ATTACHMENT A
TO RESOLUTION NO. R9-2002-0123

BASIN PLAN AMENDMENT

TOTAL MAXIMUM DAILY LOAD (TMDL) FOR DIAZINON IN CHOLLAS CREEK WATERSHED SAN DIEGO COUNTY

This Basin Plan amendment amends the Implementation Chapter of the Basin Plan (Chapter 4) to establish a TMDL for diazinon in the Chollas Creek Watershed, a program to implement the TMDL and monitor its effectiveness. The following text is added to Chapter 4 of the Basin Plan.

Total Maximum Daily Load (TMDL) For Diazinon, Chollas Creek Watershed, San Diego County

On June 12, 2002 the Regional Board adopted Resolution No. R9-2002–0123, *Total Maximum Daily Load (TMDL) For Diazinon In Chollas Creek Watershed, San Diego County*. The terms and conditions of Resolution No. R9-2002–0123 are incorporated into the Basin Plan. This amendment establishes the total maximum daily load (TMDL) of diazinon which Chollas Creek can receive and still attain applicable water quality objectives and support beneficial uses. This TMDL is allocated to all contributing sources of diazinon in the watershed by establishing Waste Load Allocations for all point sources and Load Allocations for all nonpoint sources in the watershed. This TMDL includes a margin of safety. The TMDL Implementation Plan and Monitoring Plan are presented below.

Necessity Standard [Government Code §11353(b)]**:** Amendment of the Basin Plan to establish and implement a Total Maximum Daily Load (TMDL) for Chollas Creek is necessary because water quality in Chollas Creek cannot satisfy applicable water quality objectives for "Toxicity" and "Pesticides" even with implementation of waste discharge requirements containing technology-based effluent limits or water quality-based effluent limits for discharges of pollutants to Chollas Creek and its tributaries. Clean Water Act Section 303(d) requires the Regional Board to develop an implement a TMDL under the conditions that exist in Chollas Creek. This TMDL for diazinon is necessary to ensure attainment of applicable water quality objectives and restoration of beneficial uses designated for Chollas Creek.

Clean Water Act Section 303(d): Chollas Creek is currently identified on the Clean Water Act Section 303(d) list of impaired waters due to toxicity during storm events. Results from toxicity identification evaluations (TIEs) indicate that the insecticide diazinon in Chollas Creek has in part caused the toxicity during storm events.

Beneficial Use Impairments: Chollas Creek supports several beneficial uses. The most sensitive beneficial uses are those designated for protection of aquatic life and aquatic

dependent wildlife as described in the Basin Plan definition of the warm freshwater habitat (WARM) and wildlife habitat (WILD) beneficial uses. The WARM and WILD beneficial uses of Chollas Creek are adversely affected by toxicity due to diazinon.

Water Quality Objectives: Diazinon levels in Chollas Creek cause toxicity during storm events. The Basin Plan does not contain a specific water quality objective for diazinon. The Basin Plan establishes narrative water quality objectives for "Toxicity" and "Pesticides" to ensure the protection of the WARM and WILD beneficial uses.

Water Quality Objective Violations: Toxicity tests using the water flea *Ceriodaphnia dubia* indicate that Chollas Creek storm water flows are toxic. Toxicity Identification Evaluations (TIEs) show that diazinon is responsible for the toxicity to the water flea. Accordingly diazinon concentrations in Chollas Creek cause violations of the "Toxicity" and "Pesticide" water quality objectives during storm events. The average concentration of diazinon in Chollas Creek during storm events is 0.46 µg/L. Chollas Creek waters also contain metals that are responsible for toxicity to a marine invertebrate. A separate TMDL is under development to address metals in Chollas Creek.

Sources of Diazinon: Urban storm water flows represent the most significant source of diazinon to ~~in~~ the Chollas Creek watershed.

