SAMPLING FOR PESTICIDE RESIDUES IN CALIFORNIA WELL WATER

2003 Well Inventory Database, Cumulative Report 1986-2003

Eighteenth Annual Report to
the Legislature,
Department of Health Services,
Office of Environmental Health Hazard Assessment,
and State Water Resources Control Board

Pursuant to the
Pesticide Contamination Prevention Act

California Environmental Protection Agency
DEPARTMENT OF PESTICIDE REGULATION

December 2003

EH03-08

California Department of Pesticide Regulation

Arnold Schwarzenegger, Governor

Terry Tamminen, Secretary
California Environmental Protection Agency

Paul Helliker, Director
Department of Pesticide Regulation

For additional copies contact:
California Department of Pesticide Regulation
Environmental Monitoring Branch
P.O. Box 4015
Sacramento, California 95812
(916) 324-4100
also on the DPR web site
<http://www.cdpr.ca.gov/docs/empm/pubs/ehapreps.htm>

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by
DPR portion:
J. Schuette, D. Weaver, J. Troiano, M. Pepple and J. Dias
SWRCB Portion: Staff

California Environmental Protection Agency
Department of Pesticide Regulation
Environmental Monitoring Branch
Environmental Hazards Assessment Program
1001 I Street, Sacramento, California 95814

EH03-08

EXECUTIVE SUMMARY

The Pesticide Contamination Prevention Act

The Pesticide Contamination Prevention Act (PCPA), enacted in 1985, provides mechanisms that strengthen the Department of Pesticide Regulation's (DPR's) regulatory authority to prevent ground water contamination and to respond to detections of pesticide residues in ground water. The PCPA requires:

1. DPR to maintain a statewide database of wells sampled for pesticide active ingredients (AI).
2. State and local agencies to submit results of well sampling for AIs.
3. DPR, in consultation with the Department of Health Services (DHS) and the State Water Resources Control Board (SWRCB), to provide an annual report of the data contained in the database and actions taken to prevent pesticide contamination to the Legislature, SWRCB, DHS, and the Office of Environmental Health Hazard Assessment (OEHHA).

The Well Inventory Database

This is the eighteenth annual report and the second cumulative report, which provides a summary of data contained in the well inventory database from November 1, 1983, to June 30, 2003. A summary of all well sampling data presented by the number of wells sampled and the number of counties where wells were sampled is presented in Table 1a. Table 1b contains the number of individual pesticidal compounds sampled and their status with respect to detection. To effectively store and use the data, DPR, SWRCB, and DHS agreed on the following minimum requirements:

1. State well number (township/range/section/tract/sequence number/base/meridian).
2. County.
3. Date of sample (month/day/year).
4. Chemical analyzed.
5. Individual sample concentration, in parts per billion.
6. Sampling agency.
7. Analyzing laboratory.
8. Street address of well location.
9. Well type.
10. Sample type (e.g., initial or confirmation).

The data are being used to display geographic distribution of pesticide residue in sampled wells, identify areas potentially vulnerable to contamination by the legal agricultural use of pesticides, and design studies for future sampling.

Interpretation of sampling results in the well inventory database is subject to the following limitations:

1. The data indicate which pesticides are present in well water among those pesticides for which analyses were performed. They do not represent a complete survey of ground water quality throughout the state, nor do they represent sampling for all pesticides used.
2. Sampling by agencies other than DPR is not necessarily related to suspected agricultural nonpoint sources of contamination. It should not be assumed that results submitted by those agencies are an indication of which pesticides are more or less likely to reach ground water as a result of nonpoint-source agricultural use.

Data Summary

This is the eighteenth annual report and the second cumulative report.

- Data are the result of 508 well sampling studies submitted from November 1, 1983, to June 30, 2003.
- Data are from 22,008 wells sampled--55 percent are public drinking water wells, 39 percent are from private drinking water wells, and 6 percent are from nondrinking water wells or unknown type wells.
- Data include analysis of 329 active ingredients and/or degradation products, with 106 compounds reported with detections. DPR has verified detections of 27 of these compounds.

Table 1a. Annual and cumulative summary of the number of wells and counties sampled contained in DPR's well inventory database sorted according to detection status.

Category	Year 2003	Total[b] 1985-2003
Total **wells** sampled	4,707	22,008
Wells with no detections	4,174	17,173
Wells with detections [(a)]	533	4,835
Wells with verified detections	22	1,054
Total **counties** sampled	55	58
Counties with no detections	24	8
Counties with detections [(a)]	31	50
Counties with verified detections	6	33

(a) Includes both verified and unverified detections. Detections of pesticide residues are verified if the method of detection was unequivocal (see Appendix D: unequivocal) or the residues are detected in one sample as a result of an analytical method approved by DPR and verified, within 30 days in a second discrete sample taken from the well, by a second analytical method or laboratory approved by DPR.

(b) The total represents unique wells sampled where a single well with sampling data reported in more than one year is counted only once.

Table 1b. Annual and cumulative summary of the number of pesticide-related compounds contained in DPR's well inventory database sorted according to detections and legal agricultural use determinations.

Category	Year 2003	Total[b] 1985-2003
Total **pesticide**-related compounds	167	329
Compounds with no detections	107	223
Compounds with detections [(a)]	60	106
Compounds with verified detections	9	27
Compounds with detections in ground water verified to be the result of nonpoint source pesticide applications	8 [(d)]	16 [(e)]

(a) Includes both verified and unverified detections. Detections of pesticide residues are verified if the method of detection was unequivocal (see glossary) or the residues are detected in one sample as a result of an analytical method approved by DPR and verified, within 30 days in a second discrete sample taken from the well, by a second analytical method or laboratory approved by DPR.

(b) The total represents unique compounds sampled where a single compound that had sampling data reported in more than one year is counted only once.

(c) The eight compounds are ACET, atrazine, DBCP, deethyl-atrazine (DEA), diaminochlorotriazine (DACT), diuron, ethylene dibromide (EDB), and norflurazon.

(d) The 16 compounds are 1,2-D, ACET, aldicarb sulfone, aldicarb sulfoxide, atrazine, bentazon, bromacil, DBCP, DEA, DACT, diuron, EDB, norflurazon, prometon, simazine, and 2,3,5,6-trachloroterephthalic acid (TPA). Aldicarb (based on sulfone and sulfoxide detections), atrazine, bentazon, bromacil, diuron, norflurazon, prometon, and simazine have been reviewed under the Pesticide Detection Response Process and determined to be the result of legal agricultural use (see Appendix D: legal agricultural use). 1,2-D, DBCP, and EDB were canceled before the passage of the PCPA; therefore, DPR did not review these chemicals but considers them to have reached ground water as a result of legal agricultural use.

Verified Detections

DPR verified detections of 28 compounds. Eight parent AIs were reviewed through the pesticide detection response process and their detection was determined to be the result of legal agricultural use. Table 2 summarizes the number of detections in each county for each parent and degradation product by the number of wells and by the counties where detections occurred.

Table 2. The number of wells with verified detections sorted by county and compound (1985-2003).

County	ACET	aldicarb sulfone	aldicarb sulfoxide	atrazine	bentazon	bromacil	DACT	DEA	diuron	norflurazon	prometon	simazine
Butte				4	8	2		1	1	2	1	1
Colusa	2				7			1			1	4
Contra Costa				1		1			1		2	1
Fresno	121			10		54	70	7	107	21	4	180
Glenn				37	29			4	1		9	21
Humbolt		4	2									1
Kern	4			3		4	1	2	12			2
Kings				1					3		1	
Los Angeles	1			39		2		9	8		3	25
Madera	4			2		2	3	2	6			4
Mendocino												2
Merced	8			4	1	3	8	2	7	1	1	6
Monterey	1					2			1			2
Orange				7		1			4			22
Placer					1	2						
Sacramento				1	1							
San Bernardino				1					4			7
San Joaquin	19			7		5	15	10	7	1		7
San Luis Obispo												
Santa Barbara												
Santa Clara												
Shasta	1						1					
Solano	6			14			3	11	4	1	1	1
Stanislaus	5			4	3	1	2	1	7		1	11
Sutter					7							2
Tehama	1			7				2	1			3
Tulare	70			24		145	30	10	250	14	8	282
Ventura				4		1						1
Yolo				3	3							3
Yuba					10							

Pesticide Management Zones

Pesticide Management Zones (PMZs) have been established for six parent compounds--atrazine, bromacil, diuron, prometon, simazine, and norflurazon. A PMZ is a geographic survey unit of approximately one square mile which is vulnerable to ground water contamination. Table 3 provides a summary of the pesticide AI and corresponding number of PMZs established in regulation. The use of a pesticide inside a PMZ where its AI or, in some cases, the AI's degradation product has been detected in ground water as a result of legal agricultural use is subject to certain ground water protection restrictions and requirements.

PMZs have not been established for bentazon and aldicarb, instead, specific restrictions have been placed on their use. For bentazon, use on rice has been suspended. For aldicarb, the use pattern posed a threat to ground water in Del Norte and Humbolt counties; therefore, use was cancelled in these two counties. For other areas of the state, additional restrictions were placed on use with respect to the time of year when aldicarb can be applied and the amount that can be used on crops.

Table 3. Active ingredients and corresponding number of PMZs in California.

Active Ingredient	Number of PMZs
Atrazine	176
Bromacil	137
Diuron	234
Norflurazon	11
Prometon	25
Simazine	380

Groundwater Protection List Monitoring

The Groundwater Protection List (GWPL) is a list of pesticides having the potential to contaminate ground water. In 1992, there were 47 pesticide AIs placed on the GWPL. A regulation package that became effective on May 13, 1999, added 15 new AIs to the GWPL, bringing the total number to 62. As of June 30, 2003, monitoring has been completed for 24 (38 percent) of the 62 AIs.

Multiple Factors to Identify Areas Vulnerable to Ground Water Contamination

DPR scientists have developed a method to determine vulnerable areas based on soil and depth-to-ground water data. Scientists used the data collected in the well inventory database to devise an approach that relates geographic factors to areas with known ground water contamination. Each section of land for which soil data and depth-to-ground water data were available was screened to determine if it fit any of the profiles developed that characterize vulnerable areas. Sections meeting the vulnerable profiles and for which mitigation measures are available were designated as ground water protection areas (GWPAs). DPR has identified 3,718 GWPAs that cover 2.4 million acres of farmland as sections in coarse or hardpan soil clusters that have depth-to-ground water at 70 feet or shallower.

In 2003 DPR proposed new regulations that change its approach from responding to pesticide finds in ground water to requiring the use of preventive practices in areas vulnerable to contamination. To be implemented in 2004, the new rules will require that specific management practices (specific to hardpan and coarse soil characteristics) be used in GWPAs before any of the seven chemicals on DPR's ground water contaminant list can be applied.

Well Monitoring Network

DPR has established a well monitoring network consisting of approximately 70 rural, domestic wells located in Fresno and Tulare counties that will be used to measure the effectiveness of the management practices noticed in the new regulations. These wells were identified because they had been previously sampled and determined to contain residues of one or more of the pesticides that will be monitored, and because they are located in one of the two soil conditions identified in vulnerable areas, either coarse textured, sandy soil, or hardpan soil.

Evaluating New AIs to Determine the Likelihood That They Will Contaminate Ground Water

Under Food and Agricultural Code section 13143, any registrant interested in registering a pesticide in California for agricultural use is required to include specific environmental fate data for the AI in the pesticide. DPR's Registration Branch has the responsibility to evaluate this data for acceptability. Part of the evaluation relies on comparing the environmental fate data to threshold values established by DPR to determine the potential of a pesticide to leach to ground water (see section on Pesticide Factors).

DPR staff has recently developed a probabilistic model that further refines the process for determining whether a pesticide is more or less likely to contaminate ground water. Since a model can simulate various environmental fate processes, it will allow scientists to mimic field situations and evaluate potential effectiveness of proposed mitigation measures. This modeling approach is being evaluated by DPR as a tool to guide the evaluation of environmental fate data in making registration decisions for new pesticide products.

Chemigation Initiative

In fiscal year 1999-2000, DPR staff analyzed state regulations as they pertain to chemigation label language. From that analysis, DPR issued policy letters to the county agricultural commissioners clarifying that enforcement of the label instructions supersedes DPR's backflow regulations. DPR also instituted the Chemigation Initiative, which seeks to increase awareness of current chemigation requirements through education and to determine the suitability of these requirements through the formation of a chemigation task force.

Since 2001, DPR and the Center for Irrigation Technology, located on the California State University, Fresno, campus, have conducted 69 training sessions in 27 counties with more than 1,600 people in attendance. These training sessions will continue to be offered throughout the state in an effort to bring chemigation applications into compliance with the pesticide label requirements.

DPR worked with the Center for Irrigation Technology to form a task force to evaluate the need for further educational and regulatory action on chemigation applications. The task force has met four times and has discussed a variety of topics, including how to best reach the target audiences, the field observations of the task force members, reviewing the current requirements for chemigation, and drafting a proposal for California chemigation rules and regulations.

PREFACE

This report fulfills the requirements contained in section 13152, subdivision (e) of the FAC, directing DPR to report specified information on sampling for pesticide residues in California ground water to the Legislature, DHS, OEHHA, and SWRCB annually by December 1.

This report presents cumulative data reported to DPR from November 1, 1983 to June 30, 2003. This is the eighteenth annual report.

The PCPA requires that the annual report give the location of wells for which sampling results were reported. Due to the large number or wells sampled, it is not practical to list individual well locations. Instead their locations are summarized by county.

The information in this report is presented in three parts: Sections I and II were written by DPR staff. Section III was written by SWRCB staff.

ACKNOWLEDGMENTS

The authors wish to thank the reviewers whose unique perspectives and experiences helped ensure the accuracy and readability of this report. We gratefully acknowledge the staff of DPR and cooperating federal, state, local, and private agencies for contributing to the database.

DISCLAIMER

The mention of commercial products, their source, or their use in this report is not to be construed as either an actual or implied endorsement of such product.

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1,2-D	1,2-Dichloropropane (Propylene Dichloride)
3CCR	Title 3 or the California Code of Regulations
ACET	(Deethyl-Simazine Or Deisopropyl-Atrazine)
AI(s)	active ingredient (s)
MP	management practices
CAC	County Agricultural Commissioner
CALVUL	California Vulnerability Model
CDFA	California Department of Food and Agriculture
DHS	California Department of Health Services
CIT	Center for Irrigation Technology
DACT	diaminochlorotriazine
DBCP	1,2-dibromo-3-chloropropane
DEA	deethyl-atrazine
DES	deethyl-simazine
DPR	Department of Pesticide Regulation
EDB	ethylene dibromide
EHAP	Environmental Hazards Assessment Program
EM	Environmental Monitoring Branch
ESA	Ethanesulfonic acid
ETo	evapotranspiration
FAC	Food and Agriculture Code
GWPA	ground water protection areas
GWPL	ground water protection list
HCH	3-(2-hydroxycyclohexyl)-6-(dimethylamino)-l-methyl-1,3,5-triazine-2,4(1H,3H)-dione
MDL	minimum detection limit
OEHHA	Office of Environmental Health Hazard Assessment
OSA	Oxanilic acid
PCA	Pesticide Control Advisor
PCPA	Pesticide Contamination Prevention Act
PDRP	Pesticide Detection Response Process
PE	Pesticide Enforcement Branch
PMZ	Pesticide Management Zone
PREC	Pesticide Registration and Evaluation Committee
RWQCB	Regional Water Quality Control Board
SNV	specific numerical values
SWRCB	State Water Resources Control Board
TPA	2,3,5,6-tetrachloroterephthalic acid
USGS	United States Geological Survey

I. WELL INVENTORY DATABASE

INTRODUCTION

This is the second cumulative report on the occurrence and distribution of pesticide residues detected in California's ground water. The data was extracted from DPR's well inventory database , which is a compilation of well sampling data from DPR's monitoring program and sampling data from other State and local agencies during the period November 1, 1983 to June 30, 2003. The report includes a discussion about factors contributing to the movement of pesticides to ground water, and regulatory actions DPR has taken to prevent further contamination of ground water by pesticides. It also highlights the progress DPR has made to understand processes of pesticide movement to ground water and to develop management practices that prevent ground water contamination. The portion of the report provided by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) is a summary of actions taken to prevent pesticides from entering ground water during the period July 1, 2002 to June 30, 2003.

BACKGROUND

In 1979, the soil fumigant 1,2-dibromo-3-chloropropane (DBCP) was detected in ground water in Lathrop, California. The results for detection of DBCP by local and state agencies lead to additional investigations on the extent of pesticide residue contamination of ground water. Most of these studies were conducted to determine the presence or absence of pesticide residues in municipal and domestic wells and did not address long-term research-oriented goals (Cardozo, et al., 1985).

In 1983, the Environmental Hazards Assessment Program (EHAP) of the California Department of Food and Agriculture (CDFA), now the Environmental Monitoring Branch of DPR developed the well inventory database. DPR's intention was to use the database (1) to compile reliable information on the occurrence of non-point source contamination of ground water by pesticides used in agriculture and (2) to facilitate graphical, numerical and spatial analyses of the data. Complete descriptions of the database fields are described in the report, Agricultural Pesticide Residues in California Well Water: Development and Summary of a Well Inventory Database for Non-Point Sources (Cardozo, et al., 1985).

Enacted In 1985, the PCPA (see Appendix A-glossary of terms) expanded the well inventory database by requiring State and local agencies to submit all pesticide data from both point and non-point sources to DPR for inclusion into the database. The PCPA also requires DPR to report annually to the Legislature, the SWRCB, DHS, and OEHHA, specific information from the database, and to summarize actions taken by the Director of DPR and the SWRCB to prevent pesticides from migrating to ground water.

This is the eighteenth annual report. Section I describes how data are evaluated and entered into the database and summarizes the database by total wells sampled, the number of wells with unverified and verified detections, and the status of pesticides with verified detections. Section II describes the actions taken by DPR to prevent pesticides from moving to ground water as a result of legal pesticide applications. Section III summarizes actions taken by the SWRCB and the RWQCBs to prevent pesticides from moving to ground water. In order to conform to previous reports, the data added to the well inventory database between July 1, 2002 and June 30, 2003 will be summarized, but, when appropriate, this report will also summarize all data accumulated from initiation of the database in November 1, 1983, e.g. as presented in Table I-1a and Table I-1b. The appendices contain the number of wells sampled by county and chemical for this fiscal year, July 1, 2002 to June 30, 2003 (Appendix A), a glossary of terms (Appendix B) and the registration status and water quality criteria for compounds reported with detections (Appendix C) from January, 1979-June, 2003.

CRITERIA FOR EVALUATING DATA

Interpreting the Data

Effective December 1, 1986, DPR, SWRCB and DHS jointly agreed on the following minimum requirements to be included as part of any pesticide data submitted to DPR:

- State well number (township/range/section/tract/sequence number/base/meridian)
- County
- Date of sample (month/day/year)
- Chemical analyzed
- Individual sample concentration, in parts per billion
- Sampling agency
- Analyzing laboratory
- Street address of well location
- Well type
- Sample type (e.g., initial or confirmation)

Optional information to be included when available:

- Method of analysis
- Well depth (in feet)
- Depths of top and bottom perforations of the well casing (in feet)
- Depth of standing water in the well at time of sampling (in feet)
- Year the well was drilled
- Whether a driller's log was located
- Known or suspected source of contamination

These minimum requirements have resulted in a detailed, reliable ground water database that includes over 22,000 individual wells in California. The data are now being used to:

- Display geographic distribution of well sampling.
- Display geographic distribution of pesticide residue in sampled wells.
- Identify areas potentially vulnerable to contamination by the legal, agricultural use of pesticides.
- Design studies for future sampling.

Interpretation of sampling results in the well inventory database is subject to the following limitations:

1. The data indicate specific pesticides and breakdown products detected in well water among those pesticides for which analyses were conducted. They do not represent a complete survey of ground water quality throughout the state nor do they represent sampling for all pesticides used.

2. Sampling by agencies other than DPR is not necessarily related to suspected agricultural non-point sources of contamination. It should not be assumed that results submitted by those agencies are an indication of which pesticides are more or less likely to reach ground water as a result of non-point source agricultural use.

Classifying Analytical Results

Each record in the well inventory database represents a single well water sample analyzed for a pesticide residue. The analytical result is classified according to the following criteria:

(1) A pesticide analysis in a well water sample is designated as a non-detection and is indicated with the number zero in the concentration field, if the pesticide residue is not detected at or above the minimum detection limit (MDL) of the method.

(2) Samples in which pesticide residues are detected at or above the MDL are classified into one of three categories:

   a. **Unconfirmed:** pesticide residues detected in only one sample during a single monitoring survey.
   b. **Confirmed, unverified:** pesticide residues detected in two discrete samples taken from a single well during a single monitoring survey.
   c. **Verified:** confirmed and unconfirmed detections are verified if they meet the criteria specified in FAC section 13149(d) which requires that either the analytical method provides unequivocal identification of a chemical and is approved by DPR or that the detection is verified within 30 days by a second analytical method or a second analytical laboratory approved by DPR. Criteria have been set by DPR (Biermann, 1989, 1996) for determining if the detection of a pesticide or its degradation product(s) meets the standards of section FAC 13149(d).

A verified detection is the only type of detection that DPR uses for the basis of regulatory action. A confirmed or unconfirmed detection may not be verified for the following reasons:

i. "Follow-up sampling has not yet been completed by DPR." This means that at the cutoff date for the preparation of the well inventory report (usually 6-10 months before the release of the report) verification had not yet been completed for the AI.

ii. "Sampling was not conducted by DPR" because the detection had previously been reported and verified in that area.

iii. "The detection may have been referred to SWRCB" because the pesticide is not registered for agricultural use, or for any use in California or may have been due to a point source and thus under the jurisdiction of a local RWQCB.

iv. "There may be no wells available for sampling." The original well is not available for sampling because it has been destroyed (the standard term for sealing and closing a well), or is no longer functioning as a well. In addition, the original well may have been a monitoring well, usually reported by the U.S. Geological Survey, and there are no other wells within a four-section area available for sampling. Since monitoring wells require special equipment for sampling, they are not sampled by DPR unless there are other wells within a four-section area, which can be sampled to help determine whether residues are due to legal agricultural use.

v. "Permission to sample could not be obtained from the well owner or manager." Historically, we have only sampled wells with the permission of the well owner. Therefore, if a well has been sampled and the owner decides not to permit additional sampling, we would not be able to verify any reported detection in that well. Well owners rarely deny us permission to sample a well.

vi. "DPR conducted sampling in response to the positive detection and found no detections for the compound under investigation." This means that we were unable to verify the presence of the pesticide in the well as a result of analysis of a back-up sample or a subsequent sample taken.

Detections Reported by Other Agencies

Historically, any detection of a compound currently registered for agricultural use would result in an investigation by DPR to verify the detection. However, due to shrinking resources, a more selective approach is necessary. Each year, DPR receives reports of pesticide detections in ground water from a wide variety of sources. For the first time, some of these reports contain

pesticide residue detections at levels far below the MDL obtainable by laboratories approved by DPR. The current policy (memo from John Sanders to environmental monitoring staff, July 2002) states that DPR will not initiate an investigation of a detection if the concentration is below 80 percent of the current MDL established by the CDFA laboratory. For a detection equal to or above the MDL, DPR attempts to verify the detection by analyzing samples collected from wells in the specified area where the detection occurred.

Table I-1a. Annual and cumulative summary of the number of wells and counties sampled contained in DPR's Well Inventory Database sorted according to detection status.

CATEGORY	Year 2003	Total[b] 1985-2003
Total **wells** sampled	4,707	22,008
Wells with no detections	4,174	17,173
Wells with detections [(a)]	533	4,835
Wells with verified detections	22	1,054
Total **counties** sampled	55	58
Counties with no detections	24	8
Counties with detections [(a)]	31	50
Counties with verified detections	6	33

(a) Includes both verified and unverified detections.
(b) The total represents unique compounds sampled where a single compound that had sampling data reported in more than one year is counted only once.

Table I-1b. Annual and cumulative summary of the number of pesticide related compounds contained in DPR's Well Inventory Database sorted according to detections and legal agricultural use determinations.

CATEGORY	Year 2003	Total[b] 1985-2003
Total **pesticide** related compounds	167	329
Compounds with no detections	107	223
Compounds with detections [(a)]	60	106
Compounds with verified detections	9	27
Compounds detected in ground water as the result of legal, agricultural use [(c)]	8 [(d)]	16 [(e)]

(a) Includes both verified and unverified detections.
(b) The total represents unique compounds sampled where a single compound that had sampling data reported in more than one year is counted only once.
(c) Legal agricultural use is the application of a pesticide, registered for agricultural use according to its labeled directions and in accordance with all laws and regulations (see Appendix D: legal agricultural use).
(d) The eight compounds are ACET, atrazine, DBCP, deethyl-atrazine (DEA), diaminochlorotriazine (DACT), diuron, ethylene dibromide (EDB), and norflurazon.
(e) The 16 compounds are 1,2-D, ACET, aldicarb sulfone, aldicarb sulfoxide, atrazine, bentazon, bromacil, DBCP, DEA, DACT, diuron, EDB, norflurazon, prometon, simazine, and 2,3,5,6-trachloroterephthalic acid (TPA). Aldicarb (based on sulfone and sulfoxide detections), atrazine, bentazon, bromacil, diuron, norflurazon, prometon, and simazine have been reviewed through the Pesticide Detection Response Process. The uses of 1,2-D, DBCP, and EDB were canceled before the passage of the PCPA; therefore, DPR did not review these chemicals but considers them to have reached ground water as a result of legal, agricultural use.

SUMMARY OF DATA

Results by Reporting Agency

Summary of All Data in WID

In the early years of the database, collecting data involved a significant amount of staff time and inter-agency cooperation. Potential sources of sampling data were identified and contacted by telephone or letter. Agencies supplied the data either in published reports, raw laboratory results, or on magnetic tape. Often, DPR staff would travel to agency offices to either obtain photocopies of the data or transcribe the information onto coding sheets. On a smaller scale, DPR continues to receive data by mail of published reports and raw laboratory data, primarily from federal agencies such as the U.S. Geological Survey. However, the majority of the well inventory data are sent electronically by DHS. DPR annually receives DHS well sampling data from large and small municipal water systems that are part of a statewide monitoring program mandated by AB 1803(Chapter 881, Statutes of 1983) (see Appendix B-glossary of terms*)*. Much of these data represent repeat sampling of the same wells. In comparison, the majority of DPR well sampling studies are representative of rural, domestic wells that are usually sampled once. A monitoring program was initiated in 1999 by DPR, however, which annually samples the same set of rural, domestic wells (see well network*)*.

The results from 508 well sampling studies have been added to the well inventory database from 1985 to 2003. The data represent 22,008 individual wells sampled in 58 counties by 45 agencies, and for 329 pesticide AIs and some of their degradation products. Table I-2a contains a summary, by agency, of data included in the database from 1983 to 2003. Some wells were sampled by more than one agency.

Of the 22,008 wells sampled, 12,289 (55.8%) were public drinking water wells, 8,500 (39.2%) were private drinking water wells, and 1,027 (5%) were non-drinking or unknown well types.

Table I-2a. Summary of records in the DPR's well inventory database, as reported by state agency or other contributor. Some wells were sampled by more than one agency.

Sampling Agency	Wells	Chemicals Analyzed	Counties	Wells with Detections	Records Added to Database
DHS	13,114	198	58	2,289	1,108,832
DPR	4,882	154	50	1,256	52,573
Calif. Dept. of Water Resources (DWR)	333	167	17	45	21,088
U. S. Geological Survey	366	101	16	106	15,980
Santa Clara County	718	100	1	4	12,804
Kern County	336	2	1	104	3,558
Fresno County	2,023	1	3	905	2,080

Table I-2a. (continued)

Sampling Agency	Wells	Chemicals Analyzed	Counties	Wells with Detections	Records Added to Database
Calif. RWQCB No. 1 North Coast Region	75	27	2	53	1,949
Sacramento County	130	37	1	1	1,720
Rhone-Poulenc Ag. Co.	152	3	6	25	1,116
Calif. RWQCB No. 4 Los Angeles Region	47	15	2		865
Calif. RWQCB No. 3 Central Coast Region	27	95	3	20	798
Calif. RWQCB No. 2 San Francisco Bay	13	71	2	8	739
Yolo County	36	48	1	9	627
U. S. Environmental Protection Agency	6	104	4	6	623
Stockton-E. San Joaquin Water Conservation District	49	29	1	11	621
Santa Clara Valley Water District	20	22	1		576
Calif. SWRCB	182	62	9	17	570
Yuba County	47	23	1		537
Calif. RWQCB No. 5 Central Valley Region	56	76	8	12	433
San Mateo County	8	40	1		368
City of San Francisco	11	26	1		319
U S Forest Service	49	9	14	2	298
Santa Barbara County	4	54	1	1	248
Ciba-Geigy	27	6	2	20	184
Solano Irrigation District	10	6	1		162
Madera County	115	1	2	73	151
U. S. Dept. of Agriculture	9	9	1	5	84
Glenn County	5	44	1	3	74
Calif. Water Service Company	7	5	1	3	72
Marin County	8	6	1		60
Riverside County	5	10	1		50
Calif. RWQCB No. 8 Santa Ana Region	18	1	1	9	18
San Diego County	8	4	1	2	16
Modoc County	4	4	1		13
U. S. Bureau of Land Management	2	6	2		12
Imperial County	1	5	1	1	11
Calif. RWQCB No. 6 Lahontan Region	2	1	1	2	10

Table I-2a. (continued)

Sampling Agency	Wells	Chemicals Analyzed	Counties	Wells with Detections	Records Added to Database
Lake County	4	3	1		9
City of Davis	1	6	1		6
Calif. RWQCB No. 9 San Diego Region	2	5	1	2	5
Sutter County	1	4	1		4
American Environmental Consulting Firm	1	3	1	1	3
San Luis Obispo County	2	1	1	1	2
City of Oceanside	1	1	1	1	1

Data Reported Between July, 2002 and June, 2003

The data entered into the well inventory database for the reporting period of July 1, 2002, and June 30, 2003, represent 11 monitoring studies conducted by three agencies (Table I-2b). Of the 4,707 wells sampled, 4,499 (95.6%) were public drinking water wells, 105 (2.3%) were private drinking water wells, and 103 (2.2%) were non-drinking or unknown well types. Some wells were sampled by more than one agency.

Table I-2b. Summary of records in the well inventory database, by agency, for the reporting period July 1, 2002, through June 30, 2003.

Sampling Agency	Wells	Chemicals Analyzed	Counties	Wells with Detections	Records Added to Database
DHS	4,552	135	54	467	176,398
DPR	78	14	8	25	992
U. S. Geological Survey	77	76	8	29	5,839

Results by Pesticide and County

Summary of All Data in well inventory database

The well inventory database contains information on 329 pesticide AIs and degradation products. Sampling frequency varied among the pesticides. The five most frequently analyzed compounds were simazine, DBCP, atrazine, methyl bromide, and ortho-dichlorobenzene (11,775, 11,627, 11,200, 11,163, and 10,262 wells sampled, respectively). The five compounds with the greatest number of detections were DBCP, ethylene dibromide, simazine, 1,2-D, and diuron (3,573, 612, 421, 372, and 268 detections, respectively). Table I-3 provides a sampling distribution by total number of counties and wells sampled of all compounds added to the well inventory database from 1985 to 2003. The table has been organized in descending order by verified and unverified detections.

The registration status and water quality criteria, as of June 30, 2003, for compounds reported with detections are listed in Appendix C.

Table I-3. Summary by pesticide AIs or degradation products of the number of counties where wells were sampled and then the number of wells with verified and unverified detections. Most wells were sampled for more than one compound.

