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November 2, 2017

Via Electronic Mail

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

SUBJECT: Comment Letter – Central Valley Pyrethroids

Dear Ms. Townsend:

Our firm represents the Pyrethroid Working Group (the PWG) in matters related to *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Pyrethroid Pesticides Discharges* (Pyrethroid Amendment). On behalf of the PWG, we provide here summary comments in response to your Notice of Opportunity to Comment.

As a preliminary matter, the comments provided here meet the requirements of the California Code of Regulations, title 23, section 3779, subdivision (f), as directed in the State Water Resources Control Board's (State Water Board) Notice of Opportunity to Comment. Specifically, our comments pertain directly to the final version of the Pyrethroid Amendment as adopted by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) on June 8, 2017, and our comments were timely raised before the Central Valley Water Board. In general, the PWG submits this letter in support of the Central Valley Water Board's actions and encourages the State Water Board to approve the Pyrethroid Amendment as adopted by the Central Valley Water Board.

I. PWG Involvement in Process

The PWG has been an active participant in the Central Valley Water Board's process for developing the Pyrethroid Amendment. As an active participant, the PWG has provided Central Valley Water Board staff with significant data and information that has been developed over a number of years using state-of-the-art technology and laboratory standards. For example, the PWG has measured sediment adsorption coefficients for pyrethroids using Solid Phase Micro Extraction (SPME) techniques that build on approaches and data published by scientists at the University of California Riverside to provide best-available data for the calculation of freely-dissolved (i.e., bioavailable) fraction of pyrethroid present in natural

waters. These data have been used by Central Valley Water Board staff to calculate partitioning coefficients for the Pyrethroid Amendment.

The PWG also submitted a robust Sensitive Species Distribution (SSD) that allowed for the calculation of potential acute criteria for the six pesticides named in the Pyrethroid Amendment. The Central Valley Water Board staff considered the PWG criteria as one of 12 alternatives evaluated in the staff report. However, the PWG criteria were rejected because Central Valley Water Board staff report alleged that they were arguably not protective of aquatic life beneficial uses. The PWG disagrees with this characterization of the criteria that were calculated from the PWG's SSD. The PWG approach is sound, and is based on an extensive set of toxicity data. The combined pyrethroid SSD submitted by the PWG provides a more taxonomically representative and statistically robust basis for risk characterization than data used for the most sensitive single species, or SSDs based on data for a single pyrethroid alone, and are especially useful for pyrethroids that have been tested with small numbers of species.

Regardless of the fact that the PWG SSD and calculated criteria from the SSD were not adopted by the Central Valley Water Board, the PWG remains supportive of the Central Valley Water Board action as it considered numerous alternatives and ultimately selected one that was reasonable as compared to other more conservative options. Further, the PWG remains supportive because the water quality criteria selected by the Central Valley Water Board are used as triggering mechanisms rather than as water quality objectives or as values that interpret narrative water quality objectives. By selecting fifth (5^{th}) percentile criteria (discussed further below) and by putting them into proper context, the PWG finds the Central Valley Water Board action to be reasonable under the circumstances.

II. Central Valley Water Board Action to Adopt Triggers Rather Than Water Quality Objectives Is Appropriate

A central component of the Pyrethroid Amendment is the inclusion of numeric triggers for pyrethroid pesticides in the implementation provisions, rather than the adoption of water quality objectives for pyrethroids. The PWG supports this approach for a variety of reasons. Most importantly, as articulated in Provision 16 of Resolution R5-2017-0057, there is insufficient information available for the Central Valley Water Board to properly consider the factors established by Water Code section 13241. Before adopting any water quality objective, the Central Valley Water Board is required to consider the factors specified in Water Code section 13241. In the absence of information necessary to consider these factors, it is inappropriate for the Central Valley Water Board to adopt water quality objectives. Thus, rather than adopting improper water quality objectives, the Central Valley Water Board is proposing to use numeric values to "trigger" the need for further management actions. Through the implementation of management actions and further monitoring, additional information will be obtained to inform future evaluations. From there, the Central Valley Water Board may then have sufficient information in the future to determine what are proper

water quality objectives to reasonably support beneficial uses. In the meantime, the PWG supports the Central Valley Water Board's approach of using numeric triggers.

