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November 13, 2012

Tessa Fojut
Pesticide TMDL Unit
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive
Rancho Cordova, CA 95670-6114

Submitted via emails: tfojut@waterboards.ca.gov

Subject: Central Valley Pyrethroid Pesticides Total Maximum Daily Load and Basin Plan Amendment, Informational Document, CEQA Scoping Meeting October 30, 2012

Dear Ms. Fojut:

The Sacramento Regional County Sanitation District (SRCSD) appreciates the opportunity to provide comments on a pyrethroid pesticides total maximum daily load (TMDL) development and basin plan amendment that may include water quality objectives and an implementation plan to achieve those objectives.

The early involvement of stakeholders in any basin planning process will lead to TMDLs having a greater likelihood of achieving improved water quality. SRCSD has both regulatory and technical concerns with the proposed project of establishing TMDLs to control discharges of pyrethroid pesticides. Comments on these aspects are discussed below.

Regulatory Concerns

TMDLs should be established only for waterbodies/reaches that are listed as impaired on the 303(d) list, not all waterbodies in the Sacramento- San Joaquin watersheds. This CEQA Informational Document appears to include all Central Valley waterbodies by proposing the potential adoption of water quality objectives, that are based on limited data.

Under Porter-Cologne Water Quality Control Act (Porter-Cologne), the Regional Board is required to regulate water quality in a manner that attains the highest level of water quality which is reasonable, considering all demands being made and to be made on those waters. (See Wat. Code, § 13000.) Further, water quality objectives are supposed to be established to ensure reasonable protection of beneficial uses, considering a number of different

factors. The factors that must be considered include: past, present and probable future beneficial uses; environmental characteristics of the hydrographic unit under consideration, including the quality of water; water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area; economic considerations; the need for developing housing; and the need to develop and use recycled water. (Wat. Code, § 13241.)

Overall there needs to be more assessment of costs associated with this TMDL for all dischargers. In other words, when adopting water quality objectives, the Regional Board must determine if the objective is necessary to provide for reasonable protection of the beneficial uses, and the Regional Board must balance all of the competing demands on the water and consider the economic implications associated with adoption of water quality objectives. However, the costs are not only economic, as there is a potential broader public health cost addressed by vector control use of pyrethroids for mosquitoes and the abatement for West Nile Virus.

The Regional Board is also required to adopt a program of implementation for achieving water quality objectives at the time of adoption. (See Wat. Code, § 13242.) Regarding a program of implementation, a comprehensive implementation strategy calling on Federal, State, local agencies, and others, to take actions to reduce the potential for pesticides to degrade water quality is necessary to effectively control any pesticide. A key component that should be included in the implementation strategy is the need for the Water Boards, USEPA and the California Department of Pesticides Regulation to coordinate efforts during the pesticide product registration process.

Technical Concerns

The water quality criteria developed by the University of California Davis (UCD) being used as the basis for listing water bodies impaired by pyrethroids has many technical problems that are discussed below. With respect to sensitive species, epibenthic invertebrates (e.g., Hyalella Azteca) are the most sensitive model species for toxicity tests with pyrethroids. Whether this sensitive species should be used to derive criteria can be debated, however, tests with species similar to local, listed species of fish yielded toxicity values of 5 to 10-fold higher than the suggested chronic criterion. Therefore, these criteria are highly protective of fish. Also recent research has shown that native Hyalella Azteca is less sensitive to pyrethroids than cultured Hyalella Azteca (John Rudolph and Howard Bailey, Nautilus II Environmental, 2011 Riverside H2O Conference).

Comments submitted by SRCSD in 2010 and 2011 on the development of pyrethroid water quality criteria by UCD are still applicable. We submitted letters on the following pyrethroids; bifenthrin, cyfluthrin, cypermethrin, lambda-cyhalothrin, and permethrin and have attached the comment letter on Bifenthrim as an example. The UCD water quality criteria for all these

pesticides are based on limited data, do not use vetted EPA methods, incorporate large safety factors, and are not representative of the environment. The chronic criteria for bifenthrin, cyfluthrin, cypermethrin, and lambda-cyhalothrin are all below the analytical capability of detection. The ability to detect concentrations below one ppt (less than one ng/L) is challenging, and, in fact, because of the challenges, detections below one ppt have yet to be demonstrated. Perhaps the TMDL should be phased to fill in data gaps concerning toxicity, and allow for further analytical development.

