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Office of Pesticide Programs (OPP)
Regulatory Public Docket (7502P)
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460-0001

Docket No. EPA-HQ-OPP-2010-0384 – Bifenthrin Registration Review Docket

The purpose of this letter is to comment on the Bifenthrin Registration Review Docket that was made available for public comment on June 23, 2010 (75 FR 35811). Tri-TAC is concerned that bifenthrin has the potential to cause toxicity to aquatic organisms as a result of discharge into sewers from indoor uses; use in animal kennel/sleeping quarters (commercial), pet living/sleeping quarters, fabric treatments, pet products, automobiles, taxis, limousines, and recreational vehicles; and storm water inflow. Tri-TAC supports EPA's decision to conduct a down-the-drain assessment for bifenthrin. Tri-TAC also supports the decision by the Offices of Pesticide Programs and Water to work together to refine the down-the-drain assessments for registration review. Finally, Tri-TAC supports EPA's decision to request POTW monitoring data and additional aquatic toxicity data. As background, Tri-TAC is a technical advisory group for POTWs in California. It 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 reclaims more than two billion gallons of wastewater each day and serves most of the sewered population of California.

Pathways for Bifenthrin to Enter POTWs

Bifenthrin is a broad-spectrum pyrethroid registered for use in a variety of indoor and outdoor residential and commercial areas, including indoor pet uses and food handling establishments, as well as on a variety of agricultural and livestock commodities. Bifenthrin has the potential to be discharged into sewers from indoor uses and other uses where drains are tributary to sewer systems. Bifenthrin may also enter sewers from outdoor uses through storm water inflow.

Discharges into sewers can occur when a bifenthrin treated surface, created by using the pesticide directly on the surface or by deposition and dispersion of aerosols, foggers, and sprays onto the surface, is cleaned. Wastewater containing

the pesticide can be produced by cleaning these surfaces with sponges, cloths, and mops, that are later washed with water or washed in a washing machine, by using a bucket of water for cleaning that is later emptied into a drain, and by cleaning carpets and discharging the cleaning water into a drain. The pesticide may also be discharged when bifenthrin treated fabrics are washed. Similarly, bifenthrin may be discharged into sewers when it is used in automobiles, taxis, limousines, and recreational vehicles and the interior of the vehicle is later cleaned.

Discharges into sewers can also occur from use of bifenthrin in animal kennels/sleeping quarters (commercial), pet living/sleeping quarters, and pet products. Animal and pet kennels/sleeping quarters are typically washed down and the wash water is discharged into either a sewer or storm drain. Bifenthrin in pet products can be transferred to the pet's fur and discharged down the drain when the pet is washed.

Tri-TAC is especially concerned about potential toxicity to aquatic organisms from bifenthrin discharges due to the results reported in the 2010 Weston and Lydy study[1]. Bifenthrin was the most commonly detected pyrethroid in the secondary and tertiary POTW effluent samples. The study found bifenthrin in 39 percent of POTW effluent samples, with 22 percent of samples exceeding the *H. azteca* EC_{50}. The 2010 Weston and Lydy study showed that bifenthrin is being discharged into sewers, entering POTWs, and may not be fully degraded during wastewater treatment.

EPA also states on page 32 of the EFED Registration Review Problem Formulation for Bifenthrin (Problem Formulation) dated June 9, 2010 that a recent survey conducted by the US Department of Housing and Urban Development and EPA found that bifenthrin was detected in 33 percent of the floors of occupied homes illustrating that bifenthrin is "commonly applied, detected, and present in homes."

Tri-TAC recommends that EPA include bifenthrin indoor uses; use in animal kennel/sleeping quarters (commercial), pet living/sleeping quarters, fabric treatments, pet products, automobiles, taxis, limousines, and recreational vehicles; and storm water inflow as possible routes of aquatic exposure and evaluate the potential impacts in the down-the-drain assessment.

Risk Hypothesis

Tri-TAC recommends the following changes to the risk hypothesis on page 45 of the Problem Formulation to ensure completeness (additions shown in underlined text):

> *Bifenthrin, when used outdoors in accordance with registered labels, will likely lead to off-site movement of the compound via runoff, urban runoff from impervious and pervious surfaces through urban storm drainage systems, inflow of urban runoff to sewer systems, spray drift, and eroded soil*

[1] Weston, D.P. and M.J. Lydy. 2010. Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California. Environ. Sci. Technol. 2010, 44, 1833–1840.

