



Environmental Utilities Department
Stormwater Management Program
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Dr. Tessa Fojut
Danny McClure
Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive, #200
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March 23, 2017

[Submitted by E-mail]

RE: Comments on the Draft Staff Report Detailing Proposed Amendments to the Basin Plan for the Control of Pyrethroid Pesticide Discharges to Surface Waters

Dear Dr. Fojut and Mr. McClure:

The City of Roseville (City) Stormwater Management Program, with assistance from Pacific EcoRisk, has reviewed the draft staff report for "Proposed Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Pyrethroid Discharges" (Proposed Amendment). Comments on the draft staff report are due by March 24, 2017. The following comments are provided within this deadline. Please note that the City's Wastewater Utility will be providing comments specific to the POTW provisions of the draft Proposed Amendment in a separate comment letter.

The City requests that the Regional Water Board consider the comments provided herein prior to finalization of the draft staff report and adoption of the Proposed Amendment.

General Comments

In regard to the provisions of the Proposed Amendment pertaining to municipal storm water discharges (MS4), the City would like to commend Board staff for recommending a reasoned and pragmatic approach to the control of pyrethroid insecticide discharges from MS4s through the use of a conditional prohibition and, where appropriate, TMDL wasteload allocations. In particular, the proposed implementation program's best management practice (BMP) based approach, built on a maximum extent practicable (MEP) standard, will aid the MS4s in the reduction of pyrethroid insecticide discharges while recognizing the significant and substantial limitations placed on the MS4's legal authority to regulate these discharges and the financial burden of treating pesticide discharges in urban storm water. As stated in the draft staff report, State law does not allow local authorities to ban or limit pesticide sales and use, and physical treatment of storm water to remove pyrethroid insecticides is often either infeasible or cost prohibitive. As such, the Proposed Amendment strikes a necessary balance between the reasonable protection of beneficial uses without overreaching. Overreach could result in unintended consequences, such as widespread noncompliance or the substitution of alternative pesticides with unknown environmental consequences.

More specifically, the City extends its support to the following:

1. *Phased Approach*: Staff's proposed phased approach is appropriate given the very real uncertainties surrounding the actual reductions in pyrethroid discharges needed to achieve reasonable beneficial use protection, the actual controls needed to attain the pyrethroid targets, and the associated program costs. These are significant uncertainties that call into question the overall attainability of project objectives, thus actions motivated by the Proposed Amendment will need to be adaptively managed as called for in the draft staff report.
2. *Use of Conditional Prohibition*: Given the various significant uncertainties, and the prudent desire to avoid unintended consequences, staff's proposed use of a Conditional Prohibition is appropriate. Where numeric pyrethroid triggers are exceeded, the Conditional Prohibition would require implementation of management plans to reduce the levels of pyrethroids in discharges. The Proposed Amendment affords sufficient flexibility to MS4s to adapt their current preexisting stormwater management programs to manage pyrethroid discharges within the context of those programs, thus limiting the financial and resource capacity impacts of the Proposed Amendments.
3. *Use of the 5th Percentile UC Davis Criteria*: While the City remains wary of the UC Davis Criteria Methodology and the various pyrethroid criteria derived therefrom, the City understands the need for a numeric target (either as a concentration goal or wasteload allocation). To that end, the City agrees with the use of the 5th percentile UC Davis criteria as targets, at least until a time when sufficient data is available to support the use of other criteria derivation methodologies with fewer and less significant deficiencies (e.g., default acute to chronic ratios). As supported by staff's own peer review comments, there is sufficient conservatism built into the UC Davis criteria and the Proposed Amendment (i.e., concentration goal units based on additivity) such that use of the 5th percentile, as opposed to any other lower percentile criteria, can be expected to significantly advance the goal of reasonable beneficial use protection.
4. *Accounting for Bioavailability*: Staff's proposed approach to accounting for bioavailability is appropriate given the well-documented correlations of freely dissolved pyrethroid concentration and aquatic life toxicity. Not accounting for bioavailability, and rather basing assessments on whole water pyrethroid measurements, would grossly overestimate the potential for beneficial use impact. Such gross overestimation of impact would not serve the project's stated goals, nor would it further efficient and reasoned allocation of limited resources to pyrethroid control efforts.
5. *Regulatory Timeline*: Given the proposed phased approach and given the significant uncertainties, staff's proposed regulatory timeline is appropriate. The early "re-visit" is similarly appropriate, as at that time substantially more information will have been generated to assist in defining the scope and scale of the problem and for framing and evaluating solutions.

Detailed Comments

In addition to the general comments provided above, the City also offers the following detailed comments.

1. *Partition Coefficients*: The partition coefficients (K_{oc}) for esfenvalerate and permethrin presented in Table IV-Z (page xxv of draft staff report) are not the same as those presented in Tables 5-1 and 5-3.