We appreciate the Water Board's early public outreach effort in developing a pyrethroid TMDL. If you have any questions or need more information please contact me at 916-876-6030 or dornl@sacsewer.com.

Sincerely,

Linda Dorn
Environmental Program Manager

Attachment: Draft Bifenthrin Criteria Derivation SRCSD Comment Letter, January 14, 2010

cc: Debbie Webster, Executive Officer CVCWA
Ken Landau, Assistant Executive Officer CVRWQB
Prabhakar Somavarapu, Director of Policy and Planning
Terrie Mitchell, Legislative and Regulatory Affairs Manager
Vyomini Pandya, Assistant Civil Engineer

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January 14, 2010

Danny McClure
Water Resources Control Engineer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

SUBJECT: Draft Bifenthrin Criteria Derivation

Dear Mr. McClure:

The Sacramento Regional County Sanitation District (SRCSD) appreciates the opportunity to comment on the *Draft Bifenthrin Criteria Derivation* (draft criteria) developed by the University of California, Davis (UCD). SRCSD owns and operates the Sacramento Regional Wastewater Treatment Plant (SRWTP), and provides wastewater collection, conveyance and treatment services to over 1.3 million residents and thousands of commercial and industrial customers in the Sacramento region. Our mission is to protect human health and the environment by keeping the Sacramento River clean and safe. We take our mission very seriously and work on a daily basis to meet our obligations to protect water quality and beneficial uses in the River and Delta. Our excellent compliance record with our National Pollutant Discharge Elimination System (NPDES) permit speaks to this commitment and performance.

SRCSD has concerns with how the draft criterion was derived, even though the criteria were derived in agreement with risk assessment practices for developing toxicity screening values. Additionally, our primary concern with the overly protective draft criteria directly relates to our ability to maintain our excellent compliance record should the Central Valley Regional Water Quality Control (Regional Board) staff use this draft criterion to interpret narrative objectives in the Sacramento-San Joaquin Basin Plan.

Concerns with Draft Criteria as Derived

As confirmed by UCD, the main problems with bifenthrin criteria development are the lack of good toxicity data. Because the necessary toxicity studies are insufficient to use standard EPA methodology to develop the criteria the draft criteria were developed based on unique criteria derivation techniques. Minimal acute toxicity data were used to develop an acute criterion of 4 ng/L. A factor of 2 was applied to the 5th percentile LC50 to achieve this draft acute criterion because of the sparse data set, including the few taxa in the species-sensitivity distribution.

The suggested chronic criterion (0.3 ng/L) was derived using a literature derived acute-to-chronic ratio (ACR) of 12.4 instead of using of actual chronic toxicity data. This final chronic value is highly-speculative due to this lack of

data, and is potentially more overprotective than the acute value. The resulting draft criteria (4.0 and 0.3 ng/L acute and chronic, respectively) create a number of problematic analytical issues for SRCSD. Both criteria are below reporting limits and detection limits for most, if not all, labs (in clean matrix such as deionized water). Although not recognized in the draft criteria document, analytical quantitation limits have an impact on the ability of SRCSD achieving compliance with effluent limitations and receiving water limits derived from the draft criteria. Moreover, the ability to detect concentrations below one ppt (less than one ng/L) in a complex matrix such as effluent is even more challenging than detecting these low concentrations in a clean matrix. In fact, because of the challenges, detections below one ppt have yet to be demonstrated. Currently, one ppt detection limits are the goal of California organizations evaluating pyrethroids (i.e., DPR, TriTAC, and the Pyrethroid Working Group (PWG).

Further, the lack of a standard EPA methodology for analyzing pyrethroids may also pose a problem for pyrethroid analyses. For example, the academic lab of Dr. Mike Lydy (University of Southern Illinois) claims one of the lowest reporting limits (3 ng/L) for pyrethroids, yet it is still 10 times higher than the suggested chronic criterion in the draft criteria. Questions have been raised about the possibility of interferences or false positive identifications without confirmation by other methods. To achieve such low reporting limits, Dr. Lydy must perform multiple clean-up steps that are not available or commonly performed by commercial labs, and samples are concentrated 20,000 times (1,000x is normal). These extreme steps have an unknown effect on analytical precision and accuracy.

