



Environmental Utilities Department  
Stormwater Management Program  
2005 Hilltop Circle  
Roseville, California 95747

March 21, 2014

Tessa Fojut, Ph.D.  
Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Drive, #200  
Rancho Cordova, CA 95670-6114

RE: Comments on Draft Aquatic Life Criteria and Draft Sediment Quality Criteria for Esfenvalerate

Dear Dr. Fojut:

The City of Roseville (City), with assistance from Robertson-Bryan, Inc., has reviewed the draft water quality criteria and sediment quality criteria derivation reports for esfenvalerate prepared by the University of California at Davis (UCD) for the Central Valley Regional Water Quality Control Board (Central Valley Water Board). This draft criteria derivation report was made available for public review through email notice received on February 21, 2014. Comments are due to the Central Valley Water Board by March 21, 2014.

This criteria derivation document for esfenvalerate utilizes criteria derivation methodologies developed by UCD for limited datasets. The City has commented previously on the use of these methodologies for chlorpyrifos, diazinon, malathion, diuron, bifenthrin, cypermethrin, cyfluthrin, cyhalothrin and permethrin. The City has reiterated its general concerns in each comment letter, namely the use of these criteria to interpret the Basin Plan's narrative toxicity objective and use of these criteria as enforceable regulatory thresholds. In order to derive criteria for pesticides with limited toxicity threshold datasets, the methodologies employ a series of conservative and compounding assumptions that likely result in substantially overprotective criteria. This is particularly the case with the derived chronic criteria, where chronic toxicity data are often completely absent, necessitating the use of default acute-to-chronic ratios (ACR). The City maintains these same concerns with this most recent criteria derivation document for esfenvalerate.

Specific comments are detailed below. The City formally requests that the Central Valley Water Board consider these comments, in light of its own review of the UCD document, before accepting a final version of the document from UCD.

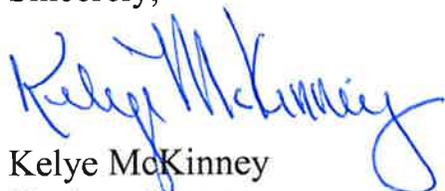
- The City does not accept the validity of the esfenvalerate chronic water quality criterion. The draft chronic water quality chronic criterion may be overprotective. The ACR used to calculate the criterion utilizes a default ACR, which itself is largely derived from classes of pesticides whose physical, chemical, and toxic modes of action are different from that of esfenvalerate.
- The City questions the utility of the esfenvalerate acute water quality criterion, which was derived from datasets absent toxicity values for *Hyaella azteca*. *Hyaella azteca* is the most sensitive species in datasets for other pyrethroids. While the City objects to the possible regulatory use of any criterion derived utilizing the UCD methodologies, the derivation of the acute criteria for esfenvalerate despite the absence of toxicity data for *Hyaella azteca* highlights the significant potential for misapplication of the methodology. While the criteria derivation report provides an accounting of its limitations, this accounting is a weak safeguard for its potential misapplication. For esfenvalerate, efforts would have been better spent developing the necessary acute toxicity value for *Hyaella azteca* rather than attempting to derive a criterion under such flawed circumstances.
- The criteria derivation report is incorrect when it states “whole water concentrations are also valid for criteria compliance assessment” (page 12). No scientific justification is provided to support this statement. Rather, it appears this is policy statement. As detailed in the criteria derivation report, scientific evidence strongly points to freely dissolved pyrethroid as the bioavailable fraction. As such, compliance should be measured against that portion of a pyrethroid that is known to be toxic. The draft criteria reports should be revised in a manner that retains the scientifically-based recommendation for compliance determinations based on either direct measurement of the bioavailable fraction or allowing for some compensating factor accounting for particulate matter and dissolved organic matter, but should remove statements regarding the validity of whole water measurements for compliance, which are not supported.
- The City does not accept the validity of sediment criteria derived when utilizing assessment factors (AF) and default acute-to-chronic ratios (ACR). It is unlikely that any sediment criteria derived by the new methodology would be derived by any other means than through the use of AFs and a default ACR. This

leads to a high degree of uncertainty relative to the accuracy of any derived criteria. As such, criteria should not be used as strict regulatory thresholds or used to set remediation goals.

- Derived esfenvalerate sediment criteria are most likely substantially overprotective, thus illustrating the degree of uncertainty, and degree of unreliability inherent to these sediment criteria values. As calculated in the criteria derivation report, the acute and chronic interstitial concentrations of the derived esfenvalerate sediment criteria are substantially smaller than any previously derived acute and chronic pyrethroid criteria. Moreover, following the EPAs proposed EqP methodology for calculating organic carbon normalized equilibrium partitioning sediment guidelines (ESGoc), the esfenvalerate ESGoc would equal 640 ng/g-organic carbon ( $ESGoc = Koc * FCV$ ), which is substantially higher than the sediment criteria derived for esfenvalerate (i.e., acute of 12 ng/g-OC and chronic of 2.1 ng/g-OC). Lastly, as calculated in the criteria derivation report, the lowest empirically derived maximum acceptable toxicant concentration is 230 ng/g-OC, which was for the very sensitive species *Hyalella azteca*. Sediment criteria for esfenvalerate are almost certainly substantially overprotective. The derived sediment criterion should be more explicitly qualified as such.
- The final chronic water quality criterion for esfenvalerate is incorrectly rounded. The final chronic criterion should be 4 ng/L, not 3 ng/L as presented in the criteria derivation report in Section 8.1. All subsequent reference to 3 ng/L should similarly be corrected, including calculations of corresponding interstitial concentrations.
- Equation 1 in Section 9.1 appears to be incorrect. Koc should be multiplied by foc (fraction organic carbon), not divided by foc.

Thank you for the opportunity to comment and we look forward to your response.

Sincerely,



Kelye McKinney  
Engineering Manager

Cc: Brant Jorgenson, Robertson-Bryan, Inc.