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Simazine	57	11,775	219	608
Diuron	54	7,534	41	431
ACET	34	1,046	102	245
Bromacil	56	8,966	25	231
Atrazine	57	11,200	146	174
DACT	23	460	20	133
Bentazon, Sodium Salt	55	4,852	45	70
Deethyl-Atrazine	35	1,092	29	62
Norflurazon	30	710		40
TPA (2,3,5,6-Tetrachloroterephthalic Acid)	10	274	36	32
Prometon	48	4,613	20	32
Metolachlor ESA	9	88	6	20
Hexazinone	46	1,957	4	15
Alachlor ESA	9	88	5	13
Metolachlor OXA	9	88		10
DBCP	54	11,627	1,141[(a)]	6
Xylene	58	10,080	80[(a)]	5
Aldicarb Sulfone	50	3,785	41	4
Monuron	25	503	1	4
Molinate	55	6,344	11	3
1,2-Dichloropropane	58	11,494	110[(a)]	2
Aldicarb Sulfoxide	50	3,804	23	2
2-Hydroxycyclohexyl Hexazinone	8	69		1
Alachlor OXA	9	88		1
Molinate Sulfoxide	17	210		1
Ethylene Dibromide	55	7,576	143[(a)]	1
Diazinon	56	6,392	6	1
Trifluralin	32	793	2	1
Chloromethane (Methyl Chloride)	57	6,350	41	
Naphthalene	57	6,767	22	
Benzene	57	6,388	20	
Methyl Bromide (Bromomethane)	58	11,163	19	
2,4-D	58	6,500	16	
Heptachlor	56	5,887	12	
Carbon Disulfide	10	103	10	

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Endosulfan	48	2,758	10	
Ortho-Dichlorobenzene	58	10,262	10	
Chlorthal-Dimethyl	33	1,438	9	
Thiobencarb	55	5,999	8	
Total Aldicarb	10	110	8	
Dicamba	52	3,915	7	
1,3-Dichloropropene (1,3-D Telone)	56	8,928	6	
DDE	42	2,689	6	
Methylene Chloride	6	61	6	
Toxaphene	58	6,629	6	
Dalapon	48	4,128	5	
Dieldrin	56	4,807	5	
Paraquat Dichloride	26	720	5	
Tetrachloroethylene	9	193	5	
1,1,2,2-Tetrachloroethane	57	7,720	4	
1,2,4-Trichlorobenzene	58	6,937	4	
2,4,5-TP	58	5,765	4	
Aldicarb	54	5,091	4	
Carbaryl	52	5,152	4	
Carbofuran	53	5,767	4	
DDT	41	1,895	4	
Endrin	58	6,496	4	
Lindane (Gamma-BHC)	58	6,573	4	
Tebuthiuron	23	149	4	
Thiram	2	18	4	
2,4-DP, Isooctyl Ester	9	106	3	
Alachlor	55	6,611	3	
Captan	38	1,468	3	
Chlorpyrifos	38	1,401	3	
Dimethoate	54	5,552	3	
Endosulfan Sulfate	47	2,111	3	
Prometryn	57	7,468	3	
2,4,5-T	40	1,173	2	
Benomyl	38	1,090	2	
Chlorthal-Dimethyl Acid Metabolites	33	632	2	
Dichlorprop, Butoxyethanol Ester	22	235	2	
Diquat Dibromide	45	3,765	2	

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Endothall	48	3,089	2	
Methoxychlor	57	6,068	2	
Picloram	51	4,200	2	
Trichlorobenzenes	57	6,274	2	
Aldrin	54	4,719	1	
Azinphos-Methyl	43	1,292	1	
BHC (Other Than Gamma Isomer)	45	2,010	1	
Butachlor	52	4,209	1	
Chlordane	56	6,151	1	
Chlorothalonil	50	3,844	1	
Coumaphos	10	130	1	
DDD	41	1,789	1	
Demeton	46	1,760	1	
Dichlorprop	3	49	1	
Dinoseb	50	5,196	1	
EPTC	36	1,536	1	
Ethylene Dichloride	11	197	1	
Ethylene Thiourea	8	67	1	
Glyphosate, Isopropylamine Salt	51	3,891	1	
Heptachlor Epoxide	56	5,878	1	
Malathion	37	1,213	1	
Merphos	19	404	1	
Methomyl	51	4,664	1	
Mexacarbate	22	426	1	
MTP	10	274	1	
Naled	15	219	1	
Propachlor	52	4,111	1	
Propazine	38	968	1	
Propham	35	1,062	1	
Propoxur	44	1,163	1	
Tetrachlorvinphos	21	173	1	
1,2-D + 1,3-D + C-3 Compounds	57	6,365	1	
Metribuzin	54	5,880		
OXAmyl	50	4,869		
Hexachlorobenzene	52	4,708		
Metolachlor	52	4,422		
3-Hydroxycarbofuran	49	3,241		

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Cyanazine	43	2,650		
Disulfoton	44	1,767		
Endrin Aldehyde	45	1,725		
Chloropicrin	34	1,719		
Dicofol	29	1,484		
Parathion Or Ethyl Parathion	40	1,474		
Methiocarb	43	1,263		
Ortho-Dichlorobenzene, Other Related	20	1,240		
Phorate	34	1,195		
Methyl Parathion	37	1,125		
2,3,7,8-TCDD (Dioxin)	31	1,056		
Fenamiphos	29	1,008		
Acephate	34	990		
Paraquat Bis(Methylsulfate)	43	951		
Ethion	35	925		
Chlorpropham	29	879		
Methamidophos	25	854		
Ametryne	35	791		
Diphenamid	27	766		
Atraton	33	664		
Acenapthene	24	663		
Simetryn	37	662		
Mevinphos	30	656		
Acetochlor	29	653		
Benefin	25	628		
Oryzalin	27	628		
Pentachloronitrobenzene (PCNB)	23	612		
Linuron	31	603		
Terbutryn	36	602		
Maneb	27	583		
Fluometuron	32	571		
Carbophenothion	18	559		
Neburon	31	559		
Napropamide	29	551		
Fenuron	27	509		
DNOC, Sodium Salt	24	502		
Propargite	22	481		

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Ziram	30	470		
S,S,S-Tributyl Phosphorotrithioate	16	465		
Terbacil	25	464		
Barban	24	409		
Aminocarb	23	382		
Permethrin	25	378		
Propyzamide	22	365		
Siduron	22	354		
2,4,6-Trichlorophenol	20	346		
Terbuthylazine	16	301		
Chlordimeform	10	295		
Trichlorophon	12	286		
Fluchloralin	8	277		
Methidathion	13	271		
Cyprazine	8	268		
Fensulfothion	14	265		
Simeton	8	254		
4(2,4-DB), Dimethylamine Salt	23	250		
2,4-Dinitrophenol	17	244		
Secbumeton	11	225		
Carbendazim	24	222		
Ethoprop	19	219		
Nitrofen	12	216		
Chloramben	11	209		
DDVP	25	197		
DMPA	10	196		
Methyl Trithion	9	194		
Propanil	20	187		
SWEP (3,4-Dichlorocarbanilate)	15	181		
Tetradifon	11	180		
Dichlobenil	11	179		
Fenamiphos Sulfoxide	16	171		
Fenamiphos Sulfone	16	170		
Pendimethalin	17	164		
Thiobencarb Sulfoxide	17	161		
Butylate	24	154		
Mirex	6	147		

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Fenthion	11	140		
Ronnel	12	138		
Fonofos	11	131		
MCPA, Dimethylamine Salt	17	129		
Acifluorfen, Sodium Salt	15	128		
Trichloronate	9	126		
4(2,4-DB), Butoxyethanol Ester	10	125		
Prothiofos	8	125		
Sulprofos	7	125		
Monuron-TCA	6	118		
Captafol	3	105		
Endosulfan	6	104		
Phosalone	11	88		
Cycloate	15	82		
Pebulate	12	82		
Fenuron Trichloroacetate (TCA)	4	78		
Clopyralid	8	77		
Esfenvalerate	8	77		
Ethalfluralin	8	77		
Garlon	8	77		
MCPA	8	77		
Sodium Hypochlorite	8	77		
Terbufos	8	77		
Triallate	8	77		
(S)-Metolachlor	8	77		
Bromoxynil Octanoate	10	76		
Cyanazine, Other Related	9	76		
Dimethenamid	9	76		
Phosmet	13	75		
Decyclohexyl-4-Hydroxy Hexazinone	8	69		
Monomethyl Hexazinone	8	69		
MCPA, Sodium Salt	7	68		
Methyl Chlorpyrifos	2	67		
Triadimefon	16	61		
2-(2,4-Dichlorophenoxy)Propionic Acid	4	58		
MCPP (2-(4-Chloro-2-Methylphenoxy)	6	57		
Methyl Chloroform (1,1,1-Trichloroethane)	4	56		

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Vernolate	14	50		
Chloroneb	12	44		
Trichlorophenol	2	44		
Demeton-S-Methyl	2	43		
MCPP, Diethanolamine Salt	2	41		
Chlorobenzilate	9	39		
Amitrole	3	37		
Oxydemeton-Methyl	13	36		
Acrolein	7	34		
Metam-Sodium	2	34		
Methyl Isobutyl Ketone (MIBK)	2	34		
2,4-D, Dimethylamine Salt	9	33		
Aroclor	3	33		
Metalaxyl	9	33		
Methyl Isothiocyanate	4	29		
Deethylhydroxysimazine	2	27		
Diaminohydroxytriazine	2	27		
Dioxathion	5	27		
Hydroxysimazine	2	27		
Bromide	2	25		
Diazoxon	6	25		
Phorate Sulfone	1	23		
Phorate Sulfoxide	1	23		
Phosphamidon	2	23		
Chloroxuron	6	22		
Tricyclazole	6	19		
Chloroallyl Alcohol (Cis/Trans)	4	15		
Dicrotophos	3	15		
Rotenone	3	14		
1,4-Dichlorobenzene	2	13		
3-Ketocarbofuran Phenol	4	13		
BIS(2-Ethylhexyl)Phthalate	2	13		
Carbon Tetrachloride	2	13		
Formetanate Hydrochloride	2	13		
Pentachlorophenol (PCP)	2	13		
Toluene	2	13		
Acrylonitrile	2	12		

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Fenvalerate	4	12		
Bromacil, Lithium Salt	1	11		
Endrin Ketone	1	11		
EPN	4	11		
Permethrin, Other Related	3	11		
Profluralin	2	11		
MCPB,Sodium Salt	5	10		
Phoratoxon	1	10		
Phoratoxon Sulfone	1	10		
Phoratoxon Sulfoxide	1	10		
Zineb	1	10		
Methiocarb Sulfone	4	9		
Methiocarb Sulfoxide	4	9		
Monocrotophos	2	9		
Phosmet-Oa	4	9		
Pyrethrins	2	9		
Rotenone, Other Related	1	9		
Azinphos-Ethyl	4	8		
Bendiocarb	1	8		
Bufencarb	1	8		
Dioxacarb	1	8		
Oxadiazon	3	8		
Oxyfluorfen	2	8		
Promecarb	1	8		
Formaldehyde	3	7		
Trichlorobenzene	2	7		
2-Chloroallyl Diethyldithiocarbamate	1	6		
3,5-Dichlorobenzoic Acid	4	6		
5-Hydroxy Dicamba	4	6		
Azinphos-Methyl-OA	2	6		
Carbofuran Phenol	4	6		
Carboxin	4	6		
Crutomate	1	6		
Cypermethrin	2	6		
Diethatyl-Ethyl	2	6		
Fenarimol	4	6		
Octyl Bicycloheptenedicarboximide	4	6		

Table I-3. (continued)

Chemical	Number of Counties Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Paraoxon	2	6		
Propyzamide Metabolite	4	6		
Terrazole	4	6		
Atrazine Dealkylated	4	5		
Methyl Paraoxon	3	5		
Rotenolone	2	5		
Temephos	1	5		
Thiophanate-Methyl	1	5		
Chlordecone	3	4		
Fenac, Sodium Salt	1	4		
Fluridone	3	4		
MCPP, Dimethylamine Salt	1	4		
Bensulide	1	3		
Chloridazon	1	2		
Chlorsulfuron	1	2		
MCPA, Alkanolamine Salt	1	2		
MCPA, Butoxyethanol Ester	1	2		
MCPA, Isooctyl Ester	1	2		
Ovex	1	2		
4-Cloc	1	1		
Amitraz	1	1		
Ethofumesate	1	1		
Ethyl Alcohol	1	1		
Fenbutatin-Oxide	1	1		
Malaoxon	1	1		
MCPP, Potassium Salt	1	1		
Metribuzin DA	1	1		
Pirimicarb Sulfone	1	1		
Thanite (Isobornyl Thiocyanoacetate)	1	1		

(a) Detections were not reviewed by DPR because use was canceled before the passage of the PCPA. However, DPR considers these compounds to have reached ground water as a result of legal, agricultural use.

Wells have been sampled in all 58 counties. The number of pesticides sampled per county ranged from 17 in Alpine County to 189 in Tulare County. The number of wells sampled ranged from 3 in Alpine County to 4,032 in Fresno County. The county with the largest number of verified detections was Tulare County with 365 verified detections. Table I-4 contains a summary of the total number of pesticides and wells sampled by county, including a count of

unverified and verified detections for data reported from November 1, 1983, to June 30, 2003. The table has been organized in descending order by verified, then by unverified detections, and lastly by number of wells sampled in each county. The registration status and water quality criteria, as of June 30, 2003, for compounds reported with detections are listed in Appendix C.

Table I-4. Summary by county of the number of pesticide AIs or breakdown products analyzed for in each county, the number of wells sampled in each county, and the number of wells with unverified, and verified detections. Wells may have both unverified and verified detections. Results are for data reported from November 1, 1983, to June 30, 2003.

County	Number of Pesticides Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Tulare	189	1,547	256	365
Fresno	178	4,032	369	224
Glenn	117	376	27	82
Los Angeles	169	1,414	153	46
Stanislaus	141	900	171	45
San Joaquin	174	900	84	45
Merced	180	1,230	72	25
Orange	155	375	28	23
Kern	177	1,341	206	22
Riverside	159	851	83	20
Solano	127	158	9	18
Butte	143	295	15	15
Colusa	91	161	10	14
Yolo	120	293	18	13
Madera	145	391	89	11
Monterey	173	714	26	10
Yuba	133	151	12	10
Tehama	90	190	5	10
Sutter	77	144	12	9
San Bernardino	142	1,123	176	8
Santa Clara	178	1,225	15	6
Humboldt	111	142	11	5
Ventura	134	315	15	4
Santa Barbara	161	281	11	4
Kings	150	229	6	4
Sacramento	130	566	31	3
Contra Costa	97	108	8	3
Placer	73	107	1	3
San Luis Obispo	124	272	17	2
Mendocino	95	116	2	2
Santa Cruz	162	197	17	1

Table I-4. (continued)

County	Number of Pesticides Sampled	Number of Wells Sampled	Wells with Unverified Detections	Wells with Verified Detections
Lassen	59	51	1	1
Shasta	99	127		1
Del Norte	129	144	23	
San Diego	113	157	13	
Napa	111	115	12	
Sonoma	106	360	12	
Alameda	86	47	6	
San Mateo	141	81	6	
Siskiyou	133	82	4	
Tuolumne	79	84	4	
El Dorado	72	89	2	
Imperial	71	24	2	
Lake	89	66	2	
Mono	62	21	2	
Calaveras	55	27	1	
Inyo	63	41	1	
Mariposa	57	54	1	
Modoc	88	24	1	
San Francisco	57	14	1	
Plumas	61	100		
San Benito	116	72		
Nevada	63	29		
Marin	46	22		
Sierra	39	20		
Amador	81	15		
Trinity	32	13		
Alpine	17	3		

Data Reported Between July 2002 and June 2003

The well inventory database contains information on 167 pesticide AIs and degradation products for data reported between July 2002 and June 2003. Sampling results were reported for 55 counties. The number of wells sampled ranged from 1 in Alpine, Modoc, and Mono Counties to 793 in Los Angeles County. Appendix A (parts 1 and 2) contains each compound analyzed in each county, the number of wells sampled for each compound, and identifies detections reported from July 1, 2002, to June 30, 2003.

Compounds with Verified Detections

Summary of All Data in WID

There are 106 parent AIs and degradation products reported with detections. DPR verified detections of 28 of these compounds. Twelve of the 28 verified compounds were reviewed through the PDRP and their detections were determined to be the result of legal, agricultural use. Table I-5a summarizes each of the 12 compounds by the number of wells and by the county (ies) where detections occurred. The remaining 16 compounds with verified detections were not reviewed through the PDRP for the following reasons:

- Detections of DBCP, xylene, ethylene dibromide, were assumed to be the result of legal, agriculture use but were not registered for agricultural use since the passage of the PCPA and; therefore, not reviewed.
- Monuron and 1,2-D were not registered for use in California and; therefore, not reviewed.
- Trifluralin, diazinon and 2-hydroxycyclohexyl hexazinone (HCH) were each verified in only a single well and; therefore, did not meet the criteria for further review (see four-section survey*)*.
- Hexazinone detections were considered transient.
- Molinate and molinate sulfoxide detections were the result of poor well construction.
- The concentrations of TPA, a breakdown product of dachthal, were determined not to pose a threat to public health and, therefore, no further action was taken.
- Metolachlor ESA and OXA and alachlor ESA and OXA's toxicological data are equivocal and require further evaluation before the compounds can enter the PDRP.

Table I-5a. The number of wells with verified detections in county summarized for each pesticide or breakdown product regulated through the PCPA from November 1, 1983, to June 30, 2003.

County	**ACET**	**aldicarb sulfone**	**aldicarb sulfoxide**	**atrazine**	**bentazon**	**bromacil**	**DACT**	**DEA**	**diuron**	**norflurazon**	**prometon**	**simazine**
Butte				4	8	2		1	1	2	1	1
Colusa	2				7			1			1	4
Contra Costa				1		1			1		2	1
Fresno	121			10		54	70	7	107	21	4	180
Glenn				37	29			4	1		9	21
Humbolt		4	2									1
Kern	4			3		4	1	2	12			2
Kings				1					3		1	

Table I-5a. (continued)

County	ACET	aldicarb sulfone	aldicarb sulfoxide	atrazine	bentazon	bromacil	DACT	DEA	diuron	norflurazon	prometon	simazine
Los Angeles	1			39		2		9	8		3	25
Madera	4			2		2	3	2	6			4
Mendocino												2
Merced	8			4	1	3	8	2	7	1	1	6
Monterey	1					2			1			2
Orange				7		1			4			22
Placer					1	2						
Sacramento				1	1							
San Bernardino				1					4			7
San Joaquin	19			7		5	15	10	7	1		7
San Luis Obispo												
Santa Barbara												
Santa Clara												
Shasta	1						1					
Solano	6			14			3	11	4	1	1	1
Stanislaus	5			4	3	1	2	1	7		1	11
Sutter					7							2
Tehama	1			7				2	1			3
Tulare	70			24		145	30	10	250	14	8	282
Ventura				4		1						1
Yolo				3	3							3
Yuba					10							

Data Reported Between July 2002 and June 2003

DPR verified detections of six AIs and/or their degradation products for data submitted during the fiscal year 2002-2003. This was the first year DPR has analyzed for hexazinone degradation products. A detection of the hexazinone degradation product, 2-hydroxycyclohexyl hexazinone (HCH), was verified by DPR in Stanislaus County. The well also contained hexazinone residue. Table I-5b summarizes the reported data according to the number of wells with verified detections in each county.

Table I-5b. The number of wells in each county with a verified detection of a parent or breakdown product for data reported from July 1, 2002 to June 30, 2003.

County	2-Hydroxycyclohexyl Hexazinone (HCH)	ACET	Atrazine	DACT	DEA	Diuron	Hexazinone	Norflurazon	Simazine
Glenn			2		2				
Madera		1		1					
Merced						1			
San Joaquin		3		5	3	3	2		3
Solano		3	4	1	4	3	1	1	
Stanislaus	1[(a)]						1		

(c) detected for the first time in this county

Details of Certain Compounds with Verified Detections

Most of the compounds identified in the previous section, atrazine, bromacil, diuron, prometon, simazine, bentazon, molinate, molinate sulfoxide, diazinon, TPA, and the aldicarb degradates have had verified detections reported before the 1992 cumulative report was written. Since the 1992 report provided detailed information about DPR's findings and conclusions for each of these compounds, this report will not focus on these compounds. Instead, a detailed explanation will be provided for 2-amino-4-chloro-6-ethylamino-s-triazine (ACET), deethyl-atrazine (2-amino-4-chloro-6-isopropylamino-s-triazine, DEA), hexazinone, hexazinone degradation product [3-(2-hydroxycyclohexyl)-6-(dimethylamino)-l-methyl-1,3,5-triazine-2,4(1H,3H)-dione (HCH)], 2,4-diamino-6-chloro-s-triazine (DACT), norflurazon, metolachlor oxanic acid (OSA), metolachlor ethane sulfonic acid (ESA), alachlor OSA, and alachlor ESA, which were all detected and verified after 1992.

ACET, DEA and DACT

In 1992, the Medical Toxicology Branch of DPR requested that atrazine degradation products with an intact ring be included in the database (Meierhenry,1992). The memo included a statement from the U.S. EPA indicating that these metabolites are of potential toxicological concern.

Ciba-Geigy, the manufacturer of atrazine products, has also indicated that the principal metabolites have toxicity that equals or exceeds that of the parent. Based on this concern and information stating that atrazine metabolites were found in Canada at concentrations greater than the parent over 50 percent of the time, DPR designed a sampling study which surveyed 100 wells

for the atrazine metabolites ACET and DEA. Residues of at least one compound were found in 70 percent of the wells sampled (Maes, et al., 1993). In 1994, DPR determined that a verified detection of an atrazine metabolite could be treated the same as a detection of atrazine when used to establish a PMZ.

In 1996, DACT was added to the chemical analytical screen of compounds that DPR uses to analyze each well water sample. DACT is a degradation product of either simazine or atrazine. DACT was first analyzed during a well sampling study in 1996. The study was conducted, in part, to determine concentrations of simazine, DES, and DACT in Fresno and Tulare County. Thirty-five percent of all detections that occurred during this study were DACT detections.

Hexazinone and HCH

The first verified detection of hexazinone occurred in 1995 during an adjacent section monitoring study (see section on Adjacent Section Monitoring). For DPR monitoring studies, each sample submitted to the laboratory was screened for a standard set of compounds that included hexazinone. After further investigation into this detection, it was determined that the contamination most likely occurred due to seepage from an old 1970's landfill located near the well. The detection was classified as a point source.

In 1997, DPR verified detections of hexazinone in two wells within one mile of each other in San Joaquin County. These detections prompted a request to enter hexazinone into the Pesticide Detection Response Process (PDRP) (see section on Pesticide Detection Response Process). FAC sections 13149 through 13151 of the PCPA require that a detection of a pesticide in ground water be investigated by DPR. At the request of DPR's EM Branch, the Pesticide Enforcement (PE) Branch conducted an investigation near the detection sites to help determine if the detections were from legal agricultural use. The investigation identified pits that were used to retain runoff water from agricultural fields. The investigation identified ponds located at the edge of the field that were used to retain runoff water from agricultural fields as a possible source for contamination (Weaver, 1997). Fifteen additional wells were sampled in an expanded search for hexazinone in the area but no additional detections were found.

EM staff used the information gathered by PE staff and the two verified detections along with pesticide use information to suggest that these detections were the result of legal agricultural use. DPR management determined that the evidence from the expanded study failed to identify any further contamination from hexazinone. Therefore, the two detections were considered transient and no further action was taken.

During a four section survey conducted in 2003 for hexazinone, which also included an analysis for the hexazinone metabolite, HCH, DPR verified detections of both compounds in one well.

No other detections were found during the survey. As a result, both compounds were removed from the PDRP.

Norflurazon

Norflurazon was detected and verified in 1996 during a Ground Water Protection List survey (see Ground Water Protection List). Chemicals that are chosen for these surveys are taken from a list that is ranked by the number of pounds sold, physicochemical properties, whether or not it has been found in ground water in studies conducted outside of California, and agricultural use patterns, such as whether or not the pesticide is applied directly to soil. Norflurazon was selected based on detection reported in Florida and increased use reported between 1991 and 1993, especially in areas of California where ground water contamination had been previously measured (DPR, October 1997). Norflurazon residues were detected in two wells during an initial survey conducted over a large spatial area. Additional detections were found during more focused four-section surveys, which focus sampling efforts within a one-mile radius of where each of the detections occurred (see section on Four Section Survey). The pattern of detection from the four-section surveys was used to determine if the detections resulted from legal agricultural use. The expanded monitoring for norflurazon occurred in Fresno County where 26 wells were sampled. Residues of norflurazon were found in seven of the wells. The PE Branch investigated the seven sections in which the contaminated wells were located. Possible pesticide mixing/loading sites and some storage sheds were present in most sections, but no other potential point sources for ground water contamination were observed (DPR, 1997). These additional verified detections resulted in a formal review of norflurazon. In response to the formal review process, the Director issued a finding, on March 23, 2001, that resulted in regulations to add norflurazon to the list of pesticides found in ground water due to legal agricultural use (Title 3 section 6800(a) of the California Code of Regulations [3CCR]), established norflurazon PMZs, and established norflurazon use restrictions.

Metolachlor OXA and ESA and Alachlor OXA and ESA

Previous ground water monitoring by the U.S. Geological Survey in Iowa detected metolachlor parent and its degradates OXA and ESA. Based on these detections, the DPR selected the compounds, metolachlor, alachlor and their OXA and ESA degradates for the GWPL monitoring in 2001/2002. Seventy-four wells were sampled during the study. None of the wells contained residues of metolachlor or alachlor parent compound. However, there were 25 detections of the degradates. The toxicological data for the degradates are equivocal and require additional review from DPR's Division of Registration and Health Evaluation in consultation with other agencies before the compounds can enter the PDRP.

<u>Pesticides Determined to be Due to Legal Agricultural Use</u>

DPR has determined that detections in ground water of seven pesticide AIs (atrazine, bromacil, diuron, prometon, simazine, bentazon, norflurazon), three degradation products associated with

atrazine and simazine (ACET, DACT, and DEA), and two other degradation products (aldicarb sulfoxide and aldicarb sulfone) were the result of legal agricultural use.

PMZs have been established for six parent compounds, atrazine, bromacil, diuron, prometon, simazine, and norflurazon. A PMZ is a geographic survey unit of approximately one square mile that is vulnerable to ground water contamination. Table I-6 provides a summary of the PMZs established in regulation for each AI. The use of a pesticide inside a PMZ where its AI (or in some cases, the AI's degradation product) has been detected in ground water as a result of legal, agricultural use is subject to certain ground water protection restrictions and requirements.

PMZs have not been established for the remaining two parent compounds but specific use restrictions are in place. For bentazon, restrictions have been placed on its use in rice-growing regions. A review of the aldicarb degradation products resulted in a determination that aldicarb only posed a threat to ground water in Del Norte and Humbolt Counties and therefore, use was cancelled in these two counties.

Table I-6. The number of PMZs in regulation in California for each active ingredient.

Active Ingredient	**Number of PMZs**
Atrazine	176
Bromacil	137
Diuron	234
Norflurazon	11
Prometon	25
Simazine	380

SUMMARY

From November 1, 1983 to June 30, 2003, 508 well sampling studies conducted have been submitted to DPR by 45 agencies and recorded into the well inventory database. The database contains 22,008 wells sampled for 329 pesticide AIs and degradation products. Although data was submitted for all 58 counties, not all 329 compounds have been systematically sampled in each county.

Of the 329 compounds sampled, residues were reported for 106 compounds. DPR verified detections for 28 compounds. The two primary reasons compounds go unverified are that the compound detected is not registered for legal, agricultural use in California or that additional sampling of the original and surrounding wells resulted in no detections. In 2003, DPR verified a detection of the hexazinone metabolite, HCH. It was the first time this compound has been found in Stanislaus County and the first verified detection of this compound in California.

Since publication of the 1992 cumulative report, detections in ground water of seven additional compounds have been verified by DPR, namely norflurazon, hexazinone, three triazine metabolites ACET, DEA and DACT, and four metolachlor and alachlor metabolites, alachlor ESA, alachlor OXA, metolachlor ESA, and metolachlor OXA. Overall, DPR has determined that detections of 12 compounds and/or degradation products, atrazine, bromacil, diuron, prometon, simazine, bentazon (sodium salt), norflurazon, aldicarb sulfoxide, aldicarb sulfone, ACET, DACT, and DEA were the result of legal agricultural use.

PMZs have been established for atrazine, bromacil, diuron, prometon, simazine, and norflurazon, restricting their use in these vulnerable areas. There are no aldicarb and bentazon PMZs, but specific use restrictions have been placed on these AIs as well.

II. PREVENTION OF PESTICIDE MOVEMENT TO GROUND WATER AS A RESULT OF LEGAL AGRICULTUAL APPLICATIONS

GROUND WATER PROGRAM

DPR's EM performs the lead role in the design and implementation of DPR's environmental protection programs. EM personnel design and conduct field studies of air, soil, and surface and ground water to determine the environmental fate of pesticides.

In addition to fate studies, the ground water program has the responsibility to review all detections reported in ground water and either refers these detections to the SWRCB or conducts further investigation. The PCPA is the centerpiece of this program and provides the regulatory authority and guidance for responding to these detections and for producing this annual report to the Legislature.

This section identifies factors that contribute to pesticide movement to ground water and discusses the actions taken by DPR that fulfill the objectives of the PCPA.

FACTORS THAT CONTRIBUTE TO PESTICIDE MOVEMENT TO GROUND WATER

Pesticide Factors

The physical and chemical characteristics thought to be important in movement through soil are water solubility, soil adsorption coefficient, anaerobic and aerobic soil metabolism, hydrolysis, vapor pressure, and field dissipation. Under FAC section 13144, DPR is required to establish specific numerical values (SNVs) for these characteristics. To date, the SNVs were created for water solubility, soil adsorption (Koc), and ½-lives for hydrolysis, aerobic and anaerobic soil metabolism by comparing the values for pesticides found in ground water to values for pesticides sampled for but not detected in ground water (Johnson 1991). When a value exceeds the SNV for water solubility or it is less than the SNV for Koc, the pesticide is considered mobile. When a value exceeds the ½-life SNVs for hydrolysis or soil metabolism, the pesticide is considered persistent. Pesticides that are both mobile and persistent are determined to have the potential to contaminate ground water when they are applied directly to soil.

Soil Characteristics

Soil characteristics that affect the movement of pesticides and subsequently the potential to contaminate ground water are:

1. The soil's water-holding and water retention properties.
2. Potential for compaction of the surface soil.
3. Soil components that bind with and retard movement of pesticide residues.
4. Presence of soil microbes that degrade pesticide residues.

Two soil properties that affect water-holding capacity are soil texture and organic carbon content. With respect to texture, water percolates to ground water much quicker in coarse-textured sandy soils than in clayey soils (Vereecken, et al., 1988). Coarse-textured soils have larger pore sizes, which allow for greater effect of gravitational forces to pull water down through the soil profile, as compared to clayey soils where the smaller pore sizes allow greater binding of water to soil particles, causing greater water retention. The organic carbon component of soil retains a large amount of water when wetted, so soils with higher organic carbon content will also have greater retention of water. Organic carbon content has been included as a variable in equations to describe water-holding capacity of soils (Rawls and Brankensiek, 1985)

Surface soil compaction is another property that affects pesticide movement to ground water. Soils that are prone to compaction will shed water as runoff. Runoff water can contain residues of pesticides that eventually contaminate California's ground water (Braun and Hawkins, 1991). In areas prone to surface soil compaction, surface water is often collected and diverted to more porous subsurface soil to relieve potential flooding that could damage crops. In this situation, the potential for ground water contamination is high because water shunted to subsurface soil bypasses the principal soil microbial zone where most degradation of pesticide residues occurs.

Reaction of soil components with pesticide residues also affects pesticide movement through soil. Although the physical-chemical nature of a pesticide determines how likely it will interact with soil components, the amount of pesticide that reacts with soil is determined by the organic carbon content, and to a lesser extent the clay content, present in a soil (Mingelgrin and Gerstl, 1983). Numerous studies have indicated the importance of organic carbon content in sorption of pesticide residues where the amount of pesticide adsorbed per unit of soil directly increases as organic carbon content increases. Greater adsorption of pesticide residues results in less available for downward movement through the soil profile. Many soils in California are vulnerable to leaching because they are low in organic carbon content. Clay particles can be important because they react with pesticides that contain ionic charges. For example, paraquat is very polar and is highly reactive with the negative sites on the clay particles.

For pesticides that are incorporated into the soil matrix, metabolism by soil micro-flora, primarily bacteria and fungi, is the predominant pathway for degradation of pesticide residues after application. Thus, conditions that favor the presence and activity of soil micro-flora will also enhance degradation. For example, biological activity generally increases with increasing temperature so pesticides applied in cooler winter months will persist longer than pesticides applied in hotter summer months. Often, the soil micro-flora adapts to pesticide applications as indicated by faster rates of degradation measured after successive applications of pesticides (Suett and Jukes, 1988). Maintaining soil conditions that nurture soil microbial populations is important in ensuring fastest rates of biological degradation

Irrigation Practices

Pesticide residues move with water that percolates into soil and eventually recharges ground water. The source of recharge water is either from natural rainfall or from irrigation used in crop production. Most areas of California experience a Mediterranean climate where significant rainfall occurs during the late fall and winter months and with very little rainfall during the rest of the year. The relative potential for downward movement of pesticide residues caused by rainfall and then by irrigation was investigated by DPR scientists in the 1980's. First, the effect of rainfall on the movement of simazine was studied on a sandy soil in Fresno (Troiano and Garretson, 1988). Simazine was applied in November of 1987, exposed to the winter rains, and the soil cored to 10 feet in May of 1988. During that period, the site received 10 inches of natural rainfall, which also is the average rainfall in that area. Simazine residues were found confined to the first 6 inches of soil indicating that the amount of percolating water produced during the winter months was not sufficient to cause significant downward movement of the residues. This is due to the pattern of rainfall where the 10 inches of water received by the experimental site was spread out over a number of months and with many rainfall events of 1 inch and below. In coarse textured soils, this pattern of water application allows for greater loss of water to evaporation rather than to percolation and thus results in limited downward movement of water and consequently pesticide residues. Similar results were observed in a rainfall study conducted in Riverside (Neal, et al., 1991).

Pesticide residues have been detected in ground water in areas with coarse-textured soils, indicating movement with water that recharges the ground water aquifer. The pattern of irrigation water applications is in stark contrast to precipitation events. Large amounts of water can be applied during each irrigation event, resulting in much larger potential losses of water to percolation. In a follow-up study, the influence of method and amount of irrigation water application was investigated on the movement of atrazine, a pre-emergent herbicide detected in ground water (Troiano, et al., 1993). This study demonstrated the effect that percolating water produced by irrigation has on downward movement of pesticide residues. Water treatments were based on a proportional measurement of reference crop evapotranspiration so that the smallest proportion produced the least amount of percolating water. There was a positive relationship between the proportioned water treatments and downward movement of atrazine; the smallest proportion produced the least amount of percolating water and the least downward movement of atrazine residues whereas the largest proportion produced the greatest downward movement of water and atrazine. Although this relationship was similar for different methods of irrigation water, the exact method of irrigation further affected the magnitude of atrazine leaching. For example, sprinkler irrigation was more effective than basin-flooding irrigation in limiting the downward movement of water and, subsequently, atrazine residues. Leaching was less in sprinkler applications because water could be applied more frequently in smaller applications than for the basin-flooding method. For basin-flooding treatments, a large depth of water

application was required for each irrigation in order to provide uniform application across the plot. For basin flooding, irrigation events were less frequent but of larger volume causing greater downward movement of water and atrazine residues.

Climate

Another important contributing factor is regional climate, such as precipitation. In Del Norte County, the average annual rainfall is about 75 inches. One study, conducted in this region to determine downward movement of the pesticide fenamiphos attributed heavy rainfall to fenamiphos residue moving well below the zone of application (Weaver, et al., 1988). Forty-two inches of rain fell between the time fenamiphos was applied in October and the first soil cores were collected in March. Another study used parameters from the Smith River Plains area in Del Norte County to input information into a computer model to simulate subsurface migration of a number of pesticides (Warner, et al., 1989). Concentrations of Fenamiphos measured in the field study were compared with simulated concentrations generated from the computer model. Graphs of the measured and simulated values matched closely. In one particular simulation, staggering the application date of the pesticide by fifteen days resulted in the pesticide migrating deeper for all three years of the simulation. The difference in simulations was attributed to how closely the application date coincided with precipitation.

