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August 29, 2011

Ms. Kaitlin Keller
Office of Pesticide Programs (OPP)
Regulatory Public Docket (7502P)
U.S. Environmental Protection Agency (U.S. EPA)
1200 Pennsylvania Ave., NW.
Washington, DC 20460–0001

RE: Permethrin Pesticide (Docket Number EPA–HQ–OPP–2011–0039)

Dear Ms. Keller:

The purpose of this letter is to provide comments on the registration review of the pyrethroid permethrin. We are pleased to have the opportunity to provide U.S. EPA with information from our experience and from the scientific literature, with the goal of helping U.S. EPA ensure that the environmental risk assessment for permethrin is complete and accurate so that U.S EPA can make a well-informed registration review decision. Our comments focus specifically on the environmental risks of permethrin discharges to publicly owned wastewater treatment plants (POTWs).

We express our support for the workplan with which you have begun, including the elements related to discharges of permethrin to POTWs. Additional suggestions herein may assist in further needed components in the review.

As background, Tri-TAC is a technical advisory group for POTWs in California. The group is jointly sponsored by the California Association of Sanitation Agencies, the California Water Environment Association, and the League of California Cities. The constituency base for Tri-TAC collects, treats, and discharges or reclaims more than two billion gallons of wastewater each day and serves most of the sewered population of California.

Tri-TAC members are very concerned about the water quality impacts from the discharge of pyrethroids into our municipal wastewater systems. These concerns have been expressed in our previous letters to U.S. EPA and in letters from our colleagues at the Bay Area Clean Water Agencies (BACWA) and the National Association of Clean Water Agencies (NACWA). We appreciated U.S. EPA's decision to include wastewater discharges in pyrethroid Registration Review environmental problem formulations and work plans.[1] This decision recognized the potential water quality impacts from the many indoor pyrethroid pesticide

[1] See for example Solliday, A.; Federoff, N. E.; Meléndez, J. L.; U.S. EPA Office of Pesticide Programs Environmental Fate and Effects Division (2010). *Environmental Fate and Ecological Risk Assessment Revised Problem Formulation in Support of Registration Review for Bifenthrin*. December 22.

applications, such as for clothing spray-ons or soakings, for pet treatment, and for head lice.

Tri-TAC's Interest in Pyrethroid Pesticides

Pyrethroids in pet products are transferred to the pet's fur, from which they can be subsequently washed and discharged to the sewer system when the pet is bathed by owners, groomers, or veterinarians. Clothing sprayed with permethrin, when washed, will carry the pesticide into the sewers as well, and when head lice are treated using permethrin, the intent is that the wash water flows to the sewers. Once in the sewer system, wash water carrying pyrethroids flows to POTWs.

POTWs have three general types of emissions: water, solids, and air. Assuming permethrin is similar to other pyrethroids, it would likely occur primarily in water and solids emissions.[2] Effluent from the POTW will typically be discharged into creeks, rivers, estuaries, or the ocean. In some cases, waterways receiving discharges have little other flow (these are called "effluent dominated" waters). Recycled wastewater has growing use for irrigation, toilet flushing, industrial use, and groundwater recharge. Wastewater solids, commonly called sewage sludge or "biosolids," may be reused in agriculture or in urban gardens or disposed of in landfills.

Tri-TAC is concerned about potential effluent toxicity to aquatic organisms from pyrethroid discharges to POTWs. Weston & Lydy (2010)[3] found that pyrethroids are being discharged into sewers, entering POTWs, and may not be fully degraded during wastewater treatment. The Weston & Lydy study detected pyrethroids in secondary and tertiary POTW effluent samples. In wastewater effluent, the researchers measured toxicity to the standard aquatic toxicity test organism, *Hyalella azteca*, which is also resident in some California watersheds. During the study, 44% of POTW effluent samples caused death or immobilization of the *Hyalella azteca*. Through toxicity identification evaluation experiments, this toxicity was linked to pyrethroid pesticides.

POTWs are subject to National Pollutant Discharge Elimination System (NPDES) permits under the Federal Clean Water Act. In addition to the adverse environmental impacts, non-compliance with Federal Clean Water Act requirements can be extremely costly for POTWs. Costs are incurred for identifying the source of the pollutants that have caused non-compliance, source control to reduce the impacts of the pollutants, and construction, operation, and maintenance costs to upgrade POTWs with advanced treatment to remove pollutants that cannot be

[2] Meléndez, J. L.; Solliday, A.; Sappington, K.; U.S. EPA Office of Pesticide Programs Environmental Fate and Effects Division (2010). "Response to Public Comments on the EFED Registration Review Problem Formulation for Bifenthrin" Memorandum. December 22, page 12.
[3] Weston, D. P.; Lydy M. J. (2010). Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California. *Environ. Sci. Technol*. **44**: 1833–1840.

adequately reduced with source control. Also, when surface water bodies become impaired by pesticides, POTWs discharging to the water bodies can be impacted through additional requirements established as part of Total Maximum Daily Loads (TMDLs) set for the water bodies by state agencies such as the California State Water Resources Control Board and the associated Regional Water Quality Control Boards. The cost to POTWs to comply with TMDLs can be up to millions of dollars per water body per pollutant.

