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February 21, 2012

Ms. Carissa Cyran
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: d-Phenothrin (Sumithrin) Registration Review
(Docket Number EPA-HQ-OPP-2011-0539)

Dear Ms. Cyran:

The purpose of this letter is to provide comments on the registration review of the pesticide d-phenothrin (Sumithrin). We are pleased to have the opportunity to provide U.S. EPA with information that may help the Agency ensure the environmental risk assessment for Sumithrin 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 Sumithrin in relationship to publicly-owned wastewater treatment plants, such as publicly-owned treatment works (POTWs).

As background, Tri-TAC is a technical advisory committee sponsored by the California Association of Sanitation Agencies, the California Water Environment Association, and the League of California Cities. Tri-TAC's mission is to improve the overall effectiveness and accountability of environmental programs that impact POTWs in California by working with State and Federal regulatory agencies and interest groups on matters related to POTWs. The constituency base for Tri-TAC collects, treats, and discharges or reclaims wastewater and manages biosolids from more than 90% of the sewered population of California. These agencies collectively treat and reclaim more than two billion gallons of wastewater each day and beneficially recycle or otherwise manage more than 600,000 dry tons of biosolids annually.

Tri-TAC members are very concerned about the potential water quality impacts from the discharge of pesticides into our municipal wastewater systems. These concerns have been expressed in our previous letters to U.S. EPA and in past letters from our colleagues at the Bay Area Clean Water Agencies (BACWA) and the National Association of Clean Water Agencies (NACWA). We would like to thank U.S. EPA for incorporating many of our past comments into the Sumithrin workplan. The revised and improved approach to assessment of POTW discharges is greatly appreciated and will result in a more thorough analysis of environmental risk associated with pyrethroids.

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Tri-TAC's Interest in Sumithrin

Sumithrin is of special interest to POTWs due to its many indoor uses. It is the most heavily used of pyrethroids that are rarely used outdoors.¹ Of particular interest are products that are washed down drains when used, like pet shampoos and products used for the treatment of surfaces that may subsequently be washed with water, such as pet living quarters, carpets, restroom and kitchen surfaces, and bedding. Sumithrin use may increase if it serves as a substitute for other pyrethroids that are facing regulatory restrictions. Pesticides that are used indoors are contained in the influent to POTWs as a natural consequence of their use, cleanup, and ultimate disposal.² Pet kennels and human bedding are washed with water; other surfaces are cleaned with washable sponges, mops, and cloths; and carpets are shampooed. Ultimately, these discharges go to the sewer and once in the sewer system, the wash water carrying Sumithrin flows to POTWs.

Because POTWs were not specifically designed to treat pesticides, constituents such as Sumithrin that enter POTWs in the influent may ultimately be emitted to the environment. POTWs have three general types of emissions: water, solids, and air. The pathways of interest are likely to be water and biosolids. Treated effluent from POTWs will be typically discharged to land, creeks, rivers, estuaries, or the ocean. In some cases, waterways receiving treated discharges have little other flow (these are called "effluent dominated" waters). In addition, recycled wastewater has growing use for irrigation, toilet flushing, industrial use, and groundwater recharge.

POTWs are subject to National Pollutant Discharge Elimination System (NPDES) permits under the Federal Clean Water Act, and 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 adequately reduced with source control.

Also, when surface water bodies become impaired by pesticides, POTWs discharging to the water bodies can be affected through additional requirements established as part of Total Maximum Daily Loads (TMDLs) set for the water bodies by U.S. EPA and state water quality regulatory agencies. The cost to POTWs to comply with TMDLs can be up to millions of dollars per water body per pollutant.

¹ See TDC Environmental (2010). [Pesticides in Urban Runoff, Wastewater, and Surface Water: Annual Urban Pesticide Use Data Report 2010](#). Prepared for the UP3 Project., San Francisco Estuary Partnership. June.

² Moran, K. D., and P. L. TenBrook (2011). "Sources of Pyrethroid Insecticides in California's Urban Watersheds: A Conceptual Model." In *Pesticide Mitigation Strategies for Surface Water Quality*; Goh, K.S., J. Gan, and B. Bret, Eds. ACS Symposium Series; American Chemical Society: Washington, DC.

The three studies described in the data call-in tables listed in Appendix E of the Environmental Fate and Effects Division (EFED) December 8, 2011 "Memorandum on Registration Review: Preliminary Problem Formulation for Environmental Fate and Ecological Risk, Endangered Species, and Drinking Water Assessments for d-Phenothrin (Case 0426)" will tremendously help fill data gaps that have existed in past environmental risk assessments of pyrethroids. We strongly support these studies' objectives as summarized below:

1. To determine the sorption potential of activated sludge for specific chemicals.
2. To determine if specific chemicals have adverse effects on microbial populations in wastewater treatment which actually are critical to the performance of treatment.
3. To determine the rate of biological degradation and the completeness of the degradation in an activated sludge treatment system.

We applaud U.S. EPA's request to obtain these data which are necessary to complete a careful review of Sumithrin's impacts on POTWs and, therefore, potentially on water quality.

