SAMPLING FOR PESTICIDE RESIDUES IN CALIFORNIA WELL WATER

2013 Update

Twenty-eighth Annual Report

Pursuant to the
Pesticide Contamination Prevention Act

California Environmental Protection Agency
DEPARTMENT OF PESTICIDE REGULATION

May 2014

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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

ABSTRACT

As required under Food and Agricultural Code (FAC) section 13152(e), this annual report summarizes ground water sampling results for pesticide residues. For calendar year 2012, sampling was conducted by the Department of Pesticide Regulation (DPR), California Department of Public Health (CDPH), State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCB). Well locations are described,[1] as are the actions taken by DPR and the SWRCB/RWQCBs to prevent migration of pesticides to ground water from nonpoint agricultural sources and point sources, respectively.

RESULTS OF WELL SAMPLING FOR PESTICIDE RESIDUES

From January through December 2012, DPR, CDPH and the SWRCB (including the RWQCBs) sampled 2,981 wells for one or more of 164 agricultural use pesticides and pesticide degradates (Table i).[2] Thirty-one pesticides/degradates from nonpoint sources were detected, eight of which are not registered for use in California (Table ii).

Table i. Summary of well sampling data collected in 2012 by DPR, CDPH and SWRCB/RWQCBs.

	DPR	CDPH	SWRCB/ RWQCB	† TOTAL	Percent of Total
‡ **Pesticides/Degradates Sampled**	16	106	87	164	18.9
Pesticides/Degradates Detected	10	10	18	31	
‡‡ **Wells Sampled**	201	2,723	59	2,981	10.9
Wells with Detections	66	235	25	325	
Counties Sampled	10	53	5	53	30.2
Counties with Detections	4	14	5	16	

† "Total" reflects *unique* values, not a summation of values. For example, of the 58 California counties, five counties were not sampled by any agency, but some were sampled by multiple agencies.

‡ "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.

‡‡ "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.

[1] Although DPR is required to provide the locations of sampled wells, DPR summarizes this information by county only to protect well owner privacy. DPR can provide additional location information—including the township, range, and section of the sampled wells—upon request.

[2] Some exceptions to the "agricultural use" status of the sampled pesticides apply; some industrial use pesticides and pestidides that are no longer—or never were—registered for use in California are included due to the varying monitoring goals of reporting agencies.

The following tables summarize the pesticides and pesticide degradates detected in 2012 that fall under DPR regulatory authority (Table ii) and SWRCB/RWQCB regulatory authority (Table iii). DPR responds to detections of pesticides in ground water from nonpoint agricultural sources; SWRCB/RWQCBs respond to point source detections.

Table ii. Pesticides and pesticide degradates detected in 2012: DPR regulatory authority, nonpoint agricultural use. Detection concentrations and drinking water quality standards are presented in parts per billion (ppb).

Pesticide or Degradate	Wells with Detections	Concentration Range (ppb)	†Drinking Water Quality Standard (ppb)	Regulatory Status DPR Response to Detection
1,2-Dichloropropane (1,2-DCP) **(propylene dichloride)**	6	0.039 - 1.04	CDPH MCL: 5 OEHHA PHG: 0.5 U.S.EPA MCL: 5 U.S.EPA MCLG: 0	Not Registered
2,6-Diethylaniline *(degradate of alachlor)*	1	0.005	None established (NE)	*Parent pesticide is on the Ground Water Protection List (GWPL), 3CCR 6800(b). This detection is below DPR's **Response Threshold**;[1] no further investigation is planned.
3,4-Dichloroaniline *(degradate of diuron, propanil)*	5	0.004 - 0.215	NE	Parent pesticides are on the GWPL, 3CCR 6800 (a) and (b), respectively. Four detections were below DPR's Response Threshold. No parent compound was found for the highest detection (0.215); sampling of this well is planned.
3,5-Dichloroaniline *(degradate of dichloran, iprodione)*	1	0.004	NE	Parent pesticides are on the GWPL, 3CCR 6800(b). This detection is below DPR's Response Threshold.
ACET (deisopropyl-atrazine or deethyl-simazine) *(degradate of atrazine, simazine)*	56	0.05 - 1.46	NE	Parent pesticides are on the GWPL, 3CCR 6800(a). All detections were made in GWPAs; pesticide applications in GWPAs are made under the jurisdication of the **Restricted Materials**[2] permit program.

Pesticide or Degradate	Wells with Detections	Concentration Range (ppb)	†Drinking Water Quality Standard (ppb)	Regulatory Status DPR Response to Detection
Atrazine	9	0.006 - 0.097	CDPH MCL: 1 OEHHA PHG: 0.15 U.S.EPA MCL: 3 U.S.EPA MCLG 3	Pesticide is on the GWPL, 3CCR 6800(a). Two detections were in GWPAs; seven detections made outside of GWPAs were below DPR's Response Threshold.
Bromacil	17	0.056 - 2.86	U.S.EPA HAL: 70	Pesticide is on the GWPL, 3CCR 6800(a). All detections were made in GWPAs.
Carbon disulfide	6	0.03 - 1.06	CDPH NL: 160	Not Registered
Chlorthal-dimethyl (dacthal/DCPA)	1	0.004	U.S.EPA HAL: 70	This pesticide is not listed on the GWPL. This detection was below DPR's Response Threshold.
Chlorthal-dimethyl acid degradation products *(dacthal degradates)*	1	0.15	U.S.EPA HAL: 4000	The parent pesticide is not listed on the GWPL. DPR no longer performs field studies for dacthal degradates unless they approach health levels.
DBCP (1,2-dibromo-3-chloropropane)	221	0.01 - 1.3	CDPH MCL: 0.2 OEHHA PHG: 0.0017 U.S.EPA MCL: 0.2 U.S.EPA MCLG: 0	Not Registered
DEA (deethyl-atrazine) *(degradate of atrazine)*	13	0.007 - 0.183	NE	Pesticide is on the GWPL, 3CCR 6800(a). Three detections above DPR's Response Threshold were in GWPAs; all other detections were below DPR's Response Threshold.
DSMN (desmethl-norflurazon) *(degradate of norflurazon)*	34	0.052 - 0.79	NE	Pesticide is on the GWPL, 3CCR 6800(a). All detections were made in GWPAs.

Pesticide or Degradate	Wells with Detections	Concentration Range (ppb)	†Drinking Water Quality Standard (ppb)	Regulatory Status DPR Response to Detection
DACT (diaminochlorotriazine) *(degradate of simazine)*	56	0.059 - 6.27	NE	Pesticide is on the GWPL, 3CCR 6800(a). All detections were made in GWPAs.
Diquat dibromide	1	0.5	CDPH MCL: 20 OEHHA PHG: 15 U.S.EPA MCL: 20 U.S.EPA MCLG: 20	Pesticide is on the GWPL, 3CCR 6800(b). CDPH resampled the detection site and failed to find diquate dibromide in subsequent samples.
Diuron	25	0.05 - 0.438	NE	Pesticide is on the GWPL, 3CCR 6800(a). All detections were made in GWPAs.
EPTC (S-ethyl-dipropylthiocarbamate)	4	0.008 - 0.074	NE	Pesticide is on the GWPL, 3CCR 6800(b). Three detections were below DPR's Response Threshold; the 0.074 detection will be investigated.
Ethylene dibromide (EDB)	10	0.02 - 0.41	CDPH MCL: 0.05 OEHHA PHG: 0.01 U.S.EPA MCL: 0.05 U.S.EPA MCLG: 0	Not Registered
Hexazinone	7	0.009 - 0.076	U.S.EPA HAL: 400	Pesticide is on the GWPL, 3CCR 6800(b). Five detections were below DPR's Response Threshold; the 0.045 and 0.076 detections will be investigated.
Metalaxyl	4	0.015 - 148	NE	Pesticide is on the GWPL, 3CCR 6800(b). One SWRCB detection was below DPR's Response Threshold; one DPR detection (148) was from a point source; one DPR detection (0.05) could not be confirmed by subsequent sampling; one detection by SWRCB will be investigated.

Pesticide or Degradate	Wells with Detections	Concentration Range (ppb)	†Drinking Water Quality Standard (ppb)	Regulatory Status DPR Response to Detection
Methyl bromide	2	0.98 - 1.7	U.S.EPA HAL: 10	**This pesticide is not listed on the GWPL, 3CCR 6800 (a) or (b) but is regulated as a California Restricted Material. CDPH resampled the detection sites and failed to find methyl bromide in subsequent samples.
Metolachlor	5	0.013 - 0.045	U.S.EPA HAL: 700	Pesticide is on the GWPL, 3CCR 6800(b). Four detections were below DPR's Response Threshold; one detection (0.045) will be investigated.
Molinate	2	0.007 (two samples)	CDPH MCL: 20 OEHHA PHG: 1	Not Registered
Naphthalene	1	0.53	CDPH NL: 17 U.S.EPA HAL: 100	Not Registered
Norflurazon	19	0.05 - 0.67	U.S.EPA HAL: 30	Pesticide is on the GWPL, 3CCR 6800(a). All detections were made in GWPAs.
Picloram	3	2.0 - 3.6	CDPH MCL: 500 OEHHA PHG: 500 U.S.EPA MCL: 500 U.S.EPA MCLG:500	Not Registered
Prometon	4	0.021 - 0.12	U.S. EPA HAL: 400	Pesticide is on the GWPL, 3CCR 6800(a). CDPH resampled one detection site in a GWPA and failed to find prometon in subsequent samples; one CDPH detection (0.1) was made at a site that had no reported use; two SWRCB detections were below DPR's Response Threshold.
Prometryn	2	0.001 - 0.006	NE	Pesticide is on the GWPL, 3CCR 6800(b). Detections were below DPR's Response Threshold.

Pesticide or Degradate	Wells with Detections	Concentration Range (ppb)	†Drinking Water Quality Standard (ppb)	Regulatory Status DPR Response to Detection
Simazine	52	0.006 - 0.225	CDPH MCL: 4 OEHHA PHG: 4 U.S.EPA MCL: 4 U.S.EPA MCLG:4	Pesticide is on the GWPL, 3CCR 6800(a). Forty detections were in GWPAs; one DPR detection has prompted an evaluation of the detection site for inclusion in a GWPA (it is adjacent to three GWPAs); 11 detections were below DPR's Response Threshold.
Tebuthiuron	1	0.011	U.S. EPA HAL: 500	Pesticide is on the GWPL, 3CCR 6800(b). Detection was below DPR's Response Threshold.
Xylene	1	1.9	CDPH MCL: 1,750 OEHHA PHG: 1,800 U.S.EPA MCL & MCLG: 10,000	Not Registered

† Drinking water quality standards: HAL: health advisory level; MCL: maximum contaminant level; MCLG: maximum contaminant level goal; NL: notification level; PHG: public health goal.

* Pesticides on the Ground Water Protection List (GWPL) 3CCR 6000(a) and (b) are those labeled for agricultural, outdoor institutional, or outdoor industrial use that have the potential to pollute ground water. Sublist 6800(a) includes seven agricultural herbicides that are regulated as ground water contaminants: atrazine, bentazon, bromacil, diuron, norflurazon, prometon, and simazine. Sublist 6800(b) includes 101 pesticides that have the potential to become ground water contaminants based on their mobility, persistence and legal uses.

** All pesticides listed under 3CCR 6800(a), when labeled for agricultural, outdoor institutional, or outdoor industrial use, are also listed as California Restricted Materials and regulated accordingly. Methyl bromide is, however, listed as a Restricted Material based upon findings other than its detection in ground water.

1 Only detections at or above DPR's Response Threshold receive further investigation. DPR does not investigate detections that are below 80 percent of the current method detection limit established by the California Department of Food and Agriculture's Center of Analytical Chemistry.[3]

2 DPR does not investigate detections that occur within GWPAs for pesticides (or their degradates) that are on the 6800(a) list of known ground water contaminants.[4] Applications of these pesticides in GWPAs are managed by County Agricultural Commissioners via the Restricted Materials permit program. This program requires users to modify their pesticide use practices based on soil properties of the GWPA.

[3] Schuette, J. 2004. *Summary of Program Policies Specifying When the Director Will Not Determine if a Detection Was the Result of Legal, Agricultural Use ("N" Memorandum).* Department of Pesticide Regulation, Environmental Monitoring Branch. December 1, 2004.

[4] *Ibid.*

Table iii. 2012 detections of pesticides and pesticide degradates originating from point sources: SWRCB regulatory authority.

Pesticide or Pesticide Degradate	County of Detection
1,2-Dichloropropane (1,2-DCP)	Fresno, Kern, Santa Cruz
2,4-dichlorophenoxyacetic acid (2,4-D)	San Joaquin
1,2,3-Trichlorpropane (1,2,3-TCP)	Fresno, Kern, Tulare
Alachlor	San Joaquin
Aminopyralid	El Dorado, Placer
Bromacil	San Joaquin, Solano
Carbon tetrachloride	Yolo
Chlordane	San Bernardino
Chloridazon	Stanislaus
Chlorsulfuron	El Dorado, Placer
Clopyralid	Placer
DBCP (1,2-dibromo-3-chloropropane)	Madera, Merced, Monterey, Riverside, San Bernardino, San Joaquin, Tulare, Yolo
DDD (dichloro diphenyl dichloro ethane) (degradate of DDT)	San Bernardino, San Joaquin, Santa Cruz
DDE (dichloro diphenyl dichloro ethylene) (degradate of DDT)	San Bernardino, San Joaquin, Santa Cruz
DDT (dichloro diphenyl trichloro ethane)	Kern, San Bernardino, San Joaquin, Santa Cruz
Dicamba	Kern, San Joaquin
Dieldrin	Madera, San Bernardino
Dinoseb	Kern, Madera, San Joaquin,
Diuron	San Joaquin
Endrin	Santa Clara
Endosulfan	Santa Clara
Eptam	Sacramento
Ethylene dibromide (EDB)	Monterey, Orange, San Joaquin, Yolo
Glyphosate	El Dorado, Placer
Heptachlor epoxide	San Joaquin
Hexachlorobenzene	San Joaquin
Lindane	Santa Clara
Rimsulfuron	El Dorado, Placer
Simazine	Riverside
Toxaphene	Kern, Santa Clara
Triclopyr	El Dorado, Inyo, Placer

Pesticides not registered for use in California.

PREFACE

This report fulfills the requirements of AB 2021 (the Pesticide Contamination Prevention Act of 1985 [PCPA]) and AB 2701. AB 2021 required the Department of Pesticide Regulation (DPR) to submit the results of ground water monitoring for pesticide residues in an annual *written* report; AB 2701 amended the PCPA to require DPR to post the report on its Web site.

ACKNOWLEDGEMENTS

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DISCLAIMER

As required by the PCPA, this report describes active ingredients of registered pesticide products that have been found in ground water. DPR provides this information to satisfy legal mandates and provide information to the public. Any discussion of commercially available pesticide products does not constitute an actual or implied endorsement of the products by DPR.

ABBREVIATIONS

AAL	Archived Advisory Level
AB	Assembly Bill
CAC	County Agricultural Commissioner
CALVUL	California Vulnerability Model
3CCR	Title 3, California Code of Regulations
CDPH	California Department of Public Health
DPR	Department of Pesticide Regulation
DTSC	Department of Toxic Substances Control
E	Estimated Value
FAC	Food and Agriculture Code
GAC	Granular Activated Carbon
GAMA	Groundwater Ambient Monitoring and Assessment Program
gpm	Gallon Per Minute
GWPA	Ground Water Protection Area
GWPL	Groundwater Protection List
HAL	Health Advisory Level
LLNL	Lawrence Livermore National Laboratory
LEACHM	Leaching Estimation and Chemistry Model
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MGD	Million Gallons Per Day
MWD	Metropoitan Water District
µg/L	Micrograms Per Liter
MPE	Multi-Phase Extraction
NL	Notification Level
OEHHA	Office of Environmental Health Hazard Assessment
PCPA	Pesticide Contamination Prevention Act
PHG	Public Health Goal
PMZ	Pesticide Management Zone
ppb	Parts Per Billion
RWQCB	Regional Water Quality Control Board
SNV	Specific Numerical Value
SWRCB	State Water Resources Control Board
TCE	Trichloroethylene
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound

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BACKGROUND

PROTECTING GROUND WATER FROM PESTICIDE CONTAMINATION — THE PCPA

DPR began addressing pesticide contamination of ground water in the early 1980s after the discovery of 1,2-dibromo-3-chloropropane (DBCP) in well water. Subsequent reports of pesticides in ground water led to passage of the Pesticide Contamination Prevention Act (PCPA) of 1985,[5] an act designed to prevent pesticide *pollution*[6] of ground water by *agricultural use*[7] pesticides, with emphasis on the protection of public drinking water supplies. The PCPA authorized establishment of a program[8] to identify pesticides with the potential to pollute ground water, required ground water sampling, directed DPR to maintain a database of wells sampled for pesticides, and required a formal review to determine if use of detected pesticides could be modified to protect ground water.

To implement the PCPA, DPR:

- Obtains physical/chemical/environmental fate data from pesticide registrants to support the registration of agricultural use pesticides and maintains these data in DPR's Pesticide Chemistry Database.
- Uses data in the Pesticide Chemistry Database to establish persistence and mobility threshold values called specific numerical values (SNV)[9] and evaluates the ground water pollution potential of agricultural use pesticides based (in part) on these values.
- Adds to the Ground Water Protection List (GWPL)[10] agricultural use pesticides that exceed SNVs (and are applied in specific ways),[11] and pesticides whose use has been modified following their detection in ground water.[12]
- Utilizes contaminant transport modeling tools to evaluate the contamination potential of pesticides prior to their registration for use in California, and to define Ground Water Protection Areas (GWPA)[13] and prioritize pesticides for monitoring.

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[5] The PCPA added sections 13141-13152 to the Food and Agricultural Code (FAC). Title 3, California Code of Regulations (3CCR) sections 6416-6487.5 and 6800-6804 implement these FAC sections.

[6] FAC section 13142 defines *pollution* as "…the introduction into the groundwaters of the state of an active ingredient, 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."

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

[8] See DPR's Ground Water Protection Program.

[9] SNV threshold values for all parameters are listed in 3CCR section 6804.

[10] The Ground Water Protection List (3CCR section 6800) is divided into two sublists: Sublist 6800(a) includes seven agricultural herbicides that are regulated as ground water contaminants: atrazine, bentazon, bromacil, diuron, norflurazon, prometon, and simazine. Sublist 6800(b) includes 101 pesticides that have the potential to become ground water contaminants based on their mobility, persistence and legal uses.

[11] Specific application methods include injection into the soil by ground-based application equipment, or applications made by chemigation or followed within 72 hours by flood or furrow irrigation.

[12] Previously detected pesticides on the GWPL (3CCR section 6800[a]) include: atrazine, bentazon, bromacil, norflurazon, prometon, simazine and diuron (except products with less than 7% diuron that are applied to foliage).

[13] See Appendix A for more information on GWPAs.

- Monitors agricultural use pesticides to determine if they have migrated to ground water.
- Evaluates pesticide detections in ground water, including those reported by other agencies.[14]
- Determines whether detection of a pesticide in ground water is the result of *legal* agricultural use[15] and if so, conducts a formal hearing to determine if the pesticide's use can be modified to prevent pollution.
- Develops and adopts mitigation measures to prevent ground water pollution when continued use of a pesticide is allowed.

In addition, DPR:

- Maintains a database of pesticide detections in ground water reported to DPR by local, county, and state agencies.[16]
- Prepares an annual report that summarizes monitoring results and specifies actions taken by DPR and the SWRCB for detections from nonpoint agricultural sources and point sources, respectively.

IDENTIFYING POTENTIAL GROUND WATER CONTAMINANTS UNDER THE PCPA

DPR developed several evaluation procedures to estimate a pesticide's potential to pollute ground water; these procedures are described below.

Using Environmental Fate Data to Predict Pesticide Behavior in the Environment

The PCPA required DPR to establish numerical SNV threshold values for six physical/chemical parameters presumed to correlate to the potential of a pesticide to leach to ground water: water solubility, Koc, hydrolysis half-life, aerobic soil metabolism half-life, anaerobic soil metabolism half-life, and field dissipation half-life. Water solubility and Koc are considered indicators of *mobility* within the soil, while the half-lives of hydrolysis, aerobic and anaerobic soil metabolism and field dissipation are considered indicators of the *persistence* of the pesticide in soil.[17] A pesticide is thought to have the potential to leach to ground water if it is both mobile and persistent, and applied in certain ways.

DPR developed SNV threshold values by evaluating nationwide ground water studies and performing a statistical comparison of the physical/chemical attributes of pesticides detected in ground water as a result of legal agricultural use (called *leachers*), and pesticides not detected (*nonleachers*). Analysis showed that data values for water solubility, hydrolysis half-life, Koc, and anaerobic soil metabolism

[14] See Appendix B for a list of reporting agencies and a discussion of their role in the PCPA process.

[15] Legal agricultural uses include pesticide applications made in accordance with the registered label.

[16] See Appendix C for more information on the Well Inventory Database.

