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DER on Partial Chronic Toxicity of Atrazine TAI to Freshwater Invertebrates - Daphnia pulicaria PMRA Submission Number EPA MRID Number 452995-04

Atrazine FL-931480 (Batch # SG 302011 BA)

Data Requirement:

Test material:

PMRA DATA CODEEPA DP BarcodeDOECD Data PointEPA MRID452995-04EPA GuidelineSpecial Study 70-1

Purity: 98.2 % a.i.

Common name: Atrazine Chemical names: IUPAC: 6-Chloro-N-ethyl-N-isopropyl-1,3,5-triazine-2,4-diamine CAS name: CAS No.: 1912 - 24 - 9 Synonyms: Aatrex, Atranex, Atratef, Crisazina, Gesaprim, Herbitrin, Posmil, Sanazin, Trac

Primary Reviewer: William S. Rabert William S. Rabert Date: May 10, 2002 US EPA, OPPTS, OPP, EFED, ERBIII

Secondary Reviewer(s): Thomas Steeger Thomas M Streyer Date: 5/13/02 US EPA, OPPTS, OPP, EFED, ERBI

Reference/Submission No.: Company Code: Active Code: EPA PC Code: 080803 Date Evaluation Completed: 15 - 4 - 02

<u>CITATION</u>: Timothy J. Madsen. 2000. Effects of atrazine on the sex ratio of *Daphnia pulicaria*. Prepared by ABC Laboratories, Inc., Columbia, Missouri, ABC Study Number 45810; Submitted by Novartis Crop Protection, Inc., Greensboro, NC; October 2, 2000.

EXECUTIVE SUMMARY:

The 12-day partial chronic atrazine toxicity study with 3 to 4-day old *Daphnia pulicaria* was conducted under flowthrough conditions. Daphnids were exposed to a control, solvent control, and mean measured atrazine concentrations of 0.93, 4.1, 8.7, 44, and 87 µg a.i/L. The concentration of the solvent dimethylformamide was not reported. The solvent control significantly differed ($p \le 0.05$) from the control (i.e., more young per replicate and reduced adult body length). The 12-day LC_{50}/EC_{50} based on mortality/sublethal effect was > 87 µg a.i/L. The 12-day NOAEC based on reduced adult survival was 8.7 µg/L compared to the DMF Control. The sublethal effects included were reduced body length at 87 µg a.i/L compared to the solvent control. Production of offsprings in the treated groups indicated that atrazine had an indirect effect on the reproduction due to adult mortalities at concentrations greater than 8.7mg a.i/L. The most sensitive endpoint was adult survival (NOAEC 8.7 µg ai./L; 44 µg ai./L).

Although, it is implied that these data contradict the Dodson *et al.* (1999) study; the conditions for the test differ. Therefore, the test results are not comparable. The Dodson study employed stressful conditions intended to yield male daphnids. Therefore, test animals were intentionally crowded (8/30 ml), light cycles were short (6 hours light and 18 hours dark) and the artificial media was double strength. Further, young daphnids were not evaluated until after at least 3 days exposure. Also, the indices evaluated in the Dodson study were calculated differently from this study. The only comparable index measured was the sex ratio.

This study is classified as scientifically unsound and it does not satisfy guideline requirements for a chronic toxicity study with freshwater invertebrates. The test produced no male offspring. Since atrazine endocrine effects are typically demasculinization and the daphnids in this study are females, it is reasonable that this study did not have endocrine effects on *Daphnia pulicaria* females.



Results Synopsis

Test Organism Age (eg. 1st instar): 3- to 4-days old, Instar stage is unknown. Test Type (Flow-through): Flow-through. NOAEL: 8.7 μg a.i./L LOAEC: 44 μg a.i./L Endpoint Effected: Adult survival.

I. MATERIALS AND METHODS

<u>GUIDELINE FOLLOWED</u>: The study did not specify any particular guideline (Special Study 70-1)

- 1. The test species was Daphnia pulicaria rather than the required species, Daphnia magna.
- 2. The test began with daphnids 3- to 4-days old, rather than \leq 24 hours old.
- 3. Duration of study was a subacute test of 12 days rather than the typical 21-day Daphnia magna life cycle study.
- The dilution water was moderately hard (130-160 mg/L as CaCO₃) rather than the benchmark soft water (40-48 mg/L CaCO₃).
- 5. The dilution water was biologically aged and passed through a polypropylene cartridge filter and ultraviolet sterilizer before going to the proportional diluter. Total organic carbon and particulate matter levels in the dilution water were not reported. Fluoride levels were high (i.e., 0.55 mg/L).
- 6. The pH level ranged from 8.51 to 8.66 in the controls and 7.96 to 8.5 in the treatments which is higher than the recommended range of 7.2 to 7.6.
- 6. Control mortality was 14 percent, which exceeds the limit of 10 percent mortality.

COMPLIANCE:	The Good Laboratory Procedures, Quality Assurance, and Data Confidentiality
	statements were signed and dated.

A. MATERIALS:

<u>1. Test Material</u> Atrazine received from Novartis Crop Protectin, Inc., on Dec. 7, 1999.

Description: Atrazine (FL-931480) Chemical state of the test material was not reported.

Lot No./Batch No.: SG 302011 BA

Purity: 98.2 %

Stability of Compound: Stability was not stated; the expiration date was cited as August 31, 2001. **Under Test Conditions:**

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(OECD requires water solubility (33 mg/L), stable in water, light half-life (335 days), pKa, Pow (87.78), vapor pressure of test compound (3 x 10^{-7})
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Storage conditions of test chemicals:

Stored at room temperature.

2. Test organism:

Species:	Daphnia pulicaria (EPA/OECD require <u>Daphnia magna</u>)
Age of the parental stock:	Gravid females (16 to 23 days old).
Source:	Supplied by University of Guelph, Canada

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3. <u>Study Objective:</u> The primary objective was to determine the effect of atrazine on the sex ratio of young Daphnia pulicaria produced during a part ial life cycle exposure conducted under flow-through conditions. Additionally, the total number of offspring produced and the survival and growth of adult females were measured.

B. <u>STUDY DESIGN</u>: <u>1. Experimental Conditions</u>

a) Range-finding Study: No range-finding study.

b. Definitive Study:

Table 1. Experimental Parameters

Parameter	Details	Remarks	
		Criteria	
Parental acclimation: period: conditions: (same as test or not) Feeding: Health: (any mortality observed)	Not reported. Similar temperature and water hardness; other parameters not reported. Fed approx. 2 x 10 ⁶ cells/mL (<i>Selenastrum capricornutum</i> and/or <i>Ankistrodesmus falcatus</i>).	Acclimation period was not specified, but was at least 3 days.	
<u>Test condition</u> : static renewal/flow through: Type of dilution system - for flow through method. Renewal rate for static renewal	Flow-through test. Two Hamilton syringe injectors into mixing chamber. 7.4 volumes per 24 hours. N/A		
Aeration, if any	Test solutions were not aerated during the test		
Chemical properties	None reported.	None reported.	
		(OECD requires water solubility, stability in water and light, pKa, Pow, vapor pressure of test compound)	
Duration of the test	12 days	21 days: Shortened life cycle test.	
<u>Test vessel</u> Material: (glass/stainless steel Size (for growth and reproduction/survival test): Fill volume:	Borosilicate beakers. 1 liter test chamber (10 cm diameter x 15 cm high with solution depth of 12 cm. 1,000 mL (1 daphnid/100 ml).	Okay. 1. <u>Material</u> : Glass, No. 316 stainless steel, or perfluorocarbon plastics 2. <u>Size</u> : 250 ml with 200 ml fill volume is preferred; 100 ml with 80 ml fill volume is acceptable. OECD requires parent animals be maintained individually, one per vessel, with 50-100 ml of medium in each vessel.	

Parameter	Details	<u>Remarks</u> Criteria
Source of dilution water	Deep well water mixed with a portion from reverse osmosis, biologically aged and then filtered through polypropylene	Biologically aged water is inappropriate source of dilution water, especially when water quality measurements are incomplete and inadequate.
	cartridge and ultraviolet sterilizer.	Unpolluted well or spring that has been tested for contaminants, or appropriate reconstituted water (see ASTM for details).
Water parameters: Hardness pH Dissolved oxygen	146 - 154 mg/L 7.96 - 8.66 3.89 - 8.47 mg O ₂ /L (DO dropped	Analysis is incomplete and many levels of detection are inadequate. Fluoride level is high.
Temperature Total Organic Carbon Particulate matter Metals Pesticides Chlorine	below 60% saturation in some atrazine treated beaker by Day 6). 20.5 to 21.7°C Not reported. Not reported. Levels of detection are inadequate for all metals. all less than 1.0 μ g/L. Not reported. Fluoride conc.: 0.59 mg/L is too high. (Stephan, 1975; <100 μ g/L)	EPA requires: hardness 160 to 180 mg/L as $CaCO_3$; OECD requires > 140 mg/L as $CaCO_3$ pH 7.6 to 8.0 is recommended. Must not deviate by more than one unit for more than 48 hours. OECD requires pH range 6 - 9 and should not vary more than 1.5 units in any one test. Dissolved Oxygen <u>Renewal</u> : must not drop below 50% for more than 48 hours. <u>Flow-through</u> : $\geq 60\%$ throughout test. Temperature: 20°C ± 2 °C. Must not deviate from 20°C by more than 5°C for more than 48 hours. OECD requires range 18 - 22°C; temperature should not vary more than ± 2 °C OECD requires total organic carbon < 2 mg/L
Experimental Design: Number of Treatments: Controls Number of replicates	5 treatments. Negative and DMF controls. 8 Replicates.	Okay. EPA requires Control(s) and at least 5 test concentrations; dilution factor not greater than 50%. OECD requires at least 5 test concentrations in a geometric series with a separation factor not exceeding 3.2.
<u>Number of organisms:</u> For growth and reproduction: For survival test:	8 replicates/treatment. 10 Daphnids per replicate. 80 Daphnids per treatment.	Okay. 22 daphnids/level; 7 test chambers should contain 1 daphnid each, and 3 test chambers should contain 5 daphnids each. OECD requires minimum of 10 daphnids held individually for static tests. For flow-through tests, 40 animals divided into 4 groups of 10 animals at each test concentration.

Parameter	Details	Remarks
Application rates nominal: measured:	Up to 4 lbs ai./A. 0, 1, 5, 10, 50 and 100 μg/L. < 0.05, 0.93, 4.1, 8.7, 44 and 87 μg/L.	Okay.
Solvent (type, percentage, if used)	Dimethylformamide – 100 µL/L.	Okay. EPA requires: solvent not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests. Acceptable solvents are dimethylforma- mide, triethylene glycol, methanol, acetone and ethanol. OECD requires ≤ 0.1 ml/L
Lighting	16 hours light: 8 hours dark. 408 to 556 lux	Okay. EPA/OECD requires: 16 hours light, 8 hours dark.
Stability of chemical in the test system	Range of concentrations within 5% of mean concentration, except for the highest level – up to 14%.	Okay.
Other parameters, if any	About 7.4 volumes per 24 hours.	Okay. Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period.

2. Observations:

Table X: Observations

Criteria	Details	Remarks		
		<u>Criteria</u>		
Data end points measured (list)	Adult Survival Male to Female ratio Number of young Number of young per female reproductive day Day of first brood release Adult body length	Dry weight endpoint requirement not fulfilled. EPA requires: - Survival of first-generation daphnids, - Number of young produced per female, - Dry weight (required) and length (optional) of each first generation daphnid alive at the end of the test, - Observations of other effects or clinical signs.		

Observation intervals	Observations of abnormal physical appearance, neonate production and mortality/ immobility were recorded daily, but only reported as of Day 12. Days 0, 6 and 12 for T, pH & DO.	Okay.
Were raw data included?	Yes.	Okay.
Other observations, if any	Sex determinations were made.	Okay.

II. RESULTS AND DISCUSSION

A. <u>MORTALITY</u>: Control mortalities (14 percent) were less than 30 percent limit. Mortalities occurred in all treatments, but they were erratic and showed no dose-related effect. Mortality at 44 and 87 μ g ai/L was statistically significantly (p < 0.05) higher than the solvent control. The 12-day LC₅₀ was greater than the highest test concentration, 87 μ g/L. Few replicates produced 40 daphnids per adult, but the test was conducted for only 12 days, not the required 21 days.

Table 1: Effect of atrazine on growth and survival of Daphnia pulicaria.

Treatment (µg a.i./L) [record measured and		Mortality (Dead or Immobile)		Mean Days to	Total Number of	Male: Female Ratio	Mean Daphnid
nominal	conc. used]	No. Dead	%	First Brood	Young (Y/Rep)		Length (mm)
DMF Cont (0.1 ml/L)	rol	3	3.8	5	2834 (354)	0.0	2.1
Negative co used	ontrol, if	111	14 ¹	5	2132 ² (355)	0.0	2.4
1.0	0.93	7	8.8	4	2854 (357)	0.0	2.1
5.0	4.1	4	5.0	5	3472 (434)	0.0	2.2
10	8.7	6	7.5	5	3708 (464)	0.0	2.2
50	44	213	26	5	2475 (309)	0.0	2.1
100	87	123	15	5	2390 (299)	0.0	2.0
NOAEC		8.7 μ _į	g/L	87 μg/L	87 μg/L	87 μg/L	44 µg/L
LOAEC 44 µg/L		> 87 µg/L	> 87 µg/L	> 87 µg/L	87 μg/L		

¹ Negative controls with statistically more mortalities than DMF controls, therefore analyses of treatments were made with the solvent control.

² The count for two control replicates were uncertain and therefore they were not reported.

³ Treatment mortality statistically lower than solvent controls.

B. EFFECT ON REPRODUCTION:

No male daphnid offspring were produced in any of the treatments; therefore the male:female ratio is zero.

