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**County of Sacramento
Department of Water Resources
Stormwater Quality Section**

**Technical Memorandum
Rationale for EPA Category 4b Exemption for Pyrethroid Insecticides**

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Pyrethroid insecticides in California urban water bodies are good candidates, collectively, for the EPA's Category 4b exemption from the requirement to establish a TMDL for section 303(d)-listed water bodies. The excerpt below, from the EPA guidance for utilizing Category 4b (attached), provides an outline for the information needed to justify an exemption.

“The IRG indicates that states should provide in their Section 303(d) list submission a rationale that supports their conclusion that there are ‘other pollution control requirements’ stringent enough to achieve applicable WQS within a reasonable period of time. And, the rationale should address each of following six elements:

1. Identification of segment and statement of problem causing the impairment
2. Description of the pollution controls and how they will achieve WQS, including a description of the pollutant loads needed to meet WQS and a description of the requirements under which the controls will be implemented
3. An estimate or projection of the time when WQS will be met
4. Schedule for implementing pollution controls
5. Monitoring plan to track effectiveness of pollution controls
6. Commitment to revise pollution controls, as necessary”

Exemption rationale

Following the elements from the EPA guidance, the rationale below supports the conclusion that sufficient “other pollution control requirements” are in place to justify a Category 4b exemption for pyrethroids in urban areas.

1) Identification of segment and statement of problem causing the impairment – Please refer to the Regional Board's draft Basin Plan Amendment for pyrethroids.

2) Pollution Controls – The primary pollution controls that are in place and should be relied on in lieu of a TMDL are the Surface Water Protection Regulations (SWPR, Attachment 1) adopted in 2012 by the California Department of Pesticide Regulation (DPR), and Federal label changes for bifenthrin products that have been agreed to by DPR and pyrethroid registrants through a formal Memorandum of Agreement (Attachment 2).

As indicated in DPR's Statement of Reasons for the SWPR (Attachment 3), the regulations would “identify pesticides [pyrethroids] that have a high potential to contaminate surface water in outdoor non-agricultural settings, and require pest control businesses, including maintenance gardeners, that apply these pesticides to take actions to minimize that contamination.” Specifically, the SWPR and bifenthrin label changes greatly restrict the amount of pyrethroid insecticides that may be applied to impervious

areas in urban areas by licensed pesticide applicators. The restrictions established by DPR's regulations were based on evidence from a series of scientific studies. These studies supported a prediction of reductions, due to the regulations, of 80% of the observed "toxic units" in urban water bodies that is attributable to pyrethroids (as calculated by Jorgenson, Attachment 4).

The Federal bifenthrin label changes were intended to take the place of stringent bifenthrin-specific restrictions in the SWPR. Similar to the SWPR, but more stringently, the label changes restrict the application of bifenthrin on impervious areas. These restrictions apply to all users, not just licensed pesticide applicators. The combined effects of the SWPR and bifenthrin label changes are expected to come close to achieving, if not meeting, the WQS. Any shortfall in achieving the WQS would be identified through the planned monitoring described in item 5 below, and addressed through ongoing mechanisms of the MAA described in item 6 below.

3) Projection for WQS attainment – A reasonable projected time to meet the WQS is June of 2018. This time frame allows for achieving a high level of SWPR compliance among applicators; full deployment of new bifenthrin labels; and attenuation of persistent pyrethroid species (bifenthrin in particular) already present in urban water sheds, especially in the sediments of urban water bodies, that are there primarily as a result of past discharges. DPR has taken steps to begin assessing the level of compliance among pesticide applicators, and to work with the County Agricultural Commissioners and the pest control industry to achieve a high level of compliance.

4) Schedule – The SWPR took effect in July 2014, at which point they became fully enforceable by CDPR and the County Agricultural Commissioners.

The revised bifenthrin labels should be on the market by the end of 2014, assuming several months are necessary for EPA OPP approval. The Memorandum of Agreement (MOA) between DPR and the bifenthrin registrants, in which the registrants agreed to voluntary label changes, was effective September 1, 2011. Under the MOA, the registrants agreed to apply for the label changes within 60 days of the MOA effective date. Once approved, new labels would not appear in the market until products with older, less restrictive labels moved through the "channels of trade". The allowable time period for moving older labels through channels of trade is regarded by DPR and EPA as not to exceed 18 months. Label requirements are enforceable by CDPR and the County Agricultural Commissioners.