Concentration-Based TMDL: Because aquatic toxicity is the most significant adverse effect of diazinon and because aquatic toxicity is a function of water column concentrations, this TMDL is a concentration-based, rather than mass emission-based TMDL. The Numeric Targets, TMDL (Loading Capacity), and Waste Load and Load Allocations are all defined in terms of concentrations.

Numeric Targets: The TMDL Numeric Targets, which are derived from the water quality objectives, identify the specific water column, sediment, or tissue concentrations (or other endpoints) which equate to attainment of the Basin Plan water quality objectives and the protection of designated beneficial uses. Therefore, if the Numeric Targets are appropriately selected (for all causative pollutants), attainment of the Numeric Targets will result in attainment of the underlying water quality objectives and beneficial use protection.

The Numeric Targets for diazinon in Chollas Creek are set equal to the California Department of Fish and Game freshwater Water Quality Criteria for diazinon. The acute Water Quality Criterion of 0.08 µg/L diazinon protects aquatic life from short-term exposure to diazinon, while the chronic criterion of 0.05 µg/L diazinon protects aquatic life from long-term diazinon exposure.

Numeric Targets for Diazinon in Chollas Creek[1]

Exposure Duration	Numeric Target	Averaging Period	Frequency of Allowed Exceedance
Acute	0.08 µg/L	One-hour average	Once every three years on the average
Chronic	0.05 µg/L	Four-day average	Once every three years on the average

Total Maximum Daily Load: The term Total Maximum Daily Load (TMDL), or Loading Capacity, is defined as the maximum amount of a pollutant that a waterbody can receive and still attain water quality objectives and protection of designated beneficial uses. The concentration-based Loading Capacity for diazinon in Chollas Creek is set at exactly the same concentrations as the Numeric Targets.

**TMDL (Loading Capacity)
for Diazinon in Chollas Creek**

Exposure Duration	TMDL	Averaging Period
Acute	0.08 µg/L	One-hour average
Chronic	0.05 µg/L	Four-day average

[1] For the purpose of evaluating if the Numeric Targets have been attained, sample results shall be used as follows:

1. If only one sample is collected during the time period associated with the numeric target (e.g., one-hour average or four-day average), the single measurement shall be used to determine attainment of the numeric target for the entire time period.
2. The one-hour average shall be the moving arithmetic mean of grab samples over the specified one-hour period.
3. The four-day average shall apply to flow-weighted composite samples for the duration of a storm, or shall be the moving arithmetic mean of flow weighted 24-hour composite samples or grab samples.

Linkage Analysis: The purpose of the linkage analysis is to confirm that the TMDL will result in the attainment of applicable water quality objectives and beneficial use protection. With respect to diazinon, this TMDL will result in the attainment of the "Toxicity" and "Pesticide" water quality objectives and the restoration of the WARM and WILD beneficial uses in the Chollas Creek watershed [2]. This is because the Numeric Targets are set equal to the diazinon Water Quality Criteria which are based on toxicity testing and are specifically established at levels to ensure the protection of aquatic life from acute and chronic exposure to diazinon. The Water Quality Criteria protect all aquatic life stages including the most sensitive stages.

Waste Load And Load Allocations: The concentration-based Waste Load and Load allocations of this TMDL are applied equally to all diazinon discharge sources in the Chollas Creek watershed. All allocations are set at 90% of the Numeric Targets resulting in a diazinon allocation equal to 0.072 µg/L under acute exposure conditions and a diazinon allocation of 0.045 µg/L under chronic exposure conditions. These allocations include an explicit 10 % margin of safety to account for uncertainties in the TMDL analysis. This concentration-based TMDL and its allocations apply year-round and will be protective during all flow conditions and seasons.