[17] Although DPR has not yet established an SNV for field dissipation data, these data are used in modeling procedures to assess the leaching potential of new products proposed for registration.

half-life were significantly different for leachers and nonleachers (Wilkerson and Kim, 1986).[18] However, leacher and nonleacher aerobic soil metabolism data values were not significantly different.[19]

After establishing SNV numerical thresholds,[20] DPR scientists used the data to characterize a pesticide's behavior in the environment by comparing SNV values with values for each pesticide. Pesticides that exceed SNVs (and are applied in specific ways) are placed on the GWPL and monitored to determine if they are present in ground water as a result of their legal agricultural use.

Using Computer Modeling Tools to Predict Pesticide Contamination Potential

In addition to evaluating the contamination potential of agricultural use pesticides through comparison of SNV values, DPR scientists use two models to enhance the effectiveness of DPR's ground water protection program:[21]

- **LEACHM**, the *leaching estimation and chemistry model* (Hutson and Wagenet, 1992) is a pesticide fate and transport modeling tool used to evaluate the leaching potential of a pesticide prior to registration for use in California. The model enables DPR scientists to predict a pesticide's movement through the root zone of a leaching-vulnerable soil (Spurlock, 2000), and determine the probability of occurrence of predicted well water concentrations (Troiano and Clayton, 2009) based upon mobility and persistence data, label information, climate data, and label recommended irrigation practices. If the pesticide is deemed a potential ground water contaminate following this evaluation, the registrant is required to take steps—such as amending the product label or committing to a stewardship program—to mitigate the potential threat to ground water before DPR will approve the pesticide for use in California. If mitigation is not possible, California registration is denied.

- **CALVUL**, *the California vulnerability model* is used to evaluate areas of California that are vulnerable to pesticide contamination based on soil type and depth to ground water. If pesticide use on a given section of land is deemed likely to facilitate ground water contamination, the section is designated a GWPA.[22]

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[18] An evaluation of the SNVs for these properties resulted in the identification of 90 percent of the chemicals found in ground water due to legal agricultural use.

[19] Because the PCPA requires DPR to establish an SNV for each physical/chemical parameter, and because soil metabolism half-life appears to be an ineffective predictor of a pesticide's ground water contamination potential, the SNV for aerobic soil metabolism half-life was set at a value that minimized its importance in the discrimination procedure.

[20] SNV numerical threshold values are reevaluated periodically, often through an evaluation of field dissipation studies. (In these studies, pesticides are applied to bare or cropped fields and soil is sampled at various depths to measure pesticide movement and persistence in the field under "real-world" conditions.)

[21] The data used in these models are maintained in DPR's Pesticide Chemistry Database. The database includes pesticide mobility and persistence data submitted by pesticide registrants.

[22] To use a pesticide regulated as a ground water contaminate in a GWPA, users must obtain a Restricted Materials permit from their County Agricultural Commissioner. These permits specify the enforceable management practices required for use in each type of GWPA. For more information on GWPAs, see Appendix A.

MONITORING FOR PESTICIDES—PRIORITIZING THE CANDIDATES

Pesticides that are believed to have the potential to contaminate ground water enter the pool of pesticides ranked for annual monitoring.[23] This ranking enables DPR to direct limited resources toward monitoring pesticides that pose the greatest risk to ground water. DPR assigns higher priority to agricultural use pesticides currently registered for use in California that are:

- On the GWPL.[24]
- Reported as detections in ground water by public agencies, such as the SWRCB and CDPH. (See Appendix B for a list of reporting agencies.)
- Believed to have a higher likelihood of contaminating ground water based on computer simulated transport modeling.
- Used intensively or whose use is increasing (coupled with other risk factors such as persistence and mobility in soil).
- Injected into the soil by ground-based application equipment, or applied by chemigation or followed within 72 hours by flood or furrow irrigation.

DPR also assigns a higher priority to pesticides that:

- Have prior detections in California (or nationwide).
- Have not previously been monitored in California.

RESPONDING TO PESTICIDE DETECTIONS IN GROUND WATER

DPR conducts sampling to confirm detections of agricultural use pesticides, but does not conduct additional sampling if the detected pesticide is: 1) not registered for use in California; 2) reported in error or is an invalid detection due to unacceptable analytical variability; 3) not detected in follow-up samples taken by the reporting agency; 4) detected at a concentration below DPR's Response Threshold (less than 80 percent of DPR's analytical reporting limit); 5) regulated as a ground water contaminant under 3CCR section 6800(a) and detected in a GWPA (where use of the pesticide is regulated); 6) registered for use as a pesticide but also occurs naturally (such as copper); or 7) detected in a private well that DPR does not have permission to sample. DPR will defer sampling and place a pesticide on a "watch list" if the pesticide was detected at less than 80 percent of DPR's analytical reporting limit, or if DPR is unable to develop an analytical method that meets the criteria necessary to validate the detection.

If detections indicate a pesticide's legal agricultural use pollutes ground water, the findings are subject to a public formal review process to determine if the pesticide's use can continue under modified

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[23] For more information on pesticide monitoring ranking see: Clayton, M. 2011, *Selection of Pesticide Active Ingredients for Future Analytical Method Development and Ground Water Monitoring.* Available at: <http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/ai_priorities_2011_2304-ross.pdf>

[24] DPR samples ground water for pesticides on the GWPL to: 1) determine if pesticides identified as potential contaminants have migrated to ground water as a result of their legal agricultural use; 2) expand Ground Water Protection Areas (GWPAs) if additional dectections are made; and 3) assess the effectiveness of mitigation measures used in the GWPAs.

conditions.[25] If it is determined use can be modified so there is a high probability continued use will not pollute, DPR adds the pesticide to the GWPL and requires applicators to adopt mitigation measures when using the pesticide in GWPAs. Detections of agricultural use pesticides (or their degradates) that do not trigger the formal review process are placed on a "watch list" and tracked by DPR for changes in detection concentration or frequency.[26]

If the detected pesticide is added to the GWPL and regulated as a ground water contaminant under 3CCR section 6800(a)—and the well is located in a GWPA—current regulation of use is believed to constitute an adequate response to new detections unless concentrations are high enough to indicate existing mitigation measures are not adequate to prevent pollution. If the well is *not* located in a GWPA, DPR may establish a GWPA that includes the well site under the following circumstances: 1) the well is in a section of land that is adjacent to an existing GWPA; or 2) the pesticide is detected in two or more wells within a four section area that is not adjacent to an existing GWPA.

Areas of Non-Authorization

State law does not authorize DPR to regulate pesticide use when detections in ground water are the result of manufacturing processes, accidental spills/releases, or illegal disposal; DPR refers these detections to SWRCB for further investigation. If pesticides are found in ground water due to a nonagricultural use—such as residential use in urban areas—the detections are reviewed under DPR's formal pesticide registration reevaluation process.

Assessing the Effectiveness of Mitigation Measures

In 1999, DPR established a well monitoring network to evaluate baseline pesticide concentrations and to measure the effectiveness of ground water protection regulations. Currently, DPR's well monitoring network includes 68 shallow, domestic wells located in runoff and leaching GWPAs in Fresno and Tulare counties.[27] Preliminary analysis suggests that regulatory action taken by DPR has resulted in measurable decreases in both detection frequencies and well water concentrations for many regulated pesticides (Garretson, 1999 and 2012).

SAMPLING RESULTS

Detections of Registered Pesticides and Related Degradates

In 2012, ground water samples were analyzed for one or more of 164 agricultural use pesticides/pesticide degradates collected from wells in 53 counties by DPR, CDPH and

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[25] Pesticides reviewed under the public review process include aldicarb, atrazine, bentazon, bromacil, diuron, hexazinone, norflurazon, prometon, and simazine. With the exception of aldicarb and hexazinone, it was determined that the agricultural use of these pesticides could be modified so that there would be a high probability that their continued use would not pollute ground water. In 1988, statewide use restrictions were adopted for aldicarb; in 2010, it was determined hexazinone had not polluted or threatened to pollute ground water in the state (based on the low detected concentrations), but continued hexazinone monitoring was recommended to ensure concentrations do not increase.

[26] There are seven registered pesticides and 11 degradates that did not trigger the formal review process.

[27] Sampling by DPR showed that all of the wells in the network contained residues of pesticides that were regulated as ground water contaminants: simazine, bromacil, and diuron.

SWRCB/RWQCBs.[28] Five counties—Alpine, Calaveras, Imperial, San Francisco, and Trinity—were not sampled by any agency in calendar year 2012. Sampling efforts yielded detections of 31 agricultural use pesticides/degradates from nonpoint sources; eight pesticides detected are not registered for use in California. Table 1 lists sample results for pesticides/degradates from all reporting agencies; Table 2 lists DPR's response to reported detections. Appendix D summarizes pesticides sampled and detected in each county.

SWRCB/RWQCB sampling results for point source detections of pesticides—and related cleanup measures and other actions taken to resolve contamination—are listed in tables 3-8.

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[28] Some exceptions to the "agricultural use" status of the sampled pesticides apply; some industrial use pesticides and pestidides that are no longer—or never were—registered for use in California are included due to the varying monitoring goals of reporting agencies.

Table 1. Pesticides and pesticide degradates sampled in calendar year 2012 — nonpoint source monitoring results from all reporting agencies.
Key: Pesticides detected Pesticides detected but not registered for use in California

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
1,2,4-trichlorobenzene	5147 --	2132 --	51 --	0 - 0.5	--	CDPH MCL – 5 OEHHA PHG – 5 USEPA MCL – 70 USEPA MCLG – 70 USEPA HAL – 70	CDPH
1, 2 Dichloropropane (1,2-DCP) (propylene dichloride)	5214 13	2194 6	51 5	0 - 0.5	0.039 - 1.04	CDPH MCL – 5 OEHHA PHG – 0.5 USEPA MCL – 5 USEPA MCLG – 0	SWRCB CDPH
1,3-D (1,3-dichloropropene) (telone)	6140 --	1478 --	47 --	0 - 0.5	--	CDPH MCL – 0.5 OEHHA PHG – 0.2	SWRCB CDPH
1-napthol	59 --	59 --	5 --	0.036	--	---	SWRCB
2,4,5-T (2,4,5-trichloro phenoxy acetic acid)	211 --	198 --	24 --	0 - 2	--	USEPA HAL – 70.0	CDPH
2,4,6-trichlorophenol	3 --	2 --	1 --	5	--	---	CDPH
2,4-D (2,4-dichlorophenoxyacetic acid)	756 --	555 --	34 --	0 - 10	--	CDPH MCL – 70 OEHHA PHG – 20 USEPA MCL – 70 USEPA MCLG – 70	CDPH
2,6-Diethylaniline (degradate of alachlor)	59 1	59 1	5 1	0.006	0.005	---	SWRCB
3,4-Dichloroaniline (degradate of diuron, propanil)	59 5	59 5	5 3	0.004	0.004 - 0.215	---	SWRCB
3,5-Dichloroaniline (degradates of iprodione, dicloran)	59 1	59 1	5 1	0.003 - 0.004	0.004	---	SWRCB
4(2,4-DB), dimethylamine salt	94 --	88 --	12 --	0 - 10	--	---	CDPH

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
4-CLOC	59 --	59 --	5 --	0.003 - 0.005	--	---	SWRCB
ACET (deisopropyl-atrazine or deethyl-simazine) **(degradate of atrazine/simazine)**	84 56	84 56	8 2	0.05	0.05 - 1.46	---	DPR
Acetochlor	95 --	85 --	15 --	0 - 0.1	--	---	SWRCB CDPH
Acifluorfen, sodium salt	49 --	44 --	6 --	0 - 1	--	---	CDPH
Acrolein	5 --	5 --	2 --	0	--	---	CDPH
Acrylonitrile	36 --	30 --	7 --	0 - 5	--	---	CDPH
Alachlor	1257 --	977 --	37 --	0 - 1	--	CDPH MCL – 2 OEHHA PHG – 4 USEPA MCL – 2 USEPA MCLG – 0	SWRCB CDPH
Alachlor 2nd Amide (degradate)	59 --	59 --	5 --	0.01	--	---	SWRCB
Aldicarb	499 --	375 --	30 --	0 - 5	--	CDPH AAL – 7 USEPA MCL – 3 USEPA MCLG – 1	CDPH
Aldicarb sulfone (degradate)	499 --	375 --	30 --	0 - 5	--	USEPA MCL – 3 USEPA MCLG – 1 USEPA HAL – 7	CDPH
Aldicarb sulfoxide (degradate)	499 --	375 --	30 --	0 - 5	--	USEPA MCL – 4 USEPA MCLG – 1 USEPA HAL – 7	CDPH
Aldrin	343 --	280 --	29 --	0 - 0.08	--	CDPH AAL – 0.002	CDPH
Ametryne	4 --	4 --	2 --	1	--	---	CDPH

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Atrazine	1525 9	1192 9	39 5	0 - 0.5	0.006 - 0.097	CDPH MCL – 1 OEHHA PHG – 0.15 USEPA MCL – 3 USEPA MCLG – 3	DPR SWRCB CDPH
Azinphos-methyl (guthion)	59 --	59 --	5 --	0.12	--	---	SWRCB
Azinphos-methyl-oa (degradate)	59 --	59 --	5 --	0.042 - 0.042	--	---	SWRCB
Benefin (benfluralin)	59 --	59 --	5 --	0.014	--	---	SWRCB
Bentazon	700 --	549 --	32 --	0 - 2	--	CDPH MCL – 18 OEHHA PHG – 200 USEPA HAL – 200	CDPH
BHC (other than gamma isomer)	261 --	89 --	12 --	0 - 0.2	--	---	CDPH
Bromacil	624 17	528 17	33 2	0 - 10	0.056 - 2.86	USEPA HAL – 70	DPR CDPH
Butachlor	498 --	406 --	33 --	0 - 1	--	---	CDPH
Butylate	4 --	4 --	2 --	1	--	---	CDPH
Captan	42 --	37 --	5 --	0 - 0.1	--	CDPH ANL – 15	CDPH
Carbaryl	558 --	434 --	31 --	0 - 5	--	CDPH ANL – 700	SWRCB CDPH
Carbofuran	668 --	508 --	34 --	0 - 5	--	CDPH MCL – 18 OEHHA PHG – 1.7 USEPA MCL – 40 USEPA MCLG – 40	SWRCB CDPH
Carbon disulfide	1005 6	349 6	23 3	0.04 - 0.5	0.03 - 1.06	CDPH NL – 160	SWRCB CDPH

Pesticide or Degradate	Samples Taken Positive Samples	Wells Sampled Wells with Detections	Counties Sampled Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Carbophenothion	42 --	37 --	5 --	0	--	---	CDPH
Chlordane	492 --	379 --	31 --	0 - 0.1	--	CDPH MCL – 0.1 OEHHA PHG – 0.03 USEPA MCL – USEPA MCLG – 0	CDPH
Chlorobenzilate	15 --	15 --	3 --	5	--	---	CDPH
Chloroneb	19 --	19 --	4 --	0.5	--	---	CDPH
Chlorothalonil	145 --	126 --	19 --	0 - 5	--	USEPA HAL – 500	CDPH
Chlorpropham	46 --	41 --	7 --	0 - 0.5	--	---	CDPH
Chlorpyrifos	81 --	80 --	12 --	0 - 1	--	USEPA HAL – 2	SWRCB CDPH
Chlorpyrifos oxon (degradate)	59 --	59 --	5 --	0.05 - 0.06	--	---	SWRCB
Chlorthal-dimethyl (dacthal/DCPA)	74 1	74 1	8 1	0.008 - 0.04	0.004	USEPA HAL – 70.0	SWRCB CDPH
Chlorthal-dimethyl acid degradation products (dacthal degradates)	154 1	120 1	10 1	0 - 2	0.15	---	CDPH
cis-Propiconazole	59 --	59 --	5 --	0.006 - 0.008	--	---	SWRCB
Cyanazine	102 --	97 --	11 --	0 - 150	--	---	SWRCB CDPH
Cycloate	4 --	4 --	2 --	0.3	--	---	CDPH

Pesticide or Degradate	Samples Taken Positive Samples	Wells Sampled Wells with Detections	Counties Sampled Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Cyfluthrin	59 --	59 --	5 --	0.016	--	---	SWRCB
Cypermethrin	59 --	59 --	5 --	0.02	--	---	SWRCB
DACT (diaminochlorotriazine) (degradate of simazine)	84 56	84 56	8 2	0.05	0.059 - 6.27	---	DPR
Dalapon	678 --	521 --	32 --	0 - 10	--	CDPH MCL – 200 OEHHA PHG – 790 USEPA MCL – 200 USEPA MCLG – 200 USEPA HAL – 200	CDPH
DBCP (1,2-dibromo-3-chloropropane)	3078 1138	1306 221	33 12	0 - 0.03	0.01 - 1.3	CDPH MCL – 0.2 OEHHA PHG – 0.0017 USEPA MCL – 0.2 USEPA MCLG – 0	SWRCB CDPH
DDD (dichloro diphenyl dichloro ethane) (degradate)	79 --	65 --	10 --	0 - 0.05	--	---	CDPH
DDE (dichloro diphenyl dichloro ethylene) (degradate)	77 --	65 --	10 --	0 - 0.05	--	---	CDPH
DDT (dichloro diphenyl trichloro ethane)	79 --	65 --	10 --	0 - 0.05	--	---	CDPH
DDVP (dichlorvos)	59 --	59 --	5 --	0.02 - 0.04	--	---	SWRCB
DEA (deethyl-atrazine) (degradate of atrazine)	143 13	143 13	11 4	0.006 - 0.05	0.007 - 0.183	---	DPR SWRCB
Desulfinyl fipronil (degradate)	59 --	59 --	5 --	0.012	--	---	SWRCB
Desulfinyl fipronil amide (degradate)	59 --	59 --	5 --	0.029	--	---	SWRCB

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Diazinon	476 --	389 --	31 --	0 - 2	--	CDPH NL – 1.2 U.S. EPA HAL– 1	SWRCB CDPH
Dicamba	580 --	447 --	29 --	0 - 1.5	--	U.S. EPA HAL – 4000	CDPH
Dichlorprop, butoxyethanol ester	74 --	69 --	13 --	0 - 1	--	---	CDPH
Dicrotophos	59 --	59 --	5 --	0.08	--	---	SWRCB
Dieldrin	390 --	332 --	30 --	0 - 0.02	--	CDPH AAL – 0.002	SWRCB CDPH
Dimethoate	590 --	497 --	33 --	0 - 10	--	CDPH AAL – 1	SWRCB CDPH
Dinoseb	743 --	543 --	32 --	0 - 2	--	CDPH MCL – 7 OEHHA PHG – 14 USEPA MCL – 7 USEPA MCLG – 7	CDPH
Diphenamid	46 --	41 --	7 --	0 - 100	--	---	CDPH
Diquat dibromide	739 1	535 1	29 1	0 - 4	0.5	CDPH MCL – 20 OEHHA PHG – 15 USEPA MCL – 20 USEPA MCLG – 20	CDPH
Disulfoton	101 --	96 --	10 --	0 - 0.04	--	---	SWRCB CDPH
Disulfoton sulfone (degradate)	59 --	59 --	5 --	0.014	--	---	SWRCB
Diuron	120 25	111 25	13 2	0 - 2	0.05 - 0.438	---	DPR CDPH
DMPA **0-(2,4-dichlorophenyl) 0-methyl (1-methylethyl)phosphoramidothioate**	6 --	6 --	2 --	0 - 0	--	---	CDPH

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
DSMN (desmethyl norflurazon) **(degradate of norflurazon)**	84 34	84 34	8 2	0.05	0.052 - 0.79	---	DPR
Endosulfan	213 --	124 --	14 --	0 - 0.05	--	---	SWRCB CDPH
Endosulfan sulfate (degradate)	136 --	124 --	14 --	0 - 0.05	--	---	SWRCB CDPH
Endothall	696 --	502 --	29 --	0 - 45	--	CDPH MCL – 100 OEHHA PHG – 580 USEPA MCL – 100 USEPA MCLG – 100 USEPA HAL – 50.0	CDPH
Endrin	650 --	469 --	33 --	0 - 0.1	--	CDPH MCL – 2 OEHHA PHG – 1.8 USEPA MCL – 2 USEPA MCLG – 2 USEPA HAL – 2	CDPH
Endrin aldehyde	77 --	65 --	10 --	0 - 0.05	--	---	CDPH
EPTC (S-ethyl-dipropylthiocarbamate)	116 4	107 4	12 3	0 - 0.1	0.008 - 0.074	---	SWRCB CDPH
Ethion	62 --	62 --	7 --	0 - 0.008	--	---	SWRCB CDPH
Ethion monooxon (degradate)	59 --	59 --	5 --	0.021	--	---	SWRCB
Ethoprop (prophos)	59 --	59 --	5 --	0.016	--	---	SWRCB
Ethylene dibromide (EDB)	2578 43	1211 10	33 3	0 - 0.02	0.02 - 0.41	CDPH MCL – 0.05 OEHHA PHG – 0.01 USEPA MCL – 0.05 USEPA MCLG – 0	CDPH
Fenamiphos	59 --	59 --	5 --	0.03	--	---	SWRCB

