SAMPLING FOR PESTICIDE RESIDUES IN CALIFORNIA WELL WATER

2010 Update of the Well Inventory Database

For Sampling Results Reported From July 2009 through June 2010

Twenty-fifth Annual Report

Pursuant to the
Pesticide Contamination Prevention Act

California Environmental Protection Agency
DEPARTMENT OF PESTICIDE REGULATION

May, 2011

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

EXECUTIVE SUMMARY

This report summarizes well sampling results reported to and collected by the Department of Pesticide Regulation (DPR) from July 2009 through June 2010. This reporting period includes wells that were sampled for pesticides from January 2009 through June 2010. This report provides an analysis of those results to determine the probable source of the residues and the actions taken to prevent migration of pesticides to ground water by DPR for nonpoint agricultural sources of pesticides and by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) for point sources of pesticides.

BACKGROUND

The purpose of the Pesticide Contamination Prevention Act of 1985, as amended (Food and Agricultural Code [FAC] sections 13141-13152), is to prevent further pesticide pollution of ground water aquifers which may be used for drinking water supplies in California. Among other provisions, this law requires:

- DPR to identify pesticides with the potential to pollute ground water (Groundwater Protection List [GWPL]) and monitor for those pesticides to determine if they have migrated to ground water.
- DPR to verify reported detections of pesticides in ground water and determine whether those detections were the result of agricultural use of the pesticide.
- State and local agencies to submit all results of well monitoring for pesticides to DPR.
- DPR to maintain a statewide data base of wells sampled for pesticides.
- DPR to post on its Web site[1] annually (1) the number of wells sampled for pesticides, (2) the number of wells with reported detections of pesticides, (3) the location of the wells, (4) the agencies responsible for drawing and analyzing the samples, (5) an analysis to determine the probable source of the detections, and (6) actions taken by the DPR's Director and SWRCB to prevent pesticides from migrating to ground waters of the state.

This is the 25th annual report of this information.

RESULTS OF WELL SAMPLING FOR PESTICIDES AND SOURCES OF DETECTED RESIDUES

From January 2009 through June 2010, the California Department of Public Health (CDPH) and DPR sampled 2,987 wells for 127 pesticides and degradates. One or more of 24 pesticides and/or degradates were detected in 375 wells. The positive wells were located in one or more of 20 counties out of 52 counties sampled (Table i). The 24 pesticide and degradates reported detected were 1,2,4-trichlorobenzene;1,2-dichloropropane (1,2-D); alachlor ethanesufonic acid; alachlor oxanilic acid; aldicarb; atrazine; bromacil; dacthal degradates; 1,2-dibromo-3-chloropropane (DBCP); deethyl-atrazine; deethyl-simazine or deisopropyl-atrazine; desmethylnorflurazon; diamino-chlorotriazine; diuron; ethylene dibromide (EDB); hexazinone;

[1] <www.cdpr.ca.gov>

methyl bromide, metolachlor ethanesufonic acid; metolachlor oxanilic acid; norflurazon; prometon; simazine; tebuthiuron degradate 104; and xylene.

Table i. Summary, by agency, of well sampling data collected in 2009 and 2010.

Category	*Reporting Period and Agency*			
	2009 / 2010			*1985-2010*
	Total	*CDPH*	*CDPR*	*All Reporting Agencies*
Counties Sampled	52	52	8	58
Counties with Detections	20	17	7	50
Wells Sampled	2,987	2,851	136	22,999
Wells with Detections	375	272	103	5,160
Pesticides and/or Degradates Sampled	127	111	23	336
Pesticides and/or Degradates Detected	24	8	16	107

The status of the 14 pesticides and 10 degradates reported detected in this year's report is as follows:

- 5 of the 14 pesticides detected are no longer contained in products registered for use in California. These are DBCP; 1,2-D; 1,2,4-trichlorobenzene; EDB; and xylene. Although xylene has not been used as a pesticide or included in pesticide formulations for many years, it has many other industrial uses which may account for its continued detection in ground water.

- Aldicarb was reported in one public water supply well. However, the water system owner retested this well within three months and did not detect aldicarb residues in the follow up sample. This well also had been sampled for aldicarb in 2004 and 2007 but no residues were detected in those samples. From 1997 through 2007, pesticide handlers reported using less than one pound of aldicarb within several miles of this well. DPR will not initiate monitoring unless the water system reports two or more consecutive detections of this pesticide.

- Hexazinone detections have been determined by DPR to be the result of legal agricultural use. Hexazinone is currently being evaluated according to the pesticide detection response process to determine how it should be regulated.

- Methyl bromide was detected in two public water supply wells. Both wells were retested by the water system owners and no methyl bromide residues were detected in the follow up samples. DPR does not consider methyl bromide to be a likely threat to ground water based on its high volatility and will defer follow-up monitoring until a second consecutive detection is reported in a sampled well.

- An unspecified degradation product of dacthal was detected in four wells. Degradation products of dacthal have been detected in the past and were determined not to pose a threat to public health at the levels found. Since the current detections do not exceed prior levels, DPR did not resample the wells to validate and verify the detections.

- DPR detected ethanesulfonic and/or oxanilic acid degradates of alachlor and metolachlor in over 30 wells but failed to detect the parent pesticides in any well sampled. DPR determined that the degradates do not pose a threat to public health at the concentrations detected. No further monitoring has been planned. DPR may consider regulatory options after receiving a final report assessing these detections.

- DPR detected a degradate of tebuthiuron in one well but did not detect the parent pesticide. No further monitoring has been planned by DPR.

- The remaining ten pesticides and degradates are currently registered for use in California and regulated by DPR as ground water contaminants in certain areas of the state (Table ii). With the exception of one atrazine detection in Kern County, these detections occurred in areas of Fresno and Tulare counties that have been identified as ground water protection areas (GWPAs).

Table ii. Reported detections of pesticides, or their degradates, currently regulated to protect ground water.

Pesticide Detected	*Number of Wells with Detections*	*Range of Concentrations (ppb)*	*Maximum Contaminant Level (ppb)*
Atrazine	3	0.06 - 0.125	1
Bromacil	20	0.052 - 4.69	None established (NE)
Deethyl-atrazine (degradate of atrazine)	6	0.071 - 0.231	NE
Deethyl-simazine or deisopropyl atrazine (degradate of atrazine or simazine)	57	0.05 - 1.19	NE
Desmethyl-norflurazon (degradate of norflurazon)	35	0.051 - 1.02	NE
Diamino-chlorotriazine (degradate of atrazine or simazine)	65	0.058 - 4.7	NE
Diuron	28	0.052 - 0.656	NE
Norflurazon	19	0.057 - 0.684	NE
Prometon	1	0.089	NE
Simazine	46	0.05 - 0.175	4

ACTIONS TAKEN TO PREVENT MIGRATION OF PESTICIDES TO GROUND WATER

Department of Pesticide Regulation

I. Protecting Vulnerable Areas from Pesticide Contamination

Regulating the Use of Pesticides Found in Ground Water Through Permitting

DPR continues to regulate the seven pesticides that have been found in ground water due to agricultural use–atrazine, simazine, bromacil, diuron, prometon, bentazon, and norflurazon–by requiring permits and specified mitigation measures for use in sensitive areas (called GWPAs). These GWPAs are classified as either leaching or runoff depending on the pathway of pesticide movement to ground water. There are 1673 sections of land (1.1 million acres) identified as leaching GWPAs, where the mitigation measures are designed to prevent over-irrigation, 2015 sections of land (1.3 million acres) identified as runoff GWPAs, where the mitigation measures are designed to either prevent offsite movement of contaminated runoff or manage contaminated runoff so that it does not move to ground water. Fifty four sections of land (35,000 acres) were identified as partial leaching and partial runoff GWPAs.

In addition, DPR continues to enforce statewide regulations to protect ground water from the use of aldicarb and bentazon.

Assessing the Effectiveness of Mitigation Measures

To assess the effectiveness of mitigation measures to protect ground water, DPR established a well network in 1999 to monitor pesticide levels over time. A preliminary analysis indicates a decrease in concentrations of simazine, bromacil, and diuron, which have been regulated since the early 1990's, and an increase in concentrations of norflurazon, which was not regulated until the late 1990's. This is consistent with a previous age-dating study that showed that the median time for a pesticide to move from the soil surface to well water was seven to nine years, indicating that there would be an expected lag time between adoption of regulations and changes in pesticide concentrations in ground water. A complete analysis of changes in the pesticide concentrations in these wells since 1999 will be published in a separate report.

DPR is also working to develop pesticide use modifications that protect ground water and are practical and effective. The most recent effort focused on the application of preemergent herbicides through a low volume micro-sprinkler irrigation system. DPR expects to complete the study report by 2011.

II. Identifying Potential Ground Water Contaminants

The Pesticide Contamination Prevention Act requires DPR to:

- Obtain physical and chemical data, including terrestrial field dissipation (TFD) data, on agricultural use pesticides from manufacturers (registrants).
- Use these data to establish specific numerical values (SNVs) for persistence and mobility characteristics that distinguish pesticides that move to ground water due to agricultural use from pesticides that do not move to ground water due to agricultural use.
- Identify pesticides that exceed at least one SNV for persistence and at least one SNV for mobility, and post a list of those pesticides annually on the DPR Web site.
- Place pesticides that exceed the SNVs and are applied in specific ways on the GWPL of chemicals that have the potential to pollute ground water.
- Sample ground water for GWPL pesticides to determine if they are migrating to ground water.

Collecting Environmental Fate Data on Agricultural Pesticides

DPR maintains physical and chemical data submitted by pesticide registrants in the Pesticide Chemistry Database. Staff continued to review submitted data and enter it into the database. In addition, staff are recalculating the TFD half-life values using a standard operating procedure for consistency and clarity.

Improving Contaminant Transport Modeling Tools

DPR uses the LEACHM pesticide fate and transport computer model to evaluate the potential of pesticides proposed for registration to move to ground water, and prioritize pesticides on the GWPL for monitoring. The pesticide TFD rate is one of the important types of measured data used in this model. The current modeling scenario assumes a constant terrestrial field dissipation rate with soil depth, but studies indicate that slower dissipation rates dominate at lower soil layers. Thus, using a constant dissipation rate would underestimate pesticide concentrations in ground water. In 2007 DPR initiated a study to provide estimates of depth-specific pesticide dissipation rates for two commonly used pesticides, simazine, and diuron. Results from this investigation will be issued in a separate report.

Evaluating New Pesticides for Registration and Use in California

DPR uses the LEACHM model to evaluate the ground water contamination potential of pesticides proposed for registration. Between July 1, 2009 and June 30, 2010 DPR's Ground Water Protection Program evaluated the ground water contamination potential of 11 active ingredients (A.I.s)contained in 36 pesticide products proposed for California registration. Registration was recommended for two A.I.s included in six pesticide products because they did not present a significant threat to ground water. Five A.I.s received conditional registration in which registrants were required to supply additional environmental fate data and, in two cases, improve their labels to better protect ground water. Four A.I.s contained within eight pesticide products were not recommended for registration by Ground Water Protection Program staff

because one or more mandatory studies required to support pesticide registration in California were absent from their product data submissions or had various deficiencies with the supporting data required for product registration. These included studies with quality control related issues and failure to meet specific study requirements.

Prioritizing Potential Pesticide Contaminants for Monitoring

As required by the Pesticide Contamination Prevention Act (PCPA), DPR monitors ground water in California to determine if pesticides on the GWPL have migrated to ground water as a result of legal agricultural use. Prior monitoring results indicate that the risk of ground water contamination varies with the pesticides' environmental fate, use intensity and typical application practices. Recently, DPR developed a method using these risk factors to prioritize the pesticides on this list for monitoring. Iprodione, azoxystrobin, dichloran, vinclozalin, and chlorothalonil were selected for analytical method development and monitoring in 2010 using this method. Monitoring for vinclozalin and chlorothalonil was postponed because of laboratory analytical difficulties. The chlorothalonil analytical method was subsequently developed and monitoring for this pesticide will occur in late 2010 or in 2011. Monitoring for iprodione, azoxystrobin, and dichloran is discussed below. A second tier of 17 pesticides has been selected from the GWPL prioritization scheme for further analysis to determine which to recommend for future method development and monitoring.

III. Monitoring for Potential Pesticide Contaminants

Monitoring for Metolachlor and Imidacloprid – GW 09

In the 2009 Well Inventory Report, DPR reported that imidacloprid sampling had been concluded (Bergin, 2009) and sampling for metolachlor, s-metolachlor and alachlor had been initiated. In late 2009, DPR concluded this study: 68 wells in Kings, Sacramento, San Joaquin, Solano, Stanislaus, and Yolo counties were sampled for metolachlor, s-metolachlor, alachlor, and the ESA and OXA degradation products of these pesticides. Wells were also sampled for the pesticides and degradation products in the triazine screen (atrazine, bromacil, diuron, hexazinone, norflurazon, prometon, simazine and tebuthiuron). No residues of metolachlor, s-metolachlor or alachlor were found. However, metolachlor ESA and metolachlor OXA were present in 49% and 18% of the wells sampled, respectively Alachlor ESA and alachlor OXA were present in 23% and 2% of the wells sampled, respectively. Most of the alachlor ESA detections occurred in the same wells as the metolachlor ESA detections which was not unexpected given that both parent pesticides were used on corn and bean crops. Pesticides included in the triazine screen were found in 20% of the wells sampled with over half of the detections located outside of the ground water protection areas. A final report on metolachlor monitoring will be available in 2011.

Monitoring for Azoxystrobin, Chlorothalonil, Dicloran, and Iprodione – GW 10

In May 2010, DPR initiated sampling for this study and, throughout the year, sampled 113 wells in Butte, Fresno, Glenn, Kern, Merced, Monterey, Santa Barbara, Santa Cruz, Stanislaus, Tulare, and Ventura counties for azoxystrobin, dichloran, iprodione, two azoxystrobin degradates, and

an iprodione degradate. Seventy-eight of the wells were also sampled for pesticides in the triazine screen where there was reported use of those pesticides and the area was not a GWPA.

Due to difficulties during analytical method development, DPR delayed sampling for chlorothalonil. DPR plans to sample approximately 60 wells for chlorothalonil in high-use counties such as Fresno, Kern, and Ventura. DPR anticipates completing all sampling for this study by June 2011, and issuing a final report in early 2012.

Monitoring Ground Water Vulnerability Outside GWPAs

DPR is currently conducting a study to assess the vulnerability of areas outside current GWPAs by monitoring for regulated and suspected pesticide contaminants. Results from this study will be issued in a separate report.

State Water Resources Control Board

State Water Board 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, University of California (UC) scientists, and pesticide manufacturers to design monitoring studies and Best Management Practices (BMPs).

- Participated in discussions with U.S. Geological Survey (USGS) 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.

- In coordination with the USGS and Lawrence Livermore National Laboratory (LLNL), the State Water Board is implementing the Groundwater Ambient Monitoring and Assessment Program (GAMA). To date, the GAMA – Priority Basins Project has sampled over 2,000, mostly public water supply wells, for various chemicals and parameters, including pesticides, herbicides and their degradates. This report summarizes the water quality results for the following study units: Southern and Central Sierra, East-Central San Joaquin Valley, Southeast San Joaquin Valley, North San Joaquin Valley, South Sacramento Valley, Middle Sacramento Valley, Upper Los Angeles Basin, North San Francisco Bay, Salinas-Monterey, San Diego, Mojave and Kern County, and sampled during the 2009-2010; Coastal Los Angeles, Owens and Indian Wells Valleys, Santa Ana, Coachella Valley, Santa Clara river

Valley, San Francisco Bay, Tahoe/Martis, Colorado river, North Sacramento Valley, Antelope Valley, Madera-Chowchilla, South Coast Ranges Interior, and Sierra Regional.

Regional Water Quality Control Boards

The report summarizes, by county, the monitoring, assessment, cleanup, and other actions taken by the nine regional water quality control boards to address point sources of contamination for pesticides.

PREFACE

This report fulfills the requirements of AB 2701 (Chapter 644, Statutes of 2004), which amended the PCPA to require DPR to post specified information on sampling for pesticide residues in California ground water to its Web site. This law replaced the previous requirement that DPR submit the sampling information in a written report to the Legislature, the SWRCB and the CDPH.

This report presents data reported to and collected by DPR from July 1, 2009, through June 30, 2010.

The PCPA requires the annual report to give the location of wells for which sampling results were reported. Privacy and security concerns and the large number of wells sampled prevent DPR from listing exact well locations. Instead, this report summarizes the locations by county. DPR can provide additional location information (county, township, range, and section) upon request. If you require this information, please contact DPR's Ground Water Protection Program at 916-324-4039.

ACKNOWLEDGEMENTS

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

As required by the PCPA, this report discusses the source of active ingredients, contained in registered pesticide products, which have been found in ground water. DPR provides this information to satisfy legal mandates and inform the public. Any discussion of commercially available pesticide products, or the way they are applied, does not constitute an actual or implied endorsement of these products by DPR.

ABBREVIATIONS

1,2-D	1,2-dichloropropane (propylene dichloride)
1,3-D	1,3-dichloropropene (telone)
3CCR	Title 3 of the California Code of Regulations
ACET	deethyl-simazine or deisopropyl-atrazine
A.I.s	Active Ingredients
CAC	County Agricultural Commissioner
CDFA	California Department of Food and Agriculture
CDPH	California Department of Public Health
DACT	diaminochlorotriazine
DBCP	1,2-dibromo-3-chloropropane
DEA	deethyl-atrazine
DSMN	desmethyl norflurazon
DPR	Department of Pesticide Regulation
EDB	ethylene dibromide
ESA	ethanesulfonic acid
FAC	Food and Agriculture Code
GAMA	Groundwater Ambient Monitoring and Assessment
GWPA	ground water protection area
GWPL	Groundwater Protection List
MCL	Maximum Contaminant Level
OEHHA	Office of Environmental Health Hazard Assessment
OXA	oxanilic acid
PCPA	Pesticide Contamination Prevention Act
PMZ	Pesticide Management Zone
ppb	parts per billion
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
U.S. EPA	United States Environmental Protection Agency

TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **I**

PREFACE ..... **IX**

ACKNOWLEDGEMENTS ..... **IX**

DISCLAIMER ..... **IX**

ABBREVIATIONS ..... **X**

TABLE OF CONTENTS ..... **XI**

LIST OF TABLES AND FIGURES ..... **XIII**

INTRODUCTION **1**

COLLECTING GROUND WATER SAMPLING DATA **3**

WELL INVENTORY DATABASE 3
PRINCIPAL REPORTING AGENCIES 4
Department of Pesticide Regulation 4
California Department of Public Health 5
State Water Resources Control Board–Groundwater Ambient Monitoring and Assessment Program 6

SAMPLING GROUND WATER FOR PESTICIDES **8**

GROUND WATER MONITORING REQUIREMENTS 8
RESPONDING TO REPORTED PESTICIDE DETECTIONS 8
GROUND WATER SAMPLING RESULTS 10
Overview 10
California Department of Public Health Sampling Results 11
CDPH Sampling Results Summarized by Pesticide 11
CDPH Sampling Results Summarized by County 14
Department of Pesticide Regulation Sampling Results 15
DPR Sampling Results Summarized by Pesticide 15
DPR Sampling Results Summarized by County 18
Well Location Information 20

ACTIONS TAKEN TO PREVENT GROUND WATER CONTAMINATION **21**

DEPARTMENT OF PESTICIDE REGULATION 21
Protecting Vulnerable Areas from Pesticide Contamination 21
Regulating the Use of Pesticides Found in Ground Water through Permitting 21
Assessing the Effectiveness of Mitigation Measures 22
Identifying Potential Ground Water Contaminants 24
Collecting Environmental Fate Data on Agricultural Pesticides 25
Improving Contaminant Transport Modeling Tools 26
Evaluating New Pesticides for Registration and Use in California 27
Prioritizing Potential Pesticide Contaminants for Monitoring 28

Monitoring for Potential Pesticide Contaminants 29
Monitoring for Metolachlor and Imidacloprid –GW09 29
Monitoring for Azoxystrobin, Chlorothalonil, Dicloran, and Iprodione –GW10 31
Monitoring Ground Water Vulnerability Outside GWPAs 32
STATE AND REGIONAL WATER RESOURCES CONTROL BOARDS 33
State Water Board 33
Regional Water Boards 34
Region 1–North Coast Regional Water Quality Control Board 34
Region 2–San Francisco Bay Regional Water Quality Control Board 35
Region 3–Central Coast Regional Water Quality Control Board, Central Coast 36
Region 4–Los Angeles Regional Water Quality Control Board 36
Region 5–Central Valley Regional Water Quality Control Board–Fresno 37
Region 5–Central Valley Regional Water Quality Control Board–Redding 40
Region 5–Central Valley Regional Water Quality Control Board–Sacramento 41
Region 6–Lahontan Regional Water Quality Control Board 44
Region 7–Colorado River Basin Regional Water Quality Control Board 46
Region 8–Santa Ana Regional Water Quality Control Board 47
Region 9–San Diego Regional Water Quality Control Board 50

REFERENCES 51

APPENDIX A–GROUND WATER SAMPLING RESULTS THROUGH JUNE 30, 2010 SUMMARIZED BY REPORTING AGENCY 54

APPENDIX B–WELL SAMPLING RESULTS SUMMARIZED BY PESTICIDE AND REPORTING AGENCY 56

APPENDIX C–SUMMARY OF HISTORICAL AND CURRENT PESTICIDE DETECTIONS AND CURRENT WATER QUALITY LIMITS 60

APPENDIX D–WELL SAMPLING RESULTS SUMMARIZED BY COUNTY AND REPORTING AGENCY 72

APPENDIX E–WELL SAMPLING RESULTS SUMMARIZED BY COUNTY AND PESTICIDE 75

GLOSSARY OF TERMS 136

LIST OF TABLES AND FIGURES

Table 1. Summary, by agency, of well sampling data reported from July 2009 through June 2010 10
Table 2. California registration status of detected pesticides and pesticide degradation products reported from July 2009 through June 2010. 11
Table 3. Pesticide detections and concentrations reported by CDPH from July 2009 through June 2010 12
Table 4. Pesticide detections summarized by county and pesticide reported by CDPH from July 2009 through June 2010. 15
Table 5. Pesticide detections and concentrations reported by DPR from July 2009 through June 2010 17
Table 6. Pesticide detections summarized by county and pesticide reported by DPR from July 2009 through June 2010. 19
Table 7: Study GW09 – Well sampling results. 30
Table 8. Actions taken by the North Coast Regional Water Quality Control Board (Region 1) in Fiscal Year 2009-2010. 34
Table 9. Actions taken by the San Francisco Bay Regional Water Quality Control Board (Region 2) in Fiscal Year 2008-2009. 35
Table 10. Actions taken by the Central Coast Regional Water Quality Control Board (Region 3) in Fiscal Year 2009-2010. 36
Table 11. Actions taken by the Los Angeles Regional Water Quality Control Board (Region 4) in Fiscal Year 2009-2010. 36
Table 12. Actions taken by the Central Valley Regional Water Quality Control Board (Region 5, Fresno) in Fiscal Year 2009-2010 37
Table 13. Actions taken by the Central Valley Regional Water Quality Control Board (Region 5, Redding) in Fiscal Year 2009-2010. 40
Table 14. Actions taken by the Central Valley Regional Water Quality Control Board (Region 5, Sacramento) in Fiscal Year 2009-2010 41
Table 15. Actions taken by the Lahontan Regional Water Quality Control Board (Region 6) in Fiscal Year 2009-2010. 44
Table 16. Actions taken by the Colorado River Basin Regional Water Quality Control Board (Region 7) in Fiscal Year 2009-2010 46
Table 17. Actions taken by the Santa Ana Regional Water Quality Control Board (Region 8) in Fiscal Year 2009-2010. 47
Table 18. Actions taken by the San Diego Regional Water Quality Control Board (Region 9) in Fiscal Year 2009-2010. 50

Figure 1. Wells in the DPR well inventory database. 3
Figure 2. Ground water protection areas (GWPAs) 21

INTRODUCTION

California has regulated pesticides for a century. Its citizens–through their Legislature–have established a comprehensive body of law to control pesticide sales and use, and to assure that the state's pesticide regulators also have the tools to assess the impacts of that use. The first pesticide-related law was passed in this state in 1901, and since the 1960s, a whole body of modern, increasingly science-based pesticide law and regulation has come into being.

The California Department of Pesticide Regulation (DPR) protects human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management. DPR's oversight begins with product evaluation and registration, and continues through statewide licensing of commercial applicators, dealers and advisers; environmental monitoring; and residue testing of fresh produce. About 400 DPR employees, including scientists from many disciplines, carry out California's pesticide regulatory program. In addition, approximately 250 full-time biologists dedicated to pesticide use enforcement work for County Agricultural Commissioners (CACs) who are responsible for local pesticide enforcement. DPR's annual budget is approximately $79 million of which about $20 million funds local pesticide enforcement activities in the counties.[2]

DPR began addressing pesticide contamination of ground water in the early 1980's after the discovery of contamination from the legal application of the fumigant dibromochloropropane (DBCP). Reports of additional pesticides in ground water resulted in the passage of the Pesticide Contamination Prevention Act (PCPA) in 1985, which added sections 13141-13152 to the Food and Agriculture Code (FAC). DPR's Ground Water Protection Program is based on general authority in the FAC to protect the environment from harmful pesticides, and specific authority in the PCPA that establishes a process to prevent further pesticide pollution of ground water used for drinking water supplies by agricultural pesticides. "Pollution" is defined in FAC section 13142 (j) as "the introduction into the groundwaters of the state of an A.I., other specified product, or degradation product of an active ingredient of a pesticide above a level, with an adequate margin of safety, that does not cause adverse health effects." The PCPA requires DPR to do the following:

- Require pesticide registrants to submit environmental fate data for agricultural use pesticides.[3]
- Use those data to identify pesticides with the potential to pollute ground water.
- Conduct well sampling to determine if potential leachers have moved to ground water.
- Determine whether a pesticide detected in ground water was due to legal (i.e., applications made in accordance with the label) agricultural use.
- Conduct a formal hearing to determine whether continued use of a pesticide found in ground water due to legal agricultural use should be allowed.

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[2] From the Department of Finance, California Budget for DPR for Fiscal Year 2008-2009 <http://www.ebudget.ca.gov/StateAgencyBudgets/3890/3930/spr.html>.

[3] California's definition of "agricultural use" is broad, and includes not only pesticide use in production agriculture, but also on turf (e.g., golf courses, cemeteries) and along rights-of-way.

- If continued use is allowed, adopt reduced risk practices in regulation to prevent pollution of ground water.
- Establish a database of well sampling results that must be reported to DPR by all local, county, and State agencies monitoring for pesticides in ground water.
- Prepare an annual report that summarizes the reported monitoring results, analyzes those results to determine the probable source of the residues, and specifies the actions taken by DPR for nonpoint agricultural sources and by the SWRCB for point sources to prevent further contamination of ground water.

In addition to implementation of the PCPA, DPR's Ground Water Protection Program focuses on:

- Developing pesticide use practices and irrigation methods that substantially reduce the movement of pesticides to ground water.
- Improving contaminant transport modeling tools used to evaluate the ground water contamination potential of agricultural pesticides proposed for use in California.
- Assuring property operator understanding of pesticide use restrictions through outreach and training programs.

If a pesticide is ever found in ground water due to nonagricultural use, such as residential uses in urban areas, and determined to present a hazard or potential adverse effect, it will be considered for review as part of DPR's pesticide registration reevaluation process.[4]

This report satisfies the requirements of FAC section 13152 (e) and describes, in detail, state agency ground water sampling results and the actions taken by DPR and the SWRCB to prevent pesticides from migrating to the ground waters of the state.

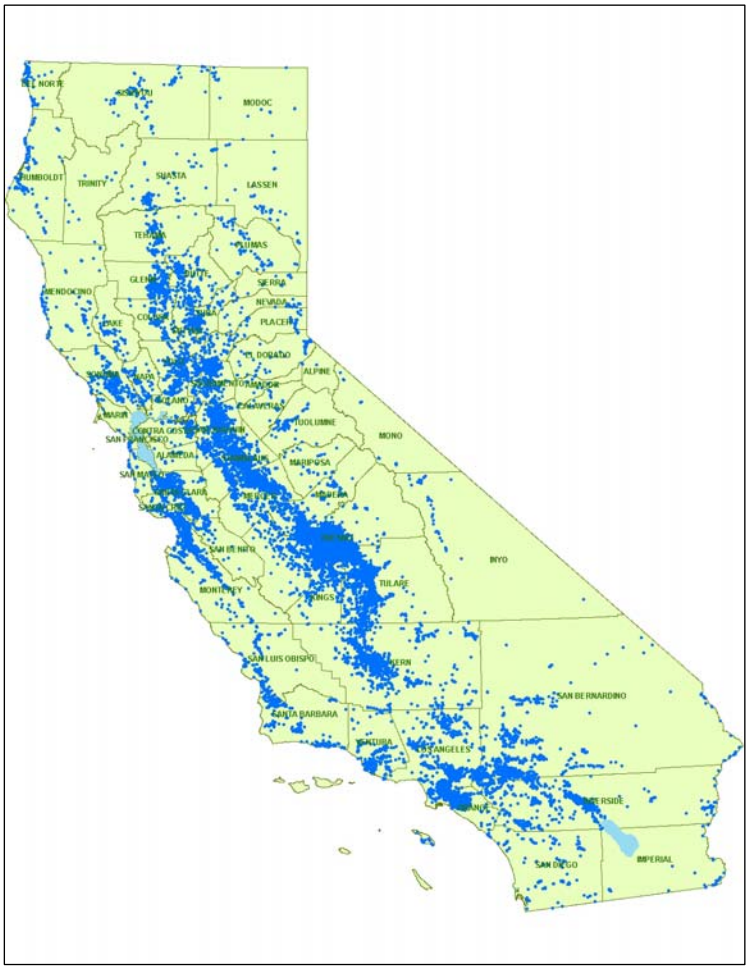
[4] Excerpted from "*Regulating Pesticides*: The California Story, a Guide to Pesticide Regulation in California (2001)" <*http://www.cdpr.ca.gov/dprabout.htm*>.

COLLECTING GROUND WATER SAMPLING DATA

WELL INVENTORY DATABASE

DPR maintains a database of ground water sampling results collected by DPR's Ground Water Protection Program and other public agencies.[5] DPR staff and stakeholders use these data to map the geographic distribution of current and historical pesticide detections, to identify areas vulnerable to contamination by agricultural pesticide use, and to design future ground water monitoring studies.

