

**Comments on Protocol for Event-based Monitoring of Organophosphate  
Pesticides in the Sacramento Valley, Winter 1999-2000  
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**Overall Deficiencies in the Proposed Monitoring Program**

The second sentence of the **Introduction** states “*The stakeholders agreed that the presence of these pesticides in the watershed should be reduced to protect aquatic resources and recommended that an OP pesticide management plan be developed as part of Phase IV of the SRWP*”. I do not remember that the “stakeholders” agreed that OP pesticides should be “reduced” in the Sacramento and Feather River watersheds. What I remember is that the Sacramento River Watershed study advisory committees agreed that the OP pesticide toxicity issue is a priority issue that needs attention. This attention must include determining whether the OP pesticide caused toxicity to *Ceriodaphnia* is significantly adversely impacting the beneficial uses of the Sacramento River, its tributaries and the Delta.

This proposed monitoring program fails to address the key issue that ultimately will have to be addressed to appropriately regulate diazinon caused *Ceriodaphnia* toxicity, namely, what does this toxicity mean to the beneficial uses of the waters in which it occurs. To assume, as is now being done, that the presence of this toxicity is significantly adverse to the beneficial uses of the Sacramento River and its tributaries is not valid.

The basic problem with this approach is that reducing the amount of diazinon used in order to reduce and/or eliminate toxicity to *Ceriodaphnia* associated with stormwater runoff events will involve using some other pesticide(s). The current regulatory approach does not require that this alternative pesticide(s) be properly evaluated for environmental impacts before use. So long as this situation occurs, caution should be exercised in playing “musical pesticides”. There are significant questions about the water quality and ecological significance of diazinon caused aquatic life toxicity. The US EPA OPP pesticide regulations require that restricting the use of a pesticide requires that the labeled uses are causing significant adverse impacts on beneficial uses of waters. At this time, this information is not available. In fact, the evidence is that the toxic pulses that occur in dormant spray and urban stormwater runoff may not be significantly adverse to the beneficial uses of the waterbody in which the toxicity occurs.

To develop a monitoring program that only addresses determining the concentrations of diazinon in stormwater runoff associated with dormant spray application is significantly deficient in providing the information needed to adequately and reliably regulate the impact of pesticides on aquatic life related beneficial uses of waterbodies due to their toxicity. Without reliable evaluation of the potential water quality and ecological significance of the diazinon caused aquatic life toxicity, the regulation of diazinon use could readily be decided by the courts where technical issues will likely play a minor role. There is no point in gathering data of the type that is proposed in this monitoring program for the purpose of regulating diazinon use under the conditions where the monitoring program will not provide the information needed to properly regulate diazinon use based on US EPA OPP regulations.

I strongly urge that the CVRWQCB and DPR immediately, as part of this monitoring program, develop a comprehensive evaluation of the water quality and ecological significance of the diazinon caused aquatic life toxicity associated with its use as a dormant spray in orchards and its use in urban areas for residential, structural, and lawn and garden pest control. Additional information on some of the regulatory issues that need to be consider in regulating OP pesticide caused aquatic life toxicity are available in a paper, Lee, G.F., Jones-Lee, A., Taylor, S., and Neiter, D., "Evaluation of the Water Quality Significance of OP Pesticide Toxicity in Tributaries of Upper Newport Bay, Orange County, CA," *Ninth Symposium on Environmental Toxicology and Risk Assessment: Recent Achievements in Environmental Fate and Transport, ASTM STP 1381* (1999) (in press). A preprint of this paper is available from [www.gfredlee.com](http://www.gfredlee.com).

### **Unavailable References**

At several locations, references to work conducted by Nordmark and others are cited as backup to this proposed monitoring program. Several of these references refer to internal DPR memos between staff. These references must be made readily available so they can be reviewed by those participating in the review of the proposed monitoring program.

### **Failure to Investigate Potential Impacts on Benthic Organisms**

Another deficiency in the proposed monitoring program is the fact that no information exists on the magnitude of the impact of the toxic pulses on benthic invertebrates such as *Gammarus*. The goals for the TMDL focus on *Ceriodaphnia* toxicity. *Gammarus* is well established to be more sensitive to diazinon toxicity than *Ceriodaphnia*. The monitoring program should consider the potential impacts of the toxic pulses on benthic invertebrates such as *Gammarus* to determine whether there are excessive concentrations of toxic forms of diazinon that occur in the sediments.

### **Use of the Monitoring Data**

As part of reviewing this proposed monitoring program, it is essential that CVRWQCB and DPR provide a detailed discussion on how the monitoring data that will evolve from this monitoring program will be used to establish a regulatory program for diazinon. It is not clear how determining what is already well

known, that the concentrations of diazinon in stormwater runoff sampled at the time of dormant spray application and shortly thereafter that are found to be above CA Department of Fish and Game suggested water quality criteria will be used to limit the use of diazinon as a dormant spray. There is no question about the fact that concentrations of diazinon will be found in the Sacramento River and its tributaries associated with dormant spray application which are above the suggested regulatory limits for protection of aquatic life. However, there is need to provide guidance on what will be done with this information in the regulatory program. Such guidance can then be used to determine whether the monitoring program will provide the information needed to properly develop this regulatory program.

It is suggested that a synthetic data set be developed by DPR and CVRWQCB for the expected concentrations of diazinon and their associated loads associated with stormwater runoff during and following dormant spray applications. This data set can then be used as an example of how the results of this monitoring program will be used in the regulatory program. Based on this review, it will be possible to determine if significant deficiencies exist in the monitoring program in developing the information that is needed for regulation. Based on this review, a modified monitoring program can be developed that more appropriately provides the information needed to properly regulate diazinon caused aquatic life toxicity.

If there are questions about these comments, please contact me.

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