> *and wastewater biosolids, leading to exposure of nontarget plants and animals, including crops treated with biosolids. Based on information on the environmental fate, mode of action, direct toxicity and potential indirect effects, EFED assumes that registered uses of bifenthrin have the potential to cause reduced survival, growth, and reproduction and other sublethal effects like immobilization to non-target terrestrial and/or aquatic animals and plants.*
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> *Bifenthrin, when used indoors, in accordance with current labels, may result in off-site movement of the compound via wash-off into surface waters via indoor drains to sewer systems and municipal wastewater treatment plants, leading to exposure of nontarget aquatic plants and animals. This potential exposure pathway may result in adverse effects on the survival, growth, and/or reproduction of non-target aquatic animals and plants.*

Down-the-Drain Assessment

As mentioned above, Tri-TAC supports the use of a down-the-drain assessment to evaluate the impacts of bifenthrin from indoor uses; use in animal kennel/sleeping quarters (commercial), pet living/sleeping quarters, fabric treatments, pet products, automobiles, taxis, limousines, and recreational vehicles; and storm water inflow. Tri-TAC has previously submitted general comments to EPA regarding our concerns with the Exposure and Fate Assessment Screening Tool (E-FAST) Version 2.0. Tri-TAC has requested EPA provide the technical basis for assuming the surface water concentrations obtained from the 10^{th} and 50^{th} percentile stream dilution factors as acute and chronic concentrations in national down-the-drain assessments. Some POTWs discharge to effluent dominated receiving waters, providing essentially the only source of water to a surface water body during dry periods, and the National Pollution Discharge Elimination System (NPDES) permits for these facilities do not include a stream dilution factor. In addition, other facilities in the country do not have dilution credits in their NPDES permits for other environmental reasons. Therefore, EPA should not include stream dilution factors in national down-the-drain assessments for pesticides.

For down-the-drain assessments, EPA should use E-FAST to calculate a median surface water concentration without a stream dilution factor for use as the chronic estimated environmental concentration in the risk analysis. For the acute estimated environmental concentration, EPA should calculate a surface water concentration assuming a local high-end scenario appropriate for bifenthrin. These simple modifications to the procedures for down-the-drain assessments would result in better assessments of the potential impacts to aquatic organisms.

Tri-TAC supports the Offices of Pesticide Programs and Water collaborating 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 an improved methodology would be beneficial to both EPA and POTWs to evaluate the impacts of pesticides during registration review.

Pesticide Removal Versus Cross-Media Transfer

To assist in preparing the ecological risk assessment, Tri-TAC would like to clarify the difference between pesticide removal during wastewater treatment and cross-media transfer of a pesticide. Adsorption to biosolids and volatilization/stripping are cross-media transfers of pesticides from wastewater to solids or air, respectively, and are not pesticide removal mechanisms. The potential environmental impacts of the cross-media transfers of pesticides should be addressed in EPA ecological risk assessments.

Biosolids Land Application Assessment

Roughly fifty percent of the total cost of wastewater treatment is expended on solids handling and land application is a frequently used method for recycling biosolids. The Problem Formulation states on page 27 that bifenthrin "adsorbs strongly to soil particles and to organic matter." Therefore, a portion of bifenthrin entering POTWs may partition into biosolids.

Tri-TAC suggests that EPA's Offices of Pesticide Programs, Water (Offices of Wastewater Management and Science and Technology), and Research and Development work together to develop a methodology to evaluate potential impacts from the use of pesticides to biosolids land application in cases where down-the-drain assessments indicate that pesticides would partition into biosolids. The existing Office of Pesticide Programs' guidelines for the study of chemicals in the terrestrial environment could be modified to address biosolids amended soil systems. In addition, the evaluation should include an analysis of bioaccumulation, toxicity to microbes, and toxicity to worms, all of which have Office of Pesticide Programs' guidelines. It should be noted that such evaluations should focus on fate, transport, and toxicity factors specifically applicable to the biosolids matrix. Such studies are important to accurately quantify fate, exposure, and risk from the use of pesticides discharged to POTWs that partition into biosolids during wastewater treatment.

Aquatic Toxicity Data

Acute and chronic toxicity data for freshwater and estuarine/marine fish and invertebrates is essential to completing a scientifically sound review of bifenthrin. These data are also necessary to perform the down-the-drain assessment. Tri-TAC supports EPA's data call-in requests on pages 62 and 63 of the Problem Formulation for acute and chronic toxicity data for estuarine/marine fish and invertebrates.

Tri-TAC requests that EPA impose more stringent conditions on issuing waivers for aquatic toxicity data during registration review. Tri-TAC reviewed many

Reregistration Eligibility Decisions in which EPA reregistered pesticides without receiving aquatic toxicity data required under CFR 40 Part 158. Tri-TAC recommends that EPA withhold registration decisions until required data are submitted and evaluated. By registering pesticides without required aquatic toxicity data, EPA cannot ensure that the pesticide does not pose an unreasonable adverse risk to the environment.

