

# Environmental Monitoring

Department of Pesticide Regulation/CalEPA



## Protecting groundwater

### DPR Groundwater Protection Program

#### Department of Pesticide Regulation Environmental Monitoring Branch

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#### Groundwater Protection List

[http://bit.ly/GWProtection\\_List](http://bit.ly/GWProtection_List)

This handout is available from DPR by calling (916) 445 3974 or can be downloaded from DPR's Web site: [www.cdpr.ca.gov](http://www.cdpr.ca.gov) under "Consumer Fact Sheets."



## Keeping our aquifers clean

By blending environmental monitoring, scientific research, and computer modeling, the Department of Pesticide Regulation's (DPR) Groundwater Protection Program (GWPP) addresses current and potential contamination of groundwater from legal, agricultural use of pesticides. GWPP scientists evaluate certain pesticides and degradates before they are registered for use in California and monitor groundwater for contamination from actively registered pesticides and their degradates. DPR adopts regulations and provides information to pesticide applicators to prevent further groundwater contamination in affected areas and to prevent problems before they occur in other areas.

### The Pesticide Contamination Prevention Act

DPR began addressing pesticide contamination of groundwater in the early 1980s, after the discovery of contamination of groundwater from legal applications of the fumigant dibromochloropropane (DBCP). Reports of additional pesticides in groundwater led to the passage of the Pesticide Contamination Prevention Act (PCPA) in 1985. The purpose of the PCPA (Food and Agricultural Code sections 13141-13152) is to prevent agricultural pesticides from polluting groundwater used for drinking water supplies. The PCPA establishes a program to identify pesticides and degradates that have the potential to pollute groundwater, requires sampling to determine if those pesticides or degradates are present in groundwater, directs DPR to maintain a database of all wells sampled by all agencies for pesticides and degradates, and requires DPR to conduct a formal review to determine whether the use of the detected pesticides can be modified to protect groundwater.



## Monitoring

DPR's GWPP continually monitors for agricultural pesticides and degradates that have been restricted because of previous detections in groundwater. Annual sampling conducted in a domestic well monitoring network, spanning two distinct types of vulnerable areas, helps GWPP track the concentrations of these restricted use pesticides and their degradates in groundwater. Sampling results indicate that the levels of pesticides in groundwater have declined since groundwater protection regulations were adopted.

DPR's GWPP also monitors for pesticides and degradates on the Groundwater Protection List. These are compounds that have the potential to contaminate groundwater based on their physical and chemical properties. Groundwater monitoring studies focus on shallow domestic wells in vulnerable areas with high use of specific pesticides. By concentrating our monitoring efforts on these areas, DPR can respond to any potential pesticide detections in groundwater before they cause widespread contamination.

The law requires all state and local agencies to report well monitoring results for pesticides to DPR. GWPP also gathers well sampling results from federal agencies and other organizations that routinely monitor groundwater. GWPP enters the data into the Well Inventory Database and investigates all reported detections of pesticides and degradates in groundwater to determine if they are due to legal agricultural use. GWPP compiles all reported sampling results and actions taken by DPR into the Annual Well Sampling Report.

## Modeling

GWPP scientists developed computer models to evaluate the groundwater contamination potential of new pesticide uses or new pesticide active ingredients and their degradates. Before DPR registers certain pesticides for use in California, GWPP scientists use modeling to predict the likelihood of the pesticide or degradate contributing to groundwater contamination. If the pesticide is a groundwater contamination concern, DPR may require additional mitigation measures before the pesticide can be registered.



GWPP scientists also created a model to identify areas of California vulnerable to pesticide contamination of groundwater by combining soil data from the federal Natural Resources Conservation Service, climate data, and over 30 years of well monitoring data compiled in DPR's Well Inventory Database. GWPP scientists use this model to identify areas that require mitigation measures when certain restricted use pesticides are used.

## Mitigation

GWPP scientists have identified soil, climate, and depth-to-groundwater as conditions associated with groundwater contamination by pesticides. By examining these conditions, GWPP identified pathways of contamination (such as leaching and runoff) and mechanisms of movement to groundwater (such as over-irrigation). GWPP uses these pathways as the scientific basis for developing mitigation measures. DPR adopted regulations that incorporate these mitigation measures to control the use of the pesticides that have been restricted due to their detection in groundwater as a result of legal agricultural use. These regulations apply to approximately 2.5 million acres of land across the state where groundwater is most vulnerable to pesticide contamination, referred to as Ground Water Protection Areas.