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Public Information and Records Integrity Branch (7502C)
Office of Pesticide Programs (OPP)
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460-0001
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Docket ID Number OPP-2004-0385 - Permethrin Preliminary Risk Assessments

The purpose of this letter is to comment on EPA's preliminary risk assessments for permethrin, which were made available for public comment on August 31, 2005 (70 FR 51790). As background, Tri-TAC is a technical advisory group comprised of public and private wastewater professionals focusing on regulatory issues of interest to Publicly Owned Treatment Works (POTWs) in California. Tri-TAC 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.

Tri-TAC is pleased EPA modeled permethrin impacts on the sewer system with an Aquatic Exposure, "Down-the-Drain" Assessment in the EFED Revised Risk Assessment for the Reregistration Eligibility Decision on Permethrin After Error Corrections Comments from the Registrant, Phase I (Risk Assessment) dated July 12, 2005. As mentioned on page 39 of the Risk Assessment, in October 2004, Tri-TAC requested the California Department of Pesticide Regulation (DPR) require registration of permethrin-treated clothing due to concerns that laundering pre-treated clothes may cause adverse water quality impacts. In response to the letter, DPR deferred the issue to EPA. Since laundering of permethrin-treated clothing is only one of many permethrin uses that result in discharge of wastewater into the sewer system, EPA has completed an Aquatic Exposure, "Down the Drain" Assessment to evaluate the impacts from wastewater containing permethrin for all registered domestic uses. Tri-TAC encourages EPA to include a similar analysis in future risk assessments for all pesticides with a pathway to the sewer.

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However, Tri-TAC has concerns about the method used to translate wastewater treatment plant discharge concentrations from the model into acute and chronic surface water concentrations. Tri-TAC also has concerns about the lack of mitigation measures proposed for permethrin uses that lead to sewer discharges, since EPA's model shows that acute and chronic levels of concern (LOCs) for aquatic organisms were exceeded as a result of "down-the-drain" uses of permethrin.

Aquatic Exposure, "Down-the-Drain" Assessment

As stated in the introduction, Tri-TAC appreciates EPA's efforts in performing an analysis of the aquatic toxicity resulting from the use of household products containing permethrin and including these results in the Risk Assessment. Tri-TAC also appreciates EPA providing details on the methodology, formulas, and calculations used in the Aquatic Exposure, "Down-the-Drain" Assessment.

In the Risk Assessment, EPA acknowledges that permethrin use in pet products, products to treat clothes, pre-impregnated clothing, and over-the-counter and prescribed drugs results in wastewater containing permethrin and that this wastewater is typically discharged into the sewer system. Since the degree of removal of permethrin from wastewater treatment has not been thoroughly studied, EPA used an assumption of 52 to 94 percent removal in the analysis based on the removal obtained by the pretreatment systems of three pesticide manufacturers. EPA has previously concluded during rulemaking on the federal categorical discharge standards for pesticide manufacturers that the removal of permethrin at wastewater treatment facilities is expected to be lower than at facilities using best available technology economically achievable, which is granulated activated carbon and resin adsorption for permethrin.¹ Even with the conservative assumption of 52 to 94 percent removal from wastewater treatment, EPA concluded: LOCs for acute high risks were exceeded for freshwater fish and invertebrates and estuarine/marine invertebrates at all removal levels, LOCs for acute restricted use and endangered species were exceeded for estuarine/marine fish at all three removal levels, and LOCs for chronic risk were exceeded for freshwater invertebrates at two removal levels and for estuarine/marine invertebrates at all removal levels. These results are disconcerting since POTWs are required to meet effluent aquatic toxicity standards in National Pollution Discharge Elimination System (NPDES) permits.

The Exposure and Fate Assessment Screening Tool (E-FAST) appears to be an appropriate screening model to evaluate permethrin exposure from consumer products. Tri-TAC was able to easily follow the calculations in the Risk Assessment to obtain estimated surface water concentrations assuming various wastewater treatment removal percentages and stream dilution factors. However, it is unclear how the high end surface water

¹ United States Environmental Protection Agency, Office of Water, *Development Document For Effluent Limitations, Guidelines, Pretreatment Standards, and New Source Performance Standards for the Pesticide Manufacturing Point Source Category*, EPA-821-R-93-016, September 1993, pp.7-92 and 5-93.

concentrations, derived from the 10th percentile stream dilution factor, correspond to the acute concentrations listed in Table 9b. Likewise, why does the median surface water concentration from the 50th percentile stream dilution factor equal the chronic surface water concentration? Tri-TAC requests clarification on the technical basis for assuming the surface water concentrations obtained from the 10th and 50th percentile stream dilution factors as acute and chronic concentrations.

Tri-TAC can follow the methodology used by E-FAST to derive stream dilution factors; however, EPA must consider facilities with stream dilution factors of 1.0 or less in the Aquatic Exposure, "Down-the-Drain" Assessment. E-FAST deliberately excludes facilities with stream dilution factors of 1.0 or less, causing POTWs that discharge to effluent dominated receiving waters to be disregarded. Some POTWs create effluent dominated discharges, by providing essentially the only source of water to a surface water body during dry periods. For these POTWs, the NPDES permits do not include a stream dilution factor, so the POTW must meet the NPDES permit limits at the "end-of-the-pipe." Since the 50th percentile and 10th percentile stream dilution factors were 980 and 75 respectively, the estimated surface water concentrations for a POTW with an effluent dominated discharge would be significantly greater than the surface water concentrations presented in the Risk Assessment. Tri-TAC recommends EPA include a scenario without a stream dilution factor in the Aquatic Exposure, "Down-the-Drain" Assessment to model facilities that discharge to effluent dominated receiving waters.

