Central Valley Regional Water Quality Control Board

17 December 2024

David Guy, President
Northern California Water Association
455 Capitol Mall, Suite 703
Sacramento, CA 95814

APPROVAL OF SACRAMENTO VALLEY WATER QUALITY COALITION'S SURFACE WATER QUALITY MANAGEMENT PLAN FOR PYRETHROID PESTICIDES IN FRESHWATER CREEK

Thank you for your 26 November 2024 submittal of the Sacramento Valley Water Quality Coalition's (Coalition) Surface Water Quality Management Plan for pyrethroid pesticides in Freshwater Creek (SQMP). Staff reviewed the SQMP to determine compliance with requirements pursuant to section VIII.I of Waste Discharge Requirements General Order R5-2014-0030-11 (Order) and Appendix MRP-1 of Attachment B (Monitoring and Reporting Program) to the Order. The SQMP is a site-specific management plan that will be included as an addendum to the Coalition's Comprehensive Surface Water Quality Management Plan.

The SQMP meets the requirements of the Order and should reduce pyrethroid pesticides in Freshwater Creek to below the water quality objective as quickly as possible within the timeframe permitted by the Order. Therefore, I am approving the SQMP for pyrethroid pesticides in Freshwater Creek. Please ensure water column monitoring for *Hyalella azteca* toxicity at the Freshwater Creek at Gibson Road monitoring site is added to July for the 2025 Monitoring Plan.

If you have any questions, please contact Olivia Mathews by e-mail at Olivia.Mathews@waterboards.ca.gov.

Sincerely,

Adam Laputz
Digitally signed by Adam Laputz
Date: 2024.12.20 10:35:00 -08'00'
Water Boards

Patrick Pulupa
Executive Officer

Enclosure: Staff Review Memorandum
Checklist

Cc: Bruce Houdesheldt, Northern California Water Association

Central Valley Regional Water Quality Control Board

TO: Petra Lee
Senior Environmental Scientist
Irrigated Lands Regulatory Program

FROM: Olivia Mathews
Environmental Scientist
Irrigated Lands Regulatory Program

DATE: 2 December 2024

SUBJECT: **REVIEW OF SACRAMENTO VALLEY WATER QUALITY COALITION'S SURFACE WATER QUALITY MANAGEMENT PLAN FOR PYRETHROID PESTICIDES IN FRESHWATER CREEK**

On 26 November 2024, Central Valley Water Board staff received the Sacramento Valley Water Quality Coalition's (Coalition) Surface Water Quality Management Plan for Pyrethroid Pesticides in Freshwater Creek (SQMP). The SQMP was reviewed to determine compliance with requirements pursuant to section VIII.I of Waste Discharge Requirements General Order R5-2014-0030-11 (Order), Appendix MRP-1 of Attachment B (Monitoring and Reporting Program) to the Order, and the Coalition's 2016 Comprehensive Surface Water Quality Management Plan (CSQMP). The site-specific SQMP is submitted as an addendum to the CSQMP.

A summary of the SQMP's approach is provided below and a checklist that documents Order requirements is included as an attachment.

Introduction and Background

The Order requires compliance with water quality efforts adopted by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) as Basin Plan Amendments. The 2017 Pyrethroid Pesticide Basin Plan Amendment established a conditional prohibition of pyrethroid pesticide discharges to Central Valley waterbodies at concentrations above specified aquatic life protection-based concentration triggers (prohibition triggers). The prohibition triggers for pyrethroid pesticides are based on additive chronic and additive acute concentration goal units (CGU) of 1 (a unitless value). The additive CGU is calculated using the detected concentrations of six pyrethroid pesticides (bifenthrin, cyfluthrin, lambda-cyhalothrin, cypermethrin,

esfenvalerate, and permethrin) and contemporaneous measurements of total organic carbon and dissolved organic carbon; the formulas for the additive chronic and additive acute CGUs are specified in the 2017 Pyrethroid Pesticide Basin Plan Amendment. If the additive chronic or additive acute CGU exceeds the prohibition trigger of 1, an ILRP exceedance is triggered. A surface water quality management plan is required should two (2) exceedances occur within a three (3) year period at the same surface water monitoring site. Pyrethroid pesticide exceedances that led to the requirement for this surface water quality management plan in Freshwater Creek and represented drainages were observed during July 2022 and July 2024. During the July 2022 monitoring event, bifenthrin was detected at a concentration of 1.1 nanograms per liter (ng/L) and the additive chronic CGU was 2. During the July 2024 monitoring event, bifenthrin was detected at a concentration of 1.2 ng/L and the additive chronic CGU was 2.