The lower number of offspring at the two highest test concentrations appear to be due to higher mortality but the differences were not significantly different from the solvent control due to high variability in the replicates The NOAEC is $87 \ \mu g ai./L$ and the LOAEC is $> 87 \ \mu g ai./L$.

The mean adult body length at 87 μ g ai./L was statistically different (p < 0.05) from the solvent control (NOAEC, 44 μ g ai./L and the LOAEC, 87 μ g ai./L). This is a special study 70-1. Since the adult dry body weight was not measured and the test was limited to 12 days, this study would no fulfill the OPP test guideline 72-4(b).

Based on the solvent control, the most sensitive endpoint was adult mortality (NOAEC, 8.7 μ g ai./L and the LOAEC, 44 μ g ai./L).

C. <u>**REPORTED STATISTICS</u>**: The following endpoints were measured and analyzed for statistical significance: adult mortality, adult body length, and the number of young. The NOAEC and LOAEC values are listed at the bottom of the columns in the above table.</u>

D. VERIFICATION OF STATISTICAL RESULTS:

Statistical Method: ANOVA and Williams Test

12-day LC_{50} > 87 µg ai./L	95% C.I.: N/A
NOAEC: 8.7 μg ai. /L	LOAEC: 44 μ g ai./L (Adult mortality)
Probit Slope: N/A	95% C.I.: N/A

E. STUDY DEFICIENCIES: The use of "biologically aged water" as the dilution water is unacceptable, because the water quality of the dilution water is unknown (i.e., TOC, particulate matter and other contaminant levels were not reported for the biologically-aged, dilution water. The test was conducted for 12 days rather than the required 21 days. Adult dry body weight was not measured as an endpoint as required. The above items are major deficiencies which render the test results incomplete and uncertain. This study is invalid.

F. <u>**REVIEWER'S COMMENTS:**</u> Compared to the solvent control and most treatments, the blank control had unexplained high mortality (14 percent). The collection of young from two replicates of the blank controls were mixed and had to be omitted from the statistical analysis of the number of young. Dose-response curves were erratic for adult mortality and the total number of young.

G. <u>CONCLUSIONS</u>: This study was not performed using good scientific practices. The "biologically aged water" is inappropriate as the dilution water, unless all water quality criteria are measured for each batch of aged water. The study showed no evidence of endocrine effects, but if atrazine has a mode of action of demasculinization, the effects would not be found in this daphnid study with all females. If the intent of this study was to 'refute' the Dodson *et al.* (1999) study, the test conditions were not similar (i.e., the daphnids were not tested with the environmental stresses employed in the Dodson *et al.* study).

This special study was not intended to and does not meet the test requirement for an aquatic invertebrate life cycle test for the following reasons. The test period was of insufficient duration (12 days rather than 21 days) and the required endpoint for adult dry body weight was not measured.

The atrazine concentrations were measured using the InsiteTM atrazine plate kit (Beacon Analytical Systems, Portland, ME. The limit of quantification for atrazine in the control and solvent control was $0.05 \ \mu g/L$.

III. <u>**REFERENCES:**</u> [Provide references that were cited in the study report: studies in the open literature, references to other study reports in the submission or other studies conducted by the proponent. Do not include references to standard guidelines or methodologies.]

Dodson, S. I., C. M. Merritt, L. Torrentera, J. Shannahan and C. M. Shults. 1999. Low exposure concentrations of

atrazine increase male production in Daphnia pulicaria. Environmental Toxicology and Chemistry 18(7):1568-1573.

Dodson, S. I., C. M. Merritt, L. Torrentera, K. M. Winter, C. K. Tonehl and K. Girvin. 1999. Toxicology and Industrial Health 15:192-199.

The SAS System for Windows. Release 6.12 Copyright 1989-1996 by SAS Institute Inc., Cary, N.C. 27513, USA.

Zar, J. H. 1984. Biostatistical Analysis. Second Ed., Prentice-Hall, Inc. Englewood Cliffs, NJ.

Conover, W. J. 1980. Pratical [sic] nonparametric statistics. 2nd Edition.

Millikian, G. A. and D. E. Johnson. 1984. Analysis of messy data. Vol. 1. p. 22 [Vol. 1. Designed Experiments. Chapman and Hall, London]

The Reviewer's analyses of the test results are presented below.

TITLE: Atrazine - Daphnia pulicaria Partial Life Cycle - Adult Survival

Transform: LOG BASE 10(Y)

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GROUP1 (SOLVENT CONTROL) MEAN = 0.9822 CALCULATED t VALUE = 1.7484 GROUP2 (BLANK CONTROL) MEAN = 0.9302 DEGREES OF FREEDOM = 14 DIFFERENCE IN MEANS = 0.0520

TABLE t VALUE (0.05 (2), 14) = 2.145NO significant difference at alpha=0.05TABLE t VALUE (0.01 (2), 14) = 2.977NO significant difference at alpha=0.01

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44.1810.00001.000058.7110.00001.000058.7210.00001.0000	4	4.1	6	10.0000	1.0000		
5 8.7 1 10.0000 1.0000 5 8.7 2 10.0000 1.0000	4	4.1	7	9.0000	0.9542		
5 8.7 2 10.0000 1.0000		4.1	8	10.0000	1.0000		
		8.7	1	10.0000	1.0000		
5 8.7 3 9.0000 0.9542	5			10.0000	1.0000		
	5	8.7	3	9.0000	0.9542		

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5	8.7	4	8.0000	0.9031	
5	8.7	5	10.0000	1.0000	
5	8.7	6	9.0000	0.9542	
5	8.7	7	9.0000	0.9542	
5	8.7	8	9.0000	0.9542	
6	44	1	7.0000	0.8451	
6	44	2	5.0000	0.6990	
6	44	3	8.0000	0.9031	
6	44	4	9.0000	0.9542	
6	44	5	7.0000	0.8451	
6	44	6	9.0000	0.9542	
6	44	7	4.0000	0.6021	
6	44	8	10.0000	1.0000	
7	87	1	9.0000	0.9542	
7	87	2	10.0000	1.0000	
7	87	3	10.0000	1.0000	
7	87	4	9.0000	0.9542	
7	87	5	9.0000	0.9542	
7	87	6	3.0000	0.4771	
7	87	7	9.0000	0.9542	
7	87	8	9.0000	0.9542	

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GROUP	IDENTIFICATION	N	MIN	MAX	MEAN	
1	DMF Control	8	0.903	1.000	0.982	
2	Control	8	0.778	1.000	0.930	
3	0.93	8	0.778	1.000	0.954	
4	4.1	8	0.954	1.000	0.977	
5	8.7	8	0.903	1.000	0.965	
6	44	8	0.602	1.000	0.850	
7	87	8	0.477	1.000	0.906	

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GROUP	IDENTIFICATION	VARIANCE	SD	SEM	
1	DMF Control	0.001	0.036	0.013	
2	Control	0.006	0.076	0.027	
3	0.93	0.006	0.079	0.028	
4	4.1	0.001	0.024	0.009	
5	8.7	0.001	0.034	0.012	
6	44	0.019	0.137	0.048	
7	87	0.030	0.175	0.062	

	ANC	OVA TABLE		
SOURCE	DF	SS	MS	F
Between	6	0.106	0.018	2.000
Within (Error)	49	0.450	0.009	
Total	55	0.556		

Critical F value = 2.34 (0.05,6,40); Since F < Critical F FAIL TO REJECT Ho: All groups equal

