

# Memorandum



To: Mr. Joe Karkoski  
Senior Water Resources Control Engineer  
11020 Sun Center Drive  
Rancho Cordova, California 95670

Date: July 30, 2004

From: Brian Finlayson, Chief  
Department of Fish and Game  
Pesticide Investigations Unit

Subject: Water Quality for Diazinon

I have reviewed the information described in a letter dated May 19, 2004, to Dr. Lenwood Hall from Dr. Chris Ingersoll regarding diazinon toxicity data on the amphipod *Gammarus fasciatus* reported by Mayer and Ellersieck (1986)<sup>1</sup>. This information was discussed at a meeting on May 25, 2004. I have also discussed this issue with Dr. Ingersoll. I believe that it is impossible to discern the correct LC<sub>50</sub> value from the 96-h test data on diazinon with the amphipod, and these data cannot be used in the calculation of a Final Acute Value (FAV).

There is a requirement that eight specific families of freshwater aquatic animals are represented in the data set used for deriving water quality criteria (USEPA 1985)<sup>2</sup>. The mysid *Neomysis mercedis* can be substituted for the amphipod as a (epi)benthic crustacean. Thus, the eight families of freshwater aquatic animals recommended by USPEA (1985) for calculating a FAV are included in the Siepmann and Finlayson (2000<sup>3</sup>, Table 1) data set. I have recalculated the FAV from the data set in Siepmann and Finlayson (2000) as 0.31 µg/L. The FAV derived from the data set in USEPA (2000<sup>4</sup>, Table 3), excluding the suspect Genus Mean Acute Value of 0.2 µg/L for the amphipod, is also 0.31 µg/L. The suspect data from the amphipod test do not affect the acute-chronic ratio for diazinon. The recalculated Criterion Maximum Concentration is then 0.16 µg/L, and the Criterion Continuous Concentration is then 0.10 µg/L.

<sup>1</sup> Mayer, F.L. and M.R. Ellersieck. 1986. Manual of acute toxicity: interpretation and data base for 410 chemicals and 66 species of freshwater animals. U.S. Department of the Interior, Fish and Wildlife Service, Resource Publication 160. Washington, D.C.

<sup>2</sup> USEPA. 1985. Guidelines for deriving numerical national water quality criteria for the protection of aquatic organisms and their uses. Office of Research and Development, Washington, D.C.

<sup>3</sup> Siepmann, S. and B. Finlayson. 2000. Water quality criteria for diazinon and chlorpyrifos. California Department of Fish and Game Office of Spill Prevention and Response Administrative Report 00-3. Sacramento, CA.

<sup>4</sup> USEPA. 2000. Draft ambient aquatic life water quality criteria diazinon. Office of Research and Development, Washington, D.C.

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These calculations assume that no new toxicity information on diazinon has been discovered, since the data set of Siepmann and Finlayson (2000) that would affect the water quality criteria.

Please contact me if you need further information or clarification.

cc: John Sanders, DPR