

## Strategy to Reduce Diazinon Levels in Creeks in the San Francisco Bay Area

### G. Fred Lee & Associates

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November 30, 1997

Jim Scanlin  
Alameda County Flood Control District  
951 Turner Court, Room 300  
Hayward, CA 94545

Dear Jim :

Please find attached my comments on the "Strategy to Reduce Diazinon Levels in Creeks in the San Francisco Bay Area." Overall I find that the draft strategy it is a good start. The one major comment I have is that it focuses on chemical concentrations of diazinon as opposed to chemical impacts (toxicity) of diazinon and other urban pesticides. The first step in developing a technically valid, cost-effective management strategy is to define the problem. At this time the real water quality use impairments associated with diazinon in the Bay region as well as elsewhere, have not been adequately defined. It is essential that this be a high priority for attention as part of developing a management strategy for **toxicity** control due to diazinon and other urban pesticides.

I am also concerned about the proposed responsibilities of the various governmental agencies set forth in this draft.

We can discuss any of my comments at the November 25, 1997 meeting of the Urban Pesticide Committee.

Sincerely yours,

G. Fred Lee, PhD, DEE

Copy to: T. Mumley  
V. Connor  
G. Bosseau



**Comments on  
"Strategy to Reduce Diazinon Levels in Creeks in the San Francisco Bay  
Area"  
Prepared by J. Scanlin and S. Gosselin Dated August, 1997**

Submitted by

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Page 1, first paragraph under Section 1.1 "Purpose/Scope," attempts to build a basis for asserting that diazinon is causing significant water quality impacts because of its presence in San Francisco Bay Area creeks during stormwater runoff events. As I indicated, based on my review of the draft 1997 Katznelson and Mumley report, the story has not been made adequately to show that diazinon is, in fact, a cause of real water quality use impairment in the San Francisco Bay region. While the concentration of diazinon has been found to be present at potentially toxic levels, the documentation that toxicity persists for a sufficient magnitude, duration and extent has not been provided. Further, another significant deficiency with the San Francisco Bay Area studies on diazinon is that they have focused on chemical measurements with limited toxicity measurements. It is not certain from the data available that controlling diazinon would significantly affect the toxicity levels that occur in San Francisco Bay Area creeks. Future work on diazinon and other pesticides in the San Francisco Bay Area should focus on measuring total toxicity through a dilution series and the use of appropriate TIEs to identify to the extent possible the cause of the toxicity found.

Page 1, second paragraph, makes general statements about toxicity issues that, according to the database that I believe exists, cannot be supported at this time. Of particular concern is the relative significance of other pesticides and other constituents as a cause of toxicity. This report should be prefaced by a statement that there is need for additional work to define what, if any, real water quality use impairments are occurring in the urban creeks as well as San Francisco Bay due to diazinon and other pesticides. This report assumes that further studies would show that there is need to control diazinon inputs to San Francisco Bay Area urban creeks and/or the Bay in order to protect and enhance the

beneficial uses of these waters. This assumption is dangerous in that it is readily attackable by those who do not want to see diazinon sales curtailed in the Bay region. The recent experience with diazinon used for orchard dormant spray and the associated toxic pulses through the Delta has demonstrated the importance of carefully documenting real water quality use impairments associated with the presence of diazinon in ambient waters. Failure to do so could readily discredit future control efforts for toxicants that are causing real water quality use impairments.

Page 1, third paragraph, the statement is made,

*"Another reason to coordinate with state and federal agencies is that the problem of insecticide related toxicity in urban runoff most likely is not unique to the Bay Area."*

That statement is inappropriate; it has been known for some time that there is widespread aquatic life toxicity due to pesticides outside of the Bay Area. This is not an issue. In fact, pesticide toxicity is probably better known in other areas than it is in the Bay Area.

Page 2, second paragraph, last sentence, states, *"...the strategy was developed with the assistance of members of the UPC, but does not represent the consensus of the Committee."* To my knowledge, the Committee has not been asked about this strategy and therefore this statement may not be accurate. The consensus of the Committee could be that this strategy is appropriate.

Page 2, third paragraph, second line, has the date, December 13, 1997. Should that be 1996?

Page 3, section 1.5, last paragraph, carries the heading "Report Organization." Actually, the discussions in this section include general aspects of its content.

Page 7, under "Water Quality," mention should be made of the proposed revisions of the no toxicity requirements that are currently being considered as part of implementation of the California Toxics Rule. The new State Board policy on this issue will be if the draft is approved as currently worded that there shall be no toxicity which significantly adversely impacts the beneficial uses of the waters. This is much closer to the approaches that are used by the US EPA FIFRA and DPR than the current US EPA water program and the Water Resources Control Board's/regional boards' no toxics in toxic amounts and no ambient water toxicity. It has become clear that the no toxicity approach is not an enforceable limit for non-point source and stormwater point source dischargers for organophosphate pesticides. This problem stems from the fact that these chemicals are highly selective in their toxicity and are toxic to only a limited number of forms of aquatic life.

Page 10, first paragraph, states that there is need for additional data on the insecticides in urban runoff. There is also need for substantial data on aquatic life toxicity in urban runoff in the Bay region.

Page 10, item 3.1 1), in addition to improper disposal or over-application, would be inappropriate use.

Page 12, 2) "Assessment of environmental significance," has toxicity as an adjunct to measurement of pesticide concentrations. The recommended approach is reversed from the approach that should be used. The focus should be on assessing chemical impacts rather than chemical concentrations. Where toxicity is found, its cause should be determined if there is reason to believe that it is of potential water quality significance to the beneficial uses of the waterbody.

