Shaughnessy No. 29001

Date Out EAB: JUN 6 1989

TO: Lewis/Toma
Product Manager 21
Registration Division (H7505C)

FROM: for Patrick W. Holden, Chief
Ground-Water Technology Section
Environmental Fate & Ground Water Branch (H7507C)

THRU: Hank Jacoby, Acting Chief
Environmental Fate & Ground Water Branch (H7507C)

Attached please find the environmental fate review of:

Reg./File No.: _____

Chemical: 1,3-dichloropropene

Type Product: Nematicide

Product Name: TeloneII

Company Name: Dow Chemical

Purpose: Response to Protocol Submission on Small-Scale Retrospective Ground-Water Monitoring Study

ACTION CODE: 660

Date Received: 04-10-89

EFGWB # 90565

Date Completed: 06-05-89

Total Review Time: 3 days

Monitoring study requested: / X /

Monitoring study voluntarily conducted by registrant: /___/

Deferrals To: _____ Biological Effects Branch

_____ Science Integration and Policy Staff, EFED

_____ Non-Dietary Exposure Branch, HED

_____ Dietary Exposure Branch, HED

_____ Toxicology Branch, HED

Use this form for individual studies & to submit pesticide applications.

United States Environmental Protection Agency
Office of Pesticide Programs
Washington, DC 20460

Data Review Record

Confidential Business Information - Does not contain National Security Information (E.O. 12065)

Pack Number	Date Received
49304 EFED	5-3-89

1. Product Name: Telone II

Chemical Name: 1,3-Dichloropropene

2. Identifying Number	3. Record Number	4. Action Code	5. MRID/ Accession Number	6. Study Guideline or Narrative
464-511	243059	660	N/A	Protocol for Ground Water Monitoring Study

7. Reference No.	8. Date Rec'd (EPA)	9. Prod/Review Mgr/DCI	10. PM/RM Team No.	11. Date to HED/ EFED/RD/BEAD	12. Proj Return Date	13. Date Returned to RD/SRRD
	4/3/89	Lewis/Toma	21	4/10/89	6/8/89	

Instructions: First copy not in EFED System
Second copy: Attention: Cathy Eiden EFGWB/EFED

This Section Applies to Review of Studies Only

14. Check Applicable Box
- [ ] Adverse 6(a)(2) Data (405)
- [ ] Special Review Data (870)
- [x] Generic Data (Reregistration)(660)
- [ ] Product Specific Data (Reregistration)(655)

15. No. of Individual Studies Submitted:

16. Have any of the above studies *(in whole or in part)* been previously submitted for review?
- [ ] Yes *(Please identify the study(ies))*
- [ ] No

17. Related Actions:

18.	To	Type of Review	19. Reviews Also Sent to
HED		Science Analysis & Coordination	SAC, PC
		Toxicology/HFA	TOX/HFA, PL
		Toxicology/IR	TOX/IR
		Dietary Exposure	DEB, EA
		Nondietary Exposure	NDE, AC, BA
EFED		Ecological Effects	
	✓	Environmental Fate & Groundwater	EEB, EFGWB
SRRD		Special Review	
		Reregistration	
		Generic Chemical Support	SR
RD		Insecticide-Rodenticide	RER
		Fungicide-Herbicide	GSC
		Antimicrobial	
		Product Chemistry	IR, FH
		Precautionary Labeling	AM
BEAD		Economic Analysis	
		Analytical Chemistry	
		Biological Analysis	

20. Data Review Criteria

A. Policy Note No. 31
- [ ] 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria
- [x] 2 = data of particular concern from registration standard
- [ ] 3 = data necessary to determine tiered testing requirements

B. Section 18
- [ ] 1 = data in support of section 3 in lieu of section 18

C. Inert Ingredients
- [ ] 1 = data in support of continued use of List 1 inert

- [ ] Confidential Statement of Formula (EPA Form 8570-4) Attached *(Trade Secrets)*
- [ ] Label Attached

EPA Form 8570-17 (Rev. 11-88)
Previous editions are obsolete.

