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Docket No. EPA-HQ-OPP-2009-0842
Preliminary Cyphenothrin Registration Review Work Plan

The purpose of this letter is to comment on EPA's Preliminary Cyphenothrin Registration Review Work Plan that was made available for public comment on December 16, 2009 (74 FR 66645). Tri-TAC is pleased that EPA has recognized that cyphenothrin used on horses and dogs has the potential to go down the drain and enter publicly owned treatment plants (POTWs) as a result of the animals being washed or rinsed off after treatment. Cyphenothrin also has the potential to enter POTWs from indoor uses, as detailed below. Tri-TAC supports the proposed utilization of the Exposure and Fate Assessment Screening Tool (E-FAST) in a down-the-drain assessment to evaluate potential aquatic impacts from cyphenothrin in the ecological risk assessment. 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 supports EPA's decision to request aquatic toxicity and environmental fate 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 Cyphenothrin to Enter POTWs

Cyphenothrin is a systemic pyrethroid ester insecticide used indoors in household/domestic dwellings, storage areas, pet living quarters, ships, processing plants, on horses and dogs; and outdoors on external doorways, window cracks, and under porches. Cyphenothrin has the potential to be discharged into sewers from indoor uses and use on animals. The Problem Formulation for the Environmental Fate and Ecological Risk and Endangered Species Assessments in Support of the Registration Review of Cyphenothrin (Document) correctly states on

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page 18 that a possible route of aquatic exposure results from wash-off from spot-treatment of dogs or horses. Tri-TAC supports EPA's decision to perform a down-the-drain assessment to evaluate the potential impacts from cyphenothrin use on dogs and horses in the ecological risk assessment.

The Document does not identify indoor uses as a possible route of aquatic exposure. Discharges into sewers can occur when a cyphenothrin treated surface, created by deposition and dispersion of aerosols and foggers 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. Tri-TAC recommends that EPA include indoor uses of cyphenothrin as a possible route of aquatic exposure and evaluate the impacts from indoor uses in the down-the-drain assessment.

Down-the-Drain Assessment

As mentioned above, Tri-TAC supports the use of a down-the-drain assessment to evaluate the impacts of cyphenothrin from indoor uses and use on animals. Tri-TAC has previously submitted general comments to EPA regarding our concerns with 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 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 cyphenothrin. 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 8 that "pyrethroids are generally known to partition to organic matter rapidly." Therefore, a portion of cyphenothrin 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.

Pyrethroids in POTW Effluent

A recent study by Weston and Lydy (in press)¹ found pyrethroids in final POTW effluent. This study shows that pyrethroids are being discharged into sewers, entering POTWs, and not degraded during wastewater treatment. Cyphenothrin was not analyzed in this study. Tri-TAC is not aware of cyphenothrin monitoring data for POTW effluent.

Even though pyrethroids are generally known to partition to organic matter rapidly, they have been found in POTW effluent. A portion of cyphenothrin 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

¹ Weston, D. P. and M. J. Lydy. "Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California." Environmental Science & Technology. In Press.

organisms. In the ecological risk assessment, EPA should evaluate potential impacts from cyphenothrin 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 cyphenothrin. This data is also necessary to perform the down-the-drain assessment. Tri-TAC supports EPA's data call-in request on page 36 of the Document for chronic freshwater invertebrate and fish data. Tri-TAC recommends that the data call-in also include acute and chronic estuarine/marine fish and invertebrate aquatic toxicity data.

Tri-TAC supports EPA's data call-in request on pages 36 and 37 of the Document for acute freshwater invertebrate whole sediment toxicity data. Tri-TAC recommends that the data call-in also include acute estuarine/marine invertebrate whole sediment toxicity data and chronic freshwater and estuarine/marine invertebrate whole sediment toxicity data.

Tri-TAC also supports EPA's recommendation for aquatic toxicity data for both cyphenothrin and the end-use formulated product. The end-use product may be more toxic to aquatic organisms since it is formulated with a synergist.

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.

Additional Data Requests

Tri-TAC supports EPA's request for environmental fate data for cyphenothrin. This data should be helpful in evaluating the potential degradation mechanisms of cyphenothrin in the environment. In addition, EPA should request all data needed to conduct the down-the-drain assessment.

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 cyphenothrin discharged into sewers and the required aquatic toxicity and environmental fate data be collected, and the down-the-drain assessment be performed as part of the cyphenothrin registration review for indoor uses and use on animals.

Tri-TAC appreciates the opportunity to comment on the Preliminary Cyphenothrin 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@lacsdc.org.

Sincerely,



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Tri-TAC Chair

BKH:PG:llb

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