Waste Load and Load Allocations for Diazinon in Chollas Creek

Exposure Duration	Numeric Targets	Margin of Safety	Waste Load and Load Allocations
Acute	0.08 µg/L	0.008 µg/L	0.072 µg/L
Chronic	0.05 µg/L	0.005 µg/L	0.045 µg/L

Diazinon Load Reductions Needed: The current average concentration of diazinon in Chollas Creek measured during storm events was 0.46 µg/L during the monitoring period 1998 through 2001. An 84% reduction of current diazinon concentration–based loads is needed to attain the acute diazinon allocations set forth in this TMDL. A 90% reduction of current diazinon concentration–based loads is needed to attain the chronic diazinon allocations set forth in this TMDL

Needed Load Reductions in Chollas Creek

[2] **MULTIPLE POLLUTANTS:** The attainment of water quality standards is qualified with the words "with respect to diazinon" because there are multiple pollutants causing toxicity. Toxicity conditions in Chollas Creek are caused by metals and diazinon. Successful implementation of both the Chollas Creek diazinon TMDL and the Chollas Creek metals TMDL is expected to result in full attainment of the "Toxicity" water quality objectives, and of the WARM and WILD beneficial uses.

	Allocation µg/L)		Reduction Needed	
Average Diazinon Concentration (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)
0.46	0.045	0.072	**90%**	**84%**

Seasonal Variations and Critical Conditions: This concentration–based diazinon TMDL and ~~ITS~~ allocations apply year round and will be protective during all flow conditions and seasons.

Responsible Partie(s): As dischargers of diazinon in urban storm water flows to Chollas Creek, the City of San Diego, City of Lemon Grove, City of La Mesa, San Diego Unified Port District, County of San Diego, and the California Department of Transportation (CalTrans) are responsible for implementation of this TMDL. These entities are regulated as municipal Copermittees under the San Diego MS4 Permit or the statewide CalTrans MS4 Permit.

TMDL Implementation Plan

The three most important mechanisms to implement the diazinon waste load reductions required by this TMDL are (1) USEPA's ongoing diazinon phase-out and elimination program; (2) modification of the San Diego Municipal Storm Water Permit (MS4 Permit)[3] as needed for consistency with this TMDL; and (3) activities by the municipal Copermittees in the Chollas Creek watershed to reduce diazinon discharges pursuant to the MS4 Permit and Water Code Section 13267.

1. USEPA's Diazinon Phase-Out and Elimination Program

The single most important action to implement this TMDL is USEPA's national ongoing Diazinon Phase-Out and Elimination Program. In January 2001, USEPA reached an agreement with registrants (manufacturers) of diazinon to phase-out most uses (USEPA 2002). Under the agreement, all indoor uses will be terminated, and all outdoor non-agricultural uses will be phased-out over the next few years. ~~Retail sales of diazinon will be banned after December 31, 2002.~~

Specifically, the terms of the agreement implement the following phase-out schedules:

- For the indoor household use, the registration will be canceled on March 2001, and all retail sales will stop by December 2002.

- For all lawn, garden and turf uses, manufacturing stops in June 2003; all sales and distribution to retailers ends in August 2003. Further, the manufacturers will implement

[3] Regional Board Order No. 2001-01 NPDES No CAS0108758, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, and the San Diego Unified Port District.*

a product recovery program in 2004 to complete the phase-out of the product.

- Additionally, as part of the phase-out, for all lawn, garden, and turf uses, the agreement ratchets down the manufacturing amounts. Specifically, for 2002, there will be a 25 percent decrease in production; and for 2003, there will be a 50 percent decrease in production.

- Also, the agreement begins the process to cancel around 20 different uses on food crops.

In summary, the phase-out is designed to reduce diazinon use and sales, availability, and to increase its proper disposal. As a result of the phase-out, USEPA expects, on a national basis, that these actions will end over 90% of current diazinon uses. In the Chollas Creek watershed, since agricultural use is negligible, the phase-out should reduce current source loadings of diazi~~o~~non, and the resulting aquatic toxicity, to negligible levels over time. For these reasons, the diazinon phase-out is by far the single most significant mechanism by which this TMDL will be implemented. The remaining TMDL implementation actions described below are designed to reduce the discharge of diazinon to ~~in~~ the Chollas Creek watershed due to interim (during the phase-out) and residual (post phase-out) diazinon sales, use, and disposal. It should be noted that actions taken by the municipalities and other stakeholders to reduce diazinon discharges to ~~in~~ the Chollas Creek watershed will likely be effective in reducing the discharges of alternative pesticides in the long-term as well.