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Fenamiphos sulfone (degradate)	59 --	59 --	5 --	0.053 - 0.054	--	---	SWRCB
Fenamiphos sulfoxide (degradate)	58 --	58 --	5 --	0.08	--	---	SWRCB
Fipronil	59 --	59 --	5 --	0.018	--	---	SWRCB
Fipronil sulfide (degradate)	59 --	59 --	5 --	0.012 - 0.013	--	---	SWRCB
Fipronil sulfone (degradate)	59 --	59 --	5 --	0.024	--	---	SWRCB
Fonofos (dyfonate)	59 --	59 --	5 --	0.004 - 0.005	--	---	SWRCB
Glyphosate	607 --	414 --	27 --	0 - 25	--	DPR MCL – 700 OEHHA PHG – 900 USEPA MCL – 700 USEPA MCLG – 700	CDPH
Heptachlor	604 --	448 --	33 --	0 - 0.01	--	CDPH MCL – 0.01 OEHHA PHG – 0.008 USEPA MCL – 0.4 USEPA MCLG – 0	CDPH
Heptachlor epoxide	604 --	448 --	33 --	0 - 0.01	--	CDPH MCL –0.01 OEHHA PHG – 0.006 USEPA MCL – 0.2 USEPA MCLG – 0	CDPH
Hexachlorobenzene	741 --	539 --	34 --	0 - 0.5	--	---	CDPH
Hexazinone	143 7	143 7	11 4	0.008 - 0.05	0.009 - 0.076	U.S. EPA HAL – 400	DPR SWRCB
Hydroxycarbofuran (degradate)	492 --	371 --	30 --	0 - 3	--	---	CDPH
Iprodione	59 --	59 --	5 --	0.014	--	---	SWRCB

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Isofenphos	59 --	59 --	5 --	0.006	--	---	SWRCB
Lambda-cyhalothrin	59 --	59 --	5 --	0.01	--	---	SWRCB
Lindane (gamma-BHC)	687 --	497 --	34 --	0 - 0.2	--	CDPH MCL – 0.2 OEHHA PHG – 0.032 USEPA MCL – 0.2 USEPA MCLG – 0.2	CDPH
Linuron	153 --	145 --	11 --	0 - 0.05	--	---	DPR CDPH
Malaoxon	59 --	59 --	5 --	0.022 - 0.08	--	---	SWRCB
Malathion	184 --	120 --	6 --	0 - 0.016	--	CDPH AAL – 160 USEPA HAL – 500	SWRCB CDPH
MCPA (2-methyl-4-chlorophenoxyacetic acid)	12 --	12 --	2 --	10	--	---	CDPH
MCPP 2-(4-chloro-2-methylphenoxy) propionic acid	12 --	12 --	2 --	10	--	---	CDPH
Metalaxyl	199 4	197 4	12 3	0.007 - 0.05	0.015 - 148	---	DPR SWRCB
Methidathion	59 --	59 --	5 --	0.006 - 0.012	--	---	SWRCB
Methiocarb	235 --	191 --	18 --	0 - 5	--	---	CDPH
Methomyl	632 --	509 --	33 --	0 - 2	--	USEPA HAL – 200	DPR CDPH

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Methoxychlor	683 --	495 --	34 --	0 - 10	--	CDPH MCL – 30 OEHHA PHG – 0.09 USEPA HAL – 40 USEPA MCL – 40 USEPA MCLG – 40	CDPH
Methyl bromide	2922 2	1415 2	50 2	0 - 1	0.98 - 1.7	USEPA HAL – 10	SWRCB CDPH
Methyl iodide	59 --	59 --	5 --	0.26	--	---	SWRCB
Methyl paraoxon (degradate)	59 --	59 --	5 --	0.01 - 0.014	--	---	SWRCB
Methyl parathion	184 --	120 --	6 --	0 - 0.008	--	---	SWRCB CDPH
Metolachlor	594 5	501 5	33 2	0 - 10	0.013 - 0.045	USEPA HAL– 700	SWRCB CDPH
Metribuzin	594 --	501 --	33 --	0 - 1	--	---	SWRCB CDPH
Molinate	1129 2	859 2	38 1	0 - 2	0.007 - 0.007	CDPH MCL – 20 OEHHA PHG – 1	SWRCB CDPH
Myclobutanil	59 --	59 --	5 --	0.01	--	---	SWRCB
Naphthalene	3446 1	1511 1	46 1	0 - 0.5	0.53	CDPH NL – 17 U.S. USEPA HAL – 100	SWRCB CDPH
Napropamide	4 --	4 --	2 --	1 - 1	--	---	CDPH
Norflurazon	84 19	84 19	8 2	0.05	0.05 - 0.67	USEPA HAL – 30[10]	DPR
Ortho-dichlorobenzene	5147 --	2132 --	51 --	0 - 0.5	--	CDPH MCL – 600 OEHHA PHG – 600 USEPA MCL – 600 USEPA MCLG – 600 USEPA HAL – 600	CDPH

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Oxamyl	609 --	448 --	32 --	0 - 20	--	CDPH MCL – 50 OEHHA PHG – 26 USEPA MCL – 200 USEPA MCLG – 200	CDPH
Oxyfluorfen	59 --	59 --	5 --	0.006 - 0.01	--	---	SWRCB
Paraquat dichloride	80 --	52 --	3 --	20	--	USEPA HAL – 30	CDPH
Parathion or ethyl parathion	125 --	61 --	1 --	0.02	--	---	CDPH
PCNB (pentachloronitrobenzene)	3 --	3 --	2 --	0.1	--	---	CDPH
Pendimethalin	59 --	59 --	5 --	0.012	--	---	SWRCB
Permethrin	78 --	78 --	9 --	0.01 - 2	--	---	SWRCB CDPH
Permethrin, other related compounds	15 --	15 --	3 --	0.2	--	---	CDPH
Phorate	59 --	59 --	5 --	0.02	--	---	SWRCB
Phoratoxon	59 --	59 --	5 --	0.027	--	---	SWRCB
Phosmet (imidan)	59 --	59 --	5 --	0.034 - 0.14	--	---	SWRCB
Phosmet-oa (degradate)	59 --	59 --	5 --	0.051	--	---	SWRCB
Picloram	676 3	518 3	32 1	0 - 1	2 - 3.6	CDPH MCL – 500 OEHHA PHG – 500 USEPA MCL – 500	CDPH
Prometon	351 4	281 4	18 2	0 - 0.5	0.021 - 0.12	USEPA HAL – 400	DPR SWRCB CDPH

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Prometryn	332 2	261 2	28 1	0 - 2	0.001 - 0.006	---	SWRCB CDPH
Propachlor	576 --	463 --	33 --	0 - 1	--	CDPH NL – 90	CDPH
Propanil	59 --	59 --	5 --	0.01	--	---	SWRCB
Propargite	59 --	59 --	5 --	0.02	--	---	SWRCB
Propazine	4 --	4 --	2 --	0.5	--	USEPA HAL – 10	CDPH
Propoxur	235 --	191 --	18 --	0 - 5	--	USEPA HAL – 3	CDPH
Propyzamide	199 --	197 --	12 --	0.004 - 0.05	--	---	DPR SWRCB
Silvex	684 --	525 --	32 --	0 - 1	--	CDPH MCL – 50 OEHHA PHG – 25 USEPA MCL – 50 USEPA MCLG – 50 USEPA HAL – 50	CDPH
Simazine	1525 52	1191 52	38 4	0 - 1	0.006 - 0.225	CDPH MCL – 4 OEHHA PHG – 4 USEPA MCL – 4 USEPA MCLG – 4	DPR SWRCB CDPH
Tebuthiuron	75 1	75 1	10 1	0.028 - 0.05	0.011	U.S. EPA HAL – 500	DPR SWRCB
Tefluthrin	59 --	59 --	5 --	0.01	--	---	SWRCB
Terbacil	63 --	54 --	10 --	0 - 2	--	---	CDPH
Terbufos	59 --	59 --	5 --	0.018	--	---	SWRCB

Pesticide or Degradate	Samples Taken / Positive Samples	Wells Sampled / Wells with Detections	Counties Sampled / Counties with Detections	‡Reporting Limit Min/Max (ppb)	Detected Concentration Range (ppb)	†Drinking Water Quality Standards or Advisories (ppb)	Reporting Agency
Terbufos oxon sulfone (degradate)	59 --	59 --	5 --	0.045	--	---	SWRCB
Terbuthylazine	59 --	59 --	5 --	0.006	--	---	SWRCB
Terbutryn	44 --	43 --	7 --	0.5 - 1	--	---	CDPH
Tetrachloroethane	5146 --	2132 --	51 --	0 - 0.5	--	---	CDPH
Thiobencarb	1691 --	1121 --	38 --	0 - 1	--	CDPH MCL – 70 OEHHA PHG – 70	SWRCB CDPH
Toxaphene	656 --	459 --	31 --	0 - 1	--	CDPH MCL – 3 OEHHA PHG – 0.03 USEPA MCL – 3 USEPA MCLG – 0	CDPH
trans-Propiconazole	59 --	59 --	5 --	0.01 - 0.02	--	---	SWRCB
Triadimefon	4 --	4 --	2 --	0.5	--	---	CDPH
Tribufos	59 --	59 --	5 --	0.018	--	---	SWRCB
Trifluralin	192 --	177 --	21 --	0 - 0.5	--	USEPA HAL – 10	SWRCB CDPH
Vernolate	4 --	4 --	2 --	0.5	--	---	CDPH
Xylene	5132 1	2129 1	51 1	0 - 1.5	1.9	CDPH MCL – 1,750 OEHHA PHG – 1,800 USEPA MCL – 10,000 USEPA MCLG – 10,000	CDPH

‡ Some detection values listed in this table are below the reporting limit. Each reporting agency determines the value they will report, regardless of "accepted" reporting limits. For instance, the SWRCB may report *estimated values*, which can be below reporting limits.

† Drinking water quality standards: AAL: archived advisory level; HAL: health advisory level; MCL: maximum contaminant level; MCLG: maximum contaminant level goal; NL: notification level; PHG: public health goal.

RESPONSES TO PESTICIDE DETECTIONS – DPR, SWRCB, RWQCBs

As required under the PCPA (FAC section 13152[e][4]), this section of the annual report describes actions taken by DPR (Table 2) and the SWRCB/RWQCBs (tables 3 - 8) to mitigate the detection of pesticides found in ground water during calendar year 2012.

DPR RESPONSE TO DETECTIONS

Of the 31 agricultural use pesticides/degradates detected in 2012 from nonpoint sources, 11 are pesticides (or degradates of the parent compound) listed in 3CCR 6800(a) and regulated as ground water contaminants within GWPAs; nine pesticides/degradates are listed in 3CCR 6800(b) as potential ground water contaminants, eight are not registered for use in California, and three are not listed under 3CCR 6800(a) or (b) (Table 2).

Table 2. DPR Response to pesticides and pesticide degradates detected in ground water in calendar year 2012.

Pesticide	Number of Detections	Registration Status / DPR Detection Response
1,2-Dichloropropane (1,2-DCP)	6	Not registered for use in California.
2,6-Diethylaniline (alachlor degradate)	1	*Degradate of active ingredient on the GWPL: alachlor, (3CCR 6800[b]) The detection is below DPR's **Response Threshold**;[1] no further investigation is planned.
3,4-Dichloroaniline (diuron/propanil degradate)	5	Degradate of active ingredients on the GWPL: diuron, (3CCR 6800[a]); propanil, 3CCR 6800[b]. Four detections were below DPR's Response Threshold. No parent compound was found for the highest detection (0.215); sampling of this well is planned.
3,5-Dichloroaniline (dichloran/iprodione/degradates)	1	Degradate of active ingredients on the GWPL: dichloran/iprodione, (3CCR 6800[b]) This detection is below DPR's Response Threshold.
ACET (deisopropyl-atrazine or deethyl-simazine) (atrazine/simazine degradate)	56	Degradate of active ingredients on the GWPL: atrazine/simazine, (3CCR 6800[a]) All detections were made in GWPAs; pesticide applications in GWPAs are made under the jurisdication of the **Restricted Materials**[2] permit program.
Atrazine	9	On the GWPL (3CCR 6800[a]). Two detections were in GWPAs; 7 detections made outside of GWPAs were below DPR's Response Threshold.

Pesticide	Number of Detections	Registration Status / DPR Detection Response
Bromacil	17	On the GWPL (3CCR 6800[a]). All detections were made in GWPAs.
Carbon disulfide	6	Not registered for use in California.
Chlorthal-dimethyl (dacthal/DCPA)	1	This pesticide is not listed on the GWPL. This detection was below DPR's Response Threshold.
Chlorthal-dimethyl acid degradation products (dacthal degradates)	1	The parent pesticide is not listed on the GWPL. DPR no longer performs field studies for dacthal degradates unless they approach health levels (U.S. EPA HAL of 4,000 ppb).
DBCP (1,2-dirbromo-3-chloropropane)	221	Not registered for use in California.
DEA (deethyl-atrazine) (atrazine degradate)	13	Degradate of active ingredient on the GWPL: atrazine, (3CCR 6800[a]). Three detections above DPR's Response Threshold were in GWPAs; all other detections were below DPR's Response Threshold.
DSMN (desmethyl-norflurazon) (norflurazon degradate)	34	Degradate of active ingredient on the GWPL: norflurazon, 3CCR 6800[a]. All detections were made in GWPAs.
DACT (diaminochlorotriazine) (simazine degradate)	56	Degradate of active ingredient on the GWPL: simazine, 3CCR 6800[a]. All detections were made in GWPAs.
Diquat dibromide	1	On the GWPL (3CCR 6800[b]). CDPH resampled the detection site and failed to find diquat dibromide in subsequent samples.
Diuron	25	On the GWPL (3CCR 6800[a]). All detections were made in GWPAs.
EPTC (S-ethyl-dipropylthiocarbamate)	4	On the GWPL (3CCR 6800[b]). Three detections were below DPR's Response Threshold; the 0.074 detection will be investigated.
Ethylene dibromide (EDB)	10	Not registered for use in California.

Pesticide	Number of Detections	Registration Status / DPR Detection Response
Hexazinone	7	On the GWPL (3CCR 6800[b]. Five detections were below DPR's Response Threshold; the 0.045 and 0.076 detections will be investigated.
Metalaxyl	4	On the GWPL (3CCR 6800[b]. One SWRCB detection was below DPR's Response Threshold; one DPR detection (148) was from a point source; one DPR detection (0.05) could not be confirmed by subsequent sampling; one detection by SWRCB will be investigated.
Methyl bromide	2	This pesticide is not listed on the GWPL, but is regulated as a California Restricted Material. CDPH resampled the detection sites and failed to find methyl bromide in subsequent samples.
Metolachlor	5	On the GWPL (3CCR 6800[b]). Four detections were below DPR's Response Threshold; one detection (0.045) will be investigated.
Molinate	2	Not registered for use in California.
Naphthalene	1	Not registered for use in California.
Norflurazon	19	On the GWPL (3CCR 6800[a]). All detections were made in GWPAs.
Picloram	3	Not registered for use in California.
Prometon	4	On the GWPL (3CCR 6800[a]). CDPH resampled one detection site in a GWPA and failed to find prometon in subsequent samples; one CDPH detection (0.1) was made at a site that had no reported use; two SWRCB detections were below DPR's Response Threshold.
Prometryn	2	On the GWPL (3CCR 6800[b]). Detections were below DPR's Response Threshold.

Pesticide	Number of Detections	Registration Status / DPR Detection Response
Simazine	52	On the GWPL (3CCR 6800[a]). Forty detections were in GWPAs; one DPR detection has prompted an evaluation of the detection site for inclusion in a GWPA (it is adjacent to three GWPAs); 11 detections were below DPR's Response Threshold.
Tebuthiuron	1	On the GWPL (3CCR 6800[b]). Detection was below DPR's Response Threshold.
Xylene	1	Not registered for use in California.

***** Pesticides on the Ground Water Protection List (GWPL) 3CCR 6000(a) and (b) are those labeled for agricultural, outdoor institutional, or outdoor industrial use that have the potential to pollute ground water. Sublist 6800(a) includes seven agricultural herbicides—atrazine, bentazon, bromacil, diuron, norflurazon, prometon, and simazine—that are regulated as ground water contaminants. Sublist 6800(b) includes 101 pesticides that have the potential to become ground water contaminants based on their mobility, persistence and legal uses.

If the detected pesticide is regulated as a ground water contaminant under 3CCR 6800(a)—and the well is located in a GWPA where the use of the pesticide is regulated—current regulation of use is believed to constitute an adequate response to new detections *unless* concentrations are high enough to indicate existing mitigation measures are not adequate to prevent *pollution*. (Pollution is defined in FAC section 13142 as "…the introduction into the groundwaters of the state…a pesticide above a level, with an adequate margin of safety, that does not cause adverse health effects.")

1 Only detections at or above DPR's Response Threshold receive further investigation. DPR does not investigate detections that are below 80 percent of the current method detection limit established by the California Department of Food and Agriculture's Center of Analytical Chemistry.[29]

2 DPR does not investigate detections that occur within GWPAs for pesticides (or their degradates) that are on the 6800(a) list of known ground water contaminants.[30] Applications of these pesticides in GWPAs are managed by County Agricultural Commissioners via the Restricted Materials permit program. This program requires users to modify their pesticide use practices based on soil properties of the GWPA.

[29] Schuette, J. 2004. *Summary of Program Policies Specifying When the Director Will Not Determine if a Detection Was the Result of Legal, Agricultural Use ("N" Memorandum).* Department of Pesticide Regulation, Environmental Monitoring Branch. December 1, 2004.

[30] *Ibid.*

SWRCB AND RWQCB RESPONSE TO DETECTIONS

As required by the PCPA (FAC section 13152[e][4]), this section of the report—prepared by SWRCB and the RWQCBs—describes recent actions taken to prevent pesticides from point sources from migrating to California's ground water.

State Water Resources Control Board

State Water Resources Control Board staff participated in the following activities:

- Regularly attended meetings sponsored by DPR, including the interagency Pesticide Registration and Evaluation Committee and Pest Management Advisory Committee meetings.
- Participated in ongoing consultations with DPR staff, University of California scientists, and pesticide manufacturers to design monitoring studies and Best Management Practices.
- Participated in discussions with United States 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 with DPR.
- In coordination with the USGS and the Lawrence Livermore National Laboratory (LLNL), the SWRCB is implementing the Groundwater Ambient Monitoring and Assessment Program (GAMA). To date, the GAMA Priority Basins Project has sampled over 2,300—mostly public water supply wells—for various chemicals, including pesticides, herbicides and their degradates.

The water quality results from 52 wells for three study areas; Borrego Valley, Central Desert and Low–Use Basins of the Mojave and Sonoran Deserts were published in 2012, and are summarized in Table 3.

Table 3. Actions taken by the State Water Resources Control Board in 2012.[†]

STUDY AREA -------- COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Borrego Valley (San Diego Co.)	Various GAMA sampled wells	No pesticides or herbicides were detected in this area (eight wells sampled)	Groundwater samples were collected from 8 wells in this study unit.
Central Desert (San Bernardino, Riverside Co.)	Various GAMA sampled wells	Herbicides, herbicide degradates and insecticide degradate	Groundwater samples were collected from thirteen wells in this study unit. Pesticides were detected in one well only. Herbicides **Atrazine**, **Simazine** and **Metolachlor** were detected at concentration of 0.011, 0.022 and E0.011[‡] micrograms per liter (µg/L), respectively. Herbicide degradate **3,4-Dichloroaniline** was detected at E0.0018 µg/L.
Low-Use Basins: Mojave and Sonoran Deserts (Kern, San Bernardino, Riverside, Imperial Co.)	Various GAMA sampled wells	Herbicides, herbicides degradates, insecticide degradate	Groundwater samples were collected from 27 wells in this study unit. Pesticides were detected in four wells. Herbicides **Atrazine** and **Simazine** were detected at maximum concentrations of E0.007, 0.025µg/L, respectively. Degradates **DEA** and **3,4-Dichloroaniline** were detected at maximum concentrations of E0.009, E0.005 µg/L, respectively. Insecticide degradate **Dieldrin** was detected in one well at E0.004 µg/L.

[†] Data were collected from 2008 to 2010 by the United States Geological Survery but were not reported until 2012.

[‡] Values preceeded by "E" are *estimated values*.

Regional Water Quality Control Boards

The information below summarizes by county the monitoring, assessment, cleanup, and other actions taken by the nine RWQCBs to address point source pesticide contamination.

During the period from January 2012 to December 2012, no new pesticide detections were reported in ground water quality monitoring reports submitted by the following RWQCBs:

- Region 1 – North Coast
- Region 2 – San Francisco Bay
- Region 4 – Los Angeles
- Region 5 – Central Valley – Redding
- Region 7 – Colorado River Basin
- Region 9 – San Diego

Pesticide detections were reported in ground water quality monitoring reports submitted by the following RWQCBs.

Region 3 – Central Coast Regional Water Quality Control Board –San Luis Obispo

Table 4. Actions taken by the RWQCB, Central Coast (Region 3, San Luis Obispo) in 2012.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Monterey	Monterey Soil Service, King City	EDB (Ethylene Dibromide), DBCP (1,2-dirbromo-3-chloropropane)	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 FY 2011/2012.
Santa Clara	Castle-Veg-Tech, Morgan Hill	Toxaphene, Endrin, Lindane, Endosulfan	Water Board staff and responsible party working to resolve technical issues on a site-specific risk assessment that cleanup action next steps are dependent on.
Santa Cruz	MF Farming, Watsonville	Chlorinated pesticides: chlordane, DDD (dichloro diphenyl dichloro ethane), DDE (dichloro diphenyl dichloro ethylene), DDT (dichloro diphenyl trichloro ethane), Dieldrin	Water Board and Santa Cruz County staff are working with property owner to delineate chlorinated pesticides in groundwater and to come up with a corrective action plan to remove chlorinated pesticides from soil prior to allowing residential development.
Santa Cruz	Crop Production Services, Watsonville	1,2-Dichloropropane (1,2-DCP)	Monitoring trends in groundwater for nitrate and 1,2-DCP. DCP very low concentrations (less than 2.6 µg/L).

