analysis:** Daphnid survival data (arcsine square root transformed), the number of young produced per adult per reproductive day, and daphnid length were analyzed using one-way ANOVA and Bonferroni's test (Toxstat Version 3.3). Survival at 1.414 mg/l was

significantly lower than dilution water control
survival (printout 1). Dilution water control
reproduction and solvent control reproduction were
significantly different. Reproduction at 1.414 mg/l
was significantly lower than dilution water control
reproduction (printout 2). The raw length data were
submitted but illegible, therefore only mean length
could be statistically analyzed. The results were the
same as the author's (printout 3).

C. **Discussion/Results:** The solvent control and highest
test concentration contained the highest concentration
of methanol used in the test (100 mg methanol/l).
Using a density of 0.79 g/ml for methanol (Handbook of
Chemistry and Physics, 55th edition), the maximum
solvent concentration was 0.13 ml/l. Visual inspection
of the means for daphnid survival and reproduction
revealed that responses in the four lowest test
concentrations were more like those of the dilution
water control, than the solvent control. Since these
four lowest concentrations contained much less solvent
than that in the solvent control, the reviewer used the
responses of the dilution water control daphnids for
statistical comparisons. It appears that the
concentration of the solvent may have negatively
affected the reproduction and survival of the daphnids
since these parameters in the solvent control and
highest test concentration were always lower than the
dilution water control. It is possible that only the
length data show any significant effect based on
toxicant exposure.

The reports states that, during the test, the test
containers were cleaned with a stiff brush with
laboratory detergent and rinsed. It is unclear whether
the rinsing was adequate to remove detergent residues
from the containers.

This test is not scientifically sound. A proportional
diluter was used to prepare the test solutions but the
actual test concentrations were not verified
analytically. Daphnid growth (length) was
significantly reduced at 0.707 and 1.414 mg/l nominal
concentration. Therefore, the MATC was >0.354 mg/l and
<0.707 mg/l nominal concentration. The geometric mean
MATC was 0.50 mg/l nominal concentration.

D. **Adequacy of the Study:**

(1) **Classification:** Invalid.

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    (2)   **Rationale:** A proportional diluter was used to prepare the test solutions but the actual test concentrations were not verified analytically.

    (3)   **Repairability:** No.

15.   <u>**COMPLETION OF ONE-LINER FOR STUDY**</u>**:** Yes, 03-04-93.

TABLE 3-2

SUMMARY OF SURVIVAL OF DAPHNIDS AFTER EXPOSURE TO CGA-154281 AT DAYS 6, 13, AND 21

Nominal Concentration (mg/l)	Replicate	Number Alive Beginning	Number and % Alive at Days: 6	13²	21	Mean % Alive at Day 21
Control (0.0)	A	10	10(100)	10(100)	10(100)	90.0
	B	10	10(100)	90(90)	8(80)	
	C	10	10(100)	10(100)	9(90)	
	D	10	10(100)	10(100)	9(90)	
Carrier Control (0.0)	A	10	10(100)	10(100)	80(80)	80.0
	B	10	10(100)	10(100)	6(60)	
	C	10	9(90)	9(90)	9(90)	
	D	10	10(100)	10(100)	9(90)	
1.414	A	10	7(70)	5(50)	4(40)	57.5¹
	B	10	7(70)	5(50)	4(40)	
	C	10	9(90)	9(90)	8(80)	
	D	10	9(90)	9(90)	7(70)	
0.707	A	Accidently Discarded				76.7
	B	10	10(100)	10(100)	8(80)	
	C	10	7(70)	7(70)	7(70)	
	D	10	8(80)	8(80)	8(80)	
0.354	A	10	10(100)	10(100)	10(100)	89.8
	B	9	8(09)	8(09)	0(09)	
	C	10	10(100)	10(100)	8(80)	
	D	10	9(90)	9(90)	9(90)	
0.177	A	10	10(100)	10(100)	9(90)	85.0
	B	9	9(100)	9(100)	9(100)	
	C	10	8(80)	8(80)	7(70)	
	D	10	9(90)	9(90)	8(80)	

3-2

14WORK/I1

...

