CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

RESOLUTION R7-2024-0024

Amending Water Quality Control Plan for the Colorado River Basin
to Establish Total Maximum Daily Load and Implementation Plan
for Pyrethroid Pesticides in Alamo River and New River, Imperial County

ATTACHMENT A

The California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) revises the operative Water Quality Control Plan (Basin Plan) for the Colorado River Basin as set forth herein. Formatting may be subject to change upon incorporation into the existing document. Footnote numbering will also change in the resulting document.

Table of Contents

The following shall be added to the Basin Plan's Table of Contents, with all page numbers updated accordingly:

J. ALAMO RIVER AND NEW RIVER PYRETHROID PESTICIDES TMDL

Chapter 4—Implementation

The following language shall be added to Section V (Total Maximum Daily Loads [TMDLs] and Implementation Plans) in Chapter 4 To (Implementation), beginning on page 4-XX.

J. ALAMO RIVER AND NEW RIVER PYRETHROID PESTICIDES TMDL

SUMMARY

This TMDL was adopted by the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Board) on **[DATE]**.

This TMDL was approved by:

The State Water Resources Control Board (SWRCB) on **[DATE]**

The California Office of Administrative Law (OAL) on **[DATE]**

The U.S. Environmental Protection Agency (USEPA) on **[DATE]**

1. TMDL ELEMENTS

Elements of this Total Maximum Daily Load (TMDL), as described in the "State of California S.B. 469 TMDL Guidance: A Process for Addressing Impaired Waters in California, June 2005," are described in Table J-1:

Table J-1: Elements of the TMDL and Implementation Plan

ELEMENT	DESCRIPTION
Project Statement	The Alamo River and New River in the Imperial Valley are polluted/impaired by six pyrethroid pesticides, specifically bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin, that are toxic to humans and aquatic life. This is in violation of the water quality objectives designated in the Water Quality Control Plan (Basin Plan) for the Colorado River Basin Region. This project establishes Total Maximum Daily Loads (TMDLs) for pyrethroid pesticides in the water column and sediment to address the impairments that include numeric targets, load allocations, and implementation plans to control discharges of pyrethroid compounds to the Alamo and New River waters.
Project Area	The New River and Alamo River are located in Imperial County, California. In Imperial County lies the Imperial Valley which covers approximately 500,000 acres south of the Salton Sea, most of it irrigated agricultural land. The principal communities in the Imperial Valley are El Centro, Imperial, Brawley, and Calexico. The Imperial Valley is one of the most arid areas in the United States and is characterized by its hot, dry summers and cool winters. The New River watershed comprises approximately 200,000 acres of farmland in the US and 300,000 acres in Mexico, including the Mexicali metropolitan area and agricultural land in Mexicali Valley. It originates in Mexico, about 15 miles south of the International Boundary, and runs north about 60 miles before it discharges into the Salton Sea. The Alamo River watershed includes approximately 340,000 acres within the Imperial Valley. It originates in Mexico, about a half-mile south of the International Boundary, and runs north about 60 miles before it discharges into the Salton Sea.

Numeric Targets

Numeric targets are water quality measures used to determine when water quality objectives (WQOs) are achieved, and hence, when beneficial uses are protected. Review of collected water quality and sediment data from the Alamo and New River waters indicates the presence of pyrethroid compounds in various environmental compartments. In the New and Alamo Rivers, the six primary pyrethroids have been found in SWAMP water samples at concentrations above the reporting limits, which was the main factor for listing the waterbodies. Pyrethroid pesticides have been found in SWAMP sediment samples collected from the New and Alamo Rivers which generally have lower values along with periodic spikes showing an apparent increase in usage.

Data collected from the New and Alamo Rivers indicate that pyrethroid pesticides are co-occurring in the environment and additive toxicity should be considered based on the University of California Davis Method (Fojut et. al, 2012) and Water Quality Criteria Report (WQCR; Fojut T. L., 2015). Thus, computation of additive toxicity for water and sediment samples constitutes an added safeguard against potential adverse effects of pyrethroid combinations. To address these impairments, the TMDLs for water column and sediment concentration-based impairments have been set equal to the numeric targets to protect benthic and aquatic organisms, wildlife, and human health from potentially harmful effects associated with the pyrethroids.

Pyrethroid Pesticides Numeric Targets for Alamo River and New River.