Figure 1. Wells in the DPR well inventory database.



DPR began collecting ground water monitoring data in the early 1980s. Currently, the Well Inventory Database contains over 2 million pesticide sample analyses submitted by 45 agencies (Appendix A). These data include almost 23,000 public and private wells that have been sampled for over 330 different pesticides and pesticide degradation products. Although there are a large number of contributors, most of the data comes from the California Department of Public Health (CDPH) (93 percent [%] and DPR (4%). By 2011, DPR anticipates that the State Water Resources Control Board's (SWRCB's) Groundwater Ambient Monitoring and Assessment (GAMA) Program will become a significant data contributor.

The Well Inventory Database includes the following information:

- State well number
- Well location, type and county
- Sampling agency
- Analyzing laboratory and sample date and type (e.g., initial or confirmation)
- Chemical analyzed and individual sample concentration, in parts per billion (ppb)

[5] FAC section 13152 c requires public agencies to submit the results of ground water sampling for pesticides to DPR. Although they are not required to submit data, DPR accepts g round water sampling data from federal agencies and private organizations when offered.

Data included in this report were reported to or collected by DPR from July 2009 through June 2010. The CDPH samples were collected from January through December 2009 and the DPR samples were collected from July 2009 through June 2010.

PRINCIPAL REPORTING AGENCIES

The regulatory responsibilities unique to each reporting agency determine sampling frequency, location, and well type. These differences also greatly influence the chemicals monitored and the sensitivity of the analytical methods used. Therefore, although the ground water monitoring data maintained by DPR is wide-ranging - thousands of wells sampled for hundreds of pesticides - it does not provide a systematic assessment of ground water quality throughout California.

Department of Pesticide Regulation

DPR protects human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management. DPR's strict oversight begins with product evaluation and registration, and continues through statewide licensing of commercial applicators, agricultural pesticide dealers and advisers, and monitoring air, water, soil, and fresh produce for pesticide residues. Before a pesticide may be used in California, the registrant must submit data on the product's toxicology and chemistry; its environmental fate; its effectiveness against targeted pests; its hazards to nontarget organisms, fish and wildlife; and the degree of worker exposure expected under normal use conditions. DPR evaluates these data to minimize the risk of the pesticide to human health and the environment. If the data indicate potential, uncontrollable adverse environmental or human health effects, DPR's Director may deny the registration request or cancel current product registrations.

DPR uses monitoring data to better understand the behavior of pesticides in soil, air, and water and assess the impact of pesticide use on the environment. To ensure consistent and reliable sampling results, DPR funds the Department of Food and Agriculture's Center for Analytical Chemistry to develop analytical methods and conduct sample analyses. Following reports of pesticide detections from other agencies, DPR conducts additional sampling to confirm the detections, characterize the nature and extent of the potential contamination, and determine how to prevent or mitigate the off-site movement of pesticides.

DPR's Ground Water Protection Program focuses on detection of potential pesticide contaminants and on developing reduced-risk practices for pesticides that have been found in ground water due to legal agricultural use. If pesticides are ever found in ground water or soil due to nonagricultural use, such as residential uses in urban areas, and are determined to present a hazard or potential adverse effect, they will be reviewed as part of DPR's formal pesticide registration reevaluation process.

For more information about pesticide regulation in California, please visit DPR's Web site at: <www.cdpr.ca.gov>.

California Department of Public Health

CDPH is responsible for the enforcement of the federal and California Safe Drinking Water Acts and the regulatory oversight of ~7, 500 public water systems to assure the delivery of safe drinking water to all Californians. In this capacity, CDPH staff perform field inspections, issue operating permits, review plans and specifications for new facilities, take enforcement actions for non compliance with laws and regulations, review water quality monitoring results, and support and promote water system security. In addition, CDPH staff are involved in funding infrastructure improvements, conducting source water assessments, evaluating projects utilizing recycled treated wastewater, and promoting and assisting public water systems in drought preparation and water conservation.

CDPH establishes health protective drinking water standards that must be met by public water systems. These standards, known as maximum contaminant levels (MCL), take into account not only chemicals' health risks but also factors such as detection and treatment capabilities, as well as treatment costs. CDPH establishes a contaminant's MCL at a level as close to its public health goal (PHG) as is technically and economically feasible, placing primary emphasis on the protection of public health (see the MCL process). CDPH uses health-based advisory levels called notification levels for certain chemicals without MCLs. Along with the MCL, a regulated chemical also has a detection limit for purposes of reporting the level at which CDPH is confident about quantification being reported.

Under CDPH oversight, public water systems monitor drinking water for regulated contaminants. These systems may also monitor for emerging contaminants and chemicals identified through the U.S. Environmental Protection Agency's (EPA's) Unregulated Contaminant Monitoring Program. As required by law, they assure compliance with mandated drinking water standards and provide annual monitoring reports to their customers. CDPH compiles and evaluates drinking water quality data collected by public water systems and provides results for pesticide monitoring to DPR for inclusion in this report.

For more information about drinking water safety and regulation in California, go to the CDPH Web site at <www.cdph.ca.gov>, click on the "Programs" tab at the top of the page and follow the links to the Division of Drinking Water and Environmental Management Home Page.

State Water Resources Control Board–Groundwater Ambient Monitoring and Assessment Program

The SWRCB expanded the GAMA Program following implementation of the Groundwater Quality Monitoring Act of 2001 which added Part 2.76 (commencing with Section 10780) to Division 6 of the Water Code. This law resulted in a publicly accepted plan to monitor and assess basins that account for over 90% of groundwater use. The plan identified these "priority basins" based on groundwater used statewide. The main objectives of the GAMA Program are to improve statewide ambient groundwater quality monitoring and assessment and to increase the availability of information about groundwater quality to the public.

The GAMA Program has four current projects:

- The GAMA Priority Basin Project monitors for dozens of chemicals at very low detection limits, including emerging contaminants. Monitoring and assessments for priority basins are to be completed every ten years, with trend monitoring every three years. The SWRCB is collaborating with the U.S. Geological Survey (USGS), the technical project lead, and Lawrence Livermore National Laboratory (LLNL) to implement the GAMA Priority Basin Project.

- The GAMA Program also assesses the quality of domestic well water through its Domestic Well Project. The GAMA Domestic Well Project has sampled in several county-focus areas in coordination with local environmental health departments, and provides an education component to help domestic well users to better understand water quality issues.

- The GAMA Special Studies Project partners with LLNL to conduct several groundwater studies including nitrate, wastewater, and groundwater recharge. LLNL scientists use the Tritium-Helium age dating technique, isotopic composition of water and nitrate molecules to determine source(s), and presence of noble gases to determine recharge source and condition, as well as sophisticated computer modeling techniques. UC Davis has also contributed to GAMA Special Studies.

- The GAMA Program shares groundwater quality information primarily through its GeoTracker GAMA information management system accessible through the State Water Board's website. GeoTracker GAMA provides access to a Google map-based database that readily provides a wealth of groundwater information including results of water quality testing, water level information, copies of environmental monitoring well logs as well as links to published reports for a specific area of interest. Millions of records of data come from the State Water Board and Regional Water Quality Control Boards (Regional Water Boards), the California Department of Public Health (CDPH), the Department of Water Resources (DWR), the Department of Pesticide Regulation (DPR), USGS, and LLNL. Scientists, regulators, water managers, educators and the public can currently use these data, and as more data are shared through GeoTracker GAMA, the groundwater quality picture for California becomes clearer.

DPR and the SWRCB's GAMA Program are working collaboratively to improve our ability to share groundwater-monitoring data collected by our respective programs. DPR received Priority Basin Project data from SWRCB in 2008; however, the well locations were reported with lat/long coordinates, not the township, range and section designations that are used by the Department of Water Resources to formally establish state well numbers. DPR plans to wait until GAMA submits the complete data set of this round of pesticide well monitoring results before converting the lat/long locations to township, range and section designations, and expects to report the results in the 2011 Well Inventory Report.

For more information about the SWRCB's GAMA Program, go to <www.swrcb.ca.gov> and select "More" from the links at the top of the page, then follow the "Groundwater" link to the GAMA Program Home Page.

SAMPLING GROUND WATER FOR PESTICIDES

This section describes DPR's Ground Water Protection Program and our response to detections reported by other state and local agencies. It also summarizes ground water sampling results submitted by CDPH and produced through DPR's regulatory monitoring activities.

GROUND WATER MONITORING REQUIREMENTS

The PCPA requires DPR to take steps to prevent or mitigate ground water pollution from the agricultural use of pesticides. DPR must base these regulatory actions on scientifically defensible monitoring surveys and reliable analytical results.

Per the PCPA, DPR monitors ground water for pesticides in areas where applicators use large amounts of persistent and mobile agricultural pesticides that are intentionally applied to soil or where typical pesticide use practices or product chemistries of these pesticides create an opportunity for potential pollution. The law specifies that the sampling results must be obtained from an approved analytical method that provides unequivocal identification of a pesticide, such as mass spectroscopy, or from verification, within 30 days, by a second analytical method or a second analytical laboratory also approved by DPR. If an approved laboratory confirms the presence of a pesticide in a ground water sample using an approved analytical method, DPR must determine whether the agricultural use of that pesticide caused the detection. State law authorizes DPR to regulate the sales and use of legally registered pesticides that pollute or threaten to pollute ground water. State law does not authorize DPR to regulate pesticide residues found in ground water due to manufacturing processes, accidental spills or releases, or illegal disposal or to address the detection of unregistered or banned pesticides in ground water. DPR refers these types of pesticide detections to the SWRCB, the state lead agency for water quality protection, for further investigation.

RESPONDING TO REPORTED PESTICIDE DETECTIONS

DPR uses a wide range of information, including the data reported by other public agencies, to identify and monitor areas that may be vulnerable to pesticide contamination. With few exceptions, DPR samples all wells with reported pesticide detections regardless of the analytical methods or laboratories used by the reporting agencies. We do this because the PCPA requires DPR to base its regulatory actions on sampling results obtained from DPR-approved analytical methods and laboratories.[6] DPR rarely limits sampling to the reported pesticide: we test wells with suspected pesticide contamination for a broad range of known and suspected pesticide contaminants using sensitive analytical methods that allow us to detect amounts as low as 0.05 ppb.

Before sampling wells with reported detections, DPR establishes the accuracy of the reports by reviewing them with the reporting agencies, the well owners and, occasionally, the analytical laboratories. DPR also reviews analytical laboratory procedures following reported pesticide detections that appear unlikely due to unusual environmental fate characteristics, such as high

[6] The California Department of Food and Agriculture's Center for Analytical Chemistry provides approved analytical services for DPR's environmental monitoring programs.

volatility or irreversible binding to soil particles, or a lack of documented use and/or legal use sites near the well. Evaluating the laboratory's analytical methods and the quality assurance and quality control data allows DPR to assess the reliability of the reported sample results. If we determine that the data were reported in error or may be invalid due to unacceptable analytical variability, DPR will not sample the well but will closely follow future sampling results.

Although DPR is mandated to monitor ground water for the presence of pesticides and it is our policy to sample wells with reported pesticide detections, DPR does not have the legal authority to require well owners to participate. Since participation is voluntary, DPR works cooperatively with the well owners and, in some cases, the reporting agencies to obtain samples from the wells with pesticide detections. Occasionally, we are unable to sample the original well because it was destroyed or the well owner declines our request to sample the well. In this case, DPR attempts to sample other nearby wells especially if the pesticide was, or could have been, used in the area.

Typically, DPR will not conduct additional sampling if:

- DPR and the CACs already regulate the detected pesticide as a ground water contaminant and require pesticide users in the area where the pesticide was detected to follow mandated application practices designed to protect ground water.

- The detected pesticide is no longer registered for sales and use in California.[7]

- The analytical laboratory reported finding pesticide residues at levels less than 80% of our analytical reporting limit.

- The reporting agency performed additional tests on the well and could not confirm the original detection.

- DPR is unable to develop an adequate analytical method.

[7] For example, to satisfy state and federal drinking water standards, CDPH tests for and continues to find pesticides that were banned many years ago but still pose a hazard to the people who may drink the water. Since these pesticides are no longer registered or allowed to be used in California, DPR has no regulatory authority to mitigate these past problems.

GROUND WATER SAMPLING RESULTS

Overview

The ground water monitoring data included in this report were collected by CDPH in 2009 and by DPR from July 2009 through June 2010. No other agency reported to DPR during this time period. In total, almost 3,000 wells in 52 counties were sampled for one or more of 127 pesticides or pesticide degradation products. CDPH and DPR detected 24 pesticides or pesticide degradation products in 375 wells (Table 1 and Appendix B).

Table 1. Summary, by agency, of well sampling data reported from July 2009 through June 2010.

Category	*Reporting Period and Agency*			
	2009 - 2010			*1985-2010*
	Total	*CDPH*	*CDPR*	*All Reporting Agencies*[8]
Counties Sampled	52	52	8	58
Counties with Detections	20	17	7	50
Wells Sampled[9]	2,987	2,851	136	22,999
Wells with Detections	375	272	103	5,160
Pesticides and/or Degradates Sampled[10]	127	111	23	336
Pesticides and/or Degradates Detected	24	8	16	107

Of the 24 pesticides reported detected, nine are currently registered for use in California, ten are degradation products of currently registered pesticides and five are no longer allowed to be used in California (Table 2). Two of the nine currently registered pesticides, aldicarb and methyl bromide, were unconfirmed detections, meaning they were not detected in follow-up samples. In one case, the well was sampled on three occasions with no further detections of methyl bromide.

[8] See Appendix A for a list of the local, state and federal agencies that have contributed well monitoring data to DPR since the early 1980's.

[9] For the purpose of this report, the table columns "Wells Sampled" and "Wells with Detections" present the total number of individual wells sampled or found to contain pesticide residues regardless of the number of sampling events or detections that occurred during the reporting period.

[10] For the purpose of this report, the table columns "Pesticides Sampled" and "Pesticides Detected" present the total number of individual pesticides or pesticide degradation products sampled or found in ground water regardless of the number of sampling events or detections that occurred during the reporting period.

Table 2. California registration status of detected pesticides and pesticide degradation products reported from July 2009 through June 2010.

Chemical	*Currently registered pesticide*	*Degradation product of a currently registered pesticide*	*Pesticide no longer registered*
Aldicarb[11]	X		
Atrazine	X		
Bromacil	X		
Diuron	X		
Hexazinone	X		
Methyl bromide[12]	X		
Norflurazon	X		
Prometon	X		
Simazine	X		
ACET		X	
Alachlor ESA		X	
Alachlor OXA		X	
Dacthal degradates		X	
DEA		X	
DSMN		X	
DACT		X	
Metolachlor ESA		X	
Metolachlor OXA		X	
Tebuthiuron degradate 104		X	
1,2,4-Trichlorobenzene			X
1,2-Dichloropropane (propylene dichloride)			X
DBCP			X
Ethylene dibromide			X
Xylene			X

California Department of Public Health Sampling Results

CDPH Sampling Results Summarized by Pesticide

In 2009, CDPH reported that California's drinking water purveyors sampled for 111 pesticides and pesticide degradation products in over 2,800 drinking water supply wells. Eight pesticides and degradation products were detected in 272 wells (Table 3 and Appendix B). Of the pesticides

[11] The detection of aldicarb in one well was not confirmed in a subsequent sample taken by the water system owner in 2009.

[12] The detections of methyl bromide in two wells were were not confirmed in subsequent samples taken by the water system owners in 2009.

and pesticide degradation products reported as detected, aldicarb and methyl bromide were not confirmed in subsequent samples and dacthal degradates could have originated from products currently registered for use as pesticides in California. The remaining pesticides that were reported as detected - 1,2-D, DBCP, EDB, 1,2,4-trichlorobenzene, and xylene - are no longer registered for use in California.

Table 3. Pesticide detections and concentrations reported by CDPH from July 2009 through June 2010.

Pesticide	***Wells with Detections***	***Amount Detected (ppb)***	***Registration Status CDPH Maximum Contaminant Levels (MCL) & OEHHA Public Health Goals (PHG)***
Aldicarb[13]	1	87	Registration: Currently registered in California No Established MCL or PHG
Methyl bromide[14] **(bromomethane)**	2	4.89 - 7.7	Registration: Currently registered in California No Established MCL or PHG
Dacthal degradates (chlorthal-dimethyl acid)	4	0.19 - 1.8	Registration: This is a degradation product of dacthal, which is currently registered in California No Established MCL or PHG
1,2,4-Trichloro-benzene	1	0.83 - 1.8[15]	Registration: Cancelled CDPH MCL: 5 ppb OEHHA PHG: 5 ppb
1,2-D (1,2-dichloro-propane)	7	0.55 - 4.4	Registration: Cancelled CDPH MCL: 5 ppb OEHHA PHG: 0.5 ppb Exceeded in all wells
DBCP (1,2-dibromo-3-chloropropane)	254	0.01 - 1.7	Registration: Cancelled CDPH MCL: 0.2 ppb - Exceeded in 73 of 254 wells OEHHA PHG: 0.0017 ppb - Exceeded in all wells
EDB (ethylene dibromide)	10	0.01 - 0.84	Registration: Cancelled CDPH MCL: 0.05 ppb - Exceeded in 6 of 10 wells OEHHA PHG: 0.01 ppb - Met or exceeded in all wells
Xylene	2	11 - 435	Registration: Cancelled CDPH MCL: 1,750 ppb OEHHA PHG: 1,800 ppb

[13] The detection of aldicarb in one well was not confirmed in a subsequent sample taken by the water system owner in 2009.

[14] The detections of methyl bromide in two wells were not confirmed in subsequent samples taken by the water system owners in 2009.

[15] 1,2,4-Trichlorobenzene was detected in two samples taken from one well in San Joaquin County in 2009.

Current Detections of Pesticides Registered for Use in California

Methyl bromide is currently a registered pesticide. CDPH reported detecting methyl bromide in two wells in San Diego and Stanislaus counties (Appendix E). The water system owners resampled both wells in 2009 and did not detect methyl bromide in the follow up samples. Historically any well reported by CDPH to be positive for methyl bromide has, upon resampling, been determined to have no residues of methyl bromide. DPR does not consider methyl bromide to be a likely threat to ground water based on its high volatility and will defer follow-up monitoring until a second consecutive detection is reported in the sampled wells.

Aldicarb is registered as an agricultural insecticide, acaricide, and nematicide. CDPH reported detecting aldicarb in one well in Sonoma County (Appendix E). The water system owner resampled the well and did not detect aldicarb in the follow up sample. The extremely high concentration reported, the lack of detectable residues in the subsequent sample by the system owner, and the lack of reported use of this pesticide near the well indicates that this is likely a reporting error. DPR will continue to investigate any future aldicarb detections.

Detections of Degradates of Pesticides Currently Registered in California

Chlorthal-dimethyl acid is the degradation product of dacthal, which is a registered agricultural herbicide. CDPH reported detecting chlorthal-dimethyl acid degradates in four wells in Sacramento (1) and San Bernardino (3) counties (Appendix E). When a pesticide degradate is reported detected, DPR reviews the detection to determine if the reported concentration exceeds a level determined to pose a threat to public health. DPR may also sample the well to confirm the reported results. In 1991, following a reported detection of chlorthal-dimethyl acid degradate in one well in Los Angeles County, DPR sampled the original well and five nearby wells but detected no residues of the parent pesticide or the degradation product in any of the sampled wells. At this time, DPR also evaluated the reported concentrations of the degradation product and determined that the reported concentrations posed no threat to public health at the levels detected (Goh, 1992). Recently, DPR initiated a toxicological review of all reported chlorthal-dimethyl acid degradate detections and expects to complete the review in 2011.

Detections of Pesticides Not Currently Registered in California

Five of the chemicals detected - 1,2-D, DBCP, EDB, 1,2,4-trichlorobenzene, and xylene - were used as pesticides years ago but are now no longer registered for use in California due to concerns for their effects on human health (Table 2). 1,2-D, DBCP, and EDB contaminated ground water as a result of agricultural applications that occurred prior to 1982. These chemicals are persistent in ground water and remain as a ground water problem for many communities in California. Most of the detections of 1,2-D, DBCP, and EDB exceeded either their respective MCLs established by CDPH or their PHGs, an advisory level set by the Office of Environmental Health Hazard Assessment (OEHHA) (Table 3 and Appendices B and C). Xylene is a natural component of gasoline and is widely used in industrial manufacturing. It is no longer used as a pesticide but is included in some products as an inert ingredient. DPR does not respond to reported detections of chemicals that are not currently registered as pesticides in California.

Detections of Pesticides Currently Registered in California from Previous Report Years

DPR is awaiting further tests by CDPH before initiating field studies for three chemicals currently registered as pesticides that were reported by CDPH in previous report years. These

detections seem highly improbable based on DPR's initial investigation into pesticide use near the sampled wells and the properties of the individual pesticides. The sampled wells have no history of any pesticide contamination and these chemicals have not been detected in any other nearby wells.

- For the 2009 reporting period, CDPH reported three wells positive for methyl bromide, one well positive for thiobencarb, and two wells positive for diquat dibromide. DPR is currently waiting for the water systems to retest and provide results for the wells.

- For the 2008 reporting period, CDPH reported one well positive for methyl bromide and one well positive for diquat dibromide. DPR is currently waiting for the water systems to retest and provide results for the wells.

CDPH Sampling Results Summarized by County

The number of public supply wells and pesticides sampled annually in each county is related to the number and size of the regulated water systems located within each county. For this reporting period, the median number of public supply wells sampled per county was 16 and ranged from 630 in Los Angeles County to one well each in Del Norte, Marin, Nevada, and Sierra counties. The median number of pesticides analyzed per county was 52 and ranged from 90 in Los Angeles County to 6 each in Marin, Shasta, and Siskiyou counties. CDPH did not report sampling data for Alpine, Calaveras, Imperial, Modoc, San Francisco, and Trinity counties (Appendix D).

Of the 2,851 public supply wells sampled by water purveyors, pesticide residues were detected in 10% (272) of the wells sampled (Table 1). Of the 272 wells that tested positive, 97% (263) of the wells sampled contained one pesticide and 3% (9) contained 2 pesticides; none had more than two pesticides (DPR 2010).

Although its use as an agricultural fumigant was banned in the early 1980s, DBCP continues to be the most frequently detected pesticide with detections in 254 of the 1,312 public supply wells sampled for this chemical (Appendix B and Appendix E).Counties with large agricultural production areas had the highest percentage of wells with detections versus the total wells sampled: Fresno (59%), Madera (31%), Tulare (30%), San Joaquin (27%), Merced (24%), Stanislaus (21%), San Bernardino (13%), and Kern (11%) (Table 4).

Table 4. Pesticide detections summarized by county and pesticide reported by CDPH from July 2009 through June 2010.

COUNTY	*Wells Sampled*	*Wells w/ Detections*	*Pesticides Detected*	*1,2,4-Trichloro-benzene*	*1,2-Dichloro-propane*	*Aldicarb*[16]	*Dacthal degradates*	*DBCP*	*EDB*	*Methyl bromide*[17]	*Xylene*
Fresno	**139**	**82**	**3**	1				82	4		
Kern	**221**	**25**	**2**					25	2		
Los Angeles	**630**	**8**	**2**	2				6			
Madera	**26**	**8**	**2**					8	1		
Merced	**51**	**12**	**1**					12			
Riverside	**136**	**11**	**2**	1				10			
Sacramento	**175**	**4**	**3**				1	2	1		
San Bernardino	**270**	**35**	**2**				3	32			
San Diego	**25**	**2**	**2**	1						1	
San Joaquin	**75**	**20**	**3**		1			19	1		
San Luis Obispo	**26**	**2**	**2**					1	1		
San Mateo	**10**	**2**	**1**	2							
Sonoma	**86**	**1**	**1**			1					
Stanislaus	**107**	**22**	**2**					21		1	
Tulare	**122**	**36**	**1**					36			
Ventura	**31**	**1**	**1**								1
Yuba	**8**	**1**	**1**								1

Department of Pesticide Regulation Sampling Results

DPR Sampling Results Summarized by Pesticide

From July 2009 through June 2010, DPR monitored 136 wells for 23 pesticides and pesticide degradation products (Table 1) as part of the following studies:[18]

- Protocol for Monitoring the Concentration of Detected Pesticides in Wells Located in Highly Sensitive Areas (Garretson, 1999).
- Protocol for Groundwater Protection List Monitoring for Metolachlor, S-Metolachlor, and Imidacloprid (Bergin, R. and C. Nordmark, 2009).

[16] The detection of aldicarb in one well was not confirmed in a subsequent sample taken by the water system owner in 2009.

[17] The detections of methyl bromide in two wells were not confirmed in subsequent samples taken by the water system owners in 2009.

[18] For more information about these studies, see report sections titled "Assessing the Effectiveness of Mitigation Measures" and "Monitoring for Metolachlor and Imidacloprid–GW09."

DPR detected 7 pesticides and 9 pesticide degradation products in 103 wells in 7 counties (Table 1, Table 5 and Appendix B). No detections exceeded drinking water quality standards established by CDPH, PHGs established by OEHHA, or advisory levels established by the U.S. EPA (Table 5 and Appendix C). With the exception of hexazinone and the degradation products of alachlor, metolachlor and tebuthiuron, DPR regulates the following pesticides and degradation products as ground water contaminants:[19]

- Atrazine, bromacil, diuron, prometon, simazine, and norflurazon were detected in ground water as a result of their agricultural uses and placed on the GWPL (Title 3, California Code of Regulations (3 CCR) section 6800[a]). These pesticides are currently subject to DPR's ground water protection regulations and the wells where these are detected are sampled annually as part of DPR's well network study (Garretson, 1999).
- ACET, DACT, DEA, and DSMN are degradation products of one or more of these regulated pesticides. DPR actively monitors for their presence in ground water and regulates the parent products that contain them as a means of preventing future contamination.

Alachlor, hexazinone, metolachlor and tebuthiuron have been identified by DPR as pesticides that have the potential to contaminate ground water based on their mobility and persistence and the manner in which they may be used. Following their inclusion on GWPL (3 CCR section 6800[b]), DPR initiated ground water monitoring in areas of high use and sensitive conditions (when occurring). If DPR determines that the legal agricultural use of these pesticides caused their detection in ground water, DPR will enter them into the formal detection response review process. For more information on the detection response review process please refer to the Pesticide Contamination Prevention Act Review Process homepage at: <http://www.cdpr.ca.gov/docs/emon/grndwtr/hexazinone.htm>.

DPR monitored for but did not detect alachlor or metolachlor in any wells. DPR detected both alachlor ESA and OXA and metolachlor ESA and OXA in both historic and current monitoring programs (Table 5 and Appendix C). DPR's Medical Toxicology Branch reviewed current and historical detections of alachlor and metolachlor degradation products and determined that the concentrations detected did not pose a threat to public health (J. Schreider personal communication, 2010). DPR detected tebuthiuron 104, a degradation product of tebuthiuron, in one well out of 55 wells sampled; this detection has not been reviewed by DPR's Medical Toxicology Branch yet.

[19] For more information about how ground water contaminants are regulated, see report section titled "Protecting Vulnerable Areas from Pesticide Contamination."

Table 5. Pesticide detections and concentrations reported by DPR from July 2009 through June 2010.

Pesticides Detected	*Wells with Detections*	*Amount Detected (ppb)*	*Registration Status CDPH MCLs, OEHHA PHGs and U.S. EPA Health Advisories (HAL)*
Atrazine	3	0.06 - 0.125	Registration: Currently registered in California CDPH MCL: 1 ppb; OEHHA PHG: 0.15 ppb; and EPA MCL: 3 ppb
Bromacil	20	0.052 - 4.69	Registration: Currently registered in California No Established CDPH or EPA MCL or OEHHA PHG; EPA HAL: 70 ppb
Diuron	28	0.052 - 0.656	Registration: Currently registered in California No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Hexazinone	3	0.054 - 0.093	Registration: Currently registered in California No Established CDPH or EPA MCL or OEHHA PHG; EPA HAL: 400 ppb
Norflurazon	19	0.057 - 0.684	Registration: Currently registered in California No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Prometon	1	0.089	Registration: Currently registered in California No Established CDPH or EPA MCL or OEHHA PHG; EPA HAL: 400 ppb
Simazine	46	0.05 - 0.175	Registration: Currently registered in California CDPH MCL: 4 ppb; OEHHA PHG: 4 ppb; and EPA MCL: 3 ppb
ACET (deethyl-simazine or deisopropyl-atrazine)	57	0.05 - 1.19	Registration: Degradation product of atrazine and simazine, currently registered herbicides in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Alachlor ESA (Ethanesulfonic acid)	16	0.053 - 1.037	Registration: This is a degradation product of alachlor, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Alachlor OXA (Oxanilic acid)	1	0.058	Registration: This is a degradation product of alachlor, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
DACT (diamino chlorotriazine)	65	0.058 - 4.7	Registration: Degradation product of atrazine and simazine, currently registered herbicides in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
DEA (deethyl-atrazine)	6	0.071 - 0.231	Registration: Degradation product of atrazine, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL

Pesticides Detected	*Wells with Detections*	*Amount Detected (ppb)*	*Registration Status CDPH MCLs, OEHHA PHGs and U.S. EPA Health Advisories (HAL)*
DSMN (desmethyl-norflurazon)	35	0.051 - 1.02	Registration: Degradation product of norflurazon, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Metolachlor ESA (Ethanesulfonic acid)	33	0.051 - 2.835	Registration: Degradation product of metolachlor, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Metolachlor OXA (Oxanilic acid)	12	0.05 - 0.534	Registration: Degradation product of metolachlor, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL
Tebuthiuron-104	1	0.058	Registration: Degradation product of tebuthiuron, a currently registered herbicide in California. No Established CDPH or EPA MCL, OEHHA PHG, or EPA HAL

DPR Sampling Results Summarized by County

DPR sampled 136 wells in 8 counties for pesticides regulated as ground water contaminants (atrazine, bromacil, diuron, norflurazon, prometon, and simazine) and for pesticides that have been detected but are not regulated as ground water contaminants (hexazinone and tebuthiuron). Ground water samples were also analyzed for eight degradation products of these pesticides (Table 1 and Appendix D).