The draft criteria authors' note that the dietary pathway for chronic exposure from bifenthrin is poorly understood and that evidence points to toxicity from the freely-dissolved fraction as being the crucial component. The presence of suspended solids and sediments in samples greatly modified and decreased toxicity. Based on this information, the authors' concluded that bioavailability has to be estimated based on dissolved phase measurements or from calculations. Thus, to estimate bifenthrin toxicity in natural waters, detailed site-specific data on suspended sediments and organic fractions is essential. Likewise, temperature is an important factor in determining pyrethroid toxicity and should be included in any model for determining the bifenthrin criteria because pyrethroid toxicity increases at lower temperatures when enzymes break down these chemicals more slowly.

Moreover, the measurement of the draft criteria in whole water, as recommended by the UCD authors, is contrary to applicable literature, which suggests strong and highly variable interactions with suspended particulates and bifenthrin concentrations in the dissolved phase. As a result, the authors acknowledge that the suggested criteria are likely to be overprotective.
Further, supportive data were inconclusive or unavailable on the effects of pesticide mixtures, temperature effects for freshwater organisms, and the effects on the most sensitive species. For example, for effects to sensitive species the UCD authors cited the lowest reported sensitive freshwater invertebrate chronic toxicity value of 1.9 ng/L. However, contrary to this value, the UCD authors propose a chronic criterion value of 0.3 ng/L.

With respect to sensitive species, epibenthic invertebrates (e.g., *H. azteca*) are the most sensitive model species for toxicity tests with pyrethroid. This sensitive species drives criteria development. However, tests with species similar to local, listed species of fish yielded toxicity values of 5 to 10-fold higher than the suggested chronic criterion. Therefore, these criteria are highly protective of fish.

Because of the lack of confidence in the chronic criterion, and over-protectiveness of the proposed value SRCSD, cannot support their use by the Regional Board until there is a better understanding

of fate and transport, chronic toxicity, and affects of dissolved solids and suspended particles that can be accounted for in an empirical model.

Concerns with Use of Draft Criteria to Interpret Narrative Water Quality Objectives

Besides being concerned with the development of the draft criteria, SRCSD is concerned with the Regional Board's proposed use of the draft criteria to interpret narrative water quality objectives. The specific concern is the Regional Board's potential use of the criteria to set water quality based effluent limitations in NPDES permits, as it will create liability for SRCSD. Considering the liability associated with complying with such effluent limitations, the Regional Board should take care in using only criteria that are well-developed and well-founded. As indicated above, the draft criteria for bifenthrin are most likely overly-protective, thereby creating unnecessary liability for wastewater dischargers. Effluent limitation violations may subject dischargers to the Regional Board's discretionary administrative civil liability authority, mandatory minimum penalties, or to third party lawsuits brought under the CWA's citizen suit enforcement provisions. (See 33 U.S.C. § 505.)

SRCSD is concerned with the use of the draft criteria to interpret narrative objectives as it creates de facto water quality objectives that have not been adopted in accordance with the law. Under Porter-Cologne Water Quality Control Act (Porter-Cologne), the Regional Board is required to regulate water quality in a manner that attains the highest level of water quality which is reasonable, considering all demands being made and to be made on those waters. (See Wat. Code, § 13000.) Further, water quality objectives are supposed to be established to ensure reasonable protection of beneficial uses, considering a number of different factors. The factors that must be considered include: past, present and probable future beneficial uses; environmental characteristics of the hydrographic unit under consideration, including the quality of water; water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area; economic considerations; the need for developing housing; and the need to develop and use recycled water. (Wat. Code, § 13241.) Also, the Regional Board is required to adopt a program of implementation for achieving water quality objectives at the time of adoption. (See Wat. Code, § 13242.) In other words, when adopting water quality objectives, the Regional Board must determine if the objective is necessary to provide for reasonable protection of the beneficial uses, and the Regional Board must balance all of the competing demands on the water and consider the economic implications associated with adoption of water quality objectives. SRCSD respectfully requests that the Regional Board refrain from using the draft criteria for bifenthrin until the criteria are properly adopted as water quality objectives pursuant to all requirements in Porter-Cologne.

Thank you for your considerations. Please contact me at (916) 876-6030 if you have any questions.

Sincerely,

Linda Dorn
Environmental Program Manager

cc: Debbie Webster, CVCWA
Mary Snyder, SRCSD
Stan Dean, SRCSD
Terrie Mitchell, SRCSD