DUNNETTS TEST - TABLE 1 OF 2 Ho: Control < Treatment

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DER on Partial Chronic Toxicity of Atrazine TAI to Freshwater Invertebrates - Daphnia pulicaria PMRA Submission Number EPA MRID Number 452995-04

	``````````````````````````````````````	TRANSFORMED	MEAN	CALCULATED	T STAT
GROUP	<b>IDENTIFICATION</b>	MEAN	ORIGINAL	IN UNITS	SIG
1	DMF Control	0.982	9.625		
2	Control	0.930	8.625	1.095	
3	0.93	0.954	9.125	0.585	
4	4.1	0.977	9.500	0.106	
5	8.7	0.965	9.250	0.362	
6	44	0.850	7.375	2.779	*
_7	87	0.906	8.500	1.605	

Dunnett table value = 2.37 (1 Tailed Value, P=0.05, df=40,6)

D	UNNETTS TEST	- TABLE	2 OF 2 Ho: 0	Control < Tre	atment
		NUM OF	Minimum Sig Diff	% of	DIFFERENCE
GRO	UP IDENTIFICATI	ON REPS	(IN ORIG. UNITS)	CONTROL	FROM CONTROL
1	DMF Control	8			
2	Control	8	0.112	1.2	1.000
3	0.93	8	0.112	1.2	0.500
4	4.1	8	0.112	1.2	0.125
5	8.7	8	0.112	1.2	0.375
6	44	8	0.112	1.2	2.250
_7	87	8	0.112	1.2	1.125

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

			ORIGINAL	TRANSFORMED	ISOTONIZED
<u>GROUP</u>	IDENTIFICATION	N	MEAN	MEAN	MEAN
1	DMF Control	8	9.625	0.982	0.982
2	Control	8	8.625	0.930	0.957
3	0.93	8	9.125	0.954	0.957
4	4.1	8	9.500	0.977	0.957
5	8.7	8	9.250	0.965	0.957
6	44	8	7.375	0.850	0.878
_7	87	8	8.500	0.906	0.878

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

	ISOTONIZE	D CALC.	SIG	TABLE	DEGREES OF
<b>IDENTIFICATION</b>	MEAN	WILLIAMS	<u>P=.05</u>	WILLIAMS	FREEDOM
DMF Control	0.982				
Control	0.957	0.531		1.68	k= 1, v=49
0.93	0.957	0.531		1.76	k= 2, v=49
4.1	0.957	0.531		1.79	k= 3, v=49
8.7	0.957	0.531		1.80	k= 4, v=49
44	0.878	2.169	*	1.80	k= 5, v=49
87	0.878	2.169	*	1.81	k= 6, v=49

s = 0.096; Note: df used for table values are approximate when v > 20.

#### TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle - Number of Young

Chi-square test for normality: actual and expected frequencies						
INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5	
EXPECTED	3.618	13.068	20.628	13.068	3.618	
OBSERVED	4	12	26	8	4	
Calculated Chi-Square goodness of fit test statistic = 3.5324						
Table Chi-Square value ( $alpha = 0.01$ ) = 13.277						
Data DACC		at Cantings and	-1			

Data PASS normality test. Continue analysis.

Shapiro-	Wilks	test for	normality

******* Shapiro-Wilks Test is aborted *******

This test can not be performed because total number of replicates is greater than 50. Total number of replicates = 54

Hartley test for homogeneity of varianceCalculated H statistic (max Var/min Var) = 19.31Closest, conservative, Table H statistic = 20.0 (alpha = 0.01)Used for Table H ==> R (# groups) = 7, df (# reps-1) = 7Actual values ==> R (# groups) = 7, df (# avg reps-1) = 6.71 (average df used)Data PASS homogeneity test. Continue analysis.NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Bartletts test for homogeneity of variance

Calculated B statistic = 13.57Table Chi-square value = 16.81 (alpha = 0.01) Table Chi-square value = 12.59 (alpha = 0.05) Average df used in calculation ==> df (avg n - 1) = 6.71Used for Chi-square table value ==> df (#groups-1) = 6Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

GROUP1 (SOLVENT CONTROL) MEAN = 354.2500 CALCULATED t VALUE = 2.5236GROUP2 (BLANK CONTROL) MEAN = 252.8333 DEGREES OF FREEDOM = 12<u>DIFFERENCE IN MEANS = 101.4167</u> TABLE t VALUE (0.05 (2),12) =  $2.179^{**}$  SIGNIFICANT DIFFERENCE at alpha = 0.05TABLE t VALUE (0.01 (2),12) = 3.055 NO significant difference at alpha = 0.01 TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle - Number of Young (cont.)

	ANSFORM: NO TR P_IDENTIFICATIC		VALUE	NUMBER OF GROUPS: 7 <u>TRANS VALUE</u>
1	DMF Control	1	319.0000	319.0000
1	DMF Control	2	301.0000	301.0000
1	DMF Control	3	493.0000	493.0000
1	DMF Control	4	354.0000	354.0000
1	DMF Control	5	185.0000	185.0000
1	DMF Control	6	341.0000	341.0000
1	DMF Control	7	453.0000	453.0000
1	DMF Control	8	388.0000	388.0000
2	Control	1	241.0000	241.0000
2	Control	2	245.0000	245.0000
2	Control	3	220.0000	220.0000
2	Control	4	262.0000	262.0000
		- 5		298.0000
2	Control	6	298.0000	
2	Control		251.0000	251.0000
3	0.93	1	370.0000	370.0000
3	0.93	2	341.0000	341.0000
3	0.93	3	512.0000	512.0000
3	0.93	4	373.0000	373.0000
3	0.93	5	304.0000	304.0000
3	0.93	6	374.0000	374.0000
3	0.93	7	241.0000	241.0000
3	0.93	8	339.0000	339.0000
4	4.1	1	375.0000	375.0000
4	4.1	2	463.0000	463.0000
4	4.1	3	403.0000	403.0000
4	4.1	4	406.0000	406.0000
4	4.1	5	561.0000	561.0000
4	4.1	6	413.0000	413.0000
4	4.1	7	393.0000	393.0000
4	4.1	8	458.0000	458.0000
5	8.7	1	492.0000	492.0000
5	8.7	2	558.0000	558.0000
5	8.7	3	503.0000	503.0000
5	8.7	4	442.0000	442.0000
5	8.7	5	570.0000	570.0000
5	8.7	6	405.0000	405.0000
5	8.7	7	381.0000	381.0000
5	8.7	8	357.0000	357.0000
6	44	1	240.0000	240.0000
6	44	2	116.0000	116.0000
	44	2 3	373.0000	373.0000
6	44	3 4		
6			414.0000	414.0000
6	44	5	334.0000	334.0000
6	44	6	396.0000	396.0000
6	44	7	189.0000	189.0000
6	44	8	413.0000	413.0000
7	87	1	164.0000	164.0000
7	87	2	283.0000	283.0000
7	87	3	483.0000	483.0000
7	87	4	343.0000	343.0000
7	87	5	343.0000	343.0000
7	87	6	118.0000	118.0000

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PMF	CA Submission Number				
7	87	7	301.0000	301.0000	
7	87	8	355.0000	355.0000	

## SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

<u>GR</u>	OUP IDENTIFICATION	Ν	MIN	MAX	MEAN	
1	DMF Control	8	185.000	493.000	354.250	
2	Control	6	220.000	298.000	252.833	
3	0.93	8	241.000	512.000	356.750	
4	4.1	8	375.000	561.000	434.000	
5	8.7	8	357.000	570.000	463.500	
6	44	8	116.000	414.000	309.375	
7		8	118.000	483.000	298.750	

#### SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRO	OUP IDENTIFICATION	VARIANCI	E SD	SEM	
1	DMF Control	9005.929	94.900	33.552	
2	Control	681.367	26.103	10.657	
3	0.93	5940.500	77.075	27.250	
4	4.1	3556.286	59.635	21.084	
5	8.7	6382.571	79.891	28.246	
6	44	12934.268	113.729	40.209	
7	87	<u>1315</u> 8.500	114.711	40.556	

#### ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	6	248610.273	41435.046	5.406
Within (Error)	47	360253.208	7664.962	
Total 5	53	608863.481		

Critical F value = 2.34 (0.05,6,40); Since F > Critical F REJECT Ho: All groups equal

BONF	ERRONI T-TEST	- TABLE 1 OF 2	Ho: C	ontrol < Treatmer	nt
		TRANSFORMED	MEAN	CALCULATED	T STAT
GROUP	<b>IDENTIFICATIO</b>	N MEAN	ORIGINA	L IN UNITS	SIG
1	DMF Control	354.250	354.250		
2	Control	252.833	252.833	2.145	
3	0.93	356.750	356.750	-0.057	
4	4.1	434.000	434.000	-1.822	
5	8.7	463.500	463.500	-2.496	
6	44	309.375	309.375	1.025	
7	87	298.750	298.750	1.268	
Bonferro	ni T table value = $2$ .	.50 (1 Tailed Valu	e, P=0.05, o	df=40.6)	

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 DMF Control 8 2 Control 6 118.158 33.4 101.417 3 0.93 8 109.393 30.9 -2.5004 4.1 8 109.393 30.9 -79.750 5 8.7 8 109.393 30.9 -109.250 6 44 8 109.393 30.9 44.875 7 87 8 109.393 30.9 55.500

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

					== / =	The table is the table of the table	
			ORIGINAL	TRANSF	ORMED	ISOTONIZED	
GROUP	IDENTIFICATION	N	MEAN	ME	AN	MEAN	
1	DMF Control	8	354.250	354.250	378.	553	
2	Control	6	252.833	252.833	378.5	553	
3	0.93	8	356.750	356.750	378.5	53	
4	4.1	8	434.000	434.000	378.5	53	
5	8.7	8	463.500	463.500	378.5	53	
6	44	8	309.375	309.375	309.3	75	
7	87	8	298.750	298.750	298.7	50	
WIL	LIAMS TEST (Isoto	nic reg	ression mode	el) TABLI	E 2 OF 2		
	ISOTON	IZED	CALC.	SIG T	ABLE	DEGREES OF	—
IDENT	IFICATION MEA	N V	VILLIAMS	P=.05 W	LLIAMS	FREEDOM	DMF Control
378.5	53					,	
Con	trol 378.5	53	0.514		1.68	k= 1, v=47	
0.9	378.55	3	0.555		1.76	k=2, v=47	
4.1	378.55	3	0.555		1.79	k=3, v=47	
8.7	378.55	3	0.555		1.80	k= 4, v=47	
44	309.37	5	1.025		1.80	k= 5, v=47	
87	298.75	0	1.268		1.81	k=6, v=47	
a - 07.5	50. Notes dfuged for	toble -			1		

s = 87.550; Note: df used for table values are approximate when v > 20.

#### TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle - Adult Body Length

Chi-square test for normality: actual and expected frequencies							
INTERVAL	< 1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5		
EXPECTED	3.752	13.552	21.392	13.552	3.752		
<b>OBSERVED</b>	5	15	16	16	4		
Calculated Chi	Calculated Chi-Square goodness of fit test statistic = 2.3875						
Table Chi-Square value $(alpha = 0.01) = 13.277$							
Data PASS normality test. Continue analysis.							

Shapiro-Wilks test for normality

******* Shapiro-Wilks Test is aborted *******

This test can not be performed because total number of replicates is greater than 50. Total number of replicates = 56

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 14.71 Closest, conservative, Table H statistic = 20.0 (alpha = 0.01) Used for Table H ==> R (# groups) = 7, df (# reps-1) = 7 Actual values ==> R (# groups) = 7, df (# avg reps-1) = 7.00 Data PASS homogeneity test. Continue analysis. NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Bartletts test for homogeneity of varianceCalculated B statistic = 15.52Table Chi-square value = 16.81 (alpha = 0.01)Table Chi-square value = 12.59 (alpha = 0.05)Average df used in calculation ==> df (avg n - 1) = 7.00Used for Chi-square table value ==> df (#groups-1) = 6Data PASS homogeneity test at 0.01 level. Continue analysis.NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

t-test of Solvent and Blank ControlsHo:GRP1 MEAN = GRP2 MEANGROUP1 (SOLVENT CRTL) MEAN =2.1125 CALCULATED t VALUE = -8.0643GROUP2 (BLANK CRTL) MEAN =2.4125 DEGREES OF FREEDOM = 14DIFFERENCE IN MEANS =-0.3000TABLE t VALUE (0.05 (2),14) = $2.145^{**}$  SIGNIFICANT DIFFERENCE at alpha=0.05TABLE t VALUE (0.01 (2),14) = $2.977^{**}$  SIGNIFICANT DIFFERENCE at alpha=0.01

TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle - Adult Body Length (cont.)

GROUP IDENTIFICATION         REP         VALUE         TRANS VALUE           1         DMF Control         1         2.1000         2.1000           1         DMF Control         3         2.1000         2.1000           1         DMF Control         3         2.1000         2.1000           1         DMF Control         4         2.2000         2.2000           1         DMF Control         6         2.2000         2.2000           1         DMF Control         6         2.2000         2.2000           2         Control         1         2.4000         2.4000           2         Control         1         2.4000         2.4000           2         Control         3         2.4000         2.4000           2         Control         6         2.5000         2.5000           2         Control         6         2.4000         2.4000           3         0.93         1         2.1000         2.1000           3         0.93         2         2.2000         2.2000           3         0.93         3         2.2000         2.2000           3         0.93         6 <t< th=""><th>TRA</th><th>NSFORM: NO TRANSF</th><th>ORMA</th><th>ΓION</th><th>NUMBER OF GROUPS: 7</th></t<>	TRA	NSFORM: NO TRANSF	ORMA	ΓION	NUMBER OF GROUPS: 7
1       DMF Control       2       2.1000       2.1000         1       DMF Control       3       2.1000       2.2000         1       DMF Control       5       1.9000       1.9000         1       DMF Control       6       2.2000       2.2000         1       DMF Control       6       2.2000       2.2000         1       DMF Control       8       2.1000       2.4000         2       Control       1       2.4000       2.4000         2       Control       3       2.4000       2.4000         2       Control       4       2.4000       2.4000         2       Control       5       2.4000       2.4000         2       Control       6       2.5000       2.5000         2       Control       7       2.4000       2.4000         3       0.93       1       2.1000       2.1000         3       0.93       1       2.1000       2.2000         3       0.93       3       2.2000       2.2000         3       0.93       7       2.0000       2.0000         3       0.93       7       2.0000       2.0000					TRANS VALUE
1       DMF Control       3 $2.1000$ $2.1000$ 1       DMF Control       4 $2.2000$ $2.2000$ 1       DMF Control       6 $2.2000$ $2.2000$ 1       DMF Control       7 $2.2000$ $2.2000$ 1       DMF Control       7 $2.2000$ $2.4000$ 2       Control       1 $2.4000$ $2.4000$ 2       Control       3 $2.4000$ $2.4000$ 2       Control       3 $2.4000$ $2.4000$ 2       Control       5 $2.4000$ $2.4000$ 2       Control       5 $2.4000$ $2.4000$ 2       Control       7 $2.4000$ $2.4000$ 2       Control       8 $2.4000$ $2.4000$ 3       0.93       1 $2.1000$ $2.1000$ 3       0.93       1 $2.0000$ $2.2000$ 3       0.93       7 $2.0000$ $2.2000$ 3       0.93       7 $2.0000$ $2.000$ 3       0.93 </td <td>1</td> <td>DMF Control</td> <td>1</td> <td>2.1000</td> <td>2.1000</td>	1	DMF Control	1	2.1000	2.1000