Sixty-eight of the sampled wells compose DPR's well network and are located in ground water protection areas in Fresno and Tulare counties. DPR established this well network to assess the long term effects of use restrictions on pesticide concentrations in ground water. The wells were chosen for the network, in part, because they had a history of ground water contamination. DPR detected eleven pesticides and pesticide degradation products in 63 of the 68 network wells in Fresno and Tulare counties.

In addition to monitoring for previously detected ground water contaminants, the remaining 68 wells, located in Kings, Sacramento, San Joaquin, Solano, Stanislaus, and Yolo counties, were also monitored for alachlor and metolachlor; two pesticides that have the potential to contaminate ground water but have not yet been detected. Ground water samples from these wells were also analyzed for four degradation products of these pesticides. (Appendix B). DPR detected 13 pesticides and pesticide degradation products in 40 of the 68 wells sampled as a part of this metolachlor/alachlor study (Table 6 and Appendix D).

DPR has a higher detection rate than CDPH because our monitoring goals are different:

- DPR selectively monitors in vulnerable areas where large amounts of agricultural pesticides are used in crop production or rights-of-way.
- Annually, DPR samples a network of 60 to 70 domestic wells in Fresno and Tulare counties that have a history of pesticide contamination.
- DPR uses analytical methods that allow the unequivocal identification of pesticide residues as low as 0.05 ppb. Since mandatory water quality limits for pesticides used in the regulation of public drinking water wells tend to be higher than 0.05 ppb, the analytical methods used have higher detection limits (Appendix C).

Table 6. Pesticide detections summarized by county and pesticide reported by DPR from July 2009 through June 2010.

County	***Fresno***	***Kings***	***Sacramento***	***San Joaquin***	***Solano***	***Stanislaus***	***Tulare***	***Yolo***	***Total***
Wells Sampled	**49**	**9**	**4**	**22**	**8**	**22**	**19**	**3**	**136**
Wells with Detections	**45**	**4**	**0**	**11**	**7**	**17**	**18**	**1**	**103**
ACET	40	2	0	0	0	0	15	0	**57**
Alachlor ESA	0	1	0	3	3	9	0	0	**16**
Alachlor OXA	0	0	0	1	0	0	0	0	**1**
Atrazine	1	1	0	0	0	0	1	0	**3**
Bromacil	11	0	0	0	0	0	9	0	**20**
DACT	42	2	0	2	0	3	16	0	**65**
DEA	2	0	0	2	1	0	1	0	**6**
DSMN	25	0	0	1	0	0	9	0	**35**
Diuron	18	2	0	0	0	0	8	0	**28**
Hexazinone	1	0	0	2	0	0	0	0	**3**
Metolachlor ESA	0	1	0	10	6	15	0	1	**33**
Metolachlor OXA	0	1	0	3	0	8	0	0	**12**
Norflurazon	13	0	0	0	0	0	6	0	**19**
Prometon	1	0	0	0	0	0	0	0	**1**
Simazine	31	1	0	1	0	1	12	0	**46**
Tebuthiuron degradate 104	0	0	0	1	0	0	0	0	**1**

Well Location Information

The PCPA requires the annual report to give the location of wells for which sampling results were reported. Privacy and security concerns and the large number of wells sampled prevent DPR from listing exact well locations. Instead, this report summarizes the locations by county. DPR can provide general location information (county, township, range, and section) to members of the public upon request.

For more information on the availability of well monitoring information, please refer to DPR's Policy on Release of Well Data Collected by the Department of Pesticide Regulation Concerning Wells Sampled for Pesticide Residue <http://www.cdpr.ca.gov/docs/emon/grndwtr/index.htm>, or contact DPR's Ground Water Protection Program at 916-324-4039.

ACTIONS TAKEN TO PREVENT GROUND WATER CONTAMINATION

DEPARTMENT OF PESTICIDE REGULATION

As required by FAC section 13152, this section describes recent actions by DPR to prevent pesticides from migrating to California's ground water.

Protecting Vulnerable Areas from Pesticide Contamination

Regulating the Use of Pesticides Found in Ground Water through Permitting

Figure 2. Ground water protection areas (GWPAs).

Under the PCPA, pesticides detected in ground water at levels that pollute or threaten to pollute ground water were usually expected to be prohibited unless future contamination could be controlled. From 1989–1999, DPR adopted mandated statewide mitigation measures for aldicarb and bentazon, and some mandatory but mainly advisory mitigation measures for atrazine, simazine, bromacil, diuron, prometon, and norflurazon that applied only in "Pesticide Management Zones" (PMZs). PMZs, which were one-square mile sections of land around contaminated wells, had grown to encompass about 313,000 acres statewide by 2003.

In 2004, DPR adopted regulations to expand the areas where certain pesticides[20] are regulated to 2.4 million acres (Figure 2), and to adopt mandatory mitigation measures to protect ground water.[21] Called "ground water protection areas" (GWPAs), these new areas include all the

[20] 3 CCR section 6800(a) includes atrazine, bentazon (Basagran ®), bromacil, diuron (except for products with less than 7% diuron that are applied to foliage), norflurazon, prometon, and simazine.

[21] 3 CCR sections 6416, 6487.1 – 6487.5

former existing and draft PMZs as well as sections of land with no reported detections but with soil types and depths-to-ground water that are characteristic of contaminated areas. Based on the pathway of pesticide movement to ground water, GWPAs are designated as either leaching or runoff. For the first time, DPR had identified a basis for not only regulating pesticides to prevent pesticide contamination before it occurs but also for targeting mitigation measures to the pathway of contamination. Property operators, such as growers, must obtain a permit from the CAC before they may use a regulated pesticide in a leaching or runoff GWPA. The permit specifies the pesticide use modifications, tailored to the specific vulnerability of the intended treatment site, which the permittee must follow. The permittee must notify the CAC within 24–48 hours before application to enable to the CAC to inspect the site. Pre-application site inspections allow CACs to determine whether the use modifications are protective and, if they are not, to revise the permit appropriately. CACs also conduct application inspections to ensure compliance with permit and pesticide label requirements.

In addition, DPR continues to enforce statewide regulations to protect ground water from the use of aldicarb and bentazon (3 CCR sections 6458 and 6457, respectively).

For more information on the regulation of pesticide ground water contaminants in California, please refer to the DPR Fact Sheet titled: "A Better Way to Protect Ground Water." (CDPR, 2004). Available at: <http://www.cdpr.ca.gov/docs/emon/grndwtr/factsheet.pdf>.

Assessing the Effectiveness of Mitigation Measures

In 1999, DPR initiated a long term monitoring study to measure the effectiveness of the anticipated regulations that were enacted in 2004 to protect ground water from further contamination by pesticide residues. The wells were selected on the basis of type, location and monitoring history. DPR's well monitoring network is comprised of 60 to 70 shallow, domestic wells located in runoff and leaching GWPAs in Fresno and Tulare counties. Previous sampling by DPR showed that all of the candidate wells contained residues of pesticides regulated as ground water contaminants, including simazine, bromacil, and/or diuron.

To identify potential wells for the network in the fall of 1999, 75 wells were sampled for 6 herbicide parent pesticides that are regulated as ground water contaminants and subject to use modifications–atrazine, simazine, diuron, bromacil, prometon, and norflurazon–and three of their breakdown products–DEA (a degradate of atrazine), and ACET and DACT (degradates of atrazine and simazine). The wells were also tested for four additional herbicides with the potential to pollute ground water: prometryn, hexazinone, cyanazine, and metribuzin. Sampling was conducted in the spring and the fall through 2002. In 2003, DPR eliminated the fall sampling event and currently only samples during the spring. In 2001, DPR eliminated prometryn, cyanazine, and metribuzin from the laboratory analysis because they were not detected in any of the preceding samples. In 2002, DPR added three hexazinone degradation products to the analytical method but, after none were found, eliminated them from the analysis prior to the next sampling period in 2003. In 2004, DPR added a degradate of norflurazon, DSMN, to the analytical method. DSMN residues were found in subsequent well network samples. DPR continues to monitor for DSMN and often finds it where the parent, norflurazon, is applied. Tebuthiuron, an herbicide used in noncrop areas, was added to the screen in 2009. None was detected, but DPR will continue to monitor for it due to its increasing use in areas that are

deemed to be potentially vulnerable to ground water contamination. Over the years, seven wells were dropped from the network at the request of the owners. In 2010, 68 of the original 75 wells remain in the network and are sampled annually.

DPR has detected simazine and its degradation products, ACET and DACT, in nearly all the wells at one or more sampling intervals. Diuron has been found in around half of the wells sampled and bromacil in at least a third of them. Norflurazon has been found in over 20% of the wells, but its degradation product, DSMN, has been detected in almost half of the wells. DPR detected atrazine, prometon, and hexazinone at a much lower frequency than the other analytes: three wells or fewer to date. Average concentrations varied and were approximately:

- 0.1 ppb for atrazine, simazine, prometon, hexazinone and DEA
- 0.2 to 0.3 ppb for norflurazon, diuron and DSMN
- 0.5 ppb for ACET
- 1.0 ppb for DACT and bromacil

Preliminary findings indicate a trend of decreasing concentrations for simazine, diuron, and bromacil over time, and a trend of increasing norflurazon concentrations. Where individual wells were analyzed, there were some deviations in these trends. For the pooled data, the decreasing concentrations for simazine, diuron, and bromacil were likely the result of the ground water protection regulations for those herbicides that have been in effect since the early 1990s. The increasing concentrations of norflurazon are probably due to several factors: (1) increased use of norflurazon as an alternative to the more heavily regulated simazine, diuron and bromacil, which required permits and additional use restrictions to protect ground water; (2) norflurazon has only been regulated to protect ground water initially since 2001 and in the expanded ground water protection areas since mid 2004; and (3) since the median time for residues to travel from the ground surface to a well is seven to nine years in the area sampled (Spurlock, 2000), the norflurazon regulations have not been in effect long enough yet to result in lower ground water concentrations. Continued monitoring of this network will allow DPR to assess the effectiveness of the GWPAs and associated use restrictions, implemented in 2004, that sought to protect ground water on a regional, rather than on a pesticide-specific basis. DPR will publish a separate report that includes in-depth statistical analysis and discussion of these data as well as analysis of pesticide use patterns, agricultural practices, well construction, and other observational information that may impact the observed effects for each well.

For more information about DPR's Domestic Well Network, refer to:

Garretson, C. 1999. Study 182: Protocol for Monitoring the Concentration of Detected Pesticides in Wells Located in Highly Sensitive Areas. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/protocol.htm>.

Garretson, C. 2010. Study 182 / 228–Preliminary Summary of Results for Well Sampling from 1999 through 2010. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/memos.htm>.

DPR is also working on the development of pesticide use modifications that protect ground water and are practical and effective. The most recent effort focused on the application of preemergent herbicides through a low volume micro-sprinkler irrigation system. DPR expects to complete the study report by 2011. For more information on this study, please refer to:

DaSilva, A. 2007b. Study 241 - Protocol to Demonstrate the Effectiveness of Chemigation of Pre-emergence Herbicides through Low-Volume Micro-Sprinkler Irrigation Systems on a Sandy Soil. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/protocol/241prot.pdf>.

For more information on earlier, related studies, please refer to:

Troiano, J. 2003. Study 221 - Protocol to Demonstrate the Effectiveness of Chemigation of Pre-emergence Herbicides through Low-Volume Irrigation Systems. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/protocol/prot221.pdf>.

Basinal, L., T. Jacobsen, A. Da Silva, J. Troiano, P. Reising, D. Laird, D. Stubbs, and A. Barefoot. 2007. Demonstration of Effectiveness of Chemigation of Pre-emergence Herbicides Applied through Low Volume Irrigation Systems. Final Report to DPR. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/eh0701.pdf>.

DaSilva, A., 2007a. Study 221-Demonstration Study on Chemigation of Simazine and Diuron on Citrus Orchard in Tulare County. Available at: <http://www.cdpr.ca.gov/docs/emon/surfwtr/caps/study221memo.pdf>.

Dias, J. and A. DaSilva. 2008. Preliminary Results for Study 221: Effect of Chemigation Injection Speed on the Efficacy and Leaching of the Pre-Emergence Herbicides Simazine and Diuron. Available at: <http://www.cdpr.ca.gov/docs/emon/surfwtr/caps/studymemo_221.pdf>.

Identifying Potential Ground Water Contaminants

The purpose of the PCPA (FAC sections 13141–13152) is to prevent pesticide pollution of ground water of the state that may be used for drinking water supplies. The PCPA outlines procedures for:

- Obtaining physical and chemical data on agricultural use pesticides from manufacturers (registrants).
- Establishing specific numerical values (SNVs [threshold values]) for data that the PCPA associates with the potential of a pesticide to leach through soil to ground water.
- Identifying registered agricultural use pesticides that exceed one or more of the SNVs in both categories for persistence and mobility and posting this list to DPR's Web site annually.[22]

[22] The SNVs associated with mobility are water solubility (> 3 ppm) and soil adsorption coefficient (Koc) (< 1900 cm2/gm), and the SNVs associated with persistence are hydrolysis (> 14 days half-life), aerobic soil metabolism (> 610 days half-life), and anaerobic soil metabolism (> 9 days half-life) (FAC section 13144 and 3 CCR section 6804).

- Placing agricultural pesticides that exceed the SNVs and are applied in specified ways[23] on the GWPL (3 CCR section 6800[b]).
- Monitoring for pesticides identified as potential contaminants to determine if they have migrated to ground water as a result of legal agricultural use.

To facilitate the primary goal of preventing further pollution of ground water, DPR developed several key processes to evaluate an agricultural pesticide's pollution potential: the creation of a physical-chemical properties database, modeling a pesticide's fate in the environment, evaluating new pesticides for potential leaching prior to registration, and the prioritization of pesticides for monitoring.

For more information, please refer to DPR's Identifying Potential Pesticide Contaminants page at: <http://www.cdpr.ca.gov/docs/emon/grndwtr/gwp_contaminants.htm>.

Collecting Environmental Fate Data on Agricultural Pesticides

DPR maintains information on the physical and chemical properties of agricultural pesticides in the Pesticide Chemistry Database and uses those data to create SNVs. The SNVs are threshold values that DPR is required to establish for six properties of pesticides: water solubility, K_{oc} (soil adsorption coefficient), hydrolysis half-life, aerobic soil metabolism half-life, anaerobic soil metabolism half-life, and field dissipation half-life. Federal law requires that DPR's SNV values be at least equal to those established by the U.S. EPA. However, the U.S. EPA has not established a value for the field dissipation half-life. When they do, DPR will establish a California threshold value for this property. Although there is no SNV for field dissipation half-life, registrants of agricultural use pesticides must still provide at least two studies to fulfill California's registration requirements. DPR screens each registered agricultural use pesticide against the five remaining SNVs, thus identifying pesticides that appear to be mobile and persistent and may have the potential to contaminate ground water. Every year, DPR posts an updated report to our Web site that lists the pesticides, and their uses, that exceed, or are less than in the case of Koc, the SNVs.

The Pesticide Chemistry Database is currently undergoing an extensive quality assurance review. Although DPR has all required ground water protection data for registered agricultural use pesticides, some data were not transferred to the Pesticide Chemistry Database. Staff identified approximately 900 missing studies associated with 107 pesticides and focused their reviews on pesticides with a potential to contaminate ground water, such as those on the GWPL (3 CCR section 6800[b]). To date, about half of the missing studies have been evaluated and entered into the database. In tandem with the data gap review process, terrestrial field dissipation half-lives are being recalculated for consistency and clarity using an established standard operating procedure (Bergin, 2010).

To view the most recent report of agricultural pesticides that exceed mobility and persistence criteria, please see:

[23] The pesticide is intended to be applied to, or injected into, the soil by ground-based application equipment or by chemigation; or the label of the pesticide requires or recommends that the application be followed within 72 hours by flood or furrow irrigation (FAC section 13145 [d}).

Bergin, R. 2009 Status Report Pesticide Contamination Prevention Act. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/report_pcpa09.pdf>.

For more information on DPR's pesticide chemistry data collection and to view older Status reports, please refer to the Pesticide Chemistry Data page at: <http://www.cdpr.ca.gov/docs/emon/grndwtr/chem_data.htm>.

Improving Contaminant Transport Modeling Tools

DPR currently uses the LEACHM pesticide fate and transport model (Hutson and Wagenet, 1992) to help evaluate the environmental behavior of pesticides in the environment. A modeling scenario was developed to simulate pesticide fate and movement in a typical California soil considered vulnerable to pesticides with the potential to leach (Spurlock, 2000). The model simulates an agricultural cropping scenario under typical weather conditions. Natural rainfall is supplemented with irrigation applications made during the active growing season. Pesticide applications are simulated at maximum label rates. Various physical-chemical properties of the pesticide under evaluation are used. However, a few of these properties have a wide-ranging distribution of values and also happen to be particularly sensitive to model output. To address these issues, the physical-chemical properties are randomly selected in large quantities from their respective range of distribution and substituted into successive model simulations. A distribution of model-predicted outcomes results from the successive simulations. With the aid of statistical methods, estimates of pesticide concentrations in ground water are derived, with each estimate assigned a level of probability of occurrence (Troiano and Clayton, 2009). The predicted concentrations in ground water and their associated probabilities are considered when assessing a pesticide's potential to threaten California ground water.

This modeling tool is used to help evaluate the ground water contamination potential of new and existing active ingredients in agricultural use pesticide products submitted for California registration. The LEACHM model, in conjunction with other factors, is also used as a tool by DPR to help prioritize pesticides for GWPL monitoring throughout the state. Pesticides presenting a higher estimated threat of contaminating ground water generally receive priority for ground water monitoring. Computer modeling has also been used to aid in the design of DPR field studies investigating the movement and fate of pesticides in the soil.

A limitation with the current modeling scenario is the inability to assign depth-specific residue dissipation rates to a soil profile. Studies have indicated that slower abiotic hydrolytic processes rather than biotic degradation processes dominate pesticide dissipation below soil layers containing organic matter. A field study conducted by DPR (Clayton, 2007) will provide estimates of depth-specific residue dissipation rates for two commonly used pesticides, simazine and diuron. Data from this study is expected to enhance DPR's capabilities of modeling pesticide fate in the environment. Preliminary analysis of the field data indicates that the dissipation rate of simazine and diuron is reduced at greater soil depths. Posting of the study report is anticipated in 2011.

Clayton, M. 2007. Study 245: Dissipation of simazine and diuron from surface and sub-surface depths in a leaching vulnerable California soil. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/protocol/prot245.pdf>.

Spurlock, 2000. Effects of Irrigation Scheduling on Movement of Pesticides to Ground Water in Coarse Soils: Monte Carlo Analysis of Simulation Modeling. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/eh0001.pdf>.

Troiano, J., and M. Clayton. 2009. Modification of the Probabilistic Modeling Approach to Predict Well Water Concentrations used for Assessing the Risk of Ground Water Contamination by Pesticides. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/probabilistic_model.pdf>.

Evaluating New Pesticides for Registration and Use in California

DPR reviews new, agricultural use pesticides submitted for California registration that have been identified as possible threats to ground water because they exceed SNVs for persistence and mobility. DPR staff use data submitted by pesticide registrants and from published sources to assess the potential for a pesticide to contaminate California ground water. Data is reviewed from terrestrial field dissipation studies where pesticides are applied to bare or cropped plots and then monitored for movement and persistence in the soil. These data provide a partial assessment of the potential threat the pesticide might pose to ground water. Persistence data from these studies along with other physical-chemical properties of pesticides and various agronomic practices are used in the LEACHM modeling scenario described above to estimate each pesticide's potential to contaminate ground water in leaching-vulnerable California soils. If it appears that a new pesticide is likely to be detected in ground water following normal application and agronomic practices, DPR will ask the pesticide registrant to supply additional data to determine whether the contamination potential can be mitigated. If so, the registrant can amend the label to mitigate the potential threat to ground water before DPR approves the pesticide for use in California. A perceived continued threat to California ground water would most likely result in denial of California registration.

Between July 1, 2009, and June 30, 2010, DPR's Ground Water Protection Program evaluated the ground water contamination potential 11 active ingredients proposed for California registration. Following evaluation, registration was recommended for two A.I.s included in six pesticide products because they did not present a significant threat to ground water. Five A.I.s received conditional registration in which registrants were required to supply additional environmental fate data and, in two cases, improve their labels to better protect ground water. Four A.I.s contained within eight pesticide products were not recommended for registration by Ground Water Protection Program staff because one or more mandatory studies required to support pesticide registration in California were absent from their product data submissions or had various deficiencies with the supporting data required for product registration. These included studies with quality control related issues and failure to meet specific study requirements.

For more information about the method used to assess the ground water contamination potential of pesticides, please refer to:

Troiano, J. and M. Clayton. 2009. Modification of the Probabilistic Modeling Approach to Predict Well Water Concentrations Used for Assessing the Risk of Ground Water Contamination by Pesticides. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/probabilistic_model.pdf>.

Prioritizing Potential Pesticide Contaminants for Monitoring

As required by the PCPA, DPR monitors ground water in California to determine if pesticides on the GWPL have migrated to ground water as a result of legal agricultural use. Prior monitoring results indicate that the risk of ground water contamination varies with the pesticides' environmental fate, use intensity and typical application practices. Since the pesticides on the GWPL do not pose equal risks to ground water, and the SNV process fails to assign any magnitude of their risk, DPR has developed a method to rank the pesticides on this list based on a comparison of their relative risks. This ranking enables DPR to direct limited resources to monitoring the pesticides that pose the greatest risk to ground water.

The ranking scheme relies on information that includes pesticide use and environmental fate data, label-specific information such as application site, rate and method, and whether the pesticide is currently registered for use. DPR assigns higher priority for analytical method development and field monitoring to agricultural pesticides that:

- Have a higher likelihood of ground water contamination due to their persistence and mobility in soil based on computer simulated contaminant transport modeling. The modeling scenario is similar to that described previously.
- Are used intensively or whose use is increasing based on data collected through DPR's Pesticide Use Reporting Program.
- Are primarily either applied directly to the soil or are "watered in by flood or furrow irrigation" soon after application.

Other qualitative factors, such as application method, use site, and the existence of previous detections in California or nationwide are considered in the ranking process. Based on the first iteration of this developing process, DPR selected iprodione, azoxystrobin, dichloran, vinclozalin, and chlorothalonil for analytical method development and monitoring in 2010 (Pyatt, 2009). However, monitoring for vinclozalin and chlorothalonil was postponed because of laboratory analytical difficulties. The difficulties associated with chlorothalonil have since been overcome and monitoring for this pesticide will occur in 2011. Based on the need to expand on previous monitoring for oryzalin and its high ranking in the prioritization scheme, ground water staff will monitor for this pesticide in 2011. A second tier of 17 A.I.s has been selected from the GWPL prioritization scheme for future consideration for method development and monitoring. These pesticides are relatively highly ranked, currently registered for use and have not been monitored for in the previous 15 years, if at all. Ground Water Protection Program staff are currently updating use information for these pesticides and will be evaluating sites of application and target crop information in an effort to further prioritize and finalize the selection.

Development work continues with the GWPL prioritization scheme. Staff is investigating the multiple facets of quantifying use for each A.I. including statewide use, use in leaching and runoff vulnerable areas, and use over specific time periods, and change in use over time. The computer modeling component of the prioritization scheme is also being considered for redevelopment with the adoption of a more sophisticated probabilistic approach (Troiano and Clayton, 2009). The overall performance of the prioritization scheme can be evaluated by its ability to predict ground water contaminants. Currently, the scheme has established high rankings for the known California ground water contaminants, with the exception of prometon because only minimal use of this pesticide has occurred since pesticide use reporting began in California. Results from current and future ground water monitoring studies will be compared to rankings of active ingredients on the prioritization scheme.

Pyatt, E. 2009. 2009 Request to Develop Analytical Methods for Azoxystrobin, Chlorothalonil, Dichloran, Iprodione, and Vinclozolin and Significant Degradates in Well Water. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/iprodione_and_other_fungicides.pdf>.

Troiano, J., and M. Clayton. 2009. Modification of the Probabilistic Modeling Approach to Predict Well Water Concentrations Used for Assessing the Risk of Ground Water Contamination by Pesticides. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/probabilistic_model.pdf>.

Monitoring for Potential Pesticide Contaminants

Monitoring for Metolachlor and Imidacloprid –GW09

In 2009, DPR initiated a targeted GWPL monitoring survey for metolachlor, S-metolachlor, imidacloprid, and the main degradates of these pesticides to determine if they have migrated to ground water in areas with high reported agricultural use or identified as being vulnerable to ground water contamination by pesticides. Metolachlor and imidacloprid, agricultural pesticides on the GWPL, were selected for monitoring based on reported pesticide use trends, physical-chemical properties, and the availability of laboratory analytical methods that provide unequivocal identification of the parent pesticides and their degradation products (Spurlock, 2001, Fattah, 2008). Even though this study only targets metolachlor and imidacloprid, alachlor analysis of ground water was performed as well because the metolachlor analytical method also detects alachlor.

From February to March 2009, DPR sampled 34 wells in Monterey, San Benito, San Luis Obispo, Santa Barbara, and Ventura counties for imidacloprid and four imidacloprid degradates. Samples were also analyzed for atrazine, bromacil, diuron, hexazinone, norflurazon, prometon, simazine and tebuthiuron, and degradation products of several of these pesticides.[24] No pesticide residues were detected in the sampled wells. All sampling for imidacloprid is completed and the final report is posted to DPR's Web site (Bergin and Nordmark, 2009a).

[24] Atrazine, bromacil, diuron, norflurazon, prometon, and simazine and their degradation products are regulated as ground water contaminants and listed in 3 CCR section 6800(a). Hexazinone and tebuthiuron have been detected in ground water and are under investigation as potential ground water contaminants.

From April to December 2009, DPR sampled 68 wells in Kings, Sacramento, San Joaquin, Solano, Stanislaus, and Yolo counties for metolachlor, alachlor, and the ESA and OXA degradates of both of these pesticides. Samples were also analyzed for atrazine, bromacil, diuron, hexazinone, norflurazon, prometon, simazine, and tebuthiuron, and degradation products of several of these pesticides. No residues of metolachlor or alachlor were found. However, 49% of the wells contained residues of metolachlor ESA and 18% contained residues of metolachlor OXA. No residues of metolachlor OXA occurred without a corresponding detection of metolachlor ESA. Alachlor ESA and alachlor OXA were present in 23% and 2% of the wells sampled, respectively. Most of the alachlor ESA detections occurred in the same wells as the metolachlor ESA detections. Additionally, there were a small number of detections of ACET, atrazine, DACT, DEA, DSMN, diuron, hexazinone, simazine, and tebuthiuron degradate (Table 7). A final report on metolachlor monitoring will be available in 2011.

Table 7: Study GW09 – Well sampling results.

County	*Kings*	*Sacramento*	*San Joaquin*	*Solano*	*Stanislaus*	*Yolo*	*Total*
Wells Sampled	**9**	**4**	**22**	**8**	**22**	**3**	**68**
Wells with Detections	**4**	**0**	**11**	**7**	**17**	**1**	**40**
ACET	2	0	0	0	0	0	**2**
Alachlor ESA	1	0	3	3	9	0	**16**
Alachlor OXA	0	0	1	0	0	0	**1**
Atrazine	1	0	0	0	0	0	**1**
DACT	2	0	2	0	3	0	**7**
DEA	0	0	2	1	0	0	**3**
DSMN	0	0	1	0	0	0	**1**
Diuron	2	0	0	0	0	0	**2**
Hexazinone	0	0	2	0	0	0	**2**
Metolachlor ESA	1	0	10	6	15	1	**33**
Metolachlor OXA	1	0	3	0	8	0	**12**
Simazine	1	0	1	0	1	0	**3**
Tebuthiuron degradate 104	0	0	1	0	0	0	**1**

For more information about current monitoring for imidacloprid and metolachlor, please refer to:

Bergin, R. and C. Nordmark, 2009b. GW09–Protocol for GWPL Monitoring for Metolachlor, S-Metolachlor, and Imidacloprid. Available at: <http://www.cdpr.ca.gov/docs/emon/surfwtr/protocols/studygw09protocol.pdf>.

Bergin, R. and C. Nordmark, 2009a. GW 09-GWPL Monitoring Results for Imidacloprid and Four of Its Degradates. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/report_gw09a.pdf>.

For the results of previous monitoring studies for these pesticides, please refer to:

Weaver, D. and C. Nordmark. 2002. Alachlor, Metolachlor and Two Degradates of Each. Available at: <http://www.cdpr.ca.gov/docs/emon/grndwtr/rpts/gwpl_0001.pdf>.

Weaver, D. and C. Nordmark. 2004. Imidacloprid and Three of Its Degradates. Available at: <http://www.cdpr.ca.gov/docs/emon/grndwtr/rpts/gwpl_0304.pdf>.

Monitoring for Azoxystrobin, Chlorothalonil, Dicloran, and Iprodione –GW10

In 2010, DPR initiated a GWPL monitoring survey for azoxystrobin, chlorothalonil, dichloran, iprodione, and the main degradates of these pesticides to determine if they have migrated to ground water in areas with high reported agricultural use or identified as being vulnerable to ground water contamination by pesticides. Azoxystrobin, chlorothalonil, dichloran, and iprodione, agricultural pesticides on the GWPL, were selected for monitoring based on DPR's method for prioritizing potential pesticide contaminants for monitoring (Pyatt, 2009).

A multi-analyte screen was developed by the CDFA laboratory for following parent pesticides and degradation products.

- azoxystrobin (methyl (E)-2-{2-[6-(2-cyanophenoxy) pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate) .
- iprodione (3-(3,5-dichlorophenyl)-N-(1-methylethyl)2,4-dioxo-1-imidazoline-carboximide) and its stereoisomer 3-(1-methylethyl)-N-(3,5-dichlorophenyl)-2,4-dioxo-1-imidazolidine carboxamide.
- dichloran (2,6-dichloro-4-nitroaniline).
- azoxystrobin degradates (methyl(Z)-2{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate (R-230310)) and ((E)-2-[6(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylic acid.
- iprodione degradate (3,5-dichloroaniline).

From May to August 2010, DPR sampled 113 wells in Butte, Fresno, Glenn, Kern, Merced, Monterey, Santa Barbara, Santa Cruz, Stanislaus, Tulare, and Ventura counties for azoxystrobin, dichloran, iprodione, two azoxystrobin degradates, and an iprodione degradate. Seventy-eight of the wells were also sampled for atrazine, bromacil, diuron, hexazinone, norflurazon, prometon, simazine and tebuthiuron and degradation products of several of these pesticides.