Roughly, fifty percent of the total cost of wastewater treatment is expended on solids handling. Wastewater solids, commonly called sewage sludge or "biosolids," may be reused in agriculture, in urban gardens, or disposed of in landfills. Since pyrethroids adsorb strongly to organic matter, a portion of Sumithrin entering POTWs may partition into biosolids. EPA's conceptual models should be modified to recognize the environmental exposure pathways associated with the likely presence of Sumithrin in biosolids.

Down-the-Drain Assessment

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 Office of Pesticide Programs (OPP) has applied E-FAST in the past. Tri-TAC has previously submitted general comments to U.S. EPA regarding our concerns with the E-FAST.

Tri-TAC would like to work with U.S. EPA's OPP and Wastewater Management to develop an improved wastewater discharge methodology to evaluate the potential impacts to aquatic organisms from pesticides discharged to sewers using E-FAST. This methodology would include an analysis of the input parameters and scenarios needed to generate representative surface water concentrations from the use of pesticides discharged to sewers. Development of a methodology would be

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beneficial to both U.S. EPA and POTWs to evaluate the impacts of pesticides during registration review.

In the past, OPP and Office of Water (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 models to provide exposure estimates for multiple time periods, including time periods consistent with those recommended by OW for water quality criteria, which are known as the "Criteria Maximum Concentration" (CMC) and the "Criterion Continuous Concentration" (CCC):

"...EPA's criteria indicate a time period over which exposure is to be averaged, as well as an upper limit on the average concentration, thereby limiting the duration of exposure to elevated concentrations. For acute criteria, EPA recommends an averaging period of 1 hour. That is, to protect against acute effects, the 1-hour average exposure should not exceed the CMC. For chronic criteria, EPA recommends an averaging period of 4 days. That is, the 4-day average exposure should not exceed the CCC."

"EPA recommends an average frequency for excursions of both acute and chronic criteria not to exceed once in 3 years."³

Tri-TAC cautions U.S. EPA that chemical removal rates may vary significantly between individual POTWs and that bench scale studies like those listed in the work plan may not accurately predict POTW removal percentages. For example, the California Department of Pesticide Regulation studied diazinon and chlorpyrifos removal at three San Francisco Bay area POTWs, finding removal efficiencies between 24 and 82 percent for diazinon and 49 to 71 percent for chlorpyrifos.⁴ A follow-up study of 10 San Francisco Bay area POTWs by the Bay Area Pollution Prevention Group (a POTW organization) also found a wide range in diazinon (64 to 98 percent) and chlorpyrifos (0 to 89 percent) removal efficiencies.⁵

For the down-the-drain assessment, Tri-TAC recommends U.S. EPA use influent, effluent, and biosolids monitoring data to estimate POTW removal efficiencies. If monitoring data sufficient to characterize Sumithrin removal across the diversity of

³ <http://water.epa.gov/scitech/swguidance/standards/handbook/chapter03.cfm#section12>

⁴ Singhasemanon, N., C. Nordmark, and T. Barry. 1998. [Diazinon and Chlorpyrifos in the Central Contra Costa Sanitary District Sewer System](#), Summer 1996.

⁵ Chew, T., Easton, K., and Laponis, A. 1998. Diazinon & Chlorpyrifos Quantitative Identification for San Francisco Bay Area Wastewater Treatment Plants. Prepared for Central Contra Costa Sanitary District, Martinez CA and the San Francisco Bay Area Pollution Prevention Group. December 18.

the nation's POTWs is not available, then available data should be used, in conjunction with monitoring data for other similar pyrethroids. Available data can be bridged and reality checked with the bench-scale data from the three required studies. In any data bridging or use of limited monitoring data sets, it is important for EPA to use conservative assumptions to account for the likely variation in POTW removal efficiencies.

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 aquatic acute and chronic toxicity and environmental fate data requirements for Sumithrin that fill the gaps in available data listed in the EFED December 2011 Memorandum. Both acute and chronic toxicity data will provide U.S. EPA the information necessary to complete a thorough environmental risk assessment

Cumulative Risks with Synergists and Other Pyrethroids

Tri-TAC encourages OPP to develop a procedure for quantitative assessment of cumulative pyrethroid exposures, since pyrethroids are well known to have additive toxicity and appear in mixtures in POTW effluent and surface waters.⁶

The potential impacts from synergists and multiple active ingredient formulations should be taken into consideration in the down-the-drain assessment. Tri-TAC agrees with U.S. EPA's request for acute toxicity studies with Sumithrin co-formulated with Piperonyl Butoxide.

Conclusion

In conclusion, POTWs need U.S. 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 supports U.S. EPA's requirement for aquatic toxicity, environmental fate data, down-the-drain assessment, and a biosolids assessment as part of U.S. EPA's registration review for Sumithrin. We want to thank you again for acting upon our previous comments regarding bifenthrin, permethrin, and fipronil and appreciate the opportunity to comment on this

⁶ Trimble, A. J., D. P. Weston, et al., 2009. "Identification and Evaluation of Pyrethroid Insecticide Mixtures in Urban Sediments." *Environmental Toxicology and Chemistry* 28(8): 1687-1695; Weston Donald, P. and J. Lydy Michael (2010). "Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California." *Environmental Science & Technology* 44(5): 1833-1840.

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registration application. If you have any questions or require additional information, please contact Greg Kester by phone at (916) 844-5262 or by email at gkester@casaweb.org.

Sincerely,



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Tri-TAC Chair

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