



# Department of Pesticide Regulation



D.H

Mary-Ann Warmerdam  
Director

## MEMORANDUM

Arnold Schwarzenegger  
Governor

TO: Danny McClure  
Regional Water Quality Control Board  
Central Valley Region  
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FROM: Xin Deng, Ph.D.  
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Environmental Monitoring Branch  
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DATE: February 25, 2010

SUBJECT: REVIEW FOR LAMBDA-CYHALOTHRIN WATER QUALITY CRITERIA  
DERIVATION

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CYR WOCB  
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The lambda-cyhalothrin water quality criteria were derived by applying a methodology recently developed by the University of California, Davis. Explicitly following the data evaluation criteria of the methodology, the author(s) identified 20 acute and 3 chronic toxicity studies that were reliable and relevant for lambda-cyhalothrin criteria derivation from over 65 original studies. As acceptable acute toxicity data were available from more than eight taxa, the species sensitivity distribution method was chosen to derive the acute water quality criterion (TenBrook *et al.* 2009a), which yielded a recommended acute value of 1 ng/L. And as only two chronic toxicity values were acceptable, the chronic criterion was derived by applying the acute-to-chronic ratio method that produced a value of 1 ng/L (TenBrook *et al.* 2009a).

Limitations of the derived water criteria were from the chronic toxicity data set that is comprised of only two of the five required taxa, and lack of data from the most sensitive species *Hyalella azteca*. Following analyses on the existing toxicity data of sensitive species, threatened and endangered species, and ecosystem and other studies, it appears reasonable to conclude that there is no evidence shown that the derived acute and chronic criteria will be underprotective of aquatic organisms based on the current knowledge of lambda-cyhalothrin toxicity.

There is an error on the citation for the test type of a chronic study by Hamer *et al.* (1985b). The study was conducted in a 12 hours static water renewal condition, not in a flow-through condition. However, should this study be included in the acute-to-chronic ratio calculation, the error will not change the derived chronic water criterion. The author may check the source of a cited paper by Lauridsen and Friberg (2005). It was published in *Environmental Toxicology*, not *Environmental Toxicology and Chemistry*.

