

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

RESOLUTION R5-2017-0057

AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR  
THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS FOR  
THE CONTROL OF PYRETHROID PESTICIDE DISCHARGES

WHEREAS, the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) finds that:

1. The Central Valley Water Board adopted the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) in 1975 and has amended it as necessary.
2. The Basin Plan may be amended in accordance with the Water Code section 13240, et seq.
3. Water Code section 13241 authorizes the Central Valley Water Board to establish water quality objectives and Water Code section 13242 sets forth the requirements for a program for implementation for achieving water quality objectives.
4. Water Code section 13243 authorizes the Central Valley Water Board to specify certain conditions or areas where the discharges of certain types of waste will not be permitted.
5. Section 303 of the federal Clean Water Act requires the Central Valley Water Board to develop water quality objectives that are sufficient to protect beneficial uses designated for each water body found within its region. (33 U.S.C. § 1313.)
6. Clean Water Act section 303 requires the Central Valley Water Board to review the Basin Plan at least every three years and, where appropriate, modify water quality objectives or beneficial uses in the Basin Plan.
7. The following fourteen water body segments have been identified under Clean Water Act section 303(d) as impaired due to elevated concentrations of pyrethroid pesticides:

Arcade Creek, Chicken Ranch Slough, Curry Creek (in Placer and Sutter Counties); Del Puerto Creek; Elder Creek; Hospital Creek (San Joaquin and Stanislaus Counties); Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing); Ingram Creek (from confluence with San Joaquin River to confluence with Hospital Creek); Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County); Morrison Creek; Pleasant Grove Creek (upstream of Fiddymont Rd); Pleasant Grove Creek, South Branch; and Strong Ranch Slough.

Additionally the water body segment Mustang creek (Merced County) has been identified under section 303(d) as impaired due to elevated concentrations of the pyrethroid pesticide cis-permethrin and the water body segment Del Puerto Creek has been identified under section 303(d) as impaired due to elevated concentrations of the pyrethroid pesticide bifenthrin.

8. The fourteen water body segments specified in Provision 7 have the WARM and/or COLD beneficial use designations.
9. Pursuant to Clean Water Act section 303(d), total maximum daily loads (TMDL)s are generally required to bring impaired water bodies into compliance with water quality standards. Under United States Environmental Protection Agency (USEPA) regulations, if the Board can demonstrate that other pollution control requirements will successfully address an impairment, then a TMDL is not required. The segments where such a demonstration can be made are classified in

the Clean Water Act section 303(d)/305(b) Integrated Report as “Category 4b listings”. Identifying an impairment on the 303(d) list as a “Category 4b listing” requires USEPA approval. USEPA has provided guidance stating their expectations for what should be included in “Category 4b demonstrations” in order to demonstrate that impairments will be addressed by existing pollution control requirements.

10. The Proposed Amendment modifies Basin Plan Chapter IV (Implementation) to include a pyrethroid pesticide control program for the Sacramento and San Joaquin River Basins.
11. The Proposed Amendment would establish TMDLs for pyrethroid pesticides in the following nine urban water body segments:  
  
Arcade Creek; Chicken Ranch Slough; Curry Creek (Placer and Sutter Counties); Elder Creek; Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County); Morrison Creek; Pleasant Grove Creek (upstream of Fiddymont Rd); Pleasant Grove Creek, South Branch; and Strong Ranch Slough.
12. The Proposed Amendment would establish a conditional prohibition of pyrethroids discharges at concentrations above specified aquatic life protection-based concentration triggers unless the discharger is implementing a management plan to reduce pyrethroid levels in their discharges.
13. The Proposed Amendment requires agricultural dischargers of pyrethroids to the following five waterbody segments with known pyrethroid impairments develop and implement management plans to reduce pyrethroid pesticides discharges to levels that do not exceed the narrative water quality objective for toxicity as soon as practicable, but no later than 20 years from effective date of this amendment:  
  
Del Puerto Creek; Hospital Creek (San Joaquin and Stanislaus Counties); Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing); Ingram Creek (from confluence with San Joaquin River to confluence with Hospital Creek); and Mustang Creek (Merced County).
14. The Proposed Amendment modifies Basin Plan Chapter V (Surveillance and Monitoring) to include monitoring requirements that will allow the Central Valley Water Board to assess progress in reducing pyrethroid discharges and preventing toxicity due to pesticide discharges.
15. With adoption of the Proposed Amendment, the Board will have established pollution control requirements that will address all of the pyrethroid impairments for the five water body segments impaired by pyrethroids from agricultural sources identified in provision 14, since agricultural discharges are the only significant source of pyrethroids to those water body segments. The staff report includes a “Category 4b demonstration” which documents how the Board’s programs for pyrethroids in these waterbodies meet USEPA expectations for Category 4b demonstrations.
16. The Central Valley Water Board has considered the factors set forth in Water Code section 13241, including achievability and economic considerations, in developing the Proposed Amendment. The Board finds that adequate information is not available at this time to conduct a robust review of 13241 factors in order to establish numeric water quality objectives for pyrethroids. In particular, quantitative data on the effectiveness of available pyrethroids controls and the ultimate cost to dischargers of attaining potential pyrethroid pesticide water quality objectives is limited.
17. The Proposed Amendment includes a commitment by the Central Valley Water Board to consider the adoption of numeric pyrethroid water quality objectives no later than 15 years from the effective date of the Amendment, and contains implementation and monitoring provisions necessary to inform future consideration of pyrethroid water quality objectives.

18. The Proposed Amendment includes provisions to be added to the Basin Plan recommending actions by the California Department of Pesticide Regulation and USEPA that would improve protection of water quality provided by these agencies' regulation of pesticide uses.
19. The Central Valley Water Board has considered the Substitute Environmental Documentation (SED) for the Proposed Amendment, including the Staff Report and Environmental Factors Checklist. The SED is hereby incorporated into this Resolution by this reference.
20. The Central Valley Water Board finds that the costs of implementing the Proposed Amendment are reasonable relative to the water quality benefits to be derived from implementing the Proposed Amendment, based on information provided in the SED and in consideration of the following reasons:
  - The size of the geographic area affected by the Amendment
  - Many of the estimated costs of complying with this Amendment are already being borne as costs of complying with existing Basin Plan water quality objectives, the waivers and waste discharge requirements adopted by the Central Valley Water Board to regulate discharges from irrigated lands, and pesticide use regulations from the Department of Pesticide Regulation.
21. The scientific portions and scientific basis of the Proposed Amendment have undergone independent scientific peer review in accordance with Health and Safety Code section 57004.
22. The Central Valley Water Board finds that the scientific portions of the Basin Plan Amendment are based on sound scientific knowledge, methods, and practices in accordance with Health and Safety Code section 57004.
23. State Water Resources Control Board Resolution 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Waters in California*, referred to hereafter as the *State Anti-Degradation Policy*) generally prohibits the Central Valley Water Board from authorizing activities that will result in degradation of high-quality waters unless it has been shown that:
  - The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
  - The degradation will not unreasonably affect present and anticipated future beneficial uses;
  - The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and
  - The degradation is consistent with the maximum benefit to the people of the state.