DPR plans to sample approximately 60 wells for chlorothalonil (tetrachloroisophthalonitrile) between November 2010 and June 2011. The counties with the highest probability of being sampled for chlorothalonil are Fresno, Kern, and Ventura.

DPR anticipates publishing a final report on GW10 monitoring in 2011.

For more information about current monitoring for azoxystrobin, chlorothalonil, dichloran, and iprodione, please refer to:

Dias, J., 2010. Study GW10: Protocol for Groundwater Protection List monitoring for azoxystrobin, chlorothalonil, dichloran, and iprodione. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/protocol/gw10protocol_final.pdf>.

Pyatt, E. 2009. 2009. Request to develop analytical methods for azoxystrobin, chlorothalonil, dichloran, iprodione, and vinclozolin and significant degradates in well water. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/iprodione_and_other_fungicides.pdf>.

Monitoring Ground Water Vulnerability Outside GWPAs

DPR is currently conducting a study to assess the vulnerability of areas outside current GWPAs by monitoring for regulated and suspected pesticide contaminants. It is expected that further results for this study will be available for the 2011 version of this report. For more information about this study please refer to:

Nordmark, C, Fossen, M. and Marade, J. 2007. Study 240: Protocol for Monitoring Ground Water in Sections with Reported Detections Outside Existing GWPAs. Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/protocol.htm>.

STATE and REGIONAL WATER RESOURCES CONTROL BOARDS

As required by PCPA (FAC 13152), this section, prepared by the SWRCB and the RWQCBs, describes recent actions taken to prevent pesticides from migrating to California's ground water.

State Water Board

State Water Board 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, University of California (UC) scientists, and pesticide manufacturers to design monitoring studies and Best Management Practices (BMPs).

- Participated in discussions with U.S. Geological Survey (USGS) 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.

- In coordination with the USGS and Lawrence Livermore National Laboratory (LLNL), the State Water Board is implementing the Groundwater Ambient Monitoring and Assessment Program (GAMA). To date, the GAMA – Priority Basins Project has sampled over 2,000, mostly public water supply wells, for various chemicals and parameters, including pesticides, herbicides and their degradates. The water quality results for the following study units are summarized in Table 12: Southern and Central Sierra, East-Central San Joaquin Valley, Southeast San Joaquin Valley, North San Joaquin Valley, South Sacramento Valley, Middle Sacramento Valley, Upper Los Angeles Basin, North San Francisco Bay, Salinas-Monterey, San Diego, Mojave, and Kern County, and sampled during the 2009-2010; Coastal Los Angeles, Owens and Indian Wells Valleys, Santa Ana, Coachella Valley, Santa Clara river Valley, San Francisco Bay, Tahoe/Martis, Colorado river, North Sacramento Valley, Antelope Valley, Madera-Chowchilla, South Coast Ranges Interior, and Sierra Regional.

Regional Water Boards

The information below summarizes, by county, the monitoring, assessment, cleanup, and other actions taken by the nine RWQCBs to address point sources of contamination for pesticides.

Region 1–North Coast Regional Water Quality Control Board

Table 8. Actions taken by the North Coast Regional Water Quality Control Board (Region 1) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Humboldt	U.S. Forest Service Nursery, McKinleyville	Chlorothalonil	Cleanup complete.
	Sierra Pacific, Arcata	Pentachlorophenol, Tetrachlorophenol,	Ongoing contamination cleanup.
	Carlotta Lumber Company	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination cleanup.
	Beaver Lumber Company, Arcata	Pentachlorophenol, Tetrachlorophenol	Cleanup complete.
	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 cleanup.
	Schmidbauer, Arcata	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination 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	Cleanup complete.
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 cleanup.
	J.H. Baxter	Pentachlorophenol, Tetrachlorophenol	Ongoing contamination cleanup.

Region 2–San Francisco Bay Regional Water Quality Control Board

Table 9. Actions taken by the San Francisco Bay Regional Water Quality Control Board (Region 2) in Fiscal Year 2008-2009.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Alameda	AmChem/ Henkel Surface Technologies n/c in08	Chlordane, Heptachlor	RWQCB oversight. Impacted soil removed in 2006 and 2007. Groundwater no longer impacted, but may require long-term monitoring after removal of cap/redevelopment.
	Jones-Hamilton	Pentachlorophenol (PCP), Tetrachlorophenol (TCP)	RWQCB Final Site Cleanup Requirements Order No. 2001-0054 adopted specified time schedule for final remedial actions. Ongoing groundwater monitoring for VOCs, PCP, and TCP.
	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.
	Peerless Southern Pacific Railroad	Pentachlorophenol	City of Berkeley Health Department has lead. Additional soil and ground water investigations required.
	FMC, Newark	EDB	RWQCB Final Site Cleanup Requirements Order No. 2002-0060 adopted. Ongoing groundwater monitoring for VOCs, specified time schedule for final cleanup actions. Ground water cleanup underway.
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.
	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 Public Health (DPH) 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.
Solano	Travis Air Force Base	Aldrin, Heptachlor, Alpha-Chlordane, Heptachlor Epoxide	U.S. EPA leads site cleanup. Groundwater extraction, treatment and monitoring have been ongoing since 2001.

Region 3–Central Coast Regional Water Quality Control Board, Central Coast

Table 10. Actions taken by the Central Coast Regional Water Quality Control Board (Region 3) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Monterey	Monterey Soil Service, King City	EDB and DBCP	Monitored natural attenuation is used at the site for low-level residual EDB and DBCP concentrations in groundwater. Groundwater monitoring activities are expected to continue into Fiscal Year (FY) 2010/2011.
Santa Clara	Castle-Veg-Tech, Morgan Hill	Toxaphene, Endrin, Lindane, Endosulfan	The Central Coast Regional Water Quality Control Board continued enforcement actions to bring the Dischargers into compliance in FY 2009/2010. The Dischargers performed limited groundwater sampling in 2009-2010. The Dischargers plan to prepare a site-specific human health risk assessment, perform offsite groundwater assessment, and submit a corrective action plan in FY 2010/2011.
Santa Cruz	WFS-Greengro, Watsonville	1,2-DCP	Monitored natural attenuation is used at the site for low level residual 1,2-DCP concentrations in groundwater. Dischargers are preparing a site-specific human health risk assessment. Groundwater monitoring activities are expected to continue into FY 2010/2011.

Region 4–Los Angeles Regional Water Quality Control Board

Table 11. Actions taken by the Los Angeles Regional Water Quality Control Board (Region 4) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
No pesticides were detected at any landfill in the Los Angeles Region that is required to submit ground water monitoring reports to the Regional Board.			

Region 5–Central Valley Regional Water Quality Control Board–Fresno

Table 12. Actions taken by the Central Valley Regional Water Quality Control Board (Region 5, Fresno) in Fiscal Year 2009-2010.

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 and Nutrition	Alpha-BHC, Beta-BHC, Gamma-BHC, Dieldrin, DBCP, Diphenamid, Heptachlor, Heptachlor Epoxide	DTSC lead. Site has been certified by DTSC and de-listed as a U.S. EPA NPL site. Remedial Action Plan Implemented. Implementation of Operation, Maintenance, and Monitoring Plan and Agreement. Cap completed. Deed restriction imposed.
	J.R. Simplot, Helm Facility	Dieldrin	Long-term groundwater monitoring.
	FMC Corporation, Fresno Facility	1,2,3-TCP, 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. 1,2,3-TCP in groundwater is driving new off-site extraction well installation, expanding the original two-well extraction system. Groundwater pilot test results show enhanced reductive dechlorination is cost prohibitive – will continue using SVE and pump and treat as primary plume control tool.
	Britz, Inc., Five Points	Toxaphene, DDT, DNBP	State Superfund site (DTSC lead). Deed restriction in place. Natural attenuation. Operation and Maintenance Plan in place.
	Fresno County Wells	DBCP, EDB, 1,2-D	Pesticides detected in 146 wells (AB 1803 sampling).
	Coalinga Airport	DDT, DDE, Ethion, Toxaphene, 2,4-D, Dinoseb, Malathion, Parathion, Merphos	DTSC lead on the site. Pesticides found in soil. Additional assessment proposed and work plan approved.
	Spain Air	Ethion, DEF, Parathion, Trithion, Dinoseb, Paraquat, DDE, DDT, Endosulfan II	Assessment needed.
	CPS (PureGro), Oxalis	1,2-Dichloropropane, 1,2,3-TCP, nitrate	Microcosm testing deemed in-situ chemical oxidation and enhanced bioremediation not viable. Engineering feasibility study and work plan for alternative in preparation.
	Eagle Field (FUDS)	2,4-D, Pentachlorophenol,	Pesticides detected from groundwater grab samples. Additional assessment is needed.
	Broadview Water District – Bullard Avenue Air Strip	DDT Toxaphene	Pesticides detected from groundwater grab samples. Assessment in progress. Remediation options are being assessed.

Region 5 -Central Valley Regional Water Quality Control Board-Fresno, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Baptiste Property	DDT Toxaphene	Pesticides detected in soil samples. Pesticide-impacted soil has been excavated and disposed off-site. Closure letter issued December 23, 2008.
	Mike Perez Property	DDT Toxaphene	Pesticides detected from groundwater grab samples. Pesticide-impacted soil has been excavated and disposed off-site. Closure letter issued on June 15, 2009.
	Former Unocal - Whitesbridge Road, Kerman	DDT, Toxaphene and Dieldrin	Initial soil investigation completed. Supplemental Soil Investigation completed.
	Wingate Chemical Co. (Former)	Unknown	Workplan addendum for Soil and Groundwater assessment in preparation.
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	DDE, DDT, Dinoseb, VOCs, (DCP, ethylene dibromide)	State Superfund site (DTSC lead). The site has been conducting a supplemental risk assessment since 2005. A Final Remedial Action Plan (Soil Excavation and Soil Vapor Extraction) was submitted in April 2009.
	Western Farm Service, Delano Facility	DDT, Toxaphene, Dinoseb, Dicamba	Assessment on-going, long-term monitoring on-going, impacted soils have been capped. Health Risk performed with regard in developing soil clean up levels for possible excavation. Two additional down gradient monitoring wells installed to assess extent of off-site plume.
	Puregro Company, Bakersfield	DBCP, Toxaphene	DTSC lead. Additional soil sampling completed. Health-Risk assessment currently being drafted. Remediation Feasibility Study Report due early 2010.
	Dick Garriott Crop Dusting, Bakersfield	Chlordane, DDE, DDT, PCNB, Endosulfan I and II, Methoxychlor, Carbofuran, Carbaryl, Bufencarb, DEF, Tedion, Diazinon, Chlorpyrifos, Ethyl Parathion, Diuron, Dinoseb, Dicamba	CAO issued in 1993. Hydrogeological Assessment Report completed in 1993. Additional groundwater monitoring well proposed. California Code of Regulations, Title 27 cap proposed.
	USDA, Shafter	Dichlobenil, EPTC, Prometryne, DDT, DDE, DDD, Dieldrin, Toxaphene, Silvex, PCP, Chlorpropham, Ametryn, Atrazine	U.S. EPA lead. Developing a closure plan. Soil remediation and dry well abandonment were requested in 1996 but have not been completed.

Region 5 -Central Valley Regional Water Quality Control Board-Fresno, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	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	Crop Prod. Services - Cutler	Unknown	Re-evaluation of work plan underway due to change in consultant.
	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.
	Tulare County Wells	1,2-D	Detected in wells through AB 1803 sampling. No assessment underway.

Region 5–Central Valley Regional Water Quality Control Board–Redding

Table 13. Actions taken by the Central Valley Regional Water Quality Control Board (Region 5, Redding) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Butte	L.P, Remanufacturing Facility, Chico	Pentachlorophenol Tetrachlorophenol	DTSC is lead agency. The approved Final Remedial Action Plan included, in part, extracting pentachlorophenol-contaminated groundwater from four extraction wells, treating the water using granular activated carbon, and reinjecting the treated water to a dry well. Groundwater cleanup completed in 2003. Treatment system dismantled, dry well destroyed, and Waste Discharge Requirements rescinded in March 2008. Land use restricted. Groundwater monitoring continues.
Butte	Former Butte County Mosquito and Vector Abetment District, Chico	DDT, DDE, DDD, Endrin, Endrin Ketone, Heptachlor, α-Chlordane, γ-Chlordane	Pesticides detected in former septic tank and adjacent soils during excavation. Due to shallow local water table, on 19 November 2010 Butte County Environmental Health Division referred the case to the Central Valley Water Board. Preliminary site investigation is pending.
Shasta	Former Branstetter Mill Site, Redding	Pentachlorophenol	Pesticides associated with former dip tank. Residential development planned. Initial investigation identified potential human health concerns. In February 2008, case referred to DTSC who has entered into a voluntary cleanup agreement with RP, further assessment planned.
Tehama	Louisiana-Pacific, Former VG Mill & Jamb, Red Bluff	Pentachlorophenol Tetrachlorophenol Stoddard Solvent	CAO Order 98-712. On-going groundwater monitoring and assessment. Groundwater remediation by extraction, carbon filtration, and re-injection proposed to reduce pollutant source and promote biodegradation.

Region 5–Central Valley Regional Water Quality Control Board–Sacramento

Table 14. Actions taken by the Central Valley Regional Water Quality Control Board (Region 5, Sacramento) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Merced	Merced Municipal Airport	Alachlor, Captan, Carbophenothion (trithion), DDT (total) Dicofol (Kethane), Dieldrin, Endosulfan I, II, Endosulfan sulfate, Endrin, Endrin aldehyde, Endrin ketone, Heptachlor epoxide, Methoxychlor, Toxaphene.	Health Assessment completed. Soil pesticide contamination resulted from crop dusting operation in two areas of the airport. One area was used for pesticide mixing and wash down. The other was adjacent to a runway and resulted from "blow off" from crop dusting airplanes. Both areas were capped with asphalt in November 2002. Subsequent groundwater monitoring did not detect pesticides in shallow groundwater.
	J.R. Simplot, Winton	1,2-DCP, 1,2,3-TCP	Organo-chlorine contaminated soil excavated; soil vapor extraction removed some volatile compounds. Pilot studies using HRC and groundwater extraction/treatment system using methanol is ongoing to treat VOCs.
	Western Farm Service, Merced	1,2-DCP, DBCP, 1,2,3-TCP	Organo-chlorine contaminated soils were removed. A pilot study for in-situ remediation of groundwater using Hydrogen Releasing Compound (HRC) was effective at removing constituents of concern. A feasibility study is being developed for full-scale remediation.
Sacramento	Western Farm Service, Walnut Grove	Aldrin, beta-BHC, gamma-BHC, DDD, DDE, dieldrin, heptachlor epoxide, endosulfan, Disulfoton, 1,2-DCP	Investigation continuing. Pesticides are associated with a drainage collection area.
	Occidental Chemical, Lathrop	EDB, DBCP, Sulfolane	Groundwater cleanup underway pursuant to stipulation and judgment approving settlement (1981). Two extraction wells brought on line in 2010 to enhance recovery of sulfolane. Treatment unit fully reconditioned in 2010.
San Joaquin	Continental Grain Company	Carbon Tetrachloride, chloroform, 1,2-DCP, 1,2-DCA, tetrachloroethane	Groundwater being extracted and re-circulated through an in-situ zero-valent iron formation. The process is reducing constituent concentrations.
	John Taylor Fertilizers, Stockton	Dinoseb, 1,2,3-TCP, 1,2-DCP, bromacil	Soil investigation did not identify on-site source areas for these groundwater contaminants. Investigation underway.

Region 5 -Central Valley Regional Water Quality Control Board-Sacramento, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Defense Depot, Tracy	Dieldrin, heptachlor, DDE, DDD, DDT, a-chlordane and g-chlordane	**(1)** A Record of Decision (ROD) was finalized in February 1998; it includes soil cleanup levels for simazine and dieldrin, and a groundwater cleanup level for dieldrin. Pump and treat has been implemented for main dieldrin plume, (**2)** On April 14, 2010, the Central Valley Water Board, Department of Toxic Substances Control, and U.S. EPA settled a dispute regarding the cleanup of a dieldrin plume in the NW corner of the Depot that requires remedial actions. Implementation of the remedy is scheduled for June 2011 and (**3)** In 2009, DLA discovered shallow soil near Building 237 contaminated with heptachlor, dieldrin, DDE, DDD, DDT, a-chlordane, and g-chlordane. After additional characterization and reporting has been completed, DLA has scheduled a removal action in September 2011.
	Port of Stockton, Rough & Ready Island	DDD, DDE, DDT, Heptachlor Epoxide, alachlor	Assessment ongoing. Soil removal actions have occurred and more are planned. Groundwater assessment underway.
	Crop Production Service, Stockton (former Pure Gro/Brea)	1,2-DCP, 1,2,3-TCP, Dinoseb	Some soil was removed; two source soil areas are capped. Health risk assessment is complete. A pilot was conducted evaluating zero-valent iron for in-situ groundwater treatment.
	Former Oxychem/ Simplot/ PureGro, Stockton	1,2-DCP, Dinoseb, Chlorobenzene, 1,1,2-DCA, 2,4,5-TP, Atrazine, bromacil, tebuthiuron, simazine, DBCP, 1,2,3-TCP	Primary soil source area remediated with thermal destruction. Phytoremediation in progress to treat trace constituents in soil and remove contaminants from groundwater
	Cal Farm Supply	b-BHC	Soils were remediated. Groundwater monitoring will determine if b-BHC remains in groundwater.
	Crop Production Service, Vernalis	DBCP, EDB, diuron, 1,2-DCP	Pilot project using hydrogen release compound for in-situ remediation successful and expanded in 2007.
	John Taylor Fertilizer, Dixon	DDT, tebuthiuron	Site is near closure.
Solano	TSI, Dixon	DDT, DDE, 1,2-DCP, 1,2,3-TCP, endrin, endosulfan, methoxychlor, toxaphene, trifluralin	Soil remediation taking place in-situ, and some contaminated soil was excavated. VOCs are being removed from the soil column with soil vapor extraction.
	Chemurgic Agricultural Chemicals	BHC	Excavation of areas with elevated BHC in soil completed by December 1995. Groundwater remediation by extraction and carbon filtration with monitoring ongoing.
Stanislaus	Geer Road Landfill	1,1-DCA, 1,1,1-TCA, TCE, Chloridazon, Freons	Sampling for pesticides to occur in 2011. Cease and Desist Order going before the Regional Board in 2011

Region 5 -Central Valley Regional Water Quality Control Board-Sacramento, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Crop Production Service, Modesto	DBCP, EDB, 1,2-DCP, chlorpyrifos, DDT, disulfoton, 2,4,5-TP	Remedial work to excavate areas with elevated pollutant concentrations in soil completed. An engineered cap has been installed over a majority of the site.
	Shell Agricultural Research Facility	Chloroform	Groundwater treatment with carbon absorption removed most organic compounds. Soil has been remediated. Chloroform remains.
	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.
Sutter	PureGro, Robbins	1,2-DCA	MRP issued for quarterly groundwater monitoring. 1,2-DCA concentrations decreasing through natural attenuation. Trees were planted on the site to phytoremediate nitrates in the groundwater.
	John Taylor Fertilizers, Yuba City	1,2,3-TCP	Soil excavation completed, in-situ groundwater remediation using hydrogen-releasing compound is removing VOCs.
	Frontier Fertilizer Company, Davis	EDB, DCP, DBCP, Carbon tetrachloride	DTSC is lead agency. Thermal treatment of VOCs in vadose zone is selected remedy, with continuation of groundwater pump and treat. Heat treatment is scheduled to commence in early 2011.
Yolo	J.R. Simplot, Courtland	1,2,3-TCP	Phytoremediation underway for soil and groundwater remediation.

Region 6–Lahontan Regional Water Quality Control Board

Table 15. Actions taken by the Lahontan Regional Water Quality Control Board (Region 6) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Inyo	Amargosa River at Upper Canyon	Triclopyr	In March 2004, two surface water samples collected from the Amargosa River and analyzed as part of the Region's ambient water quality monitoring program showed triclopyr at concentrations of 0.06 and 0.07µg/L. The data was considered in the Regional Board's Clean Water Act section 303(d)/305(b) water quality assessment process. If triclopyr is again detected, Regional Board staff will investigate possible sources.
San Bernardino	George Air Force Base	Dieldrin	A number of groundwater monitoring wells in the vicinity of the Westwinds Golf Course test positive with low levels of dieldrin. Some wells are above the CDHS Notification Level for dieldrin. The Air Force conducted further site assessment, including surface soil sampling to evaluate potential sources and installation of groundwater monitoring wells to define the lateral extent of dieldrin in groundwater. Groundwater monitoring continues to evaluate concentration trends. The Air Force is completing an updated groundwater model to assess the probability of movement of dieldrin in groundwater. This site is adjacent to large municipal supply wells for the City of Adelanto. To date, those wells have not been found to contain dieldrin.
	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 groundwater. Area was cleaned up; contaminated soil source was removed and disposed appropriately. Groundwater is monitored, and is not used for drinking water in the area east of China Lake Playa.
Placer	Resort at Squaw Creek Golf Course	Clopyralid	The Resort at Squaw Creek (RASC) Golf Course proposed use of clopyralid for clover control. The golf course is under Waste Discharge Requirements (WDRs), which allow only for conditional use of chemicals, including herbicides, which are approved by the Regional Board. May 2009, the WDRs were updated to increase groundwater monitoring from semi-annual to monthly during golf course operation. Key wells, upgradient, within the course, and downgradient, are being monitored with a focus on detection of nutrients and pesticides in the shallow aquifer

Region 6 – Lahontan Regional Water Quality Control Board, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
			prior to affecting any potential municipal supplies located nearby. Currently the golf course in not applying any pesticides but could in the future. An updated chemical application and management plan (CHAMP) was completed and approved by the RASC Technical Review Committee October, 2010.
Lassen	Sierra Army Base	Arsenic, Aldrin, Chlordane, Dieldrin	Approximately 50 cubic yards of soil containing arsenic, aldrin, chlordane, and dieldrin was removed from the SIAD Equipment Yard in 2005. The soil clean up levels were based on acceptable human health risk-based criteria. The cleanup action was accepted by the Regional Board at the Three Sites ROD in July 2005.
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 (revised waiver adopted by the Regional Board in May 2009), 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.

Region 7–Colorado River Basin Regional Water Quality Control Board

Table 16. Actions taken by the Colorado River Basin Regional Water Quality Control Board (Region 7) in Fiscal Year 2009-2010.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Imperial	Central Brave Agricultural Service	4,4'-DDE, Endosulfan	Recalcitrant Discharger. Referred to Attorney General for nonpayment of fees.
	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)
Riverside	West Coast Flying	Endosulfan I and 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. DTSC has lead in cleanup.
	Coachella Valley Mosquito Abatement District	DDT, DDE, DDD	A deed restriction for the site was recorded in the Official Records for Riverside County on June 11, 2009. The case was closed on July 15, 2009.
	Crop Production Services, Blythe (Formerly Pure Gro MW-24)	1,2-Dichloropropane	Remedial Action Plan was accepted on July 15, 2009. Installation of a remediation system is scheduled to begin during the 3rd and 4th quarters of 2009. The remediation system should begin operation in the 4th quarter of 2009.

Region 8–Santa Ana Regional Water Quality Control Board

Table 17. Actions taken by the Santa Ana Regional Water Quality Control Board (Region 8) in Fiscal Year 2009-2010.

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 April 17, 1997 for off-site remediation of impacted groundwater. GLCC is operating an on-and off-site groundwater 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. Treated groundwater is discharged to sewer line.
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.
	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 groundwater is treated and 0.5 MGD is bypassed. Treated water is mixed with the bypassed water and discharged to the Arlington Channel for groundwater 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 groundwater from three wells to the reverse osmosis unit. Sale of this water to Cities of Norco and Jurupa Community Services District.
	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.
	Home Gardens County Water District (Wells 2 and 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	A 9,000 gpm GAC treatment system has been installed (Palmyrita Treatment Plant)

Region 8 - Santa Ana Regional Water Quality Control Board, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	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.
	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.
Riverside	City of Riverside (Electric Street, mun.)	DBCP	A 9,000 gpm GAC treatment system has been installed (Palmyrita Treatment Plant)
	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. No DBCP detection in the past two years.
	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 and 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.
	City of Riverside (Moor-Griffith, mun.)	DBCP	A 9,000 gpm GAC treatment system has been installed (Palmyrita Treatment Plant)
	Lake Hemet MWD (Wells A and B, mun.)	DBCP	The District is using well "A" for irrigation purposes. Well "B" is being used by a local farmer for irrigation purposes.
San Bernardino	Victoria Farms MWC (Well 01 and 03, mun.)	DBCP	Water purveyor has closed these wells and is now purchasing water from the City of San Bernardino.

Region 8 - Santa Ana Regional Water Quality Control Board, Actions Taken in Fiscal Year 2009-2010, con't.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
	Gage System Wells (16 wells, mun.) Raub Wells (4 wells, mun.)	DBCP	The City of Riverside and the Gage Canal Company operate the Gage System, which consists of sixteen 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 came on line (June 2006) for treatment of groundwater (four Raub wells). These units are located at the leading edge of an existing TCE plume. Raub treated groundwater is pumped into Gage System transmission line.
	Bunker Hill Basin: Crafton/Redlands area (36 wells)	DBCP	The City of Redlands started construction of an 8.5-MGD granular activated carbon (GAC) treatment system in September 1991. This GAC system treats groundwater from two wells. Treated water is being put into the local water supply distribution system. Funding for this system is from the STATE WATER BOARD ($2.8 million) and bond money through the State Expenditure Plan ($1.9 million) that is managed by DTSC. The system has been off line since July 1997 due to presence of perchlorate above Action Level in both production wells. The CDHS is reviewing effectiveness of tailored carbon system for removal of VOCs and perchlorate. Lockheed Martin has provided $3.7 million for the cleanup of groundwater 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 VWD (15 wells, mun.)	DBCP	Five wells are inactive. Ten wells are active and water is being blended with other supply wells. Water is being purchased from Metropolitan Water District.
	Monte Vista CWD (3 wells, mun.)	DBCP	One well has been abandoned. Two wells are active and water is being blended with other supply wells. Water is being purchased from Metropolitan Water District.
	City of Upland (13wells)	DBCP	Five wells have been abandoned. Four wells are currently on standby. Four wells are active and water is 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. Four new deep wells have been on line since 2002. A GAC treatment system (Richardson) is being built to treat groundwater from two newly installed supply wells (Richardson #5 and Mt. View #6). Mt. View #3 and #5 will be inactive upon completion of treatment system.

Region 9–San Diego Regional Water Quality Control Board

Table 18. Actions taken by the San Diego Regional Water Quality Control Board (Region 9) in Fiscal Year 2009-2010.

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 well was last sampled on June 6, 1990 and was found to have 1.4µg/L of 1,2-DCP. The City of Oceanside has destroyed the well.
	San Diego Naval Station	Maximum Concentrations **Site 1 - Former Ship Repair Basin** 4,4-DDT = 0.11 µg/L Endosulfan II= 0.021 µg/L Heptachlor epoxide = 0.014 µg/L **Site 2 - Mole Pier** Chlorpyrifos = 0.31 µg/L Endrin = 0.011 µg/L Endrin aldehyde = 0.15 µg/L Gamma-chlordane = 0.011 µg/L Methoxychlor = 0.26 µg/L **Site 17 - NEX 32nd Street Service Station** Aldrin = 0.021 µg/L Beta-BHC= 0.018 µg/L Endrin aldehyde = 0.045 µg/L Endrin ketone = 0.021 µg/L Gamma-BHC (lindane) = 0.0069 µg/L Methoxychlor = 0.036 µg/L	Impacts to soil and groundwater is managed under Naval Base San Diego, Installation Restoration Program (IRP), pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. sections 9601 et seq., "CERCLA")
	MCB Camp Pendleton	**1111-MW4**=4,4'-DDD at 0.02 µg/L ; **1A1-MW-1**=4,4'DDD at 0.01 µg/L ; **09S/07W-11K01**= dalapon=0.83 µg/L; **23W-07A,B,C** = dalapon=0.43-1.7µg/L; **1111MW-3**= 4,4-DDD=0.03 µg/L; 4,4-DDE=0.08 µg/L; 4,4-DDT=0.04µg/L; **06GWCW1193** = 4,4-DDT=0.74 µg/L; **06GW09A392**= 4,4-DDD=0.52 µg/L	Groundwater monitoring activities will be conducted to determine fluctuations of pesticide concentrations with time across the site. Most concentrations detected in groundwater to date do not exceed established concentrations that are protective of human health and the environment. Two instances exceed MCLs and they were detected in 1992 and 1993 only. Currently under investigation by DTSC and RWQCB.

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Appendix A–Ground Water Sampling Results through June 30, 2010 Summarized by Reporting Agency

Reporting Agency	*Total Wells Sampled*	*Total Samples Analyzed*
American Environmental Consulting Firm	1	3
California Department Of Public Health	13,669	1,599,882
California Department Of Water Resources	333	20,861
Regional Water Quality Control Board, North Coast (Region 1)	75	1,934
Regional Water Quality Control Board, San Francisco Bay (Region 2)	13	724
Regional Water Quality Control Board, Central Coast (Region 3)	27	794
Regional Water Quality Control Board, Los Angeles (Region 4)	47	865
Regional Water Quality Control Board, Central Valley (Region 5)	56	433
Regional Water Quality Control Board, Lahontan (Region 6)	2	10
Regional Water Quality Control Board, Santa Ana (Region 8)	18	18
Regional Water Quality Control Board, San Diego (Region 9)	2	5
State Water Resources Control Board	182	570
California Water Service Company	7	72
Ciba-Geigy	27	184
City Of Davis	1	6
City Of Oceanside	1	1
City Of San Francisco	11	319
California Department Of Pesticide Regulation	5,419	67,529
Fresno County	2,023	2,080
Glenn County	5	74
Imperial County	1	11
Kern County	336	3,558
Lake County	4	9
Madera County	115	151
Marin County	8	60
Modoc County	4	13
Rhone-Poulenc Ag. Co.	152	1,116
Riverside County	5	50
Sacramento County	130	1,717
San Diego County	8	16

Appendix A—Ground Water Sampling Results Summarized by Reporting Agency, con't.

