Department of Pesticide Regulation

Brian R. Leahy
*Director*

Edmund G. Brown Jr.
*Governor*

M E M O R A N D U M

TO: Ann Prichard
Environmental Program Manager II
Pesticide Registration Branch

FROM: Pamela Wofford *Original Signed By*
Environmental Program Manager II
Environmental Monitoring Branch
916-324-4297

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SUBJECT: REQUEST TO END THE REEVALUATION OF DIAZINON

## Summary

Staff in the Environmental Monitoring Branch's Surface Water Protection Program (SWPP) has extensively reviewed diazinon use data and surface water monitoring data in California and concluded that the use of diazinon in recent years has dropped to a level that only posed a *de minimis* risk to aquatic organisms (Wang et al., 2017). This evidence supports the termination of the diazinon reevaluation, which has been active since 2003.

## Background

Diazinon is an organophosphorus insecticide that has been widely used in California resulting in contamination of surface waters. Several federal and state regulations have been implemented with the aim of reducing its impact to human health and the environment. In order to reduce risks to children and applicators, the United States Environmental Protection Agency (USEPA) announced plans to restrict consumer use of diazinon in December 2000 and subsequently eliminated sales of indoor use products in December 2002 and outdoor residential use products in December 2004. In February 2003, Department of Pesticide Regulation (DPR) placed all agricultural use diazinon products labeled as dormant sprays into reevaluation in order to determine the source of surface water contamination and to examine potential mitigation measures. In July 2006, DPR adopted dormant spray regulations that placed further restrictions on the use of diazinon products (http://cdpr.ca.gov/docs/emon/dormspray/05_004final.pdf). In January 2007, USEPA cancelled certain agricultural uses of diazinon (https://archive.epa.gov/pesticides/reregistration/web/html/diazinon_cancellation_fs.html) in order to reduce risks to agricultural workers and the environment (https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/red_PC-057801_31-Jul-06.pdf). In the period of 2003–2007, two other regulatory actions also led the growers to reduce diazinon use in California. First, several Total Maximum Daily Loads (TMDLs) were developed by the Central Valley Regional Water Quality Control Board (CVRWQCB) between 2003 and 2007 (http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/).

Secondly, the Irrigated Lands Regulatory Program (ILRP) began in 2003 in the Central Valley and was gradually implemented in subsequent years, i.e., adoption of conditional waiver of waste discharge requirements (http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/). In June 2010, DPR expanded the reevaluation to include in-season uses of diazinon.

**Evidence Supports Termination of the Reevaluation**

SWPP staff reviewed the change in diazinon use and surface water contamination with considerations to the regulatory actions implemented in California over water years (WYs) 1992–2014 (Wang et al., 2017). SWPP staff observed that diazinon use amounts began declining when agencies announced the intention to regulate certain use patterns and continued to decline after the implementation of those programs and regulations. Agricultural use peaked in WY 1993 and WY 1994 at an average of 91,000 pounds/month. Since then, there has been a general downward trend, most significantly during WYs 1994–1998 and WYs 2004–2010. Use reduction in WYs 2004–2010 corresponds to a period when California regulatory agencies, DPR and CVRWQCB, implemented intensive monitoring and additional regulatory actions in response to the diazinon contamination in surface waters. By the time DPR included in-season use products into the diazinon reevaluation in WY 2010, agricultural use had dropped down to 11,000 pounds/month and then down to 4,900 pounds/month in WY 2014. Agricultural use in WY 2014 is only 5.4% of the peak use in WY 1994.

There is a general downward trend in water quality threshold exceedance frequencies. These frequencies have decreased steadily to a low level in the WYs 2009–2014 (i.e., less than 1.3%, 2.2% and 1.9% with respect to CVRWQCB's acute and chronic water quality objectives, as well as USEPA's lowest aquatic benchmark value).

The current level of aquatic risk was determined to be *de minimis*. The aquatic risk posed by surface water concentrations from WYs 2012–2014 was evaluated in Wang et al. (2017). In this period of time, diazinon posed *de minimis* risks to crustaceans and insects, as well as to fish and other indicator groups. SWPP staff also evaluated recent surface water concentrations from WYs 2015–2017 using data from SWPP's Surface Water Database (SURF) (http://www.cdpr.ca.gov/docs/emon/surfwtr/surfdata.htm, last updated in August 2017) that became available after the Wang et al. (2017) review. SURF contains surface water pesticide monitoring results from DPR as well as other organizations. There has been no exceedance over the $LC_{50}$ values of crustaceans, insects or fish. If the use amount remains at current level or lower, SWPP staff expects the aquatic risks posed by diazinon alone to continue to be negligible. Based on this line of evidence, the Environmental Monitoring Branch requests that the Pesticide Registration Branch conclude the reevaluation of diazinon.

cc: Kean Goh, DPR Environmental Program Manager I
Nan Singhasemanon, DPR Senior Environmental Scientist (Supervisory)
Dan Wang, DPR Senior Environmental Scientist

**Reference**

Wang, D., Singhasemanon, N. and Goh, K.S., 2017. A review of diazinon use, contamination in surface waters, and regulatory actions in California across water years 1992–2014. *Environmental Monitoring and Assessment*, *189*(7), p.310.