Pyrethroid	Water Column: Acute Criterion (ng/L)	Water Column: Chronic Criterion (ng/L)	Dry Sediment (µg/g Organic Carbon)
Bifenthrin	0.3	0.05	0.43
Cyfluthrin	0.3	0.06	1.1
Cypermethrin	0.3	0.07	0.3
Esfenvalerate	0.7	0.1	1.5
Lambda-cyhalothrin	0.2	0.08	0.44
Permethrin	6	1	8.9

Source Analysis	Pyrethroid pesticides have been identified as causing impairments in the water column as well as in sediments. These are used to control pests in both non-agricultural and agricultural areas. While the exact sources of pyrethroids in the Imperial Valley are currently unknown, nonpoint source and point source discharges could be contributing to the impairment of the New and Alamo Rivers. The sources of pyrethroid pesticides were investigated using available information about the Imperial Valley, the physical and chemical properties of pyrethroids and their uses, and environmental data. Sources of water to the New and Alamo Rivers include irrigated agricultural discharges, discharges from Mexico, and discharges from the facilities permitted by the National Pollutant Discharge Elimination Systems (NPDES) Program. Agricultural runoff is a known source of pyrethroids, and they are often bound to sediments and particulate matter in runoff, eventually flowing off the land into the waterways. Stormwater runoff is a relatively insignificant source of water due to the arid Imperial Valley climate. Other sources of pyrethroid pesticides appear to be from nonpoint discharges from areas in Imperial Valley with high residual concentrations in the soil. Monitoring data determined transboundary pollution from Mexico is also a source of pyrethroids in the New River, as urban and agricultural runoff, and untreated and partially treated municipal wastewater are discharged into the river. Water samples collected from the international boundary from 2004 to 2020 found all six pyrethroids in concentrations that exceeded WQOs (http://www.ceden.org). Staff examined water and sediment samples collected by SWAMP to assess the presence of pyrethroid pesticides at the international boundary. The available data indicates that significant reductions are needed to attain water quality objectives in water bodies receiving significant discharges. Based on the amount of land acreage in Imperial County and the amount of land used for agricultural purposes, NDPES facilities are likely a minor contributor. NPDES permitted Municipal Separate Storm Sewer Systems (MS4s) discharge urban stormwater into the surrounding waterbodies, however, due to the arid climate in Imperial Valley and limited developed lands, urban stormwater runoff is also a relatively insignificant source of pyrethroids in the New and Alamo Rivers. Wastewater treatment plant (WWTP) effluents have also been identified as a possible source of pyrethroids to surface waters. Pathways of pyrethroids to WWTPs have not been clearly identified, but possibilities include indoor uses that enter sewers by being poured down the drain when cleaning or washing items or areas with pyrethroid residues from indoor pest treatments, washing of clothes impregnated

	with pyrethroids, washing pets containing residual pyrethroids from flea treatments, and underground termite injections reaching leaky sewer laterals. The amount of pyrethroids discharged from NPDES permitted municipalities and facilities is currently unknown and at this time, further conclusions cannot be made.
Seasonal Variations and Critical Conditions	The Imperial Valley is characterized by its hot, dry summers and cool winters, with little variation in rainfall (less than 8 cm of rainfall annually). Given the dry climate, the New and Alamo Rivers' flow primarily consists of, but not limited to, agricultural discharge from the Imperial Valley, which provides stable water flow within the watershed. With a steady local climate and little variation between the wet and dry seasons, TMDLs and allocations developed based on seasonal variation are not appropriate in this case. However, there is insufficient monitoring data to definitively determine seasonality impairment in the New River. Water and sediment samples collected from the New River at the International Boundary with Mexico during the January 2020 sampling event suggest there may be a seasonal effect on water quality outside the typical monitoring seasons, though data is limited at this time. The TMDLs and allocations are expressed in terms of concentrations equal to the desired water quality conditions (targets), which are applicable to all seasons and flow-regimes. Therefore, TMDLs and allocations developed based on seasonal variation are not considered in this case. Critical conditions are the combination of environmental factors resulting in the water quality standard being achieved by a narrow margin (i.e., that a slight change in environmental factors could result in exceedance of a water quality standard). Such a phenomenon could be significant if TMDLs were expressed in terms of loads, and the allowed loads were based on achieving the water quality standards by a narrow margin. However, these TMDLs are set as concentrations, which are set equal to the desired water quality condition. Consequently, there are no critical conditions as there is no proven seasonal variation or narrow margin of attainment.

