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

OFFICE OF PREVENTION,  
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

FROM: David Farrar, Statistician, Terbufos RED task leader  
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THRU: Pat Jennings, Acting Branch Chief  
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*Betsy Jim for 8-5-99*

TO: Pam Noyes, Chemical Review Manager  
Special Review and Reregistration Division

SUBJECT: Terbufos: Response to material submitted for the docket by Martha Philbeck,  
and related material.

DP BARCODE: D257287, PC code: 105001

DATE: Aug. 5, 1999

The purpose of this communication is to comment on material submitted for the terbufos docket, by Martha Philbeck of LoFountain Indiana, concerning an aquatic incident in a 2 acre pond on her property in 1998. In addition to comments received from Philbeck (multiple items received in 1999), we have reviewed the following related material indicated by SRRD:

- 6(a)2 reports submitted by the registrant (American Cyanamid);
- Material from an investigation of the incident by Kevin Neal, Pesticide Investigator in the Office of the Indiana State Chemist and Seed Commissioner.
- communications received by Philbeck from Am. Cyanamid and from Kevin Neal.

In addition to material on the incident on the Philbeck property, EFED has reviewed material on incidents that occurred on property of neighbors of the Philbecks, which the affected

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parties have attributed to terbufos use by a single applicator. Here we focus on the incident on the Philbeck property, which resulted in submission of comments to the terbufos docket. We have some indications that these incidents may be subject to litigation.

According to M. Philbeck, dead fish were noted in the pond on June 13, 1998. After learning that Counter had been applied on the property of a neighbor, Philbeck contacted Cyanamid. Cyanamid tested for terbufos residues on July 9, Aug. 5, and Aug. 25. Residues were found on the first 2 sample dates. The Cyanamid 6(a)2 report indicates a detection limit of 1 ppb. Pet ducklings placed in the pond by a neighbor died with frothy salivation, indicating organophosphate poisoning. Therefore the report of the incident in the RED chapter will include ducks as a species affected.

Communications from Cyanamid to Philbeck indicate that the compounds detected were terbufos metabolites rather than parent terbufos. The Cyanamid 6(a)2 reports identify the detected chemicals as terbufos sulfone and terbufos sulfoxide. Based on the mobility and persistence of the degradates compared to parent terbufos, EFED believes that it is actually more likely to detect the degradates. Although EFED does not have toxicity information for terbufos sulfone and terbufos sulfoxide at this time, limited information based on other organophosphate sulfones and sulfoxides in EFED's toxicity one-liner database supports that these type of compounds may be toxic to aquatic animals.

In all the material we have reviewed, the most probable source of the pesticide is identified as use by a specific applicator on the property of a neighbor (the Brinson farm). A report prepared by Kevin Neal states that "the Philbeck pond is located to the south and west of the field ... where, according to a Pesticide Investigation Inquiry (PII) completed and signed by [applicator], an application of Counter Insecticide was made on 5/19/98." That PII (dated 10/20/98) indicates T-band application of 456 lb Counter CR at 6 lb/acre (presumably formulated product). For a 20% formulation, that rate would correspond to 1.2 lb active ingredient/acre.

Based on the finding of terbufos residues, and the overall plausibility of the description, EFED concludes that there is adequate evidence to conclude that the incident was caused by terbufos. We have received no evidence of misuse for the incident. The Neal report concludes that "after reviewing the label for Counter insecticide reference the use directions of this product it was determined that none of the restrictions had been violated." Also, the Agency has received no evidence that the incident occurred under environmental conditions or other circumstances that are expected to occur infrequently. The Cyanamid 6(a)2 report states that "dead fish were noticed following heavy rainfall of >2 inches." However, as with other 6(a)2 reports, Cyanamid does not state the duration of time to which the rainfall applies. The Neal report provides estimates of rainfall for the period preceding the incident, from the Indiana Climate Page. According to those data, the total rainfall for the week up to June 13 approaches 2 inches, with no more than 0.51 inches falling on any one day of that week.

The comments from Philbeck illustrate some of the ways that pesticide incidents may affect individuals. Philbeck reports "My husband retired to enjoy the fishing in the pond and we had 25 years of growth in the fish. He cannot live long enough for them to get that big again."

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"We have lost a much used food source, we lost recreational facilities for a whole summer. What if the neighbor kids would have gone swimming like they usually do and would have had serious problems ... ? My dogs are water dogs and was told to keep them from the water ... ." "We could not let anything near the water." Philbeck indicates disappointment with the protection applied by "government agencies" and wonders "What can be done to prevent this from happening again?"

In this incident, a balanced pond community with a history of sustained yield was severely impacted. While complete recovery, including presence of some large fish and an appropriate balance of predator and prey species, might not require 25 years, complete recovery with a few years could be difficult and expensive. Philbeck provides a range of observations on the biological community associated with the pond after the incident, such as algae and snakes, suggesting undesirable indirect effects. A range of indirect effects is conceivable, but EFED cannot make use of the specific observations suggesting indirect effects, without corroborative evidence supporting that the specific effects are expected to result from pesticide contamination.

cc David Brassard  
Tom Steeger