Shaughnessy Number: 029001

Date Out of EFGWB: 12/29/89

TO: L. Schnaubelt/H. Toma
Product Manager 74
Reregistration Branch/SRRD (H7508C)

FROM: Michael Barrett, Acting Section Head MRB
Ground-Water Technology Section
Environmental Fate & Ground-Water Branch/EFED (H7507C)

THRU: Henry Jacoby, Chief MRB for
Environmental Fate & Ground-Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of:

Reg./File #: 464-511

Chemical Name: 1,3-Dichloropropene

Type Product: Nematicide

Company Name: Dow Chemical U.S.A.

Purpose: Review monitoring well installation plan for Jackson Co., Florida Small-Scale Retrospective Ground-Water Monitoring Study.

Date Received: 9/21/89 ACTION CODE: 660

Date Completed: 12/27/89 EFGWB #(s): 90778

Monitoring study requested: X Total Review Time: 2 days

Monitoring study voluntarily: ___

Deferrals To: ___ Biological Effects Branch

___ Science Integration & Policy Staff, EFED

___ Non-Dietary Exposure Branch, HED

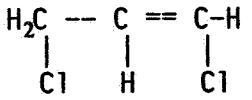
___ Dietary Exposure Branch, HED

___ Toxicology Branch, HED

SMALL-SCALE RETROSPECTIVE GROUND-WATER
MONITORING STUDY SITE REVIEW FOR TELONE II

1. CHEMICAL:

Chemical name: 1,3-Dichloropropene
Common name: 1,3-D (Telone II)
Structure:



2. TEST MATERIAL:

Not Applicable.

3. STUDY/ACTION TYPE:

Review of small-scale retrospective ground-water monitoring study well installation work pland for Jackson County, Florida (Jeff Crawford farm, Greenwood, Florida).

4. STUDY IDENTIFICATION:

Title: Monitoring Well Installation Work Plan: Jeff Crawford Farm, Greenwood, Florida. August 1989.

Author: Woodward-Clyde Consultants
547 North Monroe Street, Suite 201
Tallahassee, FL 32301

Submitted by: DOW Chemical U.S.A.
P.O. Box 1706
Midland, MI 48640

Identifying No.: 464-511
Action Code: 660
Accession Number: Not given
Record Number: 251,988
Date Sent to EFED: 9/21/89

5. REVIEWED BY:

W. Martin Williams Signature: W. Martin Williams
Hydrologist
OPP/EFED/EFGWB/Ground-Water Technology Section Date: 12/27/89

6. APPROVED BY:

Michael R. Barrett Signature: Michael R. Barrett
Acting Section Head
OPP/EFED/EFGWB/Ground-Water Technology Section Date: 10/29/89

7. CONCLUSIONS:

The subject well installation work plan is inadequate for the geologic environment at the Crawford farm (Jackson County, Florida site). The site is underline by karstic limestone; EPA guidelines for conducting small-scale retrospective ground-

County, Washington; Merced County, California; Monterey County, California; Wayne County, North Carolina; and Scotts Bluff County, Nebraska. Monitoring has been initiated in all sites except Florida -- the subject of this review.

Additional monitoring in Hawaii is on hold pending the results of monitoring at the other sites. EPA's guidelines for small-scale retrospective ground-water monitoring studies are not appropriate for the steep slopes, deep ground water and underground springs representative Telone use areas on pineapple in Hawaii.

On August 10-11, 1989, Martin Williams of EPA/OPP/EFED visited the subject Florida site and met with representatives of Florida Department of Environmental Regulation (DER), Florida Department of Agriculture and Consumer Services (DACS), DOW Chemical U.S.A., and Woodward-Clyde Consultants. At the time, a tentative well placement was developed based on estimated ground-water flow grradient, ground-water recharge mechanisms, location of the test plot relative to the farm-wide application of Telone II, drilling rig access, and interference with farming operations.

The subject review discusses the monitoring well installation work plan and other variations to DOW's generic protocol to address the Jackson County, Florida site.

10. DISCUSSION:

Hydrogeological conditions in Jackson County Florida are complex. This area is in the Dougherty Plain characterized by karstic limestone, and existing and paleo-sinkholes. Surface water streams are almost nonexistent due to the karst conditions. The topography is rolling but has relatively little relief. Soils down to roughly 40 to 50 feet are sandy to sandy loams with noncontinuous clay lenses and limestone boulders. Below these soils is the Ocala limestone formation commonly known as the Floridan aquifer having a total thickness of roughly 100 feet. This formation has an undulating surface and is well weathered with channels, conduits, caverns, etc. Below the Ocala limestone is the Lisbon formation.

The Floridan aquifer is the principal drinking water source in the area. Because of the shallow water conditions (roughly 40 feet from the surface), the sandy surficial soils, and the karst terrain, this area is very vulnerable to ground-water contamination. For example, from a 3,000 well survey, the Northwest Florida Water Management District detected residues of EDB in roughly 500 wells in Jackson County, Florida (Roaza, 1988). [It is interesting to note that many of these 3,000 wells were also sampled by the State of Florida Department of Environmental Regulation. DER analyzed for several constituents including 1,3-D and the 3-chloroallyl alcohol, but not the 3-chloroacrylic acid, with no detections.]

Ground-water contamination from registered application of Telone potentially could occur from several mechanisms in the Dougherty Plain: 1) surface water runoff draining into drainage wells and sinkholes (although agricultural drainage wells are illegal in Florida), 2) surface water runoff ponding in local depressions and seeping into ground water, 3) vertical infiltration at point of pesticide application, and 4) vertical infiltration followed by lateral movement over noncontinuous clay lenses.

Jeff Crawford's farm, the site in Jackson County Florida, was selected by Rich Budell of Florida DACS and Stodd Pickerall of Florida DER. Crawford's farm potentially represents all four mechanisms given above as well as: 5) an onsite irrigation well could conceivably intercept lateral ground-water movement or contaminated surface water, and 6) existing open and filled-in sink holes may have been used for Telone or Telone II container disposal.