

PROTOCOL FOR MONITORING MOLINATE AND  
THIOBENCARB CONCENTRATIONS IN THE COLUSA BASIN DRAIN AND THE  
SACRAMENTO RIVER IN 1984

I. OBJECTIVES

A. To estimate the diurnal variability of herbicide concentrations between day and night sampling at three locations (within day variability).

B. To estimate the changes in herbicide concentrations at three locations over several days (between day variability).

II. PERSONNEL The monitoring will be conducted by personnel in EHAP under the overall supervision of Don Weaver. All inquiries regarding the progress and/or results of any facet of the monitoring program should be directed to him in Sacramento (916-322-2395 or ATSS 492-2395). Questions concerning all aspects of the chemical analysis of collected samples should be directed to Tom Mischke in Sacramento (916-322-2395 or ATSS 492-2395).

III. STUDY TIMETABLE

EHAP will begin taking a single sample per day from the Colusa Basin Drain near Knights Landing beginning in the first week in May. Water monitoring will begin after sharply increasing concentrations of both herbicides are detected (probably mid to late May).

IV. SAMPLING SITES

1. Colusa Basin Drain at Colusa National Wildlife Refuge in Colusa County.

2. Colusa Basin Drain at intersection of Roads 99E and 108 near Knights Landing in Yolo County.

3. Sacramento River at Village Marina in Sacramento County.

V. SAMPLE COLLECTION AND STORAGE

All sampling bottles will be prepared and pre-numbered at the CDFA Laboratories in Sacramento. Each bottle will be accompanied by a Chain of Custody Record (COC). The COC will be filled out by all parties handling the bottles from the time they leave the CDFA Laboratory until they are returned to the laboratory for analysis.

Duplicate water samples will be collected in 1 liter amber glass bottles with plastic screw caps and aluminum foil liners. The sealed bottle will be held 1/2 meter below the water surface, opened and filled under water, and then resealed before being brought to the surface. Samples will immediately be stored on wet ice (4 C) and kept on wet ice until they are transported to the laboratory storage room

(4 C) where they will be held until analysis. Table salt (approximately 30 g per liter of water) will be added to each bottle of water to prevent microbial breakdown of the pesticides. The salt will be added at the Meadowview warehouse prior to sample storage. Standard quality control measures will be conducted by the CDFA laboratory. Additionally, split samples will be collected for distribution to several laboratories for comparison of analytical methods.

#### VI. SAMPLING FOR WITHIN DAY VARIABILITY

Samples will be collected at hourly intervals for 24 consecutive hours beginning at 0800 hours. Two water samples will be taken at the same time at each of the three sampling sites; one sample will be analyzed and the other held as a backup. This sampling scheme will be repeated one week later. The water and air temperature at each sampling site will be measured after each sample is collected.

From the data collected it will be possible to test for significant differences in the variability between day (0600 to 1800) and night (1800 to 0600). It will also be possible to run an ANOVA to test for concentration differences between sites, hours and days.

3 sites x 24 hours x 2 days = 144 samples

#### VII. SAMPLING FOR BETWEEN DAY VARIABILITY

Two water samples will be collected daily in mid morning at each location for 20 consecutive days. Both samples will be analyzed for the two herbicides. The sampling team will first collect a sample at the wildlife refuge location, proceed to the Yolo County location and visit the marina on the Sacramento River last. The samples will be collected from each location at approximately the same time each day. The water and air temperature will be taken each time a sample is collected.

3 sites x 2 samples/day x 20 days = 120 samples

