RESOLUTION NO. R5-2007-XXXX
ATTACHMENT 1

AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASINS FOR THE CONTROL OF DIAZINON AND CHLORPYRIFOS RUNOFF INTO THE SACRAMENTO AND FEATHER RIVERS

Additions to the Basin Plan are shown as underlined text, and text removals are shown in strikeout below.

CHANGES TO CHAPTER III, WATER QUALITY OBJECTIVES

Modify Table III-2A as follows:

TABLE III-2A

SPECIFIC PESTICIDE OBJECTIVES

PESTICIDE	MAXIMUM CONCENTRATION AND AVERAGING PERIOD	APPLICABLE WATER BODIES
Chlorpyrifos	0.025 µ g/L ; 1-hour average (acute) 0.015 µ g/L ; 4-day average (chronic) Not to be exceeded more than once in a three year period.	San Joaquin River from Mendota Dam to Vernalis (Reaches include Mendota Dam to Sack Dam (70), Sack Dam to Mouth of Merced River (71), Mouth of Merced River to Vernalis (83)), Sacramento River from Shasta Dam to Colusa Basin Drain (13) and the Sacramento River from the Colusa Basin Drain to I Street Bridge (30). Feather River from Fish Barrier Dam to Sacramento River (40).

Diazinon	0.16 µ g/L ; 1-hour average (acute) 0.10 µ g/L ; 4-day average (chronic) Not to be exceeded more than once in a three year period.	San Joaquin River from Mendota Dam to Vernalis (Reaches include Mendota Dam to Sack Dam (70), Sack Dam to Mouth of Merced River (71), Mouth of Merced River to Vernalis (83)), Sacramento River from Shasta Dam to Colusa Basin Drain (13) and the Sacramento River from the Colusa Basin Drain to I Street Bridge (30). Feather River from Fish Barrier Dam to Sacramento River (40).
~~Diazinon~~	~~0.080 µg/L ; 1-hour average~~ ~~0.050 µg/L ; 4-day average~~ ~~Not to be exceeded more than once every three years on average.~~	~~Sacramento River from Shasta Dam to Colusa Basin Drain (13) and the Sacramento River from the Colusa Basin Drain to I Street Bridge (30). Feather River from Fish Barrier Dam to Sacramento River (40).~~

CHANGES TO CHAPTER IV, IMPLEMENTATION

Changes to the "Regional Water Board Prohibitions" Section

To the "Regional Water Board Prohibitions" Section, modify section 7. Diazinon Discharges into the Sacramento and Feather Rivers as follows:

7. *Diazinon and Chlorpyrifos Discharges into the Sacramento and Feather Rivers*

Beginning ~~July 1, 2008~~[*U.S. EPA Approval Date*], (i) the direct or indirect discharge of diazinon or chlorpyrifos into the Sacramento and Feather Rivers is prohibited if, in the previous year (July-June), any exceedance of the diazinon or chlorpyrifos water quality objectives, or diazinon and chlorpyrifos loading capacity occurred., ~~and (ii) the direct or indirect discharge of diazinon into any sub-watershed (identified in Table IV-7) is prohibited if, in the previous year (July-June), the load allocation was not met in that subwatershed. Prohibition (i) applies only to diazinon discharges that are tributary to or upstream from the location where the water quality objective was exceeded.~~

These prohibitions do not apply if the discharge of diazinon or chlorpyrifos is subject to a waiver of waste discharge requirements implementing the diazinon and chlorpyrifos

water quality objectives and load allocations for diazinon and chlorpyrifos for the Sacramento and Feather Rivers, or governed by individual or general waste discharge requirements.

These prohibitions apply only to dischargers causing or contributing to the exceedance of the water quality objective or loading capacity.

