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Public Information and Records Integrity Branch (PIRIB)  
Information Resources and Services Division (7502C)  
Office of Pesticide Programs (OPP)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Mr. Ben Chambliss  
Special Review and Reregistration Division (7508C)  
Office of Pesticide Programs (OPP)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Dear Mr. Chambliss:

Subject: Diazinon Risk Mitigation (Docket # OPP-34225C)

I wish to provide some information that may be of assistance to US EPA OPP in helping to assess the environmental risk of the use of diazinon. During the past four years, Mr. Scott Taylor of RBF Consulting, Irvine, California, and I have been conducting US EPA-sponsored 205(j) and 319(h) studies of aquatic life toxicity in the Upper Newport Bay, California, watershed. I believe these are among the most – if not the most – comprehensive study of this issue conducted anywhere, where several hundred thousand dollars' worth of toxicity testing and chemical analyses have been conducted. The report from the 205(j) studies,

Lee, G. F. and Taylor, S., "Results of Aquatic Life Toxicity Studies Conducted During 1997-98 in the Upper Newport Bay Watershed and Review of Existing Water Quality Characteristics of Upper Newport Bay, Orange County, CA and its Watershed," Report to the State Water Resources Control Board, Santa Ana Regional Water Quality Control Board, and the Orange County Public Facilities and Resources Department to meet the requirements of a US EPA 205(j) Project, G. Fred Lee & Associates, El Macero, CA, and Robert Bein, William Frost Associates, Irvine, CA, October (1999)

is available from my website, [www.gfredlee.com](http://www.gfredlee.com). I believe that I have previously provided you with the aquatic life toxicity sections of that report. If there is interest in receiving them, let me know and I can email them to you.

I am contacting you now to bring to your attention that Mr. Scott Taylor of RBF Consulting and I have recently completed a 37-page synopsis of an over 300-page US EPA 319(h) project report

covering the work that we have been doing in Orange County, California, over the past two years on pesticide-caused aquatic life toxicity in the Upper Newport Bay Watershed tributaries. This study was done in cooperation with the Santa Ana Regional Water Quality Control Board and the Orange County Public Facilities and Resources Department. Attached in WordPerfect format is a copy of this synopsis.

This report,

Lee, G. F., Taylor, S., and Palmer, F., "Results of Aquatic Toxicity Testing Conducted During 1999-2000 in the Upper Newport Bay Watersheds," submitted to State Water Resources Control Board, Santa Ana Regional Water Quality Control Board and Orange County Public Facilities and Resources Department to meet the requirements of the US EPA 319(h) Project, G. Fred Lee & Associates, El Macero, CA and RBF Consulting, Irvine, CA, January (2001). [[http://www.gfredlee.com/Watersheds/optox\\_rev\\_021801.pdf](http://www.gfredlee.com/Watersheds/optox_rev_021801.pdf)]

presents an extension of the work that we have been doing over the past three years, in which we have been assessing the occurrence, magnitude, sources, causes and water quality significance of aquatic life toxicity in stormwater runoff in the Upper Newport Bay Watershed. The work during the past two years has focused on monitoring 10 Upper Newport Bay watersheds during several stormwater runoff events and dry weather flow during 2000. Over 200 toxicity tests and associated chemical analyses were made of the samples taken. They continue to show that stormwater runoff in the Upper Newport Bay Watershed is highly toxic to *Ceriodaphnia* and *Mysidopsis*. Typically, stormwater runoff contains from 5 to 10 TUa of 24-hr *Ceriodaphnia* toxicity. Except for immediately downstream of a couple of nurseries, dry weather flow is nontoxic.

We continue to find that about half of the *Ceriodaphnia* toxicity can be accounted for based on an LC<sub>50</sub> normalized sum of the diazinon and chlorpyrifos concentrations. The other half of the toxicity is of unknown cause. Dr. Jeff Miller of *AquaScience* has devoted substantial effort to identifying the cause of this toxicity. It is clear that US EPA TIE procedures are not adequate for this purpose. We also did extensive work on heavy metals in stormwater runoff and dry weather flow, and find that, based on concentrations and TIE procedures, heavy metals are not the cause of this toxicity.

We found substantial PBO activation of toxicity, indicating that it could be caused, at least in part, by pyrethroid pesticides. From 20,000 to 25,000 lbs (ai) of four pyrethroid pesticides have been reported by DPR as being used in Orange County each year. There has been as much pyrethroid pesticide reported use in Orange County as diazinon. Over 70,000 lbs/yr of chlorpyrifos have been used in Orange County. In addition, there have been substantial OP and pyrethroid pesticides sold over the counter to the public in Orange County that is not included in the DPR reporting. The principal DPR reported use of the OP pesticides in Orange County is for structural pest control.

Monitoring of the loads of pesticides derived from various types of land use in the Upper Newport Bay Watershed showed, as expected, that the highest export coefficients were from residential areas, although nurseries and ag contributed substantial pesticide-caused aquatic life toxicity. On one occasion, we found high levels of carbaryl-caused aquatic life toxicity. This was immediately downstream of and after its application on strawberries.

This report provides discussions of the water quality implications of the OP pesticide- and unknown-caused toxicity to the beneficial uses of the Upper Newport Bay tributaries and the Bay. While there are high levels of toxicity, it is uncertain whether this toxicity is significantly adverse to the beneficial uses of the tributaries or the Bay.

Based on my extensive work on these issues and familiarity with the literature, I disagree with the position that there is an immediate need to increase the rate of phase-out of diazinon for urban use over that currently planned. There is no imminent environmental hazard associated with the use of diazinon during this phase-out period. This period of time is needed to allow a more proper evaluation of the diazinon replacements. These issues are discussed in the attached synopsis.

The primary 319(h) project report is out for public review. Until this review is completed, I cannot release the final report. It contains all of the data collected in our 319(h) studies. The attached synopsis presents the results of the studies. If you would like to receive a final copy of this report when it is available, please let me know. If you have questions or comments on the attached synopsis, please bring them to my attention.

Let me know if I can be of further assistance.

Sincerely yours,

G. Fred Lee, PhD, PE, DEE

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Encls.