Reporting Agency	*Total Wells Sampled*	*Total Samples Analyzed*
San Luis Obispo County	2	2
San Mateo County	8	368
Santa Barbara County	4	244
Santa Clara County	718	12,019
Santa Clara Valley Water District	20	576
Solano Irrigation District	10	162
Stockton - East San Joaquin Water Conservation District	49	621
Sutter County	1	4
U. S. Bureau Of Land Management	2	12
U. S. Department Of Agriculture	9	84
U. S. Environmental Protection Agency	6	623
U. S. Forest Service	49	298
U. S. Geological Survey	373	16,017
Yolo County	36	627
Yuba County	47	537

Appendix B–Well Sampling Results Summarized by Pesticide and Reporting Agency

The following table summarizes, by pesticide, the number of counties where wells were sampled, the number of individual wells[25] sampled and the number of individual wells with detections reported by CDPH and DPR from July 2009 through June 2010.

Pesticide	*Summary*		*By Reporting Agency*	
	Counties Sampled	*Wells Sampled*	*CDPH Detections*	*DPR Detections*
1,2,4-Trichlorobenzene	51	2267	1	NS
1,2-D (1,2-dichloropropane)	51	2271	7	NS
1,2-D + 1,3-D + C-3 pesticides	51	1774	0	NS
1,3-D (1,3-dichloropropene) (telone)	38	1278	0	NS
2,3,7,8-TCDD (dioxin)	20	278	0	NS
2,4,5-T	24	273	0	NS
2,4,5-TP (silvex)	32	490	0	NS
2,4,6-Trichlorophenol	1	1	0	NS
2,4-D	32	499	0	NS
2,4-Dinitrophenol	1	1	0	NS
3-Hydroxycarbofuran	30	407	0	NS
4(2,4-DB), dimethylamine salt	13	150	0	NS
Acenaphthene	5	25	0	NS
ACET (deethyl-simazine or deisopropyl-atrazine)	8	136	NS	57
Acetochlor	6	38	0	NS
Acifluorfen, sodium salt	11	118	0	NS
Acrylonitrile	6	26	0	NS
Alachlor	36	765	0	0
Alachlor ESA	6	68	NS	16
Alachlor OXA	6	68	NS	1
Aldicarb	31	412	1[26]	NS
Aldicarb sulfone	31	412	0	NS
Aldicarb sulfoxide	31	412	0	NS
Aldrin	29	297	0	NS
Ametryne	3	7	0	NS
Atraton	3	35	0	NS
Atrazine	38	918	0	3
Bentazon, sodium salt	32	491	0	NS

[25] Some of the wells counted in this table were sampled more than once during the reporting period. For the purposes of this table, a well is only counted once regardless of the number of samples taken.

[26] The detection of aldicarb in one well in Sonoma County was not confirmed in a subsequent sample taken by the water system owner in 2009.

Appendix B–Well Sampling Results Summarized by Pesticide and Reporting Agency, con't.

Pesticide	*Summary*		*By Reporting Agency*	
	Counties Sampled	*Wells Sampled*	*CDPH Detections*	*DPR Detections*
BHC (other than gamma isomer)	10	71	0	NS
Bromacil	33	519	0	20
Butachlor	31	349	0	NS
Butylate	3	7	0	NS
Captan	2	13	0	NS
Carbaryl	31	413	0	NS
Carbofuran	32	463	0	NS
Carbon disulfide	20	175	0	NS
Carbophenothion	2	7	0	NS
Chloramben	3	3	0	NS
Chlordane	31	450	0	NS
Chlorobenzilate	4	11	0	NS
Chloroneb	6	18	0	NS
Chlorothalonil	22	126	0	NS
Chlorpropham	6	21	0	NS
Chlorpyrifos	3	7	0	NS
Cyanazine	2	13	0	NS
Cycloate	3	7	0	NS
DACT (diaminochlorotriazine)	8	136	NS	65
Dacthal / DCPA (chlorthal-dimethyl)	5	10	0	NS
Dacthal degradates (chlorthal-dimethyl acid degradation products)	16	190	4	NS
Dalapon	32	489	0	NS
DBCP (1,2-dibromo-3-chloropropane)	36	1312	254	NS
DDD	9	39	0	NS
DDE	12	54	0	NS
DDT	9	39	0	NS
DEA (deethyl-atrazine)	8	136	NS	6
DSMN (desmethyl-norflurazon)	8	136	NS	35
Diazinon	28	302	0	NS
Dicamba	31	446	0	NS
Dichlorprop, butoxyethanol ester	14	134	0	NS
Dieldrin	29	293	0	NS
Dimethoate	31	404	0	NS
Dinoseb	32	489	0	NS
Diphenamid	6	21	0	NS
Diquat dibromide	30	474	0	NS
Disulfoton	3	14	0	NS
Diuron	18	198	0	28
EDB (ethylene dibromide)	37	1269	10	NS
Endosulfan	9	39	0	NS
Endosulfan sulfate	9	39	0	NS
Endothall	29	430	0	NS

Appendix B–Well Sampling Results Summarized by Pesticide and Reporting Agency, con't.

Pesticide	*Summary*		*By Reporting Agency*	
	Counties Sampled	*Wells Sampled*	*CDPH Detections*	*DPR Detections*
Endrin	31	453	0	NS
Endrin aldehyde	9	39	0	NS
EPTC	11	47	0	NS
Ethyl Alcohol	1	3	0	NS
Formaldehyde	1	1	0	NS
Glyphosate, isopropylamine salt	27	384	0	NS
Heptachlor	31	454	0	NS
Heptachlor epoxide	31	454	0	NS
Hexachlorobenzene	32	498	0	NS
Hexazinone	8	136	NS	3
Lindane (gamma-BHC)	33	489	0	NS
Linuron	1	20	0	NS
Malathion	1	53	0	NS
MCPA, dimethylamine salt	1	1	0	NS
MCPP (2-(4-chloro-2-methylphenoxy)propionic acid)	1	1	0	NS
Methiocarb	21	290	0	NS
Methomyl	31	411	0	NS
Methoxychlor	32	488	0	NS
Methyl bromide (bromomethane)	50	1551	2[27]	NS
Methyl parathion	1	53	0	NS
Metolachlor	33	452	0	0
Metolachlor ESA	6	68	NS	33
Metolachlor OXA	6	68	NS	12
Metribuzin	31	385	0	NS
Molinate	36	635	0	NS
Naphthalene	47	1629	0	NS
Napropamide	3	7	0	NS
Norflurazon	8	136	NS	19
Ortho-dichlorobenzene	51	2271	0	NS
Oryzalin	2	23	NS	0
Oxamyl	32	466	0	NS
Paraquat dichloride	4	24	0	NS
Parathion or ethyl parathion	1	53	0	NS
Permethrin	6	18	0	NS
Permethrin, other related pesticides	4	11	0	NS
Picloram	32	488	0	NS
Prometon	15	259	0	1
Prometryn	21	176	0	NS
Propachlor	30	395	0	NS
Propazine	3	7	0	NS

[27] The detections of methyl bromide in two wells in San Diego and Stanislaus counties were were not confirmed in subsequent samples taken by the water system owners in 2009.

Appendix B–Well Sampling Results Summarized by Pesticide and Reporting Agency, con't.

Pesticide	*Summary*		*By Reporting Agency*	
	Counties Sampled	*Wells Sampled*	*CDPH Detections*	*DPR Detections*
Propoxur	21	199	0	NS
Secbumeton	3	35	0	NS
Simazine	38	917	0	46
Simetryn	3	7	0	NS
Tebuthiuron	8	135	NS	0
Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	6	55	NS	1
Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl-urea)	6	55	NS	0
Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	6	55	NS	0
Tebuthiuron degradate 108 (2-Dimethylethyl-5-amino-1,3,4-thiadiazole)	6	55	NS	0
Terbacil	13	56	0	NS
Terbutryn	6	42	0	NS
Thiobencarb	37	657	0	NS
Toxaphene	31	451	0	NS
Triadimefon	3	7	0	NS
Trifluralin	20	104	0	NS
Vernolate	3	7	0	NS
Xylene	51	2266	2	NS

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits

The following table provides updated information, as of June 30, 2010, of all reported pesticide detections in ground water. If the pesticide or degradation product was not detected during the most current reporting period, a dash is shown in the column. The "Drinking Water Quality Levels" include regulatory and advisory levels established by CDPH (ANL, DLR, MCL, and NL); OEHHA (PHG); and the U.S. EPA (Lifetime HAL, MCL, and MCLG). Most standards were obtained through CDPH and the U.S. EPA however; the U.S EPA Lifetime HAL was obtained through the Pesticide Action Network. Some pesticides are chemically indistinguishable but have distinct chemical numbers in our system. For the purposes of this appendix, the results for metolachlor and (s)-metolachlor have been combined into one entry as have several non-specific chlorthal-dimethyl degradates.

Pesticide Detected	***# Sampled / # Detections***		***Concentration Ranges (ppb)***		***Drinking Water Quality Levels (ppb)[(a)]***	***Pesticide Type, Registration Status, Comments***
	Counties	***Wells***	***Historical***	***Current***		
1,2,4-Trichlorobenzene	58 / 4	8,334 / 6	0.53 -21	0.83 - 1.8	CDPH MCL – 5 OEHHA PHG – 5 USEPA MCL – 70 USEPA MCLG - 70 USEPA HAL – 70.0	Herbicide. Not registered.
1,2-dichloropropane (1,2-D)	58 / 24	12,380 / 182	0.1 -160	0.55 - 4.4	CDPH MCL – 5 OEHHA PHG – 0.5 USEPA MCL – 5	Fumigant. Not registered. 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.
1,2-D + 1,3-D + C-3 pesticides	57 / 2	7,860 / 2	0.67 -1.2	- - -	See 1,2-D and 1,3-D	Fumigant. Not registered. Source of residues were determined by DPR to be due to historical nonpoint source, legal, agricultural use. 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.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[a]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
1,3-Dichloropropene (1,3-D, telone)	56 / 4	10,214 / 8	0.64 -1.9	- - -	CDPH MCL - 0.5 OEHHA PHG - 0.2	Fumigant. Registered.
2,3,7,8-TCDD (dioxin)	37 / 1	1,824 / 1	13.42	- - -	CDPH MCL 0.00003 OEHHA PHG – 0.000001 USEPA MCL –0.00003	Contaminant and manufacturing byproduct of some pesticides. The current sample result (13.42 ppb) was determined to be an error. No dioxin was actually found.
2,4,5-T	47 / 2	2,091 / 2	0.02 -0.21	- - -	USEPA HAL – 70.0	Herbicide. Not registered.
2,4,5-TP (silvex)	58 / 3	6,507 / 4	0.15 -1.4	- - -	CDPH MCL – 50 OEHHA PHG – 25 USEPA HAL – 50 USEPA MCL – 50 USEPA MCLG - 50	Herbicide. Not registered.
2,4-D	58 / 12	7,196 / 17	0.3 -46	- - -	CDPH MCL – 70 OEHHA PHG – 20 USEPA MCL – 70 USEPA MCLG - 70	Selective herbicide. Registered.
2,4-DP, isooctyl ester	9 / 2	106 / 3	0.01 -0.06	- - -	- - -	Selective herbicide. Registered.
2-Hydroxycyclohexyl hexazinone	8 / 1	69 / 1	0.126	- - -	- - -	Breakdown product of hexazinone.
Acenaphthene	26 / 1	828 / 25	98 -117	- - -	- - -	Fungicide. Not registered.
Alachlor	55 / 4	7,994 / 4	0.1 -9	- - -	CDPH MCL - 2 OEHHA PHG – 4 USEPA MCL – 2	Selective herbicide. Registered.
Alachlor ESA	10 / 7	167 / 34	0.05 -1.38	0.053 - 1.037	- - -	Degradation product of alachlor, a registered herbicide. Detections of this degradation product are currently under investigation by DPR.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Alachlor OXA	10 / 2	167 / 2	0.05 -0.058	0.058	- - -	Degradation product of alachlor, a registered herbicide. Detections of this degradation product are currently under investigation by DPR.
Aldicarb	55 / 3	5,927 / 5	1.1 -87	87	CDPH AAL - 7	Systemic insecticide. Registered. This pesticide was detected in ground water due to legal agricultural use. The current year detection is a suspected reporting error as there were no detectable residues of aldicarb in a follow-up sample taken three months later. If this error is confirmed by CDPH, the entry will be removed from future reports.
Aldicarb sulfone	51 / 6	4,744 / 61	0.05 -1281	- - -	USEPA HAL – 7	Degradation product detected in ground water due to the legal agricultural use of aldicarb.
Aldicarb sulfoxide	51 / 5	4,751 / 25	0.06 -13.2	- - -	USEPA HAL - 7	Degradation product detected in ground water due to the legal agricultural use of aldicarb.
Aldicarb total (parent and breakdown products)	10 / 2	110 / 33	0.13 -49	- - -	See aldicarb and individual breakdown products above	Combined aldicarb parent and degradation products reported by some agencies in the mid-1980s and as late as 2003. This reporting method is no longer used by agencies sampling for aldicarb and its degradation products. The legal agricultural use of aldicarb caused its detection in ground water.
Aldrin	54 / 2	5,561 / 24	21 - 107	- - -	CDPH ANL - 0.002	Insecticide. Not registered.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Atrazine	57 / 25	12,694 / 317	0.001 -8.5	0.06 - 0.125	CDPH MCL – 1 OEHHA PHG - 0.15 USEPA MCL – 3 USEPA MCLG - 3	Selective herbicide. Registered. DPR regulates the use of this pesticide in areas of California following its detection in ground water due to legal agricultural use.
Azinphos-methyl (guthion)	43 / 1	1,292 / 1	0.014	- - -	- - -	Insecticide. Registered.
Benomyl	38 / 2	1,090 / 2	190 -500	- - -	- - -	Systemic fungicide. Registered.
Bentazon, sodium salt	55 / 17	5,750 / 113	0.02 -20	- - -	CDPH MCL – 18 OEHHA PHG - 200	Selective herbicide. Registered. DPR imposed restrictions on the use of this pesticide following its detection in ground water due to legal agricultural use.
BHC (other than gamma isomer)	49 / 1	2,202 / 1	0.08	- - -	- - -	Insecticide. Not registered.
Bromacil	56 / 20	10,475 / 265	0.025 -23	0.052 - 4.69	USEPA HAL – 70	Selective herbicide. Registered. DPR regulates the use of this pesticide in areas of California following its detection in ground water due to legal agricultural use.
Butachlor	52 / 1	5,581 / 1	0.39	- - -	- - -	Selective herbicide. Not registered.
Captan	38 / 2	1,483 / 3	0.1 -0.5	- - -	CDPH ANL - 15	Fungicide. Registered.
Carbaryl	53 / 4	5,913 / 4	2 -55	- - -	CDPH ANL – 700,	Insecticide. Registered.
Carbofuran	54 / 4	6,509 / 5	0.016 -0.686	- - -	CDPH MCL – 18 OEHHA PHG – 1.7 USEPA MCL – 40 USEPA MCLG -40	Insecticide. Registered.
Carbon disulfide	41 / 6	997 / 14	0.2 -5	- - -	CDPH NL – 160	Fumigant. Not registered.
Chlordane	56 / 1	6,839 / 1	20	- - -	CDPH MCL - 0.1 OEHHA PHG - 0.03 USEPA MCL - 2	Insecticide. Not registered.
Chlorothalonil	51 / 1	4,439 / 1	0.8 -1.1	- - -	- - -	Fungicide. Registered.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Chlorpyrifos	38 / 2	1,443 / 3	0.02 -0.06	- - -	USEPA HAL - 2	Insecticide. Registered.
Chlorthal-dimethyl (dacthal / DCPA)	34 / 6	1,565 / 11	0.03 -300[28]	- - -	USEPA HAL - 70.0	Selective herbicide. Registered.
Chlorthal-dimethyl acid degradation products (Dacthal degradates)	44 / 14	1,888 / 97	0.19 -30	0.19 - 1.8	- - -	Degradation product of chlorthal-dimethyl, a registered herbicide. In 1991, DPR determined that reported concentrations did not pose a health risk and did not conduct further monitoring. DPR is reviewing all subsequent detections to determine if these concentrations pose a health risk.
Coumaphos	11 / 1	132 / 1	1	- - -	- - -	Insecticide. Registered.
Dalapon	50 / 1	5,060 / 5	1 -17	- - -	CDPH MCL - 200 OEHHA PHG – 790 USEPA HAL – 200 USEPA MCL – 200 USEPA MCLG - 200	Selective herbicide. Not registered.
DBCP	56 / 25	12,591 / 3,106	0.001 -8000	0.01 - 1.7	CDPH MCL - 0.2 OEHHA PHG - 0.0017 USEPA MCL - 0.2	Soil fumigant. Not registered. Source of residues considered by DPR to be from historical nonpoint source, legal agricultural use. CDPH and/or SWRCB are authorized to respond to these detections.
DDD	43 / 1	1,912 / 1	1.04	- - -	- - -	Insecticide. Not registered.
DDE	45 / 3	3,419 / 6	0.01 -0.09	- - -	- - -	Breakdown product of DDT.
DDT	43 / 3	2,122 / 4	0.02 -0.12	- - -	- - -	Insecticide. Not registered.

[28] This value is a likely reporting error. In 1988, the CVRWQCB reported detecting 300, 1.3 and 0.7 ppb of chlorthal-dimethyl in one well. In 1989, they detected this pesticide in two additional wells with concentrations ranging from 2 to 3.6 ppb. In 1989, DPR sampled wells in the vicinity but did not detect chlorthal-dimethyl.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Deethyl-atrazine (DEA)	37 / 19	1,582 / 123	0.001 -2	0.071 - 0.231	- - -	Degradation product detected in ground water due to the legal agricultural use of atrazine, a registered herbicide. DPR regulates the use of atrazine based on detections of DEA.
Deethyl-simazine or deisopropyl-atrazine (ACET)	36 / 18	1,537 / 4414	0.023 -6	0.05 - 1.19	- - -	Degradation product detected in ground water due to the legal agricultural use of atrazine and/or simazine, registered herbicides. DPR regulates the use of atrazine and simazine based on detections of ACET.
Demethyl-norflurazon	2 / 2	5 / 5	0.24 -0.57	- - -	- - -	Degradation product detected in ground water due to the legal agricultural use of norflurazon, a registered herbicide. DPR regulates the use of norflurazon based on detections of this degradation product.
Demeton	46 / 1	1774 / 1	1	- - -	- - -	Systemic-insecticide. Not registered.
Desmethyl-norflurazon (DSMN)	25 / 6	5,51 / 67	0.05 -1.86	0.051 - 1.02	- - -	Degradation product detected in ground water due to the legal agricultural use of norflurazon, a registered herbicide. DPR regulates the use of norflurazon based on detections of this degradation product.
Diamino-chlorotriazine (DACT)	31 / 12	961 / 264	0.05 -7.158	0.058 - 4.7	- - -	Degradation product detected in ground water due to the legal agricultural use of atrazine and/or simazine, registered herbicides. DPR regulates the use of atrazine and simazine based on detections of DACT.
Diazinon	56 / 7	7,255 / 9	0.01 -507	- - -	CDPH NL – 1.2 USEPA HAL– 1	Insecticide. Registered.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[a]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Dicamba	52 / 5	4,871 / 7	0.01 -0.5	- - -	USEPA HAL– 4,000	Selective herbicide. Registered.
Dichlorprop, butoxyethanol ester	32 / 3	517 / 3	0.1 -6.8	- - -	- - -	Hormone-systemic type herbicide. Not registered.
Dicloprop	3 / 1	49 / 1	6.8	- - -	- - -	Hormone-systemic type herbicide. Not registered.
Dieldrin	56 / 5	5,613 / 6	0.05 -7	- - -	CDPH AAL - 0.002	Insecticide. Not registered.
Dimethoate	54 / 3	6,723 / 3	0.38 -10	- - -	CDPH AAL – 1	Insecticide. Registered.
Dinoseb	50 / 1	6,077 / 1	30	- - -	CDPH MCL - 7 OEHHA PHG – 14 USEPA MCL – 7 USEPA MCLG - 7	Herbicide, desiccant. Registered.
Diquat dibromide	47 / 7	4,718 / 11	0.67 -549.1	- - -	CDPH MCL – 20 OEHHA PHG – 15 USEPA MCL - 20 USEPA MCLG – 20	Selective herbicide. Registered.
Diuron	54 / 22	8,173 / 513	0.015 -5.2	0.052 - 0.656	- - -	Selective herbicide. Registered. DPR regulates the use of this pesticide in areas of California following its detection in ground water due to legal agricultural use.
Endosulfan	50 / 4	2,875 / 10	0.01 -34.7	- - -	- - -	Insecticide. Registered.
Endosulfan sulfate	49 / 2	2,229 / 3	0.15 -0.48	- - -	- - -	Degradation product of endosulfan, a registered insecticide.
Endothall	49 / 2	4,185 / 3	100 -548.1	- - -	CDPH MCL - 100 OEHHA PHG – 580 USEPA HAL – 50.0 USEPA MCL – 100 USEPA MCLG - 100	Selective herbicide. Not registered since 1992. Early 1989 detections were not confirmed by DPR monitoring.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Endrin	58 / 4	7,161 / 5	0.03 -2	- - -	CDPH MCL - 2 OEHHA PHG – 1.8 USEPA HAL – 50.0 USEPA MCL – 2 USEPA MCLG - 2	Insecticide. Not registered.
EPTC	40 / 1	2,318 / 1	5.6 -170	- - -	- - -	Selective herbicide. Registered.
Ethylene dibromide	56 / 20	8,606 / 184	0.006 -4.7	0.01 - 0.84	CDPH MCL - 0.05 OEHHA PHG - 0.01 USEPA MCL - 0.05	Fumigant, insecticide, nematocide. Not registered since January 1987. Source of residues considered by DPR to be from historical non-point source, legal agricultural use. CDPH and/or SWRCB are authorized to respond to these detections.
Ethylene dichloride (1,2-dichloroethane)	11 / 1	197 / 1	2.9	- - -	CDPH MCL - 0.5 OEHHA PHG - 0.4 USEPA MCL – 5	Fumigant. Not registered.
Ethylene thiourea	8 / 1	67 / 1	0.725	- - -	- - -	Fumigant. Not registered.
Glyphosate, isopropylamine salt	52 / 1	4,697 / 1	20	- - -	CDPR MCL – 700 OEHHA PHG – 900 USEPA MCL – 700 USEPA MCLG - 700	Nonselective, postemergence herbicide. Registered.
Heptachlor	56 / 4	6,612 / 12	0.01 -0.25	- - -	CDPH MCL - 0.01 OEHHA PHG - 0.008 USEPA MCL - 0.4	Insecticide. Not registered.
Heptachlor epoxide	56 / 1	6,599 / 1	0.01 -0.01	- - -	CDPH MCL –0.01 OEHHA PHG - 0.006 USEPA MCL – 0.2	Degradation product of heptachlor, an insecticide that is no longer registered for use.
Hexazinone	47 / 10	2,447 / 30	0.05 -0.55	0.054 - 0.093	USEPA HAL – 400	Selective herbicide. Registered. In 2010, DPR determined that the legal agricultural use of hexazinone caused its detection in ground water. In 2011, DPR entered this pesticide into the formal review process.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[a]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Lindane (gamma-BHC)	58 / 3	7,251 / 6	0.05 -180	- - -	CDPH MCL - 0.2 OEHHA PHG - 0.032 USEPA MCL - 0.2 USEPA MCLG – 0.2	Insecticide. Registered.
Malathion	37 / 1	1,220 / 1	0.32 -0.32	- - -	CDPH AAL – 160	Insecticide. Registered.
Merphos	21 / 2	427 / 2	1 -1.5	- - -	- - -	Defoliant. Not registered.
Methomyl	52 / 2	5,475 / 2	0.8 -15	- - -	USEPA HAL – 200	Insecticide. Registered.
Methoxychlor	57 / 2	6,779 / 4	0.32 -0.55	- - -	CDPH MCL - 30 OEHHA PHG – 0.09 USEPA HAL -40 USEPA MCL – 40 USEPA MCLG - 40	Insecticide. Not registered.
Methyl bromide (bromomethane)	58 / 16	12,011 / 37	0.5 -9.3	4.89 - 7.7	USEPA HAL – 10	Fumigant. Registered. CDPH reported detecting methyl bromide in two wells Water system owners resampled both wells within the 2009 reporting year and did not detect methyl bromide in the follow up samples. DPR is currently reviewing public water system sampling and detection history of methyl bromide.
Methylene chloride (dichloromethane)	6 / 2	61 / 6	3 -6	- - -	CDPH MCL – 5 OEHHA PHG – 4 USEPA MCL – 5	Fumigant. Not registered.
Metolachlor	52 / 2	5,890 / 2	0.036 -0.1	- - -	USEPA HAL– 700	Selective herbicide. Registered. Largely replaced by the use of (S)-metolachlor, an isomer of metolachlor. Since it is difficult to distinguish between the two pesticides analytically, the sampling results have been combined for the purpose of reporting..

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[a]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Metolachlor ESA	9 / 7	166 / 64	0.05 -24	0.051 - 2.835	- - -	Degradation product of metolachlor, a registered herbicide. Detections of this degradation product are currently under investigation by DPR.
Metolachlor OXA	9 / 5	166 / 23	0.05 -2.65	0.05 - 0.534	- - -	Degradation product of metolachlor, a registered herbicide. Detections of this degradation product are currently under investigation by DPR.
Mexacarbate	23 / 1	427 / 1	22	- - -	- - -	Insecticide. Not registered.
Molinate	55 / 6	7,484 / 13	0.002 -29	- - -	CDPH MCL - 20 OEHHA PHG - 1	Selective herbicide. Registered.
Molinate sulfoxide	17 / 1	210 / 1	0.8	- - -	- - -	Degradation product of molinate, a registered herbicide.
Monuron	25 / 1	504 / 4	0.04 -2	- - -	- - -	Herbicide. Not registered.
MTP	10 / 1	274 / 1	2.41 -2.55	- - -	- - -	Degradation product of chlorthal-dimethyl, a registered herbicide.
Naled	16 / 1	221 / 1	5	- - -	- - -	Insecticide. Registered.
Naphthalene	57 / 12	7,993 / 26	0.5 -66	- - -	CDPH NL- 17 USEPA HAL - 100	Fumigant. Not registered in California since 1991.
Norflurazon	34 / 8	1,204 / 72	0.022 -2.48	0.057 - 0.684	- - -	Selective herbicide. Registered. DPR regulates the use of this pesticide in areas of California following its detection in ground water due to legal agricultural use.
Ortho-dichlorobenzene	58 / 10	11,271 / 22	0.56 -12	- - -	CDPH MCL - 600 OEHHA PHG – 600 USEPA HAL – 600 USEPA MCL – 600 USEPA MCLG - 600	Herbicide and insecticide. Not registered.
Paraquat dichloride	32 / 3	917 / 5	0.91 -16	- - -	USEPA HAL - 30	Herbicide. Registered.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Picloram	51 / 3	5,127 / 5	0.1 -1.1	- - -	CDPH MCL - 500 OEHHA PHG – 500 USEPA MCL – 500 USEPA MCLG - 500	Selective herbicide. Not registered.
Prometon	49 / 13	5,401 / 52	0.05 -80	0.089	USEPA HAL- 400	Nonselective herbicide. Registered. DPR regulates the use of this pesticide in areas of California following its detection in ground water due to legal agricultural use.
Prometryn	57 / 3	8,434 / 3	0.1 -0.5	- - -	- - -	Selective herbicide. Registered.
Propachlor	52 / 1	5,482 / 1	1.1	- - -	CDPH NL - 90	Selective herbicide. Not registered.
Propazine	41 / 1	1,139 / 1	0.2	- - -	USEPA HAL - 10	Selective herbicide. Not registered.
Propham	35 / 1	1,063 / 1	6	- - -	USEPA HAL - 100	Selective herbicide. Not registered.
Propoxur	46 / 2	1,650 / 2	4 -5	- - -	USEPA HAL - 3	Insecticide. Registered.
Simazine	57 / 29	13,244 / 843	0.002 -49.2	0.05 - 0.175	CDPH MCL - 4 OEHHA PHG – 4 USEPA MCL – 4 USEPA MCLG - 4	Selective herbicide. Registered. DPR regulates the use of this pesticide in areas of California following its detection in ground water due to legal agricultural use.
Tebuthiuron	32 / 6	389 / 12	0.005 -22.1	- - -	USEPA HAL - 500	Herbicide. Registered. Detections currently under investigation by DPR.
Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	16 / 1	148 / 1	0.058	0.058	- - -	Degradation product of tebuthiuron, a registered herbicide.
Tetrachloroethylene	9 / 3	193 / 5	0.2 -2.5	- - -	CDPH MCL – 5 OEHHA PHG - 0.06 USEPA HAL -10 USEPA MCL – 5	Insecticide. Not registered.
Tetrachlorvinphos (stirofos)	23 / 1	189 / 1	1	- - -	- - -	Insecticide. Registered.

Appendix C–Summary of Historical and Current Pesticide Detections and Current Water Quality Limits, con't.

Pesticide Detected	*# Sampled / # Detections*		*Concentration Ranges (ppb)*		*Drinking Water Quality Levels (ppb)[(a)]*	*Pesticide Type, Registration Status, Comments*
	Counties	*Wells*	*Historical*	*Current*		
Thiobencarb	55 / 6	7,283 / 9	0.006 -8.7	- - -	CDPH MCL – 70 OEHHA PHG - 70	Selective herbicide. Registered.
Thiram	2 / 1	18/4	5 -17	- - -	- - -	Fungicide. Registered.
Toxaphene	58 / 4	7,296 / 6	1 -57	- - -	CDPH MCL - 3 OEHHA PHG - 0.03 USEPA MCL - 3	Insecticide. Not registered.
TPA	10 / 8	274 / 35	0.1 -15	- - -	- - -	Degradation product of chlorthal-dimethyl, a registered herbicide.
Trifluralin	40 / 2	1,423 / 2	0.01 -0.9	- - -	USEPA HAL – 10,	Selective herbicide.
Xylene	58 / 32	11,108 / 116	0.25 -1100	11 - 435	CDPH MCL - 1,750 OEHHA PHG -1,800 USEPA MCL - 10,000 USEPA MCLG – 10,000	Historical use as an insecticide and in pesticide formulations. Currently used in petroleum and chemical manufacturing. Detections are the result of the industrial use of this chemical.

