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01/10/92

TO: R. Taylor
Product Manager #50
Registration Division (H7508W)

FROM: Henry Nelson, Ph.D., Acting Section Head *H Nelson*
Surface Water Section
Environmental Fate and Groundwater Branch/EFED (H7507C)

THRU: Hank Jacoby, Chief *Hank Jacoby*
Environmental Fate and Groundwater Branch
Environmental Fate and Effects Division (H7507C)

Attached, please find the EFGWB review of:

Reg./File #(s): 080803-0

Common Names: Atrazine

Type of Product: Herbicide

Product Name: _____

Company Name: Ciba-Geigy

Purpose: Review of surface water monitoring data

Action Code: 405

EFGWB #(s): 92-0152

Total Reviewing Time: 0.5 day

This review is of data on the concentrations of atrazine and cyanazine in samples collected March-October 1991 from West Lake which is the primary source of drinking water for Osceola, Iowa. The data were submitted by DuPont under FIFRA 6(2)(a).

1. CHEMICAL:

Common Name: Atrazine

Chemical Name: 2-Chloro-4-ethylamino-6-isopropylamino-
1,3,5-triazine

Type of Product: Herbicide

Chemical Structure:

Physical/Chemical Properties

Molecular Weight: 354

Physical State : White crystalline solid

Aqueous Solubility: 70 mg/L @ 22°C

Vapor Pressure: 3.0×10^{-7} mm Hg

Log Octanol/Water Partition Coefficient 2.33 to 2.71

2. TEST MATERIALS:

Not applicable.

3. STUDY/ACTION TYPE:

Review of FIFRA 6(a)(2) surface water monitoring data.

4. STUDY IDENTIFICATION:

D170748: Letter dated 10/18/91 and attached graphs and Iowa DNR data from T. Catka of DuPont to R. Taylor of RD/OPP.

5. REVIEWED BY:

Henry Nelson, Ph.D., Acting Section Head *H. Nelson*
Surface Water Section
Environmental Fate and Groundwater Branch/EFED

6. APPROVED BY:

Hank Jacoby, Chief
Environmental Fate and Groundwater Branch
Environmental Fate and Effects Division/OPP

7. CONCLUSIONS:

(1) DuPont indicated that in cooperation with the town of Osceola, samples of finished and raw water from West Lake were collected monthly in March and April 1991, and weekly "since May" to 10/14/91.

(2) Atrazine concentrations (maximum 8.7 ug/L) in all finished water samples collected since June were reported to have exceeded the atrazine MCL of 3 ug/L (see table and atrazine graph in DuPont attachment II). Atrazine concentrations in the finished water samples collected in April-May were below the MCL, but exceeded 2.0 ug/L. The March 25, 1991 samples had atrazine concentrations > the MCL.

(3) Cyanazine concentrations (maximum 15.9 ug/L) in all finished water samples collected since "mid-June" were reported to have exceeded the cyanazine lifetime drinking water HA of 10 ug/L (see table and cyanazine graph in DuPont attachment II; no MCL has yet been established for cyanazine, but the Office of Drinking Water frequently ends up setting the MCL equal to the lifetime drinking water HA).

(4) Atrazine and cyanazine concentrations in finished water were comparable to those in raw water.

(5) Two samples were collected from the tributary to West Lake on April 30, May 6 and on June 17, 1991. The 2 samples collected on April 30 and on May 6 had atrazine and cyanazine concentrations below 1 ug/L. The 2 samples collected on June 17 had atrazine concentrations (24.8 and 29.1 ug/L) and cyanazine concentrations (70.2 and 70.0 ug/L) much greater than the maximums reported in the raw water of West Lake (8.6 ug/L for atrazine and 16.6 ug/L for cyanazine both in a sample collected on May 28) (see table in DuPont attachment II).

(6) Atrazine concentrations exceeding the MCL (3 ug/L) are frequently reported for some surface water samples collected from numerous locations in the corn belt in late April through June. However, atrazine concentrations in those locations generally decline to below 1 ug/L by the mid-summer or early fall and remain below 1 ug/L through early Spring. The unusual aspect of the DuPont data is that although atrazine concentrations declined after late June, they remained well above the MCL even in July through the end of sampling in mid-October (see atrazine graph and table in the DuPont attachment). The unusual aspect of the Iowa DNR data submitted by DuPont in the attachment to their 10/18/91 letter is that all 5 samples collected from West Lake between October 1990 and the end of March 1991 had atrazine concentrations well exceeding the MCL (see attachment I). However, DuPont suggests the high value reported for atrazine (69 ug/L) in December 1990 may be due to a misplaced decimal point.

(7) The results of the analyses were summarized by DuPont in their 10/18/91 letter, and the data were provided both graphically and tabularly in attachments to the letter. However, no information was provided on the hydrological characteristics of the lake (other than it is a "surface water fed" 300 acre lake) or on the sampling, analytical, or QA/QC methodologies employed. Therefore, EFGWB cannot verify the representativeness or accuracy of the data, nor speculate on the causes of the prolonged, relatively high levels of atrazine contamination.

8. RECOMMENDATIONS:

DuPont should provide the information cited as missing in item #5 of the conclusions section.

9. BACKGROUND:

The 10/18/91 DuPont letter contains FIFRA 6(a)(2) data submissions on atrazine and cyanazine concentrations in samples collected March-September 1991 from West Lake which is the primary source of drinking water for Osceola, Iowa. The Dupont letter also includes attachments providing graphical and tabular representation of their data (attachment II), and tabular data from the Iowa DNR on atrazine and cyanazine concentrations in 18 samples collected from West Lake from May 1987 through August 1991 (attachment I).

10. DISCUSSION:

See conclusions.

11. COMPLETION OF ONE-LINER

Not applicable

12. CBI INDEX:

Not applicable.

Page _____ is not included in this copy.

Pages 5 through 14 are not included.

The material not included contains the following type of information:

- Identity of product inert ingredients.
- Identity of product impurities.
- Description of the product manufacturing process.
- Description of quality control procedures.
- Identity of the source of product ingredients.
- Sales or other commercial/financial information.
- A draft product label.
- The product confidential statement of formula.
- Information about a pending registration action.
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