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

Table 5. Actions taken by the RWQCB, Central Valley (Region 5, Sacramento) in 2012.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Merced	Western Farm Service, Merced	DBCP	Additional monitoring wells were installed in 2012 to refine the remediation target zone.
Sacramento	Western Farm Service, Walnut Grove	Eptam	Directed Discharger to remove soil in drainage area.
San Joaquin	Occidental Chemical, Lathrop	EDB, DBCP	Groundwater treatment system was optimized in 2012.
	John Taylor Fertilizers, Stockton	Bromacil	Groundwater investigation underway in 2012 to define lateral and vertical extent.
	Port of Stockton, Rough & Ready Island	DDD, DDE, DDT, Heptachlor Epoxide, Alachlor	Soil removal actions have occurred and more are planned. Groundwater assessment underway.
	Crop Production Service, Stockton (former Pure Gro/Brea)	EDB, DBCP, dinoseb, dicamba, diuron, 2,4-D (2,4-dichlorophenoxyacetic acid)	Assessment of source area in soil taking place.
	Cal Farm Supply	Hexachlorobenzene	In situ degradation appears to be occurring.
Solano	TSI, Dixon	Bromacil	Soil vapor extraction system being optimized and additional downgradient monitoring wells being installed in 2012.
Stanislaus	Geer Road Landfill	Chloridazon	In 2012 the Discharger submitted a revised Report of Waste Discharge to address enhancing their groundwater and landfill gas extraction systems. Central Valley Water Board staff is working with the County on technical issues prior to acceptance of their proposed corrective action measures.
Yolo	Frontier Fertilizer Company, Davis	EDB, DBCP, Carbon tetrachloride	Subsurface thermal treatment of in source area took place in 2012. Groundwater extraction and treatment with carbon continues.

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

Table 6. Actions taken by the RWQCB, Central Valley (Region 5, Fresno) in 2012.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Fresno	CPS (PureGro), Oxalis	1,2-DCP 1,2,3-Trichloropropane (1,2,3-TCP), nitrate	Engineering feasibility study and work plan for alternative in preparation.
Kern	Western Farm Service, Delano Facility	DDT, Toxaphene, Dinoseb, Dicamba	Assessment on-going, long-term monitoring on-going, impacted soils have been capped.
	CPS Bakersfield Norris Rd	1,2-DCP 1,2,3-TCP	Quarterly monitoring on-going. Two additional downgradient monitoring wells were installed.
Madera	Western Farm Service, Inc., Madera Facility	Dinoseb, DBCP, Dieldrin	Impoundment closed. Impacted soils have been capped. Long-term monitoring on going.
Tulare	Crop Prod. Services - Cutler	DBCP, 1,2,3-TCP, nitrate	Additional site assessment work plan being prepared.

Region 6 – Lahontan Regional Water Quality Control Board

Table 7. Actions taken by the RWQCB, Lahontan (Region 6) in 2012.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
El Dorado	Lake Tahoe Basin Weed Coordinating Group (Interagency)	Triclopyr Aminopyralid Rimsulfuron	Preventative actions taken by Water Board under agreement with the Lake Tahoe Basin Weed Coordinating Group governing terrestrial herbicide applications in the Lake Tahoe Basin for control of noxious and invasive weeds
	USFS-Lake Tahoe Basin Management Unit (LTBMU)	Aminopyralid Chlorsulfuron Glyphosate Aminopyralid and Triclopyr premix	Preventative actions taken by Water Board under agreement with the Lake Tahoe Basin Weed Coordinating Group governing terrestrial herbicide applications in the Lake Tahoe Basin for control of noxious weeds
Inyo	Amargosa River Upper Canyon	Triclopyr	If triclopyr is again detected, Regional Board staff will investigate possible sources.
San Bernardino	Former George Air Force Base	Dieldrin	Groundwater monitoring wells are being sampled to continue to track contaminant locations and concentration. No municipal supply wells have been found to contain dieldrin.
	China Lake Naval Weapons Center	DDD DDE DDT Dieldrin Chlordane	Ground water 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	Key wells, up-gradient, within the course, and downgradient, are being monitored with a focus on detection of nutrients and pesticides in the shallow aquifer prior to affecting any potential municipal supplies located nearby.
	Lake Tahoe Basin Weed Coordinating Group (Interagency)	Triclopyr Aminopyralid Rimsulfuron	Preventative actions taken by Water Board under agreement with the Lake Tahoe Basin Weed Coordinating Group governing terrestrial herbicide applications in the Lake Tahoe Basin for control of noxious and invasive weeds
	USFS-Lake Tahoe Basin Management Unit (LTBMU)	Aminopyralid Chlorsulfuron Glyphosate Aminopyralid and Triclopyr premix	Preventative actions taken by Water Board under agreement with the Lake Tahoe Basin Weed Coordinating Group governing terrestrial herbicide applications in the Lake Tahoe Basin for control of noxious weeds
All counties in Region 6 (Includes all or parts of Modoc, Lassen, Pumas, 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.

Table 8. Action taken by the RWQCB, Santa Ana (Region 8) in 2012.

COUNTY	SITE	PESTICIDE	PREVENTION ACTION
Orange	Essex Portfolio LP (Former Great Lakes Chemical Corporation, Irvine)	EDB	The remediation system at the site operates only through extraction of groundwater from the multi-phase extraction (MPE) points. The MPE system removes groundwater and soil vapor .Groundwater monitoring for on-site and off-site wells continues.
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-million gallons per day (MGD) reverse osmosis plant with partial flow through a granular activated carbon (GAC) unit for treatment of total dissolved solids, nitrate and DBCP was completed in September 1990. Approximately six (6) MGD of blended desalinized water is produced. Treated water is mixed with the bypassed water and discharged to the Arlington Channel for ground water recharge purposes by the Orange County Water District. Salt brine (1.0 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 & 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 gallon per minute (gpm) GAC treatment system has been installed (Palmyrita Treatment Plant)
	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.)	DBCP, Simazine	Well has been abandoned and replaced with a new well. (Russell "C")
	City of Riverside (Garner "B", mun.)	DBCP	A 3,200 gpm GAC treatment system has been installed (Garner B Treatment Plant)
	City of Riverside (Russell "C", mun)	DBCP	A 3,200 gpm GAC treatment system has been installed (Garner B Treatment Plant)
	City of Riverside (1st Street)	DBCP	Well is not being used due to high concentrations of DBCP. No mitigation measures in effect.
	City of Riverside (Electric Street, mun.)	DBCP	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 compounds (VOC) such as Trichloroethylene (TCE) and Perchloroethylene (PCE) have also been found. Well is used for emergency purposes only.

Riverside, Cont'd	Loma Linda University, Arlington, (Wells 1 & 2, mun.)	DBCP	The University water supply system is tied into the City of Riverside domestic water supply distribution system. These two wells are used for irrigation purposes at the school.
	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 & 03, mun.)	DBCP	Water purveyor has closed these wells and is now purchasing water from the City of San Bernardino.
	Gage System Wells (16 wells, mun.) 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. 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 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 Water Board ($2.8 million) and bond money through the State Expenditure Plan ($1.9 million) that is managed by the Department of Toxic Substances Control (DTSC). The system has been off line since July 1997 due to presence of perchlorate above Action Level in both production wells. The Department of Health Services 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 (MWD).
	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 MWD.
	City of Upland (13 wells)	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) was built to treat groundwater from two newly installed supply wells (Richardson #5 and Mt. View #6). Mt. View #3 and #5 may be used for blend water to reduce nitrate concentrations in delivered water.

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APPENDIX A

GROUND WATER PROTECTION AREAS (GWPA)

Ground Water Protection Areas (GWPAs) are one square mile sections of land where use of specific pesticides[31] is regulated though implementation of mandatory mitigation measures. Approximately 2.4 million acres are designated GWPAs (Figure A-1).

By 2004, establishment of GWPAs was based largely upon modeling efforts that used soil type and depth to ground water data to identify areas vulnerable to ground water contamination, although all of the former (and draft) Pesticide Management Zones[32] developed by DPR from 1989 to 1999 were also designated GWPAs.

Figure A-1. Ground Water Protection Areas.

History of PMZ and GWPA Development

Early research conducted by DPR scientists enabled DPR to identify two important soil conditions that contributed to ground water contamination: 1) coarse-textured soils where *leaching* is the predominant contamination pathway (Troiano et al., 1993); and 2) hardpan soil layers where *runoff* from the application site into dry wells or into areas with high infiltration rates is the predominant contamination pathway (Braun and Hawkins, 1991). Depth to ground water was identified as another factor that contributed to contamination when it was discovered pesticide detections were more frequent in areas of shallow ground water (Troiano et al., 1999).

Based on this research, the empirical model (CALVUL) was used to identify areas vulnerable to ground water contamination by using depth to ground water and soils data to identify what are now known as GWPAs.[33]

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[31] These pesticides include those listed in 3CCR section 6800[a]: atrazine, bentazon, bromacil, norflurazon, prometon, simazine and diuron (except for products with less than 7% diuron that are applied to foliage).

[32] A PMZ was defined as a square mile section of land sensitive to ground water pollution as indicated by detections of one or more pesticides listed in 3CCR section 6800(a).

[33] GWPAs are classified in regulation as sections of land characterized by either coarse-textured or hardpan soils with a ten-year spring-averaged annual estimated depth to ground water of 70 feet or less.

Criteria for GWPA Designation

GWPAs for leaching or runoff pathways were established based on the following criteria (Troiano et al., 2000; Marade and Troiano, 2000):

- If a section of land had an estimated depth to ground water of 70 feet or less and the predominant soil type was characterized as coarse textured, it was identified as a leaching GWPA. If the section had an estimated depth to ground water of 70 feet or less and the soil contained a hardpan layer, it was identified as a runoff GWPA.
- If a section had both leaching and runoff characteristics (coarse-textured soil with a hardpan layer), it was identified as a leaching GWPA if the mean hardpan depth was greater than 48 inches, or as a runoff GWPA if the mean hardpan depth was less than 48 inches.
- If a section did not meet the above criteria but was previously identified as a Pesticide Management Zone (PMZ), it was classified as a leaching or runoff GWPA as follows:
    - If the predominant soil in the section was coarse-textured it was classified as a leaching GWPA, otherwise the section was classified as a runoff GWPA.
    - If the PMZ lacked soil survey data it was assigned a GWPA pathway based on soil condition information provided by local agencies. DPR also assessed agronomic practices in the section to determine whether leaching or runoff was the apparent pathway for recharge of water to ground water.

DPR establishes new GWPAs based on the following criteria:

- Identification of vulnerable areas using the CALVUL modeling approach.
- Detections of AIs listed in 3CCR section 6800(a) or their degradation products in:
    - One well in a section that is adjacent to a GWPA; or
    - Two or more wells within a four section area that is not adjacent to an existing GWPA.

Utilization of the CALVUL model enabled DPR to increase the area under regulation from 313,000 acres (the acreage identified as PMZs) to about 2.4 million acres (PMZs plus GWPAs). Currently, there are 1,673 sections of land (1.1 million acres) identified as leaching GWPAs, where the mitigation measures are designed to prevent over-irrigation, and 2,015 sections of land (1.3 million acres) identified as runoff GWPAs, where mitigation measures are designed to either prevent or manage offsite movement of contaminated runoff. Fifty-four sections of land (35,000 acres) are identified as partial leaching and partial runoff GWPAs.

Pesticide Use in GWPAs

Users of a 3CCR section 6800(a) listed pesticide in a GWPA are required to modify their pesticide use practices based on predominant soil properties of the GWPA. Users must obtain a Restricted Materials permit from their County Agricultural Commissioner (CAC); the permit specifies the enforceable management practices required in each type of GWPA. The permittee must notify the CAC within 24 to 48 hours prior to application to give the CAC an opportunity 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.[34]

[34] More information on how DPR and CACs regulate the use of ground water contaminants in vulnerable areas is available at: <http://www.DPR.ca.gov/docs/emon/grndwtr/gwp_id_gwpa.htm>.

APPENDIX B

PRINCIPAL SAMPLING AGENCIES

While approximately 45 agencies submit well monitoring data to DPR, the primary sampling agencies are CDPH, SWRCB and DPR. Each agency that participates in ground water sampling for pesticides does so to satisfy their unique regulatory responsibilities. These specific responsibilities define for each agency the pesticides selected for monitoring, the type and sensitivity of laboratory analyses, the well types sampled, sampling locations, and sampling frequency. For instance, DPR primarily samples shallow, domestic wells in areas where agricultural pesticides are used; CDPH requires public water systems to monitor drinking water supply wells for an established list of pesticides and degradates, (regardless of whether they were used near wells); SWRCB assesses the overall quality of ground water used for consumption (regardless of the frequency or intensity of pesticide use near target wells).

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

CDPH is responsible for enforcement of federal and California Safe Drinking Water acts to ensure delivery of safe drinking water. To meet this goal, CDPH oversees approximately 7,500 public water systems and establishes health protective drinking water standards. These standards, known as maximum contaminant levels (MCL), are developed by evaluating not only the health risks presented by a chemical, but by assessing the technical and economic factors related to its use (such as detection capabilities, and treatment efficacy and cost). CDPH establishes a contaminant's MCL at a level as close to the public health goal[35] (PHG) established by the Office of Environmental Health Hazard Assessment (OEHHA) as is technically and economically feasible, placing primary emphasis on the protection of public health (see the MCL process).

CDPH compiles and evaluates drinking water quality data collected by public water systems and—as required by the PCPA—submits pesticide monitoring results to DPR for inclusion in this annual report.[36]

STATE WATER RESOURCES CONTROL BOARD

The SWRCB monitors ground water as a function of its Groundwater Ambient Monitoring and Assessment Program (GAMA).[37] This program is designed to improve ground water quality and increase public availability of ground water quality information. The SWRCB expanded the GAMA Program following implementation of the Groundwater Quality Monitoring Act of 2001 (Part 2.76 [commencing with Section 10780], Division 6 of the Water Code). This law resulted in a publicly accepted plan to monitor and assess "priority basins"—basins that account for over 90 percent of ground water used in California. The GAMA Program includes four projects:

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[35] Public Health Goals are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, based on current risk assessment principles, practices, and methods.

[36] For more information about drinking water safety and regulation in California, go to the CDPH Web site at <www.cdph.ca.gov>.

[37] For more information about SWRCB's GAMA Program, go to <www.swrcb.ca.gov>

- The GAMA Priority Basin Project requires monitoring for dozens of chemicals at very low detection limits. Monitoring and assessments of priority basins are to be completed every ten years, with trend monitoring every three years. SWRCB is collaborating with the United States Geological Survey (USGS) and Lawrence Livermore National Laboratory (LLNL) to implement the GAMA Priority Basin Project.
- The GAMA Domestic Well Project entails sampling in several county-focused areas in coordination with local environmental health departments. It also includes an education component that provides information about water quality issues to domestic well users.
- The GAMA Special Studies Project partners with LLNL to conduct ground water studies to evaluate nitrate, wastewater, and ground water recharge issues. LLNL scientists use tools that include Tritium-Helium age dating and computer modeling. The University of California, Davis, also contributes to GAMA Special Studies.
- The GeoTracker GAMA information management system enables users (scientists, regulators, water managers, educators and the public) to access millions of data records from the SWRCB/RWQCBs, Department of Water Resources, CDPH, DPR and USGS. GeoTracker GAMA provides access to a Google map-based database that provides the results of ground water quality testing, ground water level evaluations, environmental monitoring well logs, and links to published reports.

DEPARTMENT OF PESTICIDE REGULATION

DPR samples ground water as a function of its Ground Water Protection Program established under the PCPA. (See the **Background** section of this report for a detailed description of DPR's program.)

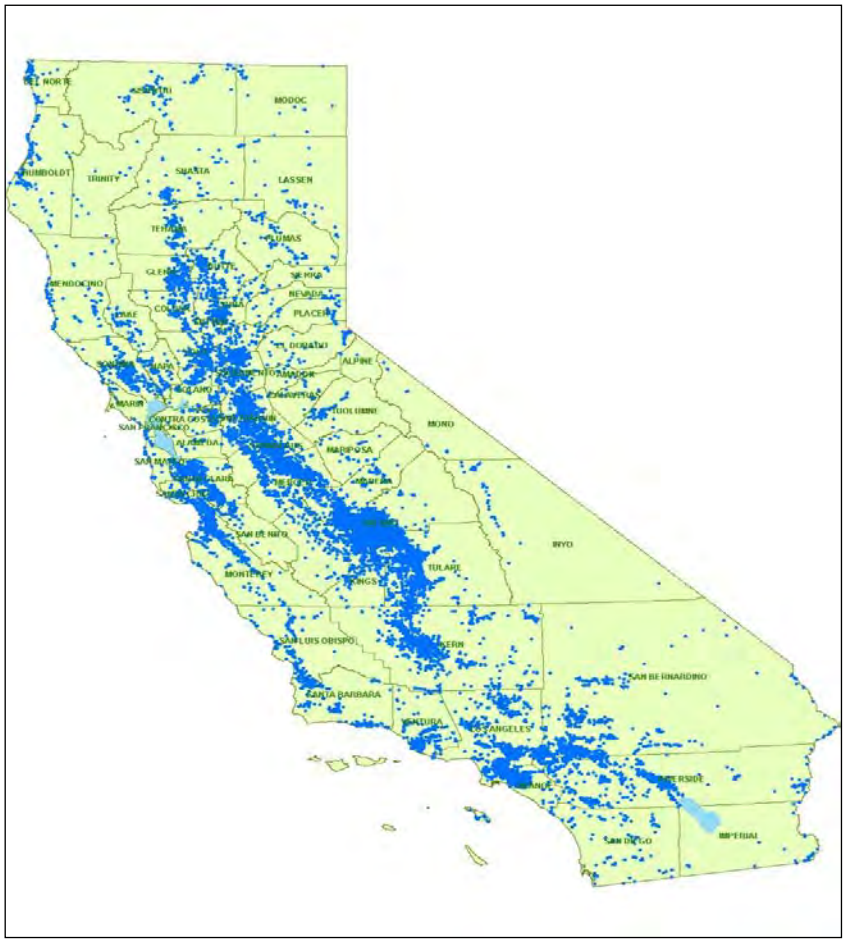
OTHER SAMPLING AGENCIES

Other agencies that may also sample for pesticides in the environment include the U.S. Environmental Protection Agency and state agencies such as the Air Resources Board, and the Department of Fish and Wildlife.

APPENDIX C

THE WELL INVENTORY DATABASE

Figure C-1. Wells in the DPR Well Inventory Database.



In the early 1980s, DPR established the Well Inventory Database (under the authority granted in FAC section 13152[c]) and began collecting data from public agencies that sampled ground water for pesticides. The database currently contains over two million sample analyses, including monitoring data from over 25,000 public and private wells sampled for over 360 different pesticides and pesticide degradates (Figure C-1). Although approximately 45 agencies have submitted data for inclusion in the database, most of the data comes from the CDPH, SWRCB, and DPR.

The Well Inventory Database includes the following information:

- State well numbers assigned by the Department of Water Resources
- Well location, including latitude and longitude, township, range and section
- Well type
- Sampling agency
- Analyzing laboratory
- Sample date and type (e.g., initial or confirmation sample)
- Chemical analyzed
- Sample results, in parts per billion (ppb)

Well sampling data can be obtained by contacting DPR's Ground Water Protection Program at 916-324-4039. Due to privacy concerns, DPR does not release well owner information or the specific locations of sampled wells.

APPENDIX D

WELL SAMPLING RESULTS SUMMARIZED BY COUNTY AND PESTICIDE

The results of wells sampled for pesticides and pesticide degradates in each county sampled are listed in this appendix. Five counties—Alpine, Calaveras, Imperial, San Francisco, and Trinity—were not sampled by any agency in calendar year 2012.

Each county table lists the pesticides/degradates that were sampled, the number of wells sampled for each pesticide/degradate, the number of wells with detections, and the detected concentration in parts per billion (ppb). A well with more than one pesticide or pesticide degradate detected will appear more than once in a county table.

The links in the table below allow you to navigate to a specific county. Clicking on the county name at the top of each county table will take you back to this menu.

