FILE

128821

Date Out EFB: 27 NOV 1984

TO: Robert Taylor
Product Manager 25
Registration Division
TS-767

FROM: Samuel M. Creeger, Chief
Review Section No. 1
Exposure Assessment Branch
Hazard Evaluation Division

Attached please find the environmental fate review of:

Reg./File No.: 241-EUP-RRU

Chemical: Arsenal

Type Product: Herbicide

Product Name: ARSENAL®

Company Name: American Cyanamid

Submission Purpose: Review forest dissipation study protocol

Date in: 11/20/84

Date Completed: 11/27/84

ACTION CODE: 450

EFB # 5096

TAIS (level II)	Days
67	0.5

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

American Cyanamid has submitted a protocol for a forest dissipation study for testing ARSENAL® herbicide [the isopropylamine salt of 2-(4,5-dihydro-4-methyl-4-[1-methylethyl]-5-oxo-1H imidazol-2-yl)-3-pyridine carboxylic acid, as active ingredient].

2.0 PROTOCOL DESIGN

The complete protocol is attached. However, a brief description follows:

The herbicide will be applied to two sites (200-300 acres in size) located in Alabama with forest soils typical of the South. One site has fine sandy loam soils and the other slaty loam mostly eroded to sandy clay and clay loam.

The herbicide will be applied aerially at the maximum use rate of 2.0 lbs. a.i. per acre. Stream water and sediment inside and outside of the test areas to a distance of 2000 ft. will be monitored for residues of the test compound. Soil samples will be taken at sites within each watershed. Residue samples will be collected from the treated foliage, leaf litter, soil, water, and sediments from ponds and streams. Samples from an untreated watershed will also be collected.

3.0 DISCUSSION

Basically, the protocol is scientifically sound. However, EAB has some general comments on it:

1. If multiple applications are allowed on the label, then the sampling period should include the period of the multiple applications.

2. The sites should be divided into quadrants or sections. Substrate samples (soil, litter, foliage, etc.) taken from each quadrant may be composited. However, samples from the various quadrants should not be further composited. A single analysis of each substrate from each site is too few in number and can yield erroneous or misleading results.

3. Stream water and sediment should be sampled at distances up to one mile downstream to determine when residues become non-detectable. For example, samples should be taken at 100 and 300 feet, one-quarter mile and one mile downstream.

4. If samples are stored for an extended length of time before analysis, then storage stability data will be necessary to determine if residues decline during the storage period.

5. The analytical methods should be adequately described. Recovery data should be included for each substrate analyzed. Also, information on the quality assurance procedures used to maintain sample integrity must be included.

6. Degradation products should be identified.

7. The field accumulation study of aquatic non-target organisms should be conducted along with the forest dissipation study. The registrant is directed to Section 165-5 of Subdivision N of the Guidelines: Environmental Fate for additional information on conducting this study.

Fish (bottom, middle and surface feeders, if available) should be sampled. Sampling times should include pre-application, date of application, and immediate post-application for each single or multiple application, and then 3, 7, 14, 21, and 28 days following last application.

Residue analyses should be performed on the whole body and edible tissue of fish.

8. If estuarine areas are to be treated, it may be necessary to sample other aquatic organisms in addition to fish when conducting the study in Section 165-5.

9. Use of Arsenal in forests other than pine forests may need the support of another forest dissipaton study.

Clinton Fletcher
Review Section No. 1
Exposure Assessment Branch'
Hazard Evaluation Division