5) Monitoring – Under its Surface Water Protection Program (SWPP), the CDPR Environmental Monitoring Branch has established long term monitoring sites in urban areas throughout the state, including Roseville, Sacramento County, and Orange County (described in CDPR studies, Attachments 5a, 5b, 5c). In addition to continued characterization of pesticides in urban runoff, the SWPP now includes monitoring related to the assessment of effectiveness of urban runoff best management practices. The SWPP has been monitoring the effectiveness of two constructed water quality treatment ponds (CWQTPs) in Folsom designed to reduce urban runoff from residential areas. As stated in Ensminger 2014 (Attachment 5c), the objectives of the SWPP monitoring studies are:

- 1) Determine the presence and concentrations of selected pesticides in urban runoff at storm drain outfalls (both during the dry season and during storm runoff) in Roseville and Folsom;
- 2) Determine the presence and concentrations of selected pesticides from creeks or rivers in the Sacramento area (Folsom, Roseville, and Sacramento) and in the San Francisco Bay area (Dublin, Martinez, and in Santa Clara County);
- 3) Evaluate the effectiveness of CWQTPs to reduce pesticides from urban runoff;

- 4) Determine the toxicity of water samples at long term monitoring locations, using toxicity tests conducted with *Hyalella azteca*;
- 5) Evaluate the effectiveness of CDPR's surface water regulation 6970, enacted July 12, 2012 (<http://cdpr.ca.gov/docs/legbills/calcode/040501.htm#a690>), with long term (multi-year) monitoring at selected sampling locations;
- 6) Assess if detected pesticides are at concentrations that could be potentially toxic to aquatic organisms by comparing the data to US EPA aquatic life benchmarks (US EPA 2014) or to water quality criteria (Fojut 2012a, 2012b).

CDPR is coordinating its monitoring with the State Water Resource Control Board's (SWRCB's) Surface Water Ambient Monitoring Program (SWAMP) program to optimize the usefulness of the data for regulating pesticides and protecting water quality, and to utilize resources efficiently.

MS4 permit requirements for monitoring should be structured to facilitate coordination with CDPR and SWAMP and other regional monitoring programs, avoid unnecessary and duplicative monitoring efforts, utilize public resources efficiently, and contribute to a cohesive, representative, statewide dataset.

6) Commitment – The SWRCB and DPR both have statutory responsibility and authority to address water quality impairments by pesticides. Because of overlapping authority, a Management Agency Agreement (MAA, Attachment 6), and its implementing document entitled “California Pesticide Management Plan for Water Quality” (Plan, Attachment 7) include descriptions and details regarding the respective agencies' authority, procedures and commitments to address water quality impacts of pesticides. As stated in the Plan, “The Plan describes how DPR and the Commissioners will work cooperatively with the State and Regional Boards to prevent and respond to pesticide contamination of water.” Notably, the Plan states “Because DPR and the State Board have responsibilities for the protection of water quality, *both agencies intend that the Plan will serve as a guide to coordinate interaction, facilitate communication, promote problem-solving, and ultimately assure protection of water quality.*” [emphasis added].

Although the Plan encourages a stepwise response to pesticide impairments, which includes DPR consideration of voluntary actions by pesticide users and registrants to mitigate impairments, it also commits DPR to pursue regulatory options, should voluntary actions appear unlikely to be sufficient, and recognizes the State and Regional Boards ongoing responsibility and authority to independently address pesticide impairment as necessary. Specifically, the Plan includes:

“If adequate protection cannot be achieved by Stage 2, DPR and the Commissioners implement Stage 3. In this stage, reduced-risk practices will be implemented by restricted material use permit requirements, regulations, and other regulatory authority used by DPR and the Commissioners. If Stage 4 is necessary, the State and Regional Boards will use water quality control planning programs or other appropriate regulatory measures to protect water quality. These four stages will be implemented, not necessarily in sequential order, as necessary to protect water quality.”

[and for DPR to consider] “establishing new regulations in Title 3 of the CCR. Such regulations may place the pesticide on the list of California restricted materials (if it is not yet restricted), establish use requirements, or both. For situations where a pesticide use permit is required, such as the use of restricted materials, Commissioners issuing the permit may specify conditions of use that protect water quality. DPR may also consider action on the pesticide's registration, such as cancellation.”

The Central Valley Regional Board supported the use of pesticide regulations to address water quality impairments in a Basin Plan Amendment¹, as stated in the following excerpt:

“The Board recognizes that implementation of the authorities of agencies that regulate pesticide use, including CDPR, USEPA Office of Pesticide Programs, and County Agricultural Commissioners, should be one of the primary mechanisms for addressing pesticide-caused water quality impairments. [amendment language italicized] To ensure the best possible program, the Board will coordinate its pesticide control efforts with other agencies and organizations. Wherever possible, the burdens on pesticide dischargers will be reduced by working through the DFA (now CDPR) or other appropriate regulatory processes.”

List of Attachments

- 1 DPR Surface Water Protection Regulations text final
- 2 Bifenthrin MOA 09-11
- 3 Statement of Reasons, DPR regulations
- 4 Jorgenson Dissertation Mitigation estimates
- 5a Ensminger 2014 pyrethroid trends
- 5b DPR surface water study report 264
- 5c DPR surface water study269 protocol 2014 15
- 6 MAA for SWRCB and DPR
- 7 California Pesticide Management Plan for Water Quality

¹ CVRWQB. Resolution r5-2014-004. Amendment to the water quality control plan for the Sacramento River and San Joaquin River basins for the control of diazinon and chlorpyrifos discharges.