In another region, an opposite effect was observed in a study of the effect of winter rainfall on the movement of simazine in Fresno (Troiano and Garretson, 1988). In that study, the amount of winter rainfall was 10 inches, which was insufficient to move the major portion of simazine beyond the first 6 inches of sandy soil.

ACTIONS TAKEN TO PREVENT MOVEMENT OF PESTICIDES TO GROUND WATER

Groundwater Protection Training

Ground water protection training is part of a comprehensive program designed to protect the ground water from contamination due to legal agricultural uses of pesticides. The training is required for licensed pesticide control advisors (PCAs) who write ground water protection advisories for growers. Growers must submit these advisories to the county agricultural commissioner (CAC) before the CAC can issue permits that are required for crop uses of simazine, bromacil, diuron, and all allowed uses of norflurazon, in their respective PMZs. A licensed PCA authorized to write a ground water protection advisory must have attended DPR approved ground water protection training within the previous two years and submitted written proof of the training to the CAC. The ground water protection advisory contains specific information for applying a regulated pesticide in a PMZ to reduce the potential for movement of the chemical into ground water.

DPR has conducted ground water protection training annually since 1989. Speakers review the extent of pesticide residues in ground water, potential sources of pesticide residues, contamination pathways, factors that influence pesticide movement to the ground water, and management practices that limit such movement.

Groundwater Protection List Monitoring

Monitoring Summary 1989-2002

The Ground Water Protection List (GWPL) is a list of pesticides having the potential to pollute ground water. It is established according to FAC section 13145(d) and placed in section 6800 of Title 3 of the California Code of regulations (3CCR). The GWPL is divided into sub-lists (a) and (b). Sub-list (a) is comprised of chemicals detected in soil or ground water as a result of legal, agricultural use. Sub-list (b) includes chemicals that exceed the SNVs (see specific numerical values*)* and (1) are intended to be applied to or injected into the soil by ground-based application equipment or by chemigation; or (2) where the pesticide labels recommend or require their application to be followed, within 72 hours, by flood or furrow irrigation. In order to determine whether these pesticides have migrated to ground water, DPR is required to conduct monitoring for materials on the 6800(b) list, which is referred to as GWPL monitoring

In 1992, 47 pesticide AIs were placed on the GWPL. Since it was not possible to monitor for all 47 pesticides at once, pesticides on the list were prioritized for monitoring. First priority was given to pesticide AIs that had been detected in ground water due to non-point sources in other states or that were given a high priority for risk assessment on the list of pesticide AIs created for implementing the Birth Defect Prevention Act (SB950). Second priority pesticides were selected based on pounds of active ingredient sold per year and on a combination of physicochemical factors; remaining compounds on the list were given third priority for monitoring.

Areas selected for well monitoring were determined from pesticide use report data and were prioritized according to where the greatest amounts of a pesticide were applied and where soils were considered most vulnerable to leaching. One or two wells were sampled in each targeted one square mile section of land.

The GWPL monitoring protocol was revised in April 1997 to improve the process for selecting chemicals for monitoring (Weaver 1997). AIs on the GWPL are no longer given different priority levels. Instead, all AIs on the list are evaluated for their potential to contaminate ground water based on their physicochemical characteristics, agricultural production practices for crops on which they are applied, information on recent detections in ground water or any other pertinent information. One or two AIs are selected for monitoring each year as resources allow.

Regulations that became effective on May 13, 1999, added 15 new AIs to the GWPL, bringing the total number of AIs on the list to 62. As of June 30, 2003, monitoring has been completed

for 24 (38%) of the 62 AIs. The AIs on the GWPL are presented in Table II-1 along with the number of wells sampled, the number of detections of each, and the years in which the monitoring was conducted.

Table II-1. AIs on the Ground Water Protection List and results of well monitoring conducted from 1989-2002.

Active ingredient	Number of* Wells sampled	Number of Wells positive	Years monitoring conducted
Aldicarb + sulfoxide + sulfone	49		1989
	47		1990
	50		1991
2,4-D, dimethylamine salt	30		1991,1992, 1993
Azinphos-methyl	35		1991, 1994
Cyanazine	33		1991, 1992, 1993
Diazinon	41		1991, 1993, 1994
Fonofos	31		1991, 1994
Metalaxyl	33		1991, 1995
Metribuzin	35		1991, 1993, 1994
Oxydemeton-methyl	34		1991, 1995
Butylate	25		1992
Cycloate	30		1992
EPTC	28		1992
Methyl isothiocyanate	29		1992
Molinate	23		1993
Carbofuran	35		1995
Propyzamide	25		1995
Norflurazon	40	2	1996
Hexazinone	41		1991, 1992, 1994
Hexazinone	34	1	1997
Hexazinone	40	2	2002
Hexazinone metabolites	40		
Napropamide	64		1998
Oryzalin	64		1998
Alachlor	88		2001
Alachlor ESA	88	13	
Alachlor OXA	88	1	

Table II-1. (continued)

Active ingredient	Number of* Wells sampled	Number of Wells positive	Years monitoring conducted
Fenamiphos	40		1991, 1994
Fenamiphos + sulfoxide + sulfone	60		2001
Metolachlor	88		2001
Metolachlor ESA	88	20	
Metolachlor OXA	88	9	
Acephate	NS		
Acrolein	NS		
Bensulide	NS		
Carbaryl	NS		
Chloropicrin	NS		
Chlorothalanil	NS		
Chlorsulfuron	NS		
Dazomet	NS		
Dichlobenil	NS		
Dichloran	NS		
Diethatyl-ethyl	NS		
Dimethoate	NS		
Diquat dibromide	NS		
Disulfoton	NS		
Ethofumesate	NS		
Ethoprop	NS		
Fluometuron	NS		
Fosetyl-Al technical	NS		
Imazethapyr	NS		
Imidacloprid	NS		
Iprodione	NS		
Isoxaben	NS		
Linuron	NS		
Metaldehyde	NS		
Methiocarb	NS		
Methomyl	NS		
Naptalam, sodium salt	NS		
Nitrapyrin	NS		
Parathion	NS		
Pebulate	NS		
Phorate	NS		

Table II-1. (continued)

Active ingredient	Number of* Wells sampled	Number of Wells positive	Years monitoring conducted
Prometryn	NS		
Pyrazon	NS		
Rimsulfuron	NS		
Sulfometuron-methyl	NS		
Tebuthiuron	NS		
Triallate	NS		
Triflumizole	NS		
Vernolate	NS		
Vinclozolin	NS		

* NS=not sampled

Of the 24 AIs that have been monitored, residues of two AIs and degradation products of two additional AIs have been detected. Norflurazon was the first AI detected as a result of GWPL monitoring. Following the initial detections of norflurazon in 1996, DPR conducted expanded monitoring around the original positive wells and in other high use areas of Fresno and Tulare Counties. Additional contaminated wells were found and norflurazon was then entered into the pesticide detection response process. As a result, the Director of DPR determined that norflurazon was present in ground water as a result of legal, agricultural use, made a formal finding that its use could be modified to protect ground water, and added it to the 6800(a) list of regulated compounds.

The first hexazinone monitoring study was conducted in 1991 and 1994 but no residues were detected. In a second hexazinone study conducted in 1997, DPR detected hexazinone residues in one well and a few more contaminated wells were later found during four-section surveys conducted for other pesticides. Based on those detections, hexazinone was reviewed as a ground water contaminant but it was concluded that the residues were transient in nature and that no further regulation was necessary. Additional detections of hexazinone were made during the next few years and when a third GWPL monitoring study was conducted in 2002, two more wells were found which contained hexazinone residues. However, hexazinone still has not been found in more than one well in a four-section survey, so it has not yet met the criteria for determining legal agricultural use. A description of that study is presented later in the section that follows.

DPR monitored for alachlor and metolachlor in 2001. Neither parent compound was detected but the degradation products, ESA and OXA for each parent compound were each found in several wells.

DPR conducted a GWPL monitoring study for fenamiphos in 1991and 1994 but no fenamiphos residues were detected. Due to the rapidly increasing use of fenamiphos, a second monitoring study was conducted in 2001. Fenamiphos sulfoxide and fenamiphos sulfone were also included in the sample analyses but no fenamiphos compounds were detected.

Aldicarb's degradation products - aldicarb sulfoxide and aldicarb sulfone - had been found in the ground water of lily bulb production areas of Del Norte and Humboldt Counties in the 1980's. Contamination resulted from aldicarb use under conditions of high rainfall, porous soils and shallow ground water. Resulting regulations prohibited the use of aldicarb in Del Norte and Humboldt Counties, placed restrictions on timing and rates of applications statewide, and required monitoring in all areas of the state where aldicarb was used. DPR monitored for aldicarb in 1989, 1990 and 1991. No aldicarb residues were found in any of the studies.

Hexazinone monitoring – 2002

Hexazinone was selected for monitoring because several detections were made in scattered areas over the past few years and analytical procedures can now also detect the three hexazinone degradates, 2-hydroxycyclohexyl hexazinone, monomethyl hexazinone and decyclohexyl-4-hydroxy hexazinone. It was thought that the presence of the degradation products might be more widespread than the parent compound.

Sampling was done in October 2002. Forty wells were sampled in eight counties. Sampling results by county are presented in Table II-2. Hexazinone residues were found in two wells in San Joaquin County but a follow-up four-section survey did not result in detections in more than one well within one-square mile of each other, therefore, hexazinone was removed from the PDRP. None of the wells contained hexazinone degradation products. Verified detections were also made of other herbicides and degradation products.

Table II-2. Results of monitoring for hexazinone and three hexazinone degradation products during Ground Water Protection List Monitoring conducted in October 2002.

County	Wells Sampled	Wells with Verified Hexazinone Detections	Wells with Verified Hexazinone Degradate Detections
Fresno	4	0	0
Glenn	4	0	0
Madera	1	0	0
Merced	6	0	0
San Joaquin	11	2	0
Solano	6	0	0
Stanislaus	2	0	0
Yolo	6	0	0

Pesticide Detection Response Process

Food and Agriculture Code (FAC) section 13149 requires the Director to determine within 90 days of a detection whether a pesticide found in ground water under certain conditions is due to agricultural use. DPR developed a process referred to as the Pesticide Detection Response Process (PDRP) that handles reported detections of pesticides and/or their degradation products in ground water. DPR responds by conducting a thorough evaluation to determine if the information supports the likelihood that the reported detection is valid. A detection may be considered not valid for a number of reasons, such as the detection was below the reported MDL, follow-up sampling by the same agency failed to verify the detection, or an evaluation of the analytical procedures indicated that an improper analytical method was used or that an improper interpretation of analytical results was made (CDPR, 1996). For detections that appear to be valid, additional well sampling is conducted, called a four-section survey, which is described below. If the residue of a pesticide is determined to be the result of legal, agricultural use and the Director determines that the pesticide constitutes an immediate substantial danger to persons or to the environment, the Director, with notice, may suspend the registration of the pesticide. If there is not immediate danger, the evaluation phase of the PDRP commences when the Department notifies the appropriate registrants of their opportunity to request a hearing. If requested, a hearing of the Pesticide Registration and Evaluation Committee (PREC) subcommittee is held pursuant to sections 13149 and 13150 (FAC). If no hearing is requested, all products containing the pesticide are cancelled. After completion of the hearing, the PREC subcommittee issues its findings to the Director of DPR, who then takes certain actions pursuant to section 13150(d) (FAC). These actions may include the adoption of regulations, which modify the agricultural use of a pesticide to reduce its likelihood of reaching ground water or prohibit certain uses of the pesticide, or the suspension or cancellation of all agricultural uses of a pesticide active ingredient in California. For a pesticide's degradation products found in ground water, a review starts with determining if the product poses a threat to public health. If a determination identifies a potiential threat, the process follows the same path for a detection of a pesticide.

Four-Section Survey

DPR conducts two types of surveys for reported detections of pesticides currently registered for agricultural use. First, a well monitoring survey is conducted to determine if there is a second well in the same area as the reported positive well. The well survey consists of sampling wells within a 1-mile radius of the detection. Since a section of land is used as the geographical basis for regulations, wells are located within the original section and the three nearest sections (CDPR, 1996). A maximum of 10 wells are sampled with well selection based on proximity to the positive well. Detection of the residue in two or more wells within the four sections indicates that the residue could have resulted from legal agricultural use.

The second survey is a land use survey whereby pesticide use information, land use maps, and topographical maps are evaluated for the immediate and surrounding area where the detection occurred. If additional investigation determines that use in the area is likely and that point sources could not exclusively account for the detections, the Director finds that the detection is due to legal, agricultural use.

As of June 30, 2003, DPR has completed 445 four-section surveys including 'memo only' surveys where no monitoring was required. Memo only surveys result when evaluation of the reported detection provides a preponderance of evidence, such as previous monitoring results, that the detection is the result of legal agricultural use (CDPR, 1987).

DPR has determined that detections of these12 compounds in well water, atrazine, bromacil, diuron, prometon, simazine, bentazon (sodium salt), norflurazon, aldicarb sulfoxide, aldicarb sulfone, ACET, DACT, DEA, were the result of legal agricultural use.

Adjacent Section Monitoring

DPR samples wells located in sections adjacent to PMZs to determine if the adjacent sections are also vulnerable to ground water contamination. A land use survey is also conducted to determine if pesticides regulated in PMZs may have been used in the area under investigation. Those results, together with analyses of the well samples and any other available evidence, are used to determine whether an adjacent section should also be declared a PMZ.

As of June 30, 2003, 465 adjacent sections have been sampled by DPR. As a result, 213 sections have been adopted into regulation as PMZs or in the case of detections that occurred after 1994, are designated as draft PMZs. DPR has proposed identifying all current and draft PMZs as ground water protection areas in a new rule making package (see New Approach to Prevent Contamination Of Pesticide To Ground water*)*. Table II-3 summarizes the results of adjacent section monitoring studies conducted from 1988 to 2003.

Table II-3. Comparison, by year and county, of number of adjacent sections sampled versus number of sections identified as pesticide management zones

Counties (by Year)	**Adjacent Sections Sampled**	**Adjacent Sections Identified as PMZs[1]**
1988		
Contra Costa	8	0
Fresno	17	10
Glenn	25	2
Los Angeles	18	10
Orange	4	2
Riverside	5	3
Tulare	39	15

Table II-3. (continued)

Counties (by Year)	Adjacent Sections Sampled	Adjacent Sections Identified as PMZs[1]
1989		
Fresno	24	11
Merced	8	0
Tehama	4	0
Tulare	18	8
1990		
Fresno	2	2
Tulare	71	52
1991		
Fresno	30	19
Stanislaus	9	3
1992		
Los Angeles	23	10
Orange	9	6
Riverside	3	3
1993		
Tulare	7	1
1994		
San Bernardino	2	1
San Joaquin	9	0
Tulare	79	50
Yolo	7	1
2000		
Butte	5	3
Colusa	3	0
Contra Costa	6	1
Kern	10	0
Mendocino	2	0
Merced	12	0
Solano	6	0

[1]Detections in year 2000 are draft PMZs

NEW APPROACH TO PREVENT PESTICIDE CONTAMINTION OF GROUND WATER

Identification of Areas Vulnerable to Groundwater Contamination

Currently, areas vulnerable to ground water contamination, known as PMZs, are established when detections of residues in wells (except for bentazon and aldicarb) are determined to be due to legal, agricultural use. A consequence of this approach is that DPR proposes regulatory activity only after ground water has been contaminated. In order to take a more preventative approach, DPR scientists have developed a method to determine vulnerable areas based on soil and depth-to-ground water data. Scientists used the data collected in the well inventory database to devise an approach that related geographic factors to areas with known ground water contamination (Troiano, et al., 1994). Each section of land for which soil data and depth-to-ground water data was available was screened to determine if it fit any of the profiles developed that characterize vulnerable areas. Sections meeting the vulnerable profiles and for which mitigation measures are available were designated as ground water protection areas (GWPA) (Troiano, et al., 1997).

Delineation of GWPAs is desirable from a regulatory perspective because it would enable a common characteristic approach to the development and implementation of management practices (Troiano, et al., 1994). In an attempt to delineate these areas in California, DPR scientists considered an approach that would devise a vulnerability index based on multiple factors influencing the movement of pesticides to ground water. The model, DRASTIC, is an empirical model developed by EPA in the 1980's that is an example of this approach. However, results of well monitoring studies have not shown a good correlation between DRASTIC indices and the detection of pesticide residues in well water (USEPA, 1992). One concern with this approach was that pesticide residues can reach ground water by routes other than leaching through soil. Instead of this approach, DPR scientists developed the California Vulnerability (CALVUL) model, which uses cluster and principal component analyses. This approach allowed for the identification of vulnerable areas without assuming any particular pathway for ground water contamination. A well monitoring study conducted by DPR to evaluate this approach resulted in a high rate of detections, indicating a good ability to delineate potential vulnerable areas (Troiano, et al., 1999).

This new approach forms the basis for revising the regulations to prevent contamination in the first place and to reduce continuing contamination in areas already contaminated. Information on the CALVUL modeling approach and the new regulations is available on the internet at; http://www.cdpr.ca.gov/docs/gwp/index.htm. DPR has used the CALVUL model and sectional estimates of the depth-to-ground water to identify 3,718 GWPAs as sections in coarse or hardpan soil clusters that have depth-to-ground water at 70 feet or shallower. In addition, all current PMZs not classified by the CALVUL were designated GWPAs. Thus, GWPAs will include (1)

sections of land where pesticides have been found in ground water due to legal agricultural use and (2) sections of land where pesticide residues have not yet been detected but where soil and depth-to-ground water indicate a similar potential for contamination.

Management Practices

DPR plans to revise the ground water regulations to include proposed new ground water management practices, which are specific to hardpan and course soil GWPAs. A GWPA designated hardpan is associated with soils where runoff can occur and a GWPA designated course soil is associated with soils where leaching can occur. Proposed management practices in hardpan soil (runoff) areas are as follows:

Use of 6800(a) pesticides is prohibited in runoff GWPAs unless one of the following management practices can be met and is designated by the commissioner on the permit.

(a) Soil disturbance. Within seven days before the pesticide is applied, the soil to be treated shall be disturbed by using a disc, harrow, rotary tiller, or other mechanical method. This practice does not apply to bentazon, and does not apply to the area to be treated that is immediately adjacent to the crop row and that does not exceed 33 percent of the distance between crop rows; or

(b) Incorporation of the pesticide. Within 48 hours after the day the pesticide is applied, the pesticide shall be incorporated on at least 90 percent of the area treated, using a disc, harrow, rotary tiller, or other mechanical method, or by sprinkler or low flow irrigation, including chemigation if allowed by the label, using a minimum of ¼ inch of irrigation water and a maximum of either one inch or the maximum amount of irrigation water specified on the label, at application rates that do not cause surface water runoff from the treated property or to wells on the treated property. This practice does not apply to bentazon, and does not apply to the area treated with other pesticides listed in section 6800(a) that is immediately adjacent to the crop row and that does not exceed 33 percent of the distance between crop rows; or

(c) The pesticide shall be applied as a band treatment immediately adjacent to the crop row so that not more than 33 percent of the distance between rows is treated; or

(d) The pesticide shall be applied between April 1 and July 31; or

(e) For six months following the application, the field shall be designed, by berms, levees, or nondraining circulation systems, to retain all irrigation runoff and all precipitation on, and drainage through, the field. The retention area on the field shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours); or

(f) For six months following the application, runoff shall be channeled to a holding area off the application site, under the control of the property operator, that is designed to retain all irrigation runoff and all precipitation on, and drainage through, the treated field and all other areas draining into that

holding area. The holding area shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours); or

(g) Runoff onto a fallow field. For six months following application, runoff shall be managed so that it runs off onto an adjacent unenclosed fallow field at least 300 feet long that is not irrigated for six months after application, with full consideration of any plant back restrictions; or

(h) An alternative management practice or pesticide approved by the Director as follows:

i. Upon written request, the Director may evaluate and approve use of alternative management practices that are based on scientific data demonstrating their effectiveness in reducing movement of pesticides to ground water; or

ii. Upon written request, the Director may make a determination to allow the interim use of a pesticide containing a chemical listed in section 6800(a) in a runoff GWPA, for a period not to exceed three years, while the requestor is documenting an alternate management practice according to a protocol approved by the Director.

Proposed management practices in leaching areas are as follows:

Use of 6800(a) pesticides is prohibited in leaching GWPAs unless any one of the following management practices can be met and is designated by the commissioner on the permit:

(a) The permittee shall not apply any irrigation water for six months following application of the pesticide; or

(b) The permittee shall apply the pesticide to the planting bed or the berm above the level of irrigation water in the furrow or basin for six months following application of the pesticide; or

(c) Irrigation shall be managed so that the ratio of the amount of irrigation water applied divided by the net irrigation requirement is 1.33 or less for six months following application of the pesticide; or

(d) An alternative management practice or pesticide approved by the Director as follows:

(1) Upon written request, the Director may evaluate and approve use of alternative management practices that are based on scientific data demonstrating their effectiveness in reducing movement of pesticides to ground water; or

(2) Upon written request, the Director may make a determination to allow the interim use of a pesticide containing a chemical listed in section 6800(a) in a leaching GWPA, for a period not to exceed three years, while the requestor is documenting an alternate management practice according to a protocol approved by the Director.

Monitoring Well Network

DPR has established a well monitoring network consisting of approximately 70 rural, domestic wells located in Fresno and Tulare counties that will be used to measure the effectiveness of the management practices noticed in the new regulations. DPR will measure temporal changes in concentrations of pesticides present in those wells. These wells were identified because they had been previously sampled and determined to contain residues of one or more of the pesticides that will be monitored, and because they are located in one of the two soil conditions identified in vulnerable areas, either coarse textured, sandy soil or hardpan soil. Water samples drawn from the wells are analyzed for seven parent AIs -atrazine, simazine, bromacil, diuron, prometon, hexazinone, and norflurazon - and 3 triazine degradation products-DEA, ACET, and DACT.

Since the new regulations have not yet been adopted, these data currently provide background concentrations for the well network. The AIs consistently detected in vulnerable areas with coarse-textured soils are simazine and diuron while those detected in vulnerable areas with hardpan soils are simazine, diuron, and bromacil. Simazine and diuron are used on grapes and deciduous and citrus trees, while bromacil is used mainly on citrus. This pattern reflects use conditions because grapes and deciduous tree crops predominate the coarse-textured soils condition whereas citrus is the predominate crop on the hardpan soils.

EVALUATING NEW ACTIVE INGREDIENTS TO DETERMINE THE LIKELIHOOD THAT THEY WILL CONTAMINATE GROUND WATER

Under section 13143 of the PCPA, any registrant interested in registering a pesticide in California for agricultural use is required to include specific environmental fate data for the active ingredient in the pesticide. The Registration Branch has the responsibility to evaluate this data for acceptability. Part of the evaluation relies on comparing the environmental fate data to threshold values established by DPR (see pesticide factors*)* to determine the potential of a pesticide to leach to ground water.

EM staff has recently developed a probabilistic model that further refines the process for determining whether a pesticide is more or less likely to contaminate ground water. This modeling approach has significant advantages over the SNV process. First, it is not a univariate approach. Since a model can simultaneously simulate different environmental fate processes, it does not ignore potential relationships between variables. Second, instead of taking a mean of multiple data sets for each variable thereby eliminating variability, the model uses the variability of environmental fate characteristics to provide a distribution of data that can be used to identify a range in expectations of the outcome. These advantages allow scientists to mimic, more closely, real field situations.

This modeling approach is being evaluated by DPR as a tool to guide the evaluation of environmental fate data in making registration decisions for new pesticide products.

CHEMIGATION INITIATIVE

Introduction

Chemigation is the application of pesticides through irrigation systems. As part of the U.S. EPA's Label Improvement Program, pesticides that use chemigation as a method of application are required to include specific directions for use that prevent backflow of water containing residues into the water source. The language includes requirements for specific devices that must be attached to the irrigation system. In fiscal year (FY) 1999-2000, DPR staff analyzed state regulations as they pertain to label language. From that analysis, DPR issued policy letters to the County Agricultural Commissioners (CACs) clarifying the enforcement of the label instructions, which supersede DPR's backflow regulations. DPR also instituted the Chemigation Initiative, which seeks to increase awareness of the current chemigation requirements through education and to determine the suitability of these requirements through the formation of a chemigation task force.

Chemigation Training

The Environmental Monitoring Branch of DPR is continuing to contract with the Center for Irrigation Technology, California State University Fresno (CIT) to provide chemigation training to the regulated community. The training sessions focus on the backflow prevention devices, and their alternatives, that are required to be a part of any chemigation system to prevent water source contamination. For the course, CIT constructed a trailer containing a demonstration irrigation supply line with the required backflow prevention devices to provide hands-on experience. CIT also wrote a manual to help growers understand and comply with the requirements. The manual can be accessed at http://www.cdpr.ca.gov/docs/gwp/chem/grower_manual.pdf. Since 2001, DPR and CIT have conducted 69 training sessions in 27 counties with more than 1,600 people in attendance. These training sessions will continue to be offered throughout the state in an effort to bring chemigation applications into compliance with the pesticide label requirements.

Chemigation Task Force

DPR worked with CIT to form a task force to evaluate the need for further educational and regulatory action on chemigation applications. The task force is composed of irrigation specialists, representatives from the agricultural community, engineers with expertise in backflow prevention, representatives from the CAC, and other interested parties. The task force has met four times and has discussed a variety of topics including how to best reach the target audiences, the field observations of the task force members, reviewing the current requirements for chemigation, and drafting a proposal for California chemigation rules and regulations. The

task force will continue to meet to finalize the proposed rules and regulations and to discuss other pertinent issues regarding chemigation.

Chemigation Websites

Information about the Chemigation Initiative and chemigation requirements have recently been added to the official DPR website. These web pages include an overview of chemigation regulations, a description of the required devices for chemigation and their alternatives, as well as numerous diagrams of chemigation systems to meet various needs. The main web page can be accessed at: http://www.cdpr.ca.gov/docs/gwp/chem.htm. California Polytechnic State University, San Luis Obispo (Cal Poly) also has a website explaining backflow prevention requirements. The web page includes links to several documents pertaining to chemigation including an article written by Dr. Charles M. Burt, "Chemigation and Fertigation Basics for California," that helps address questions about chemigation and irrigation management. In addition, to assist applicators and growers in complying with the requirements, Cal Poly created a list of commercial vendors of the safety devices. The web page can be accessed at the following address: www.itrc.org/chemigation.html.

III. PESTICIDE CONTAMINATION PREVENTION ACT ANNUAL REPORT TO THE LEGISLATURE STATE WATER RESOURCES CONTROL BOARD November 2003

Actions taken by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) to prevent economic poisons from migrating to ground waters of the State are as follows:

SWRCB

SWRCB staff participated in the following activities:

- Regularly attended meetings sponsored by the DPR, including the interagency Pesticide Registration and Evaluation Committee (PREC) and Pest Management Advisory Committee (PMAC).

- Participated in ongoing consultations with DPR staff, UC scientists, and pesticide manufacturers to design monitoring studies and BMPs.

- Participated in discussions with U.S. Geological Survey scientists on studies dealing with pesticides and water quality.

- Reviewed, on an ongoing basis, DPR Notices of "Materials Entering Evaluation" and advised DPR on potential water quality impacts of pesticide registration and use decisions.

- Reviewed and commented on DPR's proposed studies on pesticide and water quality pursuant to the Management Agency Agreement (MAA) with DPR.

Table III-1. Actions taken by the Regional Water Quality Control Board, North Coast (Region 1), in FY 2002-2003.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Del Norte	Smith River Plains	1,2,dichloropropane	No monitoring this year.
	Smith River Plains, 533 Fred Haight Dr.	1,2,dichloropropane	No monitoring this year.
Humboldt	U.S. Forest Service Nursery, McKinleyville	Chlorothalonil	USFS monitoring and assessment to prevent discharges to surface water and ground water with RWQCB support.
	Sierra Pacific, Arcata	Pentachlorophenol, Tetrachlorophenol,	Ongoing contamination assessment and cleanup.
	Carlotta Lumber Company	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Beaver Lumber Company, Arcata	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Sun Valley Bulb Farms	Chlorothalonil, Dithiocarbamate	Ongoing monitoring and assessment to prevent discharges to surface water and ground water under RWQCB direction.
	Pacific Lumber Co., Carlotta	Pentachlorophenol. Tetrachlorophenol	Ongoing contamination assessment to prevent discharges to surface water
	Schmidbauer, Arcata	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Schmidbauer, Eureka	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Simpson Plywood Mill (Old), Eureka	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Simpson Mill, Samoa	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
Siskiyou	Hi-Ridge Lumber Company	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Pine Mountain Lumber Company	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	Morgan Door, Roseburg	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination assessment and cleanup.
	J.H. Baxter	Pentachlorophenol,	Ongoing contamination assessment

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
		Tetrachlorophenol	and cleanup.
Sonoma	Klein Foods	Fenamiphos	No further action.

Table III-2. Actions Taken by the Regional Water Quality Control Board, San Francisco Bay (Region 2) in FY 2002-2003.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Alameda	Parker & Amchem	2,4-D	No monitoring for 2,4-D is required after many years of non-detect levels of 2,4-D.
	Jones-Hamilton	Pentachlorophenol	RWQCB Order No. 89-110 specified time schedule for investigation/cleanup. Ground water cleanup underway. No sampling of ground water for pesticides.
	Port of Oakland (Embarcadero Cove)	Chlordane, Pentachlorophenol, DDT, Endosulfan, 2,3,7,8-TCDD, DDD	Department of Toxic Substances Control (DTSC) has lead and has approved a Remedial Action Plan including continuous ground water monitoring.
	Lincoln Properties (Orsetti Site)	DDE, 2,4-D	DDE and 2,4-D were non-detect in monitoring wells and are no longer monitored.
	Peerless Southern Pacific Railroad	Pentachlorophenol	City of Berkeley Health Department has lead. Additional soil and ground water investigations required.
	FMC, Newark	EDB	RWQCB Order No. 89-055 specified time schedule for investigation and cleanup. Ground water cleanup underway.
	3830 Old Santa Rita Road, Pleasanton	Dicamba, Dichloroprop, 2,4-D, 2,4,5-T	Pesticide found in grab water samples. One monitoring well installed on-site. Alameda County Department of Environmental Health lead on this site. Site closed October 1990.
Contra Costa	Chevron	Endrin, Lindane, Dieldrin, DDT, Arsenic	Submitted closure plan for Class I impoundment. A cut-off wall with a ground water extraction trench around the impoundment has been constructed.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Levin Metals	Aldrin, 4,4'-DDD, 4,4'-DDE, o,p,-DDT, Dieldrin, BHC	U.S. Environmental Protection Agency (U.S. EPA) lead on-site cleanup. Awaiting report of completion for remedial dredging project.
	FMC, Richmond	DDT, DDD, DDE, Dieldrin, Chlordane, Tedion, Endosulfan, Ethion, Carbophenothion, Heptachlor	California Department of Health Services (DHS) lead on-site cleanup. Cleanup completed. Monitor to assure remaining pollutants do not migrate.
Marin	Former Sonoma Mosquito Abatement District, San Rafael	DDD, DDE, DDT, Dieldrin	DTSC is lead agency. Some soil removal has already taken place (approximately 3000 yd^3 in 1992). Old monitoring wells destroyed. Seven new wells were installed in 1996. DTSC has mailed out draft deed restriction and draft O&M Agreement for site.

Table III-3. Actions taken by the Regional Water Quality Control Board, Central Coast (Region 3), in FY 2002-2003

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Monterey	Monterey SoilService, King City	EDB and DBCP	Monitored natural attenuation is used at the site for low-level residual concentrations of EDB and DBCP in ground water.
	Castlerock Estates, Salinas	Toxaphene	Soil remediation completed. Monitored natural attenuation is used for low-level residual toxaphene concentrations in ground water.
Santa Clara	Castle-Veg-Tech, Morgan Hill	Toxaphene, Endrin, Lindane, Endosulfan	Responsible Party (RP) was unable to resume removal of pesticide-contaminated soil and extraction and treatment of contaminated ground water for this fiscal year due to lack of funds. RP is actively seeking source of funding to resume remediation.
Santa Cruz	WFS-Greengro, Watsonville	1,2-DCP and Endosulfan	Site is being actively remediated. Endosulfan no longer detected in ground water.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	WFS, Watsonville	DDT, DDD, Toxaphene	Monitored natural attenuation used for low-level residual concentrations of DDD and dieldren in ground water. RP completed in October 2002 the excavation and appropriate disposal of pesticide-contaminated soil at the site.

Table III-4. Actions taken by the Regional Water Quality Control Board, Los Angeles (Region 4), in FY2002-2003

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Los Angeles	Dominquez Park Landfill, Redondo Beach	Bis (2-ethylhexyl) phthalate	Phthalates are thought to be from PVC well casing. No further monitoring.
	Bixby Village Sanitary Landfill (City Dump Salvage No. 1), Long Beach	Aldrin, Beta-BHC, Alpha-BHC, Bis (2-ethlhexyl) phthalate, Delta-BHC, 4,4'-DDE, 4,4'-DDT, 1,4-Dichlorobenzene, Dieldrin, 2,4-Dinitrophenol, Endosulfan I, Endrin, Endrin aldehyde, Lindane, Heptachlor	Additional analyses did not detect any pesticides. No further monitoring.
	Market Place Sanitary Landfill (City Dump Salvage No. 2), Long Beach	Alpha-BHC, Bis (2-ethylhexyl) phthalate, Delta-BHC, 4,4'-DDE, 4,4'-DDT, Endosulfan I, Lindane, Heptachlor	Additional analyses did not detect any pesticides. No further monitoring.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Studebaker-Loynes Sanitary Landfill (City Dump Salvage No. 3), Long Beach	Alpha-BHC, Bis (2-ethylhexyl) phthalate, 4,4'-DDD, 4,4'-DDE, Di-n-octyl-phthalate, Endosulfan I, Endosulfan II, Endrin, Lindane, Heptachlor	Additional analyses did not detect any pesticides. No further monitoring.
	Peter Pitchess Honor Rancho Landfill, Castaic Junction	Bis (2-ethylhexyl) phthalate	Phthalates are thought to be from PVC well casing. Monitoring continues at site. Most recent analyses did not detect any pesticides.
	Royal Boulevard Land Reclamation Site, Torrance	Lindane, 1,3-Dichloropropene	Site is closed and capped. Pesticide contamination was from an upgradient source.
	Port Disposal Landfill, Wilmington	Bis (2-ethylhexyl) phthalate, Di-n-Octyl-phthalate	Phthalates are thought to be from PVC well casing. Monitoring continues at site. Additional analyses did not detect any pesticides
	Port Disposal Banning Pit and Macco Pit, Wilmington	Bis (2-ethylhexyl) phthalate, Napthalene, Di-n-Butyl phathalate, 2-Methyl-naphthalene	Phthalates are thought to be from PVC well casing. Monitoring continues at site. Additional analyses did not detect any pesticides
	City of Compton Landfill	Di(2-ethylhexyl) phthalate (DEHP), Di-n-Octyl-phthalate	Phthalates are thought to be from PVC well casing. Monitoring continues at site. Additional analyses did not detect any pesticides. No further monitoring. Permit rescinded.
Ventura	Simi Valley :Landfill	Aldrin, Alpha-BHC, Gamma-BHC, 4,4- DDD, 4,4-DDT, Dieldren, Endosulfan III, Endrin, Heptachlor Dpoxide, Methoxychlor	These wells are located closed to the landfill. The operator will implement an evaluation monitoring program to determine the source, nature, and extent of a possible release. Additional analyses did not detect any pesticides.