Linkage Analysis	The linkage analysis describes the relationship between the water quality standard and the identified pollutant sources and based on this linkage, identify what loadings are acceptable to achieve the water quality standard which may further be used to determine the loading capacity of the water body for the pollutant of concern. This ensures that the loading capacities specified in the TMDLs will result in attaining the desired water quality. For bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin TMDLs, this link is established because the wasteload and load allocations are equal to the numeric targets, which are the same as the TMDLs. Reductions in the loadings of pyrethroids to the specified target allocation will result in attainment of WQOs.
TMDL Calculation	A TMDL is the sum of **wasteload allocations** for point sources (e.g., wastewater treatment facilities), **load allocations** for nonpoint sources (e.g., agricultural activities, Mexico), allocations for **natural sources** (e.g., wildlife), and a **margin of safety**, such that the capacity of the water body to assimilate pollutant loads without violating water quality objectives is not exceeded. **TMDL = Wasteload Allocations** **+ Load Allocations** **+ Natural Sources** **+ Margin of Safety** Allocations are based on the source analysis and numeric target. The TMDLs for water column concentration-based and sediment concentration-based impairments have been set equal to the numeric targets, averaged over a three-year period to account for short-term variations. All of the six pyrethroids are manmade compounds therefore, there are no natural sources. Since there are no natural sources of these compounds, natural sources have an allocation of zero.

Allocations and Margin of Safety	Source analysis determined pyrethroid pesticides in the New and Alamo Rivers come primarily from irrigated agricultural lands, and sources in Mexico that flow into the New and Alamo Rivers on the US side. Due to the lack of water quality data coming from NPDES permitted municipalities and facilities, the amount of pyrethroids coming from point sources is currently unknown. NPDES permitted municipalities and facilities are assigned pyrethroid pesticide allocations, because if these facilities were not assigned allocations for pyrethroids, their allocations would be zero and any detection would be a violation. Point sources such as municipalities and facilities are subject to regulation under the NPDES program. Some stormwater discharges from Municipal Separate Storm Sewer Systems (MS4) are subject to regulation under the Municipal Storm Water Program which requires stormwater permits for large cities and counties with populations of 100,000 or more. The stormwater discharges from the cities of Imperial, El Centro, Calexico, Brawley, and the County of Imperial are regulated by State Water Board Order 2013-0011-DWQ, the general permit for stormwater discharges from Small MS4, as Phase II collection systems. Discharges from NPDES-permitted facilities are regulated by individual permits adopted by the Colorado River Basin Water Board or are regulated by the Industrial or Construction NPDES general stormwater permits (2014-0057-DWQ, 2009-0009-DWQ, 2022-0057-DWQ) adopted by the State Water Board. A total of 15 individual permits and two Industrial or Construction NPDES general stormwater permits are issued to the NPDES-permitted facilities that discharge to New and Alamo Rivers. A review of water quality data from the New and Alamo Rivers indicates the presence of pyrethroid pesticides in water column and sediment samples. To address these impairments, waste load allocations for bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin have been assigned to each NPDES permitted facility. These TMDLs will utilize requirements put in place by either individual or general NPDES permits or WDRs. The waste load allocations shall be implemented as NPDES permit numeric effluent limits for each pyrethroid parameter. Compliance data from dischargers will be accepted either as the whole water concentration or the freely dissolved concentration. Calculations to determine the freely dissolved concentration are included below.

Wasteload Allocations for Pyrethroid Pesticides in New and Alamo Rivers.

Pyrethroid	Water Column: Acute Criterion (ng/L)	Water Column: Chronic Criterion (ng/L)	Dry Sediment (µg/g OC)
Bifenthrin	0.3	0.05	0.43
Cyfluthrin	0.3	0.06	1.1
Cypermethrin	0.3	0.07	0.3
Esfenvalerate	0.7	0.1	1.5
Lambda-cyhalothrin	0.2	0.08	0.44
Permethrin	6	1	8.9

In Imperial Valley, irrigated agricultural lands and Mexico are considered nonpoint sources of pollutants. A review of water quality data from the New and Alamo Rivers indicates the presence of pyrethroid pesticides in water column and sediment samples. To address these impairments, allocations for bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin have been set equal to the numeric targets and will be implemented in permits as load allocations for the New and Alamo Rivers. The Colorado River Basin Water Board adopted General WDRs for Discharges of Waste from Irrigated Agricultural Lands for agricultural dischargers in the Imperial Valley area (Order R7-2021-0050 and subsequent revised versions).