2. *Conservativeness of Criteria Averaging Periods*: The draft staff report discusses the conservative nature of the proposed pyrethroid criteria averaging periods, including the fact that the averaging periods are of substantially shorter duration than the laboratory toxicity tests upon which the criteria were derived. In addition, for stormwater discharges, pyrethroid exposures are episodic and pulse driven, resulting in actual environmental exposures typically much different and of shorter duration than the type and duration of exposure of a typical laboratory toxicity test. Where in a typical laboratory toxicity test the organisms are exposed to a single sample for the full duration of the test (typically 2-4 days for an acute test and 4-7 days for the chronic test), depending on when that sample was collected on the stormwater hydrograph, actual field exposed organisms may only be exposed to water of similar quality (i.e., water of similar pyrethroid burden) for a duration of minutes to hours. The resulting differences in observed toxicity due to these varying exposure regimes was detailed by Clark et. al. (2014)¹. In this study it was demonstrated that the “apparent” toxicity of lower American River water depended in large part on how the toxicity test was executed, where toxicity was observed in typically executed tests (single sample) but was not observed with concurrent tests executed with daily renewal of test solutions with daily collected samples. The reason for this difference was due to the episodic and pulse driven nature of precipitation-based runoff events. As such, the criteria averaging periods are additionally more conservative than noted in the draft staff report, and thus further support for use of the 5th percentile criteria, amongst the other stated motivations detailed in the draft staff report.
3. *Use of Term Pesticide*: The City requests that the term insecticide be used in place of pesticide for purposes of clarification. Pesticide and insecticide are used interchangeably throughout the draft staff report and proposed amendment language. Insecticide is more accurate, and avoids the potential for any future misunderstanding particularly when discussing alternatives to pyrethroids. While the clear intent of the various provisions pertaining to controlling alternatives to pyrethroids is in regards to alternative *insecticides*, the present use of the word pesticide, which technically includes fungicides and herbicides, in these provisions leaves it unnecessarily open to interpretation. This can be rectified by replacing the word pesticide with the word insecticide throughout the entire draft staff report and proposed amendment language, except where the clear intent of what is being communicated is pesticide (i.e., insecticide, herbicide, fungicide, etc.).
4. *Commitment to Re-evaluate Use of UCD Criteria and Criteria Derivation Methodology*: USEPA is actively working on updating national recommended criteria derivation methodology, and will be evaluating alternatives to the exhaustive data requirements the current USEPA methodology requires. The City requests that the draft staff report include a commitment to re-evaluate the use of criteria derived using the UCD Methodology as part of the proposed re-visitation of the project at 15 years. Moreover, the City requests as part of this review that the criteria themselves be re-visited as sufficient additional toxicity data may be available to negate the need for default acute-to-chronic ratios, or ideally enough toxicity data may be available to derive chronic criteria from a species sensitivity distribution. Presently, discussion of this program re-visitation makes no mention of this need to also re-visit the appropriateness of the UCD Methodology and any pyrethroid criteria derived from it.
5. *Harmonization of Analytical Methods*: As noted in the staff report, very few analytical laboratories are capable of achieving sufficiently low reporting limits (RLs) to support the monitoring provisions of the Proposed Amendment. There are also varying approaches that could be used by analytical laboratories to achieve such low RLs, including advanced instrumentation (i.e., high resolution mass spectrometry) or changes to sample preparation protocols (i.e., increased sample extraction volumes, modified clean-up and concentration steps, etc.). It can be anticipated that what will result is laboratories using fundamentally

¹ Clark, SL, RS Ogle, A Gantner, C Harbourt, G Hancock, T Albertson, J Giddings, G Mitchell, A Barefoot, DM Tessier, M Dobbs, K Henry. 2014. A multi-year temporal and spatial evaluation of pyrethroid concentrations and biological effects in the lower American River. Poster presented at Society of Environmental Toxicology and Chemistry 2014 Annual Conference, Vancouver, British Columbia.

different methods to analysis to comply with these low RLs. This leaves questions about the comparability of results that would be obtained from the various analytical labs (i.e., would the analytical reporting be the same for split samples submitted to a number of labs given the different analytical methods?). Successful implementation of the surveillance and monitoring provisions of the Proposed Amendment will be the harmonization of analytical methods that have clearly been demonstrated to produce comparable results. Given that the Proposed Amendment places analytical method approval authority on the Executive Officer of the Regional Board, the City requests that the Executive Officer follow the framework developed by the Environmental Laboratory Technical Advisory Committee (ELTAC), an advisory committee to the State Board's Environmental Laboratory Accreditation Program (ELAP), for regulatory needs for lower RLs from certified laboratories. The ELTAC framework encourages Regulatory Agencies to solicit input from ELAP to assure that there are certified laboratories that are capable of achieving lower reporting limits (or capable of analyzing for new analytes), and for ELTAC to engage laboratories when capabilities are not sufficient.

If you have any questions or concerns about these comments, feel free to contact me at (916) 746-1748 or dellison-lloyd@roseville.ca.us . Thank you for the opportunity to comment and we look forward to your response.

Sincerely,

A handwritten signature in blue ink that reads "Delyn Ellison-Lloyd". The signature is written in a cursive, flowing style.

Delyn Ellison-Lloyd
Senior Engineer