

A HISTORY OF THE LISTING OF PESTICIDES AS RESTRICTED MATERIALS IN CALIFORNIA

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ABSTRACT

California is well-known as a leader in the area of pesticide regulation. Many mechanisms now present at the national level began in California. The concept of restricted use pesticide is an example of this trend. This paper traces the history of restricted materials in California and identifies milestones in the program as well as specific designations to, and deletions from, the list. This report documents, in one place, the order and basis of early actions to place pesticides on the restricted materials list.

HISTORICAL SUMMARY

Chapter 1294, statutes of 1949 (SB 221) and chapter 1295, statutes of 1949 (SB 477) adopted restrictions on certain pesticides with the potential to cause injury to people, crops, or the environment. These pesticides were originally known as Injurious Herbicides and Injurious Materials. The enactment of these statutes was largely due to major problems in the San Joaquin Valley caused by drift and other off-site air movement of the new phenoxy herbicides.² Grapes and cotton were major crops that were highly susceptible to these herbicides which were being increasingly used for broadleaf weed control on grain crops. The permit process, which had been in place in Imperial County since 1938, was brought to the state level. This aspect of the pesticide regulatory program has become known as the restricted materials program.

A major change in the restricted materials program resulted from an opinion issued by the Attorney General in May, 1976, that portions of the California Pesticide Regulatory Program were subject to the California Environmental Quality Act (CEQA). After attempts to prepare a programmatic environmental impact report (EIR) floundered, Chapter 308, statutes of 1978, (AB 3765) was enacted to provide a procedure for certification of the program, from the Resources Agency, as the functional equivalent of CEQA. This certification of specific portions of the Pesticide Regulatory Program was granted in December, 1979.⁴

In 1974, amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) brought the concept of restricted materials to the national level as "restricted use pesticide" (RUP). RUPs were limited to use by, or under the supervision of, certified applicators but no permit was involved. All federal RUPs were incorporated by reference into the restricted materials list and a California plan for the certification of applicators was implemented in 1977. The pest control categories for certified applicators, and to some extent the entire licensing system, were significantly revised in 1985. The permit process was used to certify private applicators (farmers) until 1996 when legislation [Chapter 705,

Statutes of 1995, (SB 800)] was implemented to create a separate system for certifying private applicators.

Increasing concern about air pollution resulted in the passage of Chapter 1047, Statutes of 1983 (AB 1807). While most of the control measures were the responsibility of the Air Resources Board and the California Department of Health Services (CDHS), industry concerns about practical pesticide regulation led to special provisions for pesticides. The Department of Pesticide Regulation (DPR) (until July 1991, part of the California Department of Food and Agriculture), was required to determine which pesticides were "toxic air contaminants" and to determine, in consultation with CDHS, county agricultural commissioners and local pollution control districts, the needed control measures.

Continuing concern about unprotected portions of the environment and resources led to passage of Chapter 1298, Statutes of 1985 (AB 2021) to establish particular protection for ground water from the agricultural use of pesticides. The law required establishment of a Ground Water Protection List of pesticides that have the potential to pollute ground water. Pesticides with certain physical properties are required to be placed on the list if certain high risk use patterns are allowed.

The information reflected in this list of restricted materials was compiled from file documents and, in the case of many early restricted materials, individual memory of when and why restricted materials became restricted pursuant to Section 14004.5 of the Food and Agricultural Code. Initial compilation was done by the Environmental Assessment Team (EAT) organized to draft the programmatic EIR to comply with the CEQA. An attempt has been made to include the major actions taken relative to each pesticide, but many minor or subsequent adjustments or restatements have not been included. This should be considered an informational summary only, and not a legal document. To increase legibility, the notations shown in Table 1 were used in the list. In 1995, DPR reorganized the restricted materials list and deleted many no longer used pesticides.

Table 1 - Notations Used in List

<u>List Name Key</u>	<u>Hazard Mitigation</u>
IH = Injurious Herbicide	A - Nontarget crop
IM = Injurious Material	1. Grapes and Cotton
RM = Restricted Material	2. Broadleaves
GP = Ground Water Protection	3. Orchards (Plums and Prunes)
	4. Highly Soluble in Water
<u>Action Taken</u>	B - Toxicity to Persons
1. All Formulations and Uses	1. Drift
2. Dust Formulations	2. Reproductive Effects
3. All Except Home Use	3. Cancer Risks
4. Turf Use	C - Environmental Contamination
5. Aquatic Herbicides	1. Drift
6. Anti-fouling Paints	2. Surface Water
7. Soil-applied, Chemigation or Watered in	3. Ground Water
8. Agricultural, Outdoor Industrial and Outdoor Institutional Uses	D - Exposure to Nontarget Species
	1. Wildlife Generally
	2. Bees
	3. Fish or Other Aquatic Organisms
	4. Birds

