

US EPA ARCHIVE DOCUMENT

FORMULATION:			IA	IB	T	FW	EC	R		
% a.i.	SC#	CHEMICAL NAME	Validator:					Date:		
Technical		Metolachlor CGA-24705	R. Balcomb					7/20/78		
			Test Type:					MAD #		
			Rainbow Trout					0018722		
			96-hr LC ₅₀							
			Test ID.# ES-G							

CITATION: Buccafusco, Robert J., 1978. Acute Toxicity of CGA-24705 to Rainbow Trout (Salmo gairdneri). Report #BW-78-6-186. EG & G - Wareham, Mass.

VALIDATION CATEGORY: Core

RESULTS:

LC₅₀ Values (mg/l)

<u>24 hr.</u>	<u>48 hr.</u>	<u>72 hr.</u>	<u>96 hr.</u>
>8.8	>6.0 <8.8	4.7 (4.0-5.5) ¹	3.9 (3.3-4.6)

(¹95% Confidence interval)

PROCEDURE: The study generally follows EPA guidelines. Young Rainbow Trout, mean wt. 0.68 (0.17-1.2) grams - mean length 45 (39-53) millimeters, were held for 14 days prior to testing at the test temperature of 12°C. The testing was performed in 19.6-liter glass jars with 10 fish used per concentration level; the test concentrations (nominal) were: 0.88, 1.3, 1.9, 2.8, 4.1, 6.0, and 8.8 mg/l. Control and acetone-control groups were also tested. The statistical analysis followed a moving average approach (Harris, E.K. 1959. Biometrics, Vol. 4 #3. pp. 157-164).

VALIDATION CATEGORY RATIONALE: The study adheres to EPA guidelines. The statistics were checked by recalculating via the Weil technique (Weil, Carroll S., 1952. Biometric, Vol. 8, No. 3 p. 249-263). A comparable value was obtained: 96-hr LC₅₀ = 3.80 (3.37-4.27) mg/l.

REPAIRABILITY: N/A

SPECIAL NOTE: The report described the test material only as CGA-24705. Dr. Jack A. Norton, Regulatory Specialist for Ciba-Geigy, was contacted by phone (919-292-7100) for a more complete description of the compound. CGA-247-5 is, according to Dr. Norton, technical metolachlor.



2044713

by R. Balcomb 7/20/78

Species Rainbow trout PROBIT ANALYSIS WORK SHEET Chemical Metolachlor
 Source _____ Date Tested 6/78
 No. Period 96 hrs. Analysis by: Henry T. Crauen 9/21/78
 (Name) (Title) (Date)

Concentration	No. dead/ /No. tested	Observed % Mortality	Expected % Mortality	O-E	Contributions to Chi (Nomo #1)
Control	0/10	0			
1.9	0/10	0 (0)	0.9	0.9	0.009
2.8	0/10	0 (4.7)	1.5	11.3	0.090
4.1	7/10	70	60	10	0.095
6.0	10/10	100 (99.7)	99.9	.2	0.004
8.8	10/10	100 (99.7)	99.9	.2	0.004
				Total	0.152

Total Fish Tested = 50
 Number of Doses (K) = 5
 Degrees of freedom (K-2) = 3
 $\chi^2 = \frac{\text{Total Cont. to Chi} \times \text{Total fish}}{K} = \frac{1.52 \times 50}{5} = 15.2$
 $\chi^2 (p=.05) \text{ for } 3 \text{ deg of freedom} = 7.82$

DETERMINE LC_{50} :

$LC_{84} =$ _____
 $LC_{50} =$ _____
 $LC_{16} =$ _____
 $S = \frac{LC_{84} - LC_{16}}{2} =$ _____
 $N' (\text{Fish used between } 16\% \text{ and } 84\% E) =$ _____
 $\sqrt{N'} =$ _____
 $FLC_{50} = S \cdot 2.77 / \sqrt{N'} =$ _____
 (Nomo. #2) = _____

DETERMINE FS:

R (Largest/Smallest dose plotted) _____
 S (As determined above) _____
 A (Nomo. #3 using R and S) _____
 $FS = A^{10(K-1)/K\sqrt{N'}} = A$ _____ (Nomo. #2) = _____

DETERMINE FLC_y :

$(FS)^x = FS^{2.33} \text{ or } 1.30 \text{ (Table 3 and Nomo. #2)} =$ _____
 $FLC_y \text{ (Nomo. #4 using } (FS)^x \text{ and } FLC_{50}) =$ _____

