Schaughnessy No: 090501
Date out of EAB: AUG 21 1987

To: David Giamporcaro
Product Manager
Registration Division (TS-767C)

From: Carolyn K. Offutt, Chief
Environmental Processess and Guidelines Section
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

Attached, please find the EAB review of...

Reg./File #: Pack #38009

Chemical Name: ALACHLOR

Type Product: HERBICIDE

Product Name: LASSO

Company Name: MONSANTO

Purpose: REVIEW OF COMMENTS RECEIVED ON JULY 20, 1987 CONCERNING THE OFFICE OF DRINKING WATER'S 3/31/87 HEALTH ADVISORY FOR ALACHLOR

Action Code: 870 EAB # (s): 70819

Date Received: 7/20/87 TAIS Code: _____

Date Completed: AUG 21 1987 Total Reviewing Time: 4

Monitoring study requested: _____

Monitoring study voluntarily: _____

Deferral to: _____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

(1)

1. CHEMICAL:

Common name: Alachlor
Product name: Lasso

2. TEST MATERIAL:

Not applicable.

3. STUDY/ACTION TYPE:

Monsanto's response to the Office of Drinking Water's Alachlor Health Advisory.

4. STUDY IDENTIFICATION:

Title: Refer to Letter to Ms. Jennifer Orme, Health Advisory Coordinator, Office of Drinking Water, concerning the Alachlor Health Advisory
Author: Andrew Klein, Monsanto Agricultural Co.
Date: July 9, 1987

5. REVIEWED BY:

Linda L. Kutney
Chemist
Exposure Assessment Branch, HED (TS-769C) Date: 8/20/87

6. APPROVED BY:

Carolyn K. Offutt, Chief
Environmental Processes & Guidelines Section
Exposure Assessment Branch, HED (TS-769C) Date: 8/21/87

7. CONCLUSIONS:

We agree that alachlor is present in surface waters immediately after the use season and that concentrations do decline, in general, by autumn. The Office of Drinking Water, however, is aware of this scenario and is interested in long-term exposure levels, such as those predicted by the annualized mean concentration.

8. RECOMMENDATIONS:

We have no reason to alter our conclusions concerning alachlor in surface water. We suggest that if Monsanto has improved methods for testing that compound, they should submit unconfidential copies to OPP and ODW for review. We also request that the PM forward a complete copy of this report to Dr. Amal Mahfouz, in the Office of Drinking Water.

We request that SRB forward a copy of the submission sent to J. Cotruvo, ODW, dated 5/28/87, for our review and comment.

9. BACKGROUND:

On March 31, 1987, the Office of Drinking Water, EPA, wrote a drinking water Health Advisory for alachlor. The advisory will be updated as new information becomes available. The Health Advisory (HA) describes "nonregulatory concentrations of drinking water contaminants at which adverse health effects would not be anticipated to occur over specific exposure durations." The HA contains a margin of safety to protect sensitive members of a population. HAs are developed for 1-day, 10-day, long-term (approximately 7 years) and lifetime exposures, based on noncarcinogenic end points of toxicity. When a compound is classified as either a Group A or B carcinogen, i.e., a probable human carcinogen, a lifetime HA is not recommended. This submission includes Monsanto's responses to the HA level.

The 1-day and 10-day HA level for alachlor was set at 0.1 mg/L (equivalent to 0.1 ppm or 100 ug/L or 100 ppb). A longer-term HA was estimated to be at the Drinking Water Equivalent Level (DWEL) for a 10-kg child, at 0.1 mg/L. A lifetime HA was not proposed because "alachlor may be classified as a Group B2 probable human carcinogen," according to the HA.

As per the discussion between Linda Kutney, EAB and David Giamporcaro, SRB, this review will be limited to Monsanto comments concerning surface water concentrations of alachlor.

10. DISCUSSION:

The HA document stated that,

> "Alachlor has been reported to occur in both ground and surface waters. Limited data have been. . . alachlor is believed to have the potential to contaminate ground and surface water widely."

