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Date out of EFB: JUL 0 1 1982

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To: Richard Mountfort
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Thru: S. Creeger, Head (acting)
Review Section 1
EFB/HED

Attached please find the EFB review of...

Reg./File No.: 707-145

Chemical: Oxyfluorfen

Type Product: Herbicide

Product Name: GOAL

Company Name: Rohm and Haas

Submission Purpose: Reevaluation of Field and Aquatic Monitoring Study

ZBB Code: other

Date In: 5/27/82

Date Completed: 7/1/82

ACTION CODE: 576

EFB # 345

TAIS (level II)	Days
60	2

1.0 INTRODUCTION

1.1 On 4/13/82, EFB completed its review of Accession #246782[1]. At the time of review, EFB considered the submission to be in support of the Field Monitoring data requirement. As such, the study was criticized as being wholly inadequate. The registrant was required to redo the study.

1.2 On May 26, 1982, the registrant met with EPA[2] and presented the following rebuttal in support of its submission.

The Field Monitoring study was not intended to satisfy the Field Monitoring data requirement, but rather had been initiated at the request of EPA following protocol outlined in a letter from RD[3] on May 18, 1981. The agreement reached between the Registrant and the Agency was that Goal would be registered, conditional to the initiation and completion of the specified field monitoring study, within 2 years.

1.3 Since it then became necessary to rereview the submission, EPA felt it could not waive the requirement for the second year's monitoring, but did agree to conduct the rereview, based on the criteria set forth in the May 18 letter.

2.0 STRUCTURE AND DIRECTION FOR USE

See review of 4/13/82.

3.0 SUMMARY OF CRITERIA[3]

The following selected criteria relate specifically to areas of EFB concern. Others relating to Wildlife considerations have been omitted.

3.1 If possible, the Quinn Farm in Duplin County should be included in the study.

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1 Zogorski, W.J. III. 1982. A Study to Determine the Fate of Goal® Herbicide in the Environment.. Agricultural Product Support. Rohm and Haas Company. Philadelphia, Pennsylvania. January 5, 1982

2 W. Garner, E. Regelman.....HED, EPA
Richard Mountfort... .....RD, EPA
W.R. Comegys, I. Adler and T. Rogerson.....Rohm and Haas

3 Letter from Richard F. Mountfort (PM 23) to Stephen F. Krzminski (Rohm and Haas). Subject: Protocol for Field Monitoring Studies. May 18, 1981

3.2 If a severe event occurs (sufficient to cause significant runoff from treated fields) additional water and sediment samples must be collected on the day of the event. Rainwater and sediment must then be analyzed for oxyfluorfen[4].

In arid regions, or in areas of insufficient rainfall, at least one acre-inch of irrigation water must be applied to the treated field, after which the above monitoring must be done.

3.3 Soil cores must be taken to a minimum depth of 8 cm, in 2 cm increments, and on a monthly basis.

3.4 At least 10% of all analyses must be confirmed by MS.

3.5 Description of Use Patterns should include the following:

3.5.1 use method
3.5.2 dosage
3.5.3 spray volume
3.5.4 pre- or post- emergence use pattern
3.5.5 incorporated? If yes, then type of implements used
3.5.6 description of use site
3.5.7 % soil moisture on day of application
3.5.8 whether day was Clear or Cloudy

3.6 All details contained in Appendix D of the March, 1981 PD[5], as follows:

3.6.1 At least one experimental site must be in the Chesapeake Bay drainage area.

3.6.2 Monitoring may be for parent oxyfluorfen only.

3.6.3 Limit of Detection of 0.01 ppm is satisfactory.

3.6.4 The following monitoring must be conducted on a continuous basis: temperature, rainfall, rainfall analysis for oxyfluorfen, and estimated volume of runoff per rainfall event.

3.6.5 The following monitoring must be conducted on a daily basis: Pan Evaporation

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4 Must include analysis of spiked soil, water and sediment to confirm recovery efficiency.

5 Field Monitoring During the Conditional Registration Period

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3.6.6 The following monitoring must be conducted on a monthly basis: pesticide residue analysis of hydrosoil surrounding roots of submerged aquatic plants (top 5 cm of hydrosoil), total estimated discharge of pesticide (bound and unbound).

3.6.7 The following monitoring must be conducted on a seasonal basis: soil profile to one meter, soil density, soil organic content, soil moisture holding capacity, and soil water-infiltration rate.