Alameda	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	26		
	1,2-D	26		
	1,3-D (telone)	17		
	2,4-D	17		
	Alachlor	17		
	Atrazine	17		
	Bentazon	17		
	Carbofuran	17		
	Chlordane	17		
	Dalapon	17		
	DBCP	20		
	Dinoseb	17		
	Diquat dibromide	17		
	Endothall	17		
	Endrin	17		
	Ethylene dibromide	20		
	Glyphosate	17		
	Heptachlor	17		
	Heptachlor epoxide	17		
	Hexachlorobenzene	17		
	Lindane (gamma-BHC)	17		
	Methoxychlor	17		
	Methyl bromide	3		
	Molinate	17		
	Naphthalene	9		
	Ortho-dichlorobenzene	26		
	Oxamyl	17		
	Picloram	17		
	Silvex	17		
	Simazine	17		
	Tetrachloroethane	26		
	Thiobencarb	17		
	Toxaphene	18		
	Xylene	26		

Alpine	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Not Sampled	----	----	----

Amador	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	1,3-D (telone)	1		
	Alachlor	2		

Amador	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Atrazine	4		
	Methyl bromide	1		
	Molinate	2		
	Naphthalene	1		
	Ortho-dichlorobenzene	1		
	Simazine	4		
	Tetrachloroethane	1		
	Thiobencarb	4		
	Xylene	1		

Butte	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	31		
	1,2-D	31		
	1,3-D (telone)	4		
	2,4,5-T	1		
	2,4-D	1		
	Acetochlor	2		
	Alachlor	11		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		
	Aldrin	2		
	Atrazine	11		
	Bentazon	1		
	BHC (other than gamma isomer)	2		
	Bromacil	3		
	Butachlor	3		
	Captan	2		
	Carbaryl	1		
	Carbofuran	1		
	Carbophenothion	2		
	Chlorpropham	2		
	Cyanazine	2		
	Dalapon	1		
	DBCP	8		
	DDD (degradate)	2		
	DDE (degradate)	2		
	DDT	2		
	Diazinon	3		
	Dicamba	1		
	Dieldrin	2		
	Dimethoate	3		
	Dinoseb	1		
	Diphenamid	2		
	Disulfoton	2		

Butte	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Endosulfan	2		
	Endosulfan sulfate (degradate)	2		
	Endrin	2		
	Endrin aldehyde	2		
	EPTC	2		
	Ethion	2		
	Ethylene dibromide	8		
	Glyphosate	1		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	2		
	Hydroxycarbofuran (degradate)	1		
	Lindane (gamma-BHC)	2		
	Methomyl	1		
	Methoxychlor	2		
	Methyl bromide	5		
	Metolachlor	3		
	Metribuzin	3		
	Molinate	3		
	Naphthalene	32		
	Ortho-dichlorobenzene	31		
	Oxamyl	1		
	PCNB	2		
	Picloram	1		
	Prometon	2		
	Prometryn	2		
	Propachlor	3		
	Silvex	1		
	Simazine	11		
	Terbacil	2		
	Tetrachloroethane	31		
	Thiobencarb	3		
	Trifluralin	2		
	Xylene	31		

Calaveras	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Not Sampled			

Colusa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	3		
	1,2-D	3		
	1,3-D (telone)	1		
	2,4-D	2		

Colusa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Atrazine	1		
	Carbofuran	1		
	Glyphosate	2		
	Methyl bromide	3		
	Naphthalene	1		
	Ortho-dichlorobenzene	3		
	Tetrachloroethane	3		
	Xylene	3		

Contra Costa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	6		
	1,2-D	6		
	1,3-D (telone)	4		
	2,4-D	3		
	Acetochlor	1		
	Alachlor	3		
	Aldicarb	3		
	Aldicarb sulfone (degradate)	3		
	Aldicarb sulfoxide (degradate)	3		
	Aldrin	3		
	Atrazine	3		
	Bentazon	3		
	Bromacil	3		
	Butachlor	3		
	Carbaryl	3		
	Carbofuran	3		
	Carbon disulfide	3		
	Chlordane	3		
	Chlorthal-dimethyl degradation products	3		
	Dalapon	3		
	DBCP	3		
	Diazinon	3		
	Dicamba	3		
	Dieldrin	3		
	Dimethoate	3		
	Dinoseb	3		
	Diquat dibromide	3		
	Diuron	2		
	Endothall	3		
	Endrin	3		
	EPTC	1		
	Ethylene dibromide	3		
	Glyphosate	3		
	Heptachlor	3		
	Heptachlor epoxide	3		

Contra Costa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Hexachlorobenzene	3		
	Hydroxycarbofuran (degradate)	3		
	Lindane (gamma-BHC)	3		
	Methiocarb	3		
	Methomyl	3		
	Methoxychlor	3		
	Methyl bromide	5		
	Metolachlor	3		
	Metribuzin	3		
	Molinate	3		
	Naphthalene	6		
	Ortho-dichlorobenzene	6		
	Oxamyl	3		
	Picloram	3		
	Propachlor	3		
	Propoxur	3		
	Silvex	3		
	Simazine	3		
	Terbacil	1		
	Tetrachloroethane	6		
	Thiobencarb	5		
	Toxaphene	3		
	Xylene	6		

Del Norte	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	5		
	1,2-D	5		
	1,3-D (telone)	5		
	Methyl bromide	5		
	Naphthalene	5		
	Ortho-dichlorobenzene	5		
	Tetrachloroethane	5		
	Xylene	5		

El Dorado	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	9		
	1,2-D	9		
	1,3-D (telone)	9		
	2,4,5-T	10		
	2,4-D	10		
	Alachlor	10		
	Aldicarb	10		
	Aldicarb sulfone (degradate)	10		

El Dorado	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Aldicarb sulfoxide (degradate)	10		
	Aldrin	10		
	Atrazine	10		
	Bentazon	10		
	Bromacil	10		
	Butachlor	10		
	Carbaryl	10		
	Carbofuran	10		
	Chlordane	10		
	Chlorothalonil	10		
	Dalapon	10		
	DBCP	10		
	Diazinon	10		
	Dicamba	10		
	Dieldrin	10		
	Dimethoate	10		
	Dinoseb	10		
	Diquat dibromide	10		
	Endothall	10		
	Endrin	10		
	Ethylene dibromide	10		
	Glyphosate	10		
	Heptachlor	10		
	Heptachlor epoxide	10		
	Hexachlorobenzene	10		
	Hydroxycarbofuran (degradate)	10		
	Lindane (gamma-BHC)	10		
	Methomyl	10		
	Methoxychlor	10		
	Methyl bromide	9		
	Metolachlor	10		
	Metribuzin	10		
	Molinate	10		
	Naphthalene	9		
	Ortho-dichlorobenzene	9		
	Oxamyl	10		
	Picloram	10		
	Propachlor	10		
	Silvex	10		
	Simazine	10		
	Tetrachloroethane	9		
	Thiobencarb	10		
	Toxaphene	10		
	Trifluralin	10		
	Xylene	9		

Fresno	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	47		
	1,2-D	67		
	1,3-D (telone)	65		
	2,4,5-T	5		
	2,4-D	7		
	2,6-Diethylaniline (degradate)	20		
	3,4-Dichloroaniline (degradate)	20	2	0.008 - 0.215
	3,5-Dichloroaniline (degradate)	20		
	4(2,4-DB), dimethylamine salt	3		
	4-CLOC	20		
	ACET (degradate)	51	40	0.051 - 1.07
	Acetochlor	20		
	Alachlor	54		
	Alachlor 2nd Amide (degradate)	20		
	Aldicarb	2		
	Aldicarb sulfone (degradate)	2		
	Aldicarb sulfoxide (degradate)	2		
	Aldrin	6		
	Atrazine	105	1	0.089
	Azinphos-methyl (guthion)	20		
	Azinphos-methyl-oa (degradate)	20		
	Benefin (benfluralin)	20		
	Bentazon	6		
	Bromacil	77	10	0.056 - 2.86
	Butachlor	26		
	Carbaryl	22		
	Carbofuran	22		
	Carbon disulfide	21	2	0.03 - 1.06
	Chlordane	6		
	Chlorothalonil	6		
	Chlorpyrifos	25		
	Chlorpyrifos oxon (degradate)	20		
	Chlorthal-dimethyl (dacthal / DCPA)	20	1	0.004
	cis-Propiconazole	20		
	1-Napthol	20		
	Cyanazine	20		
	Cyfluthrin	20		
	Cypermethrin	20		
	DACT (degradate)	51	41	0.059 - 3.48
	Dalapon	6		
	DBCP	137	84	0.01 - 0.64
	DDVP (dichlorvos)	20		
	DEA (degradate)	71	2	0.073 - 0.183
	Desulfinyl fipronil (degradate)	20		
	Desulfinyl fipronil amide (degradate)	20		
	Diazinon	41		
	Dicamba	6		

Fresno	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Dichlorprop, butoxyethanol ester	4		
	Dicrotophos	20		
	Dieldrin	25		
	Dimethoate	46		
	Dinoseb	6		
	Diquat dibromide	6		
	Disulfoton	20		
	Disulfoton sulfone (degradate)	20		
	Diuron	53	19	0.05 - 0.438
	DSMN (degradate)	51	25	0.052 - 0.79
	Endosulfan	20		
	Endosulfan sulfate (degradate)	20		
	Endothall	7		
	Endrin	6		
	EPTC	20	2	0.008 - 0.014
	Ethion	20		
	Ethion monooxon (degradate)	20		
	Ethoprop (prophos)	20		
	Ethylene dibromide	108	3	0.03 - 0.18
	Fenamiphos	20		
	Fenamiphos sulfone (degradate)	20		
	Fenamiphos sulfoxide (degradate)	19		
	Fipronil	20		
	Fipronil sulfide (degradate)	20		
	Fipronil sulfone (degradate)	20		
	Fonofos (dyfonate)	20		
	Glyphosate	6		
	Heptachlor	6		
	Heptachlor epoxide	6		
	Hexachlorobenzene	6		
	Hexazinone	71	1	0.027
	Hydroxycarbofuran (degradate)	2		
	Iprodione	20		
	Isofenphos	20		
	Lambda-cyhalothrin	20		
	Lindane (gamma-BHC)	6		
	Linuron	22		
	Malaoxon	20		
	Malathion	20		
	Metalaxyl	42		
	Methidathion	20		
	Methomyl	24		
	Methoxychlor	6		
	Methyl bromide	67	1	1.7
	Methyl iodide	20		
	Methyl paraoxon (degradate)	20		
	Methyl parathion	20		

Fresno	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Metolachlor	46		
	Metribuzin	46		
	Molinate	46	2	0.007
	Myclobutanil	20		
	Naphthalene	60		
	Norflurazon	51	11	0.05 - 0.428
	Ortho-dichlorobenzene	47		
	Oxamyl	2		
	Oxyfluorfen	20		
	Pendimethalin	20		
	Permethrin	20		
	Phorate	20		
	Phoratoxon	20		
	Phosmet (imidan)	20		
	Phosmet-oa (degradate)	20		
	Picloram	6		
	Prometon	71		
	Prometryn	31		
	Propachlor	26		
	Propanil	20		
	Propargite	20		
	Propyzamide	42		
	Silvex	7		
	Simazine	105	28	0.053 - 0.13
	Tebuthiuron	22		
	Tefluthrin	20		
	Terbufos	20		
	Terbufos oxon sulfone (degradate)	20		
	Terbuthylazine	20		
	Tetrachloroethane	47		
	Thiobencarb	46		
	Toxaphene	6		
	trans-Propiconazole	20		
	Tribufos	20		
	Trifluralin	26		
	Xylene	47	1	1.9

Glenn	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	6		
	1,2-D	6		
	1,3-D (telone)	5		
	Methyl bromide	6		
	Naphthalene	5		
	Ortho-dichlorobenzene	6		
	Tetrachloroethane	6		

Glenn	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Xylene	6		

Humboldt	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	3		
	1,2-D	3		
	1,3-D (telone)	3		
	Methyl bromide	3		
	Naphthalene	3		
	Ortho-dichlorobenzene	3		
	Tetrachloroethane	3		
	Xylene	3		

Imperial	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Not Sampled			

Inyo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	12		
	1,2-D	12		
	1,3-D (telone)	10		
	2,4-D	1		
	Alachlor	1		
	Atrazine	1		
	Bentazon	1		
	Bromacil	1		
	Butachlor	1		
	Captan	1		
	Carbofuran	1		
	Carbophenothion	1		
	Chlordane	1		
	Chlorpropham	1		
	Cyanazine	1		
	Dalapon	1		
	DBCP	3		
	Diazinon	1		
	Dimethoate	1		
	Dinoseb	1		
	Diphenamid	1		
	Diquat dibromide	1		
	Disulfoton	1		
	Endothall	1		
	Endrin	1		

Inyo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	EPTC	1		
	Ethylene dibromide	3		
	Glyphosate	1		
	Heptachlor	1		
	Heptachlor epoxide	1		
	Hexachlorobenzene	1		
	Lindane (gamma-BHC)	1		
	Methoxychlor	1		
	Methyl bromide	10		
	Metolachlor	1		
	Metribuzin	1		
	Molinate	1		
	Naphthalene	10		
	Ortho-dichlorobenzene	12		
	Oxamyl	1		
	Picloram	1		
	Prometon	1		
	Prometryn	1		
	Silvex	1		
	Simazine	1		
	Terbacil	1		
	Tetrachloroethane	12		
	Thiobencarb	1		
	Toxaphene	1		
	Xylene	12		

Kern	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	155		
	1,2-D	155		
	1,3-D (telone)	60		
	2,4-D	2		
	ACET (degradate)	1		
	Alachlor	90		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		
	Atrazine	105		
	Bentazon	2		
	BHC (other than gamma isomer)	16		
	Bromacil	71		
	Butachlor	54		
	Carbaryl	1		
	Carbofuran	3		
	Carbon disulfide	17		
	Chlordane	2		

Kern	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	DACT (degradate)	1		
	Dalapon	2		
	DBCP	133	22	0.01 - 0.77
	DEA (degradate)	1		
	Diazinon	16		
	Dimethoate	70		
	Dinoseb	2		
	Diquat dibromide	2		
	Diuron	1		
	DSMN (degradate)	1		
	Endothall	4		
	Endrin	3		
	Ethylene dibromide	124	2	0.02 - 0.41
	Glyphosate	2		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	18		
	Hexazinone	1		
	Hydroxycarbofuran (degradate)	1		
	Lindane (gamma-BHC)	18		
	Linuron	17		
	Metalaxyl	17		
	Methomyl	18		
	Methoxychlor	18		
	Methyl bromide	67		
	Metolachlor	70		
	Metribuzin	70		
	Molinate	72		
	Naphthalene	126		
	Norflurazon	1		
	Ortho-dichlorobenzene	155		
	Oxamyl	3		
	Picloram	9		
	Prometon	17		
	Prometryn	16		
	Propachlor	54		
	Propyzamide	17		
	Silvex	5		
	Simazine	105		
	Tebuthiuron	1		
	Terbutryn	16		
	Tetrachloroethane	155		
	Thiobencarb	72		
	Toxaphene	2		
	Xylene	152		

Kings	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	5		
	1,2-D	12		
	1,3-D (telone)	12		
	2,4,5-T	2		
	2,4-D	2		
	2,6-Diethylaniline (degradate)	7		
	3,4-Dichloroaniline (degradate)	7		
	3,5-Dichloroaniline (degradate)	7		
	4(2,4-DB), dimethylamine salt	1		
	4-CLOC	7		
	Acetochlor	7		
	Alachlor	19		
	Alachlor 2nd Amide (degradate)	7		
	Aldicarb	2		
	Aldicarb sulfone (degradate)	2		
	Aldicarb sulfoxide (degradate)	2		
	Aldrin	2		
	Atrazine	19	1	0.013
	Azinphos-methyl (guthion)	7		
	Azinphos-methyl-oa (degradate)	7		
	Benefin (benfluralin)	7		
	Bentazon	2		
	BHC (other than gamma isomer)	2		
	Bromacil	3		
	Butachlor	1		
	Carbaryl	9		
	Carbofuran	9		
	Carbon disulfide	7	3	0.05 - 0.38
	Chlordane	2		
	Chlorpyrifos	7		
	Chlorpyrifos oxon (degradate)	7		
	Chlorthal-dimethyl (dacthal / DCPA)	7		
	cis-Propiconazole	7		
	1-Napthol	7		
	Cyanazine	7		
	Cyfluthrin	7		
	Cypermethrin	7		
	Dalapon	2		
	DBCP	14		
	DDD (degradate)	2		
	DDE (degradate)	2		
	DDT	2		
	DDVP (dichlorvos)	7		
	DEA (degradate)	7		
	Desulfinyl fipronil (degradate)	7		
	Desulfinyl fipronil amide (degradate)	7		
	Diazinon	10		

Kings	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Dicamba	2		
	Dichlorprop, butoxyethanol ester	1		
	Dicrotophos	7		
	Dieldrin	9		
	Dimethoate	10		
	Dinoseb	2		
	Disulfoton	7		
	Disulfoton sulfone (degradate)	7		
	Endosulfan	9		
	Endosulfan sulfate (degradate)	9		
	Endothall	2		
	Endrin	2		
	Endrin aldehyde	2		
	EPTC	7		
	Ethion	7		
	Ethion monooxon (degradate)	7		
	Ethoprop (prophos)	7		
	Ethylene dibromide	6		
	Fenamiphos	7		
	Fenamiphos sulfone (degradate)	7		
	Fenamiphos sulfoxide (degradate)	7		
	Fipronil	7		
	Fipronil sulfide (degradate)	7		
	Fipronil sulfone (degradate)	7		
	Fonofos (dyfonate)	7		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	2		
	Hexazinone	7		
	Hydroxycarbofuran (degradate)	2		
	Iprodione	7		
	Isofenphos	7		
	Lambda-cyhalothrin	7		
	Lindane (gamma-BHC)	2		
	Malaoxon	7		
	Malathion	7		
	MCPA, dimethylamine salt	1		
	MCPP	1		
	Metalaxyl	7		
	Methidathion	7		
	Methomyl	2		
	Methoxychlor	2		
	Methyl bromide	10		
	Methyl iodide	7		
	Methyl paraoxon (degradate)	7		
	Methyl parathion	7		
	Metolachlor	10	1	0.015

Kings	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Metribuzin	10		
	Molinate	10		
	Myclobutanil	7		
	Naphthalene	10		
	Ortho-dichlorobenzene	5		
	Oxamyl	2		
	Oxyfluorfen	7		
	Pendimethalin	7		
	Permethrin	7		
	Phorate	7		
	Phoratoxon	7		
	Phosmet (imidan)	7		
	Phosmet-oa (degradate)	7		
	Picloram	3		
	Prometon	10		
	Prometryn	10		
	Propachlor	1		
	Propanil	7		
	Propargite	7		
	Propyzamide	7		
	Silvex	2		
	Simazine	19		
	Tebuthiuron	7		
	Tefluthrin	7		
	Terbufos	7		
	Terbufos oxon sulfone (degradate)	7		
	Terbuthylazine	7		
	Terbutryn	3		
	Tetrachloroethane	5		
	Thiobencarb	10		
	Toxaphene	2		
	trans-Propiconazole	7		
	Tribufos	7		
	Trifluralin	7		
	Xylene	5		

Lake	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	7		
	1,2-D	7		
	1,3-D (telone)	6		
	2,4,5-T	3		
	2,4-D	4		
	4(2,4-DB), dimethylamine salt	3		
	Acifluorfen, sodium salt	1		
	Acrylonitrile	6		

Lake	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Alachlor	5		
	Aldicarb	3		
	Aldicarb sulfone (degradate)	3		
	Aldicarb sulfoxide (degradate)	3		
	Aldrin	4		
	Atrazine	6		
	Bentazon	4		
	BHC (other than gamma isomer)	3		
	Bromacil	3		
	Butachlor	3		
	Carbaryl	3		
	Carbofuran	3		
	Carbon disulfide	6		
	Chlordane	4		
	Chlorobenzilate	3		
	Chloroneb	3		
	Chlorothalonil	3		
	Chlorthal-dimethyl (dacthal / DCPA)	3		
	Dalapon	4		
	DBCP	1		
	DDD (degradate)	3		
	DDE (degradate)	3		
	DDT	3		
	Dicamba	3		
	Dichlorprop, butoxyethanol ester	1		
	Dieldrin	4		
	Dimethoate	3		
	Dinoseb	4		
	Diquat dibromide	7		
	Endosulfan	3		
	Endosulfan sulfate (degradate)	3		
	Endothall	5		
	Endrin	4		
	Endrin aldehyde	3		
	Ethylene dibromide	2		
	Heptachlor	4		
	Heptachlor epoxide	4		
	Hexachlorobenzene	4		
	Hydroxycarbofuran (degradate)	3		
	Lindane (gamma-BHC)	4		
	Methiocarb	3		
	Methomyl	3		
	Methoxychlor	4		
	Methyl bromide	7		
	Metolachlor	3		
	Metribuzin	3		
	Molinate	4		

Lake	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Naphthalene	6		
	Ortho-dichlorobenzene	7		
	Oxamyl	3		
	Permethrin	3		
	Permethrin, other related compounds	3		
	Picloram	4		
	Prometryn	3		
	Propachlor	3		
	Propoxur	3		
	Silvex	4		
	Simazine	6		
	Tetrachloroethane	7		
	Thiobencarb	4		
	Toxaphene	4		
	Trifluralin	3		
	Xylene	7		

Lassen	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	6		
	1,2-D	6		
	1,3-D (telone)	6		
	Methyl bromide	6		
	Naphthalene	6		
	Ortho-dichlorobenzene	6		
	Tetrachloroethane	6		
	Xylene	6		

