

US EPA ARCHIVE DOCUMENT

JAN 5 1989

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Date Out EAB: \_\_\_\_\_

TO: D. Edwards  
Product Manager 12  
Registration Division (TS-767)

FROM: Patrick W. Holden, Chief *PWH*  
Ground-Water Technology Section  
EF & GWB/(TS-769C)

THRU: Hank Jacoby, Acting Chief  
EF & GWB/(TS-769C)

*Hank Jacoby*

Attached please find the environmental fate review of:

Reg./File No.: \_\_\_\_\_

Chemical: Methomyl

Type Product: Insecticide

Product Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Submission Purpose: \_\_\_\_\_

ACTION CODE: 600

Date In: 8-25-88

EAB # 80979

Date Completed: 10/31/88

TAIS (level II) Days

5.0

Deferrals To:

\_\_\_\_\_ Ecological Effects Branch

\_\_\_\_\_ Residue Chemistry Branch

\_\_\_\_\_ Toxicology Branch

Monitoring study requested by EAB:

Monitoring study voluntarily conducted by registrant:

MEMORANDUM

SUBJECT: Methomyl Registration Standard Requirement for a Small-Scale Retrospective Ground Water Monitoring Study

TO: Dennis Edwards, PM-12  
Registration Division (TS-767C)

THRU: Henry Jacoby, Acting Chief *Henry Jacoby*  
Environmental Fate and Ground Water Branch/EFED  
(TS-769C)

Patrick Holden, Chief *C.E. for*  
Ground-Water Technology Section  
Environmental Fate and Ground-Water Branch/EFED

FROM: Catherine A. Eiden, *C.E.*  
Ground-Water Technology Section  
Environmental Fate and Ground Water Branch/EFED  
(TS-769C)

Background

I have reviewed the environmental fate data on methomyl in response to the letter dated August 16, 1988 from DuPont, the registrant for methomyl, regarding a ground water monitoring study requirement. The registrant does not agree that a small-scale retrospective ground water monitoring study is justified. They believe that the potential for methomyl to contaminate ground water, when used according to the label, is small.

The Registration Standard calls for a small-scale retrospective study to determine if methomyl use has impacted ground water. The recommendation is based on methomyl's mobility and reports of detections of methomyl in ground water from the STORET data base. STORET data report detections of methomyl in ground water in California, Texas, and Georgia. However, the STORET data were not verified. In an effort to clarify these data, the registrant contacted the state agencies involved in California and Georgia. They were unable to verify that methomyl had been detected in ground water in either state.

Methomyl has a health advisory level (HAL) of 175 ppb.

Methomyl is susceptible to degradation through photolysis

Methomyl is mobile; it has measured Kd values less than 1.0-2.0 on sandy and silt loam soils.

In field dissipation trials, residues were detected down to 8 inches in the soil profile, but not beyond. However, these data were inconclusive regarding methomyl's mobility in the field. The soils were sampled at 1, 3, and 12 months post treatment, only. There were too few data points to adequately characterize the degradation rate of methomyl. Residues may have moved beyond the depth of sampling between sampling dates. One could not conclude from these studies the depth to which methomyl was leaching.

### Conclusion

Methomyl is capable of leaching to ground water in very sensitive environments. Generally, we believe these environments to include sandy, permeable soils with shallow ground water. To date, data indicate that methomyl is reaching ground water in New York at 9 ppb (25% of the HAL), in New Jersey at 1-2 ppb, and in Florida at 12 ppb (30% of the HAL). These environments are sensitive. The findings in Florida have not been directly attributed to normal field uses of methomyl; we cannot say definitely whether the detections in New Jersey and New York were attributed to field uses of methomyl, because of inadequate documentation of use. ←

The purpose behind a small-scale retrospective ground water monitoring study is to determine under what circumstances methomyl may reach ground water through normal field uses, and to determine the levels of methomyl impacting shallow ground water. The OPP has developed a policy of preventing unacceptable levels of contamination in ground water (future and current sources of drinking water). To uphold this policy, we must investigate those situations that may lead to unacceptable levels of pesticides in ground water. The criterion for unacceptable levels at this time is the maximum contaminant level (MCL). In lieu of a MCL, interim values are used, such as the HAL or one-in-a-million risk level. There may be use restrictions or label changes necessary to mitigate the introduction of pesticides into ground water.

### Recommendation

The small-scale retrospective ground-water monitoring study is required. There are certain use situations that may not need to be studied, if previous monitoring studies have shown no detections of methomyl in areas associated with documented methomyl usage. The choices of sites will be discussed with the registrant and agreed upon prior to study initiation. The results from this study will be used to determine conclusively

## Ground Water Monitoring Data

The EFGWB has researched several sources of data on pesticide residues in ground water. EFGWB does not disagree with the registrant on their findings regarding detections of methomyl as reported in the STORET data base. In general, we do not rely on STORET for data on pesticide residues in ground water.