Table III-5. Actions taken by the Regional Water Quality Control Board, Central Valley (Region 5, Sacramento), in FY 2002-2003.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Colusa	Moore Aviation	Atrazine	Ground water remediation ongoing. Plume contracted to less than 100 square feet. Soils have been remediated.
	Barber Cashew Supply Corporation, Maxwell	DDT, nitrate	Contaminated soils were disposed of. Phytoremediation for remediation of ground water nitrates ongoing.
Glenn	Barber Cashew Supply Corporation, Willows	Nitrate, ammonia, 1,2-DCE, PCE, TCE, toluene, carbon tetrachloride, chloroform, chlorobenzene	Cleanup and Abatement Order (CAO) issued. Administrative Civil Liability Issued.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Merced	Merced Municipal Airport	1,2 Dichlorobenzene, 1,2 Dichloroethane, 1,2 Dichlorothane (cis), 1,2 Dichlorothane (trans), 1,3 Dichloropropane (cis), Alachlor, Benzene, Captan, Carbophenothion (trithion), Chloroform, DDT (total), Dicofol (Kethane), Dieldrin, Endosulfan I, II, Endosulfan sulfate, Endrin, Endrin aldehyde, Endrin ketone, Ethylbenzene, Heptachlor epoxide, Methoxychlor, Tetrachloroethylene (PCE), Toluene, Toxaphene, TPH-diesel, TPH-gasoline, Trichloroethylene (TCE), Vinyl chloride, Xylenes	Health Assessment completed. Feasibility study submitted.
	J.R. Simplot, Winton	1,2-DCP, Dieldrin, Benefin, 1,2,3-TCP, DBCM, DBCP, Endrin, Alachlor	Organo-chlorine contaminated soil removed, soil vapor extraction is removing volatile compounds, and sugar injection is underway to remediate nitrate in ground water.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	BAC, Inc.	Hexavalent Chromium, Arsenic, Copper	RWQCB Lead Agency. Ground water extraction and treatment system in pilot study phase. Plume spreading due to lack of hydraulic containment by system. Implementing well reinjection, infiltration gallery. No discharges re: NPDES permit.
	Western Farm Service, Merced	1,2-DCP, DBCP, dinoseb, dalapon, nitrate, ammonia	A pilot study for in-situ remediation of ground water using Hydrogen Releasing Compound is in progress. Soil removal for organochlorine compounds is underway, a test using HRC for nitrates in soil is proposed for 2003-2004.
Sacramento	Sacramento Army Depot	Diazinon, Dursban	Assessment report requested. Federal Superfund work in progress. Cleanup of pesticides completed.
	Natomas Air Park	Dicofol, DDE, DDT, Endosulfan, Toxaphene, Dieldrin Endrin	A pilot study for chemical oxidation of organochlorine compounds in soil is underway.
	Franklin Field Airport	Toxaphene	Case closed. Soil remediated with thermal oxidation. Ground water was not polluted.
	Bureau of Land Management, Fitzerald Ranch	Toxaphene	Buried empty pesticide containers found on land purchased by Bureau of Land Management (BLM). Soil containing toxaphene excavated and stockpiled onsite. BLM has proposed a pilot study for bioremediation of the stockpiled soils. No pesticides detected in three monitoring wells.
	Western Farm Service, Walnut Grove	Nitrate, ammonia, aldrin, beta-BHC, gamma-BHC, DDD, DDE, dieldrin, heptachlor epoxide, endosulfan, disultoton, TPH-diesel	Investigation continuing. Regional Board is lead agency.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
San Joaquin	Occidental Chemical, Lathrop	EDB, DBCP, Sulfolane	Ground water cleanup underway pursuant to stipulation and judgment approving settlement (1981). Currently reviewing remedial system optimization work plan and monitoring and reporting program.
	John Taylor Fertilizers, Stockton	Dinoseb, I,2,3-TCP, bromacil	Investigation underway, monitoring wells installed
	Defense Depot, Tracy	Dieldrin, Simazine	A Record of Decision (ROD) was finalized in February 1998; it includes soil cleanup levels for simazine and dieldrin, and a ground water cleanup level for dieldrin. Remedial design phase was initiated in July 1998.
	Sharpe Army Depot, Stockton	Bromacil	Assessment ongoing.
	Marley Cooling Technologies, a subsidiary of SPX Corporation	Arsenic, Copper, Chromium, Hexavalent Chromium	Ground water cleanup underway. Enforcement action on going due to a fish kill, in September 2002, in the Stockton Diverting Canal due to treatment system malfunction. System modifications were completed prior to resuming operation. NPDES discharge permit was renewed in March 2003. RWQCB Order R5-2003-0100 was issued for in situ ground water pilot study. Fieldwork for Phase 1 pilot study was completed.
	U.S. Navy Computer and telecommunications Station, San Diego Detachment	DDD, DDE	Assessment ongoing. Soil removal actions have occurred and more are planned. Ground water assessment underway.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Western Farm Service, Stockton (former Pure Gro/Brea)	1,2-DCP, Chloroform, PCE, Bromoform, 1,1-DCA, Dibromochloromethane, bromochloromethane, bromodichloromethane	Off-site plume definition continuing. Two soil areas capped. Semi-annual ground water monitoring and long-term cap maintenance is continuing. Health risk assessment is complete. Feasibility studies are beginning for soil and ground water remediation.
	Former Oxychem/ Simplot/ PureGro, Stockton	DBCP, 1,2-DCP, 1,1-DCE, 1,2-DCA, Chlorobenzene, 1,1,2-TCA, Mevinphos, Fensulfothion, Dinoseb, Dicamba, 2,4,5-T, Atrazine, Monuron, Carbaryl, Carbofuran, Propham, Diuron, Propoxur, 1,1,2,2-TCA, atraton, 2,4-DB, bromocil, chloromethane, tebuthiuron, simazine, methiocarb, MCPP, fenuron, chloroform, chloroxuron, dichloroprop, EDB, oxamyl	Primary soil source area remediated with thermal destruction. Phytoremediation in progress to treat trace constituents in soil and nitrate in ground water
	Cal Farm Supply	b-BHC, nitrate	Soils cleaned up. Nitrate uptake by safflower cropping underway.
	Western Farm Service, Vernalis	DBCP, EDB, diuron, methiocarb, diazinon, aldrin, nitrate, ammonia, 1,2-DCP	Pilot project using hydrogen release compound for insitu remediation underway.
Solano	Wickes Forest Industries	Chromium (Cr^{3+} and Cr^{6+}), Arsenic, Copper	Ground water cleanup ongoing.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	John Taylor Fertilizer, Dixon	Dinoseb, dichlorprop, 2,4-D dicamba, DDT, chlordane, diuron, bromocil, tebuthiuron	Investigation underway, monitoring wells installed.
	TSI, Dixon	DDT, DDE, 1,2-DCP, nitrate	Some contaminated soil was removed. Investigation underway.
	Rio Vista Army Reserve Center	Chlorodane, 4,4-DDE, 4,4-DDT, dieldrin	Rio Vista Army Reserve Center received a No Further Action in January 2002. The FOST and EBS were finalized in May 2002. The Army claimed that the pesticide residue detected in soil only was legally applied, and did not warrant a cleanup. The USEPA, Regional Board and DTSC staff did not dispute the claim, and the property was transferred to the City of Rio Vista in August 2003.
Stanislaus	Chemurgic Agricultural Chemicals	BHC, DDT	1993 CAO rescinded. Waste Discharge Requirements adopted in June 1997 for a ground water extraction and treatment system. Excavation of areas with elevated BHC in soil completed by December 1995. Ground water remediation and monitoring ongoing.
	Geer Road Landfill	1,1-DCA, 1,1,1-TCA, TCE, Chloridazon, Freons	Ground water cleanup underway.
	Western Farm Service, Modesto	DBCP, EDB, nitrate, ammonia	Off-site plume definition continuing. Additional soil characterization for feasibility testing is underway.
	Rhone-Poulenc (formerly Union Carbide) Test Plots	Aldicarb	Monitoring has ended and wells were abandoned under the oversight of Stanislaus County Department of Environmental Resources. Site was closed in the spring of 1995.
	Shell Agricultural Research Facility	Cyanazine, Atrazine, Chloroform, Planavin, 1,1-DCE, DBCP, Nitrate	Ground water being treated with carbon absorption for organic compounds, followed by phytoremediation for nitrate. Soil has been remediated.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Valley Wood	Copper, Chromium, Arsenic	Out-of-court settlement. Federal Superfund site. Interim cleanup in progress.
Sutter	Bowles Flying Service	2,4-D, Thiobencarb, Diuron, Metalaxyl, Molinate, Simazine	Cease and Desist Order issued under the TPCA program. On DTSC's list as needing a Preliminary Endangerment Assessment. Monitoring wells installed.
	PureGro, Robbins	alachlor, aldrin, dicofol, monuron, 1,2-DCA, 1,2-DCP, diphenamid	MRP issued for quarterly ground water monitoring. Additional ground water characterization requested.
	John Taylor Fertilizers, Yuba City	1,2-DCP, 1,2,3-TCP, !,2-DCB, chlorobenzene, DBCP	Soil excavation completed, pilot study underway using hydrogen release compound for insitu ground water remediation.
Yolo	Frontier Fertilizer Company, Davis	EDB, DCP, DBCP, Carbon tetrachloride	DTSC installed interim ground water treatment system. U.S. EPA expanded the system and is conducting an investigation to determine extent of plume.
	DowElanco, Davis	1,2,DCP	Air sparging successful to reduce concentrations in ground water, hydrogen release compound injected to remove last traces. Monitoring underway.
	U.C. Davis, Pesticide applicator site	Chlorpyrifos, Dicamba, Atrazine, Aldrin, Simazine, Dieldrin, Endrin, DDT	Contaminated soil removed, ground water being extracted and discharged under permit to sanitary sewer.
	J.R. Simplot, Courtland	EDB, 2,4-DB, Dicofol, Dicamba, 2,4,5-TP, Carbophenthion, DDT, Dieldrin, Dinoseb, Picloram	Health risk assessment completed. Phytoremediation underway for soil & ground water remediation.
Yuba	Beale Air Force Base	Lindane	Ground water investigation underway. Investigation complete no further action required.

Table III-6. Actions taken by the Regional Water Quality Control Board, Central Valley (Region 5, Fresno), in FY 2002-2003.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Fresno	Blue Hills Disposal Site, County of Fresno	Dicamba, 2,4-D, Silvex	DTSC lead. Corrective action underway.
	Thompson Hayward Agriculture & Nutrition	Alpha-BHC, Beta-BHC, Gamma-BHC, Dieldrin, DBCP, Diphenamid, Heptachlor, Heptachlor Epoxide	State Superfund site (DTSC lead). Remedial activity ongoing. Draft Completion of Final Remediation Documentation Report in progress.
	J.R. Simplot, Helm Facility	Dieldrin	Long-term ground water monitoring.
	FMC Corporation, Fresno Facility	Aldrin, Dieldrin, DDT, DDD, DDE, Heptachlor, Lindane, Toxaphene, Ethyl Parathion, Malathion, Ethion, Endosulfan, Dimethoate, Furadan, Dinitrocresol, Dinoseb (DNBP)	DTSC lead. Discharge area capped and undergoing remediation using SVE. Off-site ground water extraction system construction on schedule. Enhanced reductive dechlorination ground water pilot test completed.
	Britz, Inc., Five Points	Toxaphene, DDT, DNBP	State Superfund site (DTSC lead). Investigation and health assessment report submitted. Ground water remediation feasibility study submitted. Additional contamination assessment completed. Deed restriction in place.
	Fresno County Wells	DBCP, EDB, 1,2-D	Pesticides detected in 146 wells (AB 1803 sampling).
	Coalinga Airport	DDT, Chlorpyrifos, DEF, Ethion, Disyston	Contamination assessment needed.
	Spain Air	Ethion, DEF, Parathion, Trithion, Dinoseb, Paraquat, DDE, DDT, Endosulfan II	Assessment needed.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	PureGro, Oxalis	1,2-Dichloropropane, nitrate	Soil and ground water plume definition 90% complete. Detailed soil vapor (SV) survey ongoing to better define remediation (excavation) targets. Work plan for soil remediation at western pond to be finalized after SV survey complete.
	Eagle Field (FUDS)	2,4-D, Pentachlorophenol,	Pesticides detected from ground water grab samples. Additional assessment is needed.
Kern	Brown & Bryant, Inc., Arvin	1,2-D, 1,3-D, DBCP, Dinoseb, EDB, carbaryl	Federal Superfund site (DTSC lead). U.S. EPA has prepared Remedial Information Feasibility Study Report.
	Brown and Bryant, Inc., Shafter	EDB, DBCP, Chlordane, DDD, DDE, DDT, Dieldrin, Endrin, Heptachlor, Toxaphene	State Superfund site (DTSC lead). Contamination assessment ongoing.
	Western Farm Service, Delano Facility	DDT, Toxaphene, Dinoseb, Dicamba	Assessment on-going, long-term monitoring on-going, impacted soils have been capped.
	Puregro Company, Bakersfield	DBCP	State Superfund site. Further assessment conducted. The waste discharge requirements for closure of a former dry well were issued March 1994 and amended March 1996.
	Dick Garriott Crop Dusting, Bakersfield	Chlordane, DDE, DDT, PCNB, Endosulfan I & II, Methoxychlor, Carbofuran, Carbaryl, Bufencarb, DEF, Tedion, Diazinon, Chlorpyrifos, Ethyl Parathion, Diuron, Dinoseb, Dicamba	CAO issued in 1993. Hydrogeological Assessment Report completed in 1993. Work in progress to determine extent of ground water degradation. Additional ground water monitoring wells proposed to determine extent of degradation. Title 27 cap also proposed.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	USDA, Shafter	Dichlobenil, EPTC, Prometryne, DDT, DDE, DDD, Dieldrin, Toxaphene, Silvex, PCP, Chlorpropham, Ametryn, Atrazine	USEPA lead. Developing a closure plan. Soil remediation and dry well abandonment were requested in 1996 but have not been completed.
	Kern County Wells	DBCP, 1,2-D, EDB	Pesticides detected in 57 wells (AB 1803 sampling). No assessment underway.
Kings	Lemoore N.A.S.	Unspecified	Investigation ongoing.
	Blair Field	2,4-D, Dicofol,Diazinon,Propargite	Assessment needed.
	Blair Aviation	Trifluralin, Mevinphos, Phorate	Contamination assessment needed.
	Lakeland Dusters	DDT, Toxaphene	Contaminated soils excavated and stockpiled on site. Remediation underway.
Madera	Chowchilla Municipal Airport	Dieldrin, Alpha-BHC, Endosulfan, PCNB, DDT, DDE, Lindane	Contamination assessment needed.
	Madera Municipal Airport	DDT, DDE, Toxaphene, Dicofol, Endrin	Impacted soils have been capped. Long-term monitoring on-going.
	Western Farm Service, Inc., Madera Facility	Dinoseb, DBCP, Dieldrin	Impoundment closed. Impacted soils have been capped. Long-term monitoring on-going.
	Madera County Wells	DBCP	DBCP detected in two wells (AB 1803 sampling). No assessment underway.
Tulare	Mefford Field, City of Tulare	p,p'-DDT, p,p'-DDE, 2,4,5-TCP, Dicamba, DNBP, Diuron	Contamination assessment and mitigation reports needed.
	Tulare Airport	2,4-D, DNBP	Assessment needed.
	Kaweah Crop Dusters	DDT, 2,4-D, 2,4,5-T, Methoxychlor	DHS Remedial Action Order issued January 1984. Cleanup ongoing.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Tulare County Wells	1,2-D	Detected in wells through AB 1803 sampling. No assessment underway.

Table III-7. Actions taken by the Regional Water Quality Control Board, Central Valley (Region 5, Redding), in FY 2002-2003.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Butte	L.P, Remanufacturing Facility, Chico	Pentachlorophenol Tetrachlorophenol	DTSC is lead agency. Waste Discharge Requirements adopted in 1996 for ground water treatment and reinjection. Ground water extraction and treatment ceased in Feb 03. Verification ground water monitoring underway to determine effectiveness of natural attenuation. Deed restriction in place prohibiting ground water use without DTSC approval.
Tehama	L.P, Sawmill, Red Bluff	Pentachlorophenol	Bioremediation of excavated soil stockpile and ground water monitoring continues.
	L.P, VG Mill & Jamb, Red Bluff	Pentachlorophenol Tetrachlorophenol Stoddard Solvent	CAO Order 98-712. Soils cleaned up. Pilot project using ozone for insitu ground water remediation underway.

Table III-8. Actions taken by the Regional Water Quality Control Board, Lahontan (Region 6), in FY 2002-2003

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
El Dorado	Tahoe Paradise Golf Course	PCNB	Last tested on 5/23/97 and was non-detect at a detection limit of 0.02 mcg/l.
	Lake Valley State Recreation Area Golf Course	2,4 D, Dicamba, MCPP	All were tested, last on 11/5/97, and all were non-detect at detection limits of 1.6, 0.32, and 150 mcg/l respectively.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Tahoe Keys Lagoon and Marina	ENDOTHALL, FLORIDONE, TRICLOPYR	The Tahoe Keys Property Owners Association (TKPOA) proposed to use these aquatic pesticides for the control of Eurasian watermilfoil in the lagoon and marina. In February 2002, the Regional Board issued a notice excluding the TKPOA from coverage under the statewide Aquatic Pesticides General NPDES Permit. A scientist from the USDA Agricultural Research Service at UC Davis submitted a formal proposal in May 2003 and requested that the Regional Board consider modifying or withdrawing the Notice of Exclusion to allow pilot-scale experimental application of aquatic herbicides. The Regional Board considered but denied the request in June 2003.
Inyo	Tinemaha Reservoir	Copper sulfate	In response to former algaecide applications, no detectable copper in 2002/2003.
	Haiwee Reservoir	Copper sulfate	In response to fish kills that may be related to the algaecide application, potential for ground and surface water contamination will be evaluated through a chronic toxicity study as required by a Cleanup and Abatement Order. Most recent fish kill occurred in June 1998. A TMDL is under development for copper in this reservoir, scheduled for completion in 2004.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Placer	Resort at Squaw Creek	Triclopyr	THE TRYCLOPYR TEST APPLICATION AT THE RESORT AT SQUAW CREEK IS STILL ONGOING. THE HERBICIDE HAS NOT BEEN DETECTED IN ANY OF THE GROUND WATER MONITORING WELLS. THE LOCATION OF THE MONITORING WELLS AND THE TIMING OF THE SAMPLING WAS PURPOSELY DESIGNED TO DETECT THE CHEMICAL IF IT MIGHT LATER SHOW UP IN GROUND WATER BELOW DETECTABLE CONCENTRATIONS. THE TEST APPLICATION HAS SO FAR DEMONSTRATED THAT THE HERBICIDE CAN BE APPLIED AND IT WILL NOT PERSIST LONG ENOUGH TO MAKE IT TO GROUND WATER.
San Bernardino	George Air Force Base	Dieldrin	OF THE THREE WELLS SAMPLED AT THE BASE, TWO WELLS TESTED POSITIVE FOR DIELDRIN (0.10 MCG/L, 0.62 MCG/L). THE AIR FORCE WAS ASKED TO CONDUCT A PA/SI TO INCLUDE SURFACE SOIL SAMPLING TO EVALUATE POTENTIAL SOURCES AND REASONS FOR THE CONTINUED LOW LEVELS FOUND IN THE GROUND WATER. ADDITIONAL SITE ASSESSMENT, INCLUDING THE INSTALLATION OF TWO NEW WELLS, CONFIRMED DIELDRIN IN GROUND WATER. SAMPLING CONTINUES. THE AIR FORCE IS REQUESTING ADDITIONAL FUNDS. BOARD STAFF HAS NOT CONCURRED WITH PARCEL TRANSFER OF SITES WITH DIELDRIN.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	China Lake Naval Weapons Center	4,4' DDD 4,4' DDE 4,4' DDT Dieldrin Chlordane	SITES 31 AND 32 PESTICIDE STORAGE AREA AND GOLF COURSE PESTICIDE HANDLING AREA AT CHINA LAKE CONTAINED PESTICIDES IN SOIL AND LOW CONCENTRATIONS IN GROUND WATER. AREA WAS CLEANED UP, CONTAMINATED SOIL SOURCE WAS REMOVED AND DISPOSED APPROPRIATELY. GROUND WATER IS MONITORED, AND IS NOT USED FOR DRINKING WATER IN THE AREA EAST OF CHINA LAKE PLAYA.
All counties in Region 6 (includes all or parts of Modoc, Lassen, Plumas, Sierra, Nevada, Placer, El Dorado, Alpine, Mono, Inyo, San Bernardino, Kern, Los Angeles Counties)	Region wide	Herbicides	TO QUALIFY FOR THE WAIVER UNDER THE TIMBER HARVEST ACTIVITIES WAIVER POLICY (ADOPTED IN JANUARY 2003), APPLICANTS MUST NOTIFY THE REGIONAL BOARD AT LEAST 90 DAYS IN ADVANCE OF ANY PROPOSED HERBICIDE APPLICATION, AND PROVIDE SPECIFIC INFORMATION ABOUT THE PROPOSED HERBICIDE USE. THEY MUST ALSO ADHERE TO ANY MONITORING PROGRAM PRESCRIBED BY THE EXECUTIVE OFFICER.

Table III-9. Actions taken by the Regional Water Quality Control Board, Colorado River Basin (Region 7), in FY 2002-2003

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Imperial	Central Brave Agricultural Service	4,4'-DDE, Endosulfan	Recalcitrant Discharger. Referred to Attorney General for nonpayment of fees.
	City of Brawley	4,4'-DDE, Dieldrin	Contaminated soil excavated and transported to Class I facility. Site closed.
	Visco Flying Service	4,4'-DDE, 4,4'-DDD, 4,4'-DDT, Endosulfan I & II	Impoundment remediated, capped, and closed in place.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	J.R. Simplot Company, Sandin Siding Facility	Dieldrin, 4,4'-DDT, Endrin	CAO issued. Site in remediation. Risk base corrective action in-progress (site closed in 2001)
	Stoker Company	Endosulfan I & II, Dinoseb, 2,4-DB	Land treatment facility undergoing closure.
	Ross Flying Service	4,4'-DDD, 4,4'-DDE 4,4'-DDT, Dieldrin	Closure of surface impoundment.
Riverside	West Coast Flying	Endosulfan I & II, Disulfoton	Recalcitrant discharger. Referred to Attorney General for nonpayment of fees.
	Woten Aviation Services	Disyston, DEF, Ethyl Parathion, Methyl Parathion	CAO issued. U.S. EPA has lead in cleanup.
	Foster Gardner, Inc., Coachella Facility	1,2-Dichloroethane, 1,2-D, Ethylene Dibromide	CAO issued October 1991 by RWQCB. Imminent and Substantial Endangerment Order issued by DTSC on August 21, 1992. Cleanup on going.
	Farmers Aerial Service, Inc.	4,4'-DDE, Endosulfan I	Closure of disposal area.
	Coachella Valley Mosquito Abatement District	DDT	Under investigation. Pesticide contamination insignificant, UST Cleanup only. (site closed in 2001)
	Crop Production Services, Blythe (Formerly Pure Gro MW-24)	1,2-Dichloropropane	Undergoing cleanup.

Table III-10. Actions taken by the Regional Water Quality Control Board, Santa Ana (Region 8), in FY 2002-2003

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Orange	Great Lakes Chemical Corporation (formerly Great Western Savings), Irvine	1,2-D, EDB, 1,2-DCE	On-site full-scale multi-phase vacuum extraction system is continuing. GLCC now discharges to County Sanitation District of Orange County under Special Purpose Discharge Permit as of 12/2001. GLCC was issued a CAO by RWQCB on 4/17/97 for off-site remediation of impacted ground water. GLCC is operating an on-and off-site ground water extraction and treatment system. The full treatment system has been operating continuously since December 2001. Waste Discharge Requirements (Order No. 0025) was rescinded in April 2002.
Riverside	Sunnymead Mutual Water Company (North and South Well)	DBCP	Both wells were sold to Eastern Municipal Water District in February 1991. Customers are being served by the new District from other supply sources. North Well has been completely rehabilitated. South Well will be used for emergency purposes only.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Arlington Basin	DBCP	Construction of a 7-MGD reverse osmosis plant with partial flow through a GAC unit for treatment of TDS, NO_3 and DBCP was completed in September 1990. About 1.0 MGD of ground water is treated and 0.5 MGD is bypassed. Treated water is mixed with the bypassed water and discharged to the Arlington Channel for ground water recharge purposes by the Orange County Water District. Salt brine (0.2 MGD) is discharged to the Santa Ana Regional Interceptor, which discharges to the ocean via the Orange County Sanitation District. A second parallel transmission line has been completed to bring extracted ground water from three wells to the reverse osmosis unit. Sale of this water to Cities of Norco and Jurupa in near future.
	City of Corona (Well 8, mun.)	Simazine	Well has been completely rehabilitated. Simazine was not detected in the sampling after rehabilitation work. No further action being taken. Trace of TCE has been detected in recent sampling. No further action being taken.
	Home Gardens County Water District (Wells 2 & 3, mun.)	DBCP, Simazine	Water purveyor has closed these wells and is now purchasing water from the City of Riverside.
	City of Riverside, Twin Spring, mun.	DBCP	Well is out of service. Mitigation measures are being considered for Winter of 2003.
	City of Corona (Well 17, mun.)	Simazine, DBCP	Well has been abandoned. A new well (17A) has been drilled and is in use. Trace of DBCP was detected in March 1991 sampling. Trace of TCE has been detected in recent sampling of the new well.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	City of Riverside (Russell "B", mun.)	Simazine, DBCP	Well has been abandoned and replaced with a new well. (Russell "C")
	City of Riverside (Garner "B", mun.)	DBCP	A 3,200 gpm GAC treatment system has been installed (Garner B Treatment Plant)
	City of Riverside (Russell "C", mun)	DBCP	A 3,200 gpm GAC treatment system has been installed (Garner B Treatment Plant)
	City of Riverside (1st Street)	DBCP	Well is not being used due to high concentrations of DBCP. No mitigation measures in effect.
	City of Riverside (Electric Street, mun.)	DBCP	Well water is being blended with water from other supply wells. Mitigation measures are being considered for Winter of 2003
	City of Riverside (Palmyrita, mun.)	DBCP	A 9,000 gpm GAC treatment system has been installed (Palmyrita Treatment Plant)
	City of Riverside (3 wells, mun.)	DBCP	Water from Hunt Wells No. 6, 10, and 11 is being blended with other wells in the area.
	City of Riverside (3 wells, emergency, Downtown Riverside)	DBCP	No mitigation measures in effect. These three wells are also contaminated with industrial organic solvents.
	Riverside County Hall Of Records, (pr)	DBCP	No mitigation measures in effect. Volatile organic chemicals such as TCE and PCE have also been found. Well is used for emergency purposes only.
	Loma Linda University, Arlington, (Wells 1 & 2, mun.)	DBCP	The University water supply system is tied into the City of Riverside domestic water supply distribution system. These two wells are used for irrigation purposes at the school.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	City of Riverside (Moor-Griffith, mun.)	DBCP	Well is out of service. Mitigation measures are being considered for winter of 2003
	Lake Hemet MWD (Wells A and B, mun.)	DBCP	Well "A" is being used for irrigation purposes by the District. Well "B" is being used by a local farmer for irrigation purposes.
San Bernardino	Victoria Farms MWC (Well 01 & 03, mun.)	DBCP	Water purveyor has closed these wells and is now purchasing water from the City of San Bernardino.
	Gage System Wells (16 wells, mun.)	DBCP	The City of Riverside and the Gage Canal Company operate the Gage System, which consists of fifteen wells located along the Santa Ana River. These wells are being blended for domestic use. Trace amounts of radon have been detected in some of these wells. The City installed three deep wells in the area to increase blending capacity. Two GAC treatment systems (total of six wells) have been in operation since February 2000 for removal of VOCs and DBCP. Additional GAC system have been designed for treatment of ground water (total of three wells). These units are located at the leading edge of an existing TCE plume.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Bunker Hill Basin: Crafton/Redlands area (36 wells)	DBCP	The City of Redlands started construction of a 8.5-MGD granular activated carbon (GAC) treatment system in September 1991. This GAC system treats ground water from two wells. Treated water is being put into the local water supply distribution system. Funding for this system is from the SWRCB ($2.8 million) and bond money through the State Expenditure Plan ($1.9 million) which is managed by DTSC. The system has been off line since July 1997 due to presence of perchlorate above provisional Action Level in both production wells. Lockheed Martin has provided $3.7 million for the cleanup of ground water supplies that the City has been conducting since 1985.
	South San Bernardino Company Water District (4 wells, mun.)	DBCP	All four wells are out of service. The City of San Bernardino Water Department purchased the water district in July 1991. The City now supplies all the customers in the area.
	Cucamonga CWD (4 wells, mun.)	DBCP	Well No. 13 has not been used since 1991. The other three wells are standby wells and are used on a limited basis. Water is being purchased from Metropolitan Water District (MWD).
	Monte Vista CWD (3 wells, mun.)	DBCP	All three wells are on standby status. Water is being purchased from MWD.
	City of Upland (14 wells)	DBCP	Seven wells are out of operation. Three wells are currently on standby. Four wells are being used and are being blended with other supply wells.
	City of Loma Linda (6 wells, mun.)	DBCP	Two wells have been abandoned. One well is out of operation due to high nitrates. The City also purchases treated water from the City of San Bernardino. Four new deep wells have been on line this year.

Table III-11. Actions taken by the Regional Water Quality Control Board, San Diego (Region 9), in FY 2002-2003

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
San Diego	City of Oceanside Water Utility District (Well No. 12-11S/ 4W-18L1 S)	1,2-DCP (1,2-Dicloropropane)	This backup drinking water well is located in the San Luis Rey River Valley. Up to 2.3 ppb has been detected in this well. The City of Oceanside is continuing monitoring of this well and reports to the State's DHS.
	Truly Nolen Exterminating, Inc.	Aldrin, Dieldrin, Chlordane	This is an on-site abandoned well which allegedly received pesticide wastes several years ago. Contaminated soil has been removed and clean up is complete. Trace levels still exist in ground water. No further monitoring required. (RWQCB lead)

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APPENDICES

Appendix A

This appendix is presented in two sections. The first contains summaries for counties without any pesticide detection. The second contains summaries for counties with any detection. In each section, the counties are given alphabetically. Sampling results are reported for the period July 1, 2002 through June 30, 2003. The counties without and with detections are as follows:

Counties without detections:

Alameda
Alpine
Amador
Calaveras
Del Norte
El Dorado
Humboldt
Imperial
Lake
Lassen
Marin
Mariposa
Mendocino
Modoc
Mono
Napa
Nevada
Plumas
San Benito
San Luis Obispo
Shasta
Siskiyou
Sonoma
Tehama

Counties with detections:

Butte
Colusa
Contra Costa
Fresno
Glenn
Inyo
Kern
Kings
Los Angeles
Madera
Merced
Monterey
Orange
Placer
Riverside
Sacramento
San Bernardino
San Diego
San Joaquin
San Mateo
Santa Barbara
Santa Clara
Santa Cruz
Solano
Stanislaus
Sutter
Tulare
Tuolumne
Ventura
Yolo
Yuba

Part 1. Counties without detections by chemical and number of wells sampled from July 1, 2002 to June 30, 2003

Alameda

Chemical	Wells
1,1,2,2-Tetrachloroethane	26
1,2,4-Trichlorobenzene	26
1,2-D + 1,3-D + C-3 Compounds	26
1,2-Dichloropropane	26
2,3,7,8-TCDD (Dioxin)	17
2,4,5-TP	15
2,4-D	15
3-Hydroxycarbofuran	17
Acetochlor	6
Alachlor	15
Aldicarb	17
Aldicarb Sulfone	17
Aldicarb Sulfoxide	17
Aldrin	15
Atrazine	15
Bentazon, Sodium Salt	15
Benzene (Benzol)	26
Bromacil	15
Butachlor	15
Carbaryl	17
Carbofuran	17
Chlordane	15
Chloromethane (Methyl Chloride)	26
Chlorothalonil	15
Chlorthal-Dimethyl Acid Metabolites	18
Dalapon	15
DBCP	15
DDE	6
Diazinon	15
Dicamba	15
Dieldrin	15
Dimethoate	13
Dinoseb	15
Diquat Dibromide	15
Diuron	12
Endothall	15

Alameda

Chemical	Wells
Endrin	15
EPTC	6
Ethylene Dibromide	15
Glyphosate, Isopropylamine Salt	15
Heptachlor	15
Heptachlor Epoxide	15
Hexachlorobenzene	15
Lindane (Gamma-Bhc)	15
Methomyl	17
Methoxychlor	15
Methyl Bromide (Bromomethane)	26
Metolachlor	15
Metribuzin	15
Molinate	15
Naphthalene	23
Ortho-Dichlorobenzene	26
Oxamyl	17
Picloram	15
Prometryn	13
Propachlor	15
Simazine	13
Terbacil	6
Thiobencarb	15
Toxaphene	15
Trichlorobenzenes	26
Xylene	26

Alpine

1,1,2,2-Tetrachloroethane	1
1,2,4-Trichlorobenzene	1
1,2-D + 1,3-D + C-3 Compounds	1
1,2-Dichloropropane	1
Benzene (Benzol)	1
Chloromethane (Methyl Chloride)	1
Methyl Bromide (Bromomethane)	1

Alpine (cont.)