The Central Valley Water Board finds that the Proposed Amendment is consistent with the *State Anti-Degradation Policy*. The Central Valley Water Board also finds that the Proposed Amendment is consistent with the federal Antidegradation Policy. (40 C.F.R. § 131.12.) The Proposed Amendment requires actions to be taken to implement management practices to reduce pyrethroid pesticide discharges. For the reasons provided in section 10.1 of the Staff Report, the Proposed Amendment is of maximum benefit to the people of the state; will not unreasonably affect present and anticipated beneficial uses, nor result in water quality less than described in applicable policies; and, to the extent it authorizes any degradation, requires the implementation of management plans that represent BPTC.
24. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. The proposed Amendments do not lessen water

quality protections in any portion of the basins that is currently, or is expected to, serve as a domestic or municipal water source. The proposed Amendments are consistent with Water Code section 106.3.

25. The regulatory action proposed meets the "Necessity" standard of Government Code section 11353(b).
26. The Central Valley Water Board is the Lead Agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) and is responsible for evaluating potentially significant environmental impacts that may occur as a result of the Proposed Amendment. The Secretary of Resources has determined that the Board's Basin Planning Process qualifies as a certified regulatory program pursuant to Public Resources Code section 21080.5 and California Code of Regulations, title 14, section 15251(g). This determination means that the Board may prepare Substitute Environmental Documentation (SED), which includes the Staff Report and an Environmental Factors Checklist, instead of preparing an environmental impact report. The SED satisfies the requirements of State Water Board's regulations for the implementation of CEQA for exempt regulatory programs. (Cal. Code Regs., tit. 23, §§ 3775 et seq.)
27. The Central Valley Water Board staff held a CEQA scoping meeting on 30 October 2012 to receive comments on the proposed Amendment and to identify any significant issues that must be considered.
28. The Central Valley Water Board staff developed and evaluated alternatives for the proposed Amendments with stakeholder input, which was proved during public meetings held on 30 October 2012, 22 September 2014, 23 October 2014, 7 November 2014, 5 May 2015, 30 November 2015, 19 January 2016, 1 June 2016, 26 September 2016, 5 October 2016, and during Board public workshops and information items held on 19 February 2016, 23 June 2016, and 18 August 2016.
29. Central Valley Water Board staff has prepared a draft Amendment and a Staff Report dated January 2017 and circulated that draft for public comment from 24 January to 24 March 2017.
30. The January 2017 Staff Report included a description of the Proposed Amendment and analysis of reasonable alternatives to the Proposed Amendment. The Staff Report included an analysis of the reasonably foreseeable environmental impacts of the methods of compliance and an analysis of the reasonably foreseeable alternative methods of compliance with the Proposed Amendment. Some potential impacts were identified based on the analysis of the reasonably foreseeable methods of compliance. While these potential impacts can be mitigated, some of these mitigations are outside the jurisdiction of the Central Valley Water Board; therefore these are considered potentially significant impacts. The aforementioned analysis in the Staff Report is hereby incorporated by reference.
31. In response to the comments received on the January 2017 Draft Staff Report and Proposed Amendment, Central Valley Water Board staff prepared a revised Draft Staff Report and Proposed Amendment dated May 2017, and prepared written responses to comments received on the January 2017 draft.
32. The Central Valley Water Board's SED for the Proposed Amendment contains an environmental checklist that summarizes potential environmental impacts, alternatives and mitigation measures. From a program-level perspective, incorporation of the mitigation measures outlined in the Staff Report will foreseeably reduce most potential impacts to less than significant levels. Other impacts could be significant; therefore, the Staff Report contains a Statement of Overriding Considerations.
33. The Proposed Amendment fulfills legal requirements imposed on the Central Valley Water Board by the federal Clean Water Act. Implementation of the Proposed Amendment will improve water

quality for aquatic habitat and address existing impairments listed pursuant to Clean Water Act section 303(d) that are due to pyrethroids. .

34. Central Valley Water Board staff has circulated a Notice of Public Hearing, Notice of Filing, a written Staff Report, environmental checklist, and a draft Amendment to interested individuals and public agencies, including persons having special expertise with regard to the environmental effects involved with the Proposed Amendment, for review and comment in accordance with state and federal environmental regulations (Cal. Code Regs., tit. 23, § 3775, 40 C.F.R. § 25, and 40 C.F.R. § 131.)
35. The Central Valley Water Board held a public hearing on 24 February 2017, for the purpose of receiving testimony on the draft Basin Plan Amendment. Notice of the public hearing was sent to all interested persons and published in accordance with Water Code section 13244.
36. The Central Valley Water Board held a public hearing on 8 June 2017, for the purpose of receiving testimony and considering approval of the draft Basin Plan Amendment. Notice of the public hearing was sent to all interested persons and published in accordance with Water Code section 13244.
37. The Central Valley Water Board has responded to all written comments on the draft Basin Plan Amendment and SED received during the comment period, and oral comments received at the 24 February 2017 and 8 June public hearings.
38. The Central Valley Water Board finds that the record as a whole and the procedures followed by staff comply with applicable CEQA requirements. (Cal. Code Regs., tit. 23, §§ 3775 et seq.; Pub. Resources Code, §§ 21080.5, 21083.9, and 21159; Cal. Code Regs. tit. 14, § 15250.)
39. The proposed Amendment must be approved by the State Water Board, Office of Administrative Law (OAL), and the United States Environmental Protection Agency (USEPA). The Proposed Amendment becomes effective under state law after OAL approval and becomes effective under the federal Clean Water Act after USEPA approval.
40. The Central Valley Water Board finds that the Amendment to the Basin Plan was developed in accordance with Water Code sections 13240, et seq.

**THEREFORE BE IT RESOLVED:**

1. Pursuant to section Water Code section 13240, et seq., the Central Valley Water Board, after considering the entire record, including oral testimony at the hearing, hereby approves the Staff Report and adopts the proposed Amendments into the Sacramento and San Joaquin River Basin Plan as set forth in Attachment 1.
2. The Executive Officer is directed to forward copies of the Basin Plan Amendment to the State Water Board in accordance with the requirements of section 13245 of the Water Code.
3. The Central Valley Water Board requests that the State Water Board approve the Basin Plan Amendment in accordance with the requirements of Water Code sections 13245 and 13246 and forward it to OAL and the USEPA for approval. The Central Valley Water Board specifically requests USEPA approval of all Basin Plan Amendment provisions that require USEPA approval.
4. If during its approval process the Central Valley Water Board staff, State Water Board or OAL determines that minor, non-substantive corrections to the language of the Amendment are

needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the Central Valley Water Board of any such changes.

5. The Central Valley Water Board hereby approves and adopts the CEQA Substitute Environmental Documentation, which was prepared in accordance with Public Resources Code section 21159; and California Code of Regulations, title 14, section 15187, and title 23, section 3777.

Following approval of the Basin Plan Amendment by the OAL, the Executive Officer shall file a Notice of Decision with the Secretary for Resources in accordance with Public Resources Code section 21080.5, subsection (d)(2)(E), and California Code of Regulations, title 23, section 3781.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 8 June 2017.