Page 13, third paragraph, states "*...they concluded that diazinon could be a cause of impairment in urban creeks under certain conditions.*" This needs to be followed up with a statement about the need to determine whether the diazinon and for that matter other pesticides used in urban areas and other toxicants in urban stormwater runoff are significantly impairing the beneficial uses of waterbodies.

It is important to put the diazinon toxicity in a proper context of the overall toxicity that occurs in urban streams due to stormwater runoff. There is little point in spending large efforts for control of diazinon if the stream is still highly toxic due to other constituents. The problem is toxicity that impairs uses, not diazinon concentrations or even diazinon-caused toxicity. This issue has not been given adequate attention in the San Francisco Bay region.

Page 13, section 3.2 "Agency Responsibilities" US EPA item 2) states that the Agency should conduct a nationwide characterization of insecticides in urban runoff. Again the emphasis is on chemical concentrations rather than chemical impacts. The US EPA should conduct a nationwide characterization of urban stormwater runoff toxicity. Where toxicity is found, its cause and significance should be identified/determined. More chemical data on the concentrations of diazinon etc. will not lead to a proper characterization of the water quality significance of toxicants as well as organophosphate pesticides in urban stormwater runoff.

Page 14, "DPR Agency Responsibilities" places the responsibility for characterization of insecticides in urban runoff and their water quality significance with DPR. Based on the experience with diazinon derived from dormant spray applications and the toxic pulses that result in the Sacramento River system and Delta, DPR is not in the position to reliably undertake this responsibility. While DPR may have this responsibility as part of its charge, it has and continues to fall far short of properly fulfilling this responsibility. DPR has far too many political and other pressures governing its activities to allow it to have primary responsibility for determining the water quality significance of urban as well as agricultural pesticides.

DPR as part of its responsibility for regulating pesticides, should be responsible for funding state and regional boards as well as others in evaluating the role of urban pesticide use as a cause of water quality use impairments in urban area streams and receiving waters. The funding for this activity should be derived from pesticide

manufacturers, formulators and users as part of the privilege of selling these chemicals to the public and their use by public and private entities.

Page 15, "Bay Area Municipal Programs," "*Responsibilities*" focuses on chemicals rather than chemical impacts. The stormwater dischargers in the Bay region should shift their emphasis away from the chemical by chemical approach to assessing chemical impacts through appropriately conducted toxicity tests. Where toxicity is found, then the emphasis should be placed on determining the water quality use significance cause and sources. If diazinon falls out as a significant cause of toxicity where it appears that its control could lead to an improvement of the designated beneficial uses of a waterbody, then control programs to restrict the use of diazinon should be implemented beyond those associated with appropriate use in accord with the label.

Page 16, section 4.0, "Political/Regulatory Measures" states as item 4.1 "EPA" 3) "*Develop a water quality criterion for diazinon.*" The issue is not just developing a water quality criterion for diazinon, but developing and appropriately **implementing** a water quality criterion for diazinon. The US EPA has had a water quality criterion for chlorpyrifos which has not been implemented into control programs. The same situation could readily develop with the Agency's current efforts directed toward developing a water quality criterion for diazinon.

Page 17, section 4.2, "DPR" 1) The meaning of the "stewardship program" should be explained. Another item which should be added to this list is one of providing funding to determine the causes, sources and significance of urban stormwater runoff toxicity that is associate with urban and/or ag via airborne transport of pesticides.

Page 17, section 4.3, "State and Regional Boards" 3) add to "*Develop a water quality objective for diazinon.*" and implement this objective into water quality management programs to protect the designated beneficial uses of waterbodies where the objective is exceeded. The first step in these programs would be the determination of the water quality significance of the exceedance of the objective as a cause of water quality use impairments.

Page 18, section 4.4, "Stormwater Programs/Municipalities" lists several items associated with contacting federal and state agencies on this problem. At least with respect the Central Valley Regional Board, I believe there has already been extensive contact with DPR on the dormant spray issue. It is not clear however, that the urban pesticide issue has been addressed by the CVRWQCB where this board has asked DPR for assistance. I support the suggestion that NPDES permitted stormwater dischargers should contact federal and state agencies requesting assistance in addressing this problem.

Item 1) states "*Contact the US EPA Office of Pesticide Programs and California DPR*" as an activity of the stormwater programs. The contact should not be restricted to the US EPA Office of Pesticide Programs and California DPR. The stormwater quality managers should also contact US EPA Water Programs and the State Water Resources Control Board in an effort to demonstrate to these agencies the importance of developing

technically valid approaches for managing urban pesticide use to protect the beneficial uses of waterbodies receiving stormwater runoff without unnecessarily restricting the use of pesticides.

Section 5.0, Outreach " is well developed and from my perspective, a good discussion of these issues.

"References," the Reference List should be expanded to include: Lee, G.F. and Taylor, S. "Aquatic Life Toxicity in Stormwater Runoff to Upper Newport Bay, Orange County, California: Initial Results," Report to Silverado, Irvine, CA Submitted by G. Fred Lee & Associates, El Macero, CA June (1997). This reference provides important information on the pesticide toxicity problem in urban areas focusing on the issues that need to be addressed to determine whether the toxicity found in urban stormwater runoff is significantly adverse to the beneficial uses of a waterbody.

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***References as: "Lee, G.F., 'Strategy to Reduce Diazinon Levels in Creeks in the San Francisco Bay Area, letter to J. Scanlin, Alameda County Flood Control District, Hayward, CA, November (1997)."***