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October 27, 2005

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  
Attn: Docket No. OPP-2004-0385  
Via Electronic Mail

Re: Docket ID Number OPP-2004-0385; Permethrin Preliminary Risk Assessments

Dear Sir or Madam:

The National Association of Clean Water Agencies (NACWA) appreciates the opportunity to comment on the preliminary risk assessments for permethrin (August 31, 2005; 70 *Fed. Reg.* 51790). NACWA represents the interests of nearly 300 of the nation's publicly owned wastewater treatment utilities. NACWA's members continue to face challenges as they strive to meet increasingly stringent effluent limitations while having little control over many of the sources of toxic pollutants and other substances in the wastewater they treat. Effective evaluation and mitigation of pesticides, including permethrin, that pose water quality risks will help the nation's wastewater treatment utilities protect water quality. Wastewater treatment agencies need EPA's assistance as they do not have the authority to regulate the use of pesticides or to control its discharge from domestic uses.

NACWA 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. The Association encourages EPA to include a similar analysis in future risk assessments for all pesticides with a pathway to the sewer system. However, NACWA has concerns about the method used to translate wastewater treatment plant discharge concentrations from the model into acute and chronic surface water concentrations and the use of a daily *per capita* mass discharge rate to calculate acute surface water concentrations. NACWA 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.

While this public comment opportunity is specific to the preliminary risk assessments and not a re-registration eligibility decision, NACWA, at this time, strongly objects to EPA's consideration of permethrin for reregistration. Given the

results of the “down-the-drain” assessment, which underestimates potential impacts on aquatic organisms, and the lack of adequate mitigation measures, NACWA would oppose any decision to reregister permethrin, based on the current *Risk Assessment*, for use on clothing, pets and any other uses that would result in discharges to the sewer from domestic and other uncontrollable sources. NACWA requests that EPA formally engage the wastewater treatment community as it moves toward a reregistration eligibility decision for permethrin.

#### “Down-the-Drain” Assessment Reveals Potential Water Quality Impacts

NACWA appreciates EPA’s efforts to perform an analysis of the aquatic toxicity resulting from the use of household products containing permethrin and for including these results in the *Risk Assessment*. NACWA 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 the best available technology economically achievable, which is granulated activated carbon and resin adsorption for permethrin.<sup>1</sup> 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 to wastewater treatment plants which 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. NACWA 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 concentrations, derived from the 10<sup>th</sup> percentile stream dilution factor, correspond to the acute concentrations listed in Table 9b. Likewise, NACWA is not certain why the median surface water concentration from the 50<sup>th</sup> percentile stream dilution factor equals the chronic surface water concentration.

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<sup>1</sup> 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.

NACWA requests clarification on the technical basis for assuming the surface water concentrations obtained from the 10<sup>th</sup> and 50<sup>th</sup> percentile stream dilution factors as acute and chronic concentrations.

NACWA 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 facilities that discharge to effluent dominated receiving waters to be disregarded. Some wastewater treatment facilities create effluent dominated discharges, by providing essentially the only source of water to a surface water body during dry periods. For these facilities, the NPDES permits do not include a stream dilution factor, so the facility must meet the NPDES permit limits at the "end-of-the-pipe." Other wastewater treatment facilities located in states that do not allow dilution or mixing zones for certain parameters, such as whole effluent toxicity, would also have to meet limits at the "end-of-the-pipe".

Since the 50<sup>th</sup> percentile and 10<sup>th</sup> percentile stream dilution factors were 980 and 75 respectively, the estimated surface water concentrations for a facility with an effluent dominated discharge would be significantly greater than the surface water concentrations presented in the *Risk Assessment*. NACWA 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 or that do not have any permissible dilution (mixing zones) in their permit.

The use patterns of household products should be considered in the *Risk Assessment* when estimating the mass discharge of permethrin to sewers and calculating the high end surface water concentrations. In the Aquatic Exposure, "Down-the-Drain" Assessment, EPA used the annual production volume of permethrin for household products divided by the U.S. population to estimate the daily per capita mass discharge rate. This estimate is appropriate to calculate chronic surface water concentrations. However, to calculate acute surface water concentrations, a high end mass discharge rate should be utilized. The high end scenario should model surface water concentrations following a concentrated permethrin discharge to the sewer system. For example, EPA may choose to model the high end scenario by estimating the additional loading of permethrin received at a wastewater treatment plant following an outbreak of head lice at a school. NACWA recommends that EPA include a high end scenario in the Aquatic Exposure, "Down-the-Drain" Assessment to obtain acute surface water concentrations and evaluate acute risk to aquatic organisms.

#### Adequate Mitigation Measures Are Lacking

As detailed in the *Risk Assessment*, permethrin is extremely toxic to aquatic organisms. EPA concluded that 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.<sup>2</sup> The estimated water concentrations presented in Table 9b for facilities with 10<sup>th</sup> and 50<sup>th</sup> percentile stream dilution factors exceed DFG thresholds in all instances except the scenario of a 50<sup>th</sup> percentile stream dilution factor and 94 percent removal efficiency. As previously explained, the assumed removal efficiencies are conservative and some facilities do not have the benefit of a stream dilution factor or may receive concentrated permethrin discharges, so surface water concentrations could be significantly higher than DFG thresholds. NACWA encourages EPA to require mitigation measures during reregistration to limit the amount of permethrin discharged into sewers.

#### Flaws in 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* “[t]he 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. NACWA requests EPA revise the Use Characterization section to address these concerns.

#### Labels Should Acknowledge Aquatic Impacts

For a permethrin terrestrial end-use product, NACWA believes that 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.”

#### Comment Period Allowance Is Insufficient

In the document *Overview of Permethrin Risk Assessment* dated August 2005, EPA states that “[p]ermethrin is one of the most used active pesticide ingredient, 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* notice, EPA proposes to develop a Registration Eligibility Decision for permethrin through a modified 4-phase public participation process with only one public comment period. Since this re-registration decision is far-reaching, NACWA urges EPA to add another public comment period of at least 60 calendar days.

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<sup>2</sup> 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](http://www.cdpr.ca.gov/docs/sw/hazasm/hazasm00_6.pdf).

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### Conclusion

Wastewater treatment agencies need EPA's assistance to protect surface waters from contamination from permethrin. Wastewater treatment plants are required by NPDES permits to meet effluent aquatic toxicity standards; however, NACWA members do not have the authority to regulate the use of pesticides or to control its discharge from domestic uses. 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. NACWA requests that during reregistration EPA investigate options to reduce permethrin discharge into sewers.

Again, NACWA requests that EPA formally engage the wastewater treatment community as it moves toward a re-registration eligibility decision for permethrin. Based on the information presented in the *Risk Assessment*, NACWA would oppose any decision to reregister permethrin for use on clothing, pets and any other uses that would result in discharges to the sewer from domestic and other uncontrollable sources.

NACWA appreciates the opportunity to comment on the preliminary risk assessments and looks forward to meeting with EPA on this issue soon. If you have any questions or require additional information, please contact me at 202/833-9106.

Sincerely,



Chris Hornback  
Director, Regulatory Affairs

cc: Jim Hanlon, Director, Office of Wastewater Management