Changes to the "Pesticide Discharges from Nonpoint Sources" Section

Modify the Pesticide Discharges from Nonpoint Sources, as follows:

~~Orchard Pesticide Runoff and Diazinon Runoff into the Sacramento and Feather Rivers~~ Diazinon and Chlorpyrifos Runoff into the Sacramento and Feather Rivers

1. The ~~orchard~~ Sacramento and Feather River pesticide runoff ~~and diazinon runoff~~ control program shall:

   a. ensure compliance with water quality objectives applicable to ~~the~~ diazinon and chlorpyrifos ~~water quality objectives~~ in the Sacramento and Feather Rivers through the implementation of ~~necessary~~ management practices;

   b. ensure that measures that are implemented to reduce discharges of diazinon and chlorpyrifos ~~discharges~~ do not lead to an increase in the discharge of other pesticides to levels that ~~violate~~ cause or contribute to violations of applicable water quality objectives and Regional Water Board policies; and

   c. ensure that ~~pesticide~~ discharges ~~from orchards~~ of pesticides to surface waters are controlled so that the pesticide ~~discharges~~ concentrations are at the lowest levels that ~~is~~ are technically and economically achievable.

2. ~~Orchard d~~Dischargers must consider whether a proposed alternative to diazinon or chlorpyrifos has the potential to degrade ground or surface water. If the alternative to diazinon or chlorpyrifos has the potential to degrade ground water, alternative pest control methods must be considered. If the alternative to diazinon or chlorpyrifos has the potential to degrade surface water, control measures must be implemented to ensure that applicable water quality objectives and Regional Water Board policies are not violated, including State Water Resources Control Board Resolution 68-16.

3. Compliance with water quality objectives, waste load allocations, and load allocations for diazinon and chlorpyrifos in the Sacramento and Feather Rivers is required by ~~June 30, 2008~~ *[U.S. EPA Approval Date]*.

   The water quality objectives and allocations will be implemented through ~~one or a~~

~~combination of the following:~~ the adoption or modification of ~~one or more~~ waivers of waste discharge requirements, and general or individual waste discharge requirements where provisions necessary for implementation are not already in place. ~~To the extent not already in place, the Regional Water Board expects to adopt or revise the appropriate waiver(s) or waste discharge requirements by December 31, 2007.~~

~~4. The waste load allocations for all NPDES permitted discharges are the diazinon water quality objectives.~~

~~5.~~4. The Regional Water Board ~~will~~ intends to review the diazinon and chlorpyrifos allocations and the implementation provisions in the Basin Plan ~~at least once every five years, beginning~~ no later than ~~June 30, 2007~~ 30 June 2013.

~~6.~~5. Regional Water Board staff will meet at least annually with staff from the Department of Pesticide Regulation and representatives from the California Agricultural Commissioners and Sealers Association to review pesticide use and instream pesticide concentrations during the dormant spray and irrigation application seasons and to consider the effectiveness of management measures in meeting water quality objectives and load allocations.

~~7. The Loading Capacity (LC) for diazinon is determined by:~~

~~LC=C x Q x a Unit Conversion Factor; where C= the maximum concentration established by the diazinon water quality objectives and Q= the flow (the daily average flow is used in conjunction with the 0.080 µg/L diazinon objective and the four-day average flow is used in conjunction with the 0.050 µg/L diazinon objective). The LC will be calculated for the Sacramento River at I Street; the Sacramento River at Verona; the Sacramento River at Colusa; and the Feather River near its mouth. The value for Q (flow) in the Loading Capacity calculations for the Sacramento River sites will be increased to account for any flood control diversions into the Yolo Bypass or Butte Sink. The best available estimates of such diversions will be used.~~

~~8. The Load Allocation for discharges into the Sacramento River between Verona and I Street is determined by the following: [LC(Sacramento River at I Street) minus LC(Sacramento River at Verona)] multiplied by 0.70.~~

~~The Load Allocations required to meet the Loading Capacity in the Sacramento River at Verona are determined by multiplying the LC calculated for the Sacramento River at Verona by the Load Allocation factors in Table IV-7. If the calculated Load Allocation for the Feather River or Sacramento River at Colusa is greater than the Loading Capacity for that site, then the Loading Capacity for that site applies.~~

~~The Load Allocations establish the allowable diazinon load from nonpoint source dischargers.~~