TABLE 3-2 (CONTINUED)

Nominal Concentration (mg/l)	Replicate	Number Alive Beginning	Number and % Alive at Days: 6	13	21	Mean % Alive at Day 21
0.088		10	10(100)	10(100)	9(90)	87.3
		9	9(100)	9(100)	8(89)	
		10	9(90)	9(90)	9(90)	
		10	10(100)	10(100)	8(80)	

¹Significantly different at α = 0.05 (Scheffe's Test procedure).

²Number of alive daphnids at day 13 were not recorded on day 13. The numbers are inferred from the number of alive at days 12 and 15.

3-5

19WORK/18

TABLE 3-3

SUMMARY OF REPRODUCTIVE SUCCESS OF <u>DAPHNIA</u> <u>magna</u> EXPOSED

TO CGA-154281 IN A 21-DAY CHRONIC TOXICITY

Nominal Concentration (mg/l)	Replicate	No. Young	No. of Reproductive Adults	No. of Adult Reproductive Days	No. of Young Per Adult Per Reproductive Day
Control 0.0	A	446	10	80	5.575
	B	359	9,8	77	4.662
	C	477	10,9	86	5.547
	D	425	10,9	86	4.942
Control Carrier 0.0	A	381	10,8	110	3.464
	B	354	10,6	82	4.317
	C	353	9	108	3.269
	D	346	10,9	114	3.035
1.414	A	143	5,4	41	3.488
	B	176	5,4	46	3.826
	C	353	9,8	95	3.716
	D	334	9,7	80	4.175
0.707	A	--	--	--	--
	B	282	10,8	90	3.133
	C	355	7	63	5.635
	D	303	8	72	4.208
0.354	A	483	10	90	5.367
	B	406	8	72	5.639
	C	339	10,8	82	4.134
	D	414	9	81	5.111

TABLE 3-3 (CONTINUED)

Nominal Concentration (mg/l)	Replicate	No. Young	No. of Reproductive Adults	No. of Adult Reproduction Days	No. of Young Per Adult Per Reproductive Day
0.177		469	10,9	86	5.454
		375	9	81	4.630
		231	8,7	68	3.397
		413	9,8	75	5.507
0.088		369	10,9	95	3.884
		379	9,8	77	4.922
		466	9	81	5.753
		411	10,8	80	5.138

3-7

TABLE C-3

ANOVA OF DAPHNIA ADULT BODY LENGTHS AT DAY 21
(COMBINED CONTROLS VERSUS TREATMENTS)

Nominal Treatment (mg/l)	Reps	Mean	Std. Err.
Con-Combined	68	4.4460	0.0623
0.088	34	4.2507	0.0476
0.177 A	8	4.2750	0.2093
0.177 B	9	4.2933	0.0852
0.177 C	7	4.2964	0.0814
0.177 D	8	4.3688	0.0309
0.354	35	4.3607	0.0372
0.707	23	4.0859	0.0609
1.414	24	4.0844	0.0532

Source		DF	SS	MS	F	P
Total		216	4030.22			
Mean		1	3997.71			
	Total (Adj)	215	32.51			
	Between	8	3.88	0.4848	3.501	0.001
	Error	207	28.64	0.1383		

Error Variance: 1340520186E-01 $F(\alpha = 0.05; 3,207) = 1.94$

Summary: Since 3.501 > 1.94 the Ho: that μc = μt is rejected and the combined
control group and treatments are different.

$(\alpha = 0.05)$

14WORK/J2   C-3

400288-29, metalochlor, daphnid survival
File: a:400288.29   Transform: ARC SINE(SQUARE ROOT(Y))

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

Bartletts test for homogeneity of variance
Data PASS homogeneity test at 0.01 level. Continue analysis.