1         DMF Control         3         2.1000         2.1000           1         DMF Control         4         2.2000         2.2000           1         DMF Control         6         2.2000         2.2000           1         DMF Control         7         2.2000         2.2000           1         DMF Control         8         2.1000         2.1000           2         Control         1         2.4000         2.4000           2         Control         2         2.4000         2.4000           2         Control         3         2.4000         2.4000           2         Control         5         2.4000         2.4000           2         Control         6         2.5000         2.5000           2         Control         7         2.4000         2.4000           3         0.93         1         2.1000         2.1000           3         0.93         2         2.2000         2.2000           3         0.93         3         2.2000         2.2000           3         0.93         7         2.0000         2.000           3         0.93         7         2.0000	1	DMF Control	2	2.1000	2.1000
1DMF Control42.20002.20001DMF Control51.90001.90001DMF Control72.20002.20001DMF Control82.10002.40002Control12.40002.40002Control32.40002.40002Control32.40002.40002Control42.40002.40002Control62.50002.50002Control72.40002.40002Control62.50002.50002Control72.40002.400030.9312.10002.100030.9322.20002.200030.9332.20002.200030.9332.20002.200030.9362.20002.200030.9372.00002.000030.9382.10002.100044.112.20002.200044.132.00002.200044.172.20002.200044.172.20002.200058.732.30002.300058.732.30002.300058.732.20002.200058.732.20002.200058.762.2000 <td>1</td> <td>DMF Control</td> <td></td> <td>2.1000</td> <td>2.1000</td>	1	DMF Control		2.1000	2.1000
1         DMF Control         5         1.9000         1.9000           1         DMF Control         7         2.2000         2.2000           1         DMF Control         8         2.1000         2.2000           2         Control         1         2.4000         2.4000           2         Control         2         2.4000         2.4000           2         Control         3         2.4000         2.4000           2         Control         5         2.4000         2.4000           2         Control         5         2.4000         2.4000           2         Control         6         2.5000         2.5000           2         Control         7         2.4000         2.4000           3         0.93         1         2.1000         2.1000           3         0.93         1         2.1000         2.1000           3         0.93         5         2.1000         2.1000           3         0.93         7         2.0000         2.2000           3         0.93         8         2.1000         2.1000           4         4.1         1         2.2000	1				
1DMF Control62.20002.20001DMF Control72.20002.20002Control12.40002.40002Control22.40002.40002Control32.40002.40002Control42.40002.40002Control52.40002.40002Control62.50002.50002Control72.40002.40002Control72.40002.400030.9312.10002.100030.9332.20002.200030.9332.20002.200030.9352.10002.100030.9362.20002.200030.9372.00002.000030.9382.10002.100044.112.10002.100044.122.30002.200044.132.20002.200044.152.20002.200044.162.10002.300058.712.20002.200058.752.20002.200058.772.20002.200058.772.20002.200058.772.20002.200058.772.20002.2000 <td>1</td> <td>DMF Control</td> <td></td> <td></td> <td></td>	1	DMF Control			
1DMF Control72.20002.20001DMF Control82.10002.10002Control12.44002.44002Control32.40002.40002Control32.40002.40002Control42.40002.40002Control52.40002.40002Control62.50002.50002Control72.40002.400030.9312.10002.100030.9312.10002.200030.9332.20002.200030.9332.20002.200030.9362.20002.200030.9372.00002.000030.9382.10002.100044.112.10002.100044.132.00002.000044.132.00002.200044.172.20002.200058.712.20002.200058.732.30002.300058.772.20002.200058.772.20002.200058.772.20002.200058.772.20002.200058.772.20002.200058.772.20002.2000 <td></td> <td></td> <td></td> <td></td> <td></td>					
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4.1			0.009	0.093	0.033		
8.7			0.002	0.046	0.016		
44			0.014	0.120	0.042		
87			0.018	0.136	0.048		
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ical F value = $     \underline{DUNNETTS T}   $ $     \underline{DUP  IDENT}   $ $     DMF Cc     Control     0.93     4.1     8.7     44     87     mett table value      \underline{DUNNETTS T}         DUP  IDENTII     DMF Cc     Control     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     0.93     4.1     8.7     44     87     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93 $	2.34 (0.05 <u>TEST - 1</u> <u>IFICATION</u> ontrol e = 2.37 <u>FICATION</u> ontrol	5,6,40 <u>TABI</u> TRA N (1 TRA N (1 TRA (1 TRA (1 T	<ul> <li>b); Since</li> <li><u>E 1 OF 2</u></li> <li>ANSFORM</li> <li><u>MEAN</u></li> <li>2.112</li> <li>2.413</li> <li>2.138</li> <li>2.150</li> <li>2.225</li> <li>2.100</li> <li>2.013</li> <li>ailed Value</li> <li>E 2 OF 2</li> <li>OF Mini</li> <li>PS (IN OI</li> <li>8</li> <li>9</li> <li>9<!--</td--><td>H MED N OR 2. 2.4 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112</td><td>Io: Control MEAN C IGINAL 112 413 38 50 25 00 13 5, df=40,6 0: Control Diff % TS) CON</td><td>&lt; Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           &lt; Treatment</td>           6 of           FROL FROM           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3</li></ul>	H MED N OR 2. 2.4 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112	Io: Control MEAN C IGINAL 112 413 38 50 25 00 13 5, df=40,6 0: Control Diff % TS) CON	< Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           < Treatment	T STAT SIG ERENCE CONTRO -0.300 -0.025 -0.038 -0.112 0.012 0.100
ical F value = <u>DUNNETTS</u> <u>DUP</u> <u>IDENT</u> DMF Cc Control 0.93 4.1 8.7 44 87 IDUNNETTS T <u>DUNNETTS</u> <u>DUNNETTS</u> <u>DUP</u> <u>IDENTII</u> DMF Cc Control 0.93 4.1 8.7 44	2.34 (0.05 <u>TEST - 1</u> <u>IFICATION</u> ontrol e = 2.37 <u>FICATION</u> ontrol	5,6,40 <u>TABI</u> TRA N (1 TR (1 TR ABL VUM <u>REI</u> - T	<ul> <li>b); Since</li> <li><u>E 1 OF 2</u></li> <li>ANSFORM</li> <li><u>MEAN</u></li> <li>2.112</li> <li>2.413</li> <li>2.138</li> <li>2.150</li> <li>2.225</li> <li>2.100</li> <li>2.013</li> <li>ailed Value</li> <li>E 2 OF 2</li> <li>OF Mini</li> <li>OF Mini</li> <li>OF Mini</li> <li>OF Mini</li> <li>OF Mini</li> <li>S (IN OI</li> <li>8</li> <li>9</li> <li>9</li> <li>10</li> <li>10</li> <li>10</li> <li>10</li> <li>10</li> <li>11</li> <li>11</li> <li>11</li> <li>12</li> <li>14</li> <li>14<td>H MED M OR 2. 2.4 2.1 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112</td><td>Io: Control           MEAN         C           IGINAL         112           112         13           38         50           25         00           13        </td><td>&lt; Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           &lt; Treatment</td>           of           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3</li></ul>	H MED M OR 2. 2.4 2.1 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112	Io: Control           MEAN         C           IGINAL         112           112         13           38         50           25         00           13	< Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           < Treatment	T STAT SIG ERENCE CONTROI -0.300 -0.025 -0.038 -0.112 0.012 0.100 ent
ical F value = $     \underline{DUNNETTS T}   $ $     \underline{DUP  IDENT}   $ $     DMF Cc     Control     0.93     4.1     8.7     44     87     mett table value      \underline{DUNNETTS T}         DUP  IDENTII     DMF Cc     Control     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     0.93     4.1     8.7     44     87     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93  $	2.34 (0.05 <u>TEST - 1</u> <u>IFICATION</u> ontrol e = 2.37 <u>FICATION</u> ontrol	5,6,40 <u>TABI</u> TRA N (1 TR (1 TR ABL VUM <u>REI</u> - T	<ul> <li>b); Since</li> <li><u>E 1 OF 2</u></li> <li>ANSFORM</li> <li><u>MEAN</u></li> <li>2.112</li> <li>2.413</li> <li>2.138</li> <li>2.150</li> <li>2.225</li> <li>2.100</li> <li>2.013</li> <li>ailed Value</li> <li>E 2 OF 2</li> <li>OF Mini</li> <li>PS (IN OI</li> <li>8</li> <li>9</li> <li>9<!--</td--><td>H MED N OR 2. 2.4 2.1 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112</td><td>Io: Control           MEAN         C           IGINAL         112           112         13           38         50           25         00           13        </td><td>&lt; Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           &lt; Treatment</td>           6 of           FROL FROM           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3</li></ul>	H MED N OR 2. 2.4 2.1 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112	Io: Control           MEAN         C           IGINAL         112           112         13           38         50           25         00           13	< Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           < Treatment	T STAT SIG ERENCE CONTRO -0.300 -0.025 -0.038 -0.112 0.012 0.100
ical F value = $     \underline{DUNNETTS T}   $ $     \underline{DUP  IDENT}   $ $     DMF Cc     Control     0.93     4.1     8.7     44     87     mett table value      \underline{DUNNETTS T}         DUP  IDENTII     DMF Cc     Control     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     4.1     8.7     44     87     0.93     0.93     4.1     8.7     44     87     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93     0.93  $	2.34 (0.05 <u>TEST - 1</u> <u>IFICATION</u> ontrol e = 2.37 <u>FICATION</u> ontrol	5,6,40 <u>TABI</u> TRA N (1 TR (1 TR ABL VUM <u>REI</u> - T	<ul> <li>b); Since</li> <li><u>E 1 OF 2</u></li> <li>ANSFORM</li> <li><u>MEAN</u></li> <li>2.112</li> <li>2.413</li> <li>2.138</li> <li>2.150</li> <li>2.225</li> <li>2.100</li> <li>2.013</li> <li>ailed Value</li> <li>E 2 OF 2</li> <li>OF Mini</li> <li>OF Mini</li> <li>OF Mini</li> <li>OF Mini</li> <li>OF Mini</li> <li>S (IN OI</li> <li>8</li> <li>9</li> <li>9</li> <li>10</li> <li>10</li> <li>10</li> <li>10</li> <li>10</li> <li>11</li> <li>11</li> <li>11</li> <li>12</li> <li>14</li> <li>14<td>H MED N OR 2. 2.4 2.1 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112</td><td>Io: Control           MEAN         C           IGINAL         112           112         13           38         50           25         00           13        </td><td>&lt; Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           &lt; Treatment</td>           of           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3           5.3</li></ul>	H MED N OR 2. 2.4 2.1 2.1 2.1 2.2 2.1 2.0 10, P=0.05 10, P=0.05 10, 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112 0.112	Io: Control           MEAN         C           IGINAL         112           112         13           38         50           25         00           13	< Treatment           CALCULATED           IN UNITS           -6.325           -0.527           -0.791           -2.372           0.264           2.108           )           < Treatment	T STAT SIG ERENCE CONTRO -0.300 -0.025 -0.038 -0.112 0.012 0.100 ent