~~Note: If the Sacramento River at Verona mean daily flow were 15,000 cubic feet per second or cfs, the loading capacity would equal approximately 2,900 grams/day for the 0.080 µg/L diazinon water quality objective. The Unit Conversion Factor would be 2.446.~~

~~The load allocations would be approximately 493 grams/day for the Colusa Basin Drain; 348 grams/day for the Feather River; 783 grams/day for the Sacramento River at Colusa; and 957 grams/day for Sutter/Butte.~~

~~If the mean daily flow in the Feather River were 5,000 cubic feet per second or cfs, the loading capacity would be approximately 978 grams/day for the 0.080 µg/L diazinon water quality objective. The Unit Conversion Factor would be 2.446.~~

~~If the load allocation for the Feather River for that day were 348 grams/day, the load allocation would apply.~~

6. The Waste Load Allocations (WLA) for all NPDES-permitted dischargers, Load Allocations (LA) for nonpoint source discharges, and the Loading Capacity of the Sacramento and Feather Rivers shall not exceed the sum (S) of one (1) as defined below.

$$S = \frac{C_D}{WQO_D} + \frac{C_C}{WQO_C} \leq 1.0$$

where
C_D = diazinon concentration in µg/L of point source discharge for the WLA; nonpoint source discharge for the LA; or the Sacramento or Feather Rivers for the LC.
C_C = chlorpyrifos concentration in µg/L of point source discharge for the WLA; nonpoint source discharge for the LA; or the Sacramento or Feather Rivers for the LC.
WQO_D = acute or chronic diazinon water quality objective in µg/L.
WQO_C = acute or chronic chlorpyrifos water quality objective in µg/L.

Available samples collected within the applicable averaging period for the water quality objective will be used to determine compliance with the allocations and loading capacity. For purposes of calculating the sum (S) above, analytical results that are reported as “nondetectable” concentrations are considered to be zero.

~~9.~~7. The established waste load and load allocations for diazinon and chlorpyrifos, and the water quality objectives for diazinon and chlorpyrifos ~~water quality objectives~~ in the Sacramento and Feather Rivers represent a maximum allowable level. The Regional Water Board shall require any additional reductions in diazinon or chlorpyrifos levels necessary to account for additive or synergistic toxicity effects or to protect beneficial uses in tributary waters.

~~10.~~8. Pursuant to CWC §13267, the Executive Officer will require dischargers ~~of diazinon must~~ to submit a management plan that describes the actions that the discharger will take to reduce diazinon and chlorpyrifos discharges and meet the applicable allocations ~~by the required compliance date~~.

The management plan may include actions required by State and federal pesticide regulations. The Executive Officer will require the discharger ~~must~~ to document the relationship between the actions to be taken and the expected reductions in diazinon and chlorpyrifos discharge(s). The Executive Officer will allow individual ~~Individual~~ dischargers or a discharger group or coalition ~~may~~ to submit management plans.

The management plan must comply with the provisions of any applicable waiver of waste discharge requirements or waste discharge requirements ~~and must be submitted no later than June 30, 2005~~. The ~~Regional Water Board~~ Executive Officer may require revisions to the management plan if compliance with applicable allocations is not attained or the management plan is not reasonably likely to attain compliance.

~~11.~~9. Any waiver of waste discharge requirements or waste discharge requirements that govern the control of ~~orchard~~ pesticide runoff ~~or diazinon runoff~~ that is discharged directly or indirectly into the Sacramento or Feather Rivers must be consistent with the policies and actions described in paragraphs 1-~~10~~ 8.

~~12.~~10. In determining compliance with the waste load allocations, the Regional Water Board will consider any data or information submitted by the discharger regarding diazinon and chlorpyrifos inputs from sources outside of the jurisdiction of the permitted discharge, including any diazinon and chlorpyrifos present in precipitation; and any applicable provisions in the discharger's NPDES permit requiring the discharger to reduce the discharge of pollutants to the maximum extent practicable.

11. The above provisions for control of diazinon and chlorpyrifos discharges apply to the Sacramento and Feather Rivers as described in Table III-2A.