Chemical	Wells
Naphthalene	1
Ortho-Dichlorobenzene	1
Trichlorobenzenes	1
Xylene	1

Amador

Chemical	Wells
1,1,2,2-Tetrachloroethane	3
1,2,4-Trichlorobenzene	3
1,2-D + 1,3-D + C-3 Compounds	1
1,2-Dichloropropane	3
2,4,5-TP	1
2,4-D	1
3-Hydroxycarbofuran	1
Alachlor	2
Aldicarb	1
Aldicarb Sulfone	1
Aldicarb Sulfoxide	1
Aldrin	1
Atrazine	2
Bentazon, Sodium Salt	1
Benzene (Benzol)	3
Bromacil	1
Butachlor	1
Carbaryl	1
Carbofuran	1
Chlordane	1
Chloromethane (Methyl Chloride)	1
Chlorothalonil	1
Dalapon	1
DBCP	3
Diazinon	1
Dicamba	1
Dieldrin	1
Dimethoate	1
Dinoseb	1
Diquat Dibromide	1
Endothall	1

Amador (cont.)

Chemical	Wells
Endrin	1
Ethylene Dibromide	3
Glyphosate, Isopropylamine Salt	1
Heptachlor	1
Heptachlor Epoxide	1
Hexachlorobenzene	1
Lindane (Gamma-Bhc)	1
Methomyl	1
Methoxychlor	1
Methyl Bromide (Bromomethane)	1
Metolachlor	1
Metribuzin	1
Molinate	2
Naphthalene	1
Ortho-Dichlorobenzene	3
Oxamyl	1
Picloram	1
Prometryn	1
Propachlor	1
Simazine	2
Thiobencarb	2
Toxaphene	1
Trichlorobenzenes	1
Xylene	3

Calaveras

1,1,2,2-Tetrachloroethane	4
1,2,4-Trichlorobenzene	4
1,2-D + 1,3-D + C-3 Compounds	4
1,2-Dichloropropane	4
2,4,5-TP	1
2,4-D	1
Alachlor	3
Aldrin	1
Atrazine	4
Bentazon, Sodium Salt	1
Benzene (Benzol)	4

Calaveras (cont.)

Chemical	Wells
Bromacil	4
Butachlor	3
Chlordane	1
Chloromethane (Methyl Chloride)	4
Chlorothalonil	1
Dalapon	1
DBCP	1
Diazinon	4
Dicamba	1
Dieldrin	1
Dimethoate	4
Dinoseb	1
Diquat Dibromide	1
Endothall	1
Endrin	1
Ethylene Dibromide	1
Glyphosate, Isopropylamine Salt	1
Heptachlor	1
Heptachlor Epoxide	1
Hexachlorobenzene	1
Lindane (Gamma-Bhc)	1
Methoxychlor	1
Methyl Bromide (Bromomethane)	4
Metolachlor	4
Metribuzin	4
Molinate	4
Naphthalene	4
Ortho-Dichlorobenzene	4
Picloram	1
Prometryn	4
Propachlor	4
Simazine	4
Thiobencarb	4
Toxaphene	1
Trichlorobenzenes	4
Xylene	4

Del Norte

Chemical	Wells
1,1,2,2-Tetrachloroethane	1
1,2,4-Trichlorobenzene	1
1,2-D + 1,3-D + C-3 Compounds	1
1,2-Dichloropropane	1
Benzene (Benzol)	1
Chloromethane (Methyl Chloride)	1
Glyphosate, Isopropylamine Salt	1
Methyl Bromide (Bromomethane)	1
Naphthalene	1
Ortho-Dichlorobenzene	1
Trichlorobenzenes	1
Xylene	1

El Dorado

1,1,2,2-Tetrachloroethane	24
1,2,4-Trichlorobenzene	24
1,2-D + 1,3-D + C-3 Compounds	24
1,2-Dichloropropane	24
2,3,7,8-TCDD (Dioxin)	2
2,4,5-T	1
2,4,5-TP	1
2,4-D	1
3-Hydroxycarbofuran	1
Alachlor	1
Aldicarb	1
Aldicarb Sulfone	1
Aldicarb Sulfoxide	1
Aldrin	1
Atrazine	1
Bentazon, Sodium Salt	1
Benzene (Benzol)	24
Bromacil	1
Butachlor	1
Carbaryl	1
Carbofuran	1
Chlordane	1
Chloromethane (Methyl Chloride)	24

El Dorado (cont.)

Chemical	Wells
Chlorothalonil	1
Dalapon	1
DBCP	1
DDE	6
Diazinon	1
Dicamba	1
Dieldrin	1
Dimethoate	1
Dinoseb	1
Endrin	1
EPTC	6
Ethylene Dibromide	1
Heptachlor	1
Heptachlor Epoxide	1
Hexachlorobenzene	1
Lindane (Gamma-Bhc)	1
Methomyl	1
Methoxychlor	1
Methyl Bromide (Bromomethane)	24
Metolachlor	1
Metribuzin	1
Molinate	7
Naphthalene	1
Ortho-Dichlorobenzene	24
Oxamyl	1
Picloram	1
Prometryn	1
Propachlor	1
Simazine	1
Thiobencarb	1
Toxaphene	1
Trichlorobenzenes	24
Xylene	24

Humboldt

1,1,2,2-Tetrachloroethane	6
1,2,4-Trichlorobenzene	6

Humboldt (cont.)

Chemical	Wells
1,2-D + 1,3-D + C-3 Compounds	6
1,2-Dichloropropane	6
Benzene (Benzol)	5
Chloromethane (Methyl Chloride)	6
Methyl Bromide (Bromomethane)	6
Naphthalene	5
Ortho-Dichlorobenzene	5
Trichlorobenzenes	5
Xylene	6

Imperial

1,1,2,2-Tetrachloroethane	2
1,2,4-Trichlorobenzene	2
1,2-D + 1,3-D + C-3 Compounds	2
1,2-Dichloropropane	2
2,3,7,8-TCDD (Dioxin)	1
2,4,5-TP	1
2,4-D	1
3-Hydroxycarbofuran	1
Alachlor	1
Aldicarb	1
Aldicarb Sulfone	1
Aldicarb Sulfoxide	1
Aldrin	1
Atrazine	1
Bentazon, Sodium Salt	1
Benzene (Benzol)	2
Bromacil	1
Butachlor	1
Carbaryl	1
Carbofuran	1
Chlordane	1
Chloromethane (Methyl Chloride)	2
Chlorothalonil	1
Dalapon	1
DBCP	1
Diazinon	1

Imperial (cont.)

Chemical	Wells
Dicamba	1
Dieldrin	1
Dimethoate	1
Dinoseb	1
Diquat Dibromide	1
Diuron	1
Endothall	1
Endrin	1
Ethylene Dibromide	1
Glyphosate, Isopropylamine Salt	1
Heptachlor	1
Heptachlor Epoxide	1
Hexachlorobenzene	1
Lindane (Gamma-Bhc)	1
Methomyl	1
Methoxychlor	1
Methyl Bromide (Bromomethane)	2
Metolachlor	1
Metribuzin	1
Molinate	1
Naphthalene	2
Ortho-Dichlorobenzene	2
Oxamyl	1
Picloram	1
Prometryn	1
Propachlor	1
Simazine	1
Thiobencarb	1
Toxaphene	1
Trichlorobenzenes	2
Xylene	2

Lake

1,1,2,2-Tetrachloroethane	5
1,2,4-Trichlorobenzene	5
1,2-D + 1,3-D + C-3 Compounds	5
1,2-Dichloropropane	5

Lake (cont.)

Chemical	Wells
2,4,5-T	8
2,4,5-TP	8
2,4-D	8
3-Hydroxycarbofuran	6
4(2,4-DB), Dimethylamine Salt	8
Acifluorfen, Sodium Salt	8
Alachlor	5
Aldicarb	6
Aldicarb Sulfone	6
Aldicarb Sulfoxide	6
Aldrin	4
Atrazine	8
Bentazon, Sodium Salt	8
Benzene (Benzol)	5
Bhc (Other Than Gamma Isomer)	4
Bromacil	5
Butachlor	5
Carbaryl	6
Carbofuran	7
Chloramben	8
Chlordane	4
Chlorobenzilate	4
Chloromethane (Methyl Chloride)	5
Chloroneb	4
Chlorothalonil	4
	7
Chlorthal-Dimethyl Acid Metabolites	2
Dalapon	8
DBCP	2
DDD	4
DDE	4
DDT	4
Diazinon	5
Dicamba	8
Dichlorprop, Butoxyethanol Ester	3
Dieldrin	4
Dimethoate	5
Dinoseb	8

Lake (cont.)

Chemical	Wells
Diquat Dibromide	5
Endosulfan	4
Endosulfan Sulfate	4
Endothall	7
Endrin	3
Endrin Aldehyde	4
Ethylene Dibromide	2
Heptachlor	4
Heptachlor Epoxide	4
Hexachlorobenzene	4
Lindane (Gamma-Bhc)	4
Methiocarb	4
Methomyl	6
Methoxychlor	3
Methyl Bromide (Bromomethane)	5
Metolachlor	5
Metribuzin	5
Molinate	5
Naphthalene	5
Ortho-Dichlorobenzene	5
Oxamyl	7
Permethrin	4
Picloram	8
Prometryn	5
Propachlor	7
Propoxur	4
Simazine	8
Thiobencarb	5
Toxaphene	3
Trichlorobenzenes	5
Trifluralin	4
Xylene	5

Lassen

1,1,2,2-Tetrachloroethane	8
1,2,4-Trichlorobenzene	8
1,2-D + 1,3-D + C-3 Compounds	8

Lassen (cont.)

Chemical	Wells
1,2-Dichloropropane	8
Benzene (Benzol)	8
Chloromethane (Methyl Chloride)	8
Methyl Bromide (Bromomethane)	8
Naphthalene	7
Ortho-Dichlorobenzene	8
Trichlorobenzenes	8
Xylene	8

Marin

1,1,2,2-Tetrachloroethane	6
1,2,4-Trichlorobenzene	6
1,2-D + 1,3-D + C-3 Compounds	6
1,2-Dichloropropane	6
Alachlor	1
Atrazine	1
Benzene (Benzol)	6
Bromacil	1
Butachlor	1
Chloromethane (Methyl Chloride)	6
DBCP	2
Diazinon	1
Dimethoate	1
Ethylene Dibromide	2
Methyl Bromide (Bromomethane)	6
Metolachlor	1
Metribuzin	1
Molinate	1
Naphthalene	6
Ortho-Dichlorobenzene	6
Prometryn	1
Propachlor	1
Simazine	1
Thiobencarb	1
Trichlorobenzenes	6
Xylene	6

Mariposa

Chemical	Wells
1,1,2,2-Tetrachloroethane	12
1,2,4-Trichlorobenzene	12
1,2-D + 1,3-D + C-3 Compounds	12
1,2-Dichloropropane	12
Alachlor	12
Atrazine	14
Benzene (Benzol)	12
Bromacil	13
Butachlor	12
Chloromethane (Methyl Chloride)	12
Diazinon	13
Dimethoate	13
Methyl Bromide (Bromomethane)	12
Metolachlor	12
Metribuzin	12
Molinate	13
Naphthalene	8
Ortho-Dichlorobenzene	12
Prometryn	13
Propachlor	12
Simazine	14
Thiobencarb	13
Trichlorobenzenes	12
Xylene	12

Mendocino

1,1,2,2-Tetrachloroethane	11
1,2,4-Trichlorobenzene	11
1,2-D + 1,3-D + C-3 Compounds	11
1,2-Dichloropropane	11
2,4,5-T	11
2,4,5-TP	12
2,4-D	12
3-Hydroxycarbofuran	2
4(2,4-DB), Dimethylamine Salt	11
Acetochlor	1

Mendocino (cont.)

Chemical	Wells
Acifluorfen, Sodium Salt	11
Acrolein	6
Acrylonitrile	6
Alachlor	9
Aldicarb	2
Aldicarb Sulfone	2
Aldicarb Sulfoxide	2
Atrazine	9
Bentazon, Sodium Salt	11
Benzene (Benzol)	12
Bromacil	9
Butachlor	9
Carbaryl	2
Carbofuran	2
Chloramben	11
Chloromethane (Methyl Chloride)	11
Chlorthal-Dimethyl (DCPA)	4
Chlorthal-Dimethyl Acid Metabolites	7
Dalapon	12
DDE	4
Diazinon	9
Dicamba	12
Dichlorprop, Butoxyethanol Ester	3
Dimethoate	9
Dinoseb	12
Diquat Dibromide	2
Endothall	2
EPTC	4
Methiocarb	2
Methomyl	2
Methyl Bromide (Bromomethane)	11
Metolachlor	9
Metribuzin	9
Molinate	13
Naphthalene	11
Ortho-Dichlorobenzene	11
Oxamyl	2
Picloram	12
Prometryn	9

Mendocino (cont.)

Chemical	Wells
Propachlor	9
Propoxur	2
Simazine	9
Terbacil	1
Thiobencarb	9
Trichlorobenzenes	11
Xylene	12

Modoc

1,1,2,2-Tetrachloroethane	1
1,2,4-Trichlorobenzene	1
1,2-D + 1,3-D + C-3 Compounds	1
1,2-Dichloropropane	1
Benzene (Benzol)	1
Chloromethane (Methyl Chloride)	1
Methyl Bromide (Bromomethane)	1
Ortho-Dichlorobenzene	1
Trichlorobenzenes	1
Xylene	1

Mono

2,3,7,8-TCDD (Dioxin)	1
2,4,5-TP	1
2,4-D	1
3-Hydroxycarbofuran	1
Alachlor	1
Aldicarb	1
Aldicarb Sulfone	1
Aldicarb Sulfoxide	1
Aldrin	1
Atrazine	1
Bentazon, Sodium Salt	1
Bromacil	1
Butachlor	1
Carbaryl	1
Carbofuran	1
Chlordane	1

Mono (cont.)

Chemical	Wells
Chlorothalonil	1
Dalapon	1
DBCP	1
Diazinon	1
Dicamba	1
Dieldrin	1
Dimethoate	1
Dinoseb	1
Diquat Dibromide	1
Diuron	1
Endothall	1
Endrin	1
Ethylene Dibromide	1
Glyphosate, Isopropylamine Salt	1
Heptachlor	1
Heptachlor Epoxide	1
Hexachlorobenzene	1
Lindane (Gamma-Bhc)	1
Methomyl	1
Methoxychlor	1
Metolachlor	1
Metribuzin	1
Molinate	1
Oxamyl	1
Picloram	1
Prometryn	1
Propachlor	1
Simazine	1
Thiobencarb	1
Toxaphene	1

Napa

1,1,2,2-Tetrachloroethane	1
1,2,4-Trichlorobenzene	1
1,2-D + 1,3-D + C-3 Compounds	1
1,2-Dichloropropane	1
2,4,5-TP	2

Napa (cont.)

Chemical	Wells
2,4-D	2
Alachlor	1
Aldrin	1
Atrazine	2
Bentazon, Sodium Salt	2
Benzene (Benzol)	1
Carbofuran	2
Chlordane	1
Chloromethane (Methyl Chloride)	1
Dalapon	2
Dicamba	2
Dieldrin	1
Dinoseb	2
Diquat Dibromide	2
Endothall	2
Endrin	1
Ethylene Dibromide	1
Heptachlor	1
Heptachlor Epoxide	1
Hexachlorobenzene	1
Lindane (Gamma-Bhc)	1
Methoxychlor	1
Methyl Bromide (Bromomethane)	1
Naphthalene	1
Ortho-Dichlorobenzene	1
Oxamyl	2
Picloram	2
Simazine	2
Toxaphene	1
Trichlorobenzenes	1
Xylene	1

Nevada

1,1,2,2-Tetrachloroethane	12
1,2,4-Trichlorobenzene	12
1,2-D + 1,3-D + C-3 Compounds	12
1,2-Dichloropropane	12

Nevada (cont.)

Chemical	Wells
2,3,7,8-TCDD (Dioxin)	3
2,4,5-TP	3
2,4-D	3
3-Hydroxycarbofuran	3
Alachlor	3
Aldicarb	3
Aldicarb Sulfone	3
Aldicarb Sulfoxide	3
Aldrin	3
Atrazine	2
Bentazon, Sodium Salt	3
Benzene (Benzol)	12
Bromacil	2
Butachlor	2
Carbaryl	3
Carbofuran	3
Chlordane	3
Chloromethane (Methyl Chloride)	12
Chlorothalonil	3
Chlorthal-Dimethyl Acid Metabolites	3
Dalapon	3
DBCP	3
Diazinon	2
Dicamba	3
Dieldrin	3
Dimethoate	2
Dinoseb	3
Diquat Dibromide	3
Diuron	3
Endothall	3
Endrin	3
Ethylene Dibromide	3
Glyphosate, Isopropylamine Salt	3
Heptachlor	3
Heptachlor Epoxide	3
Hexachlorobenzene	2
Lindane (Gamma-Bhc)	3
Methomyl	3
Methoxychlor	3

Nevada (cont.)

Chemicals	Wells
Methyl Bromide (Bromomethane)	12
Metolachlor	2
Metribuzin	2
Molinate	2
Naphthalene	12
Ortho-Dichlorobenzene	12
Oxamyl	3
Picloram	3
Prometryn	2
Propachlor	2
Simazine	2
Thiobencarb	2
Toxaphene	3
Trichlorobenzenes	12
Xylene	12

Plumas

1,1,2,2-Tetrachloroethane	2
1,2,4-Trichlorobenzene	2
1,2-D + 1,3-D + C-3 Compounds	2
1,2-Dichloropropane	2
Benzene (Benzol)	2
Chloromethane (Methyl Chloride)	2
Methyl Bromide (Bromomethane)	2
Naphthalene	2
Ortho-Dichlorobenzene	2
Trichlorobenzenes	2
Xylene	2

San Benito

1,1,2,2-Tetrachloroethane	22
1,2,4-Trichlorobenzene	21
1,2-D + 1,3-D + C-3 Compounds	20
1,2-Dichloropropane	22

San Benito (cont.)

Chemicals	Wells
2,3,7,8-TCDD (Dioxin)	9
2,4,5-TP	10
2,4-D	10
3-Hydroxycarbofuran	7
Alachlor	19
Aldicarb	7
Aldicarb Sulfone	7
Aldicarb Sulfoxide	7
Aldrin	14
Atrazine	20
Bentazon, Sodium Salt	10
Benzene (Benzol)	22
Bromacil	16
Butachlor	16
Carbaryl	7
Carbofuran	10
Chlordane	17
Chloromethane (Methyl Chloride)	19
Chlorothalonil	13
Dalapon	10
DBCP	14
DDE	4
Diazinon	16
Dicamba	7
Dieldrin	14
Dimethoate	9
Dinoseb	10
Diquat Dibromide	10
Diuron	5
Endothall	11
Endrin	17
EPTC	4
Ethylene Dibromide	10
Glyphosate, Isopropylamine Salt	10
Heptachlor	17
Heptachlor Epoxide	17
Hexachlorobenzene	17

San Benito (cont.)

Chemicals	Wells
Lindane (Gamma-Bhc)	10
Methomyl	7
Methoxychlor	17
Methyl Bromide (Bromomethane)	20
Metolachlor	16
Metribuzin	16
Molinate	21
Naphthalene	19
Ortho-Dichlorobenzene	22
Oxamyl	10
Picloram	10
Prometryn	16
Propachlor	16
Simazine	20
Thiobencarb	12
Toxaphene	17
Trichlorobenzenes	20
Xylene	18

San Luis Obispo

1,3-Dichloropropene (1,3-D Telone)	13
1,1,2,2-Tetrachloroethane	60
1,2,4-Trichlorobenzene	60
1,2-D + 1,3-D + C-3 Compounds	60
1,2-Dichloropropane	60
2,4,5-TP	10
2,4-D	11
3-Hydroxycarbofuran	11
Acetochlor	15
Alachlor	49
Aldicarb	11
Aldicarb Sulfone	11
Aldicarb Sulfoxide	11
Aldrin	13
Atrazine	66
Bentazon, Sodium Salt	10

San Luis Obispo (cont.)

Chemicals	Wells
Benzene (Benzol)	64
Bromacil	49
Butachlor	49
Carbaryl	11
Carbofuran	12
Chlordane	14
Chloromethane (Methyl Chloride)	60
Chlorothalonil	9
Dalapon	10
DBCP	67
DDE	15
Diazinon	49
Dicamba	10
Dieldrin	13
Dimethoate	49
Dinoseb	10
Diquat Dibromide	11
Diuron	4
Endrin	14
EPTC	15
Ethylene Dibromide	67
Heptachlor	14
Heptachlor Epoxide	14
Hexachlorobenzene	13
Lindane (Gamma-Bhc)	13
Methomyl	11
Methoxychlor	14
Methyl Bromide (Bromomethane)	60
Metolachlor	49
Metribuzin	49
Molinate	63
Naphthalene	60
Ortho-Dichlorobenzene	60
Oxamyl	12
Picloram	11
Prometryn	49
Propachlor	23

San Luis Obispo (cont.)

Chemicals	Wells
Simazine	66
Thiobencarb	49
Toxaphene	13
Trichlorobenzenes	60
Xylene	64

Shasta

1,1,2,2-Tetrachloroethane	19
1,2,4-Trichlorobenzene	19
1,2-D + 1,3-D + C-3 Compounds	20
1,2-Dichloropropane	19
Alachlor	1
Atrazine	1
Benzene (Benzol)	19
Bromacil	1
Butachlor	1
Chloromethane (Methyl Chloride)	20
Diazinon	1
Dimethoate	1
Methyl Bromide (Bromomethane)	20
Metolachlor	1
Metribuzin	1
Molinate	1
Naphthalene	1
Ortho-Dichlorobenzene	19
Prometryn	1
Propachlor	1
Simazine	1
Thiobencarb	1
Trichlorobenzenes	20
Xylene	19

Siskiyou

1,1,2,2-Tetrachloroethane	4
1,2,4-Trichlorobenzene	4
1,2-D + 1,3-D + C-3 Compounds	4

Siskiyou (cont.)

Chemicals	Wells
1,2-Dichloropropane	4
Benzene (Benzol)	4
Chloromethane (Methyl Chloride)	4
Methyl Bromide (Bromomethane)	4
Ortho-Dichlorobenzene	4
Thiobencarb	1
Trichlorobenzenes	4
Xylene	4

Sonoma

1,1,2,2-Tetrachloroethane	31
1,2,4-Trichlorobenzene	31
1,2-D + 1,3-D + C-3 Compounds	31
1,2-Dichloropropane	31
2,4,5-T	17
2,4,5-TP	51
2,4-D	51
3-Hydroxycarbofuran	24
4(2,4-DB), Dimethylamine Salt	7
Acifluorfen, Sodium Salt	7
Acrolein	6
Acrylonitrile	6
Alachlor	20
Aldicarb	23
Aldicarb Sulfone	23
Aldicarb Sulfoxide	23
Aldrin	18
Atrazine	64
Bentazon, Sodium Salt	51
Benzene (Benzol)	31
Bhc (Other Than Gamma Isomer)	6
Bromacil	19
Butachlor	19
Carbaryl	23
Carbofuran	40
Chloramben	7
Chlordane	18

Sonoma (cont.)

Chemicals	Wells
Chlorobenzilate	6
Chloromethane (Methyl Chloride)	31
Chloroneb	6
Chlorothalonil	8
Chlorthal-Dimethyl (DCPA)	1
Chlorthal-Dimethyl Acid Metabolites	6
Dalapon	54
DBCP	10
DDD	6
DDE	6
DDT	6
Diazinon	19
Dicamba	50
Dieldrin	18
Dimethoate	20
Dinoseb	52
Diquat Dibromide	51
Diuron	2
Endosulfan	6
Endosulfan Sulfate	6
Endothall	51
Endrin	18
Endrin Aldehyde	6
Ethylene Dibromide	27
Glyphosate, Isopropylamine Salt	9
Heptachlor	19
Heptachlor Epoxide	20
Hexachlorobenzene	18
Lindane (Gamma-Bhc)	18
Methiocarb	3
Methomyl	24
Methoxychlor	18
Methyl Bromide (Bromomethane)	31
Metolachlor	20
Metribuzin	20
Molinate	19
Naphthalene	31
Ortho-Dichlorobenzene	31

Sonoma (cont.)

Chemicals	Wells
Oxamyl	49
Permethrin	6
Permethrin, Other Related	6
Picloram	55
Prometryn	20
Propachlor	20
Propoxur	4
Simazine	64
Thiobencarb	19
Toxaphene	18
Trichlorobenzenes	31
Trifluralin	10
Xylene	32

Tehama

1,3-Dichloropropene (1,3-D Telone)	1
1,1,2,2-Tetrachloroethane	9
1,2,4-Trichlorobenzene	9
1,2-D + 1,3-D + C-3 Compounds	9
1,2-Dichloropropane	9
Benzene (Benzol)	9
Chloromethane (Methyl Chloride)	9
Methyl Bromide (Bromomethane)	9
Naphthalene	7
Ortho-Dichlorobenzene	9
Trichlorobenzenes	9
Xylene	9

Part 2.Counties with positive detections by chemical, number of wells sampled, and number of positive wells from July 1, 2002 to June 30, 2003.

Butte

Chemicals	Wells	Pos
(S)-Metolachlor	9	
1,1,2,2-Tetrachloroethane	60	
1,2,4-Trichlorobenzene	60	
1,2-D + 1,3-D + C-3 Compounds	60	
1,2-Dichloropropane	60	
2,4-D	9	
3-Hydroxycarbofuran	9	
4(2,4-DB), Dimethylamine Salt	9	
Acetochlor	28	
Acifluorfen, Sodium Salt	8	
Alachlor	9	
Aldicarb	9	
Aldicarb Sulfoxide	9	
Atrazine	9	2
Azinphos-Methyl (Guthion)	9	
Benefin (Benfluralin)	9	
Bentazon, Sodium Salt	9	3
Benzene (Benzol)	60	
Bromacil	9	
Bromoxynil Octanoate	8	
Butylate	9	
Carbaryl	9	
Carbofuran	9	1
Chloromethane (Methyl Chloride)	60	
Chlorothalonil	9	
Chlorpyrifos	9	
Chlorthal-Dimethyl (DCPA)	9	
Chlorthal-Dimethyl Acid Metabolites	26	1
Clopyralid	9	
Cyanazine	9	
DBCP	1	
DDE	18	
Deethyl-Atrazine	9	2
Diazinon	9	
Dicamba	9	

Butte (cont.)

Chemicals	Wells	Pos
Dichlobenil (Casaron)	9	
Dichlorprop, Butoxyethanol Ester	9	
Dieldrin	9	
Dinoseb	9	
Disulfoton	9	
Diuron	9	
DNOC, Sodium Salt	9	
EPTC	27	
Esfenvalerate	9	
Ethalfluralin	9	
Ethoprop (Prophos)	9	
Ethylene Dibromide	1	
Fenuron	9	
Fluometuron	9	
Garlon (Triclopyr)	9	
Linuron	9	
Malathion	9	
Mcpa	9	
Methiocarb	9	
Methomyl	9	
Methyl Bromide (Bromomethane)	60	
Methyl Parathion	9	
Metribuzin	9	
Molinate	9	
Naphthalene	53	
Napropamide	9	
Neburon	9	
Norflurazon	9	
Ortho-Dichlorobenzene	60	
Oryzalin	9	
Oxamyl	9	
Parathion Or Ethyl Parathion	9	
Pebulate	9	
Pendimethalin	9	
Permethrin	9	

Butte (cont.)

Chemicals	Wells	Pos
Phorate	9	
Picloram	9	
Prometon	9	
Propachlor	9	
Propanil	9	
Propargite	9	
Propham	9	
Propoxur	9	
Propyzamide	9	
Simazine	9	
Sodium Hypochlorite	9	
Tebuthiuron	9	
Terbacil	28	
Terbufos	9	
Thiobencarb	9	
Total Aldicarb	9	
Triallate	9	
Trichlorobenzenes	60	
Trifluralin	9	
Xylene	60	

Colusa

(S)-Metolachlor	4	
2,4-D	4	
3-Hydroxycarbofuran	4	
4(2,4-DB), Dimethylamine Salt	4	
Acetochlor	4	
Acifluorfen, Sodium Salt	4	
Alachlor	4	
Aldicarb	4	
Aldicarb Sulfoxide	4	
Atrazine	4	1
Azinphos-Methyl (Guthion)	4	
Benefin (Benfluralin)	4	
Bentazon, Sodium Salt	4	4
Bromacil	4	1

Colusa (cont)

Chemicals	Wells	Pos
Bromoxynil Octanoate	4	
Butylate	4	
Carbaryl	4	
Carbofuran	4	1
Chlorothalonil	4	
Chlorpyrifos	4	
Chlorthal-Dimethyl (DCPA)	4	
Chlorthal-Dimethyl Acid Metabolites	4	
Clopyralid	4	
Cyanazine	4	
Deethyl-Atrazine	4	1
Diazinon	4	
Dicamba	4	
Dichlobenil (Casaron)	4	
Dichlorprop, Butoxyethanol Ester	4	
Dieldrin	4	
Dinoseb	4	
Disulfoton	4	
Diuron	4	1
DNOC, Sodium Salt	4	
EPTC	4	
Esfenvalerate	4	
Ethalfluralin	4	
Ethoprop (Prophos)	4	
Fenuron	4	
Fluometuron	4	
Garlon (Triclopyr)	4	
Linuron	4	
Malathion	4	
Mcpa	4	
Methiocarb	4	
Methomyl	4	
Methyl Parathion	4	
Metribuzin	4	
Molinate	4	3
Napropamide	4	
Neburon	4	
Norflurazon	4	

Colusa (cont)

Chemicals	Wells	Pos
Oryzalin	4	
Oxamyl	4	
Parathion Or Ethyl Parathion	4	
Pebulate	4	
Pendimethalin	4	
Permethrin	4	
Phorate	4	
Picloram	4	
Prometon	4	
Propachlor	4	
Propanil	4	
Propargite	4	
Propham	4	
Propoxur	4	
Propyzamide	4	
Simazine	4	3
Sodium Hypochlorite	4	
Tebuthiuron	4	
Terbacil	4	
Terbufos	4	
Thiobencarb	4	2
Total Aldicarb	4	
Triallate	4	
Trifluralin	4	

Contra Costa

1,3-Dichloropropene (1,3-D Telone)	4	
1,1,2,2-Tetrachloroethane	10	
1,2,4-Trichlorobenzene	10	
1,2-D + 1,3-D + C-3 Compounds	10	
1,2-Dichloropropane	10	
2,3,7,8-TCDD (Dioxin)	5	
2,4,5-T	1	
2,4,5-Tp	5	
2,4-D	5	
3-Hydroxycarbofuran	5	

Contra Costa (cont)

Chemicals	Wells	Pos
Alachlor	5	
Aldicarb	5	
Aldicarb Sulfone	5	
Aldicarb Sulfoxide	5	
Aldrin	5	
Atrazine	5	
Bentazon, Sodium Salt	5	
Benzene (Benzol)	10	
Bromacil	5	
Butachlor	5	
Carbaryl	5	
Carbofuran	5	
Chlordane	5	
Chloromethane (Methyl Chloride)	10	
Chlorothalonil	4	
Dalapon	5	
DBCP	6	1
DDE	1	
Diazinon	5	
Dicamba	3	
Dieldrin	5	
Dimethoate	5	
Dinoseb	5	
Diquat Dibromide	5	
Diuron	4	
Endothall	5	
Endrin	5	
EPTC	1	
Ethylene Dibromide	6	
Glyphosate, Isopropylamine Salt	5	
Heptachlor	5	
Heptachlor Epoxide	5	
Hexachlorobenzene	5	
Lindane (Gamma-Bhc)	5	
Methomyl	5	
Methoxychlor	5	
Methyl Bromide (Bromomethane)	10	
Metolachlor	5	

Contra Costa (cont)

Chemicals	Wells	Pos
Metribuzin	5	
Molinate	5	
Naphthalene	10	
Ortho-Dichlorobenzene	10	
Oxamyl	5	
Picloram	5	
Prometryn	5	
Propachlor	5	
Simazine	5	
Thiobencarb	5	
Toxaphene	5	
Trichlorobenzenes	10	
Xylene	6	

Fresno

1,3-Dichloropropene (1,3-D Telone)	5	
1,1,2,2-Tetrachloroethane	68	
1,2,4-Trichlorobenzene	68	
1,2-D + 1,3-D + C-3 Compounds	67	
1,2-Dichloropropane	68	1
2,4,5-T	5	
2,4,5-Tp	5	
2,4-D	5	
2-Hydroxycyclohexyl Hexazinone	4	
3-Hydroxycarbofuran	5	
ACET	4	
Acetochlor	9	
Alachlor	68	
Aldicarb	5	
Aldicarb Sulfone	5	
Aldicarb Sulfoxide	5	
Aldrin	8	
Atrazine	71	
Bentazon, Sodium Salt	5	
Benzene (Benzol)	70	
Bromacil	63	

Fresno (cont)

Chemicals	Wells	Pos
Butachlor	59	
Carbaryl	5	
Carbofuran	5	
Chlordane	16	
Chloromethane (Methyl Chloride)	67	6
Chlorothalonil	8	
Chlorthal-Dimethyl Acid Metabolites	9	
Dalapon	5	
DBCP	294	118
DDE	200	
Decyclohexyl-4-Hydroxy Hexazinone	4	
Deethyl-Atrazine	4	
Diaminochlorotriazine (DACT)	4	
Diazinon	59	
Dicamba	5	
Dieldrin	8	
Dimethoate	59	
Dinoseb	5	
Diuron	4	
Endrin	16	
EPTC	200	
Ethylene Dibromide	291	6
Heptachlor	16	
Heptachlor Epoxide	16	
Hexachlorobenzene	16	
Hexazinone	4	
Lindane (Gamma-Bhc)	16	
Methomyl	5	
Methoxychlor	16	
Methyl Bromide (Bromomethane)	67	1
Metolachlor	59	
Metribuzin	59	
Molinate	232	1
Monomethyl Hexazinone	4	
Naphthalene	66	
Norflurazon	4	
Ortho-Dichlorobenzene	68	
Oxamyl	5	

