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R.P. a lot of  
requirements.

MEMORANDUM

SUBJECT: Meeting with Rhone-Poulenc on 11-21-89 to discuss retrospective ground-water monitoring studies.

FROM: Elizabeth Behl, Hydrogeologist  
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THRU: Henry A. Jacoby, Chief  
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TO: Frank T. Sanders, Chief  
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and

Jay Ellenburger, Chief  
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Special Review and Reregistration Division (H7508C)

On 11/21/89 a meeting was held between representatives of EPA, BASF, and Rhone-Poulenc to discuss the status of small-scale retrospective studies. EPA representatives attending were Mary Erumsele (RD), Tom Luminello (SRRD), Christine Rice (SRRD), Catherine Eiden (EFED), Martin Williams (EFED), Elizabeth Behl (EFED), David Wells (EFED), Bernie Schneider (BEAD), and Ginny Kibler (BEAD). Representatives of Rhone-Poulenc were Karen Shearer, Frank Norris, and Russell Jones. BASF was represented by Jack Graham. Discussions at the meeting addressed both the completed prospective monitoring study and on-going retrospective studies. The following is a summary of issues that were addressed at the meeting:

1. The Registrants have applied for a 24C exemption to withdraw use of acifluorfen in the Central Sands of Wisconsin.
2. The Registrants will identify acifluorfen use areas that are as highly vulnerable to ground-water contamination as the Central Sands of Wisconsin. This will be done as a part of the original data call-in for acifluorfen.
3. The Ground Water Section objected to the short history of pesticide use at several retrospective monitoring sites and that only 2 well clusters were installed at all sites.
4. The Registrants agreed to install a third well cluster at all monitoring sites. At sites where the use history is too

brief, the Registrants agreed to continue monitoring through a second application of the pesticide.

5. The Ground Water Section requested more information and discussion of site characterization.
6. Details of the history of each monitoring site were discussed. Steps were itemized detailing how to proceed with the study at each site.

#### Prospective Study

Rhone-Poulenc stated that acifluorfen is not used in New York at all, and no future uses are expected. Both BASF and Rhone-Poulenc have applied for a 24C exemption through Wisconsin to withdraw uses in eight counties in the Central Sands area. As they suggested a meeting on December 21, 1988, they have discouraged sales this year (1989). Rhone-Poulenc has not yet heard from the State of Wisconsin on the status of their 24C request.

Rhone-Poulenc stated that they had not received written confirmation of their prospective protocol. The Ground Water Section checked into their records and past reviews to determine the status of this protocol, as a result of the meeting. The Ground Water Section has clarified that the prospective study protocol was approved, subject to minor changes on May 6, 1988. These changes have been addressed in the final Project Report reviewed by the Ground Water Section.

The Ground Water Section requested that Rhone-Poulenc try to identify other areas in the country in which acifluorfen is used that are as highly vulnerable as the Central Sands of Wisconsin. Rhone-Poulenc agreed to do this using the software DBAPE. BASF agreed to work with Rhone-Poulenc on the project. The Registrants have agreed to do this as a part of the original data call-in for ground-water monitoring of acifluorfen. Therefore, at the present time, no new data call-in is required.

#### Retrospective Study

A total of five meetings have been held between representatives of EPA, Rhone-Poulenc, and BASF to discuss the small-scale retrospective ground water monitoring studies. In the first meeting on August 5, 1988 the Registrants presented details about proposed monitoring sites in Virginia and North Carolina. In the second meeting on October 31, 1988 the Registrants and EPA discussed sales data and identified other locations for monitoring.

A revised protocol for a retrospective study including soil sampling was proposed and submitted to EPA in the third meeting on December 21, 1988. This new type of study was called a "small-scale retrospective and limited prospective" study. Several issues in the protocol were discussed in the meeting on 12/21/88. The protocol was not formally reviewed by the Ground Water Section because Rhone-Poulenc and BASF stated that it would be revised and submitted to EPA for review in early 1989. The Registrants elected to proceed monitoring prior to full protocol and site approval. The Ground Water Section has yet to formally receive this revised protocol. The Registrants were informed that in the future no ground-water monitoring studies should be initiated prior to protocol approval.

A fourth meeting was held on October 10, 1989 to discuss results of monitoring at all five retrospective sites and the final report of the prospective study. Because of questions about data presented at this meeting, the Ground Water Section proposed the most recent meeting, which was held on November 21, 1989. In this meeting the Ground Water Section expressed major concerns about two issues on which the monitoring studies deviate from EPA's recommended protocol. The first issue is the short history of pesticide application at several of the retrospective study sites. The second is that only two monitoring well clusters were installed at each site.

The Ground Water Section attempted to clarify several important points that have become confused in the interim between submission of the study protocol, meetings on site selection, and recent meetings to discuss termination of the projects. Options were discussed for continuing work at the study sites, in an effort to obtain useful information from the five studies already underway. Issues raised by the Ground Water Section and recommendations for each of the retrospective monitoring study sites are discussed below.

Site History. An adequate history of use is a critical factor in the selection of monitoring sites for small-scale retrospective studies, because the objective of the retrospective study is to evaluate the impacts of continued use. EPA's Draft Guidance for Ground-Water Monitoring Studies states that "Documentation [of pesticide use history] must include, at a minimum, evidence of use in two of the three previous years or three of the previous five years (or an equivalent use history)". Because information from Rhone-Poulenc indicates that soybeans and peanuts in acifluorfen use areas are normally rotated with other crops, and because acifluorfen has not been registered for a long time, the Registrants found it difficult to locate fields with an appropriate use history. In a previous meeting (12/21/88) the Ground Water Section agreed that, in this case, the requirement of use in sequential years could be relaxed. This was, however, interpreted by the Registrants to mean that only one year of past

use of the pesticide was necessary. The Ground Water Section believes that the requirement that retrospective monitoring studies be conducted at sites with a sufficient history of use is critical, and a one year history of use is not adequate to achieve the objectives of a retrospective study. One option, if suitable sites cannot be found, is to conduct additional prospective monitoring studies.

