

OP Pesticide TMDL Targets

February 5, 2000

Marshall Lee, DPR:

Dear Marshall:

As you know, I have a conflict with the time that you have scheduled the meeting to discuss OP pesticide water quality targets. Per your note, I wish to submit some comments that express my views on the issue of appropriate establishment of OP pesticide-caused aquatic life toxicity TMDL targets.

As I have repeatedly pointed out, the key issue in developing appropriate diazinon and other OP pesticide TMDL targets is the development of an approach to implement the US EPA OPP pesticide regulations governing determining a significant adverse impact to the beneficial uses of a waterbody. This requirement could readily be the way in which diazinon and the other OP pesticides will be regulated. Unfortunately, we do not have guidance from US EPA or DPR, which I understand has the same regulatory requirements on how to determine whether a pesticide like diazinon, which apparently has a very limited number of types of aquatic life that are sensitive to its toxicity, is adverse to the beneficial uses of a waterbody at the concentrations being found. At this time, the work needed to demonstrate that the dormant spray use of diazinon that leads to several weeks per year of *Ceriodaphnia* toxicity in the Sacramento River, including through the Delta, is not adverse to the designated beneficial uses of these waters has not been done.

I have been recommending to the State and Regional Boards to no avail for several years that they appoint an advisory panel that could develop the guidance needed to determine whether the toxicity found due to diazinon is significantly adverse to the beneficial uses of the waters which contain this toxicity. Now that this issue is becoming a key component of TMDL development, I feel our committee should recommend that one of the possible diazinon TMDL targets would be adverse impact on the beneficial uses of a waterbody. The development and use of this target would involve the formulation and implementation of protocols that are designed to determine, on a site-specific basis, whether the toxicity found has a reasonable expectation of being significantly adverse to the beneficial uses of the waterbody.

Basically, the burden of proof should be on the pesticide manufacturers and users to fund the studies necessary to implement the protocols to show with a high degree of reliability that the toxic pulses of diazinon associated with its use as a dormant spray are not significantly adverse to the receiving waters for the stormwater runoff and areas that receive aerial drift of diazinon associated with its use.

The other end of the range of a possible TMDL target would be the Department of Fish and Game and soon the US EPA water quality criterion for diazinon. As I and others have pointed out, if that target is adopted, then this is equivalent to banning the use of diazinon. Having been involved in studying the fate, persistence, and impacts of pesticides in the environment over the past 30 years, and as former Chairman of the ASTM Committee E-35 Pesticide Modeling/Fate Section, I can

predict with a high degree of reliability that adopting the current or proposed water quality criterion for diazinon in the waters of the state as the target for TMDL control is tantamount to banning the use of diazinon. This, in turn, will lead to the substitution of other pesticides which will not be properly screened for their environmental impacts. Such use could be more significantly adverse to the environment than the yet-undefined impacts of diazinon. I have discussed these issues in several of my papers and reports that are available in the Pesticide Section of my website, www.gfredlee.com.

I wish to point out that the State Water Resources Control Board has recently made a significant change in how it proposes to regulate toxicity in the state's waters as part of promulgating its "Proposed (January 24, 2000) Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California." In previous editions of this proposed policy, the State Water Board proposed to control toxicity under the conditions where it is found that toxicity is significantly adverse to the beneficial uses of a waterbody. While the State Board still proposes to allow that approach, recently released revised policy enables the Regional Boards to use the policy within their Basin Plans for control of toxicity, which in the case of the Central Valley Regional Board is "no toxic in toxic amounts." It is my understanding that this change is the result of the Regional Board staff complaining that the burden of having to determine whether the toxicity was significantly adverse was too great.

Whether this new approach, which is basically reverting back to the current approach of limiting toxicity due to diazinon to no measurable toxicity during the laboratory test, will override the US EPA OPP and DPR's requirements for regulating the adverse impact of pesticides, will likely have to be tested in the courts. The key issue, which is the same as discussed above, is whether there is an acceptable protocol to determine what represents a significant adverse impact to beneficial uses of toxicity caused by the OP pesticides such as diazinon.

While there are some who claim that toxicity of a wastewater effluent measured in laboratory tests has been proven to be a reliable indication of adverse affects in the receiving waters for the effluent, the facts are that the kinds of studies that have been done have not addressed the situation that occurs with the OP pesticides, where there are short-term pulses of toxicity that affect only certain types of zooplankton. Anyone who claims that the toxicity test results of the type that are being developed for OP pesticide-caused toxicity to *Ceriodaphnia* have shown that this toxicity is adverse to the beneficial uses of the receiving waters should be required to bring forth the data that support that position, so that the data can be independently peer reviewed.

Having been involved in toxicity test development and a strong advocate of the use of toxicity tests for over 30 years, I know the limitations of many of the tests, especially in trying to extrapolate from test results to field conditions. This extrapolation is even more complex when the toxicant is diazinon, where a very limited number of types of organisms is apparently potentially affected.

Please feel free to distribute these comments to anyone interested. I would be happy to answer questions on them.

Fred