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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

TO: File

SUBJECT: Meeting with American Cyanamid: Avian Field Study
Protocol with Terbufos

The meeting took place on April 25, 1984 at 1 PM in the CM-2, 11th flr. conference room. Present were: EEB - Clayton Bushong, John Bascietto, Dave Coppage, Richard Balcomb and Ed Fite; RD - Marilyn Mautz; Cyanamid - William Stellar and Dr. Paul Walgenbach; consultants for Cyanamid - Mark Jabar and Curt Hutchinson of Wildlife International (W.I.).

The registrants began by taking exception with Bascietto's review of the W.I.'s proposed protocol to study potential effects of terbufos with caged bobwhite quail on a single 30-acre field. Bascietto rejected this protocol on 4-13-84 (see file review) and re-iterated EEB's request for an "actual" field study of wild birds on several corn fields, looking particularly for assessment of potential passerine impact. This was explained to be due to our laboratory studies of terbufos granules with passerine species (work by R. Balcomb). The registrants did not present any new information to rebut Bascietto's review of 4-13-84, but merely reiterated previous claims. They said that the caged bobwhite quail study would be sufficient to assess avian impact potential.

Bascietto raised several specific issues as to the inadequacy of testing what we now know to be a less sensitive avian species in a caged trial on a single field, and said that several previously accepted "simulated" (caged) studies of terbufos with upland species showed that these birds are not particularly sensitive to terbufos granules, except in "simulated spills". He asked how they proposed to assess the laboratory data EEB obtained showing passerine species to be far more sensitive than upland species to Counter 15-G granules (terbufos). They did not respond.

Clayton Bushong then raised several questions to EEB reviewers dealing with his uncertainty about the direction the Agency seems to be taking in asking for field validation of laboratory data, if the field validation is to include passerine species. Bascietto and Balcomb tried to explain that they thought it was reasonable to do this, if data indicated that the pesticide would be used at a time when passerines are exposed, and that passerines had proved to be more sensitive to the compound in laboratory studies. Bascietto pointed out that the guidelines did not mandate that any particular group of birds be used in actual field tests but rather directed that this was to be worked out between the Agency and the registrants on a "case-by-case" basis. Bushong asked if the study request

had been peer reviewed. Bascietto said that the request, (originally made in June, 1983 by the registration standard written by Jim Felkel & Harry Craven) had apparently not been peer reviewed. Dick Balcomb said that it was his impression that field studies requested by registration standards were generally not being peer reviewed at that time. Dick Balcomb also explained that recent field studies of highly acutely toxic granules were yielding good and usable data (i.e., better than simulated or caged studies) for assessment of avian hazard. Passerines were examined, without using cages, but by examining effects on wild populations. Clayton Bushong had to leave after this discussion.

Dave Coppage addressed EEB's proposal to use the "pH-stat" method for acetylcholinesterase (AChE) determinations rather than "photometric" methods proposed by W.I. (i.e., the "Ellman" method). Jabar and Hutchinson of W.I. disagreed, quoting papers from the USFWS Patuxent Wildlife Research Center which used the Ellman method. Coppage pointed out that even these authors admitted that their method may not account for all variables and that they were aware that there is not always a good "diagnostic correlation" between AChE levels measured by photometric techniques, and mortality. Coppage contends that the "PH-stat" method he used in fish is applicable to other non-target vertebrates and reliably provides "good diagnostic" ability. Balcomb agreed with Coppage but also said that this (Coppage's evaluation) was a relatively new point of view in EEB which was now gaining general acceptance within the Branch.

A fire drill interrupted the meeting at this point. Balcomb could not attend the meeting after the drill.

American Cyanamid agreed that Bascietto's assessment of the field testing requirements was reasonable and that upland species were "not likely to be killed" in caged field studies. All agreed that the main question to be studied was that of acute avian mortality from the granules, and that reproductive and/or sublethal effects were not of concern to this field study. Cyanamid agreed to do an "actual" field study in corn in which potential for wild bird mortality, to include passerines, would be studied. EEB (Fite and Bascietto) agreed that concurrent control fields may not be necessary and that pre-treatment surveys could be used for "controls" but that there could be a problem if other highly toxic pesticides also used in the test area caused mortality of birds. The registrants said they wanted to do residue (terbufos) analysis of whole dead birds and that they would provide laboratory verification of sensitive terbufos detection techniques for dead birds. EEB agreed that this work could substitute for cholinesterase analysis if they can satisfactorily demonstrate their methods for residue detection in dead birds are sensitive enough to pick up minimum levels causing mortality (e.g., an LD₂₀ dose).

The registrants agreed that the studies must include preliminary or "pilot" studies of search method sensitivity. In these studies the researchers will demonstrate or determine their ability to recover hidden (real) dead birds in corn fields (maturing crop). The results of "pilot" sensitivity determinations will be used to decide how fields will be searched and what the transect specifications will be.

The definitive study will be done on no less than five (5) corn fields and will include details worked out between the registrant, EEB and W.I., depending on preliminary results. The registrants were informed that since they have no written approval of their protocol prior to doing the study this year, and since they had not yet done the pilot sensitivity studies in a maturing crop, that they ran the risk of having their report rejected. EEB advised postponing the definitive work until 1985. The registrants insisted on doing all work in 1984.

The preliminary study design EEB agreed to prior to adjourning the meeting (Cyanamid will submit a written proposal) included the following points:

- 1) The carcass searches will include appropriate avian habitat outside (adjacent to) the study fields.
- 2) the sampling schedule (carcass searches and pre-treatment surveys) will follow that already proposed by W.I. in the previous draft protocol reviewed by Bascietto on 4-13-84, with possible deletion of the survey scheduled for 14 days prior to the 1st application.
- 3) species lists will be compiled for every sampling day.
- 4) pre-treatment surveys will be done with possible use of concurrent untreated control fields if available.
- 5) the residue analysis for terbufos in whole dead birds can be used instead of the cholinesterase work if it can be demonstrated that sufficiently sensitive residue analysis techniques are used, otherwise AChE work-ups should be done. Prior to the study they will submit data verifying their ability to detect terbufos at minimum levels of exposure causing mortality e.g., at an LD₂₀ dose.
- 6) the details of transect analyses will be agreed upon after the results of the "pilot" sensitivity studies (see above) are in.
- 7) the treatment schedule will be that previously proposed, i.e. two (2) applications of Counter 15-G granules:
 - 1st - pre-plant at max. label rate and minimum row spacing; soil incorporated.
 - 2nd - post - emergence, aerial broadcast at max. label rate, unincorporated (timing is that recommended by label).

John Bascietto

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