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MEMORANDUM

TO: Kean S. Goh, Ph.D.
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DATE: June 30, 1998

SUBJECT: SUMMARY OF RESULTS FOR FISCAL YEAR 1997-98
GROUND WATER PROTECTION LIST MONITORING

BACKGROUND

In 1992, a group of 45 pesticide active ingredients (ai's) on the Ground Water Protection List (GWPL) [Title 3, California Code of Regulations, Section 6800(b)] were prioritized for monitoring as previously described (1). Through fiscal year (FY) 1996-97, a total of 18 ai's (2)(3)(4)(5)(6)(7) have been monitored with each ai having between 25 and 40 wells sampled as required by the GWPL monitoring protocol.

In 1994, GWPL monitoring requirements were satisfied for hexazinone with a total of 41 wells sampled from 1991 to 1994. No hexazinone residues were detected in any of those wells and it was determined that no additional monitoring would be conducted for hexazinone unless a report of ground water contamination by hexazinone was received (4). Subsequently, hexazinone was detected in one well in Solano County in 1995 (Z289) and one well in Stanislaus County in 1996 (Z404).

Later in 1996, hexazinone residues were found in two wells in adjoining sections in San Joaquin County (Z385). Those detections were investigated to determine if the residues were the result of legal agricultural use (8). Based on the investigation, a determination was made (9) that the two detections of hexazinone in San Joaquin County were considered to be transient. It was recommended that the Environmental Hazards Assessment Program (EHAP) should continue to monitor for hexazinone residues in ground water.

METHODS

EHAP sampled additional wells for hexazinone during October and November, 1997. Areas surveyed for well sampling were selected based on pesticide use reports for 1991-95. Sampling crews drove through preselected sections of land in each of eight counties with the goal of sampling one well per section. For each well sampled, one primary, one field blank and four backup samples were collected. The primary sample was analyzed for hexazinone, atrazine, bromacil, cyanazine, diuron, metribuzin, norflurazon, prometon, and prometryn each with a minimum detectable level (MDL) of 0.05 parts per billion (ppb). In addition, this sample was also analyzed for 2-amino-4-chloro-6-isopropylamino-s-triazine (DEA, deethylatrazine) and 2-amino-4-chloro-6-ethylamino-s-triazine (ACET) each with an MDL of 0.1 ppb. DEA is a degradation product of atrazine and ACET is a degradation product of atrazine and simazine.

RESULTS

A total of 34 wells were sampled in eight counties (Table 1). Overall, one or more herbicide residues were detected in three of the 34 wells. Hexazinone residues (0.11 ppb) were found in one well in Merced County; that well also contained residues of diuron (0.12 ppb). In addition, DEA (0.077 ppb) was found in one well in Glenn County; atrazine (0.84 ppb), DEA (1.5 ppb) and ACET (0.2 ppb) residues were detected in one well in Solano County. None of the wells contained bromacil, cyanazine, metribuzin, norflurazon, prometon, prometryn or simazine. A four-section well survey will be conducted for each of the wells containing herbicide residues.

Kean S. Goh
June 30, 1998
Page 3

REFERENCES CITED

1. Weaver, D. March 9, 1992. Memorandum to J. Sanders: Prioritization of chemicals on the ground water protection list.
2. Weaver, D. and J. Marade. July 15, 1992. Memorandum to K.S. Goh: Summary of results for FY 1991-92 ground water protection list monitoring.
3. Weaver, D.J. and J. Marade. August 23, 1993. Memorandum to J.S. Sanders: Summary of results for FY 1992-93 ground water protection list monitoring.
4. Weaver, D.J. and J. Marade. August 19, 1994. Memorandum to K.S. Goh: Summary of results for FY 1993-94 ground water protection list monitoring.
5. Weaver, D. J. And J. Marade. June 30, 1995. Memorandum to K.S. Goh: Summary of results for FY 1994-95 ground water protection list monitoring.
6. Weaver, D.J. and J. Marade. August 21, 1996. Memorandum to K.S. Goh: Summary of results for FY 1995-96 ground water protection list monitoring.
7. Weaver, D.J. and J. Marade. June 30, 1997. Memorandum to K.S. Goh: Summary of results for 1996-97 ground water protection list monitoring.
8. Sanders, J.S. March 28, 1997. Memorandum to Paul Gosselin: Agricultural use determination for hexazinone residues in ground water.
9. Gosselin, P. August 1, 1997. Memorandum to J.S. Sanders: Agricultural use determination for hexazinone residues in ground water.

If you have any comments or questions, please feel free to call us.

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Table 1. Number of wells sampled for hexazinone during the FY 1996-97
Ground Water Protection List monitoring study.

<u>County</u>	<u>Number of wells sampled</u>
Fresno	3
Glenn	3
Madera	2
Merced	5
San Joaquin	6
Solano	5
Stanislaus	5
Yolo	<u>5</u>
Total	<u>34</u>

GW97 Well Monitoring Results For Hexazinone During October and November 1997

Study	Sample	County	MTRS	Use	pH	Location	Concentration in parts per billion										
							Atrazine	Simazine	Diuron	Prometon	Prometryn	Hexazinone	Cyanazine	Metribuzin	DEA	ACET	Norflurazon
GW97	361	10	M17S19E35	D	8.6	10-01	ND ^a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	356	10	M15S19E03	D	6.9	10-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	388	10	M14S16E03	B	7.5	10-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	384	11	M21N03W12	D	7.3	11-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	380	11	M20N03W33		7.2	11-02	ND	ND	ND	ND	ND	ND	ND	ND	0.077	ND	ND
GW97	376	11	M20N03W28	D	7.0	11-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	320	20	M11S15E26	D	7.1	20-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	364	20	M11S16E32	D	6.8	20-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	324	24	M06S09E36	D	7.5	24-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	352	24	M06S09E26	D	7.2	24-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	372	24	M10S10E02	D	7.3	24-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	408	24	M09S14E10	D	7.3	24-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	396	24	M09S14E23	D	7.0	24-05	ND	ND	0.12	ND	ND	0.11	ND	ND	ND	ND	ND
GW97	344	39	M02S05E07	D	7.3	39-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	312	39	M02S05E18	D	7.3	39-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	316	39	M03S06E04	D	7.0	39-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	328	39	M01S06E03	D	6.9	39-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	332	39	M02S06E12	D	7.2	39-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	348	39	M03N06E28	D	7.5	39-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	280	48	M06N01E19	D	7.3	48-01	0.84	ND	ND	ND	ND	ND	ND	ND	1.5	0.2	ND
GW97	276	48	M07N01E29	D	7.3	48-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	272	48	M06N02E06	D		48-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	308	48	M06N01E28	D		48-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	296	48	M06N01E29	D		48-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	400	50	M04S09E28	D	7.3	50-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	368	50	M05S08E13	D	7.3	50-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	336	50	M05S09E08		7.6	50-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	404	50	M05S09E10	D	7.1	50-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	340	50	M04S10E01	D	7.3	50-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	288	57	M10N01W27	D	7.3	57-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	292	57	M09N02E23	D	7.6	57-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	284	57	M08N01E35	D	7.2	57-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	300	57	M09N01E27	D	7.7	57-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW97	304	57	M09N02E30	D	7.3	57-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

a. None detected at the minimum reporting level of 0.05 parts per billion for all chemicals.