*Original signed by*

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PAMELA C. CREEDON, Executive Officer

Attachments: Attachment 1: Amendment to the Water Quality Control Plan for the Sacramento and San Joaquin River Basins for the Control of Pyrethroid Pesticide Discharges

## RESOLUTION R5-2017-0057

### ATTACHMENT 1

#### AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS FOR THE CONTROL OF PYRETHROID PESTICIDE DISCHARGES

The proposed amendment describes a pyrethroids control program that includes:

- 1) Actions for the Central Valley Water Board,
- 2) Recommendations for the agencies that regulate pesticide use (California Department of Pesticide Registration and U.S. EPA),
- 3) A conditional prohibition for pyrethroid discharges in exceedance of numeric triggers for Sacramento and San Joaquin River Basin water bodies with the aquatic life beneficial uses,
- 4) Total maximum daily loads for pyrethroids for impaired waters in urban areas, which include numeric targets that will be used to assess attainment of the wasteload allocations,
- 5) Requirements for addressing water bodies on the 303(d) list for pyrethroids in agricultural areas,
- 6) Monitoring requirements to assess baseline conditions as well as continued trend monitoring, and
- 7) A timeline for the Board to re-visit the pyrethroids control program in a phased approach, including regular updates on the program.

Note: Text additions are noted by being underlined and deletions of existing Basin Plan text are noted by ~~strikeout~~.

## Changes to Chapter IV, Implementation

### Under “Regional Water Board Prohibitions”

*Add the following:*

#### X. Pyrethroid Pesticides Discharges

Beginning [3 years from OAL approval date], discharges of pyrethroid pesticides at concentrations that exceed pyrethroid triggers (Table IV-Z) to water bodies with designated or existing<sup>1</sup> WARM and/or COLD beneficial uses are prohibited unless a discharger is implementing a pyrethroid management plan to reduce pyrethroid levels in their discharges. Pyrethroid management plans must identify specific management practices for controlling pyrethroid pesticides that will be implemented and are subject to approval processes within the Boards’ applicable regulatory programs. In reviewing the pyrethroid management plans, the Executive Officer or designee shall consider the potential impact of the pyrethroid discharge and whether the actions proposed are commensurate with the potential impact. Draft pyrethroid management plans must be submitted at least 6 months prior to [3 years from OAL approval date]. Dischargers shall begin implementing their pyrethroid management plans within 30 days after receipt of written approval of their management plan. For municipal storm water and municipal and domestic wastewater dischargers, management plans are deemed approved and ready to implement if no written approval is provided after 9 months, unless the Executive Officer provides written notification to extend the approval process. Multiple dischargers that are subject to the above requirements may elect to develop and submit a joint pyrethroid management plan. Such a joint pyrethroid management plan must clearly identify the management practices or actions for which each individual discharger is responsible. If concentrations in a discharge not covered under a pyrethroid management plan are found to exceed the pyrethroid triggers after [3 years from OAL approval date], the discharger must submit a draft pyrethroid management plan for approval within 1 year of identifying the exceedance, during which time they are not considered out of compliance, and begin implementing the pyrethroid management plan within 30 days after receipt of written approval of the pyrethroid management plan. Further implementation provisions relating to the conditional prohibition of pyrethroid pesticide discharges are given in the Implementation chapter under the header Pyrethroid Pesticides Control Program (p. IV-xxx) and monitoring requirements are described in the Surveillance and Monitoring chapter under the header Pyrethroid Pesticides Discharges (p. V-xxx).

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<sup>1</sup> Existing as defined in Title 40 of the Code of Federal Regulations, section 131.3(e)



The pyrethroid triggers are intended to be used to indicate when pyrethroid management plans need to be developed and management practices are to be implemented by the discharger. When the triggers are exceeded in monitoring or as part of a toxicity evaluation, the discharger may be required to initiate trend monitoring. These actions will provide information on achievability and costs to the Board to inform future evaluation of potential water quality objectives. The pyrethroid triggers are not for use as numeric water quality-based effluent limitations or for reasonable potential analysis.

Discharges of pyrethroids that are subject to pyrethroid TMDL requirements are not subject to the conditional prohibition.

Table IV-Z. Numeric triggers for pyrethroid pesticides (including all stereoisomers).

**Pyrethroid Concentration Calculation**

Concentrations of pyrethroid pesticides must be above reporting limits (limits of quantitation) to be included; concentrations reported as not-detected or as below the limit of quantitation will be considered as zero (0) in the below formulas. Guidance on acceptable analytical methods is given in the Surveillance and Monitoring chapter under the header Pyrethroid Pesticides Discharges (p. V-xx).

**Freely dissolved pyrethroid concentrations** may be used in the below formulas to determine the sum of acute and chronic additive concentration goal units (CGUs). The freely dissolved concentration of each quantified pyrethroid pesticide in a sample may be directly measured or estimated using partition coefficients. Methods for direct measurement must be approved by the Executive Officer before they are used to determine the freely dissolved pyrethroid concentrations that are used for determining exceedances of the pyrethroid pesticides numeric triggers. To estimate the freely dissolved concentration of a pyrethroid pesticide with partition coefficients, the following equation shall be used:

$$C_{dissolved} = \frac{C_{total}}{1 + (K_{OC} \times [POC]) + (K_{DOC} \times [DOC])}$$

Where:

$C_{dissolved}$  = concentration of a an individual pyrethroid pesticide that is in the freely dissolved phase (ng/L),

$C_{total}$  = total concentration of an individual pyrethroid pesticide in water (ng/L),

$K_{OC}$  = organic carbon-water partition coefficient for the individual pyrethroid pesticide (L/kg),  
 $[POC]$  = concentration of particulate organic carbon in the water sample (kg/L), which can be calculated as  $[POC]=[TOC]-[DOC]$ ,

$K_{DOC}$  = dissolved organic carbon-water partition coefficient (L/kg),

$[DOC]$  = concentration of dissolved organic carbon in the sample (kg/L).

Site-specific or alternative study-based partition coefficients approved by the Executive Officer may be used in the above equation. If site-specific or alternative study-based partition coefficients are not available or have not been approved, the following partition coefficients shall be used in the above equation:

Pyrethroid Pesticide	Ambient Waters		Wastewater Effluents	
	$K_{OC}$ (L/kg)	$K_{DOC}$ (L/kg)	$K_{OC}$ (L/kg)	$K_{DOC}$ (L/kg)
Bifenthrin	4,228,000	1,737,127	15,848,932	800,000
Cyfluthrin	3,870,000	2,432,071	3,870,000	2,432,071
Cypermethrin	3,105,000	762,765	6,309,573	200,000
Esfenvalerate	7,220,000	1,733,158	7,220,000	1,733,158
Lambda-cyhalothrin	2,056,000	952,809	7,126,428	200,000
Permethrin	6,075,000	957,703	10,000,000	200,000

**Acute Pyrethroid Trigger**

The acute additive pyrethroid pesticides numeric trigger is equal to one (1) acute additive concentration goal unit (CGU) not to be exceeded more than once in a three year period. The CGUs are calculated as the sum of individual measured pyrethroid concentration-to-acute concentration goal ratios, as defined in the following formula. For calculation of CGUs, available samples collected within the applicable averaging period for the numeric trigger will be used to determine exceedances of the trigger. Freely dissolved pyrethroid concentrations may be used in the numerator of each ratio if appropriate data are available, as described in the equation to calculate freely dissolved concentrations given above.

$$CGU_{acute} = \frac{C_{bif}}{ACG_{bif}} + \frac{C_{cyf}}{ACG_{cyf}} + \frac{C_{cyp}}{ACG_{cyp}} + \frac{C_{esf}}{ACG_{esf}} + \frac{C_{lcy}}{ACG_{lcy}} + \frac{C_{per}}{ACG_{per}}$$

