

Shaughnessy Number: 114402

Date Out of EFGWB: MAR 22 1990

TO: T. Luminello
Product Manager 50
Registration Division (H7505C)

FROM: Michael Barrett, Acting Chief *M. F. Barrett* 7/20/90
Ground-Water Section
Environmental Fate & Ground-Water Branch/EFED (H7507C)

THRU: Henry Jacoby, Chief *Henry Jacoby*
Environmental Fate & Ground-Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of:

Reg./File #: _____

Chemical Name: Acifluorfen

Type Product: Herbicide

Company Name: Rhone-Poulenc Ag Company and BASF Corporation

Purpose: Evaluate reports of acifluorfen detections in ground water
at retrospective study site in North Carolina.

Date Received: 3-13-90 ACTION CODE: 405

Date Completed: 3-13-90 EFGWB #(s): 90-0422

Monitoring study requested: X Total Review Time: 0.3 day

Monitoring study voluntarily:

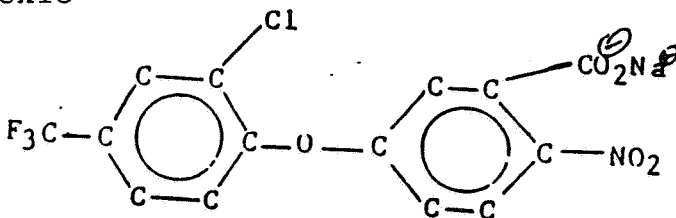
Deferrals To: _____ Biological Effects Branch
_____ Science Integration & Policy Staff, EFED
_____ Non-Dietary Exposure Branch, HED
_____ Dietary Exposure Branch, HED
_____ Toxicology Branch, HED

1. CHEMICAL:

Chemical name: Sodium-5-(2-chloro-4-(trifluoromethyl)-phenoxy)-2-nitrobenzoate
Common name: acifluorfen-sodium salt
Trade name: Blazer/Tackle
Structure:

2. TEST MATERIAL:

Not Applicable.



3. STUDY/ACTION TYPE:

Evaluate detections of acifluorfen in ground water at a small-scale retrospective ground-water monitoring site in North Carolina with regard to toxicological concerns and the initiation of a Special Review.

4. STUDY IDENTIFICATION :

Letter from Karen Shearer of Rhone-Poulenc to Tom Luminello of EPA/OPP/SRRD. Re: Acifluorfen Groundwater Data Call-in Small Scale Retrospective Study. (Date February 26, 1990). EPA Correspondence No. 90-65.

Identifying No.: 114401-03
Action Code: 405
Accession Number: n.a.
Record Number: 260483
Date Sent to EFED: 3-8-90

5. REVIEWED BY:

Elizabeth Behl
Hydrogeologist
OPP/EFED/EFGBW/Ground-Water Section

Signature: Eliy Behl

Date: 3/15/90

6. APPROVED BY:

Michael R. Barrett
Acting Chief
OPP/EFED/EFGBW/Ground-Water Section

Signature: D. A. Wells for MRB

Date: 3/15/90

7. CONCLUSIONS:

Acifluorfen residues were detected at one of the five retrospective study sites seven months after the last application. Residues were found in two shallow wells at the site at levels of 1 and 2 ppb. Samples collected from deeper wells have not contained pesticide residues to date.

As sampling continues over the length of the study more data will be collected. These samples are needed to evaluate the extent of the potential for acifluorfen to leach to ground water. Presently, the levels of acifluorfen that are detected are similar to those first detected at the prospective study site (EFGWB # 90701; 11-20-89). A more conclusive statement may be made at the conclusion of the monitoring study. The levels of acifluorfen detected in the monitoring program will be submitted to the Toxicology Branch for their review at that time.

8. RECOMMENDATIONS:

The Registrants should continue monitoring at all retrospective study sites agreed upon with EPA and detailed in EFGWB # 90-002 (1-9-90). The Ground Water Section suggests that the remaining data be collected from all five retrospective studies and evaluated by the Ground Water Section and the Toxicology Branch prior to initiating a Special Review. The monitoring should be completed by December of 1990, as detailed in previous reviews.

Samples should continue to be collected at monthly intervals, and if the frequency or concentration of the detections continues at these levels or increases we may want to increase the level of monitoring at the site. The registrants should continue to inform EPA of the progress of this study.

9. BACKGROUND:

Tackle, manufactured by Rhone-Poulenc, is a selective post-emergence herbicide registered for use on soybeans and rice at application rates of 0.125 to 0.75 # ai/acre since 4/86. Blazer, manufactured by BASF, is a selective pre- and post-emergence herbicide for a wide spectrum of annual broadleaf weeds and grasses in soybeans, peanuts, and other large-seeded legumes.