(a) The following abbreviations apply to the Water Quality Limits mentioned above (All limits were converted into ppb)

1) CDPH Archived Advisory Levels (AAL) for Drinking Water. Source: CDPH. Last update: December 2010. (<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/NotificationLevels.aspx).
2) CDPH Maximum Contaminant Levels (MCL). Source: CDPH. Last update: February 2011. (<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/MCLsandPHGs.aspx>).
3) CDPH Notification Limits (NL). Source: CDPH. Last update: December 2010. (<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/NotificationLevels.aspx>).
4) OEHHA California Public Health Goals (PHG) . Source: CDPH. Last update: February 2011. (<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/MCLsandPHGs.aspx>).
5) U.S. EPA Lifetime Health Advisory Limits (HAL). Source: Pesticide Action Network Pesticide Database. NOTE: Although HALs are established by the U.S. EPA, the Pesticide Action Network database provides the most readily accessible source of this information. (<http://www.pesticideinfo.org/>).
6) U.S. EPA Maximum Contaminant Levels (MCL). Source: U.S. EPA. Last updated: January 2011. (<http://www.epa.gov/safewater/contaminants/#organic>).
7) U.S. EPA Maximum Contaminant Level Goals (MCLG). Source: U.S. EPA. NOTE: Where "0" is used for some values, it means their goal is zero, not that there wasn't an established goal. (<http://www.epa.gov/safewater/contaminants/#organic> – page last updated July 1, 2010).

Appendix D–Well Sampling Results Summarized by County and Reporting Agency

Summary, by county, of the number of pesticides and pesticide degradates analyzed and the number detected, the number of individual wells sampled and the number of individual wells[29] with detections, by DPR and by CDPH.

COUNTY	Summary				By Reporting Agency							
					CDPH 2009				DPR July 1, 2009 to June 30, 2010			
	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections
Alameda	57	0	24	0	57	0	24	0	-	-	-	-
Alpine	-	-	-	-	-	-	-	-	-	-	-	-
Amador	10	0	4	0	10	0	4	0	-	-	-	-
Butte	62	0	39	0	62	0	39	0	-	-	-	-
Calaveras		-		-								
Colusa	34	0	4	0	34	0	4	0	-	-	-	-
Contra Costa	55	0	14	0	55	0	14	0	-	-	-	-
Del Norte	10	0	1	0	10	0	1	0	-	-	-	-
El Dorado	53	0	17	0	53	0	17	0	-	-	-	-
Fresno	67	14	188	127	59	3	139	82	13	11	49	45
Glenn	10	0	2	0	10	0	2	0	-	-	-	-
Humboldt	10	0	2	0	10	0	2	0	-	-	-	-
Imperial	-	-	-	-	-	-	-	-	-	-	-	-
Inyo	36	0	9	0	36	0	9	0	-	-	-	-
Kern	71	2	221	25	71	2	221	25	-	-	-	-
Kings	32	8	15	4	10	0	6	0	22	8	9	4
Lake	71	0	13	0	71	0	13	0	-	-	-	-
Lassen	8	0	9	0	8	0	9	0	-	-	-	-
Los Angeles	90	2	630	8	90	2	630	8	-	-	-	-
Madera	33	2	26	8	33	2	26	8	-	-	-	-
Marin	6	0	1	0	6	0	1	0	-	-	-	-

[29] Some of the wells counted in this table were sampled more than once during the reporting period. For the purposes of this table, a well is only counted once regardless of the number of samples taken.

Appendix D–Well Sampling Results Summarized by County and Reporting Agency, con't.

COUNTY	Summary				By Reporting Agency							
					CDPH 2009				DPR July 1, 2009 to June 30, 2010			
	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections
Mariposa	7	0	4	0	7	0	4	0	-	-	-	-
Mendocino	72	0	22	0	72	0	22	0	-	-	-	-
Merced	32	1	51	12	32	1	51	12	-	-	-	-
Modoc	-	-	-	-	-	-	-	-	-	-	-	-
Mono	39	0	3	0	39	0	3	0	-	-	-	-
Monterey	55	0	57	0	55	0	57	0	-	-	-	-
Napa	70	0	9	0	70	0	9	0	-	-	-	-
Nevada	8	0	1	0	8	0	1	0	-	-	-	-
Orange	75	0	201	0	75	0	201	0	-	-	-	-
Placer	7	0	2	0	7	0	2	0	-	-	-	-
Plumas	8	0	8	0	8	0	8	0	-	-	-	-
Riverside	55	2	136	11	55	2	136	11	-	-	-	-
Sacramento	80	3	179	4	64	3	175	4	22	0	4	0
San Benito	39	0	5	0	39	0	5	0	-	-	-	-
San Bernardino	79	2	270	35	79	2	270	35	-	-	-	-
San Diego	84	2	25	2	84	2	25	2	-	-	-	-
San Francisco	-	-	-	-	-	-	-	-	-	-	-	-
San Joaquin	78	13	97	31	62	3	75	20	22	10	22	11
San Luis Obispo	44	2	26	2	44	2	26	2	-	-	-	-
San Mateo	55	1	10	2	55	1	10	2	-	-	-	-
Santa Barbara	59	0	27	0	59	0	27	0	-	-	-	-
Santa Clara	81	0	129	0	81	0	129	0	-	-	-	-
Santa Cruz	56	0	23	0	56	0	23	0	-	-	-	-
Shasta	6	0	7	0	6	0	7	0	-	-	-	-
Sierra	7	0	1	0	7	0	1	0	-	-	-	-
Siskiyou	6	0	3	0	6	0	3	0	-	-	-	-
Solano	42	3	16	7	20	0	8	0	22	3	8	7

Appendix D–Well Sampling Results Summarized by County and Reporting Agency, con't.

COUNTY	Summary				By Reporting Agency							
					CDPH 2009				DPR July 1, 2009 to June 30, 2010			
	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections	Pesticides Analyzed	Pesticides Detected	Wells Sampled	Wells with Detections
Sonoma	89	1	86	1	89	1	86	1	-	-	-	-
Stanislaus	71	7	129	39	54	2	107	22	22	5	22	17
Sutter	51	0	5	0	51	0	5	0	-	-	-	-
Tehama	8	0	7	0	8	0	7	0	-	-	-	-
Trinity	-	-	-	-	-	-	-	-	-	-	-	-
Tulare	68	10	141	54	60	1	122	36	13	9	19	18
Tuolumne	23	0	22	0	23	0	22	0	-	-	-	-
Ventura	52	1	31	1	52	1	31	1	-	-	-	-
Yolo	73	1	27	1	56	0	24	0	22	1	3	1
Yuba	11	1	8	1	11	1	8	1	-	-	-	-

Appendix E–Well Sampling Results Summarized by County and Pesticide

Appendix E summarizes the reported results of wells sampled for pesticides and/or pesticide degradates from January 2009 through June 2010 for each county where sampling occurred. Each county table lists the pesticides and/or pesticide degradates that were sampled, the number of individual wells sampled for each pesticide and/or pesticide degradate and the number of wells where detections occurred.

Approximately 18% of the wells had two to eight different pesticides and/or pesticide degradates detected during this reporting period. A well with more than one pesticide or pesticide degradation product detected will appear more than once in a county table. As a result, the total number of wells with detections in a county in Appendix E *will appear to* exceed the number in each county in Appendix D.

The links in the table below allow you to navigate to a specific county to view that county's data. Clicking on the county name at the top of each county table will take you back to this page.

Alameda		Marin		San Mateo	**D**
Alpine	**NS**	Mariposa		Santa Barbara	
Amador		Mendocino		Santa Clara	
Butte		Merced	**D**	Santa Cruz	
Calaveras	**NS**	Modoc	**NS**	Shasta	
Colusa		Mono		Sierra	
Contra Costa		Monterey		Siskiyou	
Del Norte		Napa		Solano	**D**
El Dorado		Nevada		Sonoma	**D**
Fresno	**D**	Orange		Stanislaus	**D**
Glenn		Placer		Sutter	
Humboldt		Plumas		Tehama	
Imperial	**NS**	Riverside	**D**	Trinity	**NS**
Inyo		Sacramento	**D**	Tulare	**D**
Kern	**D**	San Benito		Tuolumne	
Kings	**D**	San Bernardino	**D**	Ventura	
Lake		San Diego	**D**	Yolo	**D**
Lassen		San Francisco	**NS**	Yuba	**D**
Los Angeles	**D**	San Joaquin	**D**		
Madera	**D**	San Luis Obispo	**D**		

D = Counties that had pesticide detections.
NS = Counties that were not sampled.

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Alameda	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	24	
	1,2-D (1,2-dichloropropane)	24	
	1,2-D + 1,3-D + C-3 pesticides	24	
	1,3-Dichloropropene (1,3-D, telone)	15	
	2,3,7,8-TCDD (dioxin)	15	
	2,4,5-TP (silvex)	15	
	2,4-D	15	
	3-Hydroxycarbofuran	15	
	Acenaphthene	2	
	Alachlor	18	
	Aldicarb	15	
	Aldicarb sulfone	15	
	Aldicarb sulfoxide	15	
	Aldrin	17	
	Atrazine	18	
	Bentazon, sodium salt	15	
	Bromacil	17	
	Butachlor	17	
	Carbaryl	15	
	Carbofuran	15	
	Chlordane	15	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	15	
	Dalapon	15	
	DBCP	18	
	Diazinon	15	
	Dicamba	15	
	Dieldrin	17	
	Dimethoate	15	
	Dinoseb	15	
	Diquat dibromide	15	
	Diuron	15	
	Endothall	15	
	Endrin	18	
	Ethylene dibromide	18	
	Glyphosate, isopropylamine salt	15	
	Heptachlor	18	
	Heptachlor epoxide	18	
	Hexachlorobenzene	18	
	Lindane (gamma-BHC)	18	
	Methiocarb	15	
	Methomyl	15	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Alameda	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Methoxychlor	18	
	Methyl bromide (bromomethane)	20	
	Metolachlor	15	
	Metribuzin	17	
	Molinate	17	
	Naphthalene	24	
	Ortho-dichlorobenzene	24	
	Oxamyl	15	
	Picloram	15	
	Prometryn	2	
	Propachlor	17	
	Propoxur	15	
	Simazine	18	
	Thiobencarb	17	
	Toxaphene	15	
	Xylene	24	

Alpine	***Chemical***	***Wells Sampled***	***Wells with Detections***
	NOT SAMPLED IN THE CURRENT YEAR		

Amador	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	4	
	1,2-D (1,2-dichloropropane)	4	
	1,2-D + 1,3-D + C-3 pesticides	2	
	Carbon disulfide	1	
	DBCP	1	
	Ethylene dibromide	1	
	Methyl bromide (bromomethane)	2	
	Naphthalene	2	
	Ortho-dichlorobenzene	4	
	Xylene	4	

Butte	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	38	
	1,2-D (1,2-dichloropropane)	38	
	1,2-D + 1,3-D + C-3 pesticides	38	
	1,3-Dichloropropene (1,3-D, telone)	8	
	2,3,7,8-TCDD (dioxin)	2	
	2,4,5-T	4	
	2,4,5-TP (silvex)	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Butte	***Chemical***	***Wells Sampled***	***Wells with Detections***
	2,4-D	4	
	3-Hydroxycarbofuran	2	
	4(2,4-DB), dimethylamine salt	1	
	Acifluorfen, sodium salt	1	
	Alachlor	2	
	Aldicarb	3	
	Aldicarb sulfone	3	
	Aldicarb sulfoxide	3	
	Aldrin	2	
	Atrazine	2	
	Bentazon, sodium salt	4	
	Bromacil	2	
	Butachlor	2	
	Carbaryl	3	
	Carbofuran	3	
	Carbon disulfide	2	
	Chloramben	1	
	Chlordane	2	
	Chlorothalonil	2	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	1	
	Dalapon	4	
	DBCP	4	
	Diazinon	2	
	Dicamba	4	
	Dichlorprop, butoxyethanol ester	1	
	Dieldrin	2	
	Dimethoate	2	
	Dinoseb	4	
	Diquat dibromide	2	
	Endothall	2	
	Endrin	2	
	Ethylene dibromide	4	
	Glyphosate, isopropylamine salt	3	
	Heptachlor	2	
	Heptachlor epoxide	2	
	Hexachlorobenzene	2	
	Lindane (gamma-BHC)	2	
	Methiocarb	1	
	Methomyl	3	
	Methoxychlor	2	
	Methyl bromide (bromomethane)	9	
	Metolachlor	2	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Butte	Chemical	Wells Sampled	Wells with Detections
	Metribuzin	2	
	Molinate	2	
	Naphthalene	38	
	Ortho-dichlorobenzene	38	
	Oxamyl	3	
	Picloram	4	
	Propachlor	2	
	Propoxur	1	
	Simazine	2	
	Thiobencarb	2	
	Toxaphene	2	
	Trifluralin	2	
	Xylene	38	

Calaveras	Chemical	Wells Sampled	Wells with Detections
	NOT SAMPLED IN THE CURRENT YEAR	2	

Colusa	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	2,4,5-T	1	
	2,4,5-TP (silvex)	1	
	2,4-D	3	
	4(2,4-DB), dimethylamine salt	1	
	Acifluorfen, sodium salt	1	
	Aldicarb	1	
	Aldicarb sulfone	1	
	Aldicarb sulfoxide	1	
	Atrazine	2	
	Bentazon, sodium salt	1	
	Carbaryl	1	
	Carbofuran	3	
	Chloramben	1	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	1	
	Dalapon	1	
	Dicamba	1	
	Dichlorprop, butoxyethanol ester	1	
	Dinoseb	1	
	Glyphosate, isopropylamine salt	3	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Colusa	Chemical	Wells Sampled	Wells with Detections
	Methiocarb	1	
	Methomyl	1	
	Methyl bromide (bromomethane)	1	
	Molinate	2	
	Naphthalene	1	
	Ortho-dichlorobenzene	1	
	Oxamyl	1	
	Picloram	1	
	Propoxur	1	
	Simazine	2	
	Thiobencarb	2	
	Xylene	1	

Contra Costa	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	11	
	1,2-D (1,2-dichloropropane)	11	
	1,2-D + 1,3-D + C-3 pesticides	9	
	1,3-Dichloropropene (1,3-D, telone)	6	
	2,3,7,8-TCDD (dioxin)	8	
	2,4,5-TP (silvex)	6	
	2,4-D	6	
	3-Hydroxycarbofuran	6	
	Alachlor	6	
	Aldicarb	6	
	Aldicarb sulfone	6	
	Aldicarb sulfoxide	6	
	Aldrin	4	
	Atrazine	6	
	Bentazon, sodium salt	6	
	Bromacil	4	
	Butachlor	4	
	Carbaryl	6	
	Carbofuran	6	
	Carbon disulfide	5	
	Chlordane	6	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	6	
	Dalapon	6	
	DBCP	6	
	Diazinon	4	
	Dicamba	6	
	Dieldrin	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Contra Costa	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Dimethoate	4	
	Dinoseb	6	
	Diquat dibromide	6	
	Endothall	6	
	Endrin	6	
	Ethylene dibromide	6	
	Glyphosate, isopropylamine salt	6	
	Heptachlor	6	
	Heptachlor epoxide	6	
	Hexachlorobenzene	6	
	Lindane (gamma-BHC)	6	
	Methiocarb	4	
	Methomyl	6	
	Methoxychlor	6	
	Methyl bromide (bromomethane)	9	
	Metolachlor	4	
	Metribuzin	4	
	Molinate	6	
	Naphthalene	9	
	Ortho-dichlorobenzene	11	
	Oxamyl	6	
	Picloram	6	
	Propachlor	4	
	Propoxur	4	
	Simazine	6	
	Thiobencarb	9	
	Toxaphene	6	
	Xylene	11	

Del Norte	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	1,3-Dichloropropene (1,3-D, telone)	1	
	DBCP	1	
	Ethylene dibromide	1	
	Methyl bromide (bromomethane)	1	
	Naphthalene	1	
	Ortho-dichlorobenzene	1	
	Xylene	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

El Dorado	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	15	
	1,2-D (1,2-dichloropropane)	15	
	1,2-D + 1,3-D + C-3 pesticides	14	
	1,3-Dichloropropene (1,3-D, telone)	1	
	2,4,5-T	12	
	2,4,5-TP (silvex)	12	
	2,4-D	12	
	3-Hydroxycarbofuran	12	
	Alachlor	12	
	Aldicarb	12	
	Aldicarb sulfone	12	
	Aldicarb sulfoxide	12	
	Aldrin	12	
	Atrazine	12	
	Bentazon, sodium salt	12	
	Bromacil	12	
	Butachlor	12	
	Carbaryl	12	
	Carbofuran	12	
	Chlordane	12	
	Chlorothalonil	12	
	Dalapon	12	
	DBCP	12	
	Diazinon	12	
	Dicamba	12	
	Dieldrin	12	
	Dimethoate	12	
	Dinoseb	12	
	Diquat dibromide	12	
	Endothall	12	
	Endrin	12	
	Ethylene dibromide	12	
	Glyphosate, isopropylamine salt	12	
	Heptachlor	12	
	Heptachlor epoxide	12	
	Hexachlorobenzene	12	
	Lindane (gamma-BHC)	12	
	Methomyl	12	
	Methoxychlor	12	
	Methyl bromide (bromomethane)	14	
	Metolachlor	12	
	Metribuzin	12	
	Molinate	12	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

El Dorado	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Naphthalene	14	
	Ortho-dichlorobenzene	15	
	Oxamyl	12	
	Picloram	12	
	Propachlor	12	
	Simazine	12	
	Thiobencarb	12	
	Toxaphene	12	
	Trifluralin	12	
	Xylene	15	

Fresno	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	45	
	1,2-D (1,2-dichloropropane)	45	1
	1,2-D + 1,3-D + C-3 pesticides	45	
	1,3-Dichloropropene (1,3-D, telone)	9	
	2,4,5-T	2	
	2,4,5-TP (silvex)	2	
	2,4-D	2	
	3-Hydroxycarbofuran	2	
	Alachlor	22	
	Aldicarb	2	
	Aldicarb sulfone	2	
	Aldicarb sulfoxide	2	
	Aldrin	2	
	Atrazine	71	1
	Bentazon, sodium salt	2	
	Bromacil	66	11
	Butachlor	17	
	Carbaryl	2	
	Carbofuran	2	
	Carbon disulfide	2	
	Chlordane	5	
	Chlorothalonil	2	
	Dalapon	2	
	DBCP	112	82
	Deethyl-atrazine (DEA)	49	2
	Deethyl-simazine or deisopropyl-atrazine (ACET)	49	40
	Desmethyl-norflurazon	49	25
	Diaminochlorotriazine (DACT)	49	42
	Diazinon	13	
	Dicamba	2	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Fresno	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Dieldrin	2	
	Dimethoate	17	
	Dinoseb	2	
	Diquat dibromide	1	
	Diuron	50	18
	Endothall	1	
	Endrin	5	
	EPTC	4	
	Ethylene dibromide	103	4
	Glyphosate, isopropylamine salt	2	
	Heptachlor	5	
	Heptachlor epoxide	5	
	Hexachlorobenzene	5	
	Hexazinone	49	1
	Lindane (gamma-BHC)	5	
	Methomyl	2	
	Methoxychlor	5	
	Methyl bromide (bromomethane)	45	
	Metolachlor	17	
	Metribuzin	17	
	Molinate	17	
	Naphthalene	41	
	Norflurazon	49	13
	Ortho-dichlorobenzene	45	
	Oryzalin	14	
	Oxamyl	2	
	Picloram	2	
	Prometon	53	1
	Prometryn	6	
	Propachlor	13	
	Simazine	71	31
	Tebuthiuron	48	
	Terbacil	4	
	Thiobencarb	19	
	Toxaphene	5	
	Trifluralin	2	
	Xylene	45	

Glenn	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Glenn	Chemical	Wells Sampled	Wells with Detections
	Atrazine	1	
	Methyl bromide (bromomethane)	1	
	Molinate	1	
	Ortho-dichlorobenzene	1	
	Simazine	1	
	Thiobencarb	1	
	Xylene	1	
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	Atrazine	1	
	Methyl bromide (bromomethane)	1	
	Molinate	1	
	Ortho-dichlorobenzene	1	
	Simazine	1	
	Thiobencarb	1	
	Xylene	1	

Humboldt	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	2	
	1,2-D (1,2-dichloropropane)	2	
	1,2-D + 1,3-D + C-3 pesticides	2	
	1,3-Dichloropropene (1,3-D, telone)	2	
	DBCP	1	
	Ethylene dibromide	1	
	Methyl bromide (bromomethane)	2	
	Naphthalene	2	
	Ortho-dichlorobenzene	2	
	Xylene	2	

Imperial	Chemical	Wells Sampled	Wells with Detections
	NOT SAMPLED IN CURRENT YEAR		

Inyo	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	4	
	1,2-D (1,2-dichloropropane)	4	
	1,2-D + 1,3-D + C-3 pesticides	4	
	1,3-Dichloropropene (1,3-D, telone)	3	
	2,3,7,8-TCDD (dioxin)	1	
	2,4,5-TP (silvex)	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Inyo	***Chemical***	***Wells Sampled***	***Wells with Detections***
	2,4-D	1	
	Alachlor	1	
	Atrazine	1	
	Bentazon, sodium salt	1	
	Carbofuran	1	
	Carbon disulfide	2	
	Chlordane	1	
	Dalapon	1	
	DBCP	7	
	Dinoseb	1	
	Diquat dibromide	1	
	Endothall	1	
	Endrin	1	
	Ethylene dibromide	6	
	Glyphosate, isopropylamine salt	1	
	Heptachlor	1	
	Heptachlor epoxide	1	
	Hexachlorobenzene	1	
	Lindane (gamma-BHC)	1	
	Methoxychlor	1	
	Methyl bromide (bromomethane)	4	
	Molinate	1	
	Naphthalene	4	
	Ortho-dichlorobenzene	4	
	Oxamyl	1	
	Picloram	1	
	Simazine	1	
	Thiobencarb	1	
	Toxaphene	1	
	Xylene	4	

Kern	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	156	
	1,2-D (1,2-dichloropropane)	156	
	1,2-D + 1,3-D + C-3 pesticides	151	
	1,3-Dichloropropene (1,3-D, telone)	60	
	2,3,7,8-TCDD (dioxin)	6	
	2,4,5-T	5	
	2,4,5-TP (silvex)	7	
	2,4-D	7	
	3-Hydroxycarbofuran	7	
	Alachlor	57	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Kern	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Aldicarb	8	
	Aldicarb sulfone	8	
	Aldicarb sulfoxide	8	
	Aldrin	11	
	Atraton	25	
	Atrazine	60	
	Bentazon, sodium salt	7	
	BHC (other than gamma isomer)	25	
	Bromacil	44	
	Butachlor	19	
	Carbaryl	8	
	Carbofuran	10	
	Carbon disulfide	1	
	Chlordane	13	
	Chlorothalonil	4	
	Dalapon	7	
	DBCP	167	25
	DDD	2	
	DDE	2	
	DDT	2	
	Diazinon	33	
	Dicamba	5	
	Dieldrin	11	
	Dimethoate	45	
	Dinoseb	7	
	Diquat dibromide	8	
	Endosulfan	2	
	Endosulfan sulfate	2	
	Endothall	9	
	Endrin	13	
	Endrin aldehyde	2	
	EPTC	2	
	Ethylene dibromide	144	2
	Glyphosate, isopropylamine salt	8	
	Heptachlor	13	
	Heptachlor epoxide	13	
	Hexachlorobenzene	36	
	Lindane (gamma-BHC)	36	
	Methiocarb	2	
	Methomyl	8	
	Methoxychlor	36	
	Methyl bromide (bromomethane)	81	
	Metolachlor	44	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Kern	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Metribuzin	44	
	Molinate	46	
	Naphthalene	141	
	Ortho-dichlorobenzene	156	
	Oxamyl	10	
	Picloram	7	
	Prometon	27	
	Prometryn	29	
	Propachlor	21	
	Propoxur	2	
	Secbumeton	25	
	Simazine	60	
	Terbacil	2	
	Terbutryn	25	
	Thiobencarb	53	
	Toxaphene	13	
	Trifluralin	4	
	Xylene	156	

Kings	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	6	
	1,2-D (1,2-dichloropropane)	6	
	1,2-D + 1,3-D + C-3 pesticides	6	
	1,3-Dichloropropene (1,3-D, telone)	3	
	Alachlor	9	
	Alachlor ESA	9	1
	Alachlor OXA	9	
	Atrazine	9	1
	Bromacil	9	
	DBCP	6	
	Deethyl-atrazine (DEA)	9	
	Deethyl-simazine or deisopropyl-atrazine (ACET)	9	2
	Desmethyl-norflurazon	9	
	Diaminochlorotriazine (DACT)	9	2
	Diuron	9	2
	Ethylene dibromide	3	
	Hexazinone	9	
	Methyl bromide (bromomethane)	6	
	Metolachlor	9	
	Metolachlor ESA	9	1
	Metolachlor OXA	9	1
	Naphthalene	6	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Kings	Chemical	Wells Sampled	Wells with Detections
	Norflurazon	9	
	Ortho-dichlorobenzene	6	
	Prometon	9	
	Simazine	9	1
	Tebuthiuron	9	
	Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	9	
	Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-urea)	9	
	Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	9	
	Tebuthiuron degradate 108 (2-Dimethylethyl-5-amino-1,3,4-thiadiazole)	9	
	Xylene	6	

Lake	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	6	
	1,2-D (1,2-dichloropropane)	6	
	1,2-D + 1,3-D + C-3 pesticides	6	
	1,3-Dichloropropene (1,3-D, telone)	1	
	2,4,5-T	3	
	2,4,5-TP (silvex)	3	
	2,4-D	3	
	3-Hydroxycarbofuran	2	
	4(2,4-DB), dimethylamine salt	3	
	Acifluorfen, sodium salt	2	
	Acrylonitrile	1	
	Alachlor	5	
	Aldicarb	2	
	Aldicarb sulfone	2	
	Aldicarb sulfoxide	2	
	Aldrin	4	
	Atrazine	5	
	Bentazon, sodium salt	3	
	BHC (other than gamma isomer)	2	
	Bromacil	3	
	Butachlor	3	
	Carbaryl	2	
	Carbofuran	2	
	Carbon disulfide	1	
	Chlordane	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Lake	Chemical	Wells Sampled	Wells with Detections
	Chlorobenzilate	2	
	Chloroneb	2	
	Chlorothalonil	2	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	3	
	Dalapon	3	
	DBCP	2	
	DDD	2	
	DDE	2	
	DDT	2	
	Dicamba	3	
	Dichlorprop, butoxyethanol ester	2	
	Dieldrin	4	
	Dimethoate	3	
	Dinoseb	3	
	Diquat dibromide	4	
	Endosulfan	2	
	Endosulfan sulfate	2	
	Endothall	3	
	Endrin	4	
	Endrin aldehyde	2	
	Ethylene dibromide	4	
	Heptachlor	4	
	Heptachlor epoxide	4	
	Hexachlorobenzene	4	
	Lindane (gamma-BHC)	4	
	Methiocarb	2	
	Methomyl	2	
	Methoxychlor	4	
	Methyl bromide (bromomethane)	6	
	Metolachlor	3	
	Metribuzin	3	
	Molinate	3	
	Naphthalene	1	
	Ortho-dichlorobenzene	6	
	Oxamyl	2	
	Permethrin	2	
	Permethrin, other related pesticides	2	
	Picloram	3	
	Prometryn	3	
	Propachlor	4	
	Propoxur	2	
	Simazine	5	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Lake	Chemical	Wells Sampled	Wells with Detections
	Thiobencarb	3	
	Toxaphene	4	
	Trifluralin	2	
	Xylene	6	

Lassen	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	9	
	1,2-D (1,2-dichloropropane)	9	
	1,2-D + 1,3-D + C-3 pesticides	9	
	1,3-Dichloropropene (1,3-D, telone)	6	
	Methyl bromide (bromomethane)	9	
	Naphthalene	9	
	Ortho-dichlorobenzene	9	
	Xylene	9	
	1,3-Dichloropropene (1,3-D, telone)	6	

Los Angeles	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	624	
	1,2-D (1,2-dichloropropane)	628	2
	1,2-D + 1,3-D + C-3 pesticides	406	
	1,3-Dichloropropene (1,3-D, telone)	493	
	2,3,7,8-TCDD (dioxin)	65	
	2,4,5-T	12	
	2,4,5-TP (silvex)	25	
	2,4,6-trichlorophenol	1	
	2,4-D	25	
	2,4-Dinitrophenol	1	
	3-Hydroxycarbofuran	17	
	4(2,4-DB), dimethylamine salt	10	
	Acenaphthene	1	
	Acetochlor	5	
	Acifluorfen, sodium salt	9	
	Acrylonitrile	5	
	Alachlor	41	
	Aldicarb	18	
	Aldicarb sulfone	18	
	Aldicarb sulfoxide	18	
	Aldrin	8	
	Atraton	1	
	Atrazine	42	
	Bentazon, sodium salt	25	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Los Angeles	***Chemical***	***Wells Sampled***	***Wells with Detections***
	BHC (other than gamma isomer)	1	
	Bromacil	25	
	Butachlor	22	
	Captan	12	
	Carbaryl	19	
	Carbofuran	24	
	Carbon disulfide	94	
	Carbophenothion	6	
	Chlordane	25	
	Chlorothalonil	1	
	Chlorpropham	12	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	15	
	Cyanazine	12	
	Dalapon	25	
	DBCP	67	6
	DDD	1	
	DDE	5	
	DDT	1	
	Diazinon	22	
	Dicamba	18	
	Dichlorprop, butoxyethanol ester	10	
	Dieldrin	8	
	Dimethoate	23	
	Dinoseb	25	
	Diphenamid	12	
	Diquat dibromide	24	
	Disulfoton	12	
	Diuron	4	
	Endosulfan	1	
	Endosulfan sulfate	1	
	Endothall	23	
	Endrin	25	
	Endrin aldehyde	1	
	EPTC	16	
	Ethylene dibromide	67	
	Glyphosate, isopropylamine salt	26	
	Heptachlor	25	
	Heptachlor epoxide	25	
	Hexachlorobenzene	25	
	Lindane (gamma-BHC)	25	
	MCPA, dimethylamine salt	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Los Angeles	***Chemical***	***Wells Sampled***	***Wells with Detections***
	MCPP (2-(4-chloro-2-methylphenoxy)propionic acid)	1	
	Methiocarb	14	
	Methomyl	17	
	Methoxychlor	25	
	Methyl bromide (bromomethane)	385	
	Metolachlor	23	
	Metribuzin	23	
	Molinate	41	
	Naphthalene	354	
	Ortho-dichlorobenzene	628	
	Oxamyl	24	
	Paraquat dichloride	1	
	Picloram	24	
	Prometon	13	
	Prometryn	13	
	Propachlor	10	
	Propoxur	5	
	Secbumeton	1	
	Simazine	42	
	Terbacil	17	
	Terbutryn	1	
	Thiobencarb	41	
	Toxaphene	25	
	Trifluralin	1	
	Xylene	628	