Fresno (cont)

Chemicals	Wells	Pos
Picloram	5	
Prometon	4	
Prometryn	59	
Propachlor	57	
Simazine	71	
Terbacil	9	
Thiobencarb	59	
Toxaphene	16	
Trichlorobenzenes	67	
Xylene	68	12

Glenn

Chemicals	Wells	Pos
(S)-Metolachlor	12	
1,1,2,2-Tetrachloroethane	14	
1,2,4-Trichlorobenzene	14	
1,2-D + 1,3-D + C-3 Compounds	14	
1,2-Dichloropropane	14	
2,4-D	12	
2-Hydroxycyclohexyl Hexazinone	4	
3-Hydroxycarbofuran	12	
4(2,4-DB), Dimethylamine Salt	12	
ACET	4	
Acetochlor	12	
Acifluorfen, Sodium Salt	12	
Alachlor	12	
Aldicarb	12	
Aldicarb Sulfoxide	12	
Atrazine	16	7
Azinphos-Methyl (Guthion)	12	1
Benefin (Benfluralin)	12	
Bentazon, Sodium Salt	12	8
Benzene (Benzol)	14	
Bromacil	16	
Bromoxynil Octanoate	12	
Butylate	12	
Carbaryl	12	

Glenn (cont)

Chemicals	Wells	Pos
Carbofuran	12	2
Chloromethane (Methyl Chloride)	14	
Chlorothalonil	12	
Chlorpyrifos	12	
Chlorthal-Dimethyl (DCPA)	12	
Chlorthal-Dimethyl Acid Metabolites	13	
Clopyralid	12	
Cyanazine	12	
Decyclohexyl-4-Hydroxy Hexazinone	4	
Deethyl-Atrazine	16	4
Diaminochlorotriazine (DACT)	4	
Diazinon	12	
Dicamba	12	
Dichlobenil (Casaron)	12	
Dichlorprop, Butoxyethanol Ester	12	
Dieldrin	12	
Dinoseb	12	
Disulfoton	12	
Diuron	16	1
DNOC, Sodium Salt	12	
EPTC	12	
Esfenvalerate	12	
Ethalfluralin	12	
Ethoprop (Prophos)	12	
Fenuron	12	
Fluometuron	12	
Garlon (Triclopyr)	12	
Hexazinone	4	
Linuron	12	
Malathion	12	
Mcpa	12	
Methiocarb	12	
Methomyl	12	
Methyl Bromide (Bromomethane)	14	
Methyl Parathion	12	
Metribuzin	12	
Molinate	12	1

Glenn (cont)

Chemicals	Wells	Pos
Monomethyl Hexazinone	4	
Naphthalene	14	
Napropamide	12	
Neburon	12	
Norflurazon	16	
Ortho-Dichlorobenzene	14	
Oryzalin	12	
Oxamyl	12	
Parathion Or Ethyl Parathion	12	
Pebulate	12	
Pendimethalin	12	
Permethrin	12	
Phorate	12	
Picloram	12	
Prometon	16	
Propachlor	12	
Propanil	12	
Propargite	12	
Propham	12	
Propoxur	12	
Propyzamide	12	
Simazine	16	4
Sodium Hypochlorite	12	
Tebuthiuron	12	1
Terbacil	12	
Terbufos	12	
Thiobencarb	12	1
Total Aldicarb	12	
Triallate	12	
Trichlorobenzenes	14	
Trifluralin	12	
Xylene	14	

Inyo

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	1	
1,1,2,2-Tetrachloroethane	13	
1,2,4-Trichlorobenzene	12	

Inyo (cont)

Chemicals	Wells	Pos
1,2-D + 1,3-D + C-3 Compounds	12	
1,2-Dichloropropane	13	
2,3,7,8-TCDD (Dioxin)	3	
2,4,5-Tp	2	
2,4-D	2	
3-Hydroxycarbofuran	3	
Alachlor	2	
Aldicarb	3	
Aldicarb Sulfone	3	
Aldicarb Sulfoxide	3	
Aldrin	2	
Atrazine	2	
Bentazon, Sodium Salt	2	
Benzene (Benzol)	13	
Bromacil	2	
Butachlor	2	
Carbaryl	3	
Carbofuran	3	
Chlordane	2	
Chloromethane (Methyl Chloride)	13	
Chlorothalonil	2	
Dalapon	2	
DBCP	11	1
Diazinon	2	
Dicamba	2	
Dieldrin	2	
Dimethoate	2	
Dinoseb	2	
Diquat Dibromide	3	
Endothall	3	
Endrin	2	
Ethylene Dibromide	11	
Glyphosate, Isopropylamine Salt	3	
Heptachlor	2	
Heptachlor Epoxide	2	
Hexachlorobenzene	2	
Lindane (Gamma-Bhc)	2	
Methomyl	3	

Inyo (cont)

Chemicals	Wells	Pos
Methoxychlor	2	
Methyl Bromide (Bromomethane)	13	
Metolachlor	2	
Metribuzin	2	
Molinate	2	
Naphthalene	12	
Ortho-Dichlorobenzene	13	
Oxamyl	3	
Picloram	2	
Prometryn	2	
Propachlor	2	
Simazine	4	
Thiobencarb	2	
Toxaphene	2	
Trichlorobenzenes	12	
Xylene	13	

Kern

1,3-Dichloropropene (1,3-D Telone)	26	
1,1,2,2-Tetrachloroethane	283	
1,2,4-Trichlorobenzene	258	
1,2-D + 1,3-D + C-3 Compounds	256	
1,2-Dichloropropane	284	8
2,3,7,8-TCDD (Dioxin)	11	
2,4,5-T	7	
2,4,5-Tp	29	
2,4-D	29	
3-Hydroxycarbofuran	27	
Acetochlor	56	
Alachlor	186	
Aldicarb	30	
Aldicarb Sulfone	28	
Aldicarb Sulfoxide	28	
Aldrin	50	
Atraton	30	
Atrazine	192	
Bentazon, Sodium Salt	29	

Kern (cont)

Chemicals	Wells	Pos
Benzene (Benzol)	283	1
Bhc (Other Than Gamma Isomer)	30	
Bromacil	173	
Butachlor	153	
Captan	8	
Carbaryl	27	
Carbofuran	29	
Carbophenothion	8	
Chlordane	52	
Chloromethane (Methyl Chloride)	283	
Chlorothalonil	25	
Chlorthal-Dimethyl Acid Metabolites	48	
Dalapon	29	
DBCP	180	25
DDD	3	
DDE	50	
DDT	3	
Demeton	8	
Diazinon	173	
Dicamba	28	
Dicofol	8	
Dieldrin	42	
Dimethoate	175	
Dinoseb	29	
Diquat Dibromide	12	
Disulfoton	8	
Diuron	15	
Endosulfan	11	
Endosulfan Sulfate	11	
Endothall	15	
Endrin	52	
Endrin Aldehyde	11	
EPTC	47	
Ethylene Dibromide	170	7
Glyphosate, Isopropylamine Salt	12	
Heptachlor	52	
Heptachlor Epoxide	52	
Hexachlorobenzene	72	

Kern (cont)

Chemicals	Wells	Pos
Lindane (Gamma-Bhc)	73	
Methomyl	27	
Methoxychlor	73	
Methyl Bromide (Bromomethane)	283	
Metolachlor	175	
Metribuzin	175	
Molinate	175	
Naphthalene	246	
Nitrofen	8	
Ortho-Dichlorobenzene	282	
Oxamyl	28	
Pendimethalin	1	
Pentachloronitrobenzene (Pcnb)	8	
Picloram	29	
Prometon	38	
Prometryn	175	
Propachlor	136	
Secbumeton	30	
Simazine	192	
Simetryn	8	
Terbacil	56	
Terbutryn	38	
Thiobencarb	175	
Toxaphene	52	
Trichlorobenzenes	256	
Xylene	284	1

Kings

Chemicals	Wells	Pos
1,1,2,2-Tetrachloroethane	7	
1,2,4-Trichlorobenzene	7	
1,2-D + 1,3-D + C-3 Compounds	7	
1,2-Dichloropropane	7	
2,4,5-T	4	
2,4,5-Tp	4	
2,4-D	4	
3-Hydroxycarbofuran	4	
Acetochlor	7	

Kings (cont)

Chemicals	Wells	Pos
Alachlor	14	
Aldicarb	4	
Aldicarb Sulfone	4	
Aldicarb Sulfoxide	4	
Aldrin	4	
Atrazine	14	
Bentazon, Sodium Salt	4	
Benzene (Benzol)	9	2
Bromacil	14	
Butachlor	14	
Carbaryl	4	
Carbofuran	4	
Chlordane	4	
Chloromethane (Methyl Chloride)	7	
Chlorothalonil	4	
Dalapon	4	
DBCP	16	
DDE	26	
Diazinon	13	
Dicamba	4	
Dieldrin	4	
Dimethoate	14	
Dinoseb	4	
Diquat Dibromide	2	
Diuron	9	
Endothall	4	
Endrin	4	
EPTC	26	
Ethylene Dibromide	16	
Glyphosate, Isopropylamine Salt	2	
Heptachlor	4	
Heptachlor Epoxide	4	
Hexachlorobenzene	4	
Lindane (Gamma-Bhc)	4	
Methomyl	4	
Methoxychlor	4	
Methyl Bromide (Bromomethane)	7	
Metolachlor	14	

Kings (cont)

Chemicals	Wells	Pos
Metribuzin	14	
Molinate	28	
Naphthalene	7	
Ortho-Dichlorobenzene	7	
Oxamyl	4	
Picloram	4	
Prometryn	14	
Propachlor	14	
Simazine	14	
Thiobencarb	14	
Toxaphene	4	
Trichlorobenzenes	7	
Xylene	7	

Los Angeles

1,3-Dichloropropene (1,3-D Telone)	21	
1,1,2,2-Tetrachloroethane	718	1
1,2,4-Trichlorobenzene	721	1
1,2-D + 1,3-D + C-3 Compounds	695	1
1,2-Dichloropropane	718	3
2,3,7,8-TCDD (Dioxin)	79	
2,4,5-T	7	
2,4,5-Tp	91	1
2,4,6-Trichlorophenol	3	
2,4-D	92	
2,4-Dinitrophenol	3	
3-Hydroxycarbofuran	58	1
Acenapthene	3	
Acetochlor	75	1
Acifluorfen, Sodium Salt	5	
Alachlor	217	
Aldicarb	75	
Aldicarb Sulfone	75	
Aldicarb Sulfoxide	75	
Aldrin	102	1
Atrazine	348	
Bentazon, Sodium Salt	89	

Los Angeles (cont)

Chemicals	Wells	Pos
Benzene (Benzol)	718	1
Bhc (Other Than Gamma Isomer)	6	
Bromacil	178	
Butachlor	159	1
Carbaryl	69	
Carbofuran	80	
Carbon Disulfide	13	
Chlordane	119	1
Chloromethane (Methyl Chloride)	695	12
Chlorothalonil	67	
Chlorthal-Dimethyl (DCPA)	1	
Chlorthal-Dimethyl Acid Metabolites	79	9
Dalapon	91	
DBCP	364	12
DDD	6	
DDE	88	1
DDT	6	
Diazinon	174	
Dicamba	73	
Dieldrin	102	1
Dimethoate	166	
Dinoseb	91	1
Diquat Dibromide	81	
Diuron	41	
Endosulfan	6	
Endosulfan Sulfate	6	
Endothall	74	
Endrin	152	1
Endrin Aldehyde	6	
EPTC	72	
Ethylene Dibromide	361	1
Glyphosate, Isopropylamine Salt	81	
Heptachlor	117	1
Heptachlor Epoxide	152	1
Hexachlorobenzene	148	
Lindane (Gamma-Bhc)	152	
Malathion	1	
Methiocarb	5	

Los Angeles (cont)

Chemicals	Wells	Pos
Methomyl	64	
Methoxychlor	152	
Methyl Bromide (Bromomethane)	695	1
Methyl Parathion	1	
Metolachlor	159	1
Metribuzin	159	
Molinate	217	
Naphthalene	573	1
Ortho-Dichlorobenzene	721	
Oxamyl	79	
Parathion Or Ethyl Parathion	1	
Picloram	91	1
Prometon	13	
Prometryn	156	
Propachlor	123	1
Propazine	8	
Propoxur	5	
Simazine	351	
Terbacil	75	1
Thiobencarb	434	
Toxaphene	117	
Trichlorobenzenes	695	1
Trifluralin	5	
Xylene	718	2

Madera

1,1,2,2-Tetrachloroethane	30	
1,2,4-Trichlorobenzene	30	
1,2-D + 1,3-D + C-3 Compounds	30	
1,2-Dichloropropane	30	
2-Hydroxycyclohexyl Hexazinone	1	
ACET	1	1
Alachlor	23	
Aldrin	1	
Atrazine	42	
Benzene (Benzol)	30	
Bromacil	11	

Madera (cont)

Chemicals	Wells	Pos
Butachlor	10	
Chlordane	8	
Chloromethane (Methyl Chloride)	30	1
Chlorothalonil	1	
DBCP	26	7
Decyclohexyl-4-Hydroxy Hexazinone	1	
Deethyl-Atrazine	1	
Diaminochlorotriazine (DACT)	1	1
Diazinon	10	
Dieldrin	1	
Dimethoate	10	
Diuron	1	
Endothall	1	
Endrin	8	
Ethylene Dibromide	26	1
Heptachlor	8	
Heptachlor Epoxide	8	
Hexachlorobenzene	8	
Hexazinone	1	
Lindane (Gamma-Bhc)	8	
Methoxychlor	8	
Methyl Bromide (Bromomethane)	30	
Metolachlor	10	
Metribuzin	10	
Molinate	10	
Monomethyl Hexazinone	1	
Naphthalene	29	
Norflurazon	1	
Ortho-Dichlorobenzene	30	
Prometon	1	
Prometryn	10	
Propachlor	1	
Simazine	42	
Thiobencarb	10	
Toxaphene	8	
Trichlorobenzenes	30	
Xylene	30	

Merced

Chemicals	Wells	Pos
1,1,2,2-Tetrachloroethane	61	
1,2,4-Trichlorobenzene	61	
1,2-D + 1,3-D + C-3 Compounds	61	
1,2-Dichloropropane	61	
2,4,5-T	34	
2,4,5-Tp	35	
2,4-D	35	
2-Hydroxycyclohexyl Hexazinone	6	
3-Hydroxycarbofuran	35	
4(2,4-DB), Dimethylamine Salt	4	
ACET	6	
Acetochlor	2	
Alachlor	50	
Aldicarb	35	
Aldicarb Sulfone	35	
Aldicarb Sulfoxide	35	
Aldrin	36	
Atrazine	56	
Bentazon, Sodium Salt	35	
Benzene (Benzol)	61	
Bromacil	51	
Butachlor	44	
Carbaryl	35	
Carbofuran	35	
Chlordane	38	
Chloromethane (Methyl Chloride)	61	
Chlorothalonil	32	
Dalapon	35	
DBCP	67	14
DDE	18	
Decyclohexyl-4-Hydroxy Hexazinone	6	
Deethyl-Atrazine	6	
Diaminochlorotriazine (DACT)	6	
Diazinon	44	
Dicamba	35	
Dieldrin	37	
Dimethoate	38	

Merced (cont)

Chemicals	Wells	Pos
Dinoseb	35	
Diquat Dibromide	32	
Diuron	37	1
Endothall	32	
Endrin	38	
EPTC	18	
Ethylene Dibromide	62	
Glyphosate, Isopropylamine Salt	33	
Heptachlor	38	
Heptachlor Epoxide	38	
Hexachlorobenzene	38	
Hexazinone	6	
Lindane (Gamma-Bhc)	38	
Methiocarb	4	
Methomyl	35	
Methoxychlor	38	
Methyl Bromide (Bromomethane)	61	
Metolachlor	44	
Metribuzin	44	
Molinate	45	
Monomethyl Hexazinone	6	
Naphthalene	61	
Norflurazon	6	
Ortho-Dichlorobenzene	61	
Oxamyl	35	
Picloram	35	
Prometon	6	
Prometryn	44	
Propachlor	38	
Propoxur	4	1
Simazine	54	
Thiobencarb	44	
Toxaphene	38	
Trichlorobenzenes	61	
Xylene	61	

Monterey

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	16	
1,1,2,2-Tetrachloroethane	84	
1,2,4-Trichlorobenzene	84	
1,2-D + 1,3-D + C-3 Compounds	81	
1,2-Dichloropropane	84	
2,3,7,8-TCDD (Dioxin)	4	
2,4,5-T	38	
2,4,5-Tp	41	
2,4-D	41	
3-Hydroxycarbofuran	41	
4(2,4-DB), Dimethylamine Salt	21	
Acenapthene	21	
Acetochlor	9	
Acifluorfen, Sodium Salt	21	
Alachlor	48	
Aldicarb	41	
Aldicarb Sulfone	41	
Aldicarb Sulfoxide	41	
Aldrin	45	
Atrazine	48	
Bentazon, Sodium Salt	41	
Benzene (Benzol)	84	
Bromacil	48	
Butachlor	48	
Carbaryl	41	
Carbofuran	41	
Carbon Disulfide	16	
Chlordane	45	
Chloromethane (Methyl Chloride)	79	
Chlorothalonil	24	
Chlorthal-Dimethyl Acid Metabolites	6	1
Dalapon	41	
DBCP	54	
DDE	26	
DDT	21	
Diazinon	27	
Dicamba	41	

Monterey (cont)

Chemicals	Wells	Pos
Dichlorprop, Butoxyethanol Ester	21	1
Dieldrin	45	
Dimethoate	23	
Dinoseb	41	
Diquat Dibromide	41	
Diuron	12	
Endothall	41	
Endrin	45	
EPTC	26	
Ethylene Dibromide	47	1
Glyphosate, Isopropylamine Salt	37	
Heptachlor	45	
Heptachlor Epoxide	45	
Hexachlorobenzene	45	
Lindane (Gamma-Bhc)	41	
Methiocarb	24	
Methomyl	41	
Methoxychlor	45	
Methyl Bromide (Bromomethane)	81	
Metolachlor	48	
Metribuzin	48	
Molinate	48	
Naphthalene	86	
Ortho-Dichlorobenzene	84	
Oxamyl	41	
Picloram	41	3
Prometryn	27	
Propachlor	48	
Propazine	21	
Propoxur	3	
Simazine	48	
Terbacil	9	
Thiobencarb	44	
Toxaphene	45	
Trichlorobenzenes	81	
Trifluralin	21	
Xylene	82	1

Orange

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	224	
1,1,2,2-Tetrachloroethane	235	
1,2,4-Trichlorobenzene	235	
1,2-D + 1,3-D + C-3 Compounds	235	
1,2-Dichloropropane	235	
2,3,7,8-TCDD (Dioxin)	3	
2,4,5-T	1	
2,4,5-Tp	200	
2,4,6-Trichlorophenol	16	
2,4-D	200	
2,4-Dinitrophenol	16	
3-Hydroxycarbofuran	26	
4(2,4-DB), Dimethylamine Salt	1	
Acenapthene	19	
Acetochlor	56	
Acifluorfen, Sodium Salt	1	
Alachlor	231	
Aldicarb	26	
Aldicarb Sulfone	26	
Aldicarb Sulfoxide	26	
Aldrin	194	
Atrazine	231	
Bentazon, Sodium Salt	200	
Benzene (Benzol)	235	
Bhc (Other Than Gamma Isomer)	187	
Bromacil	226	
Butachlor	228	
Carbaryl	26	
Carbofuran	26	
Chlordane	35	
Chloromethane (Methyl Chloride)	235	
Chlorothalonil	190	
Dalapon	199	
DBCP	228	
DDD	187	
DDE	187	
DDT	187	

Orange (cont)

Chemicals	Wells	Pos
Diazinon	132	1
Dicamba	200	
Dieldrin	194	
Dimethoate	127	
Dinoseb	200	
Diquat Dibromide	23	
Disulfoton	14	
Diuron	28	
Endosulfan	187	
Endosulfan Sulfate	187	
Endothall	21	
Endrin	194	
Endrin Aldehyde	187	
Ethylene Dibromide	228	
Fonofos (Dyfonate)	14	
Glyphosate, Isopropylamine Salt	20	
Heptachlor	194	
Heptachlor Epoxide	194	
Hexachlorobenzene	194	
Lindane (Gamma-Bhc)	193	
Linuron	16	
Malathion	123	
Methiocarb	23	
Methomyl	26	
Methoxychlor	194	
Methyl Bromide (Bromomethane)	235	
Methyl Parathion	123	
Metolachlor	228	
Metribuzin	129	
Molinate	227	
Naphthalene	234	
Ortho-Dichlorobenzene	235	
Oxamyl	26	
Paraquat Dichloride	20	
Parathion Or Ethyl Parathion	123	
Picloram	200	
Prometon	92	

Orange (cont)

Chemicals	Wells	Pos
Prometryn	226	
Propachlor	226	
Propoxur	22	
Simazine	231	
Thiobencarb	227	
Toxaphene	36	
Trichlorobenzenes	235	
Xylene	235	

Placer

(S)-Metolachlor	3	
1,1,2,2-Tetrachloroethane	19	
1,2,4-Trichlorobenzene	19	
1,2-D + 1,3-D + C-3 Compounds	19	
1,2-Dichloropropane	19	
2,3,7,8-TCDD (Dioxin)	1	
2,4,5-T	4	
2,4,5-Tp	5	
2,4-D	8	
3-Hydroxycarbofuran	8	
4(2,4-DB), Dimethylamine Salt	3	
Acetochlor	3	
Acifluorfen, Sodium Salt	2	
Alachlor	11	
Aldicarb	8	
Aldicarb Sulfone	5	
Aldicarb Sulfoxide	8	
Aldrin	5	
Atrazine	11	
Azinphos-Methyl (Guthion)	3	
Benefin (Benfluralin)	3	
Bentazon, Sodium Salt	8	
Benzene (Benzol)	19	
Bromacil	11	
Bromoxynil Octanoate	2	
Butachlor	8	
Butylate	3	

Placer (cont)

Chemicals	Wells	Pos
Carbaryl	8	
Carbofuran	8	
Chlordane	5	
Chloromethane (Methyl Chloride)	19	1
Chlorothalonil	8	
Chlorpyrifos	3	
Chlorthal-Dimethyl (DCPA)	3	
Chlorthal-Dimethyl Acid Metabolites	4	
Clopyralid	3	
Cyanazine	3	
Dalapon	5	
DBCP	6	
DDE	1	
Deethyl-Atrazine	3	
Diazinon	11	
Dicamba	8	
Dichlobenil (Casaron)	3	
Dichlorprop, Butoxyethanol Ester	3	
Dieldrin	8	
Dimethoate	8	
Dinoseb	8	
Diquat Dibromide	5	
Disulfoton	3	
Diuron	4	
DNOC, Sodium Salt	3	
Endothall	5	
Endrin	5	
EPTC	4	
Esfenvalerate	3	
Ethalfluralin	3	
Ethoprop (Prophos)	3	
Ethylene Dibromide	6	
Fenuron	3	
Fluometuron	3	
Garlon (Triclopyr)	3	
Glyphosate, Isopropylamine Salt	5	
Heptachlor	5	
Heptachlor Epoxide	5	

Placer (cont)

Chemicals	Wells	Pos
Hexachlorobenzene	5	
Lindane (Gamma-Bhc)	5	
Linuron	3	
Malathion	3	
Mcpa	3	
Methiocarb	3	
Methomyl	8	
Methoxychlor	5	
Methyl Bromide (Bromomethane)	19	
Methyl Parathion	3	
Metolachlor	8	
Metribuzin	11	
Molinate	12	
Naphthalene	19	
Napropamide	3	
Neburon	3	
Norflurazon	3	
Ortho-Dichlorobenzene	19	
Oryzalin	3	
Oxamyl	8	
Parathion Or Ethyl Parathion	3	
Pebulate	3	
Pendimethalin	3	
Permethrin	3	
Phorate	3	
Picloram	8	
Prometon	3	
Prometryn	7	
Propachlor	11	
Propanil	3	
Propargite	3	
Propham	3	
Propoxur	3	
Propyzamide	3	
Simazine	11	
Sodium Hypochlorite	3	
Tebuthiuron	3	

Placer (cont)

Chemicals	Wells	Pos
Terbacil	3	
Terbufos	3	
Thiobencarb	11	
Total Aldicarb	3	
Toxaphene	5	
Triallate	3	
Trichlorobenzenes	19	
Trifluralin	3	
Xylene	19	

Riverside

1,1,2,2-Tetrachloroethane	252	
1,2,4-Trichlorobenzene	252	
1,2-D + 1,3-D + C-3 Compounds	254	
1,2-Dichloropropane	252	
2,3,7,8-TCDD (Dioxin)	32	
2,4,5-Tp	73	
2,4-D	73	
3-Hydroxycarbofuran	80	
Acetochlor	79	
Alachlor	113	
Aldicarb	80	
Aldicarb Sulfone	80	
Aldicarb Sulfoxide	78	
Aldrin	52	
Atrazine	128	
Bentazon, Sodium Salt	73	
Benzene (Benzol)	252	
Bromacil	129	
Butachlor	113	
Carbaryl	80	
Carbofuran	80	
Chlordane	50	
Chloromethane (Methyl Chloride)	254	
Chlorothalonil	52	
Chlorthal-Dimethyl Acid Metabolites	74	2
Dalapon	73	

Riverside (cont)

Chemicals	Wells	Pos
DBCP	150	9
DDE	75	
Diazinon	123	
Dicamba	73	
Dieldrin	52	
Dimethoate	129	
Dinoseb	73	
Diquat Dibromide	42	
Diuron	99	
Endothall	38	
Endrin	50	
EPTC	75	
Ethylene Dibromide	150	
Glyphosate, Isopropylamine Salt	73	
Heptachlor	51	
Heptachlor Epoxide	51	
Hexachlorobenzene	52	
Lindane (Gamma-Bhc)	50	
Methomyl	80	
Methoxychlor	50	
Methyl Bromide (Bromomethane)	254	
Metolachlor	113	
Metribuzin	113	
Molinate	170	
Naphthalene	254	
Ortho-Dichlorobenzene	252	
Oxamyl	80	
Picloram	73	
Prometryn	129	
Propachlor	52	
Simazine	128	
Terbacil	75	
Thiobencarb	129	
Toxaphene	50	
Trichlorobenzenes	254	
Xylene	252	

Sacramento

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	27	
(S)-Metolachlor	26	
1,1,2,2-Tetrachloroethane	140	
1,2,4-Trichlorobenzene	140	
1,2-D + 1,3-D + C-3 Compounds	140	
1,2-Dichloropropane	140	1
2,3,7,8-TCDD (Dioxin)	34	
2,4,5-T	41	
2,4,5-Tp	44	
2,4-D	70	
3-Hydroxycarbofuran	103	
4(2,4-DB), Dimethylamine Salt	26	
Acetochlor	38	
Acifluorfen, Sodium Salt	24	
Alachlor	98	
Aldicarb	103	
Aldicarb Sulfone	77	
Aldicarb Sulfoxide	103	
Aldrin	65	
Ametryne	2	
Aminocarb	1	
Atrazine	102	4
Azinphos-Methyl (Guthion)	26	
Barban	1	
Benefin (Benfluralin)	26	
Bentazon, Sodium Salt	70	1
Benzene (Benzol)	140	
Bhc (Other Than Gamma Isomer)	14	
Bromacil	102	1
Bromoxynil Octanoate	24	
Butachlor	76	
Butylate	27	
Carbaryl	103	
Carbofuran	103	
Carbon Disulfide	27	
Carbophenothion	10	
Chlordane	42	
Chloromethane (Methyl Chloride)	140	

Sacramento (cont)

Chemicals	Wells	Pos
Chlorothalonil	68	
Chlorpropham	5	
Chlorpyrifos	26	
Chlorthal-Dimethyl (DCPA)	26	
Chlorthal-Dimethyl Acid Metabolites	27	
Clopyralid	26	
Cyanazine	26	
Cycloate	1	
Dalapon	44	
DBCP	48	3
DDE	69	
DDVP (Dichlorvos)	1	
Deethyl-Atrazine	26	7
Demeton	1	
Diazinon	102	
Dicamba	70	
Dichlobenil (Casaron)	26	
Dichlorprop, Butoxyethanol Ester	26	1
Dieldrin	89	1
Dimethoate	76	
Dinoseb	70	
Diphenamid	1	
Diquat Dibromide	65	1
Disulfoton	27	
Diuron	44	
DNOC, Sodium Salt	26	
Endothall	65	1
Endrin	63	
EPTC	95	
Esfenvalerate	26	
Ethalfluralin	26	
Ethion	10	
Ethoprop (Prophos)	26	
Ethylene Dibromide	48	1
Fenamiphos	1	
Fenuron	27	
Fenuron Trichloroacetate (TCA)	1	

Sacramento (cont)

Chemicals	Wells	Pos
Fluometuron	27	
Garlon (Triclopyr)	26	
Glyphosate, Isopropylamine Salt	65	
Heptachlor	44	
Heptachlor Epoxide	65	
Hexachlorobenzene	65	
Hexazinone	1	
Lindane (Gamma-Bhc)	65	
Linuron	27	
Malathion	36	
Mcpa	26	
Merphos	1	
Methiocarb	27	
Methomyl	103	
Methoxychlor	63	
Methyl Bromide (Bromomethane)	140	
Methyl Parathion	26	
Metolachlor	76	
Metribuzin	102	
Mexacarbate	1	
Molinate	151	
Monuron	1	
Monuron-TCA	1	
Naphthalene	140	
Napropamide	27	
Neburon	27	
Norflurazon	26	
Ortho-Dichlorobenzene	140	
Oryzalin	26	
Oxamyl	103	
Parathion Or Ethyl Parathion	36	
Pebulate	26	
Pendimethalin	26	
Pentachloronitrobenzene (Pcnb)	1	
Permethrin	26	
Phorate	26	
Picloram	70	

Sacramento (cont)

Chemicals	Wells	Pos
Prometon	27	
Prometryn	76	
Propachlor	102	
Propanil	26	
Propargite	26	
Propazine	1	
Propham	27	
Propoxur	40	
Propyzamide	26	
Siduron	1	
Simazine	102	2
Simetryn	1	
Sodium Hypochlorite	26	
Tebuthiuron	27	1
Terbacil	30	
Terbufos	26	
Terbutryn	1	
Tetrachlorvinphos (Stirofos)	1	
Thiobencarb	114	
Total Aldicarb	26	
Toxaphene	44	
Triadimefon	1	
Triallate	26	
Trichlorobenzenes	140	
Trifluralin	26	
Vernolate	1	
Xylene	140	

San Bernardino

Chemicals	Wells	Pos
1,1,2,2-Tetrachloroethane	398	
1,2,4-Trichlorobenzene	398	
1,2-D + 1,3-D + C-3 Compounds	397	
1,2-Dichloropropane	398	
2,3,7,8-TCDD (Dioxin)	189	
2,4,5-Tp	220	
2,4,6-Trichlorophenol	2	
2,4-D	221	

San Bernardino (cont)

Chemicals	Wells	Pos
2,4-Dinitrophenol	2	
3-Hydroxycarbofuran	199	
Acetochlor	24	
Alachlor	216	
Aldicarb	199	
Aldicarb Sulfone	199	
Aldicarb Sulfoxide	193	
Aldrin	220	
Atrazine	216	
Bentazon, Sodium Salt	221	
Benzene (Benzol)	400	
Bromacil	215	
Butachlor	215	
Carbaryl	199	
Carbofuran	198	
Chlordane	205	
Chloromethane (Methyl Chloride)	398	5
Chlorothalonil	203	
Chlorthal-Dimethyl Acid Metabolites	23	
Dalapon	221	
DBCP	350	70
DDE	16	
Diazinon	212	
Dicamba	220	
Dieldrin	220	
Dimethoate	215	
Dinoseb	220	
Diquat Dibromide	195	
Diuron	106	
Endothall	196	
Endrin	221	
EPTC	16	
Ethylene Dibromide	343	
Glyphosate, Isopropylamine Salt	209	
Heptachlor	205	
Heptachlor Epoxide	207	
Hexachlorobenzene	221	

San Bernardino (cont)

Chemicals	Wells	Pos
Lindane (Gamma-Bhc)	221	
Methomyl	199	
Methoxychlor	221	
Methyl Bromide (Bromomethane)	398	
Metolachlor	215	
Metribuzin	215	
Molinate	260	
Naphthalene	374	
Ortho-Dichlorobenzene	398	
Oxamyl	200	
Picloram	221	
Prometryn	214	
Propachlor	220	
Simazine	260	
Terbacil	18	
Thiobencarb	216	
Toxaphene	203	
Trichlorobenzenes	397	
Xylene	398	

San Diego

1,3-Dichloropropene (1,3-D Telone)	4	
1,1,2,2-Tetrachloroethane	48	
1,2,4-Trichlorobenzene	48	
1,2-D + 1,3-D + C-3 Compounds	48	
1,2-Dichloropropane	48	1
2,3,7,8-TCDD (Dioxin)	28	
2,4,5-T	16	
2,4,5-Tp	31	
2,4-D	31	
3-Hydroxycarbofuran	30	
4(2,4-DB), Dimethylamine Salt	1	
Acenapthene	2	
Alachlor	44	
Aldicarb	23	
Aldicarb Sulfone	23	

San Diego (cont)