Mitigation Measures

As detailed in the Risk Assessment, permethrin is extremely toxic to aquatic organisms. EPA concluded the "down-the-drain" exposure to aquatic organisms is up to 113 times higher than the LOCs for acute high risks and seven times higher than the LOCs for chronic risk; however, EPA has not proposed mitigation measures to reduce the amount of permethrin discharged into the sewer. EPA has proposed the possible use of buffer zones to mitigate permethrin exposure to aquatic areas, but the use of buffer zones would not be effective in reducing the amount of permethrin discharged into the sewer system.

The first and second pages of the Risk Assessment state "EFED has concluded that permethrin exposure to aquatic systems can result in toxic impact to non endangered and endangered fish, aquatic invertebrates, as well as possible toxic risk to amphibians. This compound binds readily to particulate matter and organic carbon in a lake or stream possibly reducing its bioavailability in this medium after 48 hours. However, as the particulate bound permethrin settles out of the water column and onto the benthos, there is an increase in permethrin sediment concentrations that could result in toxic exposure to benthic and epibenthic aquatic organisms." In addition, the California Department of Fish and Game (DFG) aquatic toxicity thresholds for permethrin are 0.03 part per billion (ppb) for

freshwater and 0.001 ppb for saltwater.² The estimated water concentrations presented in Table 9b for facilities with 10th and 50th percentile stream dilution factors exceed DFG thresholds in all instances except the scenario of a 50th percentile stream dilution factor and 94 percent removal efficiency. As previously explained, the assumed removal efficiencies are conservative and some POTWs do not have the benefit of a stream dilution factor so surface water concentrations could be significantly higher than DFG thresholds. Tri-TAC encourages EPA to require mitigation measures during reregistration to limit the amount of permethrin discharged into sewers.

Use Characterization

EPA did not properly state potential toxic exposure to nontarget wildlife on page 16 of the Risk Assessment. EPA states that non-agricultural uses should “present minimal risk to aquatic and terrestrial organisms” because “of their localized use over relatively small square footage areas.” However this statement is in contradiction to the Aquatic Exposure, “Down-the-Drain” Assessment conclusion on page 67 of the Risk Assessment that urban uses “may cause adverse water quality impacts that could possibly impact fish and macroinvertebrates” and model results showing that domestic wastewater residues in surface water that may result from household uses and the disposal of consumer products into wastewater were a potential acute risk to aquatic freshwater and estuarine/marine invertebrates, as well as a potential acute risk to fish.

EPA also states on page 16 of the Risk Assessment “The concern is diminished even more because permethrin has a strong affinity to bind with soils and surfaces and is not likely to runoff.” Even though permethrin will bind with soil, it is incorrect to assume that washoff from impervious surfaces in urban areas is unlikely to reach an aquatic system. Washoff from impervious surfaces in urban areas has the potential to flow into a storm drain and be directly released into an aquatic system. Tri-TAC requests EPA revise the Use Characterization section to address these concerns.

Label Recommendations

For a permethrin end-use product used for terrestrial uses, the first sentence of the label should include language notifying the user that permethrin is toxic to aquatic organisms. The first sentence of the label should be revised to state, “This pesticide is toxic to aquatic organisms, honey bees, and other beneficial insects.”

² State of California Department of Fish and Game, *Hazard Assessment of the Synthetic Pyrethroid Insecticides Bifenthrin, Cypermethrin, Esfenvalerate, and Permethrin to Aquatic Organisms in the Sacramento-San Joaquin River System*, 2000. Available on the DPR web site at www.cdpr.ca.gov/docs/sw/hazasm/hazasm00_6.pdf.

Comment Period

In the Overview of Permethrin Risk Assessment dated August 2005, EPA states that "Permethrin is one of the most used active pesticide ingredients, registered for use on numerous food/feed crops, livestock and livestock housing, modes of transportation, structures, buildings (including food handling establishments), and for residential uses." However, in the Federal Register, EPA proposes to develop a Registration Eligibility Decision for permethrin through a modified 4-phase public participation process with one public comment period. Since this reregistration decision is far-reaching, Tri-TAC urges EPA to add another public comment period of at least 60 calendar days.

In conclusion, sewerage agencies need EPA's assistance to protect surface waters from contamination from permethrin. POTWs are required by NPDES permits to meet effluent aquatic toxicity standards; however, Tri-TAC members do not have the authority to regulate pesticides. The Aquatic Exposure, "Down-the-Drain" Assessment conducted for permethrin clearly shows that aquatic impacts could occur from the use of permethrin in consumer products. Tri-TAC requests that during reregistration EPA investigate options to reduce permethrin discharge into sewers.

Tri-TAC appreciates the opportunity to comment on the permethrin preliminary risk assessments. 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@lacsdsd.org.

Sincerely,



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