Where:

- $C_{bif}$  = Average concentration of bifenthrin in ng/L from a 1-hour averaging period,
- $C_{cyf}$  = Average concentration of cyfluthrin in ng/L from a 1-hour averaging period,
- $C_{cyp}$  = Average concentration of cypermethrin in ng/L from a 1-hour averaging period,
- $C_{esf}$  = Average concentration of esfenvalerate in ng/L from a 1-hour averaging period,
- $C_{lcy}$  = Average concentration of lambda-cyhalothrin in ng/L from a 1-hour averaging period,
- $C_{per}$  = Average concentration of permethrin in ng/L from a 1-hour averaging period,
- $ACG_{bif}$  = Bifenthrin acute concentration goal of 0.8 ng/L,
- $ACG_{cyf}$  = Cyfluthrin acute concentration goal of 0.8 ng/L,
- $ACG_{cyp}$  = Cypermethrin acute concentration goal of 1 ng/L,
- $ACG_{esf}$  = Esfenvalerate acute concentration goal of 2 ng/L,
- $ACG_{lcy}$  = Lambda-cyhalothrin acute concentration goal of 0.7 ng/L,
- $ACG_{per}$  = Permethrin acute concentration goal of 6 ng/L,
- $CGU_{acute}$  = The sum of measured pyrethroid concentration-to-acute concentration goal ratios, rounded to one significant figure. A sum exceeding one (1) indicates an exceedance of the acute additive pyrethroid pesticides numeric trigger.

**Chronic Pyrethroid Trigger**

The chronic additive pyrethroid pesticides numeric trigger is equal to one (1) chronic additive concentration goal unit not to be exceeded more than once in a three year period. The chronic CGUs are calculated as the sum of individual measured pyrethroid concentration-to-chronic concentration goal ratios, as defined in the following formula. For calculation of CGUs, available samples collected within the applicable averaging period for the numeric trigger will be used to determine exceedances of the trigger. Freely dissolved pyrethroid concentrations may be used in the numerator of each ratio if appropriate data are available, as described in the equation to calculate freely dissolved concentrations given above.

$$CGU_{chronic} = \frac{C_{bif}}{CCG_{bif}} + \frac{C_{cyf}}{CCG_{cyf}} + \frac{C_{cyp}}{CCG_{cyp}} + \frac{C_{esf}}{CCG_{esf}} + \frac{C_{lcy}}{CCG_{lcy}} + \frac{C_{per}}{CCG_{per}}$$

Where:

- $C_{bif}$  = Average concentration of bifenthrin in ng/L from a 4-day averaging period,
- $C_{cyf}$  = Average concentration of cyfluthrin in ng/L from a 4-day averaging period,
- $C_{cyp}$  = Average concentration of cypermethrin in ng/L from a 4-day averaging period,
- $C_{esf}$  = Average concentration of esfenvalerate in ng/L from a 4-day averaging period,
- $C_{lcy}$  = Average concentration of lambda-cyhalothrin in ng/L from a 4-day averaging period,
- $C_{per}$  = Average concentration of permethrin in ng/L from a 4-day averaging period,
- $CCG_{bif}$  = Bifenthrin chronic concentration goal of 0.1 ng/L,
- $CCG_{cyf}$  = Cyfluthrin chronic concentration goal of 0.2 ng/L,
- $CCG_{cyp}$  = Cypermethrin chronic concentration goal of 0.3 ng/L,
- $CCG_{esf}$  = Esfenvalerate chronic concentration goal of 0.3 ng/L,
- $CCG_{lcy}$  = Lambda-cyhalothrin chronic concentration goal of 0.3 ng/L,
- $CCG_{per}$  = Permethrin chronic concentration goal of 1 ng/L,

$CGU_{chronic}$  = The sum of measured pyrethroid concentration-to-chronic concentration goal ratios, rounded to one significant figure. A sum exceeding one (1) indicates an exceedance of the chronic additive pyrethroid pesticides numeric trigger.

Under “**Recommended for Implementation by Other Agencies**” (p. IV-29.01-30.00)

*Add the following:*

**California Department of Pesticide Regulation (DPR)**

Like the Regional Water Board, DPR is part of the California Environmental Protection Agency. It regulates pesticide product sales and use within California pursuant to the California Food and Agricultural Code. When DPR evaluates whether to register a pesticide product, one consideration is the potential for environmental damage. As a part of the pesticide registration process DPR seeks to identify pesticide products whose use or runoff may result in adverse environmental impacts and condition or deny product registration accordingly. DPR is mandated to protect water quality from environmentally harmful pesticide materials and can implement mitigation measures when monitoring data provides evidence of adverse environmental impacts.

Consistent with its authorities, DPR should continue to implement the following actions:

- 1) Conduct statewide urban and agricultural monitoring program to identify pesticides applied in such a manner that runoff does or could cause or contribute to water quality concerns;
- 2) Deny registration to pesticide products during registration evaluation process that present an unacceptable risk to surface water;
- 3) Require registrants to provide information necessary to assess potential water quality impacts as a condition of registration, including, when necessary, development of analytical methods with adequately low limits of quantification in appropriate matrices;
- 4) Continue and enhance efforts to evaluate the potential for registered pesticide products to cause or contribute to water quality concerns, including consideration of fate and transport of pesticide discharges from wastewater treatment plants, urban runoff, and agricultural sources. Continuous evaluation efforts include monitoring, assessment, and special studies to address identified data gaps;
- 5) Notify USEPA of potential deficiencies in product labels for products that threaten water quality;
- 6) Work directly with registrants to address product uses specific to California environmental concerns;

- 7) Where necessary, develop and modify pesticide use regulations to address pesticide uses that are causing unacceptable water quality impacts;
- 8) Continue and enhance education and outreach programs to encourage integrated pest management and less toxic pest control (work with County Agricultural Commissioners, urban runoff management agencies, and the University of California Statewide Integrated Pest Management Program to coordinate activities);
- 9) Continue and enhance, in coordination with county agricultural commissioners, implementation and enforcement of water quality protection regulations and label requirements, including urban surface water protection regulations;
- 10) Continue and enhance reporting on progress and challenges in implementing water quality protection-related efforts for pesticides with concentrations of concern.

**U. S. Environmental Protection Agency (USEPA) Office of Pesticide Programs**

USEPA is responsible for implementing the Federal Insecticide, Fungicide, and Rodenticide Act and the Clean Water Act. USEPA is therefore responsible for ensuring that both federal pesticide laws and water quality laws are implemented. USEPA should exercise its authorities to ensure that foreseeable pesticide applications do not cause or contribute to water column or sediment toxicity in the Region's waters. Because some pesticides pose water quality risks, USEPA should implement the following actions:

- 1) Continue to improve the pesticide registration and registration review processes to ensure that pesticide applications and resulting discharges are protective of water quality and do not cause water quality impairments (i.e., restrict uses or application practices to manage risks). This should include consideration of fate and transport of pesticide discharges from wastewater treatment plants, urban runoff, and agricultural runoff;
- 2) Continue and enhance education and outreach programs to encourage integrated pest management and less toxic pest control;
- 3) Require registrants to provide information necessary to assess potential water quality impacts as a condition of registration, including, when necessary, adequate ecotoxicity data to develop water and sediment quality criteria for pesticides of concern and development of analytical methods with adequately low limits of quantification in appropriate matrices;
- 4) Complete studies to address critical data needs;
- 5) Respond in a timely manner to identified deficiencies in product labels for products that threaten water quality;
- 6) Continue and enhance internal coordination efforts between the Office of Pesticide Programs and the Office of Water to implement the above-stated actions to ensure pesticide registration decisions protect water quality.