Chemicals	Wells	Pos
Aldicarb Sulfoxide	32	
Aldrin	24	
Atrazine	47	
Bentazon, Sodium Salt	32	
Benzene (Benzol)	48	
Bromacil	44	
Butachlor	44	
Carbaryl	32	
Carbofuran	31	
Carbon Disulfide	2	
Chlordane	24	
Chloromethane (Methyl Chloride)	48	1
Chlorothalonil	20	
Chlorthal-Dimethyl Acid Metabolites	1	1
Dalapon	30	
DBCP	50	
DDE	2	
DDT	2	
Diazinon	41	
Dicamba	31	
Dieldrin	24	
Dimethoate	40	
Dinoseb	31	
Diquat Dibromide	20	
Diuron	23	
Endosulfan Sulfate	4	
Endothall	16	
Endrin	24	
EPTC	2	
Ethylene Dibromide	50	
Glyphosate, Isopropylamine Salt	30	
Heptachlor	24	
Heptachlor Epoxide	24	
Hexachlorobenzene	24	
Lindane (Gamma-Bhc)	23	
Methiocarb	1	
Methomyl	32	
Methoxychlor	24	

San Diego (cont)

Chemicals	Wells	Pos
Methyl Bromide (Bromomethane)	48	
Metolachlor	42	
Metribuzin	43	
Molinate	44	
Naphthalene	27	
Ortho-Dichlorobenzene	48	
Oxamyl	32	
Paraquat Dichloride	1	
Picloram	31	
Prometryn	41	
Propachlor	36	
Propazine	2	
Propoxur	1	
Simazine	47	
Thiobencarb	44	
Toxaphene	24	
Trichlorobenzenes	48	
Trifluralin	2	
Xylene	48	

San Joaquin

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	7	
1,1,2,2-Tetrachloroethane	64	
1,2,4-Trichlorobenzene	64	
1,2-D + 1,3-D + C-3 Compounds	64	
1,2-Dichloropropane	64	
2,3,7,8-TCDD (Dioxin)	29	
2,4,5-T	5	
2,4,5-Tp	66	
2,4-D	66	
2-Hydroxycyclohexyl Hexazinone	26	
3-Hydroxycarbofuran	56	
ACET	35	3
Acetochlor	16	
Alachlor	77	
Aldicarb	57	

San Joaquin (cont)

Chemicals	Wells	Pos
Aldicarb Sulfone	57	
Aldicarb Sulfoxide	57	
Aldrin	49	
Ametryne	8	
Aminocarb	1	
Atrazine	113	
Barban	1	
Bentazon, Sodium Salt	66	
Benzene (Benzol)	64	
Bhc (Other Than Gamma Isomer)	1	
Bromacil	111	1
Butachlor	60	
Butylate	8	
Carbaryl	57	
Carbofuran	59	
Chlordane	49	
Chloromethane (Methyl Chloride)	64	4
Chlorothalonil	18	
Chlorpropham	9	
Chlorthal-Dimethyl (DCPA)	1	
Chlorthal-Dimethyl Acid Metabolites	19	
Cycloate	8	
Dalapon	66	
DBCP	123	25
DDD	1	
DDE	15	
DDT	1	
DDVP (Dichlorvos)	8	
Decyclohexyl-4-Hydroxy Hexazinone	26	
Deethyl-Atrazine	35	3
Demeton	8	
Diaminochlorotriazine (DACT)	35	5
Diazinon	63	
Dicamba	64	
Dieldrin	49	
Dimethoate	59	
Dinoseb	66	

San Joaquin (cont)

Chemicals	Wells	Pos
Diphenamid	8	
Diquat Dibromide	58	
Disulfoton	8	
Diuron	41	3
Endosulfan	1	
Endosulfan Sulfate	1	
Endothall	59	
Endrin	49	
Endrin Aldehyde	1	
EPTC	22	
Ethylene Dibromide	121	4
Fenamiphos	8	
Fenuron	1	
Fenuron Trichloroacetate (TCA)	1	
Fluometuron	1	
Glyphosate, Isopropylamine Salt	66	
Heptachlor	49	
Heptachlor Epoxide	49	
Hexachlorobenzene	48	
Hexazinone	43	2
Lindane (Gamma-Bhc)	49	
Linuron	1	
Merphos	8	
Methiocarb	20	
Methomyl	57	
Methoxychlor	48	
Methyl Bromide (Bromomethane)	64	
Metolachlor	63	
Metribuzin	63	
Mexacarbate	1	
Molinate	63	
Monomethyl Hexazinone	26	
Monuron	1	
Monuron-TCA	1	
Naphthalene	58	
Napropamide	8	
Neburon	1	

San Joaquin (cont)

Chemicals	Wells	Pos
Norflurazon	35	
Ortho-Dichlorobenzene	64	
Oxamyl	59	
Picloram	66	
Prometon	43	
Prometryn	63	
Propachlor	50	
Propazine	8	
Propoxur	20	
Simazine	113	3
Simetryn	8	
Tebuthiuron	8	
Terbacil	16	
Terbutryn	8	
Tetrachlorvinphos (Stirofos)	8	
Thiobencarb	62	
Toxaphene	49	
Triadimefon	8	
Trichlorobenzenes	64	
Vernolate	8	
Xylene	64	

San Mateo

1,1,2,2-Tetrachloroethane	21	
1,2,4-Trichlorobenzene	21	
1,2-D + 1,3-D + C-3 Compounds	21	
1,2-Dichloropropane	21	1
2,3,7,8-TCDD (Dioxin)	1	
2,4,5-T	5	
2,4,5-Tp	7	
2,4-D	7	
3-Hydroxycarbofuran	5	
Acetochlor	1	
Alachlor	7	
Aldicarb	5	
Aldicarb Sulfone	5	
Aldicarb Sulfoxide	5	

San Mateo (cont)

Chemicals	Wells	Pos
Aldrin	5	
Atrazine	7	
Bentazon, Sodium Salt	7	
Benzene (Benzol)	21	
Bromacil	7	
Butachlor	7	
Carbaryl	5	
Carbofuran	5	
Chlordane	5	
Chloromethane (Methyl Chloride)	21	
Chlorothalonil	5	
Chlorthal-Dimethyl Acid Metabolites	1	
Dalapon	7	
DBCP	6	
DDE	4	
Diazinon	7	
Dicamba	7	
Dieldrin	5	
Dimethoate	7	
Dinoseb	7	
Diquat Dibromide	5	
Endothall	2	
Endrin	5	
EPTC	4	
Ethylene Dibromide	6	
Glyphosate, Isopropylamine Salt	5	
Heptachlor	5	
Heptachlor Epoxide	5	
Hexachlorobenzene	5	
Lindane (Gamma-Bhc)	5	
Methomyl	5	
Methoxychlor	5	
Methyl Bromide (Bromomethane)	21	
Metolachlor	7	
Metribuzin	7	
Molinate	10	
Naphthalene	19	

San Mateo (cont)

Chemicals	Wells	Pos
Ortho-Dichlorobenzene	21	
Oxamyl	5	
Picloram	7	
Prometryn	7	
Propachlor	7	
Simazine	7	
Terbacil	1	
Thiobencarb	7	
Toxaphene	5	
Trichlorobenzenes	21	
Xylene	21	1

Santa Barbara

1,1,2,2-Tetrachloroethane	44	
1,2,4-Trichlorobenzene	43	
1,2-D + 1,3-D + C-3 Compounds	43	
1,2-Dichloropropane	44	
2,4,5-Tp	13	
2,4-D	14	
3-Hydroxycarbofuran	11	
Acetochlor	5	
Alachlor	22	
Aldicarb	11	
Aldicarb Sulfone	11	
Aldicarb Sulfoxide	11	
Aldrin	14	
Atrazine	33	
Bentazon, Sodium Salt	13	
Benzene (Benzol)	44	
Bromacil	22	
Butachlor	22	
Carbaryl	11	
Carbofuran	11	
Chlordane	15	
Chloromethane (Methyl Chloride)	44	1
Chlorothalonil	13	
Chlorthal-Dimethyl Acid Metabolites	5	

Santa Barbara (cont)

Chemicals	Wells	Pos
Dalapon	13	
DBCP	31	
DDE	5	
Diazinon	22	
Dicamba	13	
Dieldrin	14	
Dimethoate	22	
Dinoseb	13	
Diquat Dibromide	12	
Diuron	2	
Endrin	15	
EPTC	5	
Ethylene Dibromide	31	
Glyphosate, Isopropylamine Salt	1	
Heptachlor	15	
Heptachlor Epoxide	15	
Hexachlorobenzene	14	
Lindane (Gamma-Bhc)	14	
Methomyl	11	
Methoxychlor	15	
Methyl Bromide (Bromomethane)	44	
Metolachlor	22	
Metribuzin	22	
Molinate	26	
Naphthalene	43	
Ortho-Dichlorobenzene	44	
Oxamyl	12	
Picloram	14	
Prometryn	22	
Propachlor	14	
Simazine	33	
Terbacil	5	
Thiobencarb	22	
Toxaphene	14	
Trichlorobenzenes	43	
Xylene	44	

Santa Clara

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	4	
1,1,2,2-Tetrachloroethane	158	
1,2,4-Trichlorobenzene	158	
1,2-D + 1,3-D + C-3 Compounds	158	
1,2-Dichloropropane	158	
2,3,7,8-TCDD (Dioxin)	16	
2,4,5-T	14	
2,4,5-Tp	44	
2,4-D	44	
3-Hydroxycarbofuran	28	
Acetochlor	25	
Alachlor	72	
Aldicarb	28	
Aldicarb Sulfone	28	
Aldicarb Sulfoxide	28	
Aldrin	72	
Atrazine	72	
Bentazon, Sodium Salt	44	
Benzene (Benzol)	158	
Bromacil	72	
Butachlor	72	
Carbaryl	28	
Carbofuran	28	
Chlordane	30	
Chloromethane (Methyl Chloride)	158	5
Chlorothalonil	30	
Chlorthal-Dimethyl (DCPA)	1	
Chlorthal-Dimethyl Acid Metabolites	34	1
Dalapon	44	
DBCP	34	
DDE	25	
Diazinon	72	
Dicamba	43	
Dieldrin	72	
Dimethoate	72	
Dinoseb	44	
Diquat Dibromide	28	
Diuron	4	

Santa Clara (cont)

Chemicals	Wells	Pos
Endothall	28	
Endrin	72	
EPTC	25	
Ethylene Dibromide	34	
Glyphosate, Isopropylamine Salt	29	
Heptachlor	30	
Heptachlor Epoxide	72	
Hexachlorobenzene	72	
Lindane (Gamma-Bhc)	72	
Methiocarb	1	
Methomyl	28	
Methoxychlor	72	
Methyl Bromide (Bromomethane)	158	
Metolachlor	72	
Metribuzin	72	
Molinate	72	
Naphthalene	148	
Ortho-Dichlorobenzene	158	
Oxamyl	28	
Paraquat Dichloride	1	
Picloram	44	
Prometryn	72	
Propachlor	72	
Propoxur	1	
Simazine	72	
Terbacil	25	
Thiobencarb	74	
Toxaphene	30	
Trichlorobenzenes	158	
Xylene	158	

Santa Cruz

Chemicals	Wells	Pos
1,1,2,2-Tetrachloroethane	40	
1,2,4-Trichlorobenzene	40	
1,2-D + 1,3-D + C-3 Compounds	40	
1,2-Dichloropropane	40	

Santa Cruz (cont)

Chemicals	Wells	Pos
2,3,7,8-TCDD (Dioxin)	7	
2,4,5-T	23	
2,4,5-Tp	26	
2,4-D	26	
3-Hydroxycarbofuran	24	
4(2,4-DB), Dimethylamine Salt	1	
Acetochlor	3	
Acifluorfen, Sodium Salt	1	
Alachlor	30	
Aldicarb	24	
Aldicarb Sulfone	24	
Aldicarb Sulfoxide	24	
Aldrin	27	
Ametryne	4	
Atraton	4	
Atrazine	38	
Bentazon, Sodium Salt	25	
Benzene (Benzol)	40	
Bhc (Other Than Gamma Isomer)	1	
Bromacil	30	
Butachlor	30	
Butylate	4	
Carbaryl	24	
Carbofuran	24	
Carbon Disulfide	1	
Chlordane	26	
Chloromethane (Methyl Chloride)	40	2
Chloroneb	1	
Chlorothalonil	26	
Chlorpropham	4	
Chlorthal-Dimethyl Acid Metabolites	3	
Cycloate	4	
Dalapon	26	
DBCP	26	
DDD	1	
DDE	18	
DDT	1	
DDVP (Dichlorvos)	4	

Santa Cruz (cont)

Chemicals	Wells	Pos
Demeton	4	
Diazinon	30	
Dicamba	26	
Dichlorprop, Butoxyethanol Ester	1	
Dieldrin	27	
Dimethoate	30	
Dinoseb	26	
Diphenamid	4	
Diquat Dibromide	25	
Disulfoton	4	
Diuron	14	
Endosulfan	1	
Endosulfan Sulfate	1	
Endothall	25	
Endrin	27	
Endrin Aldehyde	1	
EPTC	21	
Ethylene Dibromide	26	
Fenamiphos	4	
Glyphosate, Isopropylamine Salt	25	
Heptachlor	26	
Heptachlor Epoxide	27	
Hexachlorobenzene	27	
Hexazinone	4	
Lindane (Gamma-Bhc)	27	
Merphos	4	
Methomyl	24	
Methoxychlor	31	
Methyl Bromide (Bromomethane)	40	
Methyl Parathion	4	
Metolachlor	30	
Metribuzin	30	
Molinate	27	
Naphthalene	40	
Napropamide	4	
Ortho-Dichlorobenzene	40	
Oxamyl	24	

Santa Cruz (cont)

Chemicals	Wells	Pos
Picloram	26	
Prometon	4	
Prometryn	30	
Propachlor	27	
Propazine	4	
Simazine	38	
Simetryn	4	
Tebuthiuron	4	
Terbacil	3	
Terbutryn	4	
Tetrachlorvinphos (Stirofos)	4	
Tetradifon	4	
Thiobencarb	26	
Toxaphene	26	
Triadimefon	4	
Trichlorobenzenes	40	
Trifluralin	1	
Vernolate	4	
Xylene	39	

Solano

1,1,2,2-Tetrachloroethane	25	
1,2,4-Trichlorobenzene	25	
1,2-D + 1,3-D + C-3 Compounds	25	
1,2-Dichloropropane	25	
2,3,7,8-TCDD (Dioxin)	9	
2,4,5-T	1	
2,4,5-Tp	12	
2,4-D	12	
2-Hydroxycyclohexyl Hexazinone	15	
3-Hydroxycarbofuran	15	
ACET	15	3
Acetochlor	20	
Alachlor	15	
Aldicarb	15	
Aldicarb Sulfone	15	
Aldicarb Sulfoxide	15	

Solano (cont)

Chemicals	Wells	Pos
Aldrin	15	
Atrazine	21	4
Bentazon, Sodium Salt	12	
Benzene (Benzol)	27	1
Bromacil	21	
Butachlor	6	
Carbaryl	15	
Carbofuran	15	
Chlordane	15	
Chloromethane (Methyl Chloride)	25	
Chlorothalonil	15	
Chlorthal-Dimethyl Acid Metabolites	17	
Dalapon	12	
DBCP	15	
DDE	6	
Decyclohexyl-4-Hydroxy Hexazinone	15	
Deethyl-Atrazine	15	4
Diaminochlorotriazine (DACT)	15	1
Diazinon	6	
Dicamba	12	
Dieldrin	15	
Dimethoate	6	
Dinoseb	12	
Diquat Dibromide	15	
Diuron	15	3
Endothall	15	
Endrin	15	
EPTC	6	
Ethylene Dibromide	15	
Glyphosate, Isopropylamine Salt	15	
Heptachlor	15	
Heptachlor Epoxide	15	
Hexachlorobenzene	6	
Hexazinone	15	1
Lindane (Gamma-Bhc)	15	
Methomyl	15	
Methoxychlor	15	

Solano (cont)

Chemicals	Wells	Pos
Methyl Bromide (Bromomethane)	25	
Metolachlor	6	
Metribuzin	6	
Molinate	6	
Monomethyl Hexazinone	15	
Naphthalene	25	
Norflurazon	15	1
Ortho-Dichlorobenzene	25	
Oxamyl	15	
Picloram	12	
Prometon	15	
Prometryn	6	
Propachlor	6	
Simazine	21	
Terbacil	20	
Thiobencarb	6	
Toxaphene	15	
Trichlorobenzenes	25	
Xylene	25	

Stanislaus

1,1,2,2-Tetrachloroethane	97	
1,2,4-Trichlorobenzene	97	
1,2-D + 1,3-D + C-3 Compounds	97	
1,2-Dichloropropane	97	
2,4,5-T	15	
2,4,5-Tp	40	
2,4-D	40	
2-Hydroxycyclohexyl Hexazinone	7	1
3-Hydroxycarbofuran	38	
4(2,4-DB), Dimethylamine Salt	1	
ACET	7	
Acetochlor	22	
Alachlor	63	
Aldicarb	38	
Aldicarb Sulfone	38	
Aldicarb Sulfoxide	38	

Stanislaus (cont)

Chemicals	Wells	Pos
Aldrin	34	
Atrazine	75	
Bentazon, Sodium Salt	40	
Benzene (Benzol)	98	
Bromacil	73	
Butachlor	66	
Carbaryl	38	
Carbofuran	40	
Chlordane	38	
Chloromethane (Methyl Chloride)	97	1
Chlorothalonil	39	
Chlorthal-Dimethyl (DCPA)	1	
Dalapon	40	
DBCP	129	37
DDE	86	
Decyclohexyl-4-Hydroxy Hexazinone	7	
Deethyl-Atrazine	7	
Diaminochlorotriazine (DACT)	7	
Diazinon	66	
Dicamba	39	
Dieldrin	39	
Dimethoate	66	
Dinoseb	40	
Diquat Dibromide	27	
Diuron	7	
Endothall	27	
Endrin	39	
EPTC	86	
Ethylene Dibromide	119	1
Glyphosate, Isopropylamine Salt	51	
Heptachlor	39	
Heptachlor Epoxide	39	
Hexachlorobenzene	34	
Hexazinone	7	1
Lindane (Gamma-Bhc)	39	
Methiocarb	4	
Methomyl	38	
Methoxychlor	39	

Stanislaus (cont)

Chemicals	Wells	Pos
Methyl Bromide (Bromomethane)	97	1
Metolachlor	66	
Metribuzin	66	
Molinate	119	
Monomethyl Hexazinone	7	
Naphthalene	82	
Norflurazon	7	
Ortho-Dichlorobenzene	98	
Oxamyl	40	
Picloram	40	
Prometon	7	
Prometryn	66	
Propachlor	67	
Propoxur	4	
Simazine	76	
Thiobencarb	66	
Toxaphene	38	
Trichlorobenzenes	97	
Xylene	97	1

Sutter

(S)-Metolachlor	17	
1,1,2,2-Tetrachloroethane	10	
1,2,4-Trichlorobenzene	10	
1,2-D + 1,3-D + C-3 Compounds	10	
1,2-Dichloropropane	10	
2,4-D	17	
3-Hydroxycarbofuran	17	
4(2,4-DB), Dimethylamine Salt	17	
Acetochlor	17	
Acifluorfen, Sodium Salt	15	
Alachlor	17	
Aldicarb	17	
Aldicarb Sulfoxide	17	
Atrazine	17	3
Azinphos-Methyl (Guthion)	17	
Benefin (Benfluralin)	17	

Sutter (cont)

Chemicals	Wells	Pos
Bentazon, Sodium Salt	17	6
Benzene (Benzol)	10	
Bromacil	17	
Bromoxynil Octanoate	15	
Butylate	17	
Carbaryl	17	
Carbofuran	17	
Chloromethane (Methyl Chloride)	10	
Chlorothalonil	17	
Chlorpyrifos	17	
Chlorthal-Dimethyl (DCPA)	17	
Chlorthal-Dimethyl Acid Metabolites	17	
Clopyralid	17	
Cyanazine	17	
DBCP	4	2
DDE	3	
Deethyl-Atrazine	17	3
Diazinon	17	
Dicamba	17	
Dichlobenil (Casaron)	17	
Dichlorprop, Butoxyethanol Ester	17	
Dieldrin	17	
Dinoseb	17	
Disulfoton	17	
Diuron	17	
DNOC, Sodium Salt	17	
EPTC	20	
Esfenvalerate	17	
Ethalfluralin	17	
Ethoprop (Prophos)	17	
Ethylene Dibromide	2	
Fenuron	17	
Fluometuron	17	
Garlon (Triclopyr)	17	
Linuron	17	
Malathion	17	
Mcpa	17	

Sutter (cont)

Chemicals	Wells	Pos
Methiocarb	17	
Methomyl	17	
Methyl Bromide (Bromomethane)	10	
Methyl Parathion	17	
Metribuzin	17	
Molinate	20	2
Naphthalene	10	
Napropamide	17	
Neburon	17	
Norflurazon	17	
Ortho-Dichlorobenzene	10	
Oryzalin	17	
Oxamyl	17	
Parathion Or Ethyl Parathion	17	
Pebulate	17	
Pendimethalin	17	
Permethrin	17	
Phorate	17	
Picloram	17	
Prometon	17	
Propachlor	17	
Propanil	17	
Propargite	17	
Propham	17	
Propoxur	17	
Propyzamide	17	
Simazine	17	3
Sodium Hypochlorite	17	
Tebuthiuron	17	
Terbacil	17	
Terbufos	17	
Thiobencarb	17	
Total Aldicarb	17	
Triallate	17	
Trichlorobenzenes	10	1
Trifluralin	17	
Xylene	10	

Tulare

Chemicals	Wells	Pos
1,3-Dichloropropene (1,3-D Telone)	50	
1,1,2,2-Tetrachloroethane	141	
1,2,4-Trichlorobenzene	141	
1,2-D + 1,3-D + C-3 Compounds	140	
1,2-Dichloropropane	141	
2,3,7,8-TCDD (Dioxin)	2	
2,4,5-T	16	
2,4,5-Tp	56	
2,4-D	56	
3-Hydroxycarbofuran	47	
Acetochlor	22	
Alachlor	93	
Aldicarb	47	
Aldicarb Sulfone	47	
Aldicarb Sulfoxide	47	
Aldrin	53	
Atrazine	91	
Bentazon, Sodium Salt	56	
Benzene (Benzol)	142	
Bromacil	91	
Butachlor	91	
Carbaryl	47	
Carbofuran	47	
Chlordane	53	
Chloromethane (Methyl Chloride)	140	1
Chlorothalonil	12	
Chlorthal-Dimethyl Acid Metabolites	24	
Dalapon	56	
DBCP	160	43
DDE	26	
Diazinon	91	
Dicamba	56	
Dieldrin	53	
Dimethoate	91	
Dinoseb	56	
Diquat Dibromide	7	
Diuron	13	

Tulare (cont)

Chemicals	Wells	Pos
Endothall	7	
Endrin	53	
EPTC	26	
Ethylene Dibromide	157	
Glyphosate, Isopropylamine Salt	6	
Heptachlor	53	
Heptachlor Epoxide	53	
Hexachlorobenzene	53	
Lindane (Gamma-Bhc)	53	
Methiocarb	1	
Methomyl	47	
Methoxychlor	53	
Methyl Bromide (Bromomethane)	140	
Metolachlor	91	
Metribuzin	91	
Molinate	96	
Naphthalene	128	
Ortho-Dichlorobenzene	141	
Oxamyl	47	
Picloram	56	
Prometryn	91	
Propachlor	76	
Propoxur	1	
Simazine	91	
Terbacil	22	
Thiobencarb	91	
Toxaphene	53	
Trichlorobenzenes	140	
Xylene	141	

Tuolumne

1,1,2,2-Tetrachloroethane	7	1
1,2,4-Trichlorobenzene	7	
1,2-D + 1,3-D + C-3 Compounds	7	
1,2-Dichloropropane	7	
Alachlor	11	

Tuolumne (cont)

Chemicals	Wells	Pos
Ametryne	4	
Atrazine	11	
Benzene (Benzol)	7	
Bromacil	10	
Butachlor	6	
Butylate	4	
Chlordane	1	
Chloromethane (Methyl Chloride)	7	
Chlorpropham	4	
Cycloate	4	
DBCP	1	
DDVP (Dichlorvos)	4	
Demeton	4	
Diazinon	10	
Dimethoate	6	
Diphenamid	4	
Disulfoton	4	
Endrin	1	
EPTC	4	
Ethylene Dibromide	1	
Fenamiphos	4	
Heptachlor	1	
Heptachlor Epoxide	1	
Hexachlorobenzene	1	
Hexazinone	4	
Lindane (Gamma-Bhc)	1	
Merphos	4	
Methoxychlor	1	
Methyl Bromide (Bromomethane)	7	
Metolachlor	6	
Metribuzin	6	
Molinate	6	
Naphthalene	3	
Napropamide	4	
Ortho-Dichlorobenzene	7	
Prometon	4	
Prometryn	10	

Tuolumne (cont)

Chemicals	Wells	Pos
Propachlor	6	
Propazine	4	
Simazine	11	
Simetryn	4	
Tebuthiuron	4	
Terbutryn	4	
Tetrachlorvinphos (Stirofos)	4	
Thiobencarb	6	
Toxaphene	1	
Triadimefon	4	
Trichlorobenzenes	7	
Vernolate	8	
Xylene	7	

Ventura

1,3-Dichloropropene (1,3-D Telone)	33	
1,1,2,2-Tetrachloroethane	69	
1,2,4-Trichlorobenzene	69	
1,2-D + 1,3-D + C-3 Compounds	69	
1,2-Dichloropropane	69	1
2,4,5-Tp	23	
2,4-D	23	
3-Hydroxycarbofuran	19	
Acetochlor	3	
Alachlor	35	
Aldicarb	9	
Aldicarb Sulfone	9	
Aldicarb Sulfoxide	9	
Aldrin	23	
Atraton	4	
Atrazine	47	
Bentazon, Sodium Salt	12	
Benzene (Benzol)	69	
Bhc (Other Than Gamma Isomer)	4	
Bromacil	35	
Butachlor	31	
Carbaryl	19	

Ventura (cont)

Chemicals	Wells	Pos
Carbofuran	19	
Chlordane	23	
Chloromethane (Methyl Chloride)	69	
Chlorothalonil	16	
Chlorthal-Dimethyl Acid Metabolites	7	
Dalapon	23	
DBCP	47	1
DDE	7	
Diazinon	35	
Dicamba	23	
Dieldrin	23	
Dimethoate	29	
Dinoseb	23	
Diquat Dibromide	19	
Diuron	6	
Endothall	2	
Endrin	23	
EPTC	7	
Ethylene Dibromide	47	
Glyphosate, Isopropylamine Salt	2	
Heptachlor	23	
Heptachlor Epoxide	23	
Hexachlorobenzene	27	
Lindane (Gamma-Bhc)	27	
Methomyl	19	
Methoxychlor	27	
Methyl Bromide (Bromomethane)	70	1
Metolachlor	35	
Metribuzin	35	
Molinate	36	
Naphthalene	64	
Ortho-Dichlorobenzene	69	
Oxamyl	19	
Picloram	23	
Prometon	4	
Prometryn	35	
Propachlor	29	

Ventura (cont)

Chemicals	Wells	Pos
Secbumeton	4	
Simazine	47	
Terbacil	9	
Terbutryn	4	
Thiobencarb	29	
Toxaphene	23	
Trichlorobenzenes	69	
Xylene	69	

Yolo

(S)-Metolachlor	3	
1,1,2,2-Tetrachloroethane	14	
1,2,4-Trichlorobenzene	14	
1,2-D + 1,3-D + C-3 Compounds	14	
1,2-Dichloropropane	14	
2,4-D	3	
2-Hydroxycyclohexyl Hexazinone	6	
3-Hydroxycarbofuran	3	
4(2,4-DB), Dimethylamine Salt	3	
ACET	6	
Acetochlor	11	
Acifluorfen, Sodium Salt	3	
Alachlor	15	
Aldicarb	3	
Aldicarb Sulfoxide	3	
Atrazine	21	
Azinphos-Methyl (Guthion)	3	
Benefin (Benfluralin)	3	
Bentazon, Sodium Salt	3	2
Benzene (Benzol)	14	
Bromacil	21	
Bromoxynil Octanoate	3	
Butachlor	12	
Butylate	3	
Carbaryl	3	
Carbofuran	3	
Chloromethane (Methyl Chloride)	14	1

Yolo (cont)

Chemicals	Wells	Pos
Chlorothalonil	3	
Chlorpyrifos	3	
Chlorthal-Dimethyl (DCPA)	3	
Chlorthal-Dimethyl Acid Metabolites	3	
Clopyralid	3	
Cyanazine	3	
DBCP	17	
DDE	34	
Decyclohexyl-4-Hydroxy Hexazinone	6	
Deethyl-Atrazine	9	
Diaminochlorotriazine (DACT)	6	
Diazinon	15	
Dicamba	3	
Dichlobenil (Casaron)	3	
Dichlorprop, Butoxyethanol Ester	3	
Dieldrin	3	
Dimethoate	12	
Dinoseb	3	
Disulfoton	3	
Diuron	9	
DNOC, Sodium Salt	3	
EPTC	37	
Esfenvalerate	3	
Ethalfluralin	3	
Ethoprop (Prophos)	3	
Ethylene Dibromide	17	
Fenuron	3	
Fluometuron	3	
Garlon (Triclopyr)	3	
Hexazinone	6	
Linuron	3	
Malathion	3	
Mcpa	3	
Methiocarb	3	
Methomyl	3	
Methyl Bromide (Bromomethane)	14	
Methyl Parathion	3	

Yolo (cont)

Chemicals	Wells	Pos
Metolachlor	12	
Metribuzin	15	
Molinate	37	1
Monomethyl Hexazinone	6	
Naphthalene	14	
Napropamide	3	
Neburon	3	
Norflurazon	9	
Ortho-Dichlorobenzene	14	
Oryzalin	3	
Oxamyl	3	
Parathion Or Ethyl Parathion	3	
Pebulate	3	
Pendimethalin	3	
Permethrin	3	
Phorate	3	
Picloram	3	
Prometon	9	
Prometryn	12	
Propachlor	15	
Propanil	3	
Propargite	3	
Propham	3	
Propoxur	3	
Propyzamide	3	
Simazine	21	
Sodium Hypochlorite	3	
Tebuthiuron	3	1
Terbacil	3	
Terbufos	3	
Thiobencarb	15	
Total Aldicarb	3	
Triallate	3	
Trichlorobenzenes	14	
Trifluralin	3	
Xylene	14	

Yuba

Chemicals	Wells	Pos
(S)-Metolachlor	3	
1,1,2,2-Tetrachloroethane	23	
1,2,4-Trichlorobenzene	23	
1,2-D + 1,3-D + C-3 Compounds	23	
1,2-Dichloropropane	23	
2,4,5-T	1	
2,4,5-Tp	1	
2,4-D	4	
3-Hydroxycarbofuran	4	
4(2,4-DB), Dimethylamine Salt	3	
Acetochlor	8	
Acifluorfen, Sodium Salt	2	
Alachlor	3	
Aldicarb	4	
Aldicarb Sulfone	1	
Aldicarb Sulfoxide	4	
Atrazine	3	
Azinphos-Methyl (Guthion)	3	
Benefin (Benfluralin)	3	
Bentazon, Sodium Salt	4	2
Benzene (Benzol)	23	1
Bromacil	3	
Bromoxynil Octanoate	2	
Butylate	3	
Carbaryl	4	
Carbofuran	4	
Chloromethane (Methyl Chloride)	23	
Chlorothalonil	3	
Chlorpyrifos	3	
Chlorthal-Dimethyl (DCPA)	3	
Chlorthal-Dimethyl Acid Metabolites	8	
Clopyralid	3	
Cyanazine	3	
Dalapon	1	
DDE	5	
Deethyl-Atrazine	3	
Diazinon	3	

Yuba (cont)

Chemicals	Wells	Pos
Dicamba	4	
Dichlobenil (Casaron)	3	
Dichlorprop, Butoxyethanol Ester	3	
Dieldrin	3	
Dinoseb	4	
Disulfoton	3	
Diuron	3	
DNOC, Sodium Salt	3	
EPTC	8	
Esfenvalerate	3	
Ethalfluralin	3	
Ethoprop (Prophos)	3	
Fenuron	3	
Fluometuron	3	
Garlon (Triclopyr)	3	
Linuron	3	
Malathion	3	
Mcpa	3	
Methiocarb	3	
Methomyl	4	
Methyl Bromide (Bromomethane)	23	
Methyl Parathion	3	
Metribuzin	3	
Molinate	3	
Naphthalene	23	
Napropamide	3	
Neburon	3	
Norflurazon	3	
Ortho-Dichlorobenzene	23	
Oryzalin	3	
Oxamyl	4	
Parathion Or Ethyl Parathion	3	
Pebulate	3	
Pendimethalin	3	
Permethrin	3	
Phorate	3	
Picloram	4	
Prometon	3	

Yuba (cont)

Chemicals	Wells	Pos
Propachlor	3	
Propanil	3	
Propargite	3	
Propham	3	
Propoxur	3	
Propyzamide	3	
Simazine	3	
Sodium Hypochlorite	3	
Tebuthiuron	3	
Terbacil	8	
Terbufos	3	
Thiobencarb	3	
Total Aldicarb	3	
Triallate	3	
Trichlorobenzenes	23	
Trifluralin	3	
Xylene	23	

Appendix B

Glossary of Terms

AB 1803 - (1983) (Chapter 881, Statutes of 1983) A law that required the California Department of Health Services (DHS) to evaluate each public water system to determine its potential for contamination. The systems were required to conduct specified water analyses and to report those results. Monitoring required by AB 1803 was completed in June 1989.

AB 2021 - See "Pesticide Contamination Prevention Act".

Action Level (AL) - Published by DHS's Office of Drinking Water, ALs are based mainly on health affects. ALs are advisory to water suppliers. Although not legally enforceable, the majority of water suppliers have complied with action levels as though they were Maximum Contaminant Levels.

active ingredient - The chemical or chemicals in a pesticide formulation that are biologically active and which are capable, in themselves, of preventing, destroying, repelling or mitigating insects, fungi, rodents, weeds, or other pests.