Load Allocations for Pyrethroid Pesticides in New and Alamo Rivers.

Pyrethroid	Water Column: Acute Criterion (ng/L)	Water Column: Chronic Criterion (ng/L)	Sediment (µg/g OC)
Bifenthrin	0.3	0.05	0.43
Cyfluthrin	0.3	0.06	1.1

Pyrethroid	Water Column: Acute Criterion (µg/L)	Water Column: Chronic Criterion (µg/L)	Sediment (µg/g OC)
Cypermethrin	0.3	0.07	0.3
Esfenvalerate	0.7	0.1	1.5
Lambda-cyhalothrin	0.2	0.08	0.44
Permethrin	6	1	8.9

The freely dissolved concentration can be estimated, rather than directly measured, by calculating the concentration of particulate organic carbon and dissolved organic carbon in the sample water. The following equation can be used to estimate the freely dissolved concentration of pyrethroids:

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

where,

$C_{dissolved}$ is the concentration of chemical in the dissolved phase (mg/L)
C_{total} is the total concentration of chemical in water (mg/L)
K_{OC} is the organic carbon–water partition coefficient (L/kg)
[*POC*] is the concentration of particulate organic carbon in water (kg/L)
K_{DOC} is the organic carbon–water partition coefficient (L/kg) for DOC
[*DOC*] is the concentration of dissolved organic carbon in water (kg/L)

To calculate the freely dissolved concentration with this equation, water samples must be analyzed for the total concentration of each pyrethroid pesticide (C_{total}), the concentration of particulate organic carbon in water ([*POC*]) and the concentration of dissolved organic carbon ([*DOC*]) in water. The concentration of POC can be calculated as [*POC*]=[*TOC*]-[*DOC*]. Because site-specific partition coefficients are not available, default partition coefficients are proposed for use in the above equation to estimate the freely dissolved concentration of a sample. Only one study was identified that met all of the data acceptability criteria for the ambient waters (Chickering 2014) established by the Pyrethroid TMDL

Staff Report from CVRWQCB based on their literature survey and the partition coefficients are presented below.

Recommended default partition coefficients for pyrethroids (L/kg)

	Ambient Waters		Wastewater Effluents[a]	
Pyrethroid	**K_{OC}**	**K_{DOC}**	**K_{OC}**	**K_{DOC}**
Bifenthrin	4,228,000	1,737,127	15,848,932	800,000
Cyfluthrin	3,870,000	2,432,071	--	--
Cypermethrin	3,105,000	762,765	6,309,573	200,000
Esfenvalerate	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

[a]All data from Parry and Young (2013)

It should be noted that the recommended default partition coefficients for both ambient waters and unique matrices, such as municipal or domestic wastewater treatment plant effluents, are summarized in the above table. Partition coefficients for wastewater effluents are needed to assess the effects of pyrethroids in effluents on ambient waters. One study has determined partition coefficients for four pyrethroids using wastewater effluents and these values can be used for estimating the freely dissolved pyrethroid concentration in effluents. Parry and Young (2013) determined both K_{OC} and K_{DOC} for bifenthrin, lambda-cyhalothrin, cypermethrin, and permethrin based on six samples from the Sacramento Regional Wastewater Treatment Plant. As recommended above, the 50th percentile of K_{OC} values is used as the default K_{OC} for effluents for each pyrethroid. Only a single K_{DOC} value was reported for each chemical (Parry and Young 2013), and those are the recommended K_{DOC} values for wastewater effluents. Because partition coefficients for wastewater effluents are not available for cyfluthrin and esfenvalerate, the default partition coefficients for ambient waters may be used in cases when these pyrethroids are detected wastewater effluents. However, if partition coefficients specific to municipal and domestic wastewater effluents become available for these compounds in the future, it is recommended that those values are used for assessing pyrethroids in effluents.