Table 2 - Chronological Listing of Restricted Materials

Year	Month	List	Pesticide Restricted	Action Taken	Hazard Mitigated		
1950	January	IH	2,4-D	1(a)	A1		
		IH	MCPA	1	A1		
		IH	2,4,5-T	1(a)	A1		
	October	IM	Parathion-ethyl	1	B		
		IM	EPN	1	B		
		IM	TEPP	(b)	B		
		IM	Calcium Arsenite (Power Machinery)	2	B1		
		IM	Standard Lead Arsenate (Power Machinery)	2	B1		
		IM	Copper Acetoarsenite (Power Machinery)	2	B1		
1952	August	IM	Schradan (OMPA)	1	B1		
		IM	Demeton (Systox)	1	B1		
1955	November	IH	2,4-DP	1	A2		
		IH	Silvex	1(a)	A2		
		IM	Calcium Arsenite	1	B		
		IM	Standard Lead Arsenite	1	B		
		IM	Copper Acetoarsenite	1	B		
		IM	TEPP	1	B		
		IM	Parathion-methyl	1	B		
		1956		IM	Mevinphos (Phosdrin)	1	B
		1957		IM	Azinphos-methyl (Guthion)	1	B
1958		IM	Chipman 2199 (Arsenic)	1	B		
		IM	Disulfoton (Di-Syston)	1(c)	B		
		IM	Phorate (Thimet)	1	B		
1959		IM	Azinphos-methyl - <u>Deleted from list</u>	1			
		IM	Chipman 2199 - <u>Deleted from list</u>	1			
1960		IM	Chloropicrin	1	B		
1961		IM	Sodium Arsenite	1(d)	B		
1963		RM	DDT	2	C		
		RM	DDD (TDE)	2	C		
1964		RM	DDT	1	C		
		RM	DDD (TDE)	1	C		
		RM	Dieldrin	1	C		
		RM	Endrin	1	C		
		IM	Heptachlor	1	C		
		RM	Toxaphene	1	B		
		IM	Bidrin	1	B		
		1966		IH	2,4-DB	1	A2
		1967	May	IH	Picloram (Tordon)	1	A4
1968	May	IH	Propanil	1	A3		
1969	January	RM	Avitrol	1	D4		
		RM	Starlicide	1	D4		
	July	RM	Azodrin	1	D		
		IH	Dicamba (Banvel)	1(e)	A2		
		RM	Aldicarb (Temik)	1	B		

Year	Month	List	Pesticide Restricted	Action Taken	Hazard Mitigated		
1970	February	IM	Mercury Seed Treatments	1	D1		
		IM	Mercury Treated Seeds	(f)	D1		
	June	IM	Azinphos-methyl (Guthion)	1	B		
		IM	Ethion	1	B		
		IM	Endrin Treated Conifer Seeds	1	D1		
1972	January	RM	Cadmium Compounds	1	C		
		RM	Mercury Compounds	1	B,C		
1973	January	IH	Injurious Herbicides and Injurious Materials Lists Merged with Restricted Materials List Exempt Materials List Adopted				
		RM	Arsenic Compounds	1			
		RM	Carbaryl (Sevin)	1	D2		
		RM	Carbofuran (Furadan)	1(g)	D4		
		RM	Methomyl (Lannate/Nudrin)	1	B		
		RM	Methyl Bromide	1	B		
		RM	Aluminum Phosphide (phostoxin)	1	B		
		RM	Carbon Bisulfide	1	(Fire Hazard)		
		RM	Strychnine	1(h)	D1		
		RM	Sodium Fluoroacetate (1080)	1	D		
		RM	Zinc Phosphide	1	D1		
		RM	Carbophenothion (Trithion)	1	B		
		RM	Monitor	1	B		
		RM	Supracide	1	B		
		RM	Phosphamidon	1	B		
		RM	Sulfotepp	1	B		
		RM	Aldrin	1	C		
		RM	Benzene Hexachloride (BHC)	1	C		
		RM	Chlordane	1	C		
		RM	Endosulfan (Thiodan)	1	D3		
		RM	Lindane	1	C		
		RM	All Dust Formulations (Except Exempt Materials & Home Uses)	1	B1, C1		
		1974	May	RM	Organic Arsenicals - <u>Deleted from list</u>	1	
				RM	Paraquat	3	B
				RM	Dialifor (Torak)	1	B
		1975	July	RM	Nemacur	1	B, C2
			August	RM	Calcium Cyanide	1	B
				RM	Dasanit	1	B
				RM	Sodium Cyanide	1	D
				RM	Mocap	4	B
1976	May	RM	Attorney General ruled that permit issuance was subject to CEQA				
1977	October	RM	DEF	1	C (Odor)		
		RM	Folex	1	C (Odor)		