Freshwater Creek at Gibson Road is a representative surface water monitoring site located in Colusa County and is part of the Colusa-Glenn Subwatershed. Based on review of Pesticide Use Reporting (PUR) data from the California Department of Pesticide Regulation (DPR), it was concluded that irrigated agriculture was a probable contributing source to the pyrethroid exceedances observed at the Freshwater Creek at Gibson Road monitoring site. The SQMP covers the drainages represented by the Freshwater Creek at Gibson Road monitoring site, including Bear Creek (Colusa), East Park Reservoir, Elk Creek, Hopkins Slough, Lurline Creek, Maxwell NE Drain, Petroleum Creek, Sand Creek (Colusa), Stone Corral Creek, and Upper East Park.

Physical Setting and General Information

The major crop types grown in the SQMP area include deciduous fruits and nuts; vineyards; grain and hay crops; truck, nursery, and berry crops; pasture; and field crops. The irrigation season extends from April through October. The waterbodies represented in this SQMP possess the beneficial uses assigned to the Colusa Basin Drain as identified in the Basin Plan. The beneficial uses designated for the Colusa Basin Drain include AGR, REC-1, WILD, and WARM or COLD aquatic life beneficial uses at least seasonally.

The Coalition has conducted 26 monitoring events for the analysis of water column pyrethroid pesticides in Freshwater Creek from March 2018 through July 2024. There have been six (6) previous exceedances of the additive chronic and/or additive acute CGU at the Freshwater Creek at Gibson Road monitoring site. Only one (1) of the six (6) exceedances appears to have been influenced by rainfall runoff in the Freshwater Creek drainage. The two (2) exceedances that triggered this SQMP are the two most recent which occurred in July 2022 and July 2024 and were related to detections of bifenthrin in the water column.

Monthly DPR PUR data covering the period of 2020 through 2022 for Colusa County show that agricultural applications of pyrethroid pesticides in total pounds of active ingredients applied have a slightly bimodal distribution with peaks in May and July.

There were also non-agricultural applications of pyrethroid pesticides reported in Colusa County, though they are traceable only to county and month of application.

DPR PUR data associated with the July 2022 exceedance show pyrethroid pesticide applications by irrigated agriculture in the Freshwater Creek drainage during June and July 2022 were dominated by applications of bifenthrin, with relatively few applications of lambda-cyhalothrin. The main crop associated with these applications was almonds and minor applications were made to processing tomatoes, squash, and walnuts.

PUR data associated with the July 2024 exceedance were provided by the Colusa County Agricultural Commissioner's Office and consisted of total acres where pyrethroid pesticides were applied. Pyrethroid pesticide applications by irrigated agriculture in the Freshwater Creek drainage during June and July 2024 were dominated by bifenthrin and lambda-cyhalothrin applied to almonds and minor applications to processing tomatoes, dried beans, walnuts, and squash. Single applications of esfenvalerate were also made to sunflowers in June 2024.

There are many best management practices (BMPs) which the Members in the SQMP area already employ to reduce the risk of pyrethroid pesticide mobilization. The Coalition provides a baseline inventory of BMPs already employed by Members in the SQMP area. The data was obtained using the most recent Farm Evaluation collected in 2020. The baseline will be used for comparison to future percentages of BMPs implemented under the SQMP. Future implementation data will be collected annually from Members within the SQMP area through the management practice implementation report (MPIR).

Management Plan Strategy

The management plan strategy includes tasks and measurable goals to achieve receiving water limitations within three (3) years of approval of the SQMP. This meets the Order requirement to address the water quality problem triggering the SQMP as soon as is practicable and not exceeding 10 years from the date the SQMP is submitted. The management plan strategy includes tasks to provide general and targeted outreach and education as well as to consult with growers, pest control advisors, applicators, and technical advisors to refine existing BMPs. The Coalition will draw on information provided by the University of California Cooperative Extension specialists and experience gained from the efforts of other Coalitions to provide a robust education campaign. The Colusa-Glenn Subwatershed will provide annual updates on the SQMP through presentations at two (2) or three (3) Butte Agricultural Commissioner pesticide applicator trainings, through written updates in the annual newsletter, and/or in direct season-of-use mailings (email and U.S. mail) to all Colusa-Glenn Members who apply or may apply pyrethroid pesticides and to Pest Control Advisors and commercial applicators locally. The updates will include information to educate applicators on BMPs that minimize the potential for pyrethroid pesticides to discharge to surface water.

Effective BMPs employed by growers will continue to be encouraged and implementation will be tracked annually.

