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November 22, 2005

Mr. Van Cheney  
Department of Pesticide Regulation  
Pesticide Registration Branch  
1001 I Street, P.O. Box 4015  
Sacramento, CA 95812

Dear Mr. Cheney:

**Pinebelt Processing, Inc.**  
**Insect Repellent Apparel**  
**Tracking Number 213896, Registration Number 82392-1**  
**Materials Entering Evaluation Process, Volume 2005-41, October 12, 2005**

The purpose of this letter is to comment on the California Department of Pesticide Regulation's (DPR's) Materials Entering Evaluation Process Volume 2005-41 regarding the registration of Pinebelt Processing, Inc.'s insect repellent apparel. It appears from the notice that this product is permethrin-treated apparel for the use as a repellent of mosquitoes, ticks, and chiggers, similar to Buzz Off Insect Shield Apparel (EPA Registration No. 74843-2). Tri-TAC is concerned about the use of permethrin in consumer products with direct pathways to the sewer system because permethrin is highly toxic to aquatic organisms. Tri-TAC requested that DPR require the registration of permethrin-impregnated clothing in October 2004 when DPR was reviewing the application from Buzz Off Insect Shield LLC to register their apparel for use in California. At that time, DPR decided not to regulate clothing as a pesticide. Tri-TAC requests that DPR reevaluate its decision in light of EPA's preliminary risk assessments for permethrin that show acute and chronic levels of concern (LOCs) for aquatic organisms were exceeded as a result of "down-the-drain" uses of permethrin. We request DPR conduct an evaluation of the potential water quality impacts from the Pinebelt Processing, Inc.'s insect repellent apparel and require the registration of all permethrin-impregnated clothing. As background, Tri-TAC is a technical advisory group for Publicly Owned Treatment Works (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

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billion gallons of wastewater each day and serves most of the sewered population of California.

## Comments

On July 7, 2003, the United States Environmental Protection Agency (EPA) issued a conditional registration for Buzz Off Insect Shield Apparel. Buzz Off Insect Shield Apparel is clothing that has been treated with permethrin to repel mosquitoes, ticks, ants, flies, chiggers, and midges. On October 16, 2002 DPR received an application from Buzz Off Insect Shield LLC to register their apparel for use in California. On November 21, 2003, DPR sent a letter to Buzz Off Insect Shield LLC stating, "We have decided not to regulate clothing as a pesticide, at this time." No justification was given in the letter to Buzz Off Insect Shield LLC for DPR's decision not to register clothing as a pesticide. However, DPR did give justification for not registering permethrin-impregnated clothing in response to letters from Senator Lowenthal and Assembly Member Ruskin.<sup>1</sup> DPR states in the response letter dated June 1, 2005: "In making our decision not to regulate 'Buzz Off Shield Insect Repellant' (EPA Reg. No. 74843-2), DPR staff consulted data regarding toxicology, environmental impacts, and efficacy of permethrin-impregnated clothing. Although, pyrethroids have been used in California for over 30 years, DPR has not received any data indicating that discharges from POTWs exceed discharge limits for reasons related to pyrethroids. That, combined with our scientists' evaluation of the environmental fate of pyrethroids, provided the rationale for concluding that permethrin-impregnated clothing would not present an undue hazard and, therefore, did not require separate registration in California." Tri-TAC disagrees with DPR's conclusion that permethrin-impregnated clothing does not present a undue hazard to the environment.

Pyrethroids, like permethrin, replaced organophosphorous as the most commonly used insecticides in California urban areas after EPA announced phase-outs of most urban uses of diazinon and chlorpyrifos.<sup>2</sup> Normal use of permethrin-impregnated garments include home laundering of the garments with water. The wastewater from the laundering is sent to the sewers where it travels to downstream POTWs, and eventually into receiving waters. Tri-TAC has noticed an increase in the publicity of permethrin-impregnated clothing, including articles printed in Reader's Digest and Westways Magazine, as well as advertisements by the clothing manufacturers. Tri-TAC expects more permethrin-impregnated products to be purchased as a result of the publicity and the public's concerns of contracting Lyme disease and other tick-borne diseases thereby increasing the discharge of permethrin to sewers and the probability of aquatic toxicity problems.

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<sup>1</sup> DPR, Letter to Senator Lowenthal and Assembly Member Ruskin, June 1, 2005

<sup>2</sup> TDC Environmental, Urban Pesticide Use Trends Annual Report, Prepared for the San Francisco Estuary Project, March 2005

The inherent assumption that there is no water quality problem until one is detected in the environment is shortsighted. DPR should be aware that very little sampling has been conducted of POTW influent or effluent for permethrin; therefore, it is extremely difficult to determine whether Department of Fish and Game's (DFG's) aquatic toxicity standards have been exceeded. In two sampling events in 2004 by a POTW, the POTW was only able to analyze the samples for permethrin down to a level of 50 parts per billion, well above DFG's criteria of 30 parts per billion for fresh water and 1 part per billion for salt water. The absence of data indicating a problem does not mean that a problem does not exist.