Our own "Pesticides in Ground Water Data Base", contained the following reports on methomyl:

1) In New York, Suffolk Co., 80 out of 25,000 samples collected and analyzed tested positive for methomyl at up to 9ppb. The report indicates that it was unknown if these levels were increasing, decreasing or remaining the same. Inadequate records were kept as to pesticide usage in the area, and therefore, a correlation between normal agricultural use of methomyl and these positive detections for methomyl were confirmed. However, the contamination is believed caused by normal field use of methomyl.

2) In New Jersey, 62 wells were sampled, 8 were positive for methomyl. The maximum concentration was 1.2 ppb. These data were confirmed. The wells were shallow ( less than 100 feet deep) in relatively vulnerable soils with no confining layers. Inadequate data on pesticide usage in the area prevented any specific correlation between methomyl use in the vicinity of the wells sampled. However, the contamination is believed caused by normal field use of methomyl.

3) In Florida, methomyl was detected in four counties: Alachua, Jackson, Broward and St. Johns at 2.33-12.3 ppb. These detections are believed to have been caused by improper disposal practices.

The reports from New York and New Jersey were confirmed through our Pesticide Monitoring Inventory (PMI) data base.

## Environmental Fate Data

A review of the fate data indicate that methomyl is mobile, but only moderately persistent in soils. The half-life varies from 15-45 days under aerobic conditions in soils, and 8 days under anaerobic conditions in soils. The parent compound degrades to unextractable bound residues and carbon dioxide and minor amounts of extractable residues. The extractable residues are not expected to form in amounts that would pose a threat to ground water. Methomyl appears to be only moderately persistent, but depending on the conditions of the soil, particularly the pH, the persistence of methomyl may increase or decrease.

Methomyl hydrolyzes slowly under acidic to neutral conditions, pH 5-7. Under alkaline conditions, hydrolysis is rapid.

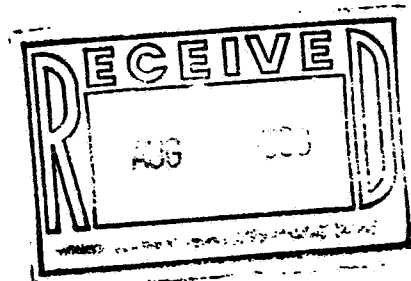
Methomyl is susceptible to degradation through photolysis

COMMENTS ON THE DRAFT

METHOMYL REGISTRATION STANDARD

DOCKET NO. 16752-77-5

THIS DOCUMENT DOES NOT CONTAIN  
ANY CONFIDENTIAL BUSINESS INFORMATION



Submitted by:

E. I. du Pont de Nemours & Co, Inc.  
Agricultural Products Department  
Walker's Mill Building  
Barley Mill Plaza  
Wilmington, DE 19898

August 22, 1988

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COMMENTS ON DRAFT METHOMYL REGISTRATION STANDARD

158.130 Environmental Fate

Groundwater Monitoring

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ESTABLISHED 1802

**E. I. DU PONT DE NEMOURS & COMPANY**

INCORPORATED

WALKER'S MILL, BARLEY MILL PLAZA  
WILMINGTON, DELAWARE 19898

AGRICULTURAL PRODUCTS DEPARTMENT

August 16, 1988

Mr. Dennis Edwards (PM12)  
Registration Division (TS-767-C)  
Office of Pesticide Programs  
U. S. Environmental Protection Agency  
Crystal Mall, Building #2  
1921 Jefferson Davis Highway  
Arlington, VA 22202

Subject: Du Pont Comments on the Draft Methomyl Registration Standard (Docket No. 16752-77-5)

Dear Mr. Edwards:

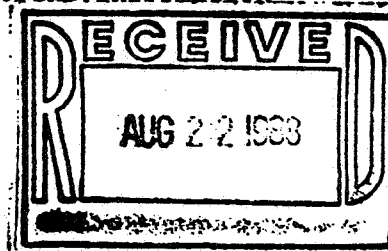
The attached document contains E. I. du Pont de Nemours & Company's comments on the Draft Methomyl Registration Standard which was announced in the June 22, 1988 Federal Register Vol. 53, No. 120, page 23449. We appreciate this opportunity to comment on the Standard. We hope that our comments will help to clarify our position on several issues and lay the groundwork for constructive dialogue with the Agency.

We are submitting comments on the following requirements:

Restricted Use for the Water Soluble Bag  
Poultry Metabolism  
Rat Metabolism  
Monkey Metabolism  
Acute Toxicology for Manufacturing-Use Products  
Groundwater Monitoring\*  
Avian Reproduction  
Level 1 Avian Field Testing  
Aquatic Acute Tox with TEP  
Aquatic Organism Accumulation  
Aquatic Field Studies/Mesocosm

Each of these comments is contained under a separate area tab in the attached document. In addition, Tab 6 contains a few editorial corrections. Tab 7 contains a list of studies which we believe should have been included in the Bibliographic Citations, but were not. Please add these studies to the bibliographic listing.

