

Memorandum

To : Kean S. Goh, Ag. Prog. Supervisor
Environmental Hazards Assessment Program

Date : August 19, 1994

Place : Sacramento

Phone : 324-4132

From : Department of Pesticide Regulation - Don J. Weaver, Sr. Env. Res. Scientist
Joe Marade, Assoc. Env. Res. Scientist
Environmental Hazards Assessment Program

Subject : Summary of Results for FY 1993-94 Ground Water Protection List Monitoring

BACKGROUND

In 1992, a group of 45 pesticide active ingredients (ai's) on the Ground Water Protection List [Title 3, California Code of Regulations, Section 6800(b)] were prioritized for monitoring as previously described (1) and four of the ai's were monitored in seven counties (2). Those ai's were among 24 ai's in the first priority group of ai's requiring that 25-40 wells be sampled (1). As a continuation of that effort, six of the 20 ai's remaining in the first priority group were monitored during FY 1992-93 (3). Monitoring requirements for molinate were completed in FY 1992-93 but additional wells needed to be sampled to complete requirements for the other five ai's. This memorandum summarizes information on monitoring locations and analytical results for each of the five ai's monitored during FY 1993-94.

METHODS

The ai's (they had been selected previously) monitored were 2,4-D, cyanazine, fenamiphos, hexazinone, and metribuzin. All except hexazinone had had six wells sampled during the 1991 study conducted to test the procedures for determining the Ground Water Protection List (4). Also, all ai's except fenamiphos had been included in FY 1992-93 ground water protection list monitoring (3) (Table 1). Thus, additional wells remained to be sampled for each ai in order to attain the 25-40 wells required in the Ground Water Protection List monitoring protocol. Attempts were made to sample the necessary numbers of wells during the FY 1993-94 survey. Areas to be surveyed for potential well sampling locations were selected based on pesticide use reports for 1990 and 1991. Sampling crews drove through preselected sections of land in each county and attempted to sample one well per section. At each well site, six water samples were collected for the appropriate ai, consisting of one primary, one field blank, and four backup samples. The minimum detection limit (MDL) for each of the ai's 2,4-D, cyanazine, fenamiphos, hexazinone and metribuzin was 0.1 parts per billion (ppb). Water samples from each well were also analyzed for five herbicides listed in section 6800(a): atrazine, simazine, prometon, bromacil, and diuron, each with an MDL of 0.1 ppb. Additionally, samples collected for 2,4-D and fenamiphos analyses were subjected to an analytical screen which included metribuzin, hexazinone, cyanazine and prometryn each with an MDL of 0.2 ppb.



Weaver

Marade

Kean S. Goh
August 19, 1994
Page Two

RESULTS

A total of 89 wells were sampled in 15 counties (Table 1). Five wells were sampled for 2,4-D, 20 for cyanazine, 34 for fenamiphos, 16 for hexazinone, and 14 for metribuzin. None of the wells contained residues of those ai's. Residues of 6800(a) herbicide ai's were detected in a total of eight wells. Atrazine was verified in one well in Merced County; simazine was verified in two wells in Tulare County, one well in Colusa County, and one well in Riverside County; diuron was verified in two wells in Tulare County and prometon was verified in one well in Stanislaus County.

Based on the data presented in Table 1, all required ground water protection list well monitoring has been completed for 2,4-D, cyanazine, fenamiphos, hexazinone, and metribuzin. None of those ai's was detected in well water. No additional monitoring will be conducted unless a report of ground water contamination by one of those ai's is received.

REFERENCES CITED

1. Memorandum from Don Weaver to John Sanders, dated March 9, 1992. Prioritization of chemicals on ground water protection list.
2. Memorandum from Don Weaver and Joe Marade to Kean Goh, July 15, 1992. Summary of results for FY 1991-92 ground water protection list monitoring.
3. Memorandum from Donald J. Weaver and Joe Marade to John S. Sanders, August 23, 1993. Summary of results for FY 1992-93 ground water protection list monitoring.
4. Johnson, B.R. et al. 1992. A test of procedures for determining the ground water protection list. EHAP Report EH 92-06.

cc: Pat Dunn
David Duncan
Bruce Johnson
John Troiano
Candace Maes
Mark Pepple

Table 1. Wells sampled for five Ground Water Protection List ai's during FY 1993-94.

County	Number of wells sampled for:				
	2,4-D	Cyanazine	Fenamiphos	Hexazinone	Metribuzin
Colusa					7
Kern			4		
Kings		3			
Madera			6		
Merced		6			
Modoc					2
Riverside			7		
Sacramento		3			
San Joaquin	5		6		
Santa Barbara			6		
Shasta				4	
Siskiyou				6	5
Stanislaus				6	
Tulare		8			
Ventura			5		
FY 1993-94 Totals	5	20	34	16	14
Sampled 1990-91	6	6	6	0	6
Sampled 1991-92	0	0		15	0
Sampled 1992-93	19	7		10	15
CUMULATIVE TOTAL	30	33	40	41	35

GW93 Study - Status of Ground Water Protection List Monitoring Study - 9/16/93

Chemical	County	Data				Number of Wells		Date Completed
		County	Section	Graphic	Plotted	Goal	Achieved	
Cyanazine	Kings	Yes	Yes	Yes	Yes	6	3	8/30/93
	Merced	Yes	Yes	Yes	Yes	6	6	9/15/93
	Sacramento	Yes	Yes	Yes	Yes	3	3	9/15/93
	Tulare	Yes	Yes	Yes	Yes	6	6	8/30/93
					Totals	20	18	Completed
2,4-D	San Joaquin	Yes	Yes	Yes	Yes	5	5	8/30/93
					Totals	5	5	Completed
Diazinon	Imperial	Yes	Yes	Yes	Yes	8		11/29/93
	Kern	Yes	Yes	Yes	Yes	7		11/15/93
	San Joaquin					7		11/22/93
					Totals	22		
Fenamiphos	Kern	Yes	Yes	Yes	Yes	7		11/1/93
	Madera	Yes	Yes	Yes	Yes	6		11/8/93
	Riverside	Yes	Yes	Yes	Yes	8		10/4/93
	San Joaquin	Yes	Yes	Yes	Yes	6		10/11/93
	Santa Barbara	Yes	Yes	Yes	Yes	8		10/25/93
	Ventura	Yes	Yes	Yes	Yes	8		10/18/93
					Totals	43		
Fonophos	Sacramento	Yes	Yes	Yes	Yes	5		
	San Benito	Yes	Yes	Yes	Yes	6		
	Santa Barbara	Yes	Yes	Yes	Yes	6		
	Santa Clara	Yes	Yes	Yes	Yes	5		
	Ventura	Yes	Yes	Yes	Yes	6		
	Yolo	Yes	Yes	Yes	Yes	4		
					Totals	32		
Hexazinone	Shasta	Yes	Yes	Yes	Yes	11	4	8/26/93
	Siskiyou	Yes	Yes	Yes	Yes	6	6	8/19/93
	Stanislaus	Yes	Yes	Yes	Yes	6		9/20/93
					Totals	23	10	
Metribuzin	Colusa	Yes	Yes	Yes	Yes	7		9/20/93
	Modoc	Yes	Yes	Yes	Yes	2	2	8/19/93
	Siskiyou	Yes	Yes	Yes	Yes	5	5	8/19/93
					Totals	14	7	