Cumulative Risks with Synergists and Other Pyrethroids

EPA states on page 24 of the Problem Formulation that piperonyl butoxide (PBO) and MGK-264 are commonly used in formulations with pyrethroids and that MGK-264 is used with bifenthrin in an indoor use product. The potential impacts from synergists and multiple active ingredient formulations should be taken into consideration in the down-the-drain assessment to the extent that these products have indoor uses and use in animal kennel/sleeping quarters (commercial), pet living/sleeping quarters, fabric treatments, pet products, automobiles, taxis, limousines, and recreational vehicles.

In addition, EPA should evaluate the potential for cumulative aquatic toxicity from pyrethroids. In the 2010 Weston and Lydy study, multiple pyrethroids were present in secondary and tertiary POTW effluent and toxicity was caused by the cumulative presence of the multiple pyrethroids. EPA should evaluate the cumulative aquatic toxicity effects of pyrethroids during the bifenthrin registration review. Without this analysis, EPA cannot ensure protection of aquatic organisms from the cumulative toxicity effects of pyrethroids.

POTW Effluent Monitoring

Tri-TAC supports EPA's request for any existing or ongoing POTW effluent bifenthrin monitoring data. In addition, Tri-TAC recommends that EPA request available influent and biosolids monitoring data for bifenthrin. Tri-TAC expects more POTW monitoring data to be available in the next couple years and recommends that EPA contact Tri-TAC before beginning the environmental risk assessment to request these data. Tri-TAC will anticipate this request between September 2013 and January 2015.

Available POTW monitoring data should be utilized to provide input into E-FAST for the down-the-drain assessment. If influent, effluent, and biosolids POTW monitoring data is not available or insufficient to account for the variety of POTW treatment processes and operational parameters utilized nationwide, EPA should use conservation assumptions for bifenthrin removal during wastewater treatment in the down-the-drain assessment.

POTW Treatability Study

Tri-TAC cautions EPA that chemical removal rates may vary significantly between individual POTWs and that bench scale studies 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.[2] A follow-up study of 10 San Francisco Bay area POTWs by the Bay Area Pollution Prevention Group also found a wide range in diazinon (64 to 98 percent) and chlorpyrifos (0 to 89 percent) removal efficiencies.[3] For the down-the-drain assessment, Tri-TAC recommends EPA use influent, effluent, and biosolids monitoring data to estimate POTW removal efficiencies. If these data are not available or not sufficiently robust, Tri-TAC recommends EPA use conservative assumptions to account for the likely variation in POTW removal efficiencies.

POTWs Testing Costs

NPDES dischargers are required to conduct regularly scheduled acute and chronic toxicity bioassays. The frequency of routine bioassay testing varies from permit to permit, but they are generally conducted at approximately monthly intervals with an average cost of $500 and $1,000 for each acute and chronic test respectively. These toxicity tests are conducted in addition to chemical-specific monitoring to assess potential aquatic life impacts associated with unregulated chemicals, chemical combinations, and substances that do not have established water quality criteria thresholds. If toxicity is observed during routine testing, dischargers are typically required to conduct accelerated tests weekly for a minimum of six weeks at an additional cost of approximately $3,000 to $6,000 depending on the test. If toxicity is observed in two or more of the weekly accelerated tests, the discharger would be required to implement a toxicity identification evaluation (TIE). TIEs consist of multiple toxicity tests conducted with multiple sample manipulations in order to characterize and eventually identify the toxicity causing constituent(s). The cost of a TIE can vary widely from $10,000 to well over $100,000 depending on complexity and persistence of the toxicant. Once identified the cost to treat or remove the toxicity causing compound(s) can vary dramatically.

POTWs Costs for Non-Compliance

In addition to the adverse environmental impacts, non-compliance with Clean Water Act requirements can be extremely costly for POTWs. Costs are incurred for identifying the source of the pollutants causing non-compliance, source control to reduce 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 impacted through additional requirements established as part of Total Maximum

[2] Singhasemanon, N., C. Nordmark, and T. Barry. 1998. Diazinon and Chlorpyrifos in the Central Contra Costa Sanitary District Sewer System, Summer 1996. (http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/eh9805.pdf)

[3] 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.

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.

Conclusion

In conclusion, sewerage agencies need EPA's assistance to protect surface water from contamination from pesticides. POTWs are required by NPDES permits to meet effluent toxicity standards; however sewerage agencies do not have the authority to directly regulate pesticides. As detailed above, when toxicity problems occur, they can be very costly for POTWs. Tri-TAC requests that information on the amount and use patterns of bifenthrin discharged into sewers and the required aquatic toxicity data be collected, and the down-the-drain assessment be performed as part of the bifenthrin registration review.

Tri-TAC appreciates the opportunity to comment on the Bifenthrin Registration Review Docket. If you have any questions or require additional information, please contact Ms. Preeti Ghuman by phone at (562) 699-7411, extension 2904, or by email at pghuman@lacsd.org.

Sincerely,

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