PROTOCOL FOR THE

SURVEY OF HERBICIDES IN WELL WATER

TULARE COUNTY, 1986

## I. Introduction

As part of the California Department of Food and Agriculture's (CDFA) ongoing investigation of the causes of ground water contamination, the Environmental Hazards Assessment Program (EHAP) found nine of twelve wells contaminated with simazine and/or diuron in Tulare County. Seven of these wells were confirmed positive by a second round of sampling. The primary objective for this study is to determine the extent of contamination by these herbicides.

## II. Personnel

This study will be conducted by CDFA-EHAP under the overall supervision of Randy Segawa. Cindy Garretson will supervise the field sampling, and Mary Brown will act as liaison to other agencies and the public.

ALL QUESTIONS CONCERNING THIS STUDY SHOULD BE DIRECTED TO MARY BROWN AT (916) 324-8916, ATSS 454-8916.

## III. Sampling Plan

Ten wells will be sampled at random within each of 11 sampling cells. Each cell will be 2 X 2 miles, and arranged along two diagonals emanating from the original sampling area (Figure 1). Selection of the diagonals are based on land use, and hydrogeologic patterns. Water samples will be collected after purging the standing water in the well. Samples will be collected in 1 quart amber bottles, and cooled immediately with ice. A chain of custody record will accompany each sample. Sampling data,

analytical results, and all persons handling the sample will be documented on the chain of custody.

## IV. Chemical Analysis and Quality Control

Agricultural and Priority Pollutants Laboratories (APPL) will be the primary laboratory and will analyze for the herbicides simazine, atrazine, prometon, bromacil, and diuron. At one well in each cell additional samples will be collected and screened for other pesticides.

The following laboratory quality control measures will be employed:

Methods Development

1. Blank-Matrix Spikes - 5 replicate analyses at 1.0 ppb.
2. Standards - 5 replicate injections at 2X instrument detection limit.

Continuing Quality Control

1. Solvent Spikes - 1 per extraction set
2. Blank Matrix Analyses - 1 per extraction set
3. Blank-Matrix Spikes - 1 per extraction set
4. Replicate Extract Injections - 5 replicate injections for 2 positive samples.
5. Confirmation Analyses - all triazine positives will be analyzed by gas chromatography (GC) and high pressure liquid chromatography (HPLC). A maximum of two positives for each chemical will be analyzed by mass spectrometry (MS).
6. Split Matrix Samples - a sample from one well in each cell will be split into two aliquots, one aliquot will be analyzed by APPL, and the second analyzed by a different laboratory.

## V. Project Timetable

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| Field Sampling | May 7 - May 23, 1986 |
| Chemical Analysis | May 9 - June 6 |
| Data Analysis | June 6 - June 27 |
| Report Preparation | June 27 - July 18 |

Interim progress reports will be made on an as needed basis.

Figure 1. Sampling Areas for the Herbicide Well Study, Tulare County, 1986.