

**Main Office**

10060 Goethe Road

Sacramento, CA 95827-3553

Tele: [916] 876-6000

Fax: [916] 876-6160

Sacramento Regional**Wastewater Treatment Plant**

8521 Laguna Station Road

Elk Grove, CA 95758-9550

Tele: [916] 875-9000

Fax: [916] 875-9068

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May 9, 2011

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

Via: Email to dmcclure@waterboards.ca.gov

SUBJECT: Draft Permethrin Criteria Derivation

Dear Mr. McClure:

The Sacramento Regional County Sanitation District (SRCSD) appreciates the opportunity to comment on the *Permethrin 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 technical and regulatory concerns with the draft acute/chronic criteria. Our primary concern with the derivation of draft criteria and its possible use directly relates to our ability to maintain our excellent compliance record should the Central Valley Regional Water Quality Control Board (CVRWQCB) staff use this draft criteria to interpret narrative objectives in the Sacramento-San Joaquin Basin Plan. Additionally, SRCSD has technical concerns with how the draft acute/chronic criteria were derived. Following are SRCSD's concerns regarding use of draft criteria to interpret narrative water quality objectives based on technical issues with the derivation of the draft criteria.

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

SRCSD is concerned with the CVRWQCB'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 CVRWQCB should take care in using only criteria that are well-developed and well-founded. As indicated above, the draft criteria for D permethrin are likely overly-protective, thereby creating unnecessary liability for

for wastewater dischargers. Effluent limitation violations may subject dischargers to the CVRWQCB'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 the Porter-Cologne Water Quality Control Act (Porter-Cologne), the CVRWQCB 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.)

The CVRWQCB is required to adopt a program of implementation for achieving water quality objectives at the time of adoption (Wat. Code, § 13242). In other words, when adopting water quality objectives, the CVRWQCB must determine if the objective is necessary to provide for reasonable protection of the beneficial uses, and 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 CVRWQCB refrain from using the draft criteria for permethrin until the criteria are properly adopted as water quality objectives pursuant to all requirements in Porter-Cologne.

Concerns with Derivation of the Draft Criteria

As confirmed by UCD, the main problems with permethrin 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. As noted, these criteria are within the range of criteria developed by other jurisdictions. The example acute criterion calculated by the USEPA 1985 method is identical to the criterion derived using this methodology.

SRCSD support the authors' recommendation that "*The freely dissolved permethrin concentration is recommended for determination of criteria compliance because the literature suggests that the freely dissolved concentrations are the most accurate predictor of toxicity.*" This conclusion is based on multiple study findings that "*toxicity is believed to occur primarily from the fraction of the compound that is dissolved in the water, not from the compound that is associated with the particulate phase.*" SRCSD does not find it scientifically defensible and does not agree with the recommendation to use whole water concentrations for criteria compliance assessment at the discretion of the environmental managers; however, total concentrations could be an indicator of where additional information is needed to determine if there is a potential risk to the aquatic community from permethrin.

Because of the uncertainty in these draft WQC (e.g., based on whole water concentrations when the dissolved phase determines toxicity, fewer species data than recommended by both the EPA (1985) and Tenbrook et al (2009) methods) SRCSD does not support their use by the CVRWQCB as water quality objectives (WQOs) 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. The suggested WQC may be useful as risk screening values and concentrations above them could be evaluated further for possible environmental relevance, but the proposed water quality criteria are insufficiently supported to support the regulatory weight associated with WQO.

The proposed draft criteria (10 and 2 ng/L acute and chronic, respectively) create a number of problematic analytical issues. The chronic criterion is below reporting limits and detection limits for most, if not all, labs (in clean matrices such as deionized water). Although not recognized in the draft criteria document, analytical quantitation limits have an impact on the ability of dischargers to achieve compliance with effluent limitations and receiving water limits. 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 in the complex effluent matrix. Currently, one ppt detection limits are the goal of California organizations evaluating pyrethroids (i.e., DPR, TriTAC, and the Pyrethroid Working Group [PWG]).

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 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 in non-standard methods can have an unknown effect on analytical precision and accuracy.

Authors' note that the dietary pathway for chronic exposure from permethrin may be an important exposure route, but inclusion of this exposure route into criteria compliance assessment is not possible due to lack of information. SRCSD agrees that future criteria updates should consider this pathway and be done as soon as additional information becomes available.

Because of the lack of information and understanding of the impacts to the aquatic life from permethrin, and analytical limitations associated with detections of permethrin to the levels of concern, 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. Therefore, SRCSD requests that the CVRWQCB Board refrain from using the draft criteria for permethrin until more research is completed and the criteria are properly adopted as water quality objectives.

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

Sincerely,



Linda Dorn, Environmental Program Manager

cc: Stan Dean, District Engineer,
Prabhakar Somavarapu, Director of Policy and Planning
Terrie Mitchell, Manager Legislative and Regulatory Affairs
Debbie Webster, CVCWA, Executive Officer