Furthermore, in previous communications regarding the registration of permethrin consumer products with pathways to sewers, DPR has suggested that POTWs sample to determine influent and effluent permethrin concentrations to estimate removal efficiencies. Tri-TAC believes that the burden of collecting data to determine the environmental impact of a pesticide should fall on the pesticide manufacturer. There are approximately nine hundred pesticide active ingredients registered for use in California. It is beyond the resources of POTWs to develop analytical methods and test for all nine hundred active ingredients to determine if they are expected to cause environmental problems. As part of the registration process, the pesticide manufacturer should be required to submit any data necessary to determine if environmental problems are expected from use of a pesticide. In the absence of data from a manufacturer regarding a specific pathway, such as breakdown during sewer travel and POTW treatment, the worst-case conservative assumption should be made for the purpose of predicting environmental impacts (i.e., assume no removal during sewer travel and no removal during POTW treatment, unless the manufacturer provides data showing otherwise). At minimum, any quantitative data that is available should be used in lieu of qualitative arguments. Specifically, the treatability data from the United States Environmental Protection Agency (EPA) should be used in place of speculative arguments to predict permethrin removals from POTWs.

As part of the reregistration process, EPA recently made available for public comment preliminary risk assessments for permethrin. In the Risk Assessment, EPA utilized a screening model to evaluate permethrin impacts on the sewer system with an Aquatic Exposure, "Down-the-Drain" Assessment. Tri-TAC provided comments to EPA about the method used to translate wastewater treatment plant discharge concentrations from the screening 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 used in the Aquatic Exposure, "Down-the-Drain" Assessment for permethrin. Even with the conservative assumptions used by EPA, the model results show that acute and chronic levels of concern (LOCs) for aquatic organisms were exceeded as a result of "down-the-drain" uses of permethrin.

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.<sup>3</sup> Even with the conservative assumption of 52 to 94 percent removal from wastewater treatment, EPA concluded: LOCs for acute high risk 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. EPA concluded the “down-the-drain” exposure to aquatic organisms is up to 113 times higher than the LOCs for acute high risk and seven times higher than the LOCs for chronic risk. In the first and second pages of the Risk Assessment EPA also states: “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.” EPA conclusions validate Tri-TAC’s concern regarding permethrin, and support Tri-TAC’s request for DPR to evaluate the water quality impacts of permethrin-impregnated clothing.

Based on EPA's information, it appears that less than 52 to 94 percent of the permethrin entering POTWs will be removed. Using a conservative average removal of 74 percent, estimates were prepared of the potential water quality impacts of laundering permethrin-impregnated clothing like Pinebelt Processing, Inc.’s insect repellent apparel. The calculations are presented in Attachment 1. They indicate that the wastewater produced from the first wash of one heavy garment contains enough permethrin to bring 4.1 million gallons of POTW effluent to the water quality criterion for fresh water. This means that a POTW that treats 4 million gallons per day or less and discharges to a

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<sup>3</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.

Mr. Van Cheney  
November 21, 2005  
Page 5

fresh water body without dilution could exceed DFG's aquatic toxicity threshold from laundering a single garment. Larger POTWs could be impacted by laundering multiple garments. Similarly, the wastewater from the first wash of one heavy garment contains enough permethrin to bring 122 million gallons of POTW effluent to the DFG's saltwater aquatic toxicity threshold. This means that a POTW that treats 122 million gallons per day or less and discharges to a saltwater body without dilution, such as some of the San Francisco Bay Area POTWs, could exceed the saltwater aquatic toxicity threshold from laundering a single garment. Laundering of multiple garments could again impact larger POTWs, and smaller POTWs that received only small dilution factors could also be impacted.

In conclusion, POTWs need DPR's and EPA's assistance to protect surface waters from contamination from permethrin. POTWs are required by National Pollutant Discharge Elimination System permits to meet effluent aquatic toxicity standards; however, POTWs do not have the authority to regulate pesticides. The Aquatic Exposure, "Down-the-Drain" Assessment conducted by EPA for permethrin clearly shows that aquatic impacts could occur from the use of permethrin in consumer products. The environmental impact of Pinebelt Processing, Inc.'s insect repellent apparel should be considered in light of existing discharges to environment of permethrin, and that increasing dependence on pyrethroids for pesticide control could lead to future problems.

### Contact Information

Tri-TAC appreciates your consideration of our comments. If you have any questions about this letter or require additional information, please contact Ms. Preeti Ghuman by phone at (562) 699-7411, extension 2904, or by e-mail at [pghuman@lacsdsd.org](mailto:pghuman@lacsdsd.org).

Sincerely,



Charles V. Weir  
Chair, Tri-TAC

Attachment

c: PREC Committee  
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Mary-Ann Warmerdam, DPR  
Bill Johnson, SWRCB  
Mark Rentz, DPR  
Patricia Gouveia, SWRCB