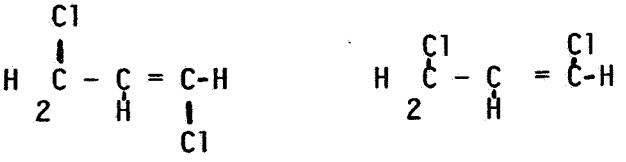
White - Data Coordinator
Yellow - Data Review Section
Pink - PM/RM/DCI
Green - Return with completed review

2

1. Chemical:

Common Name: Telone II
Chemical Name: 1,3-Dichloropropene

Structure:



trans cis

2. Test Material:

N/A

3. Study/Action Type:

This submission is a protocol for the small-scale retrospective ground-water monitoring study required of Dow Chemical. The company is ready to set-up on the field sites and is seeking initial approval to start.

4. Study Identification:

Draft Protocol: Small-Scale Retrospective Ground-Water Monitoring Study for Telone* Brand Soil Fumigants. No. 89038, Project No. 17703. Record No. 243059, Identifying No. 464-511, Study Director: James Knuteson, 3/23/89.

5. Reviewed by:

Catherine Eiden, Acting Chief
Environmental Chemistry Assessment Section
Environmental Fate and Ground-Water Branch

6/5/89

6. Approved by:

Henry Jacoby, Acting Chief
Ground-Water Technical Section
Environmental Fate and Ground-Water Branch

7. Conclusions:

The protocol is very general. It outlines ground water and surface water sampling schedules and procedures, site set-up, well construction and placement, and chain-of-custody procedures, and analytical methods. A verbal "go-ahead" was given to Dr. J. Knuteson on the phone to proceed with setting up wells on the sites, taking soil cores for the purpose of soil and pesticide residue characterization, determination of the actual depth to the water table and localized ground-water flow direction. All site specific details gained from these initial set-up procedures will be

communicated to EFGWB as soon as possible. This review serves to document that a verbal "go-ahead" was given by phone 5/18/89. Final site approval will depend upon the verification of actual depths to ground water (only estimates were given in the protocol).

8. Recommendations:

As related to Dr. J. Knuteson by phone 5/18/89.

1. Field characterization data on depths to the ground water, and localized direction of flow, and soil types must be submitted to EFGWB as soon as possible for final site approval.

2. The Florida site may require special considerations in setting-up a site, because the subsurface horizon contains clays over limestone bedrock. EFGWB must be kept up to date on the special procedures and progress at this site, in particular. (The registrant is working with the Florida DER on this site).

3. Sampling ground water 6 months beyond the application date for a minimum of 12 months of sample collection is approved, at this time; however, depending on the study results the EFGWB may ask for sampling beyond the 1 year minimum. That is, the registrant should not expect to automatically stop sampling after 1 year of sampling.

4. As discussed with Dr. Knuteson on 5/18/89, at least one soil core should be taken on each site at the studies initiation and analyzed for pesticide residues not only if Telone II residues are found in ground water as noted on p.11 of the protocol. Soil sampling procedures must be described in the next interim report. Soil cores taken during the drilling operation may be used.

5. At the following sites, the proposed 1990 Telone II application is necessary to provide enough years of Telone II usage:

   a. Florida, Jackson Co.
   b. North Carolina, Wayne Co.
   c. Nebraska, Scotts Bluff Co.
   d. Washington, Grant Co.

6. If the 3 well sites initially placed on the field are not placed in the direction of the ground water flow more wells may need to be placed on the site.

7. A storage stability study is required as part of the study design QA/QC for this project. EFGWB recommends the following guidance in carrying out a storage stability study: To achieve an accurate picture of the possible decline in detectable pesticide residues of interest during storage before analysis, the following study plan must be followed:

   1. Fortify containers of distilled water and representative ground water with each of the compounds of interest on the day that the samples arrive at the laboratory.

2. Completely screen for the compounds of interest within the first twenty-four (24) hours to determine the recovery of these compounds as soon after fortification as possible.

3. Place containers fortified with compounds of interest out-of-doors for twenty-four (24) hours and then extract as rapidly as possible to determine what the worst case scenario would be if in shipping these samples happen to reach ambient temperatures. Do a complete screen.

4. Refrigerate a set of fortified distilled water and representative ground-water samples at temperatures representative of samples storage conditions, 5 C + 2 C is recommended, until extraction. This done to simulate a set of storage conditions identical with those used for the actual samples. Analyze the first of these complete screens 1 week after fortification, then perform a second complete screen at 2 weeks.