Year	Month	List	Pesticide Restricted	Action Taken	Hazard Mitigated
1978	January	RM	Carbon Tetrachloride	1	B
		RM	1,3 Dichloropropene (Telone D-D)	1	B
		RM	Ethylene Dibromide (EDB)	1	B
	October	RM	Ethylene Dicloride (EDC)	3	B
		RM	Chlordimeform (Fundal/Galecron)	1	B
		RM	Federal Restricted Materials	1	(Various)
		RM	All Pesticides Used Under Section 18 Registration	1	(Various)
1979	December	RM	The Resources Agency certified the Department's pesticide regulatory program as meeting the requirements of CEQA. Implementation of most changes delayed until July 1, 1980.		
1980	March	RM	Dinoseb	1	B
		RM	2,4-Dinitrophenol	1	B
		RM	4,6-Dinitro-o-cresol	1	B
		RM	Chlorobenzilate	1	B
1983	April	RM	Nitrophenyl Ether (TOK)	1	B2-3
	August	RM	Acrolein	5	D3
1984	April	RM	Chlorobenzilate - <u>Deleted from list</u>	1	
		RM	Molinate (Ordram)	1	D3
1987	September	RM	Thiobencarb (Bolero)	1	C2
		RM	Oxydemeton-methyl (MSR)	1(i)	B2
1987	June	RM	Bentazon (Basagran)	1	C2
1988	January	RM	Tributyltin	6	C2, D3
	October	RM	Propargite (Omite)	1	B2
	December	RM	Bromoxynil	1	B2
1989	January	RM	Potential ground water pollutants (Sec. 6800 CCR)	7,8	C3
		GP	Atrazine	7,8	C3
	February	RM	Folpet	1(j)	B2, B3
	April	RM	Bromoxynil - <u>Deleted from list</u>	1	
	June	RM	Propargite - <u>Deleted from list</u>	1	
	RM	Folpet <u>Deleted from list</u>	1		
1990	April	GP	Simazine	7,8	C3
		GP	Bromacil	7,8	C3
		GP	Diuron	7,8	C3
		GP	Prometon (Pramitol)	7,8	C3
1994	July	RM	Metam Sodium	9	B4
		RM	Methyl isothiocyanate	9	B4
1995	July	RM	Aldrin <u>Deleted from list</u>	1	
		RM	Arsenic <u>Deleted from list</u>	1	
		RM	BHC <u>Deleted from list</u>	1	
		RM	Chlordane <u>Deleted from list</u>	1	
		RM	Cadmium <u>Deleted from list</u>	1	
		RM	Carbon bisulfide <u>Deleted from list</u>	1	
		RM	Carbon tetrachloride <u>Deleted from list</u>	1	
		RM	Chlordimeform <u>Deleted from list</u>	1	
		RM	Carbophenothion <u>Deleted from list</u>	1	
		RM	DDD <u>Deleted from list</u>	1	
		RM	DDT <u>Deleted from list</u>	1	
		RM	Dieldrin <u>Deleted from list</u>	1	
		RM	Dialifor <u>Deleted from list</u>	1	

Year	Month	List	Pesticide Restricted	Action Taken	Hazard Mitigated
		RM	Dinoseb <u>Deleted from list</u>	1	
		RM	4,6-Dinitrophenol <u>Deleted from list</u>	1	
		RM	Dicrotophos <u>Deleted from list</u>	1	
		RM	EDB <u>Deleted from list</u>	1	
		RM	EDC <u>Deleted from list</u>	1	
		RM	Endrin <u>Deleted from list</u>	1	
		RM	Endrin treated conifer seeds <u>Deleted from list</u>	1	
		RM	EPN <u>Deleted from list</u>	1	
		RM	Ethion <u>Deleted from list</u>	1	
		RM	Heptochlor <u>Deleted from list</u>	1	
		RM	Mercury <u>Deleted from list</u>	1	
		RM	Mercury treated seeds <u>Deleted from list</u>	1	
		RM	Monocrotophos <u>Deleted from list</u>	1	
		RM	Parathion-ethyl <u>Deleted from list</u>	1	
		RM	Phosphamidon <u>Deleted from list</u>	1	
		RM	Picloram <u>Deleted from list</u>	1	
		RM	Schradan <u>Deleted from list</u>	1	
		RM	Toxaphene <u>Deleted from list</u>	1	
		RM	2,4-5-T <u>Deleted from list</u>	1	
		RM	2,4,5-TP <u>Deleted from list</u>	1	
		RM	Tributyl phosphorotrithioite <u>Deleted from list</u>	1	
		RM	TOK <u>Deleted from list</u>	1	
		RM	TEPP <u>Deleted from list</u>	1	

- (a) Pint or pound-sized containers and wax blocks exempt.
- (b) Thermal aerosol in confined areas.
- (c) Except 2% granular.
- (d) Except ready-to-use syrups and dry baits.
- (e) Except 1 gallon/24 hours if less than 1.25%.
- (f) Specific listed seeds were restricted.
- (g) Except 5% granular.
- (h) Possession and use has been limited to agricultural commissioners since 1947.
- (i) Except 13% or less in 1 pint or less.
- (j) Except paints and coatings.

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