Under “**Pesticide Discharges from Nonpoint Sources**” (p. IV-33.31):

*Make the following revisions:*

**Pesticide Discharges** ~~**Pesticide Discharges from Nonpoint Sources**~~ **Pesticide Discharges**

Central Valley Regional Water Quality Control Board Actions

The Regional Water Board will implement the following actions related to programs regulating pesticide discharges:

- 1) Track USEPA and DPR pesticide evaluation and registration activities as they relate to water quality and share monitoring and research data with USEPA and DPR;
- 2) When necessary, request that USEPA coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the Clean Water Act;
- 3) Encourage USEPA and DPR to fully address water quality concerns within their pesticide registration and use regulation processes, including urban runoff and wastewater discharges as well as agricultural runoff. This shall include providing comments in coordination with the State Water Resources Control Board on USEPA registration reviews for pesticides of concern;
- 4) Work with DPR, County Agricultural Commissioners, and the Structural Pest Control Board to promote pesticide application practices that result in discharges that comply with water quality regulations by participating in and providing support for regulatory and educational activities that promote these practices;
- 5) Assemble available information (such as monitoring data) to assist USEPA and DPR in taking actions necessary to protect water quality;
- 6) Use authorities (e.g., through permits or waste discharge requirements) to require implementation of best management practices and control measures to minimize pesticide discharges to surface waters;
- 7) Staff will provide periodic updates to the Board on overall progress at addressing pesticide related water quality concerns. These updates may include implementation control programs for specific pesticides, and coordination with USEPA and DPR;
- 8) Work with stakeholders to develop a Pyrethroid Research Plan no later than [2 years from the OAL approval date] that will describe research and studies to inform future iterations of this control program (e.g., potential objectives, program refinement). The Board will coordinate and consult with the Delta Science Program, Delta Independent Science Board, Delta Stewardship Council, Department of Fish and Wildlife, and Delta Regional Monitoring Program, as appropriate, and will seek to implement the plan through available funding mechanisms; including, but not limited to grants, bonds, agency/department funding, fees, etc. Topics of the Plan could include: potential refinement of partition coefficients; further assessing the need to

incorporate temperature effects in toxicity relationships; consideration of synergists and potential mixture effects with other commonly occurring contaminants (e.g., piperonyl butoxide) on pyrethroid toxicity; consideration of the need for chronic toxicity values for taxa for which data are not currently available; evaluation of sub-lethal effects; fate and transport of particulate bound pyrethroids; consideration of monitoring and laboratory methods for both pyrethroid chemistry and toxicity testing and inter-laboratory comparison.

*Add the following subheading and text:*

### **Pyrethroid Pesticides Control Program**

In order to reduce discharges of pyrethroids to surface waters, the pyrethroids control program will rely on coordination with the agencies that regulate pesticide use (California Department of Pesticide Regulation and U.S. EPA Office of Pesticide Programs), implementation of management practices as part of a conditional prohibition to address elevated levels of pyrethroids before a water body becomes impaired, and data collection to inform future actions. The pyrethroids control program is taking a phased approach and the Board will periodically re-visit the program in the future to consider whether additional actions are required.

1. The Regional Water Board will take actions and encourage actions by other agencies that support attainment of the narrative water quality objective for toxicity with respect to pyrethroid pesticides, as specified in the Basin Plan under the heading Pesticide Discharges.
2. Following [OAL approval date], the Board will require monitoring information from dischargers, as described in the Monitoring and Surveillance Chapter under the heading Pyrethroid Pesticides Discharges (p. V-xx).
3. The pyrethroid pesticides numeric triggers represent maximum allowable levels above which additional management actions may be required. The Regional Water Board may seek additional reductions in pyrethroid pesticides concentrations and exceedance frequencies if such reductions are necessary to account for additive effects with pyrethroids not identified in Table IV-Z or synergistic effects with other chemicals or to protect beneficial uses.
4. The Regional Water Board will review the pyrethroid pesticides prohibition, the pyrethroid pesticides total maximum daily load allocations, the numeric pyrethroid triggers, and the implementation provisions for pyrethroid pesticide discharges in the Basin Plan no later than [15 years from the effective date of this amendment] as part of the Triennial Review process or other process. Following this review, the Regional Water Board may consider the adoption of pyrethroid water quality objectives. Board staff will provide updates to the Regional Water Board on the progress of the pyrethroids control program at least every 3 years as part of the Triennial Review or Executive Officer report, beginning with the first Triennial Review scheduled after [2 years from the effective date of this amendment].



## 5. Addressing Known Water Quality Impairments

### a. Total Maximum Daily Loads for Pyrethroids in Urban Water Bodies

The loading capacity for each water body segment listed in Table IV-X is equal to the numeric triggers for pyrethroids (Table IV-Z). Wasteload allocations equal to the loading capacity are assigned to all permitted municipal separate storm sewer systems (MS4s) that discharge to Table IV-X water bodies. Compliance with wasteload allocations will be determined using appropriate representative receiving water monitoring as described in Chapter V, Surveillance and Monitoring (V-xx).

The following TMDL numeric targets will be used to protect aquatic life:

#### 1) Pyrethroid Pesticides Water Column Additivity Numeric Target

The numeric target is equal to the Acute Pyrethroid Trigger and Chronic Pyrethroid Trigger in Table IV-Z and applies to the receiving waters listed in Table IV-X.

#### 2) Pyrethroid-Caused Sediment Toxicity Numeric Target

The pyrethroid-caused sediment toxicity numeric target is the evaluation of the narrative water quality objective for toxicity using standard aquatic toxicity tests to determine toxicity in bed sediments. The toxic determination is based on comparison of the test organism's response to the sample and a control. The standard aquatic toxicity test in Table IV-Y will be used to determine compliance with the sediment toxicity numeric target. If other stressors are identified as the cause of toxicity, it will not be considered an exceedance of the pyrethroid-caused sediment toxicity numeric target.

Table IV-Y. Sediment toxicity test to evaluate the Sediment Toxicity Numeric Target

<u>Parameter</u>	<u>Test</u>	<u>Biological Endpoint Assessed</u>
<u>Sediment Toxicity</u>	<u><i>Hyalella azteca</i> (10-day)</u>	<u>Survival</u>

In the water bodies listed in Table IV-X, discharges shall be reduced to ensure attainment of the pyrethroid numeric targets and allocations as soon as practicable but no later than [20 years from effective date of this amendment].