Los Angeles	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	658		
	1,2-D	658		
	1,3-D (telone)	475		
	2,4,5-T	31		
	2,4,6-trichlorophenol	2		
	2,4-D	129		
	4(2,4-DB), dimethylamine salt	28		
	Acetochlor	4		
	Acifluorfen, sodium salt	17		
	Acrolein	4		
	Acrylonitrile	4		
	Alachlor	170		
	Aldicarb	53		
	Aldicarb sulfone (degradate)	53		
	Aldicarb sulfoxide (degradate)	53		

Los Angeles	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Aldrin	59		
	Atrazine	209		
	Bentazon	129		
	BHC (other than gamma isomer)	28		
	Bromacil	52		
	Butachlor	38		
	Captan	25		
	Carbaryl	53		
	Carbofuran	72		
	Carbon disulfide	144		
	Carbophenothion	25		
	Chlordane	115		
	Chlorothalonil	17		
	Chlorpropham	25		
	Chlorthal-dimethyl degradation products	71		
	Cyanazine	25		
	Dalapon	107		
	DBCP	115	8	0.01 - 0.06
	DDD (degradate)	28		
	DDE (degradate)	28		
	DDT	28		
	Diazinon	52		
	Dicamba	87		
	Dichlorprop, butoxyethanol ester	28		
	Dieldrin	59		
	Dimethoate	48		
	Dinoseb	129		
	Diphenamid	25		
	Diquat dibromide	127		
	Disulfoton	25		
	Diuron	4		
	Endosulfan	28		
	Endosulfan sulfate (degradate)	28		
	Endothall	128		
	Endrin	126		
	Endrin aldehyde	28		
	EPTC	29		
	Ethylene dibromide	115		
	Glyphosate	116		
	Heptachlor	107		
	Heptachlor epoxide	107		
	Hexachlorobenzene	162		
	Hydroxycarbofuran (degradate)	49		
	Lindane (gamma-BHC)	126		
	MCPA, dimethylamine salt	11		
	MCPP	11		
	Methiocarb	37		

Los Angeles	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Methomyl	49		
	Methoxychlor	126		
	Methyl bromide	363		
	Metolachlor	48		
	Metribuzin	48		
	Molinate	183		
	Naphthalene	354	1	0.53
	Ortho-dichlorobenzene	658		
	Oxamyl	72		
	Paraquat dichloride	42		
	Picloram	96		
	Prometon	36	2	0.1 - 0.12
	Prometryn	38		
	Propachlor	31		
	Propoxur	37		
	Silvex	107		
	Simazine	209		
	Terbacil	29		
	Terbutryn	11		
	Tetrachloroethane	658		
	Thiobencarb	437		
	Toxaphene	120		
	Trifluralin	17		
	Xylene	658		

Madera	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	22		
	1,2-D	23		
	1,3-D (telone)	23		
	2,4,5-T	3		
	2,4-D	3		
	2,6-Diethylaniline (degradate)	1		
	3,4-Dichloroaniline (degradate)	1		
	3,5-Dichloroaniline (degradate)	1		
	4(2,4-DB), dimethylamine salt	1		
	4-CLOC	1		
	Acetochlor	1		
	Alachlor	16		
	Alachlor 2nd Amide (degradate)	1		
	Aldicarb	3		
	Aldicarb sulfone (degradate)	3		
	Aldicarb sulfoxide (degradate)	3		
	Aldrin	3		
	Atrazine	17		
	Azinphos-methyl (guthion)	1		

Madera	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Azinphos-methyl-oa (degradate)	1		
	Benefin (benfluralin)	1		
	Bentazon	3		
	Bromacil	5		
	Butachlor	5		
	Carbaryl	4		
	Carbofuran	4		
	Carbon disulfide	1		
	Chlordane	3		
	Chlorothalonil	3		
	Chlorpyrifos	3		
	Chlorpyrifos oxon (degradate)	1		
	Chlorthal-dimethyl (dacthal / DCPA)	1		
	cis-Propiconazole	1		
	1-Napthol	1		
	Cyanazine	1		
	Cyfluthrin	1		
	Cypermethrin	1		
	Dalapon	3		
	DBCP	20	4	0.01 - 0.12
	DDVP (dichlorvos)	1		
	DEA (degradate)	1		
	Desulfinyl fipronil (degradate)	1		
	Desulfinyl fipronil amide (degradate)	1		
	Diazinon	6		
	Dicamba	3		
	Dichlorprop, butoxyethanol ester	1		
	Dicrotophos	1		
	Dieldrin	4		
	Dimethoate	6		
	Dinoseb	3		
	Diquat dibromide	3		
	Disulfoton	1		
	Disulfoton sulfone (degradate)	1		
	Endosulfan	1		
	Endosulfan sulfate (degradate)	1		
	Endothall	3		
	Endrin	3		
	EPTC	1	1	0.008
	Ethion	1		
	Ethion monooxon (degradate)	1		
	Ethoprop (prophos)	1		
	Ethylene dibromide	18		
	Fenamiphos	1		
	Fenamiphos sulfone (degradate)	1		
	Fenamiphos sulfoxide (degradate)	1		
	Fipronil	1		

Madera	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Fipronil sulfide (degradate)	1		
	Fipronil sulfone (degradate)	1		
	Fonofos (dyfonate)	1		
	Glyphosate	2		
	Heptachlor	3		
	Heptachlor epoxide	3		
	Hexachlorobenzene	3		
	Hexazinone	1	1	0.029
	Hydroxycarbofuran (degradate)	3		
	Iprodione	1		
	Isofenphos	1		
	Lambda-cyhalothrin	1		
	Lindane (gamma-BHC)	3		
	Linuron	2		
	Malaoxon	1		
	Malathion	1		
	Metalaxyl	3		
	Methidathion	1		
	Methiocarb	1		
	Methomyl	5		
	Methoxychlor	3		
	Methyl bromide	23		
	Methyl iodide	1		
	Methyl paraoxon (degradate)	1		
	Methyl parathion	1		
	Metolachlor	6		
	Metribuzin	6		
	Molinate	6		
	Myclobutanil	1		
	Naphthalene	22		
	Ortho-dichlorobenzene	22		
	Oxamyl	3		
	Oxyfluorfen	1		
	Pendimethalin	1		
	Permethrin	1		
	Phorate	1		
	Phoratoxon	1		
	Phosmet (imidan)	1		
	Phosmet-oa (degradate)	1		
	Picloram	3		
	Prometon	1		
	Prometryn	3		
	Propachlor	5		
	Propanil	1		
	Propargite	1		
	Propoxur	1		
	Propyzamide	3		

Madera	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Silvex	3		
	Simazine	17		
	Tebuthiuron	1		
	Tefluthrin	1		
	Terbufos	1		
	Terbufos oxon sulfone (degradate)	1		
	Terbuthylazine	1		
	Tetrachloroethane	22		
	Thiobencarb	6		
	Toxaphene	3		
	trans-Propiconazole	1		
	Tribufos	1		
	Trifluralin	4		
	Xylene	22		

Marin	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	5		
	1,2-D	5		
	1,3-D (telone)	4		
	Carbon disulfide	4		
	Diquat dibromide	5		
	Endothall	6		
	Methyl bromide	5		
	Naphthalene	4		
	Ortho-dichlorobenzene	5		
	Tetrachloroethane	5		
	Xylene	5		

Mariposa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	3		
	1,2-D	3		
	1,3-D (telone)	2		
	2,4-D	1		
	Acetochlor	2		
	Acrolein	1		
	Acrylonitrile	1		
	Alachlor	9		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		
	Aldrin	1		
	Atrazine	9		
	Bentazon	1		

Mariposa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Bromacil	5		
	Butachlor	5		
	Carbaryl	1		
	Carbofuran	1		
	Chlordane	1		
	Chlorothalonil	2		
	Chlorpyrifos	1		
	Cyanazine	1		
	Dalapon	1		
	DBCP	2		
	Diazinon	5		
	Dicamba	1		
	Dichlorprop, butoxyethanol ester	1		
	Dieldrin	1		
	Dimethoate	5		
	Dinoseb	1		
	Diquat dibromide	1		
	Endrin	2		
	Ethylene dibromide	2		
	Glyphosate	1		
	Heptachlor	1		
	Heptachlor epoxide	1		
	Hexachlorobenzene	1		
	Hydroxycarbofuran (degradate)	1		
	Lindane (gamma-BHC)	1		
	Methiocarb	1		
	Methomyl	1		
	Methoxychlor	1		
	Methyl bromide	3		
	Metolachlor	5		
	Metribuzin	5		
	Molinate	5		
	Naphthalene	2		
	Ortho-dichlorobenzene	3		
	Oxamyl	1		
	Picloram	1		
	Prometon	1		
	Prometryn	5		
	Propachlor	3		
	Propoxur	1		
	Silvex	1		
	Simazine	9		
	Terbacil	2		
	Tetrachloroethane	3		
	Thiobencarb	5		
	Toxaphene	1		
	Trifluralin	1		

Mariposa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Xylene	3		

Mendocino	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	8		
	1,2-D	8		
	1,3-D (telone)	8		
	2,4,5-T	7		
	2,4-D	11		
	4(2,4-DB), dimethylamine salt	7		
	Acifluorfen, sodium salt	7		
	Acrylonitrile	7		
	Alachlor	13		
	Aldicarb	6		
	Aldicarb sulfone (degradate)	6		
	Aldicarb sulfoxide (degradate)	6		
	Aldrin	4		
	Atrazine	14		
	Bentazon	11		
	BHC (other than gamma isomer)	4		
	Bromacil	7		
	Butachlor	7		
	Carbaryl	6		
	Carbofuran	8		
	Carbon disulfide	7		
	Chlordane	6		
	Chlorobenzilate	4		
	Chloroneb	4		
	Chlorothalonil	4		
	Chlorthal-dimethyl (dacthal / DCPA)	4		
	Dalapon	11		
	DBCP	2		
	DDD (degradate)	4		
	DDE (degradate)	4		
	DDT	4		
	Dicamba	7		
	Dichlorprop, butoxyethanol ester	7		
	Dieldrin	4		
	Dimethoate	7		
	Dinoseb	11		
	Diquat dibromide	8		
	Endosulfan	4		
	Endosulfan sulfate (degradate)	4		
	Endothall	8		
	Endrin	6		
	Endrin aldehyde	4		

Mendocino	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Ethylene dibromide	2		
	Heptachlor	6		
	Heptachlor epoxide	6		
	Hexachlorobenzene	6		
	Hydroxycarbofuran (degradate)	6		
	Lindane (gamma-BHC)	6		
	Methiocarb	6		
	Methomyl	6		
	Methoxychlor	6		
	Methyl bromide	8		
	Metolachlor	7		
	Metribuzin	7		
	Molinate	13		
	Naphthalene	8		
	Ortho-dichlorobenzene	8		
	Oxamyl	8		
	Permethrin	4		
	Permethrin, other related compounds	4		
	Picloram	11		
	Prometryn	7		
	Propachlor	9		
	Propoxur	6		
	Silvex	11		
	Simazine	14		
	Tetrachloroethane	8		
	Thiobencarb	13		
	Toxaphene	6		
	Trifluralin	4		
	Xylene	8		

Merced	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	31		
	1,2-D	48	1	0.039
	1,3-D (telone)	48		
	2,6-Diethylaniline (degradate)	17	1	0.005
	3,4-Dichloroaniline (degradate)	17	2	0.004 - 0.005
	3,5-Dichloroaniline (degradate)	17	1	0.004
	4-CLOC	17		
	ACET (degradate)	1		
	Acetochlor	17		
	Alachlor	37		
	Alachlor 2nd Amide (degradate)	17		
	Atrazine	38	2	0.006 - 0.019
	Azinphos-methyl (guthion)	17		
	Azinphos-methyl-oa (degradate)	17		

Merced	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Benefin (benfluralin)	17		
	BHC (other than gamma isomer)	8		
	Bromacil	10		
	Butachlor	1		
	Carbaryl	17		
	Carbofuran	17		
	Carbon disulfide	17		
	Chlorpyrifos	17		
	Chlorpyrifos oxon (degradate)	17		
	Chlorthal-dimethyl (dacthal / DCPA)	17		
	cis-Propiconazole	17		
	1-Napthol	17		
	Cyanazine	17		
	Cyfluthrin	17		
	Cypermethrin	17		
	DACT (degradate)	1		
	DBCP	43	9	0.01 - 0.15
	DDVP (dichlorvos)	17		
	DEA (degradate)	18	5	0.008 - 0.028
	Desulfinyl fipronil (degradate)	17		
	Desulfinyl fipronil amide (degradate)	17		
	Diazinon	26		
	Dicrotophos	17		
	Dieldrin	17		
	Dimethoate	26		
	Disulfoton	17		
	Disulfoton sulfone (degradate)	17		
	Diuron	1		
	DSMN (degradate)	1		
	Endosulfan	17		
	Endosulfan sulfate (degradate)	17		
	EPTC	17	1	0.074
	Ethion	17		
	Ethion monooxon (degradate)	17		
	Ethoprop (prophos)	17		
	Ethylene dibromide	24		
	Fenamiphos	17		
	Fenamiphos sulfone (degradate)	17		
	Fenamiphos sulfoxide (degradate)	17		
	Fipronil	17		
	Fipronil sulfide (degradate)	17		
	Fipronil sulfone (degradate)	17		
	Fonofos (dyfonate)	17		
	Hexachlorobenzene	8		
	Hexazinone	18	3	0.009 - 0.045
	Iprodione	17		
	Isofenphos	17		

Merced	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Lambda-cyhalothrin	17		
	Lindane (gamma-BHC)	8		
	Linuron	4		
	Malaoxon	17		
	Malathion	17		
	Metalaxyl	21		
	Methidathion	17		
	Methomyl	4		
	Methoxychlor	8		
	Methyl bromide	48		
	Methyl iodide	17		
	Methyl paraoxon (degradate)	17		
	Methyl parathion	17		
	Metolachlor	26		
	Metribuzin	26		
	Molinate	26		
	Myclobutanil	17		
	Naphthalene	48		
	Norflurazon	1		
	Ortho-dichlorobenzene	31		
	Oxyfluorfen	17		
	Pendimethalin	17		
	Permethrin	17		
	Phorate	17		
	Phoratoxon	17		
	Phosmet (imidan)	17		
	Phosmet-oa (degradate)	17		
	Prometon	26		
	Prometryn	25	2	0.001 - 0.006
	Propachlor	1		
	Propanil	17		
	Propargite	17		
	Propyzamide	21		
	Simazine	38	6	0.006 - 0.06
	Tebuthiuron	18	1	0.011
	Tefluthrin	17		
	Terbufos	17		
	Terbufos oxon sulfone (degradate)	17		
	Terbuthylazine	17		
	Terbutryn	8		
	Tetrachloroethane	31		
	Thiobencarb	26		
	trans-Propiconazole	17		
	Tribufos	17		
	Trifluralin	17		
	Xylene	31		

Modoc	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	1,3-D (telone)	1		
	Methyl bromide	1		
	Naphthalene	1		
	Ortho-dichlorobenzene	1		
	Tetrachloroethane	1		
	Xylene	1		

Mono	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	2,4-D	1		
	Alachlor	1		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		
	Aldrin	1		
	Atrazine	1		
	Bentazon	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	1		
	Heptachlor	1		
	Heptachlor epoxide	1		
	Hexachlorobenzene	1		
	Hydroxycarbofuran (degradate)	1		
	Lindane (gamma-BHC)	1		
	Methiocarb	1		
	Methomyl	1		
	Methoxychlor	1		
	Molinate	1		
	Oxamyl	1		
	Picloram	1		
	Propachlor	1		
	Propoxur	1		
	Silvex	1		

Mono	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Simazine	1		
	Thiobencarb	1		
	Toxaphene	1		

Monterey	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	45		
	1,2-D	45		
	1,3-D (telone)	23		
	2,4,5-T	12		
	2,4-D	22		
	4(2,4-DB), dimethylamine salt	1		
	ACET (degradate)	4		
	Acetochlor	4		
	Alachlor	22		
	Aldicarb	17		
	Aldicarb sulfone (degradate)	17		
	Aldicarb sulfoxide (degradate)	17		
	Aldrin	5		
	Atrazine	26		
	Bentazon	22		
	Bromacil	20		
	Butachlor	16		
	Carbaryl	17		
	Carbofuran	23		
	Carbon disulfide	5		
	Chlordane	1		
	Chlorothalonil	1		
	Chlorpyrifos	1		
	Chlorthal-dimethyl degradation products	4		
	DACT (degradate)	4		
	Dalapon	17		
	DBCP	4		
	DEA (degradate)	4		
	Diazinon	13		
	Dicamba	17		
	Dichlorprop, butoxyethanol ester	1		
	Dieldrin	1		
	Dimethoate	16		
	Dinoseb	17		
	Diquat dibromide	23		
	Diuron	4		
	DSMN (degradate)	4		
	Endothall	6		
	Endrin	2		
	EPTC	4		

Monterey	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Ethylene dibromide	5		
	Glyphosate	3		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	6		
	Hexazinone	4		
	Hydroxycarbofuran (degradate)	17		
	Lindane (gamma-BHC)	8		
	Linuron	29		
	Metalaxyl	29		
	Methiocarb	5		
	Methomyl	46		
	Methoxychlor	6		
	Methyl bromide	23		
	Metolachlor	16		
	Metribuzin	16		
	Molinate	17		
	Naphthalene	43		
	Norflurazon	4		
	Ortho-dichlorobenzene	45		
	Oxamyl	19		
	Picloram	17		
	Prometon	4		
	Prometryn	1		
	Propachlor	16		
	Propoxur	5		
	Propyzamide	29		
	Silvex	17		
	Simazine	26		
	Tebuthiuron	4		
	Terbacil	4		
	Tetrachloroethane	45		
	Thiobencarb	17		
	Toxaphene	2		
	Trifluralin	1		
	Xylene	45		

Napa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	2,4,5-T	2		
	2,4-D	3		
	4(2,4-DB), dimethylamine salt	2		
	Alachlor	3		
	Aldicarb	3		

Napa	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Aldicarb sulfone (degradate)	3		
	Aldicarb sulfoxide (degradate)	3		
	Aldrin	2		
	Atrazine	4		
	Bentazon	3		
	Bromacil	1		
	Butachlor	1		
	Carbaryl	3		
	Carbofuran	3		
	Chlordane	2		
	Chlorthal-dimethyl degradation products	1		
	Dalapon	3		
	DBCP	1		
	Diazinon	1		
	Dicamba	3		
	Dieldrin	2		
	Dimethoate	1		
	Dinoseb	3		
	Diquat dibromide	3		
	Endothall	3		
	Endrin	2		
	Ethylene dibromide	2		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	1		
	Hydroxycarbofuran (degradate)	3		
	Lindane (gamma-BHC)	2		
	Methiocarb	3		
	Methomyl	3		
	Methoxychlor	2		
	Methyl bromide	1		
	Metolachlor	1		
	Metribuzin	1		
	Molinate	1		
	Ortho-dichlorobenzene	1		
	Oxamyl	3		
	Picloram	3		
	Prometryn	1		
	Propachlor	1		
	Propoxur	3		
	Silvex	3		
	Simazine	4		
	Tetrachloroethane	1		
	Thiobencarb	1		
	Toxaphene	2		
	Xylene	1		

Nevada	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	1,3-D (telone)	1		
	Methyl bromide	1		
	Naphthalene	1		
	Ortho-dichlorobenzene	1		
	Tetrachloroethane	1		
	Xylene	1		

Orange	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	180		
	1,2-D	180		
	1,3-D (telone)	178		
	2,4-D	8		
	Acetochlor	7		
	Alachlor	62		
	Aldicarb	8		
	Aldicarb sulfone (degradate)	8		
	Aldicarb sulfoxide (degradate)	8		
	Aldrin	7		
	Atrazine	62		
	Bentazon	8		
	BHC (other than gamma isomer)	7		
	Bromacil	62		
	Butachlor	62		
	Carbaryl	8		
	Carbofuran	8		
	Chlordane	8		
	Chlorothalonil	7		
	Chlorthal-dimethyl degradation products	1		
	Dalapon	8		
	DBCP	177		
	DDD (degradate)	7		
	DDE (degradate)	7		
	DDT	7		
	Diazinon	62		
	Dicamba	8		
	Dieldrin	7		
	Dimethoate	62		
	Dinoseb	8		
	Diquat dibromide	8		
	Diuron	7		
	Endosulfan	7		
	Endosulfan sulfate (degradate)	7		
	Endothall	8		

Orange	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Endrin	8		
	Endrin aldehyde	7		
	Ethylene dibromide	177		
	Glyphosate	8		
	Heptachlor	8		
	Heptachlor epoxide	8		
	Hexachlorobenzene	8		
	Hydroxycarbofuran (degradate)	8		
	Lindane (gamma-BHC)	8		
	Linuron	7		
	Malathion	61		
	Methiocarb	7		
	Methomyl	8		
	Methoxychlor	8		
	Methyl bromide	178		
	Methyl parathion	61		
	Metolachlor	62		
	Metribuzin	62		
	Molinate	62		
	Naphthalene	177		
	Ortho-dichlorobenzene	180		
	Oxamyl	8		
	Paraquat dichloride	8		
	Parathion or ethyl parathion	61		
	Picloram	8		
	Prometon	61		
	Prometryn	61		
	Propachlor	62		
	Propoxur	7		
	Silvex	8		
	Simazine	63		
	Tetrachloroethane	180		
	Thiobencarb	62		
	Toxaphene	8		
	Xylene	180		

