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Subject: Expert panel on water quality significance of pesticide toxicity
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February 16, 1998

Hope Smythe
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Dear Hope:

I am contacting you as a follow-up to the Upper Newport Bay Evaluation Monitoring Demonstration Project Technical Advisory Committee meeting that was held in early January, where I reviewed the work of this past year and a half on the toxicity of San Diego Creek as it enters Upper Newport Bay. As you know, we have found both Ceriodaphnia and mysid toxicity in our sampling of San Diego Creek waters as they enter Upper Newport Bay during the fall of 1996 and 1997. As I discussed during the TAC meeting, the issue that needs to be addressed in connection with this finding is the water quality significance of this toxicity. Does it persist for a sufficient period of time at a sufficient magnitude and over a sufficient area to potentially be significantly adverse to the aquatic life-related designated beneficial uses of Upper Newport Bay? Further, is it of water quality significance in San Diego Creek where waters can traverse from the headwaters to the Bay in about eight hours during a stormwater runoff event?

As you know, the State Water Board has proposed as part of implementation of the California Toxics Rule that the toxicity must impair the beneficial uses of a waterbody. I understand from our discussions at the TAC meeting that this is already a requirement in the Santa Ana Regional Board's Basin Plan objectives. While to my knowledge the Santa Ana Board is the only one that is under a consent decree to develop a TMDL for toxics, it is likely that similar kinds of situations will occur in the other regions in the near future especially now that the Central Valley Region has listed Arcade Creek as an impaired waterbody that is on the 303(d) list.

Over the past several years since the organophosphate pesticide toxicity problem associated with diazinon and chlorpyrifos has become well known, I have repeatedly suggested that there is need to appoint an expert advisory panel to the State Board and regional boards on what constitutes excessive toxicity focusing specifically on the organophosphate pesticide Ceriodaphnia toxicity. Novartis, formerly Ciba, has hired several consultants who made a presentation last October that claimed that the Ceriodaphnia toxicity that

occurs in the Sacramento River - San Joaquin River Delta each winter with the use of diazinon as a dormant spray in orchards is not of significance to the Delta since there are no known key organisms that are adversely impacted by the toxic pulses that last for several weeks each winter.

I am contacting you and representatives of the other regional boards and others, where the toxicity problem is now well known to suggest that a state-wide effort be immediately initiated to address this issue. Specifically, an advisory panel should be appointed that would work with representatives of the State Board and regional boards and other interested parties to develop guidelines on how a regional board should proceed to determine whether aquatic life toxicity found in a waterbody potentially represents a significant adverse impact on the beneficial uses of the waterbody that requires control of the input of the toxic components. One of the primary responsibilities of this panel's deliberations would be to define the types and characteristics of data needed to make such an evaluation for a particular waterbody.

I have been discussing this matter with Val Conner and have recently e-mailed you and others some of my thoughts on this matter relative to the CVRWQCBs listing of Arcade Creek as an impaired waterbody due to diazinon toxicity in stormwater runoff. These same kinds of problems exist throughout the state where there is a potential to list every urban creek and for that matter the Sacramento - San Joaquin River systems and other river systems in the state as impaired waterbodies due to organophosphate toxicity to aquatic life. There is need for a state-wide policy on this matter.

The Urban Pesticides Committee representing the San Francisco Bay region and the Sacramento area has devoted considerable attention to trying to gain voluntary control of the use of organophosphate pesticides by homeowners through their own application as well as commercial applicators' use on residential properties. Basically, this program is directed to developing and implementing an information program that informs homeowners and other pesticide users that inappropriate use can lead to aquatic life toxicity. While such programs are highly meritorious, it should be understood, however, from the work of Jim Scanlon of Alameda County and our own work on the runoff of organophosphate pesticides from residential properties, that the aquatic life toxicity problem in surface waters is not restricted to misuse. There is no way under current registration and labeling that these chemicals can be used exterior to the home as currently being practiced under existing requirements and restrictions and not have stormwater runoff and fugitive water runoff aquatic life toxicity in the receiving waters for the residential property runoff. This is basically the same problem that exists for the diazinon orchard dormant spray situation.

There is a highly inconsistent approach toward regulating organophosphate pesticide and other causes of aquatic life toxicity within the state and nationally where POTWS are required to control Ceriodaphnia toxicity in their wastewater discharges, yet NPDES-permitted stormwater dischargers discharge the same types and magnitude of toxicity as the POTWS. A POTW could readily find itself in the position of having to remove this toxicity in order to have its effluent enter a waterbody that has the same toxicity of at least equal or greater magnitude every time there is a rainfall runoff event.

The recent State Board review of the receiving water language for stormwater runoff NPDES permits includes an explicit requirement for BMP ratcheting down to ultimately achieving the US EPA water quality criterion/state standard (objective) including the narrative objectives of controlling toxicity. It is now fairly clear that for many of this organophosphate pesticide-caused toxicity that the ratcheting down process will ultimately lead to the discontinued use. It is my assessment that if there was an easy way to reformulate diazinon or to control its use to eliminate the stormwater runoff of airborne transport from orchards, the pesticide companies and DPR would have adopted this approach some time ago. The approaches that have been recommended by Novartis and DPR are largely cosmetic in addressing this problem. Based on my over 30 years of work on pesticide transport, fate and effects, I am confident that the current diazinon control programs will not be effective in controlling Ceriodaphnia toxicity in the state's waters.