Data submitted as part of the Ground-Water-Data-Call-In (GWDCI) indicate that acifluorfen is both persistent and mobile. The Environmental Fate One-liner (8/27/86) states that the free acid readily leaches in soil column experiments, but the degradation products are considered not to leach. Samples are usually analyzed for the acifluorfen-sodium (the salt), acifluorfen (free acid), the amino metabolite, sodium-5-{2-chloro-4-(trifluoromethyl)-phenoxy}-2-aminobenzoate (LS-82-5281), and the desnitro product, sodium-2-{2-chloro-4-(trifluoromethyl)-phenoxy}benzoate (LS-82-5283). Acifluorfen has been classified as a (B2, probable human) carcinogen, with a one-in-a-million risk level of 1 ppb.

Data reviewed for the Pesticides in Ground Water Database: Interim Report (1988) indicate that wells in 2 states have been analyzed for acifluorfen as a result of normal agricultural use. Acifluorfen has not been detected in these samples. EPA determined that the registrant should conduct a small-scale prospective

monitoring study based on results of the GWDCI (9/15/87). Findings of pesticide residues in ground water during the prospective study, prompted the registrant to agree to conduct small-scale retrospective monitoring studies at different locations. Based on the results of the prospective monitoring study, the Registrants have indicated that they intend to restrict the sale of acifluorfen products in 8 counties in Wisconsin and 2 counties in New York; the soils in these locations have a very high sand content.

10. DISCUSSION:

Acifluorfen residues were detected at one of the five retrospective study sites seven months after the last application. Residues were found in two of the wells at levels of 1 and 2 ppb. At a depth of 2.03 and 0.92 meters these wells are among the shallowest of the wells at the site. The wells are at depths of 0.92, 1.89, 2.03, 2.13, 2.41, 2.99, 3.12, 3.97, 4.75 meters. Samples collected from deeper wells have not contained pesticide residues to date. Data collected at the North Carolina Retrospective Monitoring site are attached.

The screened interval of these wells is not reported in the letter. This information would give a more precise indication of the possible location of the "front" of acifluorfen (although the Ground Water Section recognized that it is not clear that the pesticide is moving through the unsaturated zone as a front).

As sampling continues over the length of the study more data will be collected. These samples are needed to evaluate the extent of the potential for acifluorfen to leach to ground water. Presently, the levels of acifluorfen that are detected are similar to those first detected at the prospective study site (EFGWB # 90701; 11-20-89). The level of acifluorfen residues detected in ground water at the North Carolina site 7 months after application are lower than those detected at the prospective study site in Wisconsin 3 to 4 months after application. Levels at the prospective study reached a high of 46 ppb, 10 months after application.

Based on the results of the two monitoring studies, it is clear that acifluorfen can reach ground water as a result of normal agricultural use. The site selected for the retrospective study is representative of a typical use environment in contrast to the worst case environment in which the prospective study was conducted. At the conclusion of the acifluorfen ground water monitoring studies the Ground Water Section would like to have the results evaluated by the Toxicology Branch.

TABLES AND FIGURES
Section 3. Part D.

NORTH CAROLINA

Summary of Acifluorfen-Sodium Residues in a North Carolina Groundwater

Acifluorfen-Sodium Residues in Groundwater in Terms of $\mu\text{g/L}$ (ppb)

Interval in months	Interval in days	Average Water Table	Well Depth/Cluster/Well Designation								
			1.89 m C1W1	3.12 m C1W2	4.75 m C1W3	2.03 m C2W1	2.41 m C2W2	3.97 m C2W3	0.92 m C3W1	2.13 m C3W2	2.99 m C3W3
	pre	1.41 m	<1	<1	<1	<1	<1	<1			
1	30	0.74 m	<1	<1	<1	N.S.	N.S.	<1			
2	65	0.71 m	<1	<1	<1	N.S.	N.S.	<1			
3	93	0.62 m	<1	<1	<1	N.S.	<1	<1			
4	121	0.87 m	<1	<1	<1	N.S.	N.S.	<1			
5	163	0.93 m	<1	<1	<1	N.S.	N.S.	<1	N.S.	<1	<1
6	191	0.52 m	<1	<1	<1	<1	<1	<1	<1	<1	<1
7	218	0.75 m	<1	<1	<1	1	<1	<1	2	<1	<1

N.S. = No sample taken as well was dry

Cluster 3 wells installed on day 163 after application