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Washington, DC 20460-0001
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Docket No. EPA-HQ-OPP-2009-0637 - Preliminary Deltamethrin Registration Review Work Plan

The purpose of this letter is to comment on EPA's Preliminary Deltamethrin Registration Review Work Plan that was made available for public comment on March 31, 2010 (75 FR 16117). Tri-TAC is concerned that the preliminary work plan does not evaluate the potential adverse impacts from deltamethrin discharge into sewers from indoor uses and use in animal kennels/sleeping quarters, pet collars, and sewage systems. A down-the-drain model should be used to evaluate the potential impacts to aquatic organisms during registration review. Since the procedures used in down-the-drain assessments during reregistration did not fully analyze the potential impacts to aquatic organisms from the discharge of pesticides into sewers, Tri-TAC would like to work with EPA to refine the methodology for down-the-drain assessments used in registration review. Tri-TAC also requests that EPA modify the conceptual model for deltamethrin to include the down-the-drain exposure pathways. Tri-TAC supports EPA's decision to request additional aquatic toxicity data. As background, Tri-TAC is a technical advisory group for publicly owned treatment plants (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 Deltamethrin to Enter POTWs

Deltamethrin is a pyrethroid registered for use on cotton, sorghum, artichokes, pears and a variety of vegetable, fruit, and tree nut crops for the control of a broad spectrum of pests including mites, ants, weevils, and beetles. It is also registered for indoor and outdoor use in residential and industrial applications for the control of cockroaches, pests of stored commodities, and other nuisance or destructive insects. A deltamethrin pet collar is registered for the control of fleas and ticks. Deltamethrin has the potential to be discharged into sewers from indoor uses and use in animal kennels/sleeping quarters, pet collars, and sewage systems.

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Discharges into sewers can occur when a deltamethrin 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.

Discharges into sewers can also occur from use of deltamethrin in animal kennels/sleeping quarters and pet collars. Animal kennels/sleeping quarters are typically washed down and the wash water is discharged into either a sewer or storm drain. Deltramethrin in pet collars can be transferred to the pet's fur and discharged down the drain when the pet is washed. In addition, deltamethrin may be discharged into sewers when the pyrethroid is used in sewage systems.

Tri-TAC disagrees with EPA's statement on page 16 of the Environmental Fate and Ecological Risk Assessment Problem Formulation in Support of Registration Review for Deltamethrin (Document) dated March 23, 2010, that the indoor uses "present minimal chance for exposure to non-target organisms in aquatic environments." EPA states later on that page that a recent study conducted by the US Department of Housing and Urban Development and EPA found that deltamethrin "is commonly applied in homes." In addition, Weston and Lydy¹ found deltamethrin in POTW final effluent. The Weston and Lydy study shows that deltamethrin is being discharged into sewers, entering POTWs, and not degraded during wastewater treatment.

Tri-TAC recommends that EPA include deltamethrin indoor uses and use in animal kennels/sleeping quarters, pet collars, and sewage systems as possible routes of aquatic exposure and evaluate the potential impacts in a down-the-drain assessment. EPA should also revise the conceptual model for deltamethrin to include discharge into sewers as an exposure pathway and potential risk to aquatic organisms.

Down-the-Drain Assessment

As mentioned above, Tri-TAC supports the use of a down-the-drain assessment to evaluate the impacts of deltamethrin from indoor uses and use in animal kennels/sleeping quarters, pet collars, and sewage systems. 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 10th and 50th 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

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.

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 deltamethrin. 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 would like to work with EPA's Offices of Pesticide Programs 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 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 Document states on page 19 that deltamethrin appears to bind strongly to soil and organic matter. Therefore, a portion of deltamethrin 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.

Deltamethrin in POTW Effluent

Even though pyrethroids are generally known to partition to organic matter, they have been found in POTW effluent. Tri-TAC predicts that a portion of deltamethrin entering POTWs will be adsorbed to solids during wastewater treatment. But, pyrethroids are very highly toxic and the portion that remains in the water column may be toxic to aquatic organisms. In the ecological risk assessment, EPA should evaluate potential impacts from deltamethrin in both POTW effluent and biosolids in the down-the-drain assessment.

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 deltamethrin. This data is also necessary to perform the down-the-drain assessment. Tri-TAC supports EPA's data call-in requests on pages 51 and 52 of the Document for chronic toxicity data for estuarine/marine fish and invertebrates. Tri-TAC also supports EPA's data call-in request on pages 53 and 54 of the Document for chronic freshwater and estuarine/marine invertebrate whole sediment toxicity data.

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 is 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 pages 12 and 13 of the Document the piperonyl butoxide (PBO) and MGK are commonly used in formulations with pyrethroids and that deltamethrin and PBO is used in a residential spray. It is unclear from the Document what deltamethrin products are formulated with synergists and where these products are used. 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 kennels/sleeping quarters, pet collars, and sewage systems.

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 Daily Loads (TMDLs) set for the water bodies by the California State Water Resources Control Board and the 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 Tri-TAC members do not have the authority to 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 deltamethrin discharged into sewers and the required aquatic toxicity be collected, and the down-the-drain assessment be performed as part of the deltamethrin registration review for indoor uses and use in animal kennels/sleeping quarters, pet collars, and sewage systems.

Tri-TAC appreciates the opportunity to comment on the Preliminary Deltamethrin Registration Review Work Plan. 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@lacsds.org.

Sincerely,



Ben Horenstein
Tri-TAC Chair

cc: Steve Owens, Assistant Administrator, Office of Preventing, Pesticides, and Toxic Substances
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