	87 87 87 DUP IDENTII DMF Contro Control 0.93 4.1 8.7 44 87 <u>JMMARY ST.</u> DUP IDENTII DMF Contro Control 0.93 4.1 8.7 44 8.7 44 8.7	87 87 87 <u>MMARY STATISTICS (DUP IDENTIFICATION</u> DMF Control Control 0.93 4.1 8.7 44 87 <u>JMMARY STATISTICS</u> <u>DUP IDENTIFICATION</u> DMF Control Control 0.93 4.1 8.7 44 87 <u>ANOVA</u> <u>JRCE DF</u> ween 6	87       6         87       7         87       8         MMARY STATISTICS ON T       DUP IDENTIFICATION N         DUP IDENTIFICATION       8         0.91       8         4.1       8         8.7       8         4.1       8         8.7       8         44       8         87       8         JMMARY STATISTICS ON T       0         DUP IDENTIFICATION       V         DMF Control       0.93         4.1       8.7         44       8         87       44         87       44         87       44         87       5         ANOVA TAB       1         JRCE       DF         SS       6         ween       6	87       6       1.900         87       7       2.000         87       8       2.200         MMARY STATISTICS ON TRANSFO       DUP IDENTIFICATION N MIN         DMF Control       8       1.900         Control       8       2.400         0.93       8       2.000         4.1       8       2.000         4.1       8       2.000         8.7       8       2.200         44       8       1.900         87       8       2.200         44       8       1.900         87       8       2.200         44       8       1.900         87       8       1.800         JMMARY STATISTICS ON TRANSFO       DUP IDENTIFICATION VARIANC         DMF Control       0.010         Control       0.001         0.93       0.006         4.1       0.009         8.7       0.002         44       0.014         87       0.018         ANOVA TABLE         JRCE       DF         SS       M         ween       6       0.769	87       6       1.9000         87       7       2.0000         87       8       2.2000         MMARY STATISTICS ON TRANSFORMED D         DUP IDENTIFICATION       N       MIN       MAX         DMF Control       8       1.900       2.200         Control       8       2.400       2.500         0.93       8       2.000       2.200         4.1       8       2.000       2.300         4.1       8       2.000       2.300         44       8       1.900       2.200         87       8       1.800       2.200         MMARY STATISTICS ON TRANSFORMED I       DUP IDENTIFICATION       VARIANCE       SD         DMF Control       0.010       0.099       0.093         0.93       0.006       0.074       4.1       0.009       0.093         0.93       0.006       0.074       4.1       0.128         ANOVA TABLE         JRCE       DF       SS       MS         ween       6       0.769       0.128	87         6         1.9000         1.9000           87         7         2.0000         2.0000           87         8         2.2000         2.2000           MMARY STATISTICS ON TRANSFORMED DATA         TAI           DUP IDENTIFICATION         N         MIN         MAX         MEA           DMF Control         8         1.900         2.200         2.112           Control         8         2.400         2.500         2.413           0.93         8         2.000         2.300         2.150           8.7         8         2.200         2.300         2.225           44         8         1.900         2.200         2.100           87         8         2.200         2.013         2.100           87         8         1.800         2.200         2.013           JMMARY STATISTICS ON TRANSFORMED DATA TA           DUP IDENTIFICATION         VARIANCE         SD         SEM           DMF Control         0.010         0.099         0.035           Control         0.001         0.035         0.012           0.93         0.006         0.074         0.026           4.1	87       6 $1.9000$ $1.9000$ 87       7 $2.0000$ $2.0000$ 87       8 $2.2000$ $2.2000$ MMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2         DUP IDENTIFICATION N MIN MAX MEAN         DMF Control       8 $1.900$ $2.200$ $2.112$ Control       8 $2.400$ $2.500$ $2.413$ $0.93$ 8 $2.000$ $2.300$ $2.150$ 8.7       8 $2.200$ $2.300$ $2.225$ 44       8 $1.900$ $2.200$ $2.100$ 87       8 $1.800$ $2.200$ $2.013$ DMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2         DUP IDENTIFICATION VARIANCE SD SEM         DMF Control $0.010$ $0.099$ $0.035$ Control $0.001$ $0.035$ $0.012$ $0.93$ $0.006$ $0.074$ $0.026$ $4.1$ $0.009$ $0.033$ $8.7$ $0.002$ $0.046$ $0.016$ $44$ $0.014$ $0.120$ $0$

PMRA Submission Number

FINIKA SU	DIMISSION NUMBER					A MIKID NI	imber 452995-04
GROUP	<b>IDENTIFICA</b>	TION	MEAN	ORIGI	NAL IN U	NITS	SIG
1	DMF Control		2.112	2.112			
2	Control		2.413	2.413	-6.32	5	
3	0.93		2.138	2.138	-0.52	7	
4	4.1		2.150	2.150	-0.79	1	
5	8.7		2.225	2.225	-2.37	2	
6	44		2.100	2.100	0.26	54	
7	87		2.013	2.013	2.10	)8	
Bonferro	ni T table value	= 2.50		Value, P=0.0	5, df=40,6)		
BON	FERRONI T-TE	EST - T	ABLE 2 O	F2 H	Io: Control <	Treatmen	t
				um Sig Diff			RENCE
GROUP	IDENTIFICAT						
1	DMF Control	8					
2	Control	8	C	.119	5.6	-0.30	0
3	0.93	8		.119	5.6	-0.02	
4	4.1	8		.119	5.6	-0.03	
5	8.7	8		.119	5.6	-0.11	
6	44	8		.119	5.6	0.01	
7	87	8		0.119	5.6	0.10	
					_		
^{<i>v</i>}	LIAMS TEST	(Isotonic	regression	model) TA	BLE 1 OF 2		
			ORIGIN		NSFORMED	ISOTO	NIZED
GROUP	IDENTIFICAT		N MEA		MEAN	ME	
1	DMF Control		8 2.112		2.112	2.26	
2	Control		8 2.413		2.413	2.20	
3	0.93		8 2.138		2.415	2.20	
3 4	4.1		8 2.150 8 2.150		2.150		
4 5	4.1 8.7		8 2.130 8 2.225			2.17	
						2.17	
6 7	44		8 2.100		2.100	2.100	
	87		8 2.013	2	.013	2.013	<u> </u>
		-					
WI	LLIAMS TEST						
		OTONIZI			TABLE	DEGRE	
	IFICATION	MEAN	WILLIA	MS P=.05	WILLIAMS	<u>5 FREE</u>	DOM
	<b>IF</b> Control	2.263					
Co	ntrol	2.263	3.2	* *	1.68	k= 1,	v=49
0.	93	2.171	1.2		1.76	k= 2,	v=49
4.		2.171	1.2	60	1.79	k= 3,	v=49
8.	7	2.171	1.20	50	1.80	k= 4,	v=49
44		2.100	0.2	70	1.80	k= 5,	v=49
87		2.013	2.1	50 *	1.81	,	v=49
s = 0.09	3; Note: df use				te when $v > 2$		

,		
Data Requirement:	PMRA DATA CODEEPA DP BarcodeDOECD Data PointEPA MRID452995-04	/
	$EPA Guideline \qquad 72-4b  70-1$	$\checkmark$
Test material: Atrazine FI Common name: Atrazine	L-931480 (Batch # SG 302011 BA) <b>Purity:</b> 98.2 % a.i.	
Chemical names: IUPAC: CAS nat	· · · · · · · · · · · · · · · · · · ·	
CAS No		
	ms: Aatrex, Atranex, Atratef, Crisazina, Gesaprim, Herbitrin, Posmil, Sanazin	, Trac
Primary Reviewer: William US EPA	S. Rabert William S. Rabert Date: May 7, 2002	
•	arry Craven Date: USEPA Bithough it is implied that these data are Dodson dal Liggo Study, the competitions for the test	differ Therefore
Reference/Submission No.:	The test results are not comparable. The Dods and st constituons intended to yield make apphilids, The	usly employed
Company Code: Active Code:	were intertionally crowded (\$30ml), light cycles u	where shout
EPA PC Code: 080803	16 hrs light 18 dork) and weath River media houses	
Date Evaluation Completed:	15-4-02 Further, young dephrids were not eval	pollugited indy
	dsen. 2000. Effects of atrazine on the sex ratio of Daphnia pulicaria. Prepared	By ( Will Gut the
ABC Laboratories, Inc., C Protection, Inc., Greensbo	Columbia, Missouri, ABC Study Number 45810; Submitted by Novartis Crop pro, NC; October 2, 2000.	Sex ratio - perhaps
		idex measures

#### **EXECUTIVE SUMMARY:**

The 12-day partial chronic atrazine toxicity study with 3 to 4-day old *Daphnia pulicaria* was conducted under flowthrough conditions. Daphnids were exposed to a control, solvent control, and mean measured atrazine concentrations of 0.93, 4.1, 8.7, 44, and 87  $\mu$ g a.i/L. The concentration of the solvent dimethylformamide was not reported. The solvent control significantly differed (p  $\leq$  0.05) from the control (i.e., more young per replicate and reduced adult body length). The 12-day LC₅₀/EC₅₀ based on mortality/sublethal effect was > 87  $\mu$ g a.i/L. The 12-day NOAEC based on reduced adult survival was 8.7  $\mu$ g/L compared to the DMF Control. The sublethal effects included were reduced body length at 87  $\mu$ g a.i/L compared to the solvent control. Production of offsprings in the treated groups indicated that atrazine had an indirect effect on the reproduction due to adult mortalities at concentrations greater than 8.7mg a.i/L. The most sensitive endpoint was adult survival (NOAEC 8.7  $\mu$ g ai./L; 44  $\mu$ g ai./L).

This study is classified as scientifically unsound and it does not satisfy guideline requirements for a chronic toxicity study with freshwater invertebrates. The test produced no male offspring. Since atrazine effects are typically demasculinization and the daphnids in this study are females, it is reasonable that this study did not have endocrine effects on *Daphnia pulicaria* females.

#### **Results Synopsis**

Test Organism Age (eg. 1st instar): 3- to 4-days old, Instar stage is unknown. Test Type (Flow-through): Flow-through. NOAEL: 8.7 μg a.i./L LOAEC: 44 μg a.i./L Endpoint Effected: Adult survival. DER on Partial Chronic Toxicity of Atrazine TAI to Freshwater Invertebrates - Daphnia pulicaria EPA MRID Number 452995-04 PMRA Submission Number

#### I. MATERIALS AND METHODS

Specipi study 70-1 **<u>GUIDELINE FOLLOWED:</u>** The study did not specify any particular guideline.

- 1. The test species was Daphnia pulicaria rather than the required species, Daphnia magna.
- 2. The test began with daphnids 3- to 4-days old, rather than  $\leq$  24 hours old.
- 3. Duration of the study was limited to 12 days rather than the typical 21-day study with Daphnia magna.
- 4. The dilution water was moderately hard (130-160 mg/L as CaCO₃) rather than the benchmark soft water (40-48  $mg/L CaCO_3$ ).
- 5. The dilution water was biologically aged and passed through a polypropylene cartridge filter and ultraviolet sterilizer before going to the proportional diluter. Total organic carbon and particulate matter levels in the pH ranged from dilution water were not reported. Fluoride levels were high (i.e., 0.55 mg/L). Control 8.51-8.66
- 6. Control mortality was 14 percent, which exceeds the limit of 10 percent mortality.

The Good Laboratory Procedures, Quality Assurance, and Data Confidentiality range of 7.2-7.6 **COMPLIANCE:** statements were signed and dated.

#### A. MATERIALS:

Atrazine received from Novartis Crop Protectin, Inc., on Dec. 7, 1999. 1. Test Material

**Description:** Chemical state of the test material was not reported. Atrazine (FL-931480)

Lot No./Batch No.: SG 302011 BA

**Purity:** 98.2 %

**Stability of Compound:** Stability was not stated; the expiration date was cited as August 31, 2001. **Under Test Conditions:** 

(OECD requires water solubility (33 mg/L), stable in water, light half-life (335 days), pKa, Pow (87.78), vapor pressure of test compound (3 x 10⁻⁷)

To determine if atrazine has endocrine effects on the sex ratio of Daphnia pulicaria.

under Alow through

was to determine the speet of strongue on the in pulkering produced during a postial lite aday those through conditions, Additionally to other many produced and the survival add

Storage conditions of test chemicals:

Stored at room temperature.

2. Test organism:

Species:	Daphnia pulicaria (EPA/OECD require <u>Daphnia magna</u> )
Age of the parental stock:	Gravid females (16 to 23 days old).
Source:	Supplied by University of Guelph, Canada

3. Study Objective:

he primi **B. STUDY DESIGN:** exposure **1. Experimental Conditions** 

> dutt Remarks No range-finding study.

Total

b. Definitive Study:

a) Range-finding Study:

Table 1. Experimental Parameters

Durantar	Detaile	Remarks		
Parameter	Details	Criteria		
Parental acclimation: period: conditions: (same as test or not) Feeding: Health: (any mortality observed)	Not reported. Similar temperature and water hardness; other parameters not reported. Fed approx. 2 x 10 ⁶ cells/mL ( <i>Selenastrum capricornutum</i> and/or <i>Ankistrodesmus falcatus</i> ).	Acclimation period not reported. (implied 3 days)		
<u>Test condition</u> : static renewal/flow through: Type of dilution system - for flow through method. Renewal rate for static renewal	Flow-through test. Two Hamilton syringe injectors into mixing chamber. N/A	Flow rate in replicates not reported. 100 ml/cycle 7.4 uslume replacements /24 hrs		
Aeration, if any	Not reported." Test solutions not perated during test	Notreported.		
Chemical properties	None reported.	None reported.		
		(OECD requires water solubility, stability in water and light, pKa, Pow, vapor pressure of test compound)		
Duration of the test	12 days	21 days: Shortened life cycle test.		
Test vessel Material: (glass/stainless steel Size (for growth and reproduction/survival test): Fill volume:	Borosilicate beakers. 1 liter test chamber. 1,000 mL 10 cm drameter x 15 m high Z solution dept h 12 cm idephilid / 100 ml	Okay. 1. <u>Material</u> : Glass, No. 316 stainless steel, or perfluorocarbon plastics 2. <u>Size</u> : 250 ml with 200 ml fill volume is preferred; 100 ml with 80 ml fill volume is acceptable. OECD requires parent animals be maintained individually, one per vessel, with 50-100 ml of medium in each vessel.		
Source of dilution water	Deep well water mixed with a portion from reverse osmosis, biologically aged and then filtered through polypropylene cartridge and ultraviolet sterilizer.	Biologically aged water is inappropriate source of dilution water, especially when water quality measurements are incomplete and inadequate. Unpolluted well or spring that has been tested for contaminants, or appropriate reconstituted water (see ASTM for details).		

Parameter	Details	<u> </u>