Monsanto disputed this statement, claiming that, "Extensive data has been collected since 1983 on the lack of occurrence of alachlor in ground and surface waters. This data has been summarized in a submission to the Office of Drinking Water." (Reference was made to Monsanto letter and attachment from A.J. Klein to J.A. Cotruvo dated 5/28/87.) Monsanto claimed that the results demonstrate:

1) "Alachlor is unlikely to reach ground water following normal application."

2) "On the occasions when alachlor was found in well water, it appears to have been the result of spills, back-siphoning, agricultural drainage wells, sinkholes, poorly constructed wells and improperly sited wells."

3) "Alachlor occurs in surface water in specific geographic areas immediately following the use season."

4) "Alachlor rapidly dissipates in natural surface waters reaching undetectable levels by early autumn at most locations where it is found."

OPP did not receive the 5/28/87 letter and attachment sent to J. Cotruvo, ODW, and we therefore cannot comment on the contents of the submission. We request that SRB forward a copy of that submission to EAB.

In addition, SRB should refer to the ground water team of EAB with respect to Monsanto's conclusions concerning incidence of alachlor in ground water (Comments #1 and #2 above). This review will address only the items concerning surface water (#3 and #4 above).

Monsanto's monitoring of surface waters in 1985 showed that annualized mean concentrations (AMCs) exceeded the limit of detection of the method in Iowa, Illinois, Indiana, Missouri and Ohio. Monsanto's monitoring of surface waters in 1986 showed that AMCs exceeded the limit of detection of the method in all the areas reported for 1985 plus Kansas. (See the Linda Kutney "Review of Studies Submitted 5/27/87 Relating to Sampling Locations for the Alachlor Surface Water Monitoring Program and Review of the 1986 Interim Surface Water Monitoring Results Sent 12/16/86," EAB #70796, dated 7/2/87).

It is true that alachlor is generally found in locations of heavy use, during the use season. However, even if alachlor reaches undetectable levels in surface waters by early autumn, the AMC adjusts for periods of low concentration, providing a more accurate year-long estimate of surface water contamination. The Office of Drinking Water (ODW) was fully aware of the AMC values found in surface waters, and incorporated that information into their decision of the HA level for alachlor.

Monsanto claimed that, "Several new, multi-pesticide methods for the determination of alachlor in water have been developed since 1983. These methods are more precise, selective and accurate than the referenced procedures (in the HA document for alachlor)."

The following references to newer methods were included by Monsanto in this submission:

13. Monsanto, "Alachlor in Raw and Finished Drinking Water Derived from Surface Sources from 24 Community Water Systems Located in Regions of Extensive Lasso Use" Special Report MSL 5653, RD #675, (1986)

14. R.G. Smith, et.al. "A GCMS Method for Selected Herbicides in Surface Water," 35th Annual Conference on Mass Spec and Allied Topics, American Society for MS, Denver, CO, May, 1987

15. A.J. Klein, et.al., "Determination of Herbicides in Surface Water from Agricultural Watersheds."

16. S.R. Baszis, et.al., "Determination of Alachlor and Eight Other Pesticides in Drinking Water Using Trace Enrichment on Octadecylsilyl Coated Silica and Capillary GC," 13th Annual Meeting of the Fed. of Anal. Chem. and Spectroscopy Societies, St. Louis, MO, September, 1986

17. R. Lauer, et. al., "Determination of Alachlor and Eight Other Pesticides in Raw Surface Water Using Capillary GC," 100th Annual International Meeting of the Ass'n of Official Analytical Chemists, Scottsdale, AZ, September, 1986.

Unconfidential copies of these methods should be made available by Monsanto, to both ODW and to OPP, in their entirety, for further consideration, if they have not already been submitted. It may be helpful to obtain complete copies of these newer methods, regardless of whether they have been previously submitted, to ensure that they have been made available to the two offices.

11. COMPLETION OF ONE-LINER:

Not applicable.

12. CBI APPENDIX:

Not applicable.