~~Table IV-7~~
~~Load Allocation Factors for Diazinon in the Sacramento River Watershed~~

~~Sub-Watershed~~	~~Load Allocation Factor~~
~~Colusa Basin Drain~~	~~17%~~

~~Feather River~~	~~12%~~
~~Sacramento River at Colusa~~	~~27%~~
~~Sutter/Butte~~	~~33%~~

~~*Location Descriptions*~~

~~Colusa Basin Drain – is the Colusa Basin Drain at the confluence with the Sacramento River. The Colusa Basin Drain sub-watershed includes all land that drains into the Colusa Basin Drain.~~

~~Feather River – is the Feather River near the confluence with the Sacramento River. The Feather River sub-watershed includes all land that drains into the Feather River below the Oroville Dam, but does not include flow from the Sutter Bypass.~~

~~Sacramento River at Colusa – is the Sacramento River at the River Road bridge in the town of Colusa. (United States Geological Survey gauging Station 11389500) The Sacramento River at Colusa subwatershed includes all land below Shasta Dam that drains to the Sacramento River at Colusa.~~

~~Sutter/Butte – is Sacramento Slough near the confluence with the Sacramento River or the sum of the Sutter Bypass near the confluence with the Feather River and Reclamation Slough near the confluence with the Sutter Bypass depending on flow conditions (minus diazinon loading resulting from Sacramento River water being bypassed into tributaries of Sacramento Slough or the Sutter Bypass). The Sutter/Butte sub-watershed includes all land that drains to Sacramento Slough, the Sutter Bypass, and Reclamation Slough.~~

~~Sacramento River at I Street – is the Sacramento River at the I Street Bridge in the city of Sacramento.~~

~~Sacramento River at Verona – is the Sacramento River at the United States Geological Survey gauging station at Verona (Station Number 11425500).~~

Changes to the "Estimated Costs of Agricultural Water Quality Control Programs and Potential Sources of Financing" section

Sacramento and Feather Rivers ~~Orchard~~ Diazinon and Chlorpyrifos ~~-~~Runoff Control Program

The total estimated costs for management practices to meet the diazinon and chlorpyrifos objectives for the Sacramento and Feather Rivers ~~are~~ range from ~~a $0.3 million/ year cost savings to a $3.8~~ $0 to $6.2 million/year ~~cost~~ (~~2001~~ 2007 dollars). The estimated costs for discharger monitoring, planning, and evaluation ~~are~~ range from ~~$0.5 to $9.3~~ $0.3 to $1.5 million/year (~~2003~~ 2007 dollars).

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 5, SURVEILLANCE AND MONITORING

~~Orchard Pesticide Runoff and~~ Diazinon and Chlorpyrifos Runoff into the Sacramento and Feather Rivers

The Regional Water Board requires a focused monitoring effort of agricultural pesticide runoff ~~from orchards in the Sacramento Valley~~ into the Sacramento and Feather Rivers.

The monitoring and reporting program for any waste discharge requirements or waiver of waste discharge requirements that addresses agricultural pesticide runoff ~~from orchards in the Sacramento Valley~~ into the Sacramento or Feather Rivers must be designed to collect the information necessary to:

1. determine compliance with established water quality objectives and the loading capacity applicable to ~~for~~ diazinon and chlorpyrifos in the Sacramento and Feather Rivers;
2. determine compliance with ~~established waste load allocations and~~ load allocations for diazinon and chlorpyrifos;
3. determine the degree of implementation of management practices to reduce off-site migration of diazinon and chlorpyrifos;
4. determine the effectiveness of management practices and strategies to reduce off-site migration of diazinon and chlorpyrifos;
5. determine whether alternatives to diazinon or chlorpyrifos are causing surface water quality impacts;

6. determine whether the discharge causes or contributes to a toxicity impairment due to additive or synergistic effects of multiple pollutants; and
7. demonstrate that management practices are achieving the lowest pesticide levels technically and economically achievable.

Dischargers are responsible for providing the necessary information. The 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.