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	6	0.392	0.065	3.160
Within (Error)	20	0.413	0.021	
Total	26	0.805		

Critical F value = 2.60 (0.05,6,20)
Since F > Critical F REJECT Ho:All groups equal

BONFERRONI T-TEST — TABLE 1 OF 2   Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	dilution contrl	1.254	0.900		
2	solvent contrl	1.123	0.800	1.294	
3	0.088	1.178	0.850	0.750	
4	0.177	1.149	0.825	1.035	
5	0.354	1.219	0.875	0.349	
6	0.707	1.068	0.767	1.693	
7	1.414	0.867	0.575	3.811	*

Bonferroni T table value = 2.61   (1 Tailed Value, P=0.05, df=20,6)

BONFERRONI T-TEST — TABLE 2 OF 2   Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	dilution contrl	4			
2	solvent contrl	4	0.205	22.8	0.100
3	0.088	4	0.205	22.8	0.050
4	0.177	4	0.205	22.8	0.075
5	0.354	4	0.205	22.8	0.025
6	0.707	3	0.225	25.0	0.133
7	1.414	4	0.205	22.8	0.325

400288-29, metalochlor, daphnid reproduction
File: a:40028829.dt2   Transform: NO TRANSFORMATION

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

Bartletts test for homogeneity of variance
Data PASS homogeneity test at 0.01 level. Continue analysis.

```
         t-test of Solvent and Blank Controls        Ho:GRP1 MEAN = GRP2 MEAN
-------------------------------------------------------------------------------
  GRP1 (SOLVENT CRTL) MEAN =    5.1815     CALCULATED t VALUE =    4.6162
  GRP2 (BLANK CRTL) MEAN   =    3.5213     DEGREES OF FREEDOM =    6
  DIFFERENCE IN MEANS      =    1.6602
-------------------------------------------------------------------------------
TABLE t VALUE (0.05 (2), 6) =  2.447**   SIGNIFICANT DIFFERENCE at alpha=0.05
TABLE t VALUE (0.01 (2), 6) =  3.707**   SIGNIFICANT DIFFERENCE at alpha=0.01
```

```
                              ANOVA TABLE
-------------------------------------------------------------------------------
SOURCE              DF            SS            MS            F
-------------------------------------------------------------------------------
Between             6           9.958         1.660        3.027
Within (Error)     20          10.966         0.548
-------------------------------------------------------------------------------
Total              26          20.924
-------------------------------------------------------------------------------
  Critical F value =   2.60   (0.05,6,20)
  Since  F > Critical F  REJECT  Ho:All groups equal
```

```
      BONFERRONI T-TEST    -   TABLE 1 OF 2              Ho:Control<Treatment
-------------------------------------------------------------------------------
                          TRANSFORMED    MEAN CALCULATED IN
GROUP    IDENTIFICATION      MEAN         ORIGINAL UNITS    T STAT   SIG
-----  ------------------  -----------   ------------------  ------   ---
  1       dilution contrl    5.181           5.181
  2       solvent contrl     3.521           3.521           3.171    *
  3                0.088     4.924           4.924           0.491
  4                0.177     4.747           4.747           0.830
  5                0.354     5.063           5.063           0.227
  6                0.707     4.325           4.325           1.514
  7                1.414     3.801           3.801           2.636    *
-------------------------------------------------------------------------------
Bonferroni T table value =  2.61     (1 Tailed Value, P=0.05,  df=20,6)
```

```
      BONFERRONI T-TEST    -   TABLE 2 OF 2              Ho:Control<Treatment
-------------------------------------------------------------------------------
                          NUM OF   Minimum Sig Diff  % of     DIFFERENCE
GROUP    IDENTIFICATION    REPS    (IN ORIG. UNITS)  CONTROL  FROM CONTROL
-----  ------------------  ------  ----------------  -------  ------------
  1       dilution contrl    4
  2       solvent contrl     4         1.368          26.4       1.660
  3                0.088     4         1.368          26.4       0.257
  4                0.177     4         1.368          26.4       0.434
  5                0.354     4         1.368          26.4       0.119
  6                0.707     3         1.478          28.5       0.856
  7                1.414     4         1.368          26.4       1.380
-------------------------------------------------------------------------------
```