MS4 permittees who discharge to water bodies listed in Table IV-X shall attain the wasteload allocations by developing and implementing a Pesticide Plan that identifies management practices to reduce pyrethroid pesticides in urban runoff to the maximum extent practicable. MS4 permittees who discharge to water bodies listed in Table IV-X are required to submit pyrethroid management plans (which may be included in existing pesticide management plans) for the control of pyrethroid pesticide discharges to those water bodies no later than [1 year from the effective date of this amendment]. Pyrethroid

management plans may include actions required by state and federal regulations. The pyrethroid management plan can be included with the MS4's storm water management plan, as appropriate. The management practices listed in 6C shall be considered for inclusion in the pyrethroid management plan. A MS4 discharger has the discretion to implement any of the practices listed in 6C, or may identify others that are not included here, but must provide justification to the Board regarding their decision whether to select or not select each management practice listed in 6C. Management practices may be implemented by individual urban runoff management entities, jointly by two or more entities acting in concert, or cooperatively through a regional or statewide approach that addresses urban pesticide water pollution, including with domestic or municipal wastewater dischargers, as appropriate.

A progress report shall be provided to the Board annually or at a frequency consistent with a discharger's permit requirements to document the management practices that have been implemented, to evaluate attainment of the wasteload allocations, and to identify effective actions to be taken in the future. The progress report can be included in existing reports to the Board, as appropriate. If the management practices do not result in attainment of the wasteload allocations, then the MS4 discharger shall either identify reasonable and feasible additional/alternative practices for implementation if any are available, or provide a justification for why current practices will result in attainment by the compliance date. This justification may include actions required by state and federal regulations.

Table IV-X. Water body segments with Total Maximum Daily Loads (TMDLs) for pyrethroid pesticides

<b><u>Water Body Segment</u></b>
<u>Arcade Creek</u>
<u>Chicken Ranch Slough</u>
<u>Curry Creek (Placer and Sutter Counties)</u>
<u>Elder Creek</u>
<u>Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County)</u>
<u>Morrison Creek</u>
<u>Pleasant Grove Creek (upstream of Fiddymment Road)</u>
<u>Pleasant Grove Creek, South Branch</u>
<u>Strong Ranch Slough</u>

- b. Agricultural Waters Bodies with Known Pyrethroid Pesticides Impairments  
Discharges of pyrethroid pesticides to water bodies listed in Table IV-W will be controlled using existing Regional Water Board regulatory programs. Agricultural

dischargers (either individual dischargers or a discharger group or coalition) to water bodies listed in Table IV-W are required to submit pyrethroid management plans (or modifications to existing pesticide management plans) for the control of pyrethroid pesticide discharges to those water bodies no later than [60 days from the effective date of this amendment]. The pyrethroid management plans will describe the actions that dischargers will take to reduce pyrethroid pesticides discharges to levels that do not exceed the narrative water quality objective for toxicity by the required compliance date.

At a minimum, pyrethroid management plans for agricultural dischargers to the water bodies listed in Table IV-W must describe:

- 1) The sources of pyrethroid pesticides causing nonattainment of narrative water quality objective for toxicity;
- 2) The actions that the dischargers will take to reduce pyrethroid pesticides discharges and attain the narrative water quality objective for toxicity as soon as practicable, but no later than [20 years from effective date of this amendment];
- 3) A schedule for the implementation of those actions;
- 4) A monitoring plan to track effectiveness of pollution control practices;
- 5) The process for revising the pyrethroid management plan if the actions do not effectively reduce pyrethroid pesticides discharges or the implemented actions have water quality impacts that must be addressed.

Pyrethroid management plans may address discharges to multiple downstream water bodies for which discharge reductions are required. Pyrethroid management plans may include actions required by state and federal regulations. Revisions to pyrethroid management plans may be required if applicable triggers are not achieved. If a water body that is not attaining the narrative water quality objective for toxicity with respect to pyrethroid pesticides is being used by the discharger to represent water quality conditions in multiple water bodies, pyrethroid management plans must address pyrethroid pesticides in all of the represented water bodies.

Table IV-W Water body segments with known pyrethroid pesticide impairments receiving agricultural discharges.

<b><u>Water Body Segment</u></b>
<u>Del Puerto Creek</u>
<u>Hospital Creek (San Joaquin and Stanislaus Counties)</u>
<u>Ingram Creek (from confluence with Hospital Creek to Highway 33 crossing)</u>
<u>Ingram Creek (from confluence with San Joaquin River to confluence with Hospital Creek)</u>
<u>Mustang Creek (Merced County)</u>

## **6. Conditional Prohibition Implementation Components**

### **a. Municipal Storm Water Discharges**

Dischargers subject to the conditional prohibition of pyrethroid pesticides discharges are required to develop and implement pyrethroid management plans to reduce pyrethroid levels in their discharges to the maximum extent practicable. A pyrethroid management plan may be included in the discharger's storm water management plan (SWMP). A pyrethroid management plan must identify a set of management practices that, taken as a whole, may be reasonably expected to effectively reduce pyrethroid levels in their discharges, and to consider whether there are potential water quality concerns with replacement insecticide products. The management practices listed in 6C shall be considered for inclusion in a discharger's pyrethroid management plan. A pyrethroid management plan may include any of the practices listed in 6C, or may identify others that are not included here, but must provide justification to the Board regarding their decision whether to select or not select each practice listed in 6C. Pyrethroid management plans may include actions required by state and federal regulations. Management practices may be implemented by individual urban runoff management entities, jointly by two or more entities acting in concert, or cooperatively through a regional or statewide approach that addresses urban pesticide water pollution, including with domestic or municipal wastewater dischargers, as appropriate.

A progress report shall be provided to the Board annually or at a frequency consistent with the discharger's permit requirements to document the management practices that have been implemented, to evaluate pyrethroid concentrations with respect to the pyrethroid triggers, and to identify effective actions to be taken in the future. The progress report can be included in other reports submitted to the Board, as appropriate. If the management practices do not result in discharge concentrations at or below the pyrethroid numeric triggers, then the MS4 discharger shall either identify any available, reasonable and feasible additional/alternative practices for implementation, or provide a justification for why current practices are expected to result in achieving the triggers within a reasonable timeframe. This justification may include actions required by state and federal regulations.

Pyrethroid management plans are completed when it can be demonstrated that the Acute and Chronic Pyrethroid Triggers are not exceeded in discharges and the demonstration is approved by the Executive Officer.

### **b. Municipal and Domestic Wastewater Discharges**

Dischargers subject to the conditional prohibition of pyrethroid pesticides discharges are required to develop and implement pyrethroid management plans to reduce pyrethroid

levels in their discharges. Pyrethroid management plans, which can be included in dischargers' Pollution Prevention Plan, shall identify management practices to reduce discharges of pyrethroid pesticides. The pyrethroid triggers are intended to indicate when management practices are to be implemented by the discharger; the pyrethroid triggers are not criteria for interpreting the narrative toxicity objective, and are not for use as numeric water quality-based effluent limitations or for reasonable potential analysis.

A pyrethroid management plan must identify a set of management practices that taken as a whole, may be reasonably expected to effectively reduce pyrethroid levels in their discharges, and to consider whether there are potential water quality concerns with replacement insecticide products. The management practices listed in 6C shall be considered for inclusion in a discharger's pyrethroid management plan. In considering management practices for pyrethroids, a domestic or municipal wastewater discharger has the discretion to implement any of the practices listed in 6C, or may identify others that are not included here, but must provide justification to the Board regarding decision whether to select or not select each practice listed in 6C. Management practices may be implemented by individual NPDES permittees, jointly by two or more permittees acting in concert, or cooperatively through a regional or statewide approach, including with municipal storm water dischargers, as appropriate.