Water parameters: Hardness pH Dissolved oxygen Temperature Total Organic Carbon Particulate matter Metals Pesticides Chlorine	<ul> <li>146 - 154 mg/L</li> <li>7.96 - 8.66</li> <li>3.89 - 8.47 mg O₂/L</li> <li>20.5 to 21.7°C</li> <li>Not reported.</li> <li>Levels of detection are inadequate for all metals.</li> <li>all less than 1.0 µg/L.</li> <li>Not reported.</li> <li>Fluoride conc.: 0.59 mg/L is too high. (Stephan, 1975; &lt;100 µg/L)</li> <li>Dp. dropped below bolk saturation in some at the atragine treated attacks by Day 6</li> </ul>	Analysis is incomplete and many levels of detection are inadequate. Fluoride level is high. EPA requires: hardness 160 to 180 mg/L as $CaCO_3$ ; $OECD$ requires > 140 mg/L as $CaCO_3$ pH 7.6 to 8.0 is recommended. Must not deviate by more than one unit for more than 48 hours. OECD requires pH range 6 - 9 and should not vary more than 1.5 units in any one test. Dissolved Oxygen <u>Renewal</u> : must not drop below 50% for more than 48 hours. <u>Flow-through</u> : $\geq 60\%$ throughout test. <u>Temperature</u> : $20^{\circ}C \pm 2^{\circ}C$ . Must not deviate from 20^{\circ}C by more than 5°C for more than 48 hours. OECD requires range 18 - 22°C; temperature should not vary more than $\pm 2^{\circ}C$ OECD requires total organic carbon < 2 mg/L
Experimental Design: Number of Treatments: Controls Number of replicates	5 treatments. Negative and DMF controls. 8 Replicates.	Okay. EPA requires Control(s) and at least 5 test concentrations; dilution factor not greater than 50%. OECD requires at least 5 test concentrations in a geometric series with a separation factor not exceeding 3.2.
<u>Number of organisms:</u> For growth and reproduction: For survival test:	8 replicates/treatment 10 Daphnids per replicate. 80 Daphnids per treatment.	Okay. 22 daphnids/level; 7 test chambers should contain 1 daphnid each, and 3 test chambers should contain 5 daphnids each. OECD requires minimum of 10 daphnids held individually for static tests. For flow-through tests, 40 animals divided into 4 groups of 10 animals at each test concentration.
Application rates nominal: measured:	Up to 4 lbs ai./A. 0, 1, 5, 10, 50 and 100 μg/L. < 0.05, 0.93, 4.1, 8.7, 44 and 87 μg/L.	Okay.
Solvent (type, percentage, if used)	Dimethylformamide – 100 µL/L.	Okay

per adult, but the test was conducted for only 12 days, not the required 21 days.

	(mg a.i./b)	Morta		Mean	Total	Male: Female	Mean	- sect
	conc. used]	(Dead or II No. Dead	nmobile) %	Days to First Brood	Number of Young (Y/Rep)	Ratio	Daphnid Length (mm)	63/1-
DMF Contr (0.1 ml/L)		3	3.8	5	2834 (354) ^{2,54}	0.0	2.1	(1) total # young 254 354?
Positive con	ntrol, if used	11+	14 +	5	2132* (355)	0.0	2.4	30 Y ,
1.0	0.93	7	8.8	4	2854 (357)	0.0	2.1	
5.0	4.1	4	5.0	5	3472 (434)	0.0	2.2	
10	8.7	6	7.5	5	3708 (464)	0.0	2.2	
50	44	21*	26	5	2475 (309)	0.0	2.1	
100	87	12*	15	5	2390 (299)	0.0	2.0	
NOAEC		8.7 μ	^{g/L} ∕∕	87 μg/L	87 μg/L	87 μg/L	44 µg/L	
LOAEC		44 μ	g/L	> 87 μg/L	> 87 μg/L	> 87 μg/L	87 μg/L	

Table 1: Effect of atrazine on growth and survival of Daphn	hnia pulicaria.
-------------------------------------------------------------	-----------------

The count for two control replicates were uncertain and therefore they were not reported. STATISTICALLY different (d(0)35); therefore comparisons model to solvent control.

STATISTICALLY different

No male dephilic were produced in any of the cultures; Herefore the mole retions is pero **B. EFFECT ON REPRODUCTION:** 

The lower number of offspring at the two highest test concentrations appear to be due to higher mortality but the differences were not significantly different from the solvent control due to high variability in the replicates The NOAEC is 87  $\mu$ g ai./L and the LOAEC is > 87  $\mu$ g ai./L.

The mean adult body length at 87  $\mu$ g ai./L was statistically different (p < 0.05) from the solvent control (NOAEC, 44 µg ai./L and the LOAEC, 87 µg ai./L). Adult dry body weight was not measured as required by OPP test guideline 72-4(b) = tost is not intended to comply 2 \$2.46. This is a special study 70-1

Based on the solvent control, the most sensitive endpoint was adult mortality (NOAEC, 8.7 µg ai./L and the LOAEC, 44 µg ai./L).

C. REPORTED STATISTICS: The following endpoints were measured and analyzed for statistical significance: adult mortality, adult body length, and the number of young. The NOAEC and LOAEC values are listed at the bottom of the columns in the above table.

### D. VERIFICATION OF STATISTICAL RESULTS

Statistical Method: ANOVA and Williams Test

12-day LC₅₀ > 87 µg ai./L Bill - on p10 William's test shows Hit and 67 M/L treatments to have symplexity lower survival compared to solvent control Have you elected to discard this result?

Page 6 of 18

95% C.I.: N/A

DER on Partial Chronic Toxicity of Atrazine TAI to Freshwater Invertebrates - Daphnia pulicaria EPA MRID Number 452995-04 PMRA Submission Number

NOAEC: 8.7 µg ai. /L	LOAEC: 44	μg ai./L (Adult mortality)
Probit Slope: N/A	95% C.I.: N/A	I agreed that TOK and TDS are not a storm

the problem

the stude

pabrial ice

negeloust

Fert

The use of "biologically aged water" as the dilution water is unacceptable. The aged written **E. STUDY DEFICIENCIES:** dilution water is of unknown quality. TOC and particulate levels were not reported for the dilution water postbiologically aged. The test was conducted for 12 days rather than the required 21 days. Adult dry body weight was not measured as an endpoint as required. The above items are major deficiencies which render the test results incomplete and uncertain. This study is invalid.

F. REVIEWER'S COMMENTS: Compared to the solvent control and most treatments, the blank control had unexplained high mortality (14 percent). The collection of young from two replicates of the blank controls were mixed and had to be omitted from the statistical analysis of the number of young. Dose-response curves were erratic for adult, Tim not clear as to what is the problem biologically aged water it they show chemina mortality and the total number of young.

in my opinion G. CONCLUSIONS: This study was not performed using good scientific practices. The "biologically aged water" was inappropriate as the dilution water. The test period was of insufficient duration (12 days rather than 21 days) and the required endpoint for adult dry body weight was not measured. This study contained unconventional methods as well as incomplete and irregular test results, which render this study of dubious value as an aquatic invertebrate life cycle test. The study showed no evidence of endocrine effects, but if atrazine has a mode of action of demasculinization, the effects would not be found in this daphnid study with all females. (it appears as though the test was interned to 'refute' the Dod son etal. 1999 study reported in SETAL. when any che

III. <u>REFERENCES</u>: [Provide references that were cited in the study report: studies in the open literature, references to other study reports in the submission or other studies conducted by the proponent. Do not include references to standard guidelines or methodologies.]

Dodson, S. I., C. M. Merritt, L. Torrentera, J. Shannahan and C. M. Shults. 1999. Low exposure concentrations of atrazine increase male production in Daphnia pulicaria. Environmental Toxicology and Chemistry 18(7):1568-1573.

Dodson, S. I., C. M. Merritt, L. Torrentera, K. M. Winter, C. K. Tonehl and K. Girvin. 1999. Toxicology and Industrial Health 15:192-199.

The SAS System for Windows. Release 6.12 Copyright 1989-1996 by SAS Institute Inc., Cary, N.C. 27513, USA.

Zar, J. H. 1984. Biostatistical Analysis. Second Ed., Prentice-Hall, Inc. Englewood Cliffs, NJ.

Conover, W. J. 1980. Pratical [sic] nonparametric statistics. 2nd Edition.

Millikian, G. A. and D. E. Johnson. 1984. Analysis of messy data. Vol. 1. p. 22 [Vol. 1. Designed Experiments. Chapman and Hall, London]

Chapma	n and Hall, London]				Enste
TITLE:	Atrazine – Daj	phnia pı	ilicaria Partia	l Life Cycle –	Adult Survival Atronomic measured by Aplate UPS: 7 Kit immiuno passa (Beacon Abolytical VALUE Systems) with limit of
TRANS	FORM: LOG BASE 1	0(Y)	NUM	IBER OF GRO	UPS: 7 Kut immuno passay (Beacon Aholytecol
GROUI	<b>IDENTIFICATION</b>	REP	VALUE	TRANS V	<u>/ALUE</u> Systems) with Limit I
1	DMF Control	1	10.0000	1.0000	<i>A</i>
1	DMF Control	2	10.0000	1.0000	quantification 0.05 mg/L
1	DMF Control	3	10.0000	1.0000	
1	DMF Control	4	10.0000	1.0000	he make to the man of all is t
1	DMF Control	5	9.0000	0.9542	Accounty to the report, the decision to
1	DMF Control	6	8.0000	0.9031	pool the control groups was made a each
1	DMF Control	7	10.0000	1.0000	variable by considering loth articles the
1	DMF Control	8	10.0000	1.0000	According to the report, the decision to pool the control groups was made of each variable by considering both afather the amount of difference between the control
2	Control	1	6.0000	0.7782	groups was bistography important and whether
2	Control	2	10.0000	1.0000	the annount of difference was statistically
				Data 7 of 10	significanot

<u>MRA</u>	Submission Number	r			EPA MRID Number 452995-04
2	Control	3	8.0000	0.9031	
2	Control	4	10.0000	1.0000	
2	Control	5	8.0000	0.9031	
2	Control	6	8.0000	<b>0.903</b> 1	
2	Control	7	10.0000	1.0000	
2	Control	8	9.0000	0.9542	
2 2 2 3	0.93	1	10.0000	1.0000	
3	0.93	2	10.0000	1.0000	
3	0.93	3	10.0000	1.0000	
3	0.93	4	9.0000	0.9542	
3	0.93	5	10.0000	1.0000	
3	0.93	6	10.0000	1.0000	
3	0.93	7	6.0000	0.7782	
3	0.93	8	8.0000	0.9031	
4	4.1	1	10.0000	1.0000	
4	4.1	2	9.0000	0.9542	
4	4.1	3	9.0000	0.9542	
4	4.1	4	9.0000	0.9542	
4	4.1	5	10.0000	1.0000	
4	4.1	6	10.0000	1.0000	
4	4.1	7	9.0000	0.9542	
4	4.1	8	10.0000	1.0000	
5	8.7	1	10.0000	1.0000	
5	8.7	2	10.0000	1.0000	
5	8.7	3	9.0000	0.9542	
5	8.7	4	8.0000	0.9031	
5	8.7	5	10.0000	1.0000	
5	8.7	6	9.0000	0.9542	
5	8.7	7	9.0000	0.9542	
5	8.7	8	9.0000	0.9542	
6	44	1	7.0000	0.8451	
6	44	2	5.0000	0.6990	
6	44	3	8.0000	0.9031	
6	44	4	9.0000	0.9542	
6	44	5	7.0000	0.8451	
6	44	6	9.0000	0.9542	
6	44	7	4.0000	0.6021	
6	44	8	10.0000	1.0000	
7	87	1	9.0000	0.9542	
7	87	2	10.0000	1.0000	
7	87	3	10.0000	1.0000	
7	87	4	9.0000	0.9542	
7	87	5	9.0000	0.9542	
7	87	6	3.0000	0.4771	
7	87	7	9.0000	0.9542	
7	87	8	9.0000	0.9542	

#### DED aging TAL to Freshwater Invertabrates

# SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

<u>GROU</u> F	P IDENTIFICATION	N	MIN	MAX	MEAN
1	DMF Control	8	0.903	1.000	0.982
2	Control	8	0.778	1.000	0.930
3	0.93	8	0.778	1.000	0.954
4	4.1	8	0.954	1.000	0.977
5	8.7	8	0.903	1.000	0.965
6	44	8	0.602	1.000	0.850
7	87	8	0.477	1.000	0.906

### SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRO	UP IDENTIFICATION	VARIANCE	SD	SEM	
1	DMF Control	0.001	0.036	0.013	
2	Control	0.006	0.076	0.027	
3	0.93	0.006	0.079	0.028	
4	4.1	0.001	0.024	0.009	
5	8.7	0.001	0.034	0.012	
6	44	0.019	0.137	0.048	
7	87	0.030	0.175	0.062	

ANOVA TABLE						
SOURCE	DF	SS	MS	F		
Between	6	0.106	0.018	2.000		
Within (Error)	49	0.450	0.009			
Total	55	0.556				

Critical F value = 2.34 (0.05,6,40); Since F < Critical F FAIL TO REJECT Ho: All groups equal

DUNNETTS TEST - TABLE 1 OF 2 Ho: Control < Treatment						
		TRANSFORMED	MEAN	CALCULATED	T STAT	
GROUP	<b>IDENTIFICATION</b>	MEAN	ORIGINAI	IN UNITS	SIG	
1	DMF Control	0.982	9.625			
2	Control	0.930	8.625	1.095		
3	0.93	0.954	9.125	0.585		
4	4.1	0.977	9.500	0.106		
5	8.7	0.965	9.250	0.362		
6	44	0.850	7.375	2.779	*	
7	87	0.906	8.500	1.605		
Dunnett ta	able value = $2.37$ (	[1 Tailed Value, P=	0.05, df=40	,6)		

<u></u>	DUNNETTS TEST - TABLE 2 OF 2 Ho: Control < Treatment				
		NUM OF	7 Minimum Si	ig Diff % of	DIFFERENCE
<u>GRO</u>	UP IDENTIFICAT	ION REPS	(IN ORIG. L	JNITS) CONTROL	FROM CONTROL
1	DMF Control	8			
2	Control	8	0.112	1.2	1.000
3	0.93	8	0.112	1.2	0.500
4	4.1	8	0.112	1.2	0.125
5	8.7	8	0.112	1.2	0.375
6	44	8	0.112	1.2	2.250
_7	87	8	0.112	1.2	1.125

WI	LLIAMS TEST (Isoto	onic re	gression mod	el) TABLE 1 OF 2	
			ORIGINAL	TRANSFORMED	ISOTONIZED
<u>GROUP</u>	<b>IDENTIFICATION</b>	Ν	MEAN	MEAN	MEAN
1	DMF Control	8	9.625	0.982	0.982
2	Control	8	8.625	0.930	0.957
3	0.93	8	9.125	0.954	0.957
4	4.1	8	9.500	0.977	0.957
5	8.7	8	9.250	0.965	0.957
6	44	8	7.375	0.850	0.878
_7		8	8.500	0.906	0.878

WILLIAMS TES	T (Isotonic re	gression mode	el) TA	BLE 2 OF 2	
	ISOTONIZE	D CALC.	SIG	TABLE	DEGREES OF
<b>IDENTIFICATION</b>	MEAN	WILLIAMS	P=.05	WILLIAMS	FREEDOM
DMF Control	0.982				
Control	0.957	0.531		1.68	k= 1, v=49
0.93	0.957	0.531		1.76	k= 2, v=49

DER on Partial Chronic Toxicity of Atrazine TAI to Freshwater Invertebrates - Daphnia pulicaria PMRA Submission Number EPA MRID Number 452995-04

I WIGA Submission	Inumber			, LIA	WIKID Nullider 4523	775-04
