Shaugh. No. 090501

EAB Log Out Date: JAN 29 1986

Init.: HM for SMC

To: W. M.McDavit
Product Manager 62
Registration Division (TS-767)

From: Carolyn K. Offutt
Head, Environmental Processes and Guidelines Section
Exposure Assessment Branch, HED (TS-769)

Attached, please find the estimated environmental concentration review of:

Reg./File No.: 391(30000/44)

Chemical: Alachlor

Type Product: Herbicide

Product Name:

Company Name: Monsanto

Submission Purposes: Comments on alachlor PD # 1 .

Action Code: 827

Date In: 3/4/85

EFB#: 5329 (addendum)

Date Completed: 1/23/86

Review time 5 Days

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

(1)

DR. DAVID B. BAKER, DIRECTOR OF WATER QUALITY LABORATORY, HEIDELBERG COLLEGE, TIFFIN, OHIO, REBUTTAL 391(3000/44) AGAINST THE SPECIAL REVIEW FOR ALACHLOR PD # 1 SUBMITTED FEBRUARY 18, 1985.

COMMENTS on section II.A., Monitoring Data

Dr. David Baker stated that 66% of the surface water data and 75% of drinking water data for alachlor cited in Tables 10 and 12, respectively, in the alachlor PD #1 were from his studies of pesticides transport in Northwestern Ohio Rivers. The sampling programs in his studies are biased because the water samples were collected very frequently during the expected high concentration periods in order to obtain data on peak pesticide concentrations and pesticide transport.

Consequently, Dr. Baker objects to the calculated average concentration values in the PD # 1 and suggests using time-weighted averages to take into account varying sampling freguencies. In Table 1 of his comments on the alachlor PD # 1, Dr. Baker summarized the data for three stations for three years assuming zero concentrations of alachlor during unmonitoring periods. Dr. Baker stated that his data support this assumption of zero concentration since alachlor was not detected at either the beginning or ending period of the monitoring season. Dr. Baker contends that the time-weighted average will provide more realistic estimates of average daily and seasonal exposure than the mean concentration calculated by the Agency in PD # 1.

RESPONSE: The Agency is aware of the limited nature of the existing monitoring data. There are few annual pesticide monitoring studies and no statistically designed sampling programs to monitor the concentrations of alachlor in surface, ground, and drinking water corresponding to low, medium, and high use patterns. At present, Monsanto is undertaking such a monitoring program for alachlor. However, the Agency has not approved the program.

Although the time-weighted average estimates of daily or seasonal exposure would be more realistic than mean concentrations, the actual monitoring data from Monsanto representing various use patterns and the resultant human exposure analysis will help define exposure to alachlor from water sources.

COMMENTS on Section II. B., Modeling Assessment

A. Dr. Baker questioned the validity of the model predictions because the Hydrologic Simulation Program-Fortran (HSPF) model has not been calibrated or verified for a large watershed, such as 1,564-square mile drainage area of the Iowa River at Marshalltown. He stated that Table 13 was redundant in that the alachlor concentration values of cases I, II, and III are simply multiples of

factors. In case II, every value is the value of Case I multiplied by a factor of 0.46 and, in case III, the corresponding value in case I is multiplied by a factor of 2.61. These constant multiplication factors were applied to all three sites on the Iowa river (Marengeo, Marshalltown, and Rowan).

B. Dr. Baker stated the peak daily concentrations of alachlor in the Iowa River appears to be too high in comparsion to the Four Mile Creek watershed (Table 10, page 34 of PD # 1) because his monitoring data showed that as watershed sizes increase, peak concentrations of pesticides decrease. Thus he believes that the peak daily alachlor concentrations in Table 13 of PD # 1 appear to be too high.

C. Dr. Baker stated the alachlor concentrations in the Iowa River appear unrealistically high in comparison with Sandusky River alachlor concentrations because:

(1) Both the Iowa River Basin and the Sandusky River Basin have similar land use and alachlor use rates and (2) the relatively impermeable soils in northwestern Ohio suggest that "worst case" conditions could be expected in Ohio. He suggested collecting monitoring data for the Iowa River or calibrating and verifying the HSPF model for the Sandusky Basin watershed.

COMMENTS on EPA's Summary Statements

In summary, Dr. Baker stated that (1) the existing monitoring data are consistent with low range modeling predictions, (2) monitoring data supporting the high range of the modeling predictions are not available, and (3) statements about alachlor concentrations in surface waters that do not take into account the effects of watershed size are an over simplification of pesticide exposure patterns in river systems.

Response to A, B, and C:

The Agency is reviewing the modeling assessment in PD # 1 in light of comments from Dr. Baker and others.

This review will consider further calibration and validation exercises, comparison of actual and predicted concentrations, effects or watersheds size on peak daily concentrations, and comparison of concentrations in Iowa and Ohio.

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