5. Extraction should take place within 14 days of arrival at the laboratory; however, if this is not possible, the storage stability study must be conducted for a period of time no shorter than the longest storage period before extraction.

6. The fortification levels should be at levels which are readily recoverable and detectable. The basis for determining fortification levels is that the extract should yield the concentration used in the working standard for comparison and quantitation.

With this scheme, complete screens should be analyzed at week 2, week 3, and week 4 after fortification, if necessary. Complete screens should then be analyzed monthly until the last field sample is extracted.

9. Background:

Telone II (1, 3-dichloropropene) is used as a soil fumigant as a treatment against nematodes.

10. Discussion of Individual Studies:

A. Study Identification

Protocol No. 89038 Draft 3/23/89

"Small Scale Retrospective Ground-Water Monitoring Study for TELONE Brand Fumigants", J.A. Knuteson.

B. Materials and Methods

Details of the protocol are attached.

In summary, the registrant has chosen six test sites for the small-scale retrospective ground-water studies: two in California, and one each in North Carolina, Florida, Nebraska, and Washington states, respectively.

Site Selection

The sites chosen vary as to past usage of Telone II. In California, the sites have histories of several consecutive years of past usage. At the remaining foursites in North Carolina, Florida, Nebraska, and Washington, usage has been intermittent over alternating years. For these four sites usage in 1990 is mandatory.

Sites have been characterized down to 5-10 feet as to soil type. All sites have shown sandy to sandy loam soils down to the depth of characterization. All sites must be characterized to the depth of the water table as part of the final study. The Florida site is characterized by clays over limestone. This normally is acceptable in hopes of determining Telone II impacts on ground water in this setting.

From these six sites a variety of cropping practices will be covered: potatoes, soybeans and peanuts, tobacco and small grains, sugar beets and beans.

Plot Design

Most elements of the plot design are taken from the guidance document for ground-water monitoring, and do not need to be repeated here. Well siting, construction and placement will be conducted as per the guidance document, 3 well clusters or sites of 2 wells each sited equilaterally to form a triangle. The 2 clustered wells will be staggered to cover seasonal fluctuations in the water table depth that is, one well will intercept the upper 5 feet of the aquifer, the second will be placed with its screen 5 feet deeper. Clement/grouting should be kept away from contacting the water in the well. They will use threaded stainless steel casing with 5 feet long stainless steel screens. No organic solvents will be used. Telone II is a volatile organic compound, all plastics and solvent should be avoided. The registrant is taking precautions by using, threaded stainless steel casings for the wells. Well construction materials are as specified in the guidance from OPP. Well development, water level measurements, well purging, sampling procedures and schedules described are acceptable and according to OPP guidance. A stainless/Teflon bladder pump will be used to sample the wells. The bladder fills passively with water and does not use suction that may cause loss of the volatile compound. Pumps used for purging were not described as other than variable. Precautions to maintain as little introduction of air into the sample as possible will be taken during sampling. At each well, a total of 9 water samples will be taken, 1 from each well per cluster and a set of 3 duplicates (one for each well site).

The protocol indicates that soils will be sampled and analyzed for pesticides, if ground water samples show evidence of Telone II residues. As recommended above, the soil should be sampled and analyzed for Telone II residues at the studies initiation, not only if Telone II residues are found in ground water.

All chain-of-custody procedures as described are acceptable.

Soil sampling procedures were not described. Ground-water sampling procedures were described. Precautions against losses of volatiles during sampling include slow pumping to introduce little air into the sample and a positive meniscus during collection.

Although not specified in the guidance document, soil sampling procedures should be decribed in the next interim report.

Temperature and rainfall data will be collected and installed at each site. Soil temperature will be collected at 3 depths.

Details on the Florida site and how the wells will be constructed and set-up were not included.

Analytical Methods

The cis and trans isomers of 1,3-dichloroprene and 3-chloroallyl alcohol along with 1,2-dichloropropane will be analyzed for in the ground-water samples. The "validated lower level of determination" will be 1 ug/L for the alcohol and propane compounds, and initially 0.5 ug/L for the propane. Because the propene has a 10-6 risk level of 0.2 ug/L, the registrant will reanalyze any peak that is twice the baseline noise on the chromatographic equipment at 0.05 ug/l, quantitatively.

Soils will be analyzed for all 5 compounds at 0.01ppm.