Shaughnessy Number: 101101

Date Out of EAB: 2/29/88

TO: Robert J. Taylor
Product Manager 25
Registration Division (TS-767C)

FROM: Patrick Holden, Team Leader
Ground-Water Team
Exposure Assessment Branch/HED (TS-769C)

THRU: Paul F. Shuda, Chief
Exposure Assessment Branch/HED (TS-769C)

Attached, please find the EAB review of:

Reg./File #: 3125-270

Chemical Name: Metribuzin

Type Product: Herbicide

Company Name: Mobay Chemical Corporation

Purpose: Submission of revised small-scale retrospective ground-water monitoring protocol.

Date Received: 1/8/88 ACTION CODE: 495

Date Completed: 2/2/88 EAB #(s): 80301

Monitoring study requested: x Total Review Time: 4 hrs

Monitoring study voluntarily: ___

Deferrals To: _____ Ecological Effects Branch

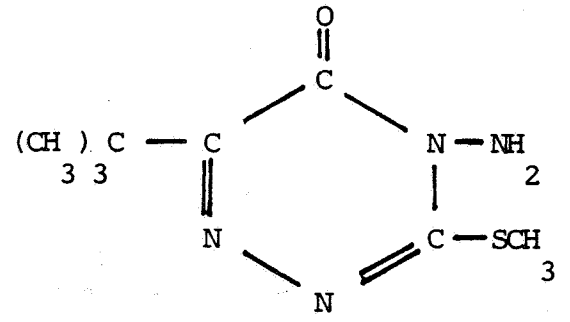
_____ Residue Chemistry Branch

_____ Toxicology Branch

REVISED PROTOCOL FOR METRIBUZIN SMALL-SCALE
RETROSPECTIVE GROUND-WATER MONITORING STUDY

1. CHEMICAL:

Chemical name: 4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one
Common name: Metribuzin
Trade name: SENCOR
Structure:



2. TEST MATERIAL:

Not Applicable.

3. STUDY/ACTION TYPE:

Review of revised monitoring protocol.

4. STUDY IDENTIFICATION:

Title: a) Letter dated 12/31/87 from John Thornton, Agricultural Chemicals Division, Mobay Corporation, to Robert Taylor, Product Manager 25, U.S. EPA/OPP with revised "Study Protocol: Metribuzin Ground Water Monitoring Project" dated 12/29/87.

b) Letter dated 1/5/88 from John Thornton, Agricultural Chemicals Division, Mobay Corporation, to Robert Taylor, Product Manager 25, U.S. EPA/OPP with figure showing replaced monitoring site location.

Submitted by: Mobay Corporation
Agricultural Chemicals Division
P.O. Box 4913
Kansas City, MO 64120-0013

Identifying No.: 3125-270
Action Code: 495
Accession Number: Not given
Record Number: 211440
Date Sent to HED: 1/8/88

5. REVIEWED BY:

W. Martin Williams Signature: [signature]
Hydrologist
OPP/HED/EAB/Ground-Water Team Date: 2/22/88

6. APPROVED BY:

Patrick Holden Signature: [signature]
Team Leader
OPP/HED/EAB/Ground-Water Team Date: 2/29/88

7. CONCLUSIONS:

This review represents the Ground-Water Team's first formal review of the protocol. The registrant has responded favorably to most of the concerns of the Ground-Water Team. Several modifications to the protocol are necessary in order to fulfill EAB's requirements for a small-scale retrospective ground-water monitoring study.

8. RECOMMENDATIONS:

Authorize registrant to proceed with monitoring study upon adoption of the revisions presented herein under "Section 10, Discussion", part B.

9. BACKGROUND:

The Registration Standard for Metribuzin, issued June 1985, contained a requirement for ground-water monitoring studies. The Ground-Water Team sent guidance on a proposed design for a ground-water monitoring study to the Product Manager in June of 1986 (memo dated 6/26/86). The guidance was sent to the registrant by the Product Manager in a letter dated 12/3/86.

In January of 1987, the Registrant sent the Product Manager a letter (1/27/87) indicating that they felt the proposed study design resembled the National Pesticide Survey, and that an effort of theirs may be redundant. In response to that letter, the Ground-Water Team provided guidance to the Product Manager on a different study design to fulfill the requirement of the June 1985 Registration Standard (memo dated June 26, 1987). The Product Manager passed that information on to the registrant. Since that time, EPA and Mobay have been working jointly on the study design and selection of counties for locating retrospective field sites.