4.0 REVIEW OF SUBMISSION

4.1 While the requisite Quinn farm was indeed included in the sites tested, its inclusion is irrelevant since no oxyfluorfen application were made there during the testing interval.

4.2 The sites at which the study was conducted, as well as pertinent coding and environmental data are summarized in the following table.

Farm #	Location	Field Code	Nearest* Weather Station	Date of 1981 Applic.	Date of Nearest Severe Event	Rain-Fall Reported (inches)
1	Wallace, NC	P-18	A	6/15	6/18	0.92
				7/31	8/9	2.60
2	Wallace, NC	D-213	A	----	----	----
3	Oakville, IA	218127	B	6/1	6/21	1.27
4	Raeford, NC	H79-289	C	6/9	7/1	1.50
5	Lidell, NC	L-75	C	6/11	7/1	1.50
6	Centralia, MO	608113	D	7/11	7/15	1.92

* A= Wilmington, NC; B= Peoria, IL; C= Raleigh, NC; D= Columbia, MO.

As can be seen from the preceeding table, no oxyfluorfen applications were made during the sampling year at site #2. At all of the other sites, severe events of at least .92 inches occurred within a month of application. In fact, based on meterological data included in the submission, a number of subsequent severe events occurred at several of the test sites throughout the sampling period.

In reviewing this submission, we can find no sampling of water or sediment immediately following any of these events. Nor has any attempt been made to estimate oxyfluorfen loss from the treated fields as a result of such events.

4.3 No soil cores (to a depth of 8 cm in 2 cm increments) were taken at any site, despite the monthly requirement.

4.4 In the Use Patterns requirement, the following information was not provided: Spray volumes, implements used for incorporation, and % moisture in the soil on the day of application.

4.5 No field soil samples were taken on the day of application (pre- and post-)

4.6 Apparently none of the test sites was located in the Chesapeake Bay drainage basin.

4.7 With reference to the continuous monitoring requirements, we are concerned that the micrometeriological conditions at each test site might be significantly different from those at established weather stations several hundred miles away.

In addition, no rainfall was analyzed for oxyfluorfen, and the volume of rainfall at each test site resulting from the numerous severe events was not estimated.

4.8 With reference to the daily monitoring requirements, no pan evaporation data were reported for any test site.

4.9 With reference to the Monthly monitoring requirements, no estimates were made of the quantity of bound and unbound pesticide leaving the treated fields.

4.10 With reference to the Seasonal monitoring requirements, soil profiles to a depth of one meter were not reported. In addition, no summaries of soil density and soil water-infiltration rate were reported.

4.11 Finally, it was reported that initial samples were taken at Raeford, NC and Centralia, MO on 7/16/81. This does not seem possible since the test sites are in two widely separated parts of the country.

5.0 CONCLUSIONS

A second review of this Field Monitoring study, based on criteria ageeed-to by the registrant has delineated numerous errors of omission relative to that agreement. These deficiencies are sufficient to invalidate the work done.

6.0 RECOMMENDATIONS

6.1 In light of the numerous deficiencies in the first year's study, the second year testing requirement cannot be waived.

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6.2 The following deficiencies must be rectified:

6.2.1 Severe events in the test sites must be monitored as noted in section 4.2 of this review.

6.2.2 Soil cores must be taken to a depth of 8 cm, in 2 cm increments as follows: immediately preapplication, postapplication, and as frequently thereafter as necessary to delineate the rate of loss of oxyfluorfen from the treated field.

6.2.3 The additional use information specified in section 4.4 of this review must be provided.

6.2.4 At least one test site must be in the Chesapeake Bay drainage basin. Since the Quinn farm is apparently not being treated with oxyfluorfen, and since the site is apparently not managed according to good practices, it need not be included in the second year's sampling.

6.2.5 Continuous micrometeorological monitoring must be done at each test site. Minimum compliance would include daily rainfall and temperature.

6.2.6 Estimates must be made on the quantity of bound and unbound oxyfluorfen leaving treated fields, on a monthly basis.

6.2.7 Soil profiles to a depth of 1 meter, soil densities and water-infiltration rates must be reported for each field seasonally.

6.2.8 The irregularity noted in section 4.11 should be clarified.

Emil Regelman
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July 1, 1982

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