4.1	0.957	0.531		1.79	k= 3, v=49	
8.7	0.957	0.531		1.80	k= 4, v=49	
44	0.878	2.169	*	1.80	k= 5, v=49	
87	0.878	2.169	*	1.81	k= 6, v=49	_
a = 0.006, No	tas df ward fan talela	values are en	marimato	when when	0	

s = 0.096; Note: df used for table values are approximate when v > 20.

TITLE:	Atrazine	Daphnia pulicaria P	Partial Life Cycle –	Number of Young
--------	----------	---------------------	----------------------	-----------------

Chi-square tes	t for norn	nality: actual an	d expected fr	equencies		
INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5	
EXPECTED	3.61	8 13.068	20.628	13.068	3.618	
OBSERVED	4	12	26	8	4	
Calculated Ch	i-Square	goodness of fit	test statistic =	= 3.5324		

Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Shapiro-Wilks test for normality

******* Shapiro-Wilks Test is aborted *******

This test can not be performed because total number of replicates is greater than 50. Total number of replicates = 54

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 19.31

Closest, conservative, Table H statistic = 20.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 7, df (# reps-1) = 7

Actual values  $\implies$  R (# groups) = 7, df (# avg reps-1) = 6.71 (average df used)

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Bartletts test for homogeneity of variance

Calculated B statistic = 13.57Table Chi-square value = 16.81 (alpha = 0.01) Table Chi-square value = 12.59 (alpha = 0.05) Average df used in calculation ==> df (avg n - 1) = 6.71<u>Used for Chi-square table value ==> df (#groups-1) = 6</u> Data PASS homogeneity test at 0.01 level. Continue analysis. NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

GROUP1 (SOLVENT CONTROL) MEAN = 354.2500 CALCULATED t VALUE = 2.5236 GROUP2 (BLANK CONTROL) MEAN = 252.8333 DEGREES OF FREEDOM = 12 <u>DIFFERENCE IN MEANS = 101.4167</u> TABLE t VALUE (0.05 (2),12) = 2.179** SIGNIFICANT DIFFERENCE at alpha = 0.05 TABLE t VALUE (0.01 (2),12) = 3.055 NO significant difference at alpha = 0.01

TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle - Number of Young (cont.)

	NSFORM: NO TE			NUMBER OF GROUPS: 7
	DENTIFICATIO		VALUE	TRANS VALUE
1	DMF Control	1	319.0000	319.0000
1	DMF Control	2	301.0000	301.0000
1	DMF Control	3	493.0000	493.0000
1	DMF Control	4	354.0000	354.0000
1	DMF Control	5	185.0000	185.0000
1	DMF Control	6	341.0000	341.0000
1	DMF Control	7	453.0000	453.0000
1	DMF Control	8	388.0000	388.0000
2	Control	1	241.0000	241.0000
2	Control	2	245.0000	245.0000
2	Control	3	220.0000	220.0000
2	Control	4	262.0000	262.0000
2	Control	5	298.0000	298.0000
2	Control	6	251.0000	251.0000
3	0.93	1	370.0000	370.0000
3	0.93	2	341.0000	341.0000
3	0.93	3	512.0000	512.0000
3	0.93	4	373.0000	373.0000
3	0.93	5	304.0000	304.0000
3	0.93	6	374.0000	374.0000
3	0.93	7	241.0000	241.0000
3	0.93	8	339.0000	339.0000
4	4.1	1	375.0000	375.0000
4	4.1	2	463.0000	463.0000
4	4.1	3	403.0000	403.0000
4	4.1	4	406.0000	406.0000
4	4.1	5	561.0000	561.0000
4	4.1	6	413.0000	413.0000
4	4.1	7	393.0000	393.0000
4	4.1	8	458.0000	458.0000
5	8.7	1	492.0000	492.0000
5	8.7	2	558.0000	558.0000
5	8.7	3	503.0000	503.0000
5	8.7	4	442.0000	442.0000
5	8.7	5	570.0000	570.0000
5	8.7	6	405.0000	405.0000
5	8.7	7	381.0000	381.0000
5	8.7	8	357.0000	357.0000
6	44	1	240.0000	240.0000
6	44	2	116.0000	116.0000
6	44	3	373.0000	373.0000
6	44	4	414.0000	414.0000
6	44	5	334.0000	334.0000
6	44	6	396.0000	396.0000
6	44	7	189.0000	189.0000
6	44	8	413.0000	413.0000
7	87	1	164.0000	164.0000

DER on Partial Chronic Toxicity of Atrazine TA	I to Freshwater Invertebrates - Daphnia pulicaria
PMRA Submission Number	EPA MRID Number 452995-04

7	87	3	483.0000	483.0000	
7	87	4	343.0000	343.0000	
7	87	5	343.0000	343.0000	
7	87	6	118.0000	118.0000	
7	87	7	301.0000	301.0000	
7	87	8	355.0000	355.0000	_

## SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRO	OUP IDENTIFICATION	N	MIN	MAX	MEAN
1	DMF Control	8	185.000	493.000	354.250
2	Control	6	220.000	298.000	252.833
3	0.93	8	241.000	512.000	356.750
4	4.1	8	375.000	561.000	434.000
5	8.7	8	357.000	570.000	463.500
6	44	8	116.000	414.000	309.375
7	87	8	118.000	483.000	298.750

## SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GR	OUP IDENTIFICATION	VARIANC	E SD	SEM	
1	DMF Control	9005.929	94.900	33.552	
2	Control	681.367	26.103	10.657	
3	0.93	5940.500	77.075	27.250	
4	4.1	3556.286	59.635	21.084	
5	8.7	6382.571	79.891	28.246	
6	44	12934.268	113.729	40.209	
7	87	13158.500	114.711	40.556	

	AN	OVA TABLE		
SOURCE	DF	SS	MS	F
Between	6	248610.273	41435.046	5.406
Within (Error)	47	360253.208	7664.962	
Total 53	36	508863.481		
Critical F value	= 2.34	(0.05.6.40): Since	F > Critical F	REJECT Ho:

Critical F value =	2.34 (0	0.05,6,40);	Since	F > Critical F	REJECT	Ho: All groups equal
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BONF	ERRONI T-TEST -	TABLE 1 OF 2	Ho: Co	ntrol < Treatmer	ıt
		<b>FRANSFORMED</b>	MEAN C	CALCULATED	T STAT
<u>GROUP</u>	<b>IDENTIFICATION</b>	MEAN	ORIGINAL	IN UNITS	SIG
1	DMF Control	354.250	354.250		
2	Control	252.833	252.833	2.145	
3	0.93	356.750	356.750	-0.057	
4	4.1	434.000	434.000	-1.822	
5	8.7	463.500	463.500	-2.496	
6	44	309.375	309.375	1.025	
7	87	298.750	298.750	1.268	
Bonferro	ni T table value = 2.5	0 (1 Tailed Valu	ue, P=0.05, d	f=40,6)	

BON	FERRONI T-TEST	- TABI	LE 2 OF 2 Ho	o: Control < T	reatment
		NUM OF	Minimum Sig Diff	% of	DIFFERENCE
<u>GROUP</u>	IDENTIFICATION	N REPS	(IN ORIG. UNITS)	CONTROL	FROM CONTROL
1	DMF Control	8			
2	Control	6	118.158	33.4	101.417

	n Partial Chronic Tox Submission Number	icity of Atrazine TAI t		ebrates - Daphn EPA MRID Num		
3	0.93	8	109.393	30.9	-2.500	
4	4.1	8	109.393	30.9	-79.750	
5	8.7	8	109.393	30.9	-109.250	
6	44	8	109.393	30.9	44.875	
_7	87	8	109.393	30.9	55.500	

## WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

		(	ORIGINAL	TRANSFO	RMED ISOTONIZED
GROUP	IDENTIFICATION	N	MEAN	MEAN	N MEAN
1	DMF Control	8	354.250	354.250	378.553
2	Control	6	252.833	252.833	378.553
3	0.93	8	356.750	356.750	378.553
4	4.1	8	434.000	434.000	378.553
5	8.7	8	463.500	463.500	378.553
6	44	8	309.375	309.375	309.375
7	87	8	298.750	298.750	298.750

# WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

, <u> </u>	ISOTONIZEI	O CALC.	SIG	TABLE	DEGREES OF
<b>IDENTIFICAT</b>	ION MEAN	WILLIAMS	<u>P=.05</u>	WILLIAMS	FREEDOM
DMF Control	378.553				
Control	378.553	0.514		1.68	k= 1, v=47
0.93	378.553	0.555		1.76	k=2, v=47
4.1	378.553	0.555		1.79	k= 3, v=47
8.7	378.553	0.555		1.80	k=4, v=47
44	309.375	1.025		1.80	k= 5, v=47
87	298.750	1.268		1.81	k= 6, v=47
0	10 10 11				

s = 87.550; Note: df used for table values are approximate when v > 20.

TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle -- Adult Body Length

Chi-square tes	t for norr	nality: actual a	nd expected f	requencies		
INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5	
EXPECTED	3.752	13.552	21.392	13.552	3.752	
OBSERVED	5	15	<u>1</u> 6	16	4	
Calculated Ch	i-Square	goodness of fit	test statistic	= 2.3875		

Table Chi-Square value (alpha = 0.01) = 13.277

Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Shapiro-Wilks test for normality

******* Shapiro-Wilks Test is aborted *******

This test can not be performed because total number of replicates is greater than 50. Total number of replicates = 56

Hartley test for homogeneity of varianceCalculated H statistic (max Var/min Var) = 14.71Closest, conservative, Table H statistic = 20.0 (alpha = 0.01)Used for Table H ==> R (# groups) = 7, df (# reps-1) = 7Actual values ==> R (# groups) = 7, df (# avg reps-1) = 7.00Data PASS homogeneity test. Continue analysis.NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly,

the Hartley test may still be used as an approximate test (average df are used).

Bartletts test for homogeneity of variance

Calculated B statistic = 15.52Table Chi-square value = 16.81 (alpha = 0.01) Table Chi-square value = 12.59 (alpha = 0.05) Average df used in calculation ==> df (avg n - 1) = 7.00Used for Chi-square table value ==> df (#groups-1) = 6 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

t-test of Solvent and Blank ControlsHo:GRP1 MEAN = GRP2 MEANGROUP1 (SOLVENT CRTL) MEAN =2.1125CALCULATED t VALUE = -8.0643GROUP2 (BLANK CRTL) MEAN =2.4125DEGREES OF FREEDOM = 14DIFFERENCE IN MEANS =-0.3000

TABLE t VALUE (0.05 (2),14) = 2.145**SIGNIFICANT DIFFERENCE at alpha=0.05TABLE t VALUE (0.01 (2),14) = 2.977**SIGNIFICANT DIFFERENCE at alpha=0.01

TITLE: Atrazine -- Daphnia pulicaria Partial Life Cycle - Adult Body Length (cont.)

<u>TR/</u>	<b>ANSFORM: NO TRANSF</b>	ORMA	TION	NUMBER OF GROUPS: 7	_
GRO	OUP IDENTIFICATION	REP	VALUE	TRANS VALUE	_
1	DMF Control	1	2.1000	2.1000	
1	DMF Control	2	2.1000	2.1000	
1	DMF Control	3	2.1000	2.1000	

DER on Partial Chronic Toxicity of Atrazine T	AI to Freshwater Invertebrates - Daphnia pulicaria
PMRA Submission Number	EPA MRID Number 452995-0

1	A Submission Number DMF Control	4	2.2000	2.2000	
1	DMF Control	5	1.9000	1.9000	
1	DMF Control	6	2.2000	2.2000	
1	DMF Control	7	2.2000	2.2000	
1	DMF Control	8	2.1000	2.1000	
2	Control	1	2.4000	2.4000	
2	Control	2	2.4000	2.4000	
2	Control	3	2.4000	2.4000	
2	Control	4	2.4000	2.4000	
2	Control	5	2.4000	2.4000	
2	Control	6	2.5000	2.5000	
2	Control	7	2.4000	2.4000	
2	Control	8	2.4000	2.4000	
3	0.93	1	2.1000	2.1000	
3	0.93	2	2.2000	2.2000	
3	0.93	3	2.2000	2.2000	
3	0.93	4	2.2000	2.2000	
3	0.93	5	2.1000	2.1000	
3	0.93	6	2.2000	2.2000	
3	0.93	7	2.0000	2.0000	
3	0.93	8	2.1000	2.1000	
4	4.1	1	2.1000	2.1000	
4	4.1	2	2.3000	2.3000	
4	4.1	3	2.0000	2.0000	
4	4.1	4	2.2000	2.2000	
4	4.1	5	2.2000	2.2000	
4	4.1	6	2.1000	2.1000	
4	4.1	7	2.2000	2.2000	
4	4.1	8	2.1000	2.1000	
5	8.7	1	2.2000	2.2000	
5	8.7	2	2.3000	2.3000	
5	8.7	3	2.3000	2.3000	
5	8.7	4	2.2000	2.2000	
5	8.7	5	2.2000	2.2000	
5	8.7	6	2.2000	2.2000	
5	8.7	7	2.2000	2.2000	
5	8.7	. 8	2.2000	2.2000	
6	44	1	1.9000	1.9000	
6	44	2	2.0000	2.0000	
6	44	3	2.2000	2.2000	
6	44	4	2.2000	2.2000	
6	44	5	2.1000	2.1000	
6	44	6	2.2000	2.2000	
6	44	7	2.0000	2.0000	
6	44	8	2.2000	2.2000	
7	87	1	1.8000	1.8000	
7	87 87	2	2.0000	2.0000	
7	87 87	3	2.2000	2.2000	
7 7	87 87	4	2.0000	2.0000	
7	87 87	5	2.0000	2.0000	
1	0/	6	1.9000	1.9000	

I D	in connor	U U	1.500	2.200			
2 Co	ontrol	8	2.400	2.500	2.413		
3	0.93	8	2.000	2.200	2.138		
4	4.1	8	*	2.300	2.150		
5	8.7	8		2.300	2.225		
		8					
6	44			2.200	2.100		
_7	87	8	<u>1.800</u>	2.200	2.013		
SUM	<u>MARY STA</u>	TISTICS ON	TRANSF	<u>ORMED D</u>	ATA TA	BLE 2 of 2	
GROUI	P IDENTIFI	ICATION	VARIANO	CE SD	SEM		_
1 D	MF Control		0.010	0.099	0.035		
2	Control		0.001	0.035	0.012		
3	0.93		0.006	0.074	0.026		
4	4.1		0.009	0.093	0.033		
5	8.7		0.002	0.046	0.016		
					0.042		
6	44		0.014	0.120			
7	<u>87</u>		0.018	0.136	0.048	<u> </u>	
		ANOVA TA					
<u>SOURC</u>	<u>CE D</u>	<u>F SS</u>	]	<u>MS</u>	F		
Betwee	en	6 0.7	69 (	0.128	14.222		
Within	(Error)	49 0.4	420	0.009			
Total		55 1.1	89				
				<b>n</b> . <b>a</b>	1.0.000		1
Critical	+ value =	2 34 (0 05 6.4	40): Since	H > Critic	ALE REI	ECI Ho: A	i groups equal
Critical	F value =	2.34 (0.05,6,4	40); Since	F > Critic	al F REJ	ECT Ho: Al	i groups equal
		<u>EST - TAE</u>	BLE 1 OF 2	2 <u> </u>	o: Contro	<u>l &lt; Treatmen</u>	t
DU	<u>INNETTS T</u>	<u>EST - TAE</u> TF	BLE 1 OF 2 RANSFOR	2 Ho MED M	o: Contro IEAN C	<u>l &lt; Treatmen</u> CALCULATI	t ED_T STAT
DU	JNNETTS T P IDENTI	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR MEAN	2 Ho MED M	o: Contro IEAN C GINAL	<u>l &lt; Treatmen</u> CALCULATI	t ED_T STAT
<u>DU</u> <u>GROUI</u> 1	<u>INNETTS T</u> P IDENTI DMF Cor	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112	2 Ho MED M N ORI 2.1	o: Contro IEAN C <u>GINAL</u> 12	<u>l &lt; Treatmen</u> CALCULATI IN UNITS	t ED_T STAT
<u>, DU</u> <u>GROUI</u> 1 2	<u>INNETTS T</u> <u>P IDENTII</u> DMF Cor Control	<u>EST - TAE</u> TF FICATION	<u>BLE 1 OF 2</u> RANSFOR <u>MEAN</u> 2.112 2.413	2 Ho MED M N ORI 2.1 2.4	o: Contro IEAN C GINAL 12 13	<u>l &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325	t ED_T STAT
DU GROUI 1 2 3	<u>INNETTS T</u> <u>P</u> IDENTII DMF Cor Control 0.93	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138	2 Ho MED M <u>N ORI</u> 2.1 2.4 2.13	o: Contro IEAN C GINAL 12 13 8	<u>L &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527	t ED_T STAT
<u>DU</u> <u>GROUI</u> 1 2 3 4	<u>INNETTS T</u> <u>P IDENTII</u> DMF Cor Control	<u>EST - TAE</u> TF FICATION	<u>BLE 1 OF 2</u> RANSFOR <u>MEAN</u> 2.112 2.413	2 Ho MED M N ORI 2.1 2.4	o: Contro IEAN C GINAL 12 13 8	<u>l &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325	t ED_T STAT