On October 29, 1987, the registrant submitted their "Study

Protocol: Metribuzin Ground-Water Monitoring Project (A Small-Scale Retrospective Study)". That protocol had not been formally reviewed but the Ground-Water Team met with Mobay in November, 1987 to discuss the details of the protocol. The present review represents the Ground-Water Team's formal review of the protocol. On December 22, 1987, the registrant submitted information concerning possible ground-water monitoring sites in a potato producing county. The data being reviewed herein was submitted by the registrant in response to comments by the Ground-Water Team in a letter dated 12/23/87.

10. DISCUSSION:

The registrant has presented a thorough and logical monitoring program. In general the protocol is acceptable. Discussion items presented below are categorized as being acceptable, conditionally acceptable, or required amendments.

A. Acceptable

1) Proposed sites (quantity, locations, site characteristics, crop useage, and irrigation treatment);

2) Test drilling (quantity, depth, and assessment);

3) Well drilling (procedures, core sampling, and information to be collected);

4) Well clusters (number of clusters, number of wells per clusters, depths for wells in clusters, spacing, screening, casing, protection, and other cautions);

5) Water/soil sampling (storage, residues examined, quality control, instrumentation, and rejection criteria);

6) Site maintenance; and

7) Weather monitoring.

B. Provisionally Acceptable

The Ground-Water Team is currently establishing guidelines for small-scale retrospective monitoring studies. Several recent changes to the draft guidelines vary from agreements made with the registrant during the November 1987 meeting. Ideally, the Ground-Water Team would prefer to see the registrant adopt the more recent guidelines in the monitoring study. However, because aspects of these revisions may adversely affect the starting and ending dates of the monitoring study, the Ground-Water Team is adopting a position that it will waive the current draft guidelines, to

achieve the objective of the monitoring study, and not significantly impact the schedule or cost of the registrant's proposed protocol. These issues are presented below:

1) The Ground-Water Team's current position it to require a reporting limit of 0.1 ppb for metribuzin water samples. However, the reporting level in the protocol (10 ppb for soils and 1 ppb for water samples) will remain acceptable. While it is technologically feasible to achieve a much lower level of detection (ie., much less than 1.0 ppb), a reporting limit of 1 ppb is acceptable for this study given the relatively high health advisory limit for metribuzin (around 150 ppb).

2) Among the most significant revisions to the guidlines relates to initial soil sampling. Ideally paragraph IIf(3) should be changed to read:

"One complete set of soil samples in each site will be collected at the onset of the study. Samples will be collected at 6-inch increments for the first foot of soil, and foot-long increments to a depth until one of the following criteria is met: 1) saturated conditions are reached, 2) three successive depth increments show non-detectable levels of residues (≤0.1 ppb), or 3) as deep as possible while maintaining the integrity of samples. All soil samples will be stored at ...".

However, because of past agreements during meetings with Mobay, sampling to a four-foot depth will suffice if quantifiable hydrogeological data (item IIb(2) in the protocol) has been obtained.

3) The objective of the study is to determine the leaching pattern in the soil profile at a given point in time in a manner in which the results can be extrapolated to larger areas such as counties or drainage basins. Sampling over a two-year period is prefered in order to observe potential seasonal patterns in concentrations and help ensure that sampling occurs under a range of climatic conditions. The one-year sampling period presented in the protocol is acceptable if these criteria are met. In the event that unusually high concentrations are reported, or that concentrations vary in a manner that patterns, trends, or the ultimate fate cannot be identified, longer duration monitoring at suspect sites may be required. As such, the Ground-Water Team cannot unconditionally approve a March 1989 closing date for sampling. Rather, a March 1989 closing date is acceptable contigent on the findings as the study progresses.

The sampling interval of sentence 1 under IIf(1) should be changed to read:

"At a minimum, duplicate water samples will be collected at monthly intervals (12 samples per year) from each well. All efforts will be made to collect additional samples after major recharge events."

There will be three sites and six wells per site. With monthly samples for a year, this results in a total of 216 samples. This study will be considered completed only when at least 216 samples have been collected, with at least 108 of them originating from the shallow wells. Additional sampling may be required beyond the anticipated closing date but only under the conditions given above. Since it is possible that the shallow wells may be dry when sample collection is occurring, the registrant is encouraged to schedule sampling following periods of rainfall, when recharge may be occurring. Additionally, and in order to avoid sampling periods occuring close together in time, there will be a minimum of a two-week period between sampling dates.