400288-29, metalochlor, mean daphnid length
File: a:40028829.dt3   Transform: NO TRANSFORMATION

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

Bartletts test for homogeneity of variance
Data PASS homogeneity test at 0.01 level. Continue analysis.

```
          t-test of Solvent and Blank Controls        Ho:GRP1 MEAN = GRP2 MEAN
---------------------------------------------------------------------------
GRP1 (SOLVENT CRTL) MEAN =     4.4153    CALCULATED t VALUE =     0.3402
GRP2 (BLANK CRTL) MEAN   =     4.3929    DEGREES OF FREEDOM =     6
DIFFERENCE IN MEANS      =     0.0224
---------------------------------------------------------------------------
TABLE t VALUE (0.05 (2), 6) = 2.447    NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 6) = 3.707    NO significant difference at alpha=0.01
```

```
                          ANOVA TABLE
---------------------------------------------------------------------------
SOURCE           DF           SS              MS            F
---------------------------------------------------------------------------
Between          6            0.472           0.079         4.673
Within (Error)   20           0.337           0.017
---------------------------------------------------------------------------
Total            26           0.809
---------------------------------------------------------------------------
  Critical F value =   2.60  (0.05,6,20)
  Since  F > Critical F  REJECT  Ho:All groups equal
```

```
      BONFERRONI T-TEST   -   TABLE 1 OF 2           Ho:Control<Treatment
---------------------------------------------------------------------------
                         TRANSFORMED   MEAN CALCULATED IN
GROUP    IDENTIFICATION     MEAN       ORIGINAL UNITS   T STAT  SIG
-----  ----------------   -----------  -----------------  ------  ---
  1       dilution contrl   4.415            4.415
  2       solvent contrl    4.393            4.393         0.244
  3                0.088    4.255            4.255         1.745
  4                0.177    4.312            4.312         1.125
  5                0.354    4.358            4.358         0.625
  6                0.707    4.091            4.091         3.277   *
  7                1.414    4.051            4.051         3.973   *
---------------------------------------------------------------------------
Bonferroni T table value = 2.61    (1 Tailed Value, P=0.05,  df=20,6)
```

```
      BONFERRONI T-TEST   -   TABLE 2 OF 2           Ho:Control<Treatment
---------------------------------------------------------------------------
                         NUM OF   Minimum Sig Diff  % of    DIFFERENCE
GROUP    IDENTIFICATION   REPS   (IN ORIG. UNITS)  CONTROL  FROM CONTROL
-----  ----------------  ------- -----------------  -------  ------------
  1       dilution contrl   4
  2       solvent contrl    4          0.240          5.4      0.022
  3                0.088    4          0.240          5.4      0.160
  4                0.177    4          0.240          5.4      0.103
  5                0.354    4          0.240          5.4      0.057
  6                0.707    3          0.259          5.9      0.325
  7                1.414    4          0.240          5.4      0.365
---------------------------------------------------------------------------
```

TITLE: 400288-29, metalochlor, daphnid survival
FILE: a:400288.29
TRANSFORM: ARC SINE(SQUARE ROOT(Y))   NUMBER OF GROUPS: 7