Madera	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	11	
	1,2-D (1,2-dichloropropane)	11	
	1,2-D + 1,3-D + C-3 pesticides	11	
	1,3-Dichloropropene (1,3-D, telone)	2	
	Alachlor	12	
	Atrazine	14	
	Bromacil	2	
	Butachlor	2	
	Chlordane	10	
	DBCP	15	8
	Diazinon	2	
	Dimethoate	2	
	Endrin	9	
	EPTC	2	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Madera	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Ethylene dibromide	13	1
	Heptachlor	10	
	Heptachlor epoxide	10	
	Hexachlorobenzene	10	
	Lindane (gamma-BHC)	10	
	Methoxychlor	10	
	Methyl bromide (bromomethane)	11	
	Metolachlor	2	
	Metribuzin	2	
	Molinate	2	
	Naphthalene	11	
	Ortho-dichlorobenzene	11	
	Prometon	2	
	Prometryn	2	
	Simazine	14	
	Terbacil	2	
	Thiobencarb	2	
	Toxaphene	10	
	Xylene	11	

Marin	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	Naphthalene	1	
	Ortho-dichlorobenzene	1	
	Xylene	1	
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	Naphthalene	1	
	Ortho-dichlorobenzene	1	
	Xylene	1	

Mariposa	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	4	
	1,2-D (1,2-dichloropropane)	4	
	1,2-D + 1,3-D + C-3 pesticides	4	
	Methyl bromide (bromomethane)	4	
	Naphthalene	4	
	Ortho-dichlorobenzene	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Mariposa	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Xylene	4	
	1,2,4-Trichlorobenzene	4	
	1,2-D (1,2-dichloropropane)	4	
	1,2-D + 1,3-D + C-3 pesticides	4	
	Methyl bromide (bromomethane)	4	
	Naphthalene	4	
	Ortho-dichlorobenzene	4	
	Xylene	4	

Mendocino	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	7	
	1,2-D (1,2-dichloropropane)	7	
	1,2-D + 1,3-D + C-3 pesticides	7	
	1,3-Dichloropropene (1,3-D, telone)	7	
	2,4,5-T	10	
	2,4,5-TP (silvex)	11	
	2,4-D	11	
	3-Hydroxycarbofuran	7	
	4(2,4-DB), dimethylamine salt	10	
	Acifluorfen, sodium salt	10	
	Acrylonitrile	7	
	Alachlor	16	
	Aldicarb	7	
	Aldicarb sulfone	7	
	Aldicarb sulfoxide	7	
	Aldrin	1	
	Atrazine	16	
	Bentazon, sodium salt	10	
	BHC (other than gamma isomer)	1	
	Bromacil	16	
	Butachlor	16	
	Carbaryl	7	
	Carbofuran	7	
	Carbon disulfide	7	
	Chlordane	1	
	Chlorobenzilate	1	
	Chloroneb	1	
	Chlorothalonil	1	
	Chlorthal-dimethyl (dacthal / DCPA)	1	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	10	
	Dalapon	11	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Mendocino	***Chemical***	***Wells Sampled***	***Wells with Detections***
	DBCP	1	
	DDD	1	
	DDE	1	
	DDT	1	
	Dicamba	10	
	Dichlorprop, butoxyethanol ester	10	
	Dieldrin	1	
	Dimethoate	16	
	Dinoseb	10	
	Diquat dibromide	7	
	Endosulfan	1	
	Endosulfan sulfate	1	
	Endothall	7	
	Endrin	1	
	Endrin aldehyde	1	
	Ethylene dibromide	1	
	Heptachlor	1	
	Heptachlor epoxide	1	
	Hexachlorobenzene	1	
	Lindane (gamma-BHC)	1	
	Methiocarb	7	
	Methomyl	7	
	Methoxychlor	1	
	Methyl bromide (bromomethane)	7	
	Metolachlor	16	
	Metribuzin	16	
	Molinate	16	
	Naphthalene	7	
	Ortho-dichlorobenzene	7	
	Oxamyl	7	
	Permethrin	1	
	Permethrin, other related pesticides	1	
	Picloram	10	
	Prometryn	16	
	Propachlor	8	
	Propoxur	7	
	Simazine	16	
	Thiobencarb	16	
	Toxaphene	1	
	Trifluralin	1	
	Xylene	8	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Merced	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	26	
	1,2-D (1,2-dichloropropane)	26	
	1,2-D + 1,3-D + C-3 pesticides	26	
	1,3-Dichloropropene (1,3-D, telone)	1	
	Acetochlor	1	
	Alachlor	23	
	Atraton	9	
	Atrazine	23	
	BHC (other than gamma isomer)	9	
	Bromacil	21	
	Butachlor	12	
	DBCP	31	12
	Diazinon	10	
	Dimethoate	34	
	Ethylene dibromide	26	
	Hexachlorobenzene	9	
	Lindane (gamma-BHC)	9	
	Methoxychlor	9	
	Methyl bromide (bromomethane)	26	
	Metolachlor	21	
	Metribuzin	21	
	Molinate	21	
	Naphthalene	26	
	Ortho-dichlorobenzene	26	
	Prometon	9	
	Prometryn	9	
	Propachlor	12	
	Secbumeton	9	
	Simazine	23	
	Terbutryn	9	
	Thiobencarb	21	
	Xylene	26	

Modoc	***Chemical***	***Wells Sampled***	***Wells with Detections***
	NOT SAMPLED IN THE CURRENT YEAR		

Mono	***Chemical***	***Wells Sampled***	***Wells with Detections***
	2,3,7,8-TCDD (dioxin)	1	
	2,4,5-TP (silvex)	1	
	2,4-D	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Mono	***Chemical***	***Wells Sampled***	***Wells with Detections***
	3-Hydroxycarbofuran	1	
	Alachlor	1	
	Aldicarb	1	
	Aldicarb sulfone	1	
	Aldicarb sulfoxide	1	
	Aldrin	1	
	Atrazine	1	
	Bentazon, sodium salt	1	
	Carbaryl	1	
	Carbofuran	1	
	Chlordane	1	
	Dalapon	1	
	DBCP	2	
	Dicamba	1	
	Dieldrin	1	
	Dinoseb	1	
	Diquat dibromide	1	
	Endothall	1	
	Endrin	1	
	Ethylene dibromide	2	
	Glyphosate, isopropylamine salt	1	
	Heptachlor	1	
	Heptachlor epoxide	1	
	Hexachlorobenzene	1	
	Lindane (gamma-BHC)	1	
	Methiocarb	1	
	Methomyl	1	
	Methoxychlor	1	
	Molinate	1	
	Oxamyl	1	
	Picloram	1	
	Propachlor	1	
	Propoxur	1	
	Simazine	1	
	Thiobencarb	1	
	Toxaphene	1	

Monterey	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	42	
	1,2-D (1,2-dichloropropane)	42	
	1,2-D + 1,3-D + C-3 pesticides	36	
	1,3-Dichloropropene (1,3-D, telone)	10	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Monterey	***Chemical***	***Wells Sampled***	***Wells with Detections***
	2,4,5-T	19	
	2,4,5-TP (silvex)	19	
	2,4-D	21	
	3-Hydroxycarbofuran	18	
	Alachlor	19	
	Aldicarb	18	
	Aldicarb sulfone	18	
	Aldicarb sulfoxide	18	
	Aldrin	2	
	Atrazine	21	
	Bentazon, sodium salt	19	
	Bromacil	19	
	Butachlor	19	
	Carbaryl	18	
	Carbofuran	18	
	Carbon disulfide	3	
	Chlordane	2	
	Chlorothalonil	2	
	Dalapon	19	
	DBCP	5	
	Diazinon	12	
	Dicamba	19	
	Dieldrin	2	
	Dimethoate	19	
	Dinoseb	19	
	Diquat dibromide	21	
	Diuron	1	
	Endothall	2	
	Endrin	2	
	Ethylene dibromide	2	
	Glyphosate, isopropylamine salt	1	
	Heptachlor	2	
	Heptachlor epoxide	2	
	Hexachlorobenzene	2	
	Lindane (gamma-BHC)	2	
	Methomyl	18	
	Methoxychlor	2	
	Methyl bromide (bromomethane)	15	
	Metolachlor	19	
	Metribuzin	19	
	Molinate	19	
	Naphthalene	36	
	Ortho-dichlorobenzene	42	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Monterey	Chemical	Wells Sampled	Wells with Detections
	Oxamyl	18	
	Picloram	19	
	Propachlor	19	
	Simazine	21	
	Thiobencarb	19	
	Toxaphene	2	
	Trifluralin	2	
	Xylene	42	

Napa	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	7	
	1,2-D (1,2-dichloropropane)	7	
	1,2-D + 1,3-D + C-3 pesticides	7	
	1,3-Dichloropropene (1,3-D, telone)	1	
	2,4,5-T	6	
	2,4,5-TP (silvex)	6	
	2,4-D	6	
	3-Hydroxycarbofuran	4	
	4(2,4-DB), dimethylamine salt	5	
	Acifluorfen, sodium salt	1	
	Acrylonitrile	1	
	Alachlor	3	
	Aldicarb	4	
	Aldicarb sulfone	4	
	Aldicarb sulfoxide	4	
	Aldrin	2	
	Atrazine	7	
	Bentazon, sodium salt	6	
	BHC (other than gamma isomer)	1	
	Bromacil	1	
	Butachlor	1	
	Carbaryl	4	
	Carbofuran	5	
	Carbon disulfide	1	
	Chlordane	2	
	Chlorobenzilate	1	
	Chloroneb	1	
	Chlorothalonil	1	
	Chlorthal-dimethyl (dacthal / DCPA)	1	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	1	
	Dalapon	6	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Napa	*Chemical*	*Wells Sampled*	*Wells with Detections*
	DDD	1	
	DDE	1	
	DDT	1	
	Dicamba	6	
	Dichlorprop, butoxyethanol ester	1	
	Dieldrin	2	
	Dimethoate	1	
	Dinoseb	6	
	Diquat dibromide	5	
	Endosulfan	1	
	Endosulfan sulfate	1	
	Endothall	5	
	Endrin	2	
	Endrin aldehyde	1	
	Heptachlor	2	
	Heptachlor epoxide	2	
	Hexachlorobenzene	2	
	Lindane (gamma-BHC)	2	
	Methiocarb	3	
	Methomyl	4	
	Methoxychlor	2	
	Methyl bromide (bromomethane)	7	
	Metolachlor	1	
	Metribuzin	1	
	Molinate	1	
	Naphthalene	1	
	Ortho-dichlorobenzene	7	
	Oxamyl	4	
	Permethrin	1	
	Permethrin, other related pesticides	1	
	Picloram	6	
	Prometryn	1	
	Propachlor	1	
	Propoxur	3	
	Simazine	7	
	Thiobencarb	1	
	Toxaphene	2	
	Trifluralin	1	
	Xylene	7	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Nevada	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	1,3-Dichloropropene (1,3-D, telone)	1	
	Methyl bromide (bromomethane)	1	
	Naphthalene	1	
	Ortho-dichlorobenzene	1	
	Xylene	1	

Orange	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	201	
	1,2-D (1,2-dichloropropane)	201	
	1,2-D + 1,3-D + C-3 pesticides	200	
	1,3-Dichloropropene (1,3-D, telone)	194	
	2,4,5-T	1	
	2,4,5-TP (silvex)	21	
	2,4-D	21	
	3-Hydroxycarbofuran	20	
	4(2,4-DB), dimethylamine salt	1	
	Acenaphthene	20	
	Acetochlor	20	
	Acifluorfen, sodium salt	1	
	Alachlor	54	
	Aldicarb	20	
	Aldicarb sulfone	20	
	Aldicarb sulfoxide	20	
	Aldrin	21	
	Atrazine	56	
	Bentazon, sodium salt	21	
	BHC (other than gamma isomer)	20	
	Bromacil	53	
	Butachlor	53	
	Carbaryl	20	
	Carbofuran	20	
	Chlordane	21	
	Chlorothalonil	20	
	Chlorthal-dimethyl (dacthal / DCPA)	1	
	Dalapon	21	
	DBCP	194	
	DDD	20	
	DDE	20	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Orange	***Chemical***	***Wells Sampled***	***Wells with Detections***
	DDT	20	
	Diazinon	53	
	Dicamba	21	
	Dichlorprop, butoxyethanol ester	1	
	Dieldrin	21	
	Dimethoate	53	
	Dinoseb	21	
	Diquat dibromide	20	
	Diuron	20	
	Endosulfan	20	
	Endosulfan sulfate	20	
	Endothall	20	
	Endrin	21	
	Endrin aldehyde	20	
	Ethylene dibromide	194	
	Glyphosate, isopropylamine salt	20	
	Heptachlor	21	
	Heptachlor epoxide	21	
	Hexachlorobenzene	21	
	Lindane (gamma-BHC)	21	
	Linuron	20	
	Malathion	53	
	Methiocarb	20	
	Methomyl	20	
	Methoxychlor	21	
	Methyl bromide (bromomethane)	200	
	Methyl parathion	53	
	Metolachlor	53	
	Metribuzin	53	
	Molinate	53	
	Naphthalene	196	
	Ortho-dichlorobenzene	201	
	Oxamyl	20	
	Paraquat dichloride	20	
	Parathion or ethyl parathion	53	
	Picloram	21	
	Prometon	53	
	Prometryn	53	
	Propachlor	53	
	Propoxur	20	
	Simazine	56	
	Thiobencarb	55	
	Toxaphene	21	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Orange	Chemical	Wells Sampled	Wells with Detections
	Xylene	200	

Placer	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	Methyl bromide (bromomethane)	1	
	Ortho-dichlorobenzene	1	
	Thiobencarb	2	
	Xylene	1	
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	Methyl bromide (bromomethane)	1	
	Ortho-dichlorobenzene	1	
	Thiobencarb	2	
	Xylene	1	

Plumas	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	8	
	1,2-D (1,2-dichloropropane)	8	
	1,2-D + 1,3-D + C-3 pesticides	8	
	1,3-Dichloropropene (1,3-D, telone)	6	
	Methyl bromide (bromomethane)	8	
	Naphthalene	6	
	Ortho-dichlorobenzene	8	
	Xylene	8	

Riverside	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	86	
	1,2-D (1,2-dichloropropane)	86	1
	1,2-D + 1,3-D + C-3 pesticides	84	
	1,3-Dichloropropene (1,3-D, telone)	74	
	2,3,7,8-TCDD (dioxin)	43	
	2,4,5-TP (silvex)	45	
	2,4-D	45	
	3-Hydroxycarbofuran	43	
	Alachlor	69	
	Aldicarb	43	
	Aldicarb sulfone	43	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Riverside	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Aldicarb sulfoxide	43	
	Aldrin	43	
	Atrazine	83	
	Bentazon, sodium salt	45	
	Bromacil	2	
	Butachlor	2	
	Carbaryl	43	
	Carbofuran	44	
	Chlordane	44	
	Dalapon	45	
	DBCP	81	10
	DDE	3	
	Diazinon	2	
	Dicamba	44	
	Dieldrin	43	
	Dimethoate	2	
	Dinoseb	45	
	Diquat dibromide	42	
	Endothall	42	
	Endrin	44	
	Ethylene dibromide	81	
	Formaldehyde	1	
	Glyphosate, isopropylamine salt	39	
	Heptachlor	44	
	Heptachlor epoxide	44	
	Hexachlorobenzene	44	
	Lindane (gamma-BHC)	44	
	Methiocarb	43	
	Methomyl	43	
	Methoxychlor	44	
	Methyl bromide (bromomethane)	84	
	Metolachlor	3	
	Metribuzin	2	
	Molinate	55	
	Naphthalene	84	
	Ortho-dichlorobenzene	86	
	Oxamyl	44	
	Picloram	45	
	Propachlor	45	
	Propoxur	43	
	Simazine	83	
	Thiobencarb	55	
	Toxaphene	44	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Riverside	Chemical	Wells Sampled	Wells with Detections
	Xylene	86	

Sacramento	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	174	
	1,2-D (1,2-dichloropropane)	174	
	1,2-D + 1,3-D + C-3 pesticides	60	
	1,3-Dichloropropene (1,3-D, telone)	94	
	2,3,7,8-TCDD (dioxin)	9	
	2,4,5-T	84	
	2,4,5-TP (silvex)	88	
	2,4-D	88	
	3-Hydroxycarbofuran	88	
	4(2,4-DB), dimethylamine salt	81	
	Acifluorfen, sodium salt	81	
	Alachlor	92	
	Alachlor ESA	4	
	Alachlor OXA	4	
	Aldicarb	88	
	Aldicarb sulfone	88	
	Aldicarb sulfoxide	88	
	Aldrin	7	
	Atrazine	92	
	Bentazon, sodium salt	88	
	Bromacil	11	
	Butachlor	7	
	Carbaryl	88	
	Carbofuran	88	
	Chlordane	87	
	Chlorothalonil	7	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	81	1
	Dalapon	88	
	DBCP	88	2
	Deethyl-atrazine (DEA)	4	
	Deethyl-simazine or deisopropyl-atrazine (ACET)	4	
	Desmethyl-norflurazon	4	
	Diaminochlorotriazine (DACT)	4	
	Diazinon	8	
	Dicamba	88	
	Dichlorprop, butoxyethanol ester	85	
	Dieldrin	7	
	Dimethoate	7	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Sacramento	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Dinoseb	88	
	Diquat dibromide	88	
	Diuron	4	
	Endothall	84	
	Endrin	88	
	EPTC	4	
	Ethylene dibromide	88	1
	Glyphosate, isopropylamine salt	88	
	Heptachlor	88	
	Heptachlor epoxide	88	
	Hexachlorobenzene	88	
	Hexazinone	4	
	Lindane (gamma-BHC)	88	
	Methiocarb	85	
	Methomyl	88	
	Methoxychlor	88	
	Methyl bromide (bromomethane)	64	
	Metolachlor	11	
	Metolachlor ESA	4	
	Metolachlor OXA	4	
	Metribuzin	7	
	Molinate	88	
	Naphthalene	56	
	Norflurazon	4	
	Ortho-dichlorobenzene	174	
	Oxamyl	88	
	Picloram	88	
	Prometon	8	
	Prometryn	4	
	Propachlor	7	
	Propoxur	4	
	Simazine	92	
	Tebuthiuron	4	
	Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	4	
	Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-urea)	4	
	Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	4	
	Tebuthiuron degradate 108 (2-Dimethylethyl-5-amino-1,3,4-thiadiazole)	4	
	Terbacil	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Sacramento	Chemical	Wells Sampled	Wells with Detections
	Thiobencarb	89	
	Toxaphene	88	
	Trifluralin	7	
	Xylene	174	

San Benito	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	2	
	1,2-D (1,2-dichloropropane)	2	
	1,2-D + 1,3-D + C-3 pesticides	2	
	2,4,5-T	3	
	2,4,5-TP (silvex)	3	
	2,4-D	4	
	3-Hydroxycarbofuran	2	
	Alachlor	4	
	Aldicarb	2	
	Aldicarb sulfone	2	
	Aldicarb sulfoxide	2	
	Atrazine	4	
	Bentazon, sodium salt	4	
	Bromacil	3	
	Butachlor	3	
	Carbaryl	2	
	Carbofuran	3	
	Dalapon	3	
	Diazinon	3	
	Dicamba	3	
	Dimethoate	3	
	Dinoseb	3	
	Diquat dibromide	4	
	Endothall	1	
	Ethylene dibromide	1	
	Lindane (gamma-BHC)	1	
	Methomyl	2	
	Methyl bromide (bromomethane)	2	
	Metolachlor	3	
	Metribuzin	3	
	Molinate	3	
	Naphthalene	2	
	Ortho-dichlorobenzene	2	
	Oxamyl	3	
	Picloram	3	
	Propachlor	3	
	Simazine	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Benito	Chemical	Wells Sampled	Wells with Detections
	Thiobencarb	3	
	Xylene	2	

San Bernardino	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	177	
	1,2-D (1,2-dichloropropane)	177	
	1,2-D + 1,3-D + C-3 pesticides	125	
	1,3-Dichloropropene (1,3-D, telone)	113	
	2,3,7,8-TCDD (dioxin)	70	
	2,4,5-T	2	
	2,4,5-TP (silvex)	71	
	2,4-D	71	
	3-Hydroxycarbofuran	42	
	4(2,4-DB), dimethylamine salt	1	
	Acifluorfen, sodium salt	1	
	Alachlor	71	
	Aldicarb	43	
	Aldicarb sulfone	43	
	Aldicarb sulfoxide	43	
	Aldrin	48	
	Atrazine	79	
	Bentazon, sodium salt	71	
	BHC (other than gamma isomer)	1	
	Bromacil	9	
	Butachlor	9	
	Captan	1	
	Carbaryl	43	
	Carbofuran	76	
	Carbon disulfide	9	
	Carbophenothion	1	
	Chloramben	1	
	Chlordane	81	
	Chlorothalonil	1	
	Chlorpropham	1	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	16	3
	Cyanazine	1	
	Dalapon	71	
	DBCP	170	32
	DDD	1	
	DDE	1	
	DDT	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Bernardino	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Diazinon	9	
	Dicamba	46	
	Dichlorprop, butoxyethanol ester	1	
	Dieldrin	48	
	Dimethoate	9	
	Dinoseb	71	
	Diphenamid	1	
	Diquat dibromide	75	
	Disulfoton	1	
	Endosulfan	1	
	Endosulfan sulfate	1	
	Endothall	76	
	Endrin	81	
	Endrin aldehyde	1	
	EPTC	1	
	Ethylene dibromide	168	
	Glyphosate, isopropylamine salt	76	
	Heptachlor	81	
	Heptachlor epoxide	81	
	Hexachlorobenzene	89	
	Lindane (gamma-BHC)	81	
	Methiocarb	39	
	Methomyl	43	
	Methoxychlor	81	
	Methyl bromide (bromomethane)	125	
	Metolachlor	9	
	Metribuzin	9	
	Molinate	79	
	Naphthalene	125	
	Ortho-dichlorobenzene	177	
	Oxamyl	76	
	Picloram	71	
	Prometon	1	
	Prometryn	1	
	Propachlor	41	
	Propoxur	39	
	Simazine	79	
	Terbacil	1	
	Thiobencarb	79	
	Toxaphene	81	
	Trifluralin	1	
	Xylene	177	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Diego	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	20	
	1,2-D (1,2-dichloropropane)	20	1
	1,2-D + 1,3-D + C-3 pesticides	17	
	1,3-Dichloropropene (1,3-D, telone)	14	
	2,3,7,8-TCDD (dioxin)	6	
	2,4,5-T	6	
	2,4,5-TP (silvex)	12	
	2,4-D	12	
	3-Hydroxycarbofuran	10	
	4(2,4-DB), dimethylamine salt	4	
	Alachlor	13	
	Aldicarb	10	
	Aldicarb sulfone	10	
	Aldicarb sulfoxide	10	
	Aldrin	8	
	Ametryne	4	
	Atrazine	17	
	Bentazon, sodium salt	12	
	BHC (other than gamma isomer)	4	
	Bromacil	5	
	Butachlor	5	
	Butylate	4	
	Carbaryl	10	
	Carbofuran	12	
	Carbon disulfide	2	
	Chlordane	11	
	Chloroneb	4	
	Chlorothalonil	4	
	Chlorpropham	4	
	Chlorpyrifos	4	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	7	
	Cycloate	4	
	Dalapon	11	
	DBCP	15	
	DDD	4	
	DDE	4	
	DDT	4	
	Diazinon	5	
	Dicamba	8	
	Dichlorprop, butoxyethanol ester	4	
	Dieldrin	7	
	Dimethoate	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Diego	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Dinoseb	12	
	Diphenamid	4	
	Diquat dibromide	6	
	Diuron	2	
	Endosulfan	4	
	Endosulfan sulfate	4	
	Endothall	6	
	Endrin	11	
	Endrin aldehyde	4	
	Ethylene dibromide	15	
	Glyphosate, isopropylamine salt	10	
	Heptachlor	11	
	Heptachlor epoxide	11	
	Hexachlorobenzene	12	
	Lindane (gamma-BHC)	12	
	Methiocarb	9	
	Methomyl	10	
	Methoxychlor	12	
	Methyl bromide (bromomethane)	17	1
	Metolachlor	5	
	Metribuzin	5	
	Molinate	12	
	Naphthalene	17	
	Napropamide	4	
	Ortho-dichlorobenzene	20	
	Oxamyl	12	
	Permethrin	4	
	Picloram	12	
	Prometryn	4	
	Propachlor	5	
	Propazine	4	
	Propoxur	9	
	Simazine	17	
	Simetryn	4	
	Terbacil	4	
	Terbutryn	4	
	Thiobencarb	13	
	Toxaphene	11	
	Triadimefon	4	
	Trifluralin	4	
	Vernolate	4	
	Xylene	20	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Francisco	Chemical	Wells Sampled	Wells with Detections
	NOT SAMPLED IN CURRENT YEAR		

San Joaquin	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	57	1
	1,2-D (1,2-dichloropropane)	57	
	1,2-D + 1,3-D + C-3 pesticides	57	
	1,3-Dichloropropene (1,3-D, telone)	32	
	2,4,5-TP (silvex)	6	
	2,4-D	6	
	3-Hydroxycarbofuran	6	
	Acenaphthene	1	
	Acrylonitrile	3	
	Alachlor	30	
	Alachlor ESA	22	3
	Alachlor OXA	22	1
	Aldicarb	6	
	Aldicarb sulfone	6	
	Aldicarb sulfoxide	6	
	Aldrin	6	
	Atrazine	30	
	Bentazon, sodium salt	6	
	Bromacil	30	
	Butachlor	8	
	Carbaryl	6	
	Carbofuran	6	
	Carbon disulfide	7	
	Chlordane	6	
	Chlorothalonil	6	
	Dalapon	6	
	DBCP	46	19
	Deethyl-atrazine (DEA)	22	2
	Deethyl-simazine or deisopropyl-atrazine (ACET)	22	
	Desmethyl-norflurazon	22	1
	Diaminochlorotriazine (DACT)	22	2
	Diazinon	9	
	Dicamba	6	
	Dichlorprop, butoxyethanol ester	6	
	Dieldrin	6	
	Dimethoate	9	
	Dinoseb	6	
	Diquat dibromide	6	
	Diuron	22	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Joaquin	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Endothall	6	
	Endrin	6	
	EPTC	8	
	Ethyl Alcohol	3	
	Ethylene dibromide	44	1
	Heptachlor	6	
	Heptachlor epoxide	6	
	Hexachlorobenzene	6	
	Hexazinone	22	2
	Lindane (gamma-BHC)	6	
	Methiocarb	6	
	Methomyl	6	
	Methoxychlor	6	
	Methyl bromide (bromomethane)	40	
	Metolachlor	31	
	Metolachlor ESA	22	10
	Metolachlor OXA	22	3
	Metribuzin	9	
	Molinate	8	
	Naphthalene	49	
	Norflurazon	22	
	Ortho-dichlorobenzene	57	
	Oxamyl	6	
	Picloram	6	
	Prometon	30	
	Prometryn	8	
	Propachlor	7	
	Propoxur	6	
	Simazine	30	1
	Tebuthiuron	22	
	Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	20	1
	Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-urea)	20	
	Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	20	
	Tebuthiuron degradate 108 (2-Dimethylethyl-5-amino-1,3,4-thiadiazole)	20	
	Terbacil	8	
	Thiobencarb	12	
	Toxaphene	6	
	Trifluralin	6	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Joaquin	Chemical	Wells Sampled	Wells with Detections
	Xylene	57	

San Luis Obispo	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	24	
	1,2-D (1,2-dichloropropane)	24	
	1,2-D + 1,3-D + C-3 pesticides	7	
	2,3,7,8-TCDD (dioxin)	1	
	2,4,5-TP (silvex)	1	
	2,4-D	1	
	3-Hydroxycarbofuran	1	
	Alachlor	1	
	Aldicarb	1	
	Aldicarb sulfone	1	
	Aldicarb sulfoxide	1	
	Aldrin	1	
	Atrazine	3	
	Bentazon, sodium salt	1	
	Carbaryl	1	
	Carbofuran	1	
	Chlordane	1	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	1	
	Dalapon	1	
	DBCP	4	1
	Dicamba	1	
	Dieldrin	1	
	Dinoseb	1	
	Diquat dibromide	1	
	Endothall	1	
	Endrin	1	
	Ethylene dibromide	4	1
	Glyphosate, isopropylamine salt	1	
	Heptachlor	1	
	Heptachlor epoxide	1	
	Hexachlorobenzene	3	
	Lindane (gamma-BHC)	1	
	Methomyl	1	
	Methoxychlor	1	
	Methyl bromide (bromomethane)	7	
	Molinate	3	
	Naphthalene	7	
	Ortho-dichlorobenzene	24	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Luis Obispo	Chemical	Wells Sampled	Wells with Detections
	Oxamyl	1	
	Picloram	1	
	Simazine	3	
	Thiobencarb	3	
	Toxaphene	1	
	Xylene	24	

San Mateo	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	8	
	1,2-D (1,2-dichloropropane)	8	2
	1,2-D + 1,3-D + C-3 pesticides	5	
	1,3-Dichloropropene (1,3-D, telone)	3	
	2,3,7,8-TCDD (dioxin)	2	
	2,4,5-T	4	
	2,4,5-TP (silvex)	4	
	2,4-D	6	
	3-Hydroxycarbofuran	4	
	Alachlor	4	
	Aldicarb	4	
	Aldicarb sulfone	4	
	Aldicarb sulfoxide	4	
	Aldrin	4	
	Atrazine	6	
	Bentazon, sodium salt	4	
	Bromacil	4	
	Butachlor	4	
	Carbaryl	4	
	Carbofuran	4	
	Chlordane	4	
	Chlorothalonil	4	
	Dalapon	4	
	DBCP	4	
	Diazinon	4	
	Dicamba	4	
	Dieldrin	4	
	Dimethoate	4	
	Dinoseb	4	
	Diquat dibromide	4	
	Diuron	2	
	Endothall	4	
	Endrin	4	
	Ethylene dibromide	4	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