Mid-term and end-term progress reports shall be provided to the Board to document the management practices that have been implemented and to track effectiveness during each permit term. These progress reports can be included in existing reports to the Board as appropriate. If the management practices are inadequate to result in pyrethroid discharge concentrations at or below the numeric triggers in Table IV-Z, then the modification of the pyrethroid management plan will be required to identify additional actions to be taken to reduce pyrethroid discharges if reasonable and feasible actions are available or a justification for why current practices will result in achieving the applicable triggers within a reasonable timeframe. This justification may include actions required by state and federal regulations.

Pyrethroid management plans are completed when it can be demonstrated that the Acute and Chronic Pyrethroid Triggers are not exceeded in discharges and the demonstration is approved by the Executive Officer.

- c. Best Management Practices for Storm Water and Wastewater Dischargers  
The following management practices shall be considered by municipal storm water dischargers and by municipal and domestic wastewater dischargers and implemented

as appropriate. Some of these practices may be accomplished by participation in organizations such as California Stormwater Quality Association (CASQA), which coordinates with DPR and other organizations taking actions to protect water quality from the use of pesticides in the urban environment. Other practices may also be proposed. If the State Water Resources Control Board establishes a statewide water quality control plan that requires best management practices for the control of urban pesticide discharges, compliance with those requirements shall be deemed in compliance with this section.

Education and outreach activities

- 1) Undertake targeted outreach programs to encourage communities within a discharger's jurisdiction to reduce their reliance on pesticides that threaten water quality, focusing efforts on those most likely to use pesticides that threaten water quality, potentially by working with DPR, County Agricultural Commissioners, and the University of California Statewide Integrated Pest Management Program, or other entities as appropriate;
- 2) Make available point-of-purchase outreach materials to pesticide retailer(s) in or near the Permittee's jurisdiction. These materials shall provide targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control.
- 3) Conduct outreach to Permittee's residents and businesses who may hire structural pest control and landscape professionals that contains messages that (a) explain the links between pesticide usage and water quality; and (b) provides information about structural pest control IPM certification programs and IPM for landscape professionals;
- 4) Encourage public and private management practices (e.g., landscape design, irrigation management, etc.) that minimize pesticide runoff.

Pesticide pollution prevention activities

- 1) Reduce reliance on pyrethroids and other pesticides that threaten water quality by adopting and implementing policies or procedures that minimize the use of pesticides that threaten water quality in the discharger's operations and on the discharger's property;
- 2) Develop and implement an Integrated Pest Management policy that:
  - a. Is consistent with IPM as defined by the University of California Statewide IPM Program (UC-IPM) or the California Structural Pest Control Board definition.

- b. Applies to all Permittee staff who conduct or contract for pest management and to pest management vendors under contract to the Permittee.
- c. Assigns responsibilities to a designated staff position and/or department to coordinate Permittee activities and ensure that the IPM policy is implemented.

Support of Pollution Prevention through the Pesticide Regulatory Process

- 1) Track USEPA and DPR pesticide evaluation and registration activities as they relate to surface water quality and encourage these agencies to accommodate urban water quality concerns within their pesticide registration processes. This may include assembling and submitting available information (such as monitoring data) to USEPA and DPR during public comment periods to assist in their pesticide evaluation and registration activities. This best management practice would be implemented most effectively through a cooperative regional or statewide approach.

d. Agricultural Discharges

If the prohibition trigger is exceeded in a receiving water after [3 years from OAL approval date], all dischargers in the areas represented by that receiving water monitoring location shall implement a pyrethroid management plan for pyrethroids. Pyrethroid management plans may be developed by a third-party representing multiple dischargers in an area under a Water Board regulatory program, such as the Irrigated Lands Regulatory Program or Dairy Order. Pyrethroid management plans are due no later than 1 year after the discharger or the Board identifies that an applicable trigger has been exceeded.

7. Vector Control Discharges

Discharges of pyrethroid pesticides from vector control applications are subject to the *Statewide NPDES Permit for Biological and Residual Pesticide Discharges to waters of the United States from Vector Control Applications*. Vector control dischargers are not subject to any additional implementation provisions for attainment of the pyrethroid triggers or TMDLs for pyrethroids.

Under “**Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing**” (p. IV-38.00-40.00)

*Add the following subheading and text:*

**Pyrethroid pesticides discharges into Sacramento River and San Joaquin River basin waters**

Estimated costs for implementation of practices to control pyrethroid pesticide discharges are encompassed in the costs of the Long-Term Irrigated Lands Regulatory Program, as described above.

Estimated costs for monitoring and reporting associated with the pyrethroid pesticide control program are 1.4 million dollars per year (2017 dollars). This is a high-end estimate, as similar monitoring and reporting costs would likely be incurred due to other Board Requirements to meet pre-existing Basin Plan requirements under the Long-Term Irrigated Lands Regulatory Program.

Potential funding sources include:

1. Those identified in the San Joaquin River Subsurface Agricultural Drainage Control Program and the Pesticide Control Program.



## Changes to Chapter V, Surveillance and Monitoring

*Add the following subheading and text:*

### **Pyrethroid Pesticides Discharges**

The Regional Water Board will require pyrethroid pesticides dischargers to provide information to the Board. This information may come from the dischargers' monitoring efforts; monitoring programs conducted by state or federal agencies or collaborative watershed efforts; or from special studies that evaluate the effectiveness of management practices. For dischargers that do not discharge to water bodies listed in Table IV-X and Table IV-W, the Board will require baseline monitoring to be completed by [2 years following OAL approval] and continued trend monitoring to occur after [3 years following OAL approval], except for municipal and domestic wastewater dischargers, which is set forth below. The baseline and trend monitoring will be designed to meet the goals outlined for each discharger type below. The Regional Water Board will work through existing regulatory programs to ensure that the goals of the monitoring program are met. If the required timelines cannot be met through existing processes, the Executive Officer has the discretion to authorize 13267 and/or 13383 orders, and/or extend the timeline for baseline monitoring. With Executive Officer approval, representative monitoring programs, including coordinated regional or statewide monitoring programs, may be used to meet the monitoring requirements.

Pyrethroid monitoring plans must describe at a minimum the proposed sampling frequency, sampling locations, and toxicity test and analytical methods for baseline and/or trend monitoring and can be provided as part of other monitoring plans as appropriate. Pyrethroid monitoring plans shall be approved by the Executive Officer before the data can be used to meet the monitoring requirements of this section. If reliable commercial analytical methods are available with reporting limits at or below the pyrethroid pesticides numeric trigger concentrations in the matrix being monitored, those methods shall be considered by dischargers for monitoring of pyrethroid pesticides. Methods with reporting limits above the pyrethroid trigger concentrations may be used if methods with reporting limits at or below the pyrethroid trigger concentrations are not available or based on the consideration of other factors, such as cost or the reporting limit needed after the calculation of freely dissolved pyrethroid concentrations. When evaluating the toxicity test and analytical methods, the Executive Officer will consider Environmental Laboratory Accreditation Program (ELAP) accreditation, associated quality assurance and quality control provisions, scientifically peer reviewed methods, results of interlaboratory comparison studies, and/or other factors.