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	dilution contrl	1	1.0000	1.4120
1	dilution contrl	2	0.8000	1.1071
1	dilution contrl	3	0.9000	1.2490
1	dilution contrl	4	0.9000	1.2490
2	solvent contrl	1	0.8000	1.1071
2	solvent contrl	2	0.6000	0.8861
2	solvent contrl	3	0.9000	1.2490
2	solvent contrl	4	0.9000	1.2490
3	0.088	1	0.9000	1.2490
3	0.088	2	0.8000	1.1071
3	0.088	3	0.9000	1.2490
3	0.088	4	0.8000	1.1071
4	0.177	1	0.9000	1.2490
4	0.177	2	0.9000	1.2490
4	0.177	3	0.7000	0.9912
4	0.177	4	0.8000	1.1071
5	0.354	1	0.8000	1.1071
5	0.354	2	1.0000	1.4120
5	0.354	3	0.8000	1.1071
5	0.354	4	0.9000	1.2490
6	0.707	1	0.8000	1.1071
6	0.707	2	0.7000	0.9912
6	0.707	3	0.8000	1.1071
7	1.414	1	0.4000	0.6847
7	1.414	2	0.4000	0.6847
7	1.414	3	0.8000	1.1071
7	1.414	4	0.7000	0.9912

TITLE: 400288-29, metalochlor, daphnid reproduction
FILE: a:40028829.dt2
TRANSFORM: NO TRANSFORMATION   NUMBER OF GROUPS: 7

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	dilution contrl	1	5.5750	5.5750
1	dilution contrl	2	4.6620	4.6620
1	dilution contrl	3	5.5470	5.5470
1	dilution contrl	4	4.9420	4.9420
2	solvent contrl	1	3.4640	3.4640
2	solvent contrl	2	4.3170	4.3170
2	solvent contrl	3	3.2690	3.2690
2	solvent contrl	4	3.0350	3.0350
3	0.088	1	3.8840	3.8840
3	0.088	2	4.9220	4.9220
3	0.088	3	5.7530	5.7530
3	0.088	4	5.1380	5.1380
4	0.177	1	5.4540	5.4540
4	0.177	2	4.6300	4.6300
4	0.177	3	3.3970	3.3970
4	0.177	4	5.5070	5.5070
5	0.354	1	5.3670	5.3670
5	0.354	2	5.6390	5.6390
5	0.354	3	4.1340	4.1340
5	0.354	4	5.1110	5.1110
6	0.707	1	3.1330	3.1330
6	0.707	2	5.6350	5.6350
6	0.707	3	4.2080	4.2080
7	1.414	1	3.4880	3.4880
7	1.414	2	3.8260	3.8260
7	1.414	3	3.7160	3.7160
7	1.414	4	4.1750	4.1750

TITLE: 400288-29, metalochlor, mean daphnid length
FILE: a:40028829.dt3
TRANSFORM: NO TRANSFORMATION   NUMBER OF GROUPS: 7

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	dilution contrl	1	4.4925	4.4925
1	dilution contrl	2	4.3688	4.3688
1	dilution contrl	3	4.4667	4.4667
1	dilution contrl	4	4.3333	4.3333
2	solvent contrl	1	4.5000	4.5000
2	solvent contrl	2	4.4550	4.4550
2	solvent contrl	3	4.3583	4.3583
2	solvent contrl	4	4.2583	4.2583
3	0.088	1	4.0750	4.0750
3	0.088	2	4.3594	4.3594
3	0.088	3	4.2833	4.2833
3	0.088	4	4.3031	4.3031
4	0.177	1	4.3000	4.3000
4	0.177	2	4.2833	4.2833
4	0.177	3	4.2964	4.2964
4	0.177	4	4.3688	4.3688
5	0.354	1	4.3725	4.3725
5	0.354	2	4.3500	4.3500
5	0.354	3	4.2844	4.2844
5	0.354	4	4.4250	4.4250
6	0.707	1	3.9844	3.9844
6	0.707	2	4.2000	4.2000
6	0.707	3	4.0875	4.0875
7	1.414	1	4.2300	4.2300
7	1.414	2	3.6750	3.6750
7	1.414	3	4.0875	4.0875
7	1.414	4	4.2107	4.2107