San Mateo	Chemical	Wells Sampled	Wells with Detections
	Glyphosate, isopropylamine salt	4	
	Heptachlor	4	
	Heptachlor epoxide	4	
	Hexachlorobenzene	4	
	Lindane (gamma-BHC)	4	
	Methomyl	4	
	Methoxychlor	4	
	Methyl bromide (bromomethane)	1	
	Metolachlor	4	
	Metribuzin	4	
	Molinate	4	
	Naphthalene	5	
	Ortho-dichlorobenzene	8	
	Oxamyl	4	
	Picloram	4	
	Propachlor	4	
	Simazine	6	
	Thiobencarb	4	
	Toxaphene	4	
	Trifluralin	4	
	Xylene	8	

Santa Barbara	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	23	
	1,2-D (1,2-dichloropropane)	23	
	1,2-D + 1,3-D + C-3 pesticides	15	
	1,3-Dichloropropene (1,3-D, telone)	10	
	2,3,7,8-TCDD (dioxin)	2	
	2,4,5-TP (silvex)	2	
	2,4-D	2	
	3-Hydroxycarbofuran	2	
	Acetochlor	2	
	Alachlor	8	
	Aldicarb	2	
	Aldicarb sulfone	2	
	Aldicarb sulfoxide	2	
	Aldrin	2	
	Atrazine	12	
	Bentazon, sodium salt	2	
	Bromacil	2	
	Butachlor	2	
	Carbaryl	2	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Santa Barbara	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Carbofuran	2	
	Chlordane	2	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	2	
	Dalapon	2	
	DBCP	6	
	DDE	2	
	Diazinon	2	
	Dicamba	2	
	Dieldrin	2	
	Dimethoate	2	
	Dinoseb	2	
	Diquat dibromide	3	
	Diuron	1	
	Endothall	2	
	Endrin	2	
	EPTC	2	
	Ethylene dibromide	6	
	Glyphosate, isopropylamine salt	2	
	Heptachlor	2	
	Heptachlor epoxide	2	
	Hexachlorobenzene	2	
	Lindane (gamma-BHC)	2	
	Methiocarb	2	
	Methomyl	2	
	Methoxychlor	2	
	Methyl bromide (bromomethane)	15	
	Metolachlor	2	
	Metribuzin	2	
	Molinate	8	
	Naphthalene	15	
	Ortho-dichlorobenzene	23	
	Oxamyl	2	
	Picloram	2	
	Propachlor	2	
	Propoxur	2	
	Simazine	12	
	Terbacil	2	
	Thiobencarb	8	
	Toxaphene	2	
	Xylene	23	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Santa Clara	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	122	
	1,2-D (1,2-dichloropropane)	122	
	1,2-D + 1,3-D + C-3 pesticides	74	
	1,3-Dichloropropene (1,3-D, telone)	40	
	2,3,7,8-TCDD (dioxin)	17	
	2,4,5-T	7	
	2,4,5-TP (silvex)	24	
	2,4-D	24	
	3-Hydroxycarbofuran	22	
	4(2,4-DB), dimethylamine salt	1	
	Acetochlor	6	
	Alachlor	22	
	Aldicarb	22	
	Aldicarb sulfone	22	
	Aldicarb sulfoxide	22	
	Aldrin	22	
	Ametryne	1	
	Atrazine	22	
	Bentazon, sodium salt	24	
	Bromacil	21	
	Butachlor	22	
	Butylate	1	
	Carbaryl	22	
	Carbofuran	22	
	Carbon disulfide	18	
	Chlordane	22	
	Chloroneb	1	
	Chlorothalonil	6	
	Chlorpropham	1	
	Chlorpyrifos	1	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	16	
	Cycloate	1	
	Dalapon	24	
	DBCP	25	
	DDE	6	
	Diazinon	21	
	Dicamba	24	
	Dichlorprop, butoxyethanol ester	1	
	Dieldrin	22	
	Dimethoate	35	
	Dinoseb	24	
	Diphenamid	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Santa Clara	Chemical	Wells Sampled	Wells with Detections
	Diquat dibromide	22	
	Diuron	3	
	Endothall	22	
	Endrin	22	
	EPTC	6	
	Ethylene dibromide	21	
	Glyphosate, isopropylamine salt	22	
	Heptachlor	22	
	Heptachlor epoxide	22	
	Hexachlorobenzene	22	
	Lindane (gamma-BHC)	22	
	Methiocarb	15	
	Methomyl	22	
	Methoxychlor	22	
	Methyl bromide (bromomethane)	52	
	Metolachlor	22	
	Metribuzin	22	
	Molinate	22	
	Naphthalene	74	
	Napropamide	1	
	Ortho-dichlorobenzene	122	
	Oxamyl	22	
	Paraquat dichloride	1	
	Permethrin	1	
	Picloram	24	
	Prometryn	1	
	Propachlor	22	
	Propazine	1	
	Propoxur	15	
	Simazine	22	
	Simetryn	1	
	Terbacil	6	
	Terbutryn	1	
	Thiobencarb	22	
	Toxaphene	22	
	Triadimefon	1	
	Trifluralin	7	
	Vernolate	1	
	Xylene	122	

Santa Cruz	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	10	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Santa Cruz	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2-D (1,2-dichloropropane)	10	
	1,2-D + 1,3-D + C-3 pesticides	8	
	1,3-Dichloropropene (1,3-D, telone)	10	
	2,3,7,8-TCDD (dioxin)	2	
	2,4,5-T	11	
	2,4,5-TP (silvex)	14	
	2,4-D	16	
	3-Hydroxycarbofuran	3	
	Alachlor	7	
	Aldicarb	3	
	Aldicarb sulfone	3	
	Aldicarb sulfoxide	3	
	Aldrin	3	
	Atrazine	10	
	Bentazon, sodium salt	15	
	Bromacil	6	
	Butachlor	6	
	Carbaryl	3	
	Carbofuran	4	
	Carbon disulfide	4	
	Chlordane	2	
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	3	
	Dalapon	14	
	DBCP	4	
	Diazinon	4	
	Dicamba	14	
	Dieldrin	2	
	Dimethoate	6	
	Dinoseb	14	
	Diquat dibromide	16	
	Endothall	2	
	Endrin	2	
	Ethylene dibromide	4	
	Glyphosate, isopropylamine salt	2	
	Heptachlor	2	
	Heptachlor epoxide	2	
	Hexachlorobenzene	3	
	Lindane (gamma-BHC)	3	
	Methiocarb	2	
	Methomyl	3	
	Methoxychlor	3	
	Methyl bromide (bromomethane)	8	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Santa Cruz	Chemical	Wells Sampled	Wells with Detections
	Metolachlor	6	
	Metribuzin	6	
	Molinate	6	
	Naphthalene	8	
	Ortho-dichlorobenzene	10	
	Oxamyl	3	
	Picloram	14	
	Propachlor	6	
	Propoxur	2	
	Simazine	10	
	Thiobencarb	6	
	Toxaphene	2	
	Xylene	10	

Shasta	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	7	
	1,2-D (1,2-dichloropropane)	7	
	1,2-D + 1,3-D + C-3 pesticides	7	
	Methyl bromide (bromomethane)	7	
	Ortho-dichlorobenzene	7	
	Xylene	7	

Sierra	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	1	
	1,2-D (1,2-dichloropropane)	1	
	1,2-D + 1,3-D + C-3 pesticides	1	
	Methyl bromide (bromomethane)	1	
	Naphthalene	1	
	Ortho-dichlorobenzene	1	
	Xylene	1	

Siskiyou	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	3	
	1,2-D (1,2-dichloropropane)	3	
	1,2-D + 1,3-D + C-3 pesticides	3	
	Methyl bromide (bromomethane)	3	
	Ortho-dichlorobenzene	3	
	Xylene	3	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Solano	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	6	
	1,2-D (1,2-dichloropropane)	6	
	1,2-D + 1,3-D + C-3 pesticides	5	
	1,3-Dichloropropene (1,3-D, telone)	2	
	Alachlor	8	
	Alachlor ESA	8	3
	Alachlor OXA	8	
	Aldrin	1	
	Atrazine	8	
	Bromacil	8	
	Chlordane	1	
	Chlorothalonil	1	
	Deethyl-atrazine (DEA)	8	1
	Deethyl-simazine or deisopropyl-atrazine (ACET)	8	
	Desmethyl-norflurazon	8	
	Diaminochlorotriazine (DACT)	8	
	Dieldrin	1	
	Diuron	8	
	Endrin	1	
	Heptachlor	1	
	Heptachlor epoxide	1	
	Hexachlorobenzene	1	
	Hexazinone	8	
	Lindane (gamma-BHC)	1	
	Methoxychlor	1	
	Methyl bromide (bromomethane)	2	
	Metolachlor	8	
	Metolachlor ESA	8	6
	Metolachlor OXA	8	
	Naphthalene	5	
	Norflurazon	8	
	Ortho-dichlorobenzene	6	
	Prometon	8	
	Simazine	8	
	Tebuthiuron	8	
	Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	8	
	Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-urea)	8	
	Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	8	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Solano	Chemical	Wells Sampled	Wells with Detections
	Tebuthiuron degradate 108 (2-Dimethylethyl-5-amino-1,3,4-thiadiazole)	8	
	Toxaphene	1	
	Trifluralin	1	
	Xylene	7	

Sonoma	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	45	
	1,2-D (1,2-dichloropropane)	45	
	1,2-D + 1,3-D + C-3 pesticides	41	
	1,3-Dichloropropene (1,3-D, telone)	13	
	2,3,7,8-TCDD (dioxin)	6	
	2,4,5-T	41	
	2,4,5-TP (silvex)	46	
	2,4-D	46	
	3-Hydroxycarbofuran	33	
	4(2,4-DB), dimethylamine salt	31	
	Acifluorfen, sodium salt	10	
	Acrylonitrile	9	
	Alachlor	45	
	Aldicarb	33	1
	Aldicarb sulfone	33	
	Aldicarb sulfoxide	33	
	Aldrin	27	
	Ametryne	2	
	Atrazine	58	
	Bentazon, sodium salt	46	
	BHC (other than gamma isomer)	7	
	Bromacil	26	
	Butachlor	28	
	Butylate	2	
	Carbaryl	33	
	Carbofuran	33	
	Carbon disulfide	10	
	Chlordane	30	
	Chlorobenzilate	7	
	Chloroneb	9	
	Chlorothalonil	12	
	Chlorpropham	2	
	Chlorpyrifos	2	
	Chlorthal-dimethyl (dacthal / DCPA)	6	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Sonoma	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Chlorthal-dimethyl acid degradation products (Dacthal degradates)	12	
	Cycloate	2	
	Dalapon	46	
	DBCP	14	
	DDD	7	
	DDE	7	
	DDT	7	
	Diazinon	9	
	Dicamba	43	
	Dichlorprop, butoxyethanol ester	10	
	Dieldrin	25	
	Dimethoate	26	
	Dinoseb	46	
	Diphenamid	2	
	Diquat dibromide	43	
	Diuron	6	
	Endosulfan	7	
	Endosulfan sulfate	7	
	Endothall	44	
	Endrin	30	
	Endrin aldehyde	7	
	Ethylene dibromide	31	
	Glyphosate, isopropylamine salt	7	
	Heptachlor	30	
	Heptachlor epoxide	30	
	Hexachlorobenzene	30	
	Lindane (gamma-BHC)	30	
	Methiocarb	18	
	Methomyl	33	
	Methoxychlor	30	
	Methyl bromide (bromomethane)	39	
	Metolachlor	28	
	Metribuzin	28	
	Molinate	32	
	Naphthalene	24	
	Napropamide	2	
	Ortho-dichlorobenzene	45	
	Oxamyl	40	
	Paraquat dichloride	2	
	Permethrin	9	
	Permethrin, other related pesticides	7	
	Picloram	46	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Sonoma	Chemical	Wells Sampled	Wells with Detections
	Prometryn	11	
	Propachlor	28	
	Propazine	2	
	Propoxur	17	
	Simazine	57	
	Simetryn	2	
	Terbutryn	2	
	Thiobencarb	32	
	Toxaphene	30	
	Triadimefon	2	
	Trifluralin	14	
	Vernolate	2	
	Xylene	43	

Stanislaus	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	89	
	1,2-D (1,2-dichloropropane)	89	
	1,2-D + 1,3-D + C-3 pesticides	89	
	2,3,7,8-TCDD (dioxin)	1	
	2,4,5-T	1	
	2,4,5-TP (silvex)	1	
	2,4-D	1	
	3-Hydroxycarbofuran	1	
	Acenaphthene	1	
	Alachlor	25	
	Alachlor ESA	22	9
	Alachlor OXA	22	
	Aldicarb	1	
	Aldicarb sulfone	1	
	Aldicarb sulfoxide	1	
	Aldrin	1	
	Atrazine	25	
	Bentazon, sodium salt	1	
	Bromacil	25	
	Butachlor	3	
	Carbaryl	1	
	Carbofuran	1	
	Chlordane	1	
	Chlorothalonil	1	
	Dalapon	1	
	DBCP	73	21
	Deethyl-atrazine (DEA)	22	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Stanislaus	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Deethyl-simazine or deisopropyl-atrazine (ACET)	22	
	Desmethyl-norflurazon	22	
	Diaminochlorotriazine (DACT)	22	3
	Diazinon	3	
	Dicamba	1	
	Dieldrin	1	
	Dimethoate	3	
	Dinoseb	1	
	Diquat dibromide	1	
	Diuron	22	
	Endothall	1	
	Endrin	1	
	Ethylene dibromide	69	
	Glyphosate, isopropylamine salt	1	
	Heptachlor	1	
	Heptachlor epoxide	1	
	Hexachlorobenzene	1	
	Hexazinone	22	
	Lindane (gamma-BHC)	1	
	Methomyl	1	
	Methoxychlor	1	
	Methyl bromide (bromomethane)	89	1
	Metolachlor	25	
	Metolachlor ESA	22	15
	Metolachlor OXA	22	8
	Metribuzin	3	
	Molinate	3	
	Naphthalene	78	
	Norflurazon	22	
	Ortho-dichlorobenzene	89	
	Oxamyl	1	
	Picloram	1	
	Prometon	22	
	Propachlor	3	
	Simazine	25	1
	Tebuthiuron	22	
	Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	11	
	Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-urea)	11	
	Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	11	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Stanislaus	Chemical	Wells Sampled	Wells with Detections
	Tebuthiuron degradate 108 (2-Dimethylethyl-5-amino-1,3,4-thiadiazole)	11	
	Thiobencarb	3	
	Toxaphene	1	
	Trifluralin	1	
	Xylene	89	

Sutter	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	5	
	1,2-D (1,2-dichloropropane)	5	
	1,2-D + 1,3-D + C-3 pesticides	4	
	1,3-Dichloropropene (1,3-D, telone)	1	
	2,4,5-T	1	
	2,4,5-TP (silvex)	1	
	2,4-D	1	
	3-Hydroxycarbofuran	1	
	4(2,4-DB), dimethylamine salt	1	
	Acifluorfen, sodium salt	1	
	Alachlor	1	
	Aldicarb	1	
	Aldicarb sulfone	1	
	Aldicarb sulfoxide	1	
	Atrazine	1	
	Bentazon, sodium salt	1	
	Bromacil	1	
	Butachlor	1	
	Carbaryl	1	
	Carbofuran	1	
	Chlorpropham	1	
	Chlorthal-dimethyl (dacthal / DCPA)	1	
	Dalapon	1	
	DBCP	1	
	Diazinon	1	
	Dicamba	1	
	Dichlorprop, butoxyethanol ester	1	
	Dimethoate	1	
	Dinoseb	1	
	Diphenamid	1	
	Disulfoton	1	
	EPTC	1	
	Ethylene dibromide	1	
	Glyphosate, isopropylamine salt	1	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Sutter	Chemical	Wells Sampled	Wells with Detections
	Methiocarb	1	
	Methomyl	1	
	Methyl bromide (bromomethane)	4	
	Metolachlor	1	
	Metribuzin	1	
	Molinate	1	
	Naphthalene	4	
	Ortho-dichlorobenzene	5	
	Oxamyl	1	
	Picloram	1	
	Prometon	1	
	Prometryn	1	
	Propoxur	1	
	Simazine	1	
	Terbacil	1	
	Thiobencarb	1	
	Xylene	1	

Tehama	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	7	
	1,2-D (1,2-dichloropropane)	7	
	1,2-D + 1,3-D + C-3 pesticides	7	
	1,3-Dichloropropene (1,3-D, telone)	5	
	Methyl bromide (bromomethane)	7	
	Naphthalene	5	
	Ortho-dichlorobenzene	7	
	Xylene	7	

Trinity	Chemical	Wells Sampled	Wells with Detections
	NOT SAMPLED IN CURRENT YEAR		

Tulare	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	66	
	1,2-D (1,2-dichloropropane)	66	
	1,2-D + 1,3-D + C-3 pesticides	65	
	1,3-Dichloropropene (1,3-D, telone)	8	
	2,3,7,8-TCDD (dioxin)	4	
	2,4,5-T	16	
	2,4,5-TP (silvex)	16	
	2,4-D	16	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Tulare	***Chemical***	***Wells Sampled***	***Wells with Detections***
	3-Hydroxycarbofuran	15	
	Alachlor	24	
	Aldicarb	15	
	Aldicarb sulfone	15	
	Aldicarb sulfoxide	15	
	Aldrin	15	
	Atrazine	44	1
	Bentazon, sodium salt	16	
	Bromacil	41	9
	Butachlor	22	
	Carbaryl	15	
	Carbofuran	15	
	Carbon disulfide	3	
	Chlordane	16	
	Chlorothalonil	15	
	Dalapon	16	
	DBCP	103	36
	Deethyl-atrazine (DEA)	19	1
	Deethyl-simazine or deisopropyl-atrazine (ACET)	19	15
	Desmethyl-norflurazon	19	9
	Diaminochlorotriazine (DACT)	19	16
	Diazinon	16	
	Dicamba	16	
	Dieldrin	15	
	Dimethoate	22	
	Dinoseb	16	
	Diquat dibromide	15	
	Diuron	23	8
	Endothall	15	
	Endrin	16	
	EPTC	1	
	Ethylene dibromide	98	
	Glyphosate, isopropylamine salt	15	
	Heptachlor	16	
	Heptachlor epoxide	16	
	Hexachlorobenzene	16	
	Hexazinone	19	
	Lindane (gamma-BHC)	16	
	Methomyl	15	
	Methoxychlor	16	
	Methyl bromide (bromomethane)	38	
	Metolachlor	22	
	Metribuzin	22	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Tulare	Chemical	Wells Sampled	Wells with Detections
	Molinate	22	
	Naphthalene	65	
	Norflurazon	19	6
	Ortho-dichlorobenzene	66	
	Oryzalin	9	
	Oxamyl	15	
	Picloram	16	
	Prometon	20	
	Prometryn	1	
	Propachlor	21	
	Simazine	44	12
	Tebuthiuron	19	
	Terbacil	1	
	Thiobencarb	22	
	Toxaphene	16	
	Trifluralin	15	
	Xylene	66	

Tuolumne	Chemical	Wells Sampled	Wells with Detections
	1,2,4-Trichlorobenzene	20	
	1,2-D (1,2-dichloropropane)	20	
	1,2-D + 1,3-D + C-3 pesticides	20	
	Acetochlor	4	
	Alachlor	14	
	Atrazine	21	
	Bromacil	6	
	Butachlor	6	
	Chlorothalonil	4	
	Diazinon	6	
	Dimethoate	6	
	Methyl bromide (bromomethane)	20	
	Metolachlor	6	
	Metribuzin	6	
	Molinate	6	
	Naphthalene	12	
	Ortho-dichlorobenzene	20	
	Prometryn	6	
	Propachlor	2	
	Simazine	21	
	Terbacil	4	
	Thiobencarb	6	
	Xylene	20	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Ventura	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	28	
	1,2-D (1,2-dichloropropane)	28	
	1,2-D + 1,3-D + C-3 pesticides	27	
	1,3-Dichloropropene (1,3-D, telone)	27	
	2,4,5-T	3	
	2,4,5-TP (silvex)	3	
	2,4-D	3	
	3-Hydroxycarbofuran	3	
	Alachlor	4	
	Aldicarb	3	
	Aldicarb sulfone	3	
	Aldicarb sulfoxide	3	
	Aldrin	3	
	Atrazine	14	
	Bentazon, sodium salt	3	
	Bromacil	3	
	Butachlor	3	
	Carbaryl	3	
	Carbofuran	3	
	Chlordane	3	
	Dalapon	3	
	DBCP	5	
	Diazinon	3	
	Dicamba	3	
	Dieldrin	3	
	Dimethoate	3	
	Dinoseb	3	
	Diquat dibromide	3	
	Diuron	3	
	Endrin	3	
	Ethylene dibromide	5	
	Glyphosate, isopropylamine salt	1	
	Heptachlor	3	
	Heptachlor epoxide	3	
	Hexachlorobenzene	3	
	Lindane (gamma-BHC)	3	
	Methomyl	3	
	Methoxychlor	3	
	Methyl bromide (bromomethane)	27	
	Metolachlor	3	
	Metribuzin	3	
	Molinate	3	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Ventura	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Naphthalene	27	
	Ortho-dichlorobenzene	28	
	Oxamyl	3	
	Picloram	3	
	Prometryn	3	
	Propachlor	3	
	Simazine	14	
	Thiobencarb	3	
	Toxaphene	3	
	Xylene	28	1

Yolo	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	23	
	1,2-D (1,2-dichloropropane)	23	
	1,2-D + 1,3-D + C-3 pesticides	22	
	1,3-Dichloropropene (1,3-D, telone)	1	
	2,3,7,8-TCDD (dioxin)	17	
	2,4,5-T	19	
	2,4,5-TP (silvex)	19	
	2,4-D	19	
	3-Hydroxycarbofuran	18	
	Alachlor	22	
	Alachlor ESA	3	
	Alachlor OXA	3	
	Aldicarb	18	
	Aldicarb sulfone	18	
	Aldicarb sulfoxide	18	
	Aldrin	19	
	Atrazine	22	
	Bentazon, sodium salt	19	
	Bromacil	22	
	Butachlor	19	
	Carbaryl	18	
	Carbofuran	19	
	Carbon disulfide	2	
	Chlordane	19	
	Chlorothalonil	18	
	Dalapon	19	
	DBCP	19	
	Deethyl-atrazine (DEA)	3	
	Deethyl-simazine or deisopropyl-atrazine (ACET)	3	
	Desmethyl-norflurazon	3	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Yolo	***Chemical***	***Wells Sampled***	***Wells with Detections***
	Diaminochlorotriazine (DACT)	3	
	Diazinon	19	
	Dicamba	19	
	Dieldrin	19	
	Dimethoate	19	
	Dinoseb	19	
	Diquat dibromide	18	
	Diuron	3	
	Endothall	17	
	Endrin	19	
	Ethylene dibromide	19	
	Glyphosate, isopropylamine salt	17	
	Heptachlor	19	
	Heptachlor epoxide	19	
	Hexachlorobenzene	19	
	Hexazinone	3	
	Lindane (gamma-BHC)	19	
	Methomyl	18	
	Methoxychlor	19	
	Methyl bromide (bromomethane)	22	
	Metolachlor	22	
	Metolachlor ESA	3	1
	Metolachlor OXA	3	
	Metribuzin	19	
	Molinate	19	
	Naphthalene	22	
	Norflurazon	3	
	Ortho-dichlorobenzene	23	
	Oxamyl	19	
	Picloram	19	
	Prometon	3	
	Prometryn	2	
	Propachlor	19	
	Simazine	22	
	Tebuthiuron	3	
	Tebuthiuron degradate 104 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-N-methylurea)	3	
	Tebuthiuron degradate 106 (N-(5-(1,1-Dimethylethyl)-1,3,4-thiadiazol-2-yl)-urea)	3	
	Tebuthiuron degradate 107 (2-Dimethylethyl-5-methylamino-1,3,4-thiadiazole)	3	
	Tebuthiuron degradate 108 (2-Dimethylethyl-5-	3	

Appendix E–Well Sampling Results Summarized by County and Pesticide, con't.

Yolo	***Chemical***	***Wells Sampled***	***Wells with Detections***
	amino-1,3,4-thiadiazole)		
	Thiobencarb	19	
	Toxaphene	19	
	Trifluralin	17	
	Xylene	23	

Yuba	***Chemical***	***Wells Sampled***	***Wells with Detections***
	1,2,4-Trichlorobenzene	8	
	1,2-D (1,2-dichloropropane)	8	
	1,2-D + 1,3-D + C-3 pesticides	8	
	1,3-Dichloropropene (1,3-D, telone)	1	
	Carbon disulfide	1	
	DBCP	2	
	Ethylene dibromide	2	
	Methyl bromide (bromomethane)	2	
	Naphthalene	8	
	Ortho-dichlorobenzene	8	
	Xylene	8	1

Glossary of Terms

TERM	*DEFINITION*
AB 1803	(1983) (Chapter 881, Statutes of 1983) A law that required the California Department of Public Health (CDPH) 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."
AB 2701	AB 2701 (Chapter 644, Statutes of 2004) amended the Pesticide Contamination Prevention Act (PCPA) to require DPR to post specified information on sampling for pesticide residues in California ground water to its Web site. This law replaced the previous requirement that DPR submit the sampling information in a written report to the Legislature, the SWRCB and the CDPH.
Action level (AL)	ALs are published by the CDPH, Office of Drinking Water, and 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, under supervision of DPR, the Agricultural Commissioner enforces the laws and regulations pertaining to agricultural and structural pest control and all other pesticide uses.
Agricultural use	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 CDPH pursuant to section 2426 of the Health and Safety Code. (FAC, section 11408) See also "legal agricultural use."

Glossary of Terms, con't.

TERM	*DEFINITION*
Analysis	For the well inventory data, it is the act of determining whether a substance is present in a water sample using laboratory methodology.
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.
Chemigation	The application of pesticides through irrigation water, using irrigation techniques and equipment.
Degradation	With respect to pesticides, degradation is the breakdown of the parent chemical by the action of microbes, water, air, sunlight, or other agents into daughter (degradation) products that may undergo further degradation by similar processes. With respect to ground water quality, degradation refers to a reduction of water quality.
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 pesticide under investigation. A detection may be designated as confirmed or unconfirmed.
Ground water protection areas (GWPA)	Areas of the state identified by DPR that are vulnerable to pesticide movement to ground water. GWPAs are identified by base meridian, township, range and section. Currently, there are leaching GWPAs and runoff GWPAs. GWPAs include all sections of land where pesticides have been found in ground water due to Legal agricultural use (see Pesticide Management Zones) and additional sections of land that contain similar characteristics of areas where pesticides have been found in ground water.
Groundwater Protection List (GWPL)	A list, required by the PCPA and established in 3 CCR section 6800, 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. Agricultural pesticides whose physicochemical properties exceed the specific numerical values (see def.) and that are labeled for soil application under certain conditions or are required or recommended to be followed by flood or furrow irrigation within 72 hours are placed on sublist (b) of the GWPL. Chemicals placed on the GWPL sublist (a) are subject to certain restrictions.

Glossary of Terms, con't.

TERM	*DEFINITION*
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 (ten days or less), long-term (seven years or less), and lifetime exposure health advisories for noncarcinogens and suspected human carcinogens are included where data sufficient for derivation of the advisories exist. A HAL is a guideline, which includes a margin of safety to protect human health. For lifetime HALs, water that contains a pesticide at a concentration at or below its HAL is acceptable for drinking every day over the course of one's lifetime.
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 FAC section 11408. See also "agricultural use."
Maximum contaminant levels (MCLs)	MCLs are part of the drinking water quality standards adopted by CDPH and by U.S. EPA under the Safe Drinking Water Act. MCLs are formally established in regulation and are enforceable by CDPH on water suppliers.
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.
Noncrop areas	These areas include rights-of-way, golf courses, cemeteries, and industrial and institutional sites. Agricultural use of pesticides in noncrop areas include weed control around buildings on a farm or on rights-of-way, irrigation canals and ditches, golf courses, parks, and cemeteries.
Nonpoint source	Contamination that cannot be traced to a small definable location (compare with "point source"), e.g., applications of agricultural chemicals to crops.

Glossary of Terms, con't.

TERM	*DEFINITION*
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.
Pesticide Contamination Prevention Act (PCPA, AB 2021)	A law, effective January 1, 1986, which added agricultural use sections 13141 through 13152 to Division 7 of the FAC. The PCPA requires the following: (1) each registrant of an agricultural use pesticide to submit environmental fate data to DPR; (2) the director to use those data to establish a list of pesticides with the potential to pollute ground water (GWPL); (3) the director to monitor ground water for these pesticides; (4) all local, county, and state agencies to report to DPR the results of pesticides sampled in ground water; (5) the director to maintain a specified well sampling database and to post certain information annually on its website about pesticides in ground water, and (6) a specified subcommittee and the director to conduct a formal review to determine if continued use of a pesticide can be allowed if it is detected and verified in ground water due to legal agricultural use.
Pesticide Management Zone (PMZ)	A geographic surveying unit of approximately one square mile, which is vulnerable to ground water contamination based on detections of pesticides or pesticide degradates in ground water due to agricultural use. PMZs were formally listed in section 3 CCR section 6802 and were pesticide specific. The use of a pesticide inside its PMZs was subject to certain ground water protection restrictions and requirements. PMZs were renamed GWPAs in May 2004.
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	When used in the context of mapping locations, a range is 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.
Registered pesticide	A pesticide product approved by the U.S. EPA and DPR for use in California.

Glossary of Terms, con't.

TERM	*DEFINITION*
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.
Section	When used in the context of mapping locations, a section is a land unit of 640 acres or one square mile, equal to l/36 of a township.
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 (the field dissipation SNV has not 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 pollute ground water.
State Well Number	A unique number assigned to a well consisting of the county number/township/range/section/tract and sequence number.
Township	When used in the context of mapping locations, a township is a public land surveying unit that 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").
Triazine	A pesticide derived from any of three isomeric compounds, each having three carbon and three nitrogen atoms in a six-member ring. Triazine herbicides are strong inhibitors of photosynthesis. Atrazine and simazine are examples of commonly used triazine herbicides.
Well inventory database	A statewide database, required by the PCPA and maintained by DPR, of wells sampled for pesticides and pesticide degradation products.