DU GROUI 1 2 3	<u>INNETTS T</u> <u>P</u> IDENTII DMF Cor Control 0.93	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138	2 Ho MED M <u>N ORI</u> 2.1 2.4 2.13	<u>o: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60	<u>L &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527	t ED_T STAT
<u>DU</u> <u>GROUI</u> 1 2 3 4	<u>JNNETTS T</u> <u>P IDENTII</u> DMF Cor Control 0.93 4.1	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138 2.150	2 Ho MED M <u>V ORI</u> 2.1 2.4 2.13 2.15	<u>o: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25	<u>I &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527 -0.791	t ED_T STAT
<u>GROUI</u> 1 2 3 4 5 6	DNNETTS T DMF Cor Control 0.93 4.1 8.7 44	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100	2 Ho MED M 0 ORI 2.1 2.4 2.13 2.15 2.22 2.10	<u>o: Contro</u> IEAN C <u>GINAL</u> 12 13 8 50 5 50 00	<u>I &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527 -0.527 -0.791 -2.372 0.264	t ED_T STAT
DU <u>GROUI</u> 1 2 3 4 5 6 7	DNNETTS T DMF Cor Control 0.93 4.1 8.7 44 87	<u>EST - TAE</u> TF FICATION ntrol	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01	<u>o: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 55 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.527 -0.791 -2.372 0.264 2.108	t ED_T STAT
DU <u>GROUI</u> 1 2 3 4 5 6 7	DNNETTS T DMF Cor Control 0.93 4.1 8.7 44 87	<u>EST - TAE</u> TF FICATION	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01	<u>o: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 55 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.527 -0.791 -2.372 0.264 2.108	t ED_T STAT
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet	DNNETTS T DMF Cor Control 0.93 4.1 8.7 44 87 t table value	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{2} = 2.37  (1)$	<u>BLE 1 OF 2</u> ANSFOR <u>MEAN</u> 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05	<u>o: Contro</u> IEAN C GINAL 12 13 8 60 25 60 3 , df=40,6	<u>I &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527 -0.791 -2.372 0.264 2.108	t ED T STAT SIG
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet	DNNETTS T DMF Cor Control 0.93 4.1 8.7 44 87 t table value	$\frac{\text{EST} - \text{TAE}}{\text{FICATION}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{EST} - \text{TAB}}$	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2	2 Ha MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05	<u>o: Contro</u> IEAN C GINAL 12 13 8 50 25 50 3 , df=40,6	<u>I &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527 -0.791 -2.372 0.264 <u>2.108</u> 	t ED T STAT SIG
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u>	<u>P IDENTII</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u>	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{\text{FICATION}}{\text{ntrol}}$	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 	t ED T STAT SIG FFERENCE
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u>	<u>P IDENTII</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u>	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min EPS (IN O	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 	t ED T STAT SIG
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u> 1	<u>JNNETTS T</u> <u>P</u> IDENTII DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P</u> IDENTIF DMF Co	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min EPS (IN O 8	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05 <u>Ho</u> MIG. UNIT	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	I < Treatmen	t ED T STAT SIG FERENCE
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u> 1 2	<u>P IDENTII</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u> DMF Co Control	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min EPS (IN O 8 8	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05 <u>C Ho</u> imum Sig I <u>PRIG. UNIT</u> 0.112	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	<u>I &lt; Treatmen</u> CALCULATI <u>IN UNITS</u> -6.325 -0.527 -0.791 -2.372 0.264 <u>2.108</u> () < <u>Treatment</u> 6 of DIF <u>FROL FROM</u> 5.3	t ED T STAT SIG FFERENCE M CONTROL -0.300
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u> 1 2 3	<u>P IDENTII</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u> DMF Co Control 0.93	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val <u>LE 2 OF 2</u> M OF Min <u>EPS (IN O</u> 8 8 8 8	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05 <u>Ho</u> MIG. UNIT 0.112 0.112 0.112	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 () < Treatment 6 of DIF TROL FROM 5.3 5.3	t ED T STAT SIG FFERENCE M CONTROL -0.300 -0.025
DU GROUI 1 2 3 4 5 6 7  Dunnet  DU  DU  GROUI 1 2 3 4	<u>P IDENTIN</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u> DMF Co Control 0.93 4.1	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min EPS (IN O 8 8 8 8 8	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05 <u>C Ho</u> imum Sig I <u>PRIG. UNIT</u> 0.112	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 	t ED T STAT SIG FFERENCE M CONTROL -0.300
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u> 1 2 3	<u>P IDENTII</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u> DMF Co Control 0.93	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val <u>LE 2 OF 2</u> M OF Min <u>EPS (IN O</u> 8 8 8 8	2 Ho MED M 2.1 2.4 2.13 2.15 2.22 2.10 2.01 lue, P=0.05 <u>Ho</u> MIG. UNIT 0.112 0.112 0.112	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 () < Treatment 6 of DIF TROL FROM 5.3 5.3	t ED T STAT SIG FFERENCE M CONTROL -0.300 -0.025
DU GROUI 1 2 3 4 5 6 7  Dunnet  DU  DU  GROUI 1 2 3 4	<u>P IDENTIN</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u> DMF Co Control 0.93 4.1	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min EPS (IN O 8 8 8 8 8	2 Ho MED M 2.1 2.1 2.4 2.13 2.15 2.22 2.10 2.01 100, 112 0.112 0.112 0.112 0.112	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 	t ED T STAT SIG FFERENCE M CONTROL -0.300 -0.025 -0.038
<u>GROUI</u> 1 2 3 4 5 6 7 Dunnet <u>DU</u> 1 2 3 4 5	<u>P IDENTII</u> DMF Cor Control 0.93 4.1 8.7 44 87 t table value <u>NNETTS TI</u> <u>P IDENTIF</u> DMF Co Control 0.93 4.1 8.7	$\frac{\text{EST} - \text{TAE}}{\text{TF}}$ $\frac{\text{FICATION}}{\text{ntrol}}$ $\frac{1}{\text{rest}} = 2.37  (1)$ $\frac{\text{EST} - \text{TAB}}{\text{NUM}}$	BLE 1 OF 2 RANSFOR <u>MEAN</u> 2.112 2.413 2.138 2.150 2.225 2.100 2.013 Tailed Val LE 2 OF 2 M OF Min EPS (IN O 8 8 8 8 8 8 8	$     \begin{array}{cccc}             2 & Ha \\             MED & M \\             V & ORI \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.2 \\             2.1 \\             2.2 \\             2.1 \\             2.2 \\             2.1 \\             2.2 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\             2.1 \\     $	<u>p: Contro</u> IEAN C <u>GINAL</u> 12 13 8 60 25 60 3	L < Treatmen CALCULATI IN UNITS -6.325 -0.527 -0.791 -2.372 0.264 2.108 () < Treatment 6 of DIF FROL FROM 5.3 5.3 5.3 5.3 5.3	t ED T STAT SIG FFERENCE M CONTROL -0.300 -0.025 -0.038 -0.112

2.0000

2.2000

MIN

1.900

2.0000

2.2000

MEAN

2.112

MAX

2.200

7

8

N

8

87

87

DMF Control

EPA MRID Number 452995-04

	mission Number	2		110	EPA MRID N	umber 45	
7	87	8	0.	112	5.3		0.100
BON	FERRONI T-TH	τ Έδτ - ΤΔΙ	BLE 1 OF 2	н	o: Control < 7	reatmer	nt
DON			SFORMED		N CALCUL		T STAT
ROUP	IDENTIFICA		MEAN	ORIGIN			SIG
1	DMF Control		2.112	2.112			
2	Control		2.413	2.413	-6.325		
3	0.93		2.138	2.138	-0.527		
4	4.1		2.150	2.150	-0.791		
5	8.7		2.225	2.225	-2.372		
6	44		2.100	2.100	0.264		
7	87		2.013	2.013	2.108		
/	ni T table value		Tailed Value				
01110110		2.50 (	i i uneu y un		, ui 10,0)		
BON	FERRONI T-TI	EST - TA	BLE 2 OF 2	H	o: Control < ]	Freatmer	nt
			Minimum		% of		RENCE
ROUP	IDENTIFICAT			Ç			
1	DMF Control	<u>8</u>		<u>0111070</u>			0111102
2	Control	8	0.11	9	5.6	-0.30	0
3	0.93	8	0.119		5.6	-0.02	
4	4.1	8	0.119		5.6	-0.03	
5	8.7	8	0.119		5.6	-0.11	
6	44	8	0.11		5.6	0.0	
0 7	87	8	0.119		5.6	0.1	
/	0/	0	0.111	/		0.1	<u>,,,</u>
WII	LLIAMS TEST	(Isotonic re	pression mo	del) TA	BLE 1 OF 2		
	<u> </u>	1.0000011010					
			ORIGINAL	/ TRAN	ISFORMED	ISOTC	NIZED
GROUP	IDENTIFICA	TION N	ORIGINAL MEAN		ISFORMED MEAN	ISOTC MI	
	IDENTIFICA DMF Control		MEAN	N	MEAN	ME	EAN
1	DMF Control	8	<u>MEAN</u> 2.112	N	<u>MEAN</u> 2.112	<u>M</u> F 2.2	EAN 63
1 2	DMF Control Control	8 8	MEAN 2.112 2.413	N 2 2	<u>MEAN</u> 2.112 2.413	<u>ME</u> 2.20 2.26	EAN 53 53
1 2 3	DMF Control Control 0.93	8 8 8	MEAN 2.112 2.413 2.138	N 2 2. 2.	<u>MEAN</u> 2.112 413 138	<u>M</u> E 2.20 2.26 2.17	E <u>AN</u> 53 53 1
1 2 3 4	DMF Control Control 0.93 4.1	8 8 8 8	MEAN 2.112 2.413 2.138 2.150	2 2 2. 2.	MEAN 2.112 2.413 138 150	<u>ME</u> 2.26 2.26 2.17 2.17	E <u>AN</u> 53 53 1 1
1 2 3 4 5	DMF Control Control 0.93 4.1 8.7	8 8 8 8 8	MEAN 2.112 2.413 2.138 2.150 2.225	2 2 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225	<u>ME</u> 2.26 2.17 2.17 2.17 2.17	EAN 63 63 1 1 1
1 2 3 4	DMF Control Control 0.93 4.1	8 8 8 8	MEAN 2.112 2.413 2.138 2.150 2.225 2.100	2 2 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100	ME 2.26 2.17 2.17 2.17 2.17 2.10	EAN 53 53 1 1 1 1 0
1 2 3 4 5 6	DMF Control Control 0.93 4.1 8.7 44	8 8 8 8 8 8	MEAN 2.112 2.413 2.138 2.150 2.225	2 2 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225	<u>ME</u> 2.26 2.17 2.17 2.17 2.17	EAN 53 53 1 1 1 1 0
1 2 3 4 5 6 7	DMF Control Control 0.93 4.1 8.7 44 87	8 8 8 8 8 8 8 8	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013	ME 2.26 2.17 2.17 2.17 2.17 2.10	EAN 53 53 1 1 1 1 0
1 2 3 4 5 6 7	DMF Control Control 0.93 4.1 8.7 44 87 LLIAMS TEST	8 8 8 8 8 8 8 8	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013	ME 2.26 2.17 2.17 2.17 2.17 2.10	EAN 53 53 1 1 1 1 0 3
1 2 3 4 5 6 7 WI	DMF Control Control 0.93 4.1 8.7 44 87 <u>LLIAMS TEST</u> IS	8 8 8 8 8 8 8 8 7 (Isotonic re OTONIZED	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc 0 CALC.	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013 BLE 2 OF 2	MH 2.20 2.26 2.17 2.17 2.17 2.10 2.01	EAN 53 53 1 1 1 1 0 3
1 2 3 4 5 6 7 WI IDENT	DMF Control Control 0.93 4.1 8.7 44 87 LLIAMS TEST	8 8 8 8 8 8 8 8 8 8 8	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc 0 CALC.	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013 MBLE 2 OF 2 TABLE	MH 2.20 2.26 2.17 2.17 2.17 2.10 2.01	EAN 63 63 1 1 1 2 3 EES OF
1 2 3 4 5 6 7 WI IDENT	DMF Control Control 0.93 4.1 8.7 44 87 <u>LLIAMS TEST</u> IS <u>TIFICATION</u>	8 8 8 8 8 8 <u>8</u> 0 TONIZED MEAN	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc 0 CALC.	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013 BLE 2 OF 2 TABLE WILLIAMS	<u>ME</u> 2.20 2.17 2.17 2.17 2.10 2.01 DEGRE	EAN 53 53 1 1 1 2 3 EES OF EDOM
1 2 3 4 5 6 7 WI IDENT DN Co	DMF Control Control 0.93 4.1 8.7 44 87 <u>LLIAMS TEST</u> IS <u>TIFICATION</u> MF Control	8 8 8 8 8 8 <u>8</u> 0 TONIZED MEAN 2.263	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc CALC. WILLIAMS	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013 MBLE 2 OF 2 TABLE	<u>MH</u> 2.20 2.27 2.17 2.17 2.10 2.01 DEGRH FREE k= 1	EAN 53 53 1 1 1 1 53 53 53 53 53 53 53 53 53 53
1 2 3 4 5 6 7 WI IDENTI DN Co 0	DMF Control Control 0.93 4.1 8.7 44 87 <u>LLIAMS TEST</u> IS <u>TIFICATION</u> MF Control ontrol	8 8 8 8 8 8 8 8 8 7 (Isotonic re OTONIZED MEAN 2.263 2.263	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc CALC. WILLIAMS 3.241	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013 BLE 2 OF 2 TABLE WILLIAMS 1.68	MH 2.20 2.26 2.17 2.17 2.17 2.10 2.01 DEGRH FREE k= 1 k= 2	EAN 53 53 1 1 1 1 2 53 53 1 1 1 2 53 53 53 53 53 53 53 53 53 53
1 2 3 4 5 6 7 WI IDENT DN Co 0 4	DMF Control Control 0.93 4.1 8.7 44 87 <u>LLIAMS TEST</u> IS <u>CIFICATION</u> MF Control ontrol .93	8 8 8 8 8 8 8 8 8 8 7 (Isotonic re OTONIZED MEAN 2.263 2.263 2.171	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc CALC. WILLIAMS 3.241 1.260	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 2.413 138 150 225 100 013 MBLE 2 OF 2 TABLE WILLIAMS 1.68 1.76	MH 2.20 2.26 2.17 2.17 2.17 2.10 2.01 DEGRH FREE k= 1 k= 2 k= 3	EAN 53 53 11 1 1 2 53 53 53 53 53 53 53 53 53 53
1 2 3 4 5 6 7 WI IDENT DN Co 0 4	DMF Control Control 0.93 4.1 8.7 44 87 <u>ILLIAMS TEST</u> IS <u>TIFICATION</u> MF Control ontrol .93 .1 .7	8 8 8 8 8 8 8 8 0 TONIZED MEAN 2.263 2.171 2.171	MEAN 2.112 2.413 2.138 2.150 2.225 2.100 2.013 egression mc 0 CALC. WILLIAMS 3.241 1.260 1.260	2 2 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	MEAN 2.112 413 138 150 225 100 013 MBLE 2 OF 2 TABLE WILLIAMS 1.68 1.76 1.79	MH 2.20 2.26 2.17 2.17 2.17 2.10 2.01 DEGRH FREE k= 1 k= 2 k= 3 k= 4	EAN 53 53 1 1 1 1 2 53 53 1 1 1 2 53 53 53 53 53 53 53 53 53 53