Changes in monitoring frequency may result if information such as pesticide use data, pesticide registration status, allowable pesticide uses, use restrictions, management practices, runoff potential, or other monitoring studies indicates additional or less monitoring is needed to meet the monitoring requirements, which may include discontinuation of pyrethroid pesticides monitoring. Monitoring for pyrethroid pesticides and alternative insecticides can be discontinued upon a discharger showing that the specific pesticide is not found, or is not reasonably expected to be found, in receiving waters at concentrations with the potential to exceed the pyrethroid wasteload allocations and/or Acute and Chronic Pyrethroid Triggers or levels of concern for alternative insecticides.

### Municipal Storm Water

Pyrethroid monitoring plans that address municipal storm water discharges to TMDL water bodies (Table IV-X) shall be designed to collect information necessary to:

- 1) Determine whether receiving waters are attaining the Pyrethroid Pesticides Water Column Additivity Numeric Targets and whether the wasteload allocations are being attained in discharges as measured at representative receiving water locations by providing pyrethroid and dissolved and particulate organic carbon concentration data;
- 2) Determine whether bed sediments are attaining the Sediment Toxicity Numeric Target. In order to link sediment toxicity to pyrethroid pesticides, chemical analysis of the sediment for pyrethroid pesticides shall be performed if the sediment is toxic;
- 3) Provide *Hyalella azteca* toxicity test data to determine whether pyrethroid pesticides are causing or contributing to exceedances of the narrative water quality objective for toxicity in surface waters;
- 4) Determine whether the implementation of management practices is sufficient to attain the TMDL Allocations and Numeric Targets.
- 5) In cooperation with the Regional Water Board, USEPA and DPR, determine if monitoring and reporting programs for alternatives to pyrethroid pesticides are necessary and identify alternative insecticides for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods. If an alternative insecticide is identified as appropriate for monitoring, monitoring shall be performed by the discharger to determine whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives.

Pyrethroid monitoring for municipal storm water that does not discharge to TMDL water bodies (Table IV-X) shall include baseline monitoring and, if required, trend monitoring.

Baseline pyrethroids monitoring for municipal storm water discharges shall be designed to collect information necessary to:

- 1) Determine through representative receiving water monitoring whether discharges from municipal separate storm sewer systems are exceeding the Acute and Chronic Pyrethroid Triggers (Table IV-Z) by providing pyrethroid and dissolved and particulate organic carbon concentration data;
- 2) Provide pyrethroid and dissolved and particulate organic carbon concentration data and *Hyalella azteca* toxicity test data to determine whether pyrethroid pesticides are causing or contributing to exceedances of the narrative water quality objective for toxicity in surface waters or bed sediments. With Executive Officer approval, the baseline monitoring requirements may be met by submittal of a report, including a compilation and interpretation of representative monitoring data, demonstrating that the required information has been collected and is sufficient to make the required determinations.

Pyrethroids trend monitoring for municipal storm water discharges shall be designed to collect information necessary to meet the above goals for the baseline monitoring, as well as:

- 3) Determine the effectiveness of management practices that are implemented to reduce pyrethroid levels in discharges;
- 4) In cooperation with the Regional Water Board, USEPA and DPR, determine if monitoring and reporting programs for alternatives to pyrethroid pesticides are necessary and identify alternative insecticides for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods. If an alternative insecticide is identified as appropriate for monitoring, monitoring shall be performed by the discharger to determine whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objectives.

*Discharges from Agricultural Operations*

The pyrethroid monitoring plans that address agricultural discharges to water bodies named in Table IV-W shall be representative of those water bodies and designed to collect information necessary to:

- 1) Determine whether receiving waters are attaining the Acute and Chronic Pyrethroid Triggers (Table IV-Z) by providing pyrethroid and dissolved and particulate organic carbon concentration data;
- 2) Determine whether receiving waters and bed sediments are attaining the narrative water quality objective for toxicity by providing *Hyalella azteca* toxicity test data;
- 3) Determine whether the implementation of management practices is sufficient to attain the Acute and Chronic Pyrethroid Triggers (Table IV-Z) in receiving waters.
- 4) Determine whether alternatives to pyrethroid pesticides are being discharged at concentrations that have the potential to cause or contribute to exceedances of applicable water quality objectives.

Pyrethroid monitoring for agricultural discharges that do not discharge to water bodies named in Table IV-W shall include baseline monitoring and, if required, trend monitoring.

Baseline pyrethroids monitoring for agricultural discharges shall be designed to collect information necessary to:

- 1) Determine through representative receiving water monitoring whether discharges from agricultural operations are exceeding the Acute and Chronic Pyrethroid Triggers (Table IV-Z) by providing pyrethroid and dissolved and particulate organic carbon concentration data;
- 2) Determine whether pyrethroid pesticides are causing or contributing to exceedances of the narrative water quality objective for toxicity in surface waters or bed sediments by providing *Hyalella azteca* toxicity test data.

Pyrethroids trend monitoring for agricultural discharges shall be designed to collect information necessary to meet the above goals for the baseline monitoring, as well as:

- 3) Determine the extent of implementation of management practices to reduce off-site movement of pyrethroid pesticides and whether these practices are sufficient to attain the Acute and Chronic Pyrethroid Triggers;

- 4) Determine whether alternatives to pyrethroid pesticides are being discharged at concentrations that have the potential to cause or contribute to exceedances of applicable water quality objectives.

*Municipal and Domestic Wastewater*

The monitoring requirements discussed in this section do not apply to facilities that discharge <1 million gallons per day unless requested by the Executive Officer. For all other municipal and domestic wastewater dischargers, monitoring for pyrethroid pesticides will be required concurrently with effluent characterization monitoring at least as long as pyrethroid pesticides specified in Table IV-Z are registered for use in the collection service area or at the discretion of the Executive Officer.

Baseline pyrethroids monitoring for municipal or domestic wastewater discharges shall be conducted concurrently with effluent characterization monitoring and shall be designed to collect information necessary to:

- 1) Determine whether pyrethroid concentrations in municipal or domestic wastewater discharges are exceeding Acute and Chronic Pyrethroid Triggers (Table IV-Z) by providing pyrethroid and dissolved and particulate organic carbon concentration data;
- 2) Provide pyrethroid and dissolved and particulate organic carbon concentration data and *Hyalella azteca* toxicity test data to determine whether municipal or domestic wastewater discharges of pyrethroids are causing or contributing to exceedances of the narrative water quality objective for toxicity in receiving waters;

Pyrethroids trend monitoring for municipal or domestic wastewater discharges shall commence after the effluent characterization monitoring has been completed or after being directed to start such monitoring by the Executive Officer. The trend monitoring and reporting program shall be designed to collect information necessary to meet the above goals for the baseline monitoring, as well as:

- 3) Determine the effectiveness of management practices that are implemented to reduce pyrethroid levels in discharges;
- 4) In cooperation with the Regional Water Board, USEPA, and DPR, determine if monitoring and reporting for alternatives to pyrethroid pesticides is necessary and identify alternative insecticides for which monitoring might be appropriate with consideration of the commercial availability of acceptable analytical methods. If an alternative insecticide is identified as appropriate for monitoring, monitoring shall be performed by the discharger to determine

whether alternatives to pyrethroid pesticides are being discharged at concentrations with the potential to cause or contribute to exceedances of applicable water quality objective.