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

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

AUG 14 1991

MEMORANDUM

SUBJECT: Lindane: List A Project. Report of data and study requirements.

FROM: Doug Urban, Acting Chief *for Henry T. Crow* 8/21/91
Ecological Effects Branch
Environmental Fate and Effects Division (H-7507C)

TO: H. Toma
Reregistration Branch
Special Review/Reregistration Division (H-7508C)

The Ecological Effects Branch is submitting data and study requirements for Lindane: List A Project.

The following studies are new requirements:

- 71-4(a) Avian reproduction/ Quail TGAI
- 71-4(b) Avian reproduction/ Duck TGAI
- 71-5(b) Actual terrestrial field study
- 72-7(a) Simulated aquatic field study

The following studies have been reviewed and are outstanding:

- 72-3(b) Acute estuarine/marine toxicity Mollusk TGAI
- 72-4(a) Early life-stage fish freshwater TGAI
- 72-4(b) Life cycle aquatic invertebrate TGAI

The following study is in review:

- 70-1 Special study- Aquatic residue monitoring



Rational for the required studies:

71-4 (a) and (b) - the long halflife of this chemical in the environment (980 days in sandy loam soil and 281 -309 days in water at pH 7) trigger the reproduction tests.

71-5 (b) - the major use of Lindane on agricultural crops is for seed treatment. At the label rates of application, only 9 corn seeds need to be consumed by one red-winged blackbird to provide a lethal dose (Lindane Registration Standard 6/12/85). This situation is expected to occur in the environment since birds follow seed planters which, depending on the type of seed, may not incorporate the seed deep enough, allowing for exposure of the treated seeds to birds. Therefore, a terrestrial field study is required.

72-3 (b) - this study was reviewed and catagorized as supplemental, therefore it must be repeated.

72-4 (a) and (b)- the product is expected to be transported to water from the intended use site via runoff and the EEC is greater than 1% of the LC₅₀ or EC₅₀ values of aquatic organisms. Attachment 1 lists the LC₅₀ or EC₅₀ values for 13 species of fish and 10 species of aquatic invertebrates. The expected EEC is greater than 1% of the LC₅₀ or EC₅₀ values for all 23 species (attachment 1). These studies were reviewed and catagorized as supplemental, therefore they must be repeated.

72-7 (a)- the EEC is greater than $\frac{1}{2}$ the LC₅₀ or EC₅₀ values for aquatic organisms. (attachment 1)

Should you have any questions concerning this DCI, please contact Nimish Vyas (557-0577) of my staff.

Attachment 1

Runoff EEC calculations:

2.06 (rate of application) x 2 (% runoff) x 10 acres x 61 ppb=
25 ppb

LC₅₀ values for fish

<u>Species</u>	<u>% ai</u>	<u>LC₅₀ (ppb)</u>
Coho salmon	99%	23 (19-28)
Rainbow trout	99%	27 (20-36)
Brown trout	99%	1.7 (1.2-2.4)
Lake trout	99%	32 (24-42)
Goldfish	99%	131 (92-187)
Carp	99%	90 (75-120)
Fathead minnow	99%	87 (69-101)
Black bullhead	99%	64 (49-81)
Channel catfish	99%	44 (37-52)
Green sunfish	99%	83 (47-149)
Bluegill	99%	68 (60-78)
Large mouth bass	99%	32 (27-38)
Yellow perch	99%	68 (60-76)

EC₅₀ values for aquatic invertebrates

<u>Species</u>	<u>% ai</u>	<u>LC₅₀ (ppb)</u>
<u>Simocephalus</u>	99%	520 (340-790)
<u>Daphnia pulex</u>	99%	460 (386-547)
<u>Cypridopsis</u>	99%	3.2 (2.2-4.6)
<u>Asellus</u>	99%	10 (7-14)
<u>G. fasciatus</u>	99%	10 (7-14)
<u>G. lacustris</u>	99%	88 (57-136)
<u>Pteronarcys</u>	99%	4.5 (3.6-5.7)
<u>G. lacustris</u>	Tech.	48 (35-65)
<u>G. fasciatus</u>	99%	10 (7-14)
<u>Asellus</u>	99%	10 (7-14)