Number of wells. The Draft Guidance for Ground-Water Monitoring Studies clearly states that a "minimum of three "well clusters" are required for each field site selected for a retrospective field study". Installing a minimum of three well clusters in a triangular configuration (as detailed in the guidance document) gives a preliminary indication of the direction of ground-water flow, and is the bare minimum number of well clusters required for monitoring. Two locations does not provide a statistical representation of a field.

Site Characterization. The Ground Water Section expressed its concern that the site characterization for the monitoring study lacks information about the local hydrology, location maps, site specific hydrogeology, or site plans. This information is required in order to assess the suitability of the site and to place the site into context should pesticide residues be detected. The Ground Water Section requested that the registrant submit site plans. These should identify:

- 1) The location of wells and other monitoring sites in the field.
- 2) Direction of ground water flow and, if possible, map of the water table surface.
- 3) The location of all relevant surface water features both on and off-site. This should include lakes, ponds, streams, creeks, bogs, swamps, and irrigation or drainage ditches.

Also, a location map should be included that shows the location of the field in the region. Maps should identify the nearest town, access roads, and latitude and longitude. The final report should include a discussion of local hydrology, site hydrogeology, and should discuss the implications of events such as periodic flooding or standing water at the study sites, if this occurs. The final report should also include plots of on-site rainfall and average monthly rainfall versus time, water table height versus time, and detected pesticide concentrations versus time, and a discussion of results.

Virginia. This site was approved by C. Eiden and M. Williams following a preliminary presentation of site characteristics in a meeting at EPA (8/5/88). Wells were installed at this site and the investigation initiated on October 10, 1988. Since only 2

wells were installed, the Ground Water Section requested (11/21/89) that an additional well be installed in December/January and all three wells be sampled at monthly intervals until the one year anniversary of the 1989 application. The Registrants agreed to do this.

North Carolina. This site was approved by C. Eiden and M. Williams following a preliminary presentation of site characteristics on August 5, 1988. Since only 2 wells were installed, the Ground Water Section requested (11/21/89) that an additional well be installed in December/January and all three wells be sampled at monthly intervals until the one year anniversary of the 1989 application. The Registrants agreed to do this.

Indiana. This site was tentatively approved by C. Eiden in a telephone conversation on May 10, 1989. Monitoring results and pesticide use history were presented to the Ground Water Section in a meeting on October 10, 1989. The usage history indicates that acifluorfen was applied only one time prior to initiation of the study. The Ground Water Section indicated (11/21/89) that this use history was unacceptable and requested (11/21/89) that, in lieu of termination, the study be extended. Since only 2 wells were installed, the Ground Water Section requested that an additional well be installed. The Registrants agreed to conduct the study according to the following scenario:

- 1) Samples will be taken monthly, weather permitting, otherwise the existing wells will not be sampled again until Spring.
- 2) A new (third) well cluster will be installed as soon as possible, weather permitting, and at the latest in the Spring.
- 3) Pre-treatment ground-water samples will be taken in the Spring from all wells.
- 4) Acifluorfen will be applied again according to schedule and label instructions.
- 5) Ground water will be sampled monthly from all wells beginning after pesticide application and continuing until Winter (November).

North Dakota. This site was not approved in advance of initiation of the study. Monitoring results and pesticide use history were presented to the Ground Water Section in a meeting on October 10, 1989. The usage history indicates that acifluorfen was applied only two times (in the same year) prior to initiation of the study. The Registrant stated (11/21/89) that little of the second application of the pesticide probably

reached the ground, and was retained instead on the canopy. The Ground Water Section indicated that this usage history was unacceptable and requested (11/21/89) that, in lieu of termination, the study be extended. Since only 2 wells were installed, the Ground Water Section requested (11/21/89) that an additional well cluster be installed. The Registrants agreed to conduct the study according to the following scenario:

- 1) Samples will be taken monthly, weather permitting, otherwise the existing wells will not be sampled again until Spring.
- 2) A new (third) well cluster will be installed as soon as possible, weather permitting, and at the latest in the Spring.
- 3) Pre-treatment ground-water samples will be taken in the Spring from all wells.
- 4) Acifluorfen will be applied again according to schedule and label instructions.
- 5) Ground water will be sampled monthly from all wells beginning after pesticide application and continuing until Winter (November).

Arkansas. This site was not approved in advance of initiation of the study. Monitoring results were presented in a meeting with EPA on October 10, 1989. The pesticide usage history indicates that acifluorfen was applied each year for the previous three years. Only 2 well clusters were installed at the site. Although the history of pesticide use at the site is acceptable, the Ground Water Section indicated that the number of wells is unacceptable, and requested (11/21/89) that in lieu of termination the study, an additional well cluster be installed.

Soils at this site have a high clay content, although the Registrant claims that they are lighter than most soils in Arkansas on which soybeans are grown. The high clay content and location of the field (between the Mississippi River and the levy) have created access problems. The Ground Water Section feels that useful information can be obtained from this site bearing in mind its limitations, providing that the soil is representative soils in Arkansas on which soybeans are grown. The Ground Water Section has discussed their concerns directly with Rhone-Poulenc. The Registrants agreed to conduct the study according to the following scenario:

- 1) A new (third) well cluster will be installed in December/January.

2) Samples will be taken from all wells every other month for the next six months, or more when feasible.

3) If there is standing water in the field it will be sampled as well (2 to 3 samples per event).

cc: Ann Lindsay  
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