Placer	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	1,3-D (telone)	1		
	Ortho-dichlorobenzene	1		
	Tetrachloroethane	1		
	Xylene	1		

Plumas	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	1,3-D (telone)	1		
	Methyl bromide	1		
	Naphthalene	1		
	Ortho-dichlorobenzene	1		
	Tetrachloroethane	1		
	Xylene	1		

Riverside	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	77		
	1,2-D	80	1	0.65 - 0.69
	1,3-D (telone)	67		
	2,4-D	40		
	Alachlor	37		
	Aldicarb	34		
	Aldicarb sulfone (degradate)	34		
	Aldicarb sulfoxide (degradate)	34		
	Aldrin	33		
	Atrazine	55		
	Bentazon	40		
	Carbaryl	34		
	Carbofuran	38		
	Carbon disulfide	5		
	Chlordane	37		
	Dalapon	40		
	DBCP	60	5	0.03 - 0.57
	Dicamba	36		
	Dieldrin	33		
	Dinoseb	40		
	Diquat dibromide	35		
	Endothall	34		
	Endrin	37		
	Ethylene dibromide	60		
	Glyphosate	38		
	Heptachlor	37		
	Heptachlor epoxide	37		
	Hexachlorobenzene	39		
	Hydroxycarbofuran (degradate)	34		
	Lindane (gamma-BHC)	37		
	Methiocarb	34		
	Methomyl	34		
	Methoxychlor	37		
	Methyl bromide	67		
	Molinate	39		

Riverside	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Naphthalene	67		
	Ortho-dichlorobenzene	77		
	Oxamyl	38		
	Picloram	40		
	Propachlor	33		
	Propoxur	34		
	Silvex	40		
	Simazine	55		
	Tetrachloroethane	77		
	Thiobencarb	39		
	Toxaphene	37		
	Xylene	77		

Sacramento	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	131		
	1,2-D	131		
	1,3-D (telone)	40		
	2,4,5-T	7		
	2,4-D	80		
	Alachlor	80		
	Aldicarb	80		
	Aldicarb sulfone (degradate)	80		
	Aldicarb sulfoxide (degradate)	80		
	Aldrin	8		
	Atrazine	80		
	Bentazon	79		
	Bromacil	8		
	Butachlor	8		
	Carbaryl	80		
	Carbofuran	80		
	Chlordane	8		
	Chlorothalonil	8		
	Chlorpyrifos	1		
	Dalapon	80		
	DBCP	81	2	0.02 - 0.03
	Diazinon	8		
	Dicamba	80		
	Dichlorprop, butoxyethanol ester	1		
	Dieldrin	8		
	Dimethoate	8		
	Dinoseb	80		
	Diquat dibromide	84	1	0.5
	Endothall	80		
	Endrin	80		
	Ethylene dibromide	81		

Sacramento	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Glyphosate	80		
	Heptachlor	80		
	Heptachlor epoxide	80		
	Hexachlorobenzene	80		
	Hydroxycarbofuran (degradate)	80		
	Lindane (gamma-BHC)	80		
	Methiocarb	4		
	Methomyl	80		
	Methoxychlor	80		
	Methyl bromide	25		
	Metolachlor	8		
	Metribuzin	8		
	Molinate	80		
	Naphthalene	22		
	Ortho-dichlorobenzene	131		
	Oxamyl	80		
	Picloram	80		
	Prometryn	1		
	Propachlor	8		
	Propoxur	4		
	Silvex	80		
	Simazine	80		
	Tetrachloroethane	131		
	Thiobencarb	80		
	Toxaphene	80		
	Trifluralin	5		
	Xylene	131		

San Benito	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	4		
	1,2-D	4		
	1,3-D (telone)	4		
	2,4,5-T	3		
	2,4-D	4		
	Alachlor	4		
	Aldicarb	2		
	Aldicarb sulfone (degradate)	2		
	Aldicarb sulfoxide (degradate)	2		
	Atrazine	4		
	Bentazon	4		
	Bromacil	2		
	Butachlor	2		
	Carbaryl	2		
	Carbofuran	3		
	Dalapon	3		

San Benito	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Diazinon	2		
	Dicamba	3		
	Dimethoate	2		
	Dinoseb	3		
	Diquat dibromide	4		
	Hydroxycarbofuran (degradate)	2		
	Methomyl	2		
	Methyl bromide	4		
	Metolachlor	2		
	Metribuzin	2		
	Molinate	2		
	Naphthalene	4		
	Ortho-dichlorobenzene	4		
	Oxamyl	2		
	Picloram	3		
	Propachlor	2		
	Silvex	3		
	Simazine	4		
	Tetrachloroethane	4		
	Thiobencarb	2		
	Xylene	4		

San Bernardino	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	157		
	1,2-D	157		
	1,3-D (telone)	121		
	2,4,5-T	9		
	2,4-D	45		
	4(2,4-DB), dimethylamine salt	8		
	Acetochlor	2		
	Acifluorfen, sodium salt	8		
	Acrylonitrile	1		
	Alachlor	49		
	Aldicarb	38		
	Aldicarb sulfone (degradate)	38		
	Aldicarb sulfoxide (degradate)	38		
	Aldrin	42		
	Atrazine	56		
	Bentazon	45		
	BHC (other than gamma isomer)	8		
	Bromacil	18		
	Butachlor	18		
	Captan	8		
	Carbaryl	38		
	Carbofuran	45		

San Bernardino	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Carbon disulfide	39		
	Carbophenothion	8		
	Chlordane	45		
	Chlorothalonil	9		
	Chlorpropham	8		
	Chlorthal-dimethyl degradation products	15		
	Cyanazine	8		
	Dalapon	45		
	DBCP	163	22	0.01 - 0.3
	DDD (degradate)	8		
	DDE (degradate)	8		
	DDT	8		
	Diazinon	18		
	Dicamba	38		
	Dichlorprop, butoxyethanol ester	8		
	Dieldrin	42		
	Dimethoate	18		
	Dinoseb	45		
	Diphenamid	8		
	Diquat dibromide	50		
	Disulfoton	8		
	Endosulfan	8		
	Endosulfan sulfate (degradate)	8		
	Endothall	45		
	Endrin	45		
	Endrin aldehyde	8		
	EPTC	10		
	Ethylene dibromide	153		
	Glyphosate	46		
	Heptachlor	45		
	Heptachlor epoxide	45		
	Hexachlorobenzene	50		
	Hydroxycarbofuran (degradate)	38		
	Lindane (gamma-BHC)	45		
	Methiocarb	38		
	Methomyl	38		
	Methoxychlor	45		
	Methyl bromide	118		
	Metolachlor	18		
	Metribuzin	18		
	Molinate	53		
	Naphthalene	118		
	Ortho-dichlorobenzene	157		
	Oxamyl	45		
	Picloram	45	3	2 - 3.6
	Prometon	8		
	Prometryn	8		

San Bernardino	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Propachlor	42		
	Propoxur	38		
	Silvex	45		
	Simazine	56		
	Terbacil	10		
	Tetrachloroethane	157		
	Thiobencarb	53		
	Toxaphene	45		
	Trifluralin	9		
	Xylene	157		

San Diego	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	34		
	1,2-D	34	1	0.59 - 0.89
	1,3-D (telone)	26		
	2,4,5-T	2		
	2,4-D	23		
	4(2,4-DB), dimethylamine salt	2		
	Acifluorfen, sodium salt	2		
	Alachlor	16		
	Aldicarb	15		
	Aldicarb sulfone (degradate)	15		
	Aldicarb sulfoxide (degradate)	15		
	Aldrin	12		
	Ametryne	2		
	Atrazine	16		
	Bentazon	23		
	BHC (other than gamma isomer)	2		
	Bromacil	3		
	Butachlor	3		
	Butylate	2		
	Carbaryl	15		
	Carbofuran	19		
	Carbon disulfide	14		
	Chlordane	18		
	Chloroneb	2		
	Chlorothalonil	2		
	Chlorpropham	2		
	Chlorpyrifos	2		
	Chlorthal-dimethyl degradation products	5	1	0.15
	Cycloate	2		
	Dalapon	23		
	DBCP	28		
	DDD (degradate)	2		
	DDE (degradate)	2		

San Diego	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	DDT	2		
	Diazinon	3		
	Dicamba	17		
	Dichlorprop, butoxyethanol ester	2		
	Dieldrin	12		
	Dimethoate	1		
	Dinoseb	23		
	Diphenamid	2		
	Diquat dibromide	24		
	Endosulfan	2		
	Endosulfan sulfate (degradate)	2		
	Endothall	24		
	Endrin	18		
	Endrin aldehyde	2		
	Ethylene dibromide	20		
	Glyphosate	18		
	Heptachlor	18		
	Heptachlor epoxide	18		
	Hexachlorobenzene	18		
	Hydroxycarbofuran (degradate)	15		
	Lindane (gamma-BHC)	18		
	Methiocarb	12		
	Methomyl	15		
	Methoxychlor	18		
	Methyl bromide	30		
	Metolachlor	3		
	Metribuzin	3		
	Molinate	16		
	Naphthalene	30		
	Napropamide	2		
	Ortho-dichlorobenzene	34		
	Oxamyl	19		
	Permethrin	2		
	Picloram	23		
	Prometryn	2		
	Propachlor	12		
	Propazine	2		
	Propoxur	12		
	Silvex	23		
	Simazine	16		
	Terbacil	2		
	Terbutryn	2		
	Tetrachloroethane	34		
	Thiobencarb	17		
	Toxaphene	18		
	Triadimefon	2		
	Trifluralin	2		

San Diego	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Vernolate	2		
	Xylene	34		

San Francisco	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Not Sampled			

San Joaquin	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	41		
	1,2-D	41	1	0.6
	1,3-D (telone)	22		
	2,4,5-T	5		
	2,4-D	5		
	4(2,4-DB), dimethylamine salt	5		
	ACET (degradate)	2		
	Alachlor	11		
	Aldrin	7		
	Atrazine	17		
	Bentazon	5		
	Bromacil	8		
	Butachlor	6		
	Carbon disulfide	3		
	Chlordane	7		
	Chlorothalonil	7		
	Chlorpyrifos	6		
	DACT (degradate)	2		
	Dalapon	5		
	DBCP	42	18	0.02 - 1.3
	DEA (degradate)	2		
	Diazinon	6		
	Dicamba	5		
	Dichlorprop, butoxyethanol ester	5		
	Dieldrin	7		
	Dimethoate	6		
	Dinoseb	5		
	Diquat dibromide	5		
	Diuron	2		
	DSMN (degradate)	2		
	Endothall	4		
	Endrin	7		
	Ethylene dibromide	41	5	0.02 - 0.1
	Heptachlor	7		
	Heptachlor epoxide	7		
	Hexachlorobenzene	7		

San Joaquin	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Hexazinone	2		
	Lindane (gamma-BHC)	7		
	Linuron	15		
	Metalaxyl	15		
	Methomyl	15		
	Methoxychlor	7		
	Methyl bromide	30		
	Metolachlor	6		
	Metribuzin	6		
	Molinate	6		
	Naphthalene	29		
	Norflurazon	2		
	Ortho-dichlorobenzene	41		
	Picloram	5		
	Prometon	2		
	Prometryn	6		
	Propachlor	6		
	Propyzamide	15		
	Silvex	5		
	Simazine	16		
	Tebuthiuron	2		
	Tetrachloroethane	41		
	Thiobencarb	8		
	Toxaphene	7		
	Trifluralin	3		
	Xylene	41		

San Luis Obispo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	30		
	1,2-D	30		
	1,3-D (telone)	19		
	Alachlor	20		
	Atrazine	22		
	Bromacil	1		
	Butachlor	1		
	Chlordane	4		
	DBCP	1		
	Diazinon	1		
	Dimethoate	1		
	Endrin	4		
	Ethylene dibromide	1		
	Heptachlor	4		
	Heptachlor epoxide	4		
	Hexachlorobenzene	6		
	Lindane (gamma-BHC)	4		

San Luis Obispo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Linuron	4		
	Metalaxyl	4		
	Methomyl	4		
	Methoxychlor	4		
	Methyl bromide	19		
	Metolachlor	1		
	Metribuzin	1		
	Molinate	14		
	Naphthalene	19		
	Ortho-dichlorobenzene	30		
	Prometryn	1		
	Propachlor	1		
	Propyzamide	4		
	Simazine	22		
	Tetrachloroethane	30		
	Thiobencarb	14		
	Toxaphene	4		
	Xylene	30		

San Mateo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	11		
	1,2-D	11	2	0.62 - 1.04
	1,3-D (telone)	3		
	2,4,5-T	2		
	2,4-D	4		
	Acetochlor	1		
	Alachlor	5		
	Aldicarb	2		
	Aldicarb sulfone (degradate)	2		
	Aldicarb sulfoxide (degradate)	2		
	Aldrin	2		
	Atrazine	5		
	Bentazon	4		
	Bromacil	2		
	Butachlor	2		
	Carbaryl	2		
	Carbofuran	2		
	Carbon disulfide	4		
	Chlordane	2		
	Chlorothalonil	2		
	Dalapon	4		
	DBCP	4		
	Diazinon	3		
	Dicamba	2		
	Dieldrin	2		

San Mateo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Dimethoate	2		
	Dinoseb	4		
	Diquat dibromide	2		
	Diuron	2		
	DMPA	2		
	Endothall	2		
	Endrin	2		
	Ethylene dibromide	4		
	Glyphosate	2		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	3		
	Hydroxycarbofuran (degradate)	2		
	Lindane (gamma-BHC)	2		
	Methomyl	2		
	Methoxychlor	2		
	Methyl bromide	6		
	Metolachlor	2		
	Metribuzin	2		
	Molinate	5		
	Naphthalene	9		
	Ortho-dichlorobenzene	11		
	Oxamyl	2		
	Picloram	4		
	Propachlor	2		
	Silvex	4		
	Simazine	5		
	Tetrachloroethane	11		
	Thiobencarb	5		
	Toxaphene	2		
	Trifluralin	2		
	Xylene	11		

Santa Barbara	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	23		
	1,2-D	23		
	1,3-D (telone)	13		
	2,4,5-T	1		
	2,4-D	2		
	ACET (degradate)	1		
	Alachlor	10		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		
	Aldrin	1		

Santa Barbara	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Atrazine	14		
	Bentazon	2		
	Bromacil	4		
	Butachlor	3		
	Carbaryl	1		
	Carbofuran	2		
	Carbon disulfide	1		
	Chlordane	2		
	DACT (degradate)	1		
	Dalapon	2		
	DBCP	7		
	DEA (degradate)	1		
	Diazinon	1		
	Dicamba	1		
	Dieldrin	1		
	Dimethoate	3		
	Dinoseb	2		
	Diquat dibromide	2		
	Diuron	1		
	DSMN (degradate)	1		
	Endothall	2		
	Endrin	2		
	Ethylene dibromide	7		
	Glyphosate	2		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	3		
	Hexazinone	1		
	Hydroxycarbofuran (degradate)	1		
	Lindane (gamma-BHC)	2		
	Linuron	11		
	Metalaxyl	11		
	Methomyl	12		
	Methoxychlor	2		
	Methyl bromide	10		
	Metolachlor	3		
	Metribuzin	3		
	Molinate	10		
	Naphthalene	10		
	Norflurazon	1		
	Ortho-dichlorobenzene	23		
	Oxamyl	2		
	Picloram	2		
	Prometon	1		
	Prometryn	1		
	Propachlor	3		
	Propyzamide	11		

Santa Barbara	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Silvex	2		
	Simazine	14		
	Tebuthiuron	1		
	Tetrachloroethane	23		
	Thiobencarb	10		
	Toxaphene	2		
	Xylene	23		

Santa Clara	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	85		
	1,2-D	85		
	1,3-D (telone)	33		
	2,4,5-T	12		
	2,4-D	26		
	Acrylonitrile	1		
	Alachlor	26		
	Aldicarb	20		
	Aldicarb sulfone (degradate)	20		
	Aldicarb sulfoxide (degradate)	20		
	Aldrin	21		
	Atrazine	26		
	Bentazon	26		
	Bromacil	21		
	Butachlor	21		
	Carbaryl	20		
	Carbofuran	25		
	Carbon disulfide	14		
	Chlordane	26		
	Chlorothalonil	13		
	Chlorthal-dimethyl degradation products	8		
	Dalapon	26		
	DBCP	26		
	Diazinon	21		
	Dicamba	21		
	Dieldrin	21		
	Dimethoate	21		
	Dinoseb	26		
	Diquat dibromide	25		
	Endothall	25		
	Endrin	26		
	Ethylene dibromide	26		
	Glyphosate	25		
	Heptachlor	26		
	Heptachlor epoxide	26		
	Hexachlorobenzene	26		

Santa Clara	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Hydroxycarbofuran (degradate)	20		
	Lindane (gamma-BHC)	26		
	Methiocarb	8		
	Methomyl	20		
	Methoxychlor	26		
	Methyl bromide	31		
	Metolachlor	21		
	Metribuzin	21		
	Molinate	26		
	Naphthalene	38		
	Ortho-dichlorobenzene	85		
	Oxamyl	25		
	Picloram	26		
	Prometryn	1		
	Propachlor	21		
	Propoxur	8		
	Silvex	26		
	Simazine	26		
	Tetrachloroethane	85		
	Thiobencarb	26		
	Toxaphene	26		
	Trifluralin	17		
	Xylene	85		

Santa Cruz	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	13		
	1,2-D	13		
	1,3-D (telone)	12		
	2,4,5-T	12		
	2,4-D	14		
	Alachlor	8		
	Aldicarb	3		
	Aldicarb sulfone (degradate)	3		
	Aldicarb sulfoxide (degradate)	3		
	Aldrin	1		
	Atrazine	8		
	Bentazon	14		
	Bromacil	3		
	Butachlor	3		
	Carbaryl	3		
	Carbofuran	5		
	Carbon disulfide	9		
	Chlordane	1		
	Chlorthal-dimethyl degradation products	1		
	Dalapon	13		

Santa Cruz	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	DBCP	2		
	Diazinon	3		
	Dicamba	13		
	Dieldrin	1		
	Dimethoate	3		
	Dinoseb	13		
	Diquat dibromide	13		
	Endothall	1		
	Endrin	1		
	Ethylene dibromide	2		
	Glyphosate	1		
	Heptachlor	1		
	Heptachlor epoxide	1		
	Hexachlorobenzene	1		
	Hydroxycarbofuran (degradate)	3		
	Lindane (gamma-BHC)	1		
	Methiocarb	1		
	Methomyl	3		
	Methoxychlor	1		
	Methyl bromide	13		
	Metolachlor	3		
	Metribuzin	3		
	Molinate	3		
	Naphthalene	13		
	Ortho-dichlorobenzene	13		
	Oxamyl	3		
	Picloram	13		
	Propachlor	3		
	Propoxur	1		
	Silvex	13		
	Simazine	8		
	Tetrachloroethane	13		
	Thiobencarb	3		
	Toxaphene	1		
	Xylene	13		

Shasta	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	12		
	1,2-D	12		
	Methyl bromide	12		
	Ortho-dichlorobenzene	12		
	Tetrachloroethane	12		
	Xylene	12		

Sierra	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	1		
	1,2-D	1		
	1,3-D (telone)	1		
	Carbon disulfide	1		
	Methyl bromide	1		
	Naphthalene	1		
	Ortho-dichlorobenzene	1		
	Tetrachloroethane	1		
	Xylene	1		

Siskiyou	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	5		
	1,2-D	5		
	Methyl bromide	5		
	Ortho-dichlorobenzene	5		
	Tetrachloroethane	5		
	Xylene	5		

Solano	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	6		
	1,2-D	6		
	1,3-D (telone)	2		
	Methyl bromide	2		
	Naphthalene	5		
	Ortho-dichlorobenzene	6		
	Tetrachloroethane	6		
	Xylene	6		

Sonoma	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	48		
	1,2-D	48		
	1,3-D (telone)	12		
	2,4,5-T	39		
	2,4-D	53		
	4(2,4-DB), dimethylamine salt	27		
	Acifluorfen, sodium salt	9		
	Acrylonitrile	10		
	Alachlor	32		
	Aldicarb	33		
	Aldicarb sulfone (degradate)	33		
	Aldicarb sulfoxide (degradate)	33		

Sonoma	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Aldrin	19		
	Ametryne	2		
	Atrazine	55		
	Bentazon	53		
	BHC (other than gamma isomer)	8		
	Bromacil	19		
	Butachlor	21		
	Butylate	2		
	Carbaryl	33		
	Carbofuran	35		
	Carbon disulfide	12		
	Chlordane	23		
	Chlorobenzilate	8		
	Chloroneb	10		
	Chlorothalonil	13		
	Chlorpropham	2		
	Chlorpyrifos	2		
	Chlorthal-dimethyl (dacthal / DCPA)	8		
	Chlorthal-dimethyl degradation products	11		
	Cycloate	2		
	Dalapon	53		
	DBCP	13		
	DDD (degradate)	8		
	DDE (degradate)	8		
	DDT	8		
	Diazinon	11		
	Dicamba	49		
	Dichlorprop, butoxyethanol ester	9		
	Dieldrin	17		
	Dimethoate	19		
	Dinoseb	53		
	Diphenamid	2		
	Diquat dibromide	45		
	Diuron	6		
	Endosulfan	8		
	Endosulfan sulfate (degradate)	8		
	Endothall	45		
	Endrin	24		
	Endrin aldehyde	8		
	Ethylene dibromide	18		
	Glyphosate	9		
	Heptachlor	24		
	Heptachlor epoxide	24		
	Hexachlorobenzene	22		
	Hydroxycarbofuran (degradate)	33		
	Lindane (gamma-BHC)	24		
	Methiocarb	26		

