



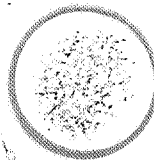
2,4-D/TOX

5-29-80

33

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES



Case # 315

MEMORANDUM

DATE: May 29, 1980

SUBJECT: #11683-EUP-2, #11683-EUP-3 with PP# OG2301 - 2,4-D in multiple use
water systems and FARM OH5252

FROM: Henry Spencer, Ph.D. *HuS 4/3/80*
Toxicology Branch/HED (TS-769)

TO: Robert Ikeda, PM Δ23
RD (TS-767)

THRU: William Burnam, Acting Branch Chief
Toxicology Branch/HED (TS-769)

C. J. Chaisson for W. Burnam 4/12/80

Background

In 1974, a petitioner applied for an EUP using either the dimethylamine salt or the butoxyethanol ester of 2,4-D in water reservoirs for the treatment of Eurasian watermilfoil. A modification of the first EUP followed shortly in which 2,4-D was to be allowed in the area of water intakes for municipal use. That EUP was extended from 1975 to 1976. That EUP is of importance due to the fact that the municipal water intakes were on Ft. Cobb Reservoir for the city of Chickasha and is again one of four (4) reservoirs to be treated under the EUP's of the present request.

Review

The use of 2,4-D as either the dimethylamine salt or the butoxyethanol ester is requested for use in Lake Seminole, Florida-Georgia on approximately 200 of 8,000 acres of infestation; in Robert S. Kerr Reservoir, Oklahoma on approximately 140 of 800 acres of infestation; in Fort Cobb Reservoir, Oklahoma on approximately 120 of 1200 acres of infested water and in Banks Lake, Washington on 160 acres of lake surface infested with the milfoil weed.

Either the dimethylamine salt or the butoxyethanol ester will be used only once at either 20 or 40 pounds/acre of acid equivalence on any one site.

A request is made under Section F of the EUP for temporary tolerances of 0.1 ppm in potable water as a negligible tolerance.

Conclusions and Recommendations

1. The 2,4-D phenol, and dimethyl nitrosamine as well as the parent, 2,4-D, are considered the residues of concern.
2. The EUP should be expanded to show levels of the residues of concern, in par. 1. above, for a period of 30 days at depths of 1 ft, 5 ft and bottom to indicate potential hazard to swimmers.
3. If nitrosamine residues are found, additional data to indicate an appropriate method of removal will be necessary. Toxicology Branch considers the restrictions of one half (1/2) mile from treatment to the nearest water intake system reasonable, providing continuous monitoring occurs.
5. Tolerances in sport fish - if marketed-in various states may be appropriate.
6. The supplemental labeling for experimental use as submitted under Section B. appear adequate.
7. If aerial application is to be made, care to remove persons and live stock from the adjacent area is essential before spraying.
8. *Tox Br. has no objections to the EUP, providing they are expanded to take into consideration the requests and concerns of para. 1, 2, 5, 7, and 9.*

9. The treated areas are to be posted against swimming for a period of 14 days.

10. The tolerances requested are covered previously in CFR 40, 180.142.

11. Impact on the ADI and TMRC *Set on the 2 yr dog w/ NOEL of 500 ppm (12.5 mg/kg/day)*

MPI	TMRC	%ADI
7.5 mg/day/60 kg	0.9137 mg/1.5 kg diet	12.18

Temporary FAP in water
at 0.1 ppm x 2.5 liters

tolerance	Food factor
0.1 ppm	100% x 2.5 kg = 0.25 mg/day

TMRC for H₂O + $\frac{.9137 \text{ mg/day}}{1.1637 + 7.5 \text{ mg}}$ ADI = 15.51%

Toxicity Data Summary

Route	Species	Sex	Value
Acute Oral	Rat	Mixed	LD50 = 375 mg/kg

NOTE: LD50 values vary from about 375 - 1000 mg/kg in different species.

Chronic feeding - 2 year 2,4-D
rat - NOEL = 1250 ppm (62.5 mg/kg/day)
for systemic effects.

Chronic feeding - 2 year 2,4-D acid
dog - NOEL = 500 ppm (12.5 mg/kg/day)

Reproduction - 2,4-D acid
Rat - equivocally positive for reduced viability
to weanling age at 100 ppm (5 mg/kg)
Not acceptable by today's standards

Teratology

Rat - LEL = 150 mg/kg 2,4-D acid
NOEL = 50 mg/kg
Mouse EL only = 147-221 mg/kg 2,4-D acid (1 test dose)
Hamster LEL = 60 mg/kg
NOEL = 40 mg/kg

NOTE: Most long term studies have been performed on the 2,4-D acid.