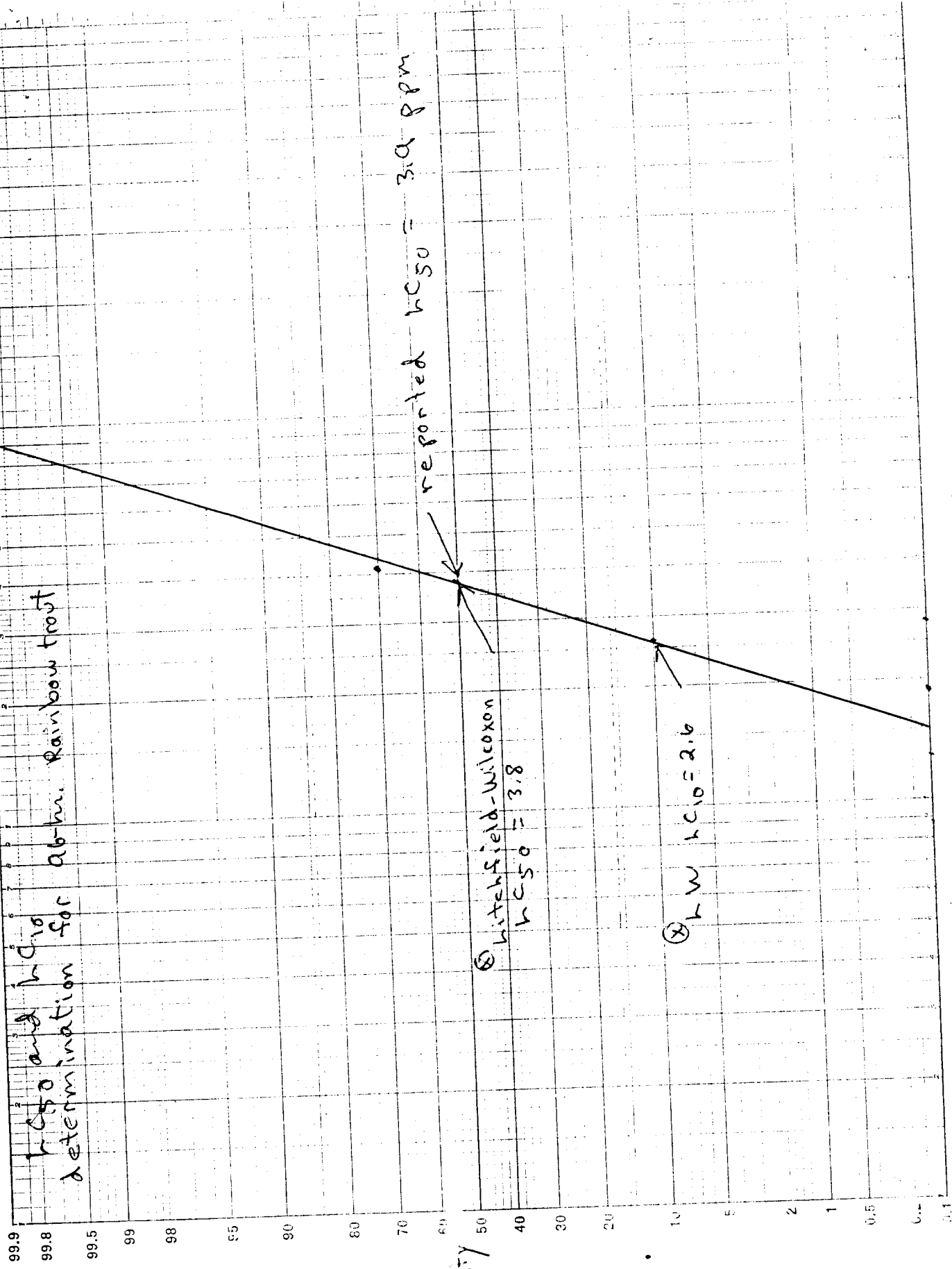
RESULTS (LC_x and Confidence Limits at $p = .05$):

$LC_1 =$ _____
 Lower Limit (LC_1/FLC_y) _____
 Upper Limit ($LC_1 \times LC_y$) _____
 $LC_{50} =$ _____
 Lower Limit (LC_{50}/FLC_{50}) _____
 Upper Limit ($LC_{50} \times FLC_{50}$) _____

$LC_{99} =$ _____
 Lower Limit (LC_{99}/LC_y) _____
 Upper Limit ($LC_{99} \times LC_y$) _____

Acc. No. 234396

LC_{50} and LC_{10}
determination for abn. Rainbow trout



reported $LC_{50} = 3.0$ ppm

⊗ Mitchfield-Wilcoxon
 $LC_{50} = 3.8$

⊗ LW $LC_{10} = 2.6$

Dose ppm

Mortality