Sonoma	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Methomyl	33		
	Methoxychlor	24		
	Methyl bromide	41		
	Metolachlor	21		
	Metribuzin	21		
	Molinate	26		
	Naphthalene	22		
	Napropamide	2		
	Ortho-dichlorobenzene	48		
	Oxamyl	42		
	Paraquat dichloride	2		
	Permethrin	10		
	Permethrin, other related compounds	8		
	Picloram	53		
	Prometryn	9		
	Propachlor	22		
	Propazine	2		
	Propoxur	26		
	Silvex	53		
	Simazine	55		
	Terbutryn	2		
	Tetrachloroethane	48		
	Thiobencarb	26		
	Toxaphene	24		
	Triadimefon	2		
	Trifluralin	15		
	Vernolate	2		
	Xylene	48		

Stanislaus	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	42		
	1,2-D	56		
	1,3-D (telone)	49		
	2,4,5-T	1		
	2,4-D	1		
	2,6-Diethylaniline (degradate)	14		
	3,4-Dichloroaniline (degradate)	14	1	0.006
	3,5-Dichloroaniline (degradate)	14		
	4-CLOC	14		
	Acetochlor	14		
	Alachlor	18		
	Alachlor 2nd Amide (degradate)	14		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		

Stanislaus	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Aldrin	1		
	Atrazine	20	4	0.006 - 0.015
	Azinphos-methyl (guthion)	14		
	Azinphos-methyl-oa (degradate)	14		
	Benefin (benfluralin)	14		
	Bentazon	1		
	Bromacil	4		
	Butachlor	4		
	Carbaryl	15		
	Carbofuran	15		
	Carbon disulfide	14	1	0.03
	Chlordane	1		
	Chlorothalonil	1		
	Chlorpyrifos	14		
	Chlorpyrifos oxon (degradate)	14		
	Chlorthal-dimethyl (dacthal / DCPA)	14		
	cis-Propiconazole	14		
	1-Napthol	14		
	Cyanazine	14		
	Cyfluthrin	14		
	Cypermethrin	14		
	Dalapon	1		
	DBCP	76	20	0.01 - 0.69
	DDVP (dichlorvos)	14		
	DEA (degradate)	14	5	0.007 - 0.016
	Desulfinyl fipronil (degradate)	14		
	Desulfinyl fipronil amide (degradate)	14		
	Diazinon	18		
	Dicamba	1		
	Dicrotophos	14		
	Dieldrin	15		
	Dimethoate	18		
	Dinoseb	1		
	Disulfoton	14		
	Disulfoton sulfone (degradate)	14		
	DMPA	4		
	Endosulfan	14		
	Endosulfan sulfate (degradate)	14		
	Endothall	1		
	Endrin	1		
	EPTC	14		
	Ethion	14		
	Ethion monooxon (degradate)	14		
	Ethoprop (prophos)	14		
	Ethylene dibromide	61		
	Fenamiphos	14		
	Fenamiphos sulfone (degradate)	14		

Stanislaus	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Fenamiphos sulfoxide (degradate)	14		
	Fipronil	14		
	Fipronil sulfide (degradate)	14		
	Fipronil sulfone (degradate)	14		
	Fonofos (dyfonate)	14		
	Glyphosate	1		
	Heptachlor	1		
	Heptachlor epoxide	1		
	Hexachlorobenzene	1		
	Hexazinone	14	2	0.024 - 0.076
	Hydroxycarbofuran (degradate)	1		
	Iprodione	14		
	Isofenphos	14		
	Lambda-cyhalothrin	14		
	Lindane (gamma-BHC)	1		
	Malaoxon	14		
	Malathion	14		
	Metalaxyl	14	2	0.015 - 0.054
	Methidathion	14		
	Methomyl	1		
	Methoxychlor	1		
	Methyl bromide	56	1	0.98
	Methyl iodide	14		
	Methyl paraoxon (degradate)	14		
	Methyl parathion	14		
	Metolachlor	18	4	0.013 - 0.045
	Metribuzin	18		
	Molinate	18		
	Myclobutanil	14		
	Naphthalene	51		
	Ortho-dichlorobenzene	42		
	Oxamyl	1		
	Oxyfluorfen	14		
	Pendimethalin	14		
	Permethrin	14		
	Phorate	14		
	Phoratoxon	14		
	Phosmet (imidan)	14		
	Phosmet-oa (degradate)	14		
	Picloram	1		
	Prometon	14	2	0.021
	Prometryn	15		
	Propachlor	3		
	Propanil	14		
	Propargite	14		
	Propyzamide	14		
	Silvex	1		

Stanislaus	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Simazine	20	6	0.006 - 0.033
	Tebuthiuron	14		
	Tefluthrin	14		
	Terbufos	14		
	Terbufos oxon sulfone (degradate)	14		
	Terbuthylazine	14		
	Tetrachloroethane	42		
	Thiobencarb	18		
	Toxaphene	1		
	trans-Propiconazole	14		
	Tribufos	14		
	Trifluralin	15		
	Xylene	42		

Sutter	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	2,4-D	2		
	Aldicarb	1		
	Aldicarb sulfone (degradate)	1		
	Aldicarb sulfoxide (degradate)	1		
	Atrazine	1		
	Carbaryl	1		
	Carbofuran	1		
	Glyphosate	2		
	Hydroxycarbofuran (degradate)	1		
	Methiocarb	1		
	Methomyl	1		
	Molinate	1		
	Oxamyl	1		
	Propoxur	1		
	Simazine	1		
	Thiobencarb	1		

Tehama	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	3		
	1,2-D	3		
	Methyl bromide	3		
	Ortho-dichlorobenzene	3		
	Tetrachloroethane	3		
	Xylene	3		

Trinity	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Not Sampled			

Tulare	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	63		
	1,2-D	63		
	1,3-D (telone)	23		
	2,4,5-T	8		
	2,4-D	8		
	ACET (degradate)	19	16	0.05 - 1.46
	Alachlor	87		
	Aldicarb	10		
	Aldicarb sulfone (degradate)	10		
	Aldicarb sulfoxide (degradate)	10		
	Aldrin	2		
	Atrazine	106	1	0.097
	Bentazon	8		
	Bromacil	73	7	0.487 - 1.49
	Butachlor	54		
	Carbaryl	10		
	Carbofuran	10		
	Carbon disulfide	1		
	Chlordane	2		
	Chlorpyrifos	1		
	DACT (degradate)	19	15	0.061 - 6.27
	Dalapon	8		
	DBCP	86	26	0.01 - 0.53
	DEA (degradate)	19	1	0.114
	Diazinon	21		
	Dicamba	8		
	Dieldrin	2		
	Dimethoate	54		
	Dinoseb	8		
	Diuron	19	6	0.052 - 0.299
	DSMN (degradate)	19	9	0.061 - 0.489
	Endothall	11		
	Endrin	2		
	Ethylene dibromide	82		
	Glyphosate	1		
	Heptachlor	2		
	Heptachlor epoxide	2		
	Hexachlorobenzene	2		
	Hexazinone	19		
	Hydroxycarbofuran (degradate)	10		
	Lindane (gamma-BHC)	2		
	Linuron	17		

Tulare	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Metalaxyl	17	1	0.05
	Methomyl	27		
	Methoxychlor	2		
	Methyl bromide	20		
	Metolachlor	54		
	Metribuzin	54		
	Molinate	54		
	Naphthalene	60		
	Norflurazon	19	8	0.055 - 0.67
	Ortho-dichlorobenzene	63		
	Oxamyl	10		
	Picloram	8		
	Prometon	20		
	Prometryn	5		
	Propachlor	54		
	Propyzamide	17		
	Silvex	8		
	Simazine	106	12	0.05 - 0.225
	Terbutryn	1		
	Tetrachloroethane	63		
	Thiobencarb	54		
	Toxaphene	2		
	Xylene	63		

Tuolumne	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	8		
	1,2-D	8		
	1,3-D (telone)	6		
	Acetochlor	2		
	Alachlor	7		
	Atrazine	7		
	Bromacil	2		
	Butachlor	2		
	Chlorothalonil	2		
	Diazinon	2		
	Dimethoate	2		
	Methyl bromide	8		
	Metolachlor	2		
	Metribuzin	2		
	Molinate	2		
	Naphthalene	6		
	Ortho-dichlorobenzene	8		
	Prometryn	2		
	Simazine	7		
	Terbacil	2		

Tuolumne	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Tetrachloroethane	8		
	Thiobencarb	2		
	Xylene	8		

Ventura	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	21		
	1,2-D	21		
	1,3-D (telone)	21		
	2,4,5-T	4		
	2,4-D	4		
	ACET (degradate)	5		
	Alachlor	4		
	Aldicarb	4		
	Aldicarb sulfone (degradate)	4		
	Aldicarb sulfoxide (degradate)	4		
	Aldrin	4		
	Atrazine	20		
	Bentazon	4		
	Bromacil	9		
	Butachlor	4		
	Carbaryl	4		
	Carbofuran	4		
	Chlordane	4		
	DACT (degradate)	5		
	Dalapon	4		
	DBCP	5		
	DEA (degradate)	5		
	Diazinon	4		
	Dicamba	4		
	Dieldrin	4		
	Dimethoate	4		
	Dinoseb	4		
	Diquat dibromide	4		
	Diuron	9		
	DSMN (degradate)	5		
	Endrin	4		
	Ethylene dibromide	5		
	Heptachlor	4		
	Heptachlor epoxide	4		
	Hexachlorobenzene	4		
	Hexazinone	5		
	Hydroxycarbofuran (degradate)	4		
	Lindane (gamma-BHC)	4		
	Linuron	17		
	Metalaxyl	17	1	148

Ventura	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Methomyl	21		
	Methoxychlor	4		
	Methyl bromide	21		
	Metolachlor	4		
	Metribuzin	4		
	Molinate	4		
	Naphthalene	21		
	Norflurazon	5		
	Ortho-dichlorobenzene	21		
	Oxamyl	4		
	Picloram	4		
	Prometon	5		
	Prometryn	4		
	Propachlor	4		
	Propyzamide	17		
	Silvex	4		
	Simazine	20		
	Tebuthiuron	5		
	Tetrachloroethane	21		
	Thiobencarb	4		
	Toxaphene	4		
	Xylene	21		

Yolo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	21		
	1,2-D	21		
	1,3-D (telone)	21		
	2,4,5-T	17		
	2,4-D	17		
	Alachlor	17		
	Aldicarb	17		
	Aldicarb sulfone (degradate)	17		
	Aldicarb sulfoxide (degradate)	17		
	Aldrin	17		
	Atrazine	17		
	Bentazon	17		
	Bromacil	17		
	Butachlor	17		
	Carbaryl	17		
	Carbofuran	17		
	Chlordane	17		
	Chlorothalonil	16		
	Dalapon	17		
	DBCP	17	1	0.01
	Diazinon	17		

Yolo	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Dicamba	17		
	Dieldrin	17		
	Dimethoate	17		
	Dinoseb	17		
	Diquat dibromide	17		
	Endothall	16		
	Endrin	17		
	Ethylene dibromide	19		
	Glyphosate	16		
	Heptachlor	17		
	Heptachlor epoxide	17		
	Hexachlorobenzene	17		
	Hydroxycarbofuran (degradate)	17		
	Lindane (gamma-BHC)	17		
	Methomyl	17		
	Methoxychlor	17		
	Methyl bromide	20		
	Metolachlor	17		
	Metribuzin	17		
	Molinate	17		
	Naphthalene	20		
	Ortho-dichlorobenzene	21		
	Oxamyl	17		
	Picloram	17		
	Prometryn	1		
	Propachlor	17		
	Silvex	17		
	Simazine	17		
	Tetrachloroethane	21		
	Thiobencarb	18		
	Toxaphene	17		
	Trifluralin	16		
	Xylene	21		

Yuba	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	1,2,4-Trichlorobenzene	17		
	1,2-D	17		
	1,3-D (telone)	10		
	Acetochlor	1		
	Alachlor	1		
	Aldrin	1		
	Atrazine	1		
	BHC (other than gamma isomer)	1		
	Bromacil	1		
	Butachlor	1		

Yuba	Pesticide	Wells Sampled	Wells with Detections	Concentration (ppb)
	Captan	1		
	Carbophenothion	1		
	Chlorpropham	1		
	Cyanazine	1		
	DDD (degradate)	1		
	DDE (degradate)	1		
	DDT	1		
	Diazinon	1		
	Dieldrin	1		
	Dimethoate	1		
	Diphenamid	1		
	Disulfoton	1		
	Endosulfan	1		
	Endosulfan sulfate (degradate)	1		
	Endrin	1		
	Endrin aldehyde	1		
	EPTC	1		
	Ethion	1		
	Heptachlor	1		
	Heptachlor epoxide	1		
	Hexachlorobenzene	1		
	Lindane (gamma-BHC)	1		
	Methoxychlor	1		
	Methyl bromide	11		
	Metolachlor	1		
	Metribuzin	1		
	Molinate	1		
	Naphthalene	16		
	Ortho-dichlorobenzene	17		
	PCNB	1		
	Prometon	1		
	Prometryn	1		
	Propachlor	1		
	Simazine	1		
	Terbacil	1		
	Tetrachloroethane	17		
	Thiobencarb	1		
	Trifluralin	1		
	Xylene	17		

GLOSSARY OF TERMS

TERM	*DEFINITION*
AB 1803	(1983) (Chapter 881, Statutes of 1983) A law that required 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, SWRCB, and CDPH.
Archived advisory level (AAL)	In 1982 and 1983, CDPH provided advisory levels (then called "action levels" and now called "notification levels") for a number of chemicals to the Central Valley Regional Water Quality Control Board. Many were pesticides that had not been detected in drinking water but which were nonetheless of concern because of their association with a particular site. Some of those chemicals now have enforceable drinking water standards. The remaining chemicals were archived, along with several others with advisory levels established in 1990-91, or updated more recently. If a chemical is detected above its archived advisory level, the requirements and recommendations are the same as for chemicals detected above their notification levels and response levels. More information is available at: <http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Notificationlevels/archivedadvisorylevels.pdf >.
Active ingredient	The chemical or chemicals in a pesticide formulation that are biologically active and are capable, in themselves, or preventing, destroying, repelling or mitigating insects, fungi, rodents, weeds, or other pests. The remainder of the product consists of one or more *inert ingredients* (such as water, solvents, emulsifiers, surfactants, clay and propellants), which are there for reasons other than pesticidal activity.
Adjuvant	Chemicals added to a pesticide product to improve its effectiveness, including wetting agents, dispersing agents, stickers, emulsifiers, spreaders, and penetrants. In California, must be registered as pesticides.
Agricultural Commissioner	Local official whose duties include pesticide use enforcement in their counties.

TERM	*DEFINITION*
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. Agricultural use includes but is not limited to commercial production of animals or plants (including forest), parks, golf courses, cemeteries, roadsides, rights-of-way and nurseries. It excludes the sale or use of pesticides intended for: a) Home use b) Structural pest control c) Industrial or institutional use d) The control of an animal pest under the written prescription of a veterinarian e) Uses by certain local districts or agencies that operate under a cooperative agreement with the California Department of Public Health, such as many mosquito abatement districts. See also "legal agricultural use."
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.
Cal/EPA	California Environmental Protection Agency. Comprised of the Department of Pesticide Regulation, the Department of Toxic Substances Control, the Water Resources Control Board, the Air Resources Control Board, and the Office of Environmental Health Hazard Assessment.
California Code of Regulations (CCR)	Regulations formally adopted by state agencies. Regulations about pesticides and pest control operations are mainly in Title 3, Division 6, and Title 16, Division 19.
Chemigation	Applying pesticide through an irrigation system or mixing with irrigation water before the water is applied to the soil or crop.
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 products (degradates) that may undergo further degradation by similar processes. With respect to ground water quality, degradation refers to a reduction of water quality.

TERM	*DEFINITION*
Detection	A well water sample in which the presence of a pesticide 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.
EPA Registration Number (EPA Reg. No)	Assigned by U.S. EPA to identify each pesticide product registration. This number must appear on the product's label.
Environmental fate	Describes the processes by which pesticides move and are transformed in the environment, including persistence in air, water, and soil; reactivity and degradation; migration in groundwater; and bioaccumulation in aquatic or terrestrial organisms.
FAC	Food and Agricultural Code. Division 6 of the FAC (specifically Sections 11401 - 12499) pertains to the registration, sale and use of pesticides.
Formulation	Pesticide product as sold, usually a mixture of active and inert ingredients.
Ground water	Water found below the surface of the land, usually in porous rock formations.
Ground water protection area (GWPA)	A geographic area defined in state regulations as vulnerable to pesticide contamination though the mechanism of either leaching or runoff.
Groundwater Protection List (GWPL)	A list of pesticides having the potential to pollute ground water included in 3 CCR section 6800(b).
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.
Inert ingredient	Any substance other than an active ingredient which is intentionally included in a pesticide product. Also known as "other" ingredients, they do not attack a particular pest but may be chemically or biologically active.

TERM	*DEFINITION*
Leaching	A pathway by which agricultural pesticides 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 level (MCL)	MCLs are adopted as regulations by CDPH. They are health protective drinking water standards to be met by public water systems. MCLs take into account not only chemicals' health risks but also factors such as their detectability and treatability, as well as costs of treatment. Health and Safety Code §116365(a) requires CDPH to establish a contaminant's MCL at a level as close to its PHG as is technically and economically feasible, placing primary emphasis on the protection of public health.
Maximum contaminant level goal (MCLG)	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
Mitigation measure	A use practice designed to reduce the risk of harm to people or the environment.
Model	Mathematical equations that represent certain processes. These equations can be implemented in a computer program to facilitate calculations and to test model predictions against measured data.
Monitoring well	A well-used principally for any of the follow purposes: (1) observing ground water levels and flow conditions, (2) obtaining samples for determining ground water quality, or (3) evaluating hydraulic properties of water-bearing strata.
Non-agricultural use	*See "agricultural use."*
Nonpoint source	Pollution sources which are diffuse and do not have a distinct discharge point (compare with *point source*), for example, applications of agricultural pesticide to crops.
Notification level (NL)	Notification levels are health-based advisory levels established by CDPH for chemicals in drinking water that lack maximum contaminant levels (MCLs). When chemicals are found at concentrations greater than their notification levels, certain requirements and recommendations apply. The level at which CDPH recommends removal of a drinking water source from service is called the "response level". Since the early 1980s, notification levels (known as "action levels" through 2004)

TERM	DEFINITION
	for 93 contaminants have been established. Of those, 39 have gone through the formal regulatory process and now have MCLs. Currently there are 30 chemicals with notification levels. In addition, another 24 chemicals have archived advisory levels, which are also available for use.
Permit	Time- and site-specific permits are issued by county agricultural commissioners for the use of pesticides designated as restricted materials.
Pest	Any undesired insect, rodent, nematode, fungus, bird, vertebrate, invertebrate, weed, virus, bacteria or other microorganism (except microorganisms on or in humans or animals) which is declared to be injurious to health or environment.
Pest control	The use or application of any pesticide. It also means the use of any substance, method or device to control pests; prevent, destroy, repel, mitigate or correct any pest infestation or disorder of plants; or inhibit, regulate, stimulate or otherwise alter plant growth by direct application to plants.
Pesticide	A substance, or mixture of substances, intended to defoliate plants, regulate plant growth, or prevent, destroy, repel, or mitigate any insects, fungi, bacteria, weeds, rodents, predatory animal, or any other form of plant or animal life declared to be a pest detrimental to vegetation, man, animal, or households, or any environment. Also, in California only, a spray adjuvant.
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.
Pollution	This term, as used in this report, is defined in FAC section 13142 as the introduction into the groundwaters of the state an active ingredient, its degradation

TERM	*DEFINITION*
	product, or other specified product, above a level that does not cause adverse health effects.
Public health goal (PHG)	PHGs are established by s OEHHA. They are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, based on current risk assessment principles, practices, and methods. OEHHA establishes PHGs pursuant to Health and Safety Code §116365(c) for contaminants with MCLs, and for those for which CDPH will be adopting MCLs.
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. A range is a vertical column of townships.
Registered pesticide	A pesticide product approved by the U.S. EPA and DPR for use in California.
Regulations	These are adopted by state agencies to implement or clarify statutes enacted by the California Legislature. They can also be adopted in response to federal legislation, court decisions, changing technologies, and concerns for the health and well-being of the residents of California.
Restricted material	A pesticide that with certain exceptions may be possessed or used only by or under the supervision of licensed or certified persons, and only in accordance with a permit issued by the CAC.
Section	Section/Township/Range: Public Land Survey System units. A section is a one-square-mile block of land containing 640 acres. A township is contains 36 sections. A range is a vertical column of townships.
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 pesticide 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

TERM	*DEFINITION*
	point (called the "baseline"). A township normally contains 36 sections.
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 degradates.