4) As agreed upon, letters indicating the use practices of the participator with regard to applications of Sencor must be notorized. The letters included in the protocol of this review have not been notorized. Originals of the notorized letters must be submitted to the Agency. The Agency provided guidance indicating that a use history of at least known applications of Sencor in two of the previous three years or three of the previous five years would be sufficient for site selection. The Agency meant this as general guidance, although the registrant has interpreted this requirement literally, and the enclosed letters have indicated use in two of the previous three years (including the year 1987). As new notorized letters must be obtained, the Agency now requests that participants indicate, to the best of their abilities and recollection, their use of Sencor in the previous five years. The Agency is not requesting this information to alter site selection, but rather to better study the site with the use of computer simulation models following study completion. The Agency recognizes that only use in two of the previous three years is sufficient for site selection, and cannot reject a selected site if, in fact, use was only in two of the previous five years.

5) On page 5, the registrant lays out criteria for well/site rejection. These criteria are appropriate and sufficient. However, any samples that were obtained from the rejected sites/wells will not count toward the 216 samples described above.

6) Sample rejection criteria of IIh(4) in the protocol are acceptable. The Agency requests that rejected samples be documented as to results and rationale for rejection.

7) The possible existance of drain tiles beneath field sites in Illinois was brought to the attention of the Agency by the registrant. These drains threaten the validity of the small-scale retrospective study. The objective of this type of study is to evaluate the impact of past usage of the chemical on the first-encountered aquifer beneath the treated fields. However, if residue-laden recharge water is being intercepted (in part) by the drain tiles, then the well samples would not evaluate the potential impact of past usage on the first-encountered aquifer.

After discussions with the registrant, it was decided that sites would not be rejected due to the existance of the drain tiles. Rather, every effort would be made by the registrant to locate the drain tiles, indicate their existance to the Agency, and, as per page 6 of the protocol:

"If present, water samples will be collected from drainage tiles underyling the monitoring sites...If drainage tile exits cannot be located, no drainage tile water samples will be collected."

The Agency now requires that the registrant details all activities undertaken to locate the drain tiles, and document their conclusions should drain tiles not be found. Concurrently, the Agency will attempt to ascertain the existence of drain tiles in the selected sites using available sources such as county agricultural extension agents, USGS district offices, etc. Additionally, should drain tiles be shown to exist (and their terminus located), the Agency now requires that at least six samples be extracted from the drains. These samples will occur following the first six significant rainfall events during the monitoring study, in which significant is defined as rainfall events exceeding 1/2 inch of total volume.

8) Sentence 3 of paragraph 5 of page 5 under IIb(3) should be ammended to read:

"The well clusters will be a minimum of 200 feet apart, at least 75 feet within the boundaries of the monitoring site and ..."

REGISTRATION DIVISION DATA REVIEW RECORD

IDENTIFYING NUMBER	3. ACTION CODE	4. ACCESSION NUMBER	TO BE COMPLETED
3125-270	495		5. RECORD NUMBER: 211440
			6. REFERENCE NUMBER: 25
			7. DATE RECEIVED (EPA): 02/31/88
			8. STATUTORY DUE DATE
			9. PRODUCT MANAGER (PM): Taylor / VK Walters
			10. PM TEAM NUMBER: 25

14. CHECK IF APPLICABLE

- ☐ Public Health/Quarantine
- ☐ Substitute Chemical
- ☒ Seasonal Concern
- ☐ Minor Use
- ☐ Part of IPM
- ☒ Review Requires Less Than 4 Hours

AH

TO BE COMPLETED BY PCB

11. DATE SENT TO HED: 7-?-88

12. PRIORITY NUMBER: 20

13. PROJECTED RETURN DATE: 3-11-88

15. INSTRUCTIONS TO REVIEWER

A. HED
- ☐ Total Assessment - 3(c)(5)
- ☐ Incremental Risk Assessment - 3(c)(7) and/or E.L. Johnson memo of May 12, 1977.

B. SPRD (Send Copy of Form to SPRD PM)
- ☐ Chemical Undergoing Active RPAR Review
- ☐ Chemical Undergoing Active Registration Standards Review

C. ☐ SFSD

D. ☐ TSS/RD

E. ☒ Other

F. INSTRUCTIONS

Revised Groundwater Protocol

16. RELATED ACTIONS

17. 3(c)(2)(D)
- ☐ Use Any or All Available Information
- ☐ Use Only the Attached Data for Formulation
- ☐ Available Information on the Technical

18.	To	TYPE OF REVIEW
HED		TOXICOLOGY
		ECOLOGICAL EFFECTS
		RESIDUE CHEMISTRY
	✓	ENVIRONMENTAL DATE
RD/TS		CHEMISTRY
		EFFICACY
		PRECAUTIONARY LABELING
		ECONOMIC ANALYSIS

☐ Label Submitted With Application Attached

21. ☐ Confidential Statement of Formula

22. ☐ Representative Labels Showing Accepted Uses Attached

23.

EPA Form 8570-(Rev. 11-81). PREVIOUS EDITIONS ARE OBSOLETE

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