The margin of safety is incorporated into these TMDLs implicitly through conservative assumptions, namely, the desired water quality is conservatively achieved through allocations and targets set equal to desired water quality objectives and therefore an additional explicit margin of safety is not required. The allocations are equal to the loading capacity concentrations, and does not account for dilution in the water bodies receiving stormwater discharges. There will likely be dilution

	available in the water bodies because it is unlikely that all tributaries are discharging at concentrations approaching the proposed concentration goals. Thus, the available dilution provides a margin of safety for the water bodies. Because the WLAs and loading capacity are all defined on a concentration-basis, all seasonal variations and critical conditions are considered in the recommended method for defining the numeric triggers, loading capacity and allocations. However, if during the TMDL implementation phase, staff develops numeric targets and TMDLs that better reflect the desired water quality, the allocations will be set equal to these modified targets and TMDLs.
Monitoring Plan	The Imperial Valley Agricultural General Order contains monitoring and reporting provisions to provide a feedback mechanism for the assessment of progress toward attaining the WQOs. The Imperial Valley Irrigated Lands Coalition Group (IVILC) is currently collecting water samples from the New and Alamo River twice annually and analyzing the samples for various pesticides, including three pyrethroids. To calculate the freely dissolved concentration, the Coalition should include total organic carbon (TOC) and dissolved organic carbon (DOC) as additional analytes. NPDES permittees will monitor pyrethroid pesticides in effluent water. The individual and general permits contain provisions stating that the Monitoring and Reporting Programs (MRPs) may be modified to increase the number of parameters to be monitored, the frequency of the monitoring or the number and size of samples to be collected or minor clarifications on MRP requirements. These permits will be updated to include the associated targets and monitoring for the targeted pyrethroid pesticides.

2. IMPLEMENTATION AND TIMELINE

To control the discharges of pyrethroid pesticides from irrigated agricultural lands in Imperial Valley and to protect the beneficial uses of the State's waters, this TMDL will be implemented through the Colorado River Basin Water Board's Irrigated Lands Regulatory Program, Order R7-2021-0050 and subsequent revised versions, *General Waste Discharge Requirements for Discharges of Waste from Irrigated Agricultural Lands for Dischargers that are Members of a Coalition Group in the Imperial Valley, Waste Discharge Requirements Order* (Imperial Valley Agricultural General Order).

The Imperial Valley Agricultural General Order is primarily a representative-based order where a coalition group, formed by the Imperial Irrigation District and the Imperial County Farm Bureau (Imperial Valley Irrigated Lands Coalition Group or IVILC), to assist individual owners and operators of irrigated agricultural land in Imperial Valley (Irrigated Agricultural Dischargers) in complying with requirements of the Agricultural General Order. The Imperial Valley Agricultural General Order requires management practices implementation, water quality monitoring and improved management practices implementation where monitoring shows impacts by irrigated agricultural discharges. Owners and/or operators of irrigated agricultural land are required to enroll their land for regulatory coverage under the Imperial Valley Agricultural General Order, or alternatively, submit a report of waste discharge and apply for an individual waste discharge permit.

To control the discharges of pyrethroid pesticides from NPDES permitted municipalities and facilities, these TMDLs will dictate the requirements put in place by either individual or general NPDES permits or WDRs. Under the amendment, NPDES permits regulating discharges to water bodies with pyrethroid TMDLs would need to contain requirements to achieve compliance with the proposed TMDL allocations. The additional monitoring of pyrethroid pesticides should be for an initial period of three years and be included with their annual monitoring. NPDES permittees should also use best management practices where possible to limit the amounts of pyrethroids, if any, entering Imperial Valley waters from their facilities. The implementation plan for NPDES sources of impairments will be reassessed once enough acceptable data from these facilities is generated as described in the TMDL Review Schedule below.

For the discharges of pyrethroid pesticides into the New River at the international boundary with Mexico, the Colorado River Basin Water Board will work with its federal partners to ensure attainment of the TMDL numeric targets. Mexico is an independent nation not bound by California water quality regulations, so the implementation plan for controlling the contribution from Mexico requires coordination with the United States International Boundary and Water Commission (USIBWC) and USEPA, ensuring that the waste discharges from Mexico do not violate or contribute to a violation of water quality objectives downstream of the international boundary.

The estimated target date to achieve the WQOs for bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin in the New and Alamo Rivers is 0 to

3 years after approval of these TMDLs by the USEPA. The first 2 years are to complete baseline monitoring in areas where pyrethroids have not been thoroughly assessed and 1 year to adjust monitoring plans, if needed. The estimated target date is based on pyrethroid's relatively short soil half-life, trends in pyrethroid concentrations found in water and sediment samples, and implementation of best management practices.

Bifenthrin is expected to achieve WQOs 3 years after approval of these TMDLs by the USEPA. This estimate is based on current usage trends and the rate at which bifenthrin degrades in soils. Bifenthrin concentrations found in water and sediment samples collected from the New and Alamo Rivers between 2003-2020 show an apparent decrease in usage, as the more recent samples collected have resulted in lower concentrations. Bifenthrin in sediment samples collected from the New and Alamo Rivers have consistently been below WQOs for all monitoring dates.