III. Pyrethroid Concentration Goals Properly Use 5th Percentile Values

Contrary to the statements of others, the Central Valley Water Board's use of 5th percentile values for the pyrethroid concentration goals, which are then used in the calculation of the acute and chronic numeric triggers, are protective of aquatic life beneficial uses and are properly used in the Pyrethroid Amendment. These values are very conservative (and we would argue that they are overly conservative) in that they include many conservative assumptions, including the use of considerably shorter averaging periods, and are based on exceedance frequencies of no more than once in every three years. Further, a safety factor of 2 is applied in the derivation of these criteria, and these values provide for protection for all but a small portion of taxa.

In contrast, others argue that the Central Valley Water Board should have adopted values based on the 1st or the 2.5th percentiles. With respect to the 1st percentile, the University of California Davis (UCD) *Methodology for Derivation of Pesticide Water Quality Criteria for the Protection of Aquatic Life in the Sacramento and San Joaquin River Basins* (UCD Pesticide Criteria Methodology) recommends that criteria be adjusted downward to the 1st percentile if data shows that toxicity can occur at lower concentrations than criteria derived from the 5th percentile. Following this methodology, Central Valley Water Board staff updated UCD 2010/2011criteria for certain pyrethroid pesticides with new data and information, and then adjusted the criteria downward due to the sensitivity of laboratory strains of *Hyalella azteca*.[1] The alternative for the 2.5th percentile was presented merely as an option for something between the 5th percentile and the 1st percentile.

The Central Valley Water Board properly adopted the 5th percentile values for use in the concentration goal calculations, rather than the 1st or 2.5th alternatives, for several reasons. First, the 5th percentile values are appropriate, as they are inherently conservative and consistent with U.S. EPA's *Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*. Second, two of three peer reviewers noted that the 1st percentile values were overly conservative and that the 5th percentile values were protective. Third, the Central Valley Water Board is looking to reasonably protect beneficial uses (i.e., aquatic life beneficial uses) – not protect one single, sensitive species. For these reasons and others as expressed in our March 24, 2017 letter, the PWG supports the use of 5th percentile values for pyrethroid concentration goals at this time. As additional information becomes available, the PWG believes that it will be important to further evaluate these values to determine whether they are reasonably necessary to protect aquatic life beneficial uses.

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[1] See, e.g., *Water Quality Criteria Report for Bifenthrin*, Updated Report, Prepared by Tessa Fojut, Ph.D., Central Valley Regional Water Quality Control Board, Updated May 2015.

IV. Use of Freely Dissolved Pyrethroid Concentrations in Trigger Calculations Is Appropriate

Next, the Pyrethroid Amendment allows for the use of freely dissolved (i.e., bioavailable) concentrations of pyrethroids to determine whether numeric triggers have been exceeded. This is an essential consideration, given that pyrethroids are highly hydrophobic and bind tightly to suspended solids and organic matter, and it is the freely dissolved (and hence bioavailable) fraction of the chemical that is available for adsorption through gills and skin by aquatic organisms (i.e., the portion not bound to solids and organic matter). Use of the freely dissolved concentration (calculated using the best available science adsorption coefficients) is an appropriate predictor of bioavailability for pyrethroids because it is highly correlated with the bioavailable fraction. (See Final Staff Report, p. 58.) Accordingly, the PWG supports the Central Valley Water Board's use of freely dissolved concentrations and encourages State Water Board approval.

V. Central Valley Water Board Stakeholder Process Was Open, Transparent and Fair

With respect to the development of the Pyrethroid Amendment as a whole, the Central Valley Water Board conducted an open, fair and transparent process that spanned several years. Stakeholder meetings were scheduled and noticed for all interested persons, and all stakeholders were given multiple opportunities to comment on administrative draft versions of proposed amendments. Central Valley Water Board staff were open to varying viewpoints and considered data and information provided by all stakeholders. In fact, the Final Staff Report is replete with references to data and information provided by stakeholders, including the PWG. Overall, the PWG believes that this process has led to the development of a scientifically robust and reasonable Basin Plan amendment that should be approved by the State Water Board.

In summary, the PWG supports the Pyrethroid Amendment as adopted by the Central Valley Water Board and encourages State Water Board approval as presented.

Sincerely,

Theresa A. Dunham

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