Agricultural Commissioner - For each county in California, the person in charge of the County Department of Agriculture. Under supervision of DPR, the Commissioner enforces the laws and regulations pertaining to agricultural and structural pest control and all other pesticide uses.

agricultural use - (See also "legal agricultural use" and "legal agricultural use determination".) The use of any pesticide or method or device for the control of plant or animal pests, or any other pests, or the use of any pesticide for the regulation of plant growth or defoliation of plants. It excludes the sale or use of pesticides in properly labeled packages or containers which are intended only for any of the following: home use, use in structural pest control, industrial or institutional use, the control of an animal pest under the written prescription of a veterinarian, local districts, or other public agencies which have entered into and operate under a cooperative agreement with the Dept. of Public Health pursuant to section 2426 of the Health and Safety Code. (Food and Agr. Code, section 11408)

analysis - The determination of the composition of a substance by laboratory methods. In this case, it includes the separation and measurement of a pesticide or its degradation product from the sample matrix.

aquifer - A geologic formation, group of formations, or part of a formation, that is water bearing and which transmits water in sufficient quantity to supply springs and pumping wells.

basin irrigation - A method of watering by confining irrigation water around the plant stem or trunk by means of a soil dam. Also called flood irrigation.

Birth Defect Prevention Act (BDPA) - (SB 950, 1984) A law requiring DPR to acquire certain toxicological data for registered pesticides in order to make a scientific determination that their uses will not cause significant adverse health effects. The BDPA prohibits the registration of any new pesticide active ingredient if required mandatory health effects studies are missing, incomplete, or invalid. Pesticide active ingredients already registered that are identified as having the potential to cause significant adverse health effects following a thorough review by DPR scientific, staff will be canceled.

degradation product - See "degradation product".

chemigation - The application of pesticides through irrigation water, using irrigation techniques and equipment.

confirmed detection - For purposes of the well inventory database, the detection of a compound in two discrete samples taken from the same well during the time period of a single monitoring survey.

database record - Each chemical analysis of a well water sample for a pesticide residue or related chemical constitutes one record in the database. Each record may contain up to 149 columns of data.

degradation - The degradation of a chemical by the action of microbes, water, air, sunlight, or other agents.

detection - A well water sample in which the presence of a pesticide chemical is detected at or above the, minimum detection limit of the analytical instruments used for analysis of the compound under investigation. A detection may be designated as confirmed or unconfirmed.

discrete sample - Samples taken separately from a well; not a single sample split into smaller samples.

dry well - A small-diameter hole or pit dug into the ground and filled with gravel or other material for the disposal of surface water by infiltration into soil.

established PMZ - A Pesticide Management Zone (PMZ) (see def.) listed in section 6802, Title 3 of the California Code of Regulations (3CCR).

ground water protection areas (GWPA) - DPR has identified areas of the state that are vulnerable to pesticide movement to ground water. These are called ground water protection areas (GWPAs), and are listed by base meridian, township, range and section. Currently, there are leaching GWPAs and runoff GWPAs. All sections of land where pesticides have been found in ground water due to legal agricultural use (see Pesticide Management Zones*)* are designated as GWPAs. Additional sections of land are designated as GWPAs because they contain similar characteristics of areas where pesticides have been found in ground water.

Ground Water Protection List (GWPL) - A list, required by PCPA and established in section 6800 (3CCR), of pesticides having the potential to pollute ground water. The GWPL is divided into two sublists. Sublist (a) is comprised of chemicals that have been detected in ground water as a result of legal agricultural use. Pesticide active ingredients whose physicochemical properties exceed the specific numerical values (see def.) and that are labeled for soil application under certain conditions are placed on sublist (b) of the GWPL. Chemicals placed on the GWPL sublist (a) are subject to certain restrictions.

health advisory level (HAL) - An advisory number published by U.S. EPA's Office of Drinking Water and Office of Water Regulations and Standards. Short-term (10 days or less), long-term (7 years or less), and lifetime exposure health advisories for non-carcinogens and suspected human carcinogens are included where data sufficient for derivation of the advisories exist. HALs are a guideline which include a margin of safety to protect human health. For lifetime HALs, water containing pesticides at or below the HAL is acceptable for drinking every day over the course of one's lifetime.

initial detection sample - For a single study and a particular well, the initial detection sample for a chemical will be the positive sample with the earliest sampling date and/or time. Replicate samples are coded in relation to the initial sample detection.

large water system well - A well supplying 200 or more service connections.

leaching - A pathway by which agricultural chemicals may reach ground water; the process by which residues are dissolved in soil water and follow the movement of water through the soil matrix as it recharges a ground water aquifer.

legal agricultural use - The application of a pesticide, according to its labeled directions and in accordance with federal and state laws and regulations, for agricultural use as defined in Food and Agricultural Code, section 11408. (See "agricultural use".)

legal agricultural use determination - A determination required by section 13149 (FAC) and based upon the following criteria: (1) the detection of a pesticide ingredient or its degradation product that has been verified according to DPR criteria; (2) a detection of the same pesticide ingredient or its degradation product in ground water, verified at a second site within a one-half mile radius of the original detection; (3) the detected pesticide ingredient must be formulated in a product which has listed on its label one or more agricultural uses; (4) the application of the agricultural use product(s) in the vicinity of the reported detections should either be documented historically, confirmed by local interviews, or presumed by the identification of a target pest or commodity; (5) the Director may consider a preponderance of evidence as meeting these criteria.

maximum contaminant levels (MCLs) - MCLs are part of the drinking water quality standards adopted by DHS and by USEPA under the Safe Drinking Water Act. MCLs are formally established in regulation and are enforceable by the DHS on water suppliers.

minimum detection limit (MDL) - The lowest concentration of analyte that a method of analysis can quantify reliably. The MDL is established in protocol for a study either as a result of a method validation study or by using accepted proven analytical methods (e.g., EPA methods).

mitigation measure - An activity to substantially reduce any adverse impact of a given condition.

model - Mathematical equations that represent certain processes. These equations can be implemented in a computer program in order to facilitate calculations and test model predictions against measured data.

monitoring well - A well used principally for any of the follow purposes: (1) observing ground water levels and flow conditions, (2) obtaining samples for determining ground water quality, or (3) evaluating hydraulic properties of water-bearing strata.

non-crop areas - These areas include rights-of-way, golf courses, and cemeteries. There may be agricultural use of pesticides in non-crop areas, e.g., for weed control around buildings on a farm.

non-point source – Contamination which cannot be traced to a small definable location (compare with "point source"), e.g., applications of agricultural chemicals to crops.

organic matter - Plant and animal debris or remains found in the soil in all stages of decay. The major elements in organic matter are oxygen, hydrogen, and carbon.

parts per billion (ppb) - A way to express the concentration of a chemical in a liquid, solid, or in air. Since one liter of water weighs one billion micrograms, one microgram of a chemical in one liter of water is equal to one ppb.

permit - Permits are issued by county agricultural commissioners for a specific site for the use of chemicals that have been designated as restricted pesticides. Restricted pesticides, for various reasons, are potentially more hazardous than other pesticides.

pest control adviser (PCA) - A person licensed by DPR and registered with the County Agricultural Commissioner who makes pest control recommendations. All agricultural use recommendations must be in writing and contain certain information. A PCA must complete continuing education requirements before his/her license may be renewed.

Pesticide Contamination Prevention Act (PCPA) - (AB 2021) A law, effective January 1, 1986, which added sections 13141 through 13152 to Division 7 of the FAC. The PCPA requires each registrant of an pesticide to submit specified information to the Director of DPR, provides for the establishment of the Ground Water Protection List, requires the Director to perform soil and water monitoring, provides for a specific response to the detection of pesticides in soil and ground water, and requires the Director to maintain a specified well sampling database and to report certain information annually to the Legislature, the DHS, OEHHA, and the State Water Resources Control Board on well sampling.

Pesticide Detection Response Process (PDRP) - A process, established pursuant to sections 13149 through 13151 (FAC), in which the detection of a pesticide residue in ground water is investigated, evaluated, and, when necessary, mitigated. As part of the process, a determination must be made that the detection resulted from a legal agricultural use application of the pesticide. As a result of this process, the use of a pesticide in California may be modified or cancelled.

Pesticide Management Zone (PMZ) - A geographic surveying unit of approximately one square mile, which is vulnerable to ground water contamination based on detections of a pesticide chemical in ground water due to legal, agricultural use. PMZs are pesticide specific. The use of a pesticide inside its PMZ is subject to certain ground water protection restrictions and requirements. PMZs were renamed GWPAs in December 2003.

physicochemical - The types of behavior that a substance exhibits in chemical reactions are called its chemical properties; other characteristics that are typical of a substance are called its physical properties. Taken together, the chemical and physical properties of a substance are called its physicochemical properties.

point source - A source of contamination, such as a spill or at a waste site, that is initially deposited and concentrated in a small, well-defined area. The contamination can be traced to its point of origin by locating a specifically shaped pattern of residues in the ground water called a plume.

range - A single series or row of townships, each six miles square, extending parallel to, and numbered east and west from, a survey base meridian line. (*See well numbering system*)

recommended PMZ - A section of land that has been identified as sensitive to ground water pollution by specific pesticides and has been proposed to be adopted into section 6802 (3CCR).

registered pesticide - A pesticide product approved by the USEPA and DPR for use in California.

regulations - These are adopted by state agencies to implement or clarify statutes enacted by the California Legislature. They can also be adopted in response to federal legislation, court decisions, changing technologies, and concerns for the health and well being of the residents of California.

replicate sample - A discrete sample taken from a well at the same time as the initial detection sample; not a single sample split into multiple samples.

restricted material - Compounds designated as "Restricted Materials" in section 6400 (3CCR), that for various reasons, are potentially more hazardous to people, animals, or the environment than other pesticides. As a result, the use of these materials is regulated more closely and is permitted only when additional precautionary measures are taken where applicable. Certain reporting requirements and dealer responsibilities apply to the use of restricted materials.

section - A land unit of 640 acres or one square mile, equal to l/36 of a township. (*See well numbering system*)

small public water system well - A well serving fewer than 200 connections.

specific numerical values (SNV) - Certain numeric threshold values that the PCPA requires to be established for the following physical and chemical properties of pesticide active ingredients: water solubility, soil adsorption coefficient, hydrolysis, aerobic and anaerobic soil metabolism, and field dissipation (field dissipation has not yet been established). The PCPA associates these properties with the longevity and mobility of a chemical in the soil and requires the establishment of SNVs in regulation as a means of predicting which pesticides are likely to leach to ground water.

State Well Number - See “well numbering system”.

survey - In this report, well monitoring conducted by an agency or private firm for a specified length of time in a designated area.

well inventory database. Pesticide chemical data are summarized in DPR's annual Well Inventory Report.

township - A public land surveying unit which is a square parcel of land, six miles on each side. The location of a township is established as being so many six-mile units east or west of a north-south line running through an initial point (called the "principal meridian") and so many six-mile units north or south of an east-west line running through another point (called the "baseline") (see well numbering system).

triazines - A chemical compound derived from any of three isomeric compounds, each having three carbon and three nitrogen atoms in a six-member ring. Triazines are strong inhibitors of photosynthesis. Atrazine and simazine are triazines.

use requirement - Restrictions established in regulation for the use of certain pesticides. For example, section 6484.1 (3CCR) states that agricultural, outdoor institutional, and outdoor industrial uses of pesticides containing atrazine are prohibited in the Pesticide Management Zones listed in 6802(c) (3CCR).

verified detection - confirmed and unconfirmed detections are verified if they meet the criteria specified in (FAC section 13149[d]) which requires that either the analytical method provides unequivocal identification of a chemical and is approved by DPR or that the detection is verified within 30 days by a second analytical method or a second analytical laboratory approved by DPR. Criteria have been set by DPR (Biermann, 1989, 1996) for determining if the detection of a pesticide or its degradation product(s) meets the standards of section 13149[d].

water budgeting method - An irrigation plan basing the frequency of irrigations and the amount of water to be applied on a measurement of the amount of water lost by evaporation and plant transpiration (evapotranspiration) and other factors, including the root zone area of the crop and the capacity of the soil to hold water.

water solubility - The ability of a substance to go into solution with water.

well numbering system - The California well numbering system is based on a rectangular system commonly referred to as the Public Lands Survey. Under this system, all tracts of lands are tied to an initial point and identified as being in a township. A township is a square parcel of land six

miles on each side. Its location is established as being so many six-mile units east or west of a north-south line running through the initial point (called the “principal meridian") and so many six-mile units north or south of an east-west line running through the point (called the "baseline”). The meridian lines parallel to, and east or west of, the principal meridian are called range lines. Every township is further divided into 36 parts called sections. A section is also described as a square parcel of land one mile on a side, each containing 640 acres. Each well in California is assigned a unique number (referred to as the State Well Number) by the Department of Water Resources (DWR). For well numbering purposes, each section of land is divided into sixteen 40-acre tracts. Once the well location is established in the 40 acre tract it is assigned a sequence number which is assigned in chronological order by DWR personnel. The DWR maintains an index of state well numbers to prevent duplication.

Appendix C

Registration Status and Water Quality Criteria, as of June 30, 2003, for Compounds Reported with Detections

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
1,1,2,2-Tetrachloroethane	57 counties 7,720 wells (5)	0.83 - 51.4	DHS- 1 PHG- 0.1	Herbicide. Not registered for agricultural use (NR). Detection referred to SWRCB.
1,2,4-Trichlorobenzene	58 counties 6,937 wells (4)	0.53 - 21	DHS- 5 PHG- 0.5	Herbicide. NR. Detection referred to SWRCB.
1,2-D + 1,3-D + C-3 Compounds	57 counties 6,365 wells (1)	1.2	*See 1,2-D and 1,3-D criteria*	Fumigant. NR. Source of residues was determined by DPR to be due to historical non-point source, legal, agricultural use (LAU). Regulations were adopted in 1985 that prohibit the use or sale of pesticides in California in which 1,2-D exceeds 0.5% of the total formulation. Referred to SWRCB.
1,2-Dichloropropane	58 counties 11,494 wells (163)	0.1 - 160	DHS- 5 USEPA- 5 PHG- 0.5	Fumigant. NR. Source of residues was determined by DPR to be due to historical non-point source, LAU. Regulations were adopted in 1985 that prohibit the use or sale of pesticides in California in which 1,2-D exceeds 0.5% of the total formulation. Referred to SWRCB.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
1,3-Dichloropropene	56 counties 8,928 wells (6)	0.84 - 1.9	DHS- 0.5 PHG- 0.2	Fumigant. Active registration in California (AR). DPR follow up monitoring did not confirm these detections.
2,4,5-T	40 counties 1,173 wells (2)	0.02 - 0.21	USEPA IRIS- 70 USEPA SNARL- 70	Herbicide. NR. Detection referred to SWRCB.
2,4,5-TP (Silvex)	58 counties 5,765 wells (4)	0.15 - 1.4	DHS- 50 USEPA- 50 PHG- 25	Herbicide. NR. Detection referred to SWRCB.
2,4-D	58 counties 6,500 wells (16)	0.3 - 46	DHS- 70 USEPA- 70 PHG- 70	Selective postemergence herbicide. AR. DPR conducted 8 follow up monitoring surveys and did not confirm these detections.
2,4-DP, Isooctyl Ester	9 counties 106 wells (3)	0.01 - 0.06	No criteria established	Systemic herbicide. AR. DPR conducted 3 follow up monitoring surveys and did not confirm the detections
2-Hydroxycyclohexyl Hexazinone	8 counties 69 wells (1)	0.126	No criteria established	Degradate product of hexazinone. Hexazinone is AR. Detection has been confirmed; however, determined not to be due to LAU.
ACET	34 counties 1,046 wells (329)	0.032 - 6	No criteria established	Degradate product of atrazine and simazine. Atrazine and simazine are AR. Detections of ACET were determined to be due to LAU of simazine and atrazine.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Alachlor	55 counties 6,611 wells (3)	0.1 - 9	DHS- 2 USEPA- 2 PHG- 4	Preemergence herbicide. AR. Detections were determined to be due to poor well construction.
Alachlor ESA	9 counties 88 wells (18)	0.05 - 1.38		Degradate product of alachlor. Alachlor is AR. Detections have been confirmed by DPR. Toxicological data are equivocal and require further consultation with other agencies.
Alachlor OXA	9 counties 88 wells (1)	0.05 - 0.051		Degradate product of alachlor. Alachlor is AR. Detection have been confirmed by DPR. Toxicological data are equivocal and require further consultation with other agencies
Aldicarb	54 counties 5,091 wells (4)	1.1 - 7.2	USEPA- 3 DHS AL- 7	Systemic insecticide. AR. Follow up DPR sampling did not confirm detections
Aldicarb Sulfone	50 counties 3,785 wells (44)	0.05 - 1281	USEPA- 3 USEPA SNARL- 7 (10-day)	Degradate product of aldicarb. Aldicarb is AR. Detections of aldicarb sulfone were determined to be from LAU of aldicarb. Based on these detections, aldicarb became a restricted material.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Aldicarb Sulfoxide	50 counties 3,804 wells (25)	0.06 - 13.2	USEPA- 4 USEPA SNARL- 10 (10-day)	Degradate product of aldicarb. Aldicarb is AR. Detections of aldicarb sulfone were determined to be from LAU of aldicarb. Based on these detections, aldicarb became a restricted material.
Aldrin	54 counties 4,719 wells (1)	21	DHS AL- 0.002 USEPA IRIS- 0.21 USEPA SNARL-0.3 (10-day)	Insecticide. NR. detection determined to be point source.
Atrazine	57 counties 11,200 wells (299)	0.001 - 8.5	DHS- 1 USEPA- 3 PHG- 0.15	Herbicide. AR. Determined to be due to LAU.
Azinphos-Methyl	43 counties 1,292 wells (1)	0.014	No criteria established	Insecticide. AR. Detection from monitoring well is below the MDL obtainable by laboratories approved by DPR.
Benomyl	38 counties 1,090 wells (2)	190 - 500	USEPA IRIS- 350	Systemic fungicide. AR. Follow up DPR monitoring studies did not confirm detections.
Bentazon, Sodium Salt	55 counties 4,852 wells (113)	0.02 - 20	DHS- 18 PHG- 200	Herbicide. AR. Determined to be due to LAU.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Benzene (Benzol)	57 counties 6,388 wells (20)	0.2 - 36.2	DHS- 1 USEPA- 5 PHG- 0.15	Benzene was an ingredient in some early grain fumigants. NR. Non-agricultural uses of industrial chemicals may contribute to these findings. Referred to SWRCB.
BHC	45 counties 2,010 wells (1)	0.08	No criteria established	Insecticide. NR. Referred to SWRCB.
Bromacil	56 counties 8,966 wells (251)	0.025 - 23	USEPA SNARL- 90	Herbicide. AR. Determined to be due to LAU.
Butachlor	52 counties 4,209 wells (1)	0.39	No criteria established	Selective herbicide. NR. Referred to SWRCB.
Captan	38 counties 1,468 wells (3)	0.1 - 0.5	DHS AL- 1.5 USEPA IRIS- 910	Protectant-eradicant insecticide. AR. Follow up DPR monitoring studies did not confirm detections.
Carbaryl	52 counties 5,152 wells (4)	2 - 55	DHS AL- 700 USEPA IRIS- 700 USEPA SNARL- 700	Broad-spectrum insecticide. AR. Follow up DPR monitoring studies did not confirm detections.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Carbofuran	53 counties 5,767 wells (5)	0.016 - 0.686	DHS- 18 USEPA- 40 PHG- 1.7	Broad spectrum insecticide. AR. Detections are currently under investigation (CUI).
Carbon Disulfide	10 counties 103 wells (10)	0.2 - 5	DHS AL-160 USEPA IRIS- 700	Fumigant. NR. Follow up DPR monitoring studies did not confirm detections.
Chlordane	56 counties 6,151 wells (1)	20	DHS- 0.1 USEPA- 2 PHG- 0.03	Contact insecticide. NR. Detections referred to SWRCB.
Chloromethane	57 counties 6,350 wells (79)	0.5 - 37	USEPA SNARL- 3	Fumigant. NR. Referred to SWRCB.
Chlorothalonil	50 counties 3,844 wells (1)	0.8 - 1.1	USEPA IRIS- 110 USEPA SNARL- 200 (10-day)	Fungicide. AR. The two detections were due to poor well construction.
Chlorpyrifos	38 counties 1,401 wells (3)	0.02 - 0.06	USEPA IRIS- 21 USEPA SNARL- 20	Insecticide. AR. Follow up DPR monitoring study did not confirm detections. Latest detection from monitoring well is below 80 percent of the MDL obtainable by laboratories approved by DPR; no further action is required.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Chlorthal-Dimethyl	33 counties 1,438 wells (9)	0.03 - 300	USEPA IRIS- 70 USEPA SNARL- 70	Selective herbicide. AR. Follow up DPR monitoring studies resulted in no confirmed detections and identified reported detections as probable point sources.
Chlorthal-Dimethyl Acid Metabolites	33 counties 632 wells (74)	0.03 - 10.9	No criteria established	Degradate products of chlorthal-dimethy. Confirmed in wells by DPR. DPR determined that detections did not pose a threat to public health; so no further action necessary.
Coumaphos	10 counties 130 wells (1)	1	No criteria established	Insecticide. AR. At the time of the detection, use of this compound was suspended. Referred to SWRCB
Dalapon	48 counties 4,128 wells (5)	1 - 17	DHS- 200 USEPA- 200 PHG- 790	Selective herbicide. NR. Referred to SWRCB
DBCP	54 counties 11,627 wells (2983)	0.001 - 8000	DHS- 0.2 USEPA- 0.2 PHG- 0.0017	Soil fumigant. NR. Source of residues considered by DPR to be from historical non-point source, LAU. Referred to SWRCB
DDD	41 counties 1,789 wells (1)	1.04	No criteria established	Insecticide. NR. Classified as point source in database.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
DDE	42 counties 2,689 wells (6)	0.01 - 0.09	No criteria established	Degradation of DDT. Detections classified as point sources except latest detection, which is from a monitoring well and is below 80 percent of the MDL obtainable by laboratories approved by DPR; no further action is required.
DDT	41 counties 1,895 wells (4)	0.02 - 0.12	USEPA IRIS- 3.5	Insecticide. NR. All detections classified as point sources.
Deethyl-Atrazine (DEA)	35 counties 1,092 wells (90)	0.001 - 2	No criteria established	Degradate product of atrazine. Atrazine is AR. Detections of DEA were determined to be due to LAU of atrazine.
Demeton	46 counties 1,760 wells (1)	1	USEPA IRIS- 0.3	Systemic-insecticide. NR. Referred to SWRCB.
DACT	23 counties 460 wells (153)	0.05 - 6.9	No criteria established	Degradate product of atrazine and simazine. Atrazine and simazine are AR. Detections of DACT were determined to be due to LAU of atrazine.
Diazinon	56 counties 6,392 wells (8)	0.01 - 3.2	DHS AL- 6 USEPA SNARL- 0.6	Insecticide. AR. Follow up monitoring surveys by DPR did not confirm these detections. The latest detection is CUI.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Dicamba	52 counties 3,915 wells (7)	0.01 - 5	USEPA IRIS- 210 USEPA SNARL- 200	Herbicide. AR. Follow up monitoring surveys by DPR did not confirm these detections.
Dichlorprop	3 counties 49 wells (1)	6.8	No criteria established	Hormone-systemic type herbicide. NR. Referred to SWRCB.
Dichlorprop, Butooxyethanol Ester	22 counties 235 wells (3)	0.1 - 6.8	No criteria established	Hormone-systemic type herbicide. NR. Referred to SWRCB.
Dieldrin	56 counties 4,807 wells (6)	0.05 - 7	DHS AL- 0.002	Insecticide. NR. Referred to SWRCB.
Dimethoate	54 counties 5,552 wells (3)	0.38 - 24	DHS AL- 1 USEPA IRIS- 1.4	Systemic-insecticide. AR. Follow up monitoring surveys by DPR did not confirm detections.
Dinoseb	50 counties 5,196 wells (1)	30	DHS- 7 USEPA- 7 PHG- 14	Herbicide. NR. Referred to SWRCB.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Diquat Dibromide	45 counties 3,765 wells (3)	2 - 549.1	DHS- 20 USEPA- 20 PHG- 15	Herbicide. AR. Follow up sampling by DHS was negative; no further sampling was needed. Latest detection is CUI.
Diuron	54 counties 7,534 wells (469)	0.023 - 5.2	USEPA IRIS- 14 USEPA SNARL- 10	Herbicide. AR. Detections were determined to be due to LAU.
Endosulfan	48 counties 2,758 wells (10)	0.01 - 34.7	USEPA IRIS- 42	Insecticide. AR. Follow up sampling by DHS was negative; no further sampling was needed.
Endosulfan Sulfate	47 counties 2,111 wells (3)	0.15 - 0.48	No criteria established	Degradate of endosulfan. Endosulfan is AR. Follow up sampling by DHS was negative; no further sampling was needed.
Endothal, Disodium Salt	48 counties 3,089 wells (3)	100 - 48.1	DHS- 100 USEPA- 100 PHG- 580	Pre, post-emergent herbicide. NR. Early 1989 detections were not confirmed by DPR monitoring. Inactive in 1992. Latest 2003 detection referred to SWRCB
Endrin	58 counties 6,496 wells (4)	0.03 - 0.21	DHS- 2 USEPA- 2 PHG- 2	Insecticide. NR. Referred to SWRCB.
EPTC	36 counties 1,536 wells (1)	5.6 - 170	USEPA IRIS-180	Herbicide. AR. Early detections classified as point sources.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Ethylene Dibromide	55 counties 7,576 wells (169)	0.006 - 4.7	DHS- 0.05 USEPA- 0.05 PHG- 0.01	Fumigant. NR. Referred to SWRCB.
Ethylene Dichloride	11 counties 197 wells (1)	2.9	DHS- 0.5 USEPA- 5 PHG- 0.4	Fumigant. NR. Referred to SWRCB.
Ethylene Thiourea	8 counties 67 wells (1)	0.725	USEPA IRIS- 0.6 USEPA SNARL-300 (10-day)	Fumigant. NR. Follow up DPR sampling did not confirm detection.
Glyphosate, Isopropylamine Salt	51 counties 3,891 wells (1)	20	DHS- 700 USEPA- 700 PHG- 1,000	Nonselective, postemergence herbicide. AR. Follow up DPR sampling did not confirm detection.
Heptachlor	56 counties 5,887 wells (12)	0.01 - 0.25	DHS- 0.01 USEPA- 0.4 PHG- 0.008	Insecticide. NR. Referred to SWRCB.
Heptachlor Epoxide	56 counties 5,878 wells (1)	0.01 - 0.08	No criteria established	Degradate product of heptachlor. Heptachlor is not registered, no further action is taken.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Hexazinone	46 counties 1,957 wells (18)	0.05 - 0.55	USEPA IRIS- 230 USEPA SNARL-400	Herbicide. AR. Detections in 4 wells in Tulare County classified as point sources. Follow up sampling has confirmed detections but they were determined to be transient, not due to LAU.
Lindane (Gamma-BHC)	58 counties 6,573 wells (4)	0.05 - 180	DHS- 0.2 USEPA- 0.2 PHG- 0.032	Insecticide. AR. Follow up DPR sampling did not confirm detections.
Malathion	37 counties 1,213 wells (1)	0.32	DHS AL-160 USEPA IRIS- 140 USEPA SNARL-100	Insecticide. AR. Follow up DPR sampling did not confirm the detection.
Merphos	19 counties 404 wells (1)	1	USEPA IRIS- 0.2	Defoliant. NR. Referred to SWRCB.
Methomyl	51 counties 4,664 wells (1)	0.8 - 1	USEPA IRIS- 180 USEPA SNARL-200	Carbamate Insecticide. AR. Follow up sampling did not confirm detections.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Methoxychlor	57 counties 6,068 wells (2)	0.5	DHS- 30 USEPA- 40 PHG- 30	Insecticide. NR. Referred to SWRCB.
Methyl Bromide	58 counties 11,163 wells (23)	0.5 - 6.4	USEPA IRIS- 9.8 USEPA SNARL-10	Fumigant. AR. Follow up DPR sampling did not confirm detections.
Methylene Chloride	6 counties 61 wells (6)	3 - 6	PHG-4	Fumigant. NR. Referred to SWRCB.
Metolachlor ESA	9 counties 88 wells (26)	0.05 - 24	No criteria established	Degradate product of metolachlor. Metolachlor is AR (as S-metolachlor). DPR confirmed detections. Toxicological data are equivocal and require further consultation with other agencies.
Metolachlor OXA	9 counties 88 wells (10)	0.05 - 2.65	No criteria established	Degradate product of metolachlor. Metolachlor is AR (as S-metolachlor). DPR confirmed detections. Toxicological data are equivocal and require further consultation with other agencies.
Mexacarbate	22 counties 426 wells (1)	22	No criteria established	Insecticide. NR. Referred to SWRCB.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Molinate	55 counties 6,344 wells (13)	0.002 - 29	DHS- 20 USEPA IRIS- 14	Selective herbicide. AR. Early detections determined to be due to poor well construction. USGS detections are found in monitoring well below 80 percent of the detectable range of laboratory approved by DPR; no further action was taken. DHS detection CUI.
Molinate Sulfoxide	17 counties 210 wells (1)	0.8	No criteria established	Degradate product of molinate. Molinate is AR. Detection due to poor well construction.
Monuron	25 counties 503 wells (4)	0.04 - 2	No criteria established	Herbicide. NR. Referred to SWRCB.
MTP	10 counties 274 wells (1)	2.41 - 2.55	No criteria established	Degradate product of chlorthal-dimethyl (AR). Follow up sampling did not confirm detections.
Naled	15 counties 219 wells (1)	5	USEPA IRIS- 14	Insecticide. AR. Follow up DPR sampling did not confirm the detection.
Naphthalene	57 counties 6,767 wells (22)	0.5 - 66	DHS AL-170 USEPA IRIS- 14 USEPA SNARL-100	Fumigant. NR. Referred to SWRCB.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Norflurazon	30 counties 710 wells (40)	0.022 - 0.79	USEPA IRIS- 280	Selective herbicide. AR. Detections determined to be due to LAU.
Ortho-Dichlorobenzene	58 counties 10,262 wells (10)	0.56 - 12	DHS- 600 USEPA- 600 PHG- 600	Herbicide. NR. Referred to SWRCB.
Paraquat Dichloride	26 counties 720 wells (5)	0.91 - 16	USEPA IRIS- 3.2 USEPA SNARL-30	Herbicide. AR. Follow up DPR sampling did not confirm these detections.
Picloram	51 counties 4,200 wells (5)	0.1 - 5	DHS- 500 USEPA- 500 PHG- 500	Systemic herbicide. NR. Detections referred to SWRCB.
Prometon	48 counties 4,613 wells (51)	0.05 - 80	USEPA IRIS- 110 USEPA SNARL-100	Nonselective herbicide. AR. Detections were determined to be due to LAU.
Prometryn	57 counties 7,468 wells (3)	0.1 - 0.5	USEPA IRIS- 28	Selective herbicide. AR. Follow up monitoring did not confirm detections.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Propachlor	52 counties 4,111 wells (1)	1.1	USEPA IRIS- 91 USEPA SNARL- 90	Selective herbicide. NR. Referred to SWRCB.
Propazine	38 counties 968 wells (1)	0.2	USEPA IRIS- 14 USEPA SNARL-10	Selective herbicide. NR. Referred to SWRCB.
Propham	35 counties 1,062 wells (1)	6	USEPA IRIS- 140 USEPA SNARL-100	Herbicide. NR. Detection classified as a point source. Referred to SWRCB.
Propoxur	44 counties 1,163 wells (2)	4 - 5	DHS AL- 30 USEPA IRIS- 2.8 USEPA SNARL- 3	Insecticide. AR. Follow up DPR sampling did not confirm detection. Latest detection, 5ppb, is CUI.
Simazine	57 counties 11,775 wells (794)	0.002 - 49.2	DHS- 4 USEPA- 4 PHG- 4	Herbicide. AR. Detections were determined to be due to LAU.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
Tebuthiuron	23 counties 149 wells (4)	0.005 - 22.1	USEPA IRIS- 490 USEPA SNARL- 500	Herbicide. AR. Follow up DPR sampling did not confirm early detections. Later detections were reported by USGS in monitoring wells. These detections are below 80 percent of obtainable MDL from DPR approved labs; no follow up sampling required.
Tetrachloroethylene	9 counties 193 wells (5)	0.2 - 2.5	DHS- 5 USEPA- 5 PHG- 0.06	Insecticide. NR. Detections referred to SWRCB.
Tetrachlorovinphos	21 counties 173 wells (1)	1	USEPA IRIS- 210	Insecticide. AR. Follow up DPR sampling did not confirm the detections.
Thiobencarb	55 counties 5,999 wells (8)	0.006 - 8.7	PHG-70 USEPA IRIS- 70	Preemergent herbicide. AR. Follow up DPR sampling did not confirm early detections.
Thiram	2 counties 18 wells (4)	5 - 17	USEPA IRIS- 35	Fungicide. AR. Follow up DPR sampling did not confirm the detections.
Toxaphene	58 counties 6,629 wells (6)	1 - 57	DHS- 3 USEPA- 3 PHG- 0.03	Insecticide. NR. Detections classified as point sources. Referred to SWRCB.

Compound Detected	Number of Counties and Wells Sampled (Number of Wells with Detections)	Range of Concentrations Detected (ppb)	Water Quality Criteria (ppb) [a]	Registration Status, Type of Compound, Comments
TPA	10 counties 274 wells (35)	0.1 - 15		Degradate product of chlorthal-dimethyl (AR). Follow up by DPR confirmed detections. DPR determined that detections did not pose a threat to public health; no further action necessary.
Trifluralin	32 counties 793 wells (2)	0.01 - 0.9	USEPA SNARL- 5	Preemergent herbicide. AR. Follow up DPR sampling did not confirm detections.
Xylene	58 counties 10,080 wells (98)	0.3 - 1100	DHS- 1,750 USEPA- 10,000 PHG- 1,800	Solvent. NR. Referred to SWRCB.

[a] DHS= California Department of Health's drinking water standards, maximum contamination level (MCL); DHS-AL = California Department of Health's action level; USEPA= U.S. Environmental Protection Agency's MCL; PHG= Office of Environmental Health Hazard Assessment's California public health goal; USEPA IRIS= U.S. EPA integrated risk information system reference dose as a drinking water level; USEPA SNARL= U.S EPA suggested no-adverse-response level for toxicity other than cancer risk