Cyfluthrin is expected to achieve WQOs before the approval of these TMDLs by the USEPA. This estimate is based on usage trends and the rate at which cyfluthrin degrades in soils. Cyfluthrin concentrations found in water and sediment samples collected from the New and Alamo Rivers between 2003-2020 show an apparent decrease in usage, as the more recent samples collected have resulted in lower concentrations. Cyfluthrin in sediment collected from the New and Alamo Rivers has consistently been below WQOs during all monitoring dates.

Cypermethrin is expected to achieve WQOs 3 years after approval of these TMDLs by the USEPA. This estimate is based on current usage trends and the rate at which cypermethrin degrades in soils. Cypermethrin concentrations found in water and sediment samples collected from the New River between 2003-2020 show an apparent decrease in usage, as the more recent samples collected have resulted in lower concentrations. Water samples collected from the Alamo River show an apparent decrease in usage although cypermethrin samples collected from the sediment samples in Alamo River show an apparent increase in usage. Nevertheless, cypermethrin in sediment collected from the New and Alamo Rivers have consistently been below WQOs for all monitoring dates.

Esfenvalerate is expected to achieve WQOs 3 years after approval of these TMDLs by the USEPA. This estimate is based on current usage trends and the rate at which esfenvalerate degrades in soils. Esfenvalerate concentrations found in water and sediment samples collected from the New River between 2003-2020 show an apparent decrease in usage, besides a few outliers, as samples collected have resulted in lower concentrations. Although esfenvalerate samples collected from the water samples in Alamo River show an apparent increase in usage while the esfenvalerate in sediment collected from the New River exhibit a lack of a discernible increasing or decreasing trend in the data, instead displaying scatter within a narrow range. Nevertheless, the sediment data for both the rivers have consistently been below WQOs for all monitoring dates.

Lambda-cyhalothrin is expected to achieve WQOs 3 years after the approval of these TMDLs by the USEPA. This estimate is based on usage trends and the rate at which lambda-cyhalothrin degrades in soils. Water samples collected from the New River between 2003-2020 and Alamo River exhibit a lack of a discernible increasing or decreasing trend in the data, instead displaying scatter within a narrow range. Although lambda-cyhalothrin samples in sediment collected from the Alamo River and New River show an apparent decrease in usage, and lambda-cyhalothrin samples in sediment collected from both rivers have consistently been below WQOs for all monitoring dates.

Permethrin is expected to achieve WQOs before the approval of these TMDLs by the USEPA. This estimate is based on usage trends and the rate at which permethrin degrades in soils. Permethrin concentrations found in water and sediment samples collected from the New River between 2003-2020 show an apparent decrease in usage, as samples collected have resulted in lower concentrations. Water and sediment samples collected from the Alamo River exhibit a lack of a discernible increasing or decreasing trend in the data, instead displaying scatter within a narrow range Nevertheless, sediment samples collected from both the rivers have been consistently below WQOs for all monitoring dates besides a few outliers.

Water Board staff will reevaluate pyrethroid impairment when monitoring data is submitted. Staff will modify the conditions of the Order, if necessary, to address remaining impairments.

3. TMDL REVIEW SCHEDULE

Colorado River Basin Water Board staff will conduct a review of implementation activities when monitoring and reporting data is submitted as required by the Imperial Agricultural Order and NPDES permits. Colorado River Basin Water Board staff will pursue modification of Imperial Agricultural Order conditions, as necessary, to address remaining impairments from pyrethroid compounds during the TMDLs implementation phase.

It is the intent of the Regional Water Board to hold public hearings at least once every two years to review the effectiveness of the Imperial Valley Agricultural General Order, Coalition Groups and Individual Compliance Programs, and management practices; and evaluate compliance with applicable water quality objectives.

Table J-2: TMDL REVIEW SCHEDULE

Activity	Date*
Begin First TMDL Review	Two years after USEPA approves the TMDL
Terminate First TMDL Review and conduct Regional Water Board Public Hearing	Three years after USEPA approves the TMDL
Begin Second TMDL Review	Five years after USEPA approves the TMDL
Terminate Second TMDL Review, and conduct Regional Water Board Public Hearing	Six years after USEPA approves the TMDL

[Dates are contingent upon availability of Regional Water Board resources. Subsequent reviews will occur concurrently.]