Down-the-Drain Assessment

Tri-TAC requests that EPA conduct a "down-the-drain" assessment to evaluate the impacts of permethrin sewer discharges, which will inevitably occur if the permethrin review continues as previously conducted. Although Tri-TAC supports the use of U.S. EPA's standard tool for down-the-drain assessments, Exposure and Fate Assessment Screening Tool (E-FAST) Version 2.0, we have concerns with the way that OPP has applied E-FAST. In response to past Tri-TAC comments, OPP has proposed to work with Office of Water and stakeholders to refine the way it uses of E-FAST.[4] We strongly recommend that these anticipated refinements be incorporated in the permethrin down-the-drain assessment. We would be pleased to work with you in this process. In the past, OPP and OW have used different exposure periods and exposure frequencies in their ecological effects assessments. If these factors are not being addressed in the OPP/OW Common Effects Assessment Methodology project, we request that OPP work with OW to develop a means of avoiding regulatory inconsistencies. One option would be to modify OPP pesticide runoff models to provide exposure estimates for multiple time periods, including time periods consistent with those used by OW.

Available POTW monitoring data for other pyrethroids should be extrapolated to provide input into E-FAST for the down-the-drain assessment. If influent, effluent, and biosolids POTW monitoring data are not available in time for the permethrin risk assessment or if available data are insufficient to account for the variety of POTW treatment processes and operational parameters utilized nationwide, EPA should use conservative assumptions for permethrin removal during wastewater treatment in the down-the-drain assessment.

A potentially valuable study is currently in development for POTW monitoring in collaboration among the Pesticide Working Group, Department of Pesticide Regulation and Tri-TAC in California. We anticipate having data that we will be able to share with you after the testing occurs in the coming year. We request that you incorporate the findings that result from this testing in your review.

[4] Meléndez, J. L.; Solliday, A.; Sappington, K.; U.S. EPA Office of Pesticide Programs Environmental Fate and Effects Division (2010). "Response to Public Comments on the EFED Registration Review Problem Formulation for Bifenthrin." Memorandum. December 22, pages 3-4.

Biosolids Land Application Assessment

Roughly fifty percent of the total cost of wastewater treatment is expended on solids handling. Land application is a frequently used method for recycling biosolids. Since pyrethroids adsorb strongly to organic matter, a portion of permethrin entering POTWs will likely partition into biosolids. As such, the permethrin environmental risk assessment should address biosolids as well as effluent. The analysis of this partitioning has largely been missing from prior studies. We have heard that US EPA is open to including this component of your review and are pleased.

Aquatic Toxicity Data

Acute and chronic toxicity data for freshwater and estuarine/marine fish and invertebrates are necessary to perform the down-the-drain and biosolids assessments. Tri-TAC recommends that EPA issue data requirements for permethrin that fill any gaps in available data. The data requirements for permethrin should mimic the data requirements for pyrethroids undergoing registration review, which are the minimum necessary for a scientifically sound environmental risk assessment.[5]

Conclusion

In conclusion, POTWs need EPA's assistance to protect surface water from contamination from pesticides. POTWs are required by NPDES permits to meet effluent toxicity standards; however, our agencies do not have the authority to directly regulate the use of pesticides. When toxicity problems occur, they can be very costly for POTWs. Tri-TAC requests that necessary aquatic toxicity data be obtained and the down-the-drain assessment and a biosolids assessment be performed as part of EPA's registration review for permethrin.

Tri-TAC appreciates the opportunity to comment on this registration application. If you have any questions or require additional information, please contact Dr. Gail Chesler by phone at (925) 229-7294 or by email at gchesler@centralsan.org.

Sincerely,

Ben Horenstein
Chair

[5] See data requirements in Solliday, A.; Federoff, N. E.; Meléndez, J. L.; U.S. EPA Office of Pesticide Programs Environmental Fate and Effects Division (2010). *Environmental Fate and Ecological Risk Assessment Revised Problem Formulation in Support of Registration Review for Bifenthrin*. December 22.

cc: Steven Bradbury, Director, U.S. EPA Office of Pesticide Programs
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