Survey questions related to the BMPs to be implemented for this SQMP will be completed by Members in the SQMP area in the annual MPIR. The annual MPIR will include survey questions related to pesticide application practices, irrigation practices for managing sediment and erosion, and cultural practices for managing sediment and erosion. The MPIR results will be reviewed by the Coalition and shared with the growers.

In the event of a future pyrethroid pesticide exceedance, the Coalition will implement additional outreach and education in a tiered approach identified in the SQMP.

The Coalition proposes three (3) performance goals to track the successful implementation of the SQMP. Each performance goal also identifies the mechanisms of achieving the goal, the quantitative measure of progress, and a schedule for achieving the goal. The three (3) performance goals include outreach and education, implementation of BMPs, and avoidance of pyrethroid pesticide exceedances at the Freshwater Creek at Gibson Road monitoring site. The duties and responsibilities of the individuals and groups responsible for implementing each task associated with the SQMP are identified along with an organizational chart.

Monitoring Design

Management plan monitoring will be identical to the strategy employed during the implementation of the pyrethroid pesticides baseline monitoring of 2021. The Coalition will collect water column samples from the Freshwater Creek at Gibson Road monitoring site for analysis of pyrethroid pesticides, total organic carbon, dissolved organic carbon, and *Hyalella azteca* toxicity. Management plan monitoring will focus on monitoring during July as it is the month during which the two (2) most recent exceedances occurred. The management plan monitoring schedule will be included in the annual Monitoring Plan Update submitted August 1 for the upcoming water year.

Three (3) consecutive years of no exceedances must be demonstrated before an SQMP can be approved for completion. If no additional exceedances are observed for pyrethroid pesticides, the Coalition may document water quality and management practices implementation and effectiveness in a submittal to the Central Valley Water Board to request completion of this SQMP in November 2027. If additional exceedances are observed for pyrethroid pesticides, the Coalition must take the appropriate actions identified in the SQMP and continue to monitor for three consecutive years of no pyrethroid pesticide exceedances.

Data Evaluation

The effectiveness of this SQMP will be evaluated through:

1. review of progress made toward implementation of outreach and education activities proposed to maintain awareness of water quality issues as they pertain to pyrethroid pesticide application;

2. assessment of agricultural management practices known to limit the transport of agriculturally-applied pyrethroid pesticides to surface water; and

3. collection of pyrethroid pesticide water quality data to determine effectiveness of BMP implementation in reducing the exceedances of the 2017 Pyrethroid Pesticide Basin Plan Amendment prohibition trigger in the Freshwater Creek drainage.

Ultimately, continued lack of pyrethroid pesticide exceedances along with documentation of implemented BMPs in the SQMP area will link the observed water quality improvements to Member actions. Status and effectiveness will be reported annually through a tabular summary of annual outreach and education performed, a tabular summary of BMPs implemented under the SQMP compared to the baseline, and time series plots of additive chronic and additive acute CGU values calculated from pyrethroid pesticide data collected at the Freshwater Creek at Gibson Road monitoring site.

Records and Reporting

Management plan monitoring at the Freshwater Creek at Gibson Road monitoring site will be identified in the annual Monitoring Plan Update submitted annually for the upcoming water year on August 1. Additionally, the Coalition will summarize progress made toward successful implementation and completion of the SQMP in the Management Plan Progress Report submitted annually for the previous water year on May 1.

Staff Comments

The Monitoring Plan Update for 2025 has previously been submitted and approved. However, water column monitoring for *Hyalella azteca* toxicity needs to be added to the month of July 2025 for the Freshwater Creek at Gibson Road monitoring site to comply with the monitoring design specified in the SQMP. **Please ensure water column monitoring for *Hyalella azteca* toxicity at the Freshwater Creek at Gibson Road monitoring site is added to July for the 2025 Monitoring Plan.**

Results of management plan monitoring must be summarized in the Annual Monitoring Report submitted annually for the previous water year on May 1.

MPIR data collected from Members in the SQMP area must be summarized in the Annual Management Practice Implementation and Nitrogen Management Report submitted annually for the previous water year on November 30.

Staff Recommendation

Staff recommends the SQMP for approval. The SQMP meets the requirements outlined in the Order and the CSQMP.

Enclosure: Available Upon Request

Checklist

The **SQMP Completion Checklist for Pyrethroid Pesticides in Freshwater Creek** that was enclosed with this letter is **AVAILABLE UPON REQUEST** by contacting the Central Valley Water Board's Irrigated Lands Regulatory Program at irrlands@waterboards.ca.gov or (916) 464-4611.