Three copies of this document have been sent to the Information Services Section as requested in the Federal Register.

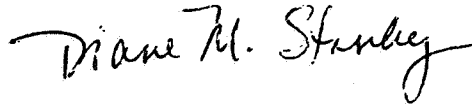




Again, thank you for this opportunity to comment and we look forward to working with you when the final Registration Standard issues. Please direct any response to these comments to me at:

E. I. du Pont de Nemours & Co., Inc.  
Agricultural Products Department  
Attn.: Diane M. Stanley  
Barley Mill Plaza, WM6-174  
Wilmington, DE 19898

Sincerely,



Diane M. Stanley  
Registration Specialist

DMS:dmf  
Attachments

cc: Information Services Section (3 copies)  
Program Management & Support Division (TS-757-C)  
Office of Pesticide Programs  
U. S. Environmental Protection Agency  
401 M Street, S.W.  
Washington, DC 20460

*We agree*

COMMENTS ON GROUNDWATER MONITORING REQUIREMENTS

The June 1988 Draft Registration Standard for methomyl states that groundwater monitoring studies will be required (pg. 69). These studies are to consist of three small scale retrospective groundwater field monitoring surveys (footnote pg. 70). This work is being required because laboratory mobility studies suggest that methomyl has a "potential for groundwater contamination" (pg. 129 Methomyl Science Chapters). Also, according to Agency records, methomyl has been detected in the surface and groundwater in three states. These detections included 2 in surface water (out of 446 samples) and 25 in groundwater (out of 1023 samples).

Du Pont does not agree that the groundwater monitoring requirements are justified. We do not dispute that under laboratory conditions methomyl demonstrates the characteristics of a compound with the potential for high soil mobility. However, we believe that when used according to label directions the realistic potential for methomyl to contaminate the groundwater is small.

Methomyl is a foliar-applied insecticide with low use rates. It degrades very rapidly in the environment. There are no approved uses for methomyl on or in bare soil and only one minor aquatic use (on watercress). As such, the potential for methomyl to even reach the groundwater is minimal and the likelihood of groundwater contamination is remote.

We have recently (July 18, 1988) obtained a copy of the computer printout of the STORET data base under the Freedom of Information Act. This printout contained data from 1402 stations (both well and surface water), including those the states the where the Agency claims methomyl has been detected (California, Georgia and Texas). Many stations had more than one entry, so that the total number of samples exceeded even that evaluated in preparation of the Draft Standard (pg. 11).

Of the 1402 stations sampled, we found only one report of methomyl detection in groundwater or surface water. This was from one surface water source in Texas. At this site, 2 ppb of methomyl was detected in one of the six samples reported for the site. The other five samples were all below the detection limit of 2 ppb. This raises the possibility that even this reporting was erroneous.

Having reviewed the STORET data printout, we cannot find the detections in California and Georgia that EPA cites as part of the justification for the groundwater monitoring requirements. Perhaps it is possible that data included in the 1987 STORET data base cited by EPA was subsequently removed? If this is the case then we believe that it is important for the Agency to reevaluate whether the remaining single questionable report is sufficient to substantiate the groundwater monitoring requirement.

The largest number of entries in the STORET data base were from California stations (1262 out of 1402). California is also one of the states with the largest methomyl use. Reports compiled by the California Department of Food and Agriculture for 1985, 1986 and 1987 did not show any positive detections of methomyl in the groundwater resulting from normal agricultural uses. In their reports, methomyl was analyzed for in at least 718 wells in 32 counties.

Methomyl was also analyzed for in the California Health Department's survey (April, 1986) of large public water supply systems, but was not detected. Likewise, methomyl was not detected in four wells sampled in Fresno County as part of CDFA's 1987 update of their well inventory data base. All of this information strongly suggests that methomyl does not represent a groundwater problem in California.

Similarly, Florida, another state where methomyl is widely used and, according to EPA's DRASTIC evaluation, the most vulnerable of all states to groundwater contamination, had no reported methomyl detections in the STORET data base. According to R. Budell of the Florida Department of Agriculture and Consumer Services, methomyl has not been detected in their groundwater.

Even if the detection reports cited in the Standard are correct, they should only be considered as possible justification for the studies if the detections resulted from registered uses of methomyl and not from point sources. Since the CDFA reports focused on non-point source detections, this suggests that the STORET detections were from point sources.

*What is the logic in this?*

Finally, according to the Registration Standard, methomyl was detected at a maximum concentration of 10 ppb as reported in the STORET data base. EPA does not consider this level to be toxicologically significant and, therefore, is not requiring that a groundwater advisory statement be put on the label (pg. 11). We believe that this conclusion by EPA along with the fact that 10 ppb is not significant compared to EPA's health advisory level of 175 ppb, indicate that groundwater monitoring requirements for methomyl are not justified. We propose that the groundwater monitoring requirements be removed from the Registration Standard.

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