State of California

Memorandum

To: Kean Goh
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Date: July 15, 1992

Place: Sacramento

From: Department of Pesticide Regulation - Don Weaver and Joe Marade
Environmental Hazards Assessment Program

Subject: Summary Of Results For FY 1991-92 Ground Water Protection List Monitoring

BACKGROUND

The Pesticide Contamination Prevention Act (AB 2021) requires the Department of Pesticide Regulation (DPR) to establish a list of economic poisons, called the Ground Water Protection List (GWPL), that have the potential to pollute ground water. Economic poisons are put on the list based on values for certain physicochemical factors and because they are applied to or injected into soil by ground-based application equipment or by chemigation and/or the applications are recommended or required to be followed by flood or furrow irrigation within 72 hours. In order to determine whether these economic poisons have migrated to ground water, the Director is required to conduct monitoring for materials on the GWPL.

Before any monitoring begins, the economic poisons on the GWPL are ranked (utilizing the "Protocol for Ranking the Ground Water Protection List for Contamination Potential and for Subsequent Monitoring under Commercial Agricultural Conditions") for various factors that will be used to determine in which order and to what extent such economic poisons should be monitored under commercial agricultural conditions in California.

The first priority for monitoring is given to ai's which have been detected in ground water in other states due to non-point sources or which are given a high priority on the SB950 list. For those ai's, between 25 and 40 wells will be sampled in areas of California where high use of those ai's occurs. Second priority ai's are selected based on pounds of ai sold per year and on a combination of physicochemical factors; between 15 and 25 wells will be sampled for this group. Remaining ai's on the list are given third priority for monitoring and 10-15 wells will be sampled.

METHODS

In 1992, a total of 49 ai's were included on the GWPL and were prioritized as previously described (memo from Don Weaver to

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John Sanders, March 9, 1992). Four ai's, butylate, cycloate, EPTC and MITC, from the first priority group were selected to be monitored during the spring of 1992. Data from the 1988 pesticide use reports were used to select the counties with the greatest quantities of each pesticide applied. Then, the number of pounds of ai applied in individual township/range/sections in those counties was plotted on maps. Based on the number and distribution of sections in which an ai was applied and the estimated potential for wells to be available for sampling in those areas, we projected the number of wells that might be sampled from any given area. Well sampling crews surveyed each section indicated on the maps and sampled up to a previously determined maximum number of wells.

A total of 112 wells were sampled in seven counties during March, 1992. Numbers of wells sampled for each ai by county are presented in the following table.

	Total number of wells sampled for:			
County	Butylate	Cycloate	EPTC	MITC
Butte				8
Fresno	10		10	
Kings	2			
Madera			9	
Merced	4	8		3
San Joaquin	5	22	9	4
Stanislaus	4			14
Totals	25	30	28	29

At each site, six water samples were collected for the appropriate ai, consisting of one primary, one field blank and four backup samples. Samples were collected in 1 liter amber glass bottles and refrigerated until analyzed. Minimum detection limits for the ai's were 5 ppb for MITC and 0.1 ppb for butylate, cycloate and EPTC. A separate set of samples was collected from each well and analyzed for atrazine, simazine, prometon, bromacil and diuron, each with a MDL of 0.1 ppb.

RESULTS

None of the well samples contained detectable levels of butylate, cycloate, EPTC or MITC. Two of the 112 wells sampled did contain confirmed detections of diuron. Diuron residues were found in a well in Kings County at concentrations of 0.10 and 0.12 ppb and in a well in Merced County at 0.12 and 0.22 ppb.

FUTURE MONITORING

No additional monitoring is planned for butylate, cycloate, EPTC or MITC since the number of wells specified in the protocol have been sampled. During the next fiscal year, we will attempt to conduct well sampling for six to eight new ai's from the first priority group on the GWPL.