2. **Modification of Existing Waste Discharge Requirements / NPDES Permits**

The Regional Board's San Diego Municipal Storm Water Permit, also known as the San Diego MS4 Permit (Regional Board Order No. 2001-01 NPDES No CAS0108758) is the primary broad-based NPDES permit which directly regulates most pollutant discharges, including diazinon, in the Chollas Creek watershed. Federal regulations require that NPDES permits contain effluent limitations that are consistent with Waste Load Allocations developed under a TMDL (40CFR 122.44 (d)(vii)(B)). The Regional Board will revise existing waste discharge requirements / NPDES permits to incorporate effluent limitations in conformance with the Waste Load Allocations for diazinon as specified above. Modifications to the MS4 Permit can occur when the permit is reopened or during scheduled permit reissuance.

Compliance with numeric limitations for diazinon will be required in accordance with a phased schedule of compliance. The compliance schedule will be jointly developed by the Regional Board and the Chollas Creek stakeholders and will be finalized no later than one year following adoption of this TMDL by the Regional Board. The phased compliance schedule will apply only to attainment of numeric limitations for diazinon. All other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits.

3. **Activities By Municipal Copermittees Pursuant to MS4 Permit and CWC Section 13267**

Pursuant to the MS4 Permit and under the authority of Water Code Section 13267, the Regional Board will direct the municipal Copermittees in the Chollas Creek watershed to do the following:

a. *Legal Authority*
Enforce existing local ordinances, or adopt new legal authority, as needed to ensure Copermittee compliance with the Waste Load Allocations specified in this TMDL;

b. *Diazinon Toxicity Control Plan*
Develop and implement a "Diazinon Toxicity Control Plan" to promote Copermittee compliance with the Waste Load Allocations specified in this TMDL. The Plan should consist of pollution prevention and source control best management practices designed to reduce the discharge of diazinon to Chollas Creek.

c. *Diazinon Public Outreach / Education Program*
Develop and implement a focused Public Outreach / Education program designed to reduce the discharge of diazinon to ~~in~~ the Chollas Creek watershed. By reducing the discharge of diazinon, the Program will promote Copermittee compliance with the Waste Load Allocations specified in this TMDL. The Program should contain the components described in the Regional Board Technical Report, *Total Maximum Daily Load for Diazinon in Chollas Creek Watershed San Diego County*, dated June 12, 2002, or equivalent components. The diazinon public outreach / education program may be incorporated into the Diazinon Toxicity Control Plan.

d. ~~*Diazinon Source Analysis*~~
~~Develop and conduct an in-depth comprehensive analysis of diazinon sources specific to the Chollas Creek watershed. The analysis will allow the Copermittees to focus their diazinon reduction efforts on the most significant sources. Include at a minimum the following components: (1) licensed commercial pesticide applicators; (2) analysis by land uses; and (3) identification of specific hotspots, if any, within each land use.~~

4. **Compliance with MS4 Permit**

The municipal Copermittees in the Chollas Creek watershed shall implement the requirements of the MS4 Permit.

5. **Compliance with Existing Waste Discharge Prohibitions**

Prohibitions against discharges of waste that cause pollution or nuisance, described in the Basin Plan, including discharges of diazinon that cause or contribute to violation of water quality objectives are applicable to the urban land users and land owners in the Chollas Creek watershed. Dischargers of diazinon in the watershed shall also comply with all other applicable waste discharge prohibitions contained in the Basin Plan.

6. **Enforcement Authority of Regional Board**

The Regional Board will use its enforcement authority as necessary to ensure compliance

with applicable waste discharge requirements and Basin Plan waste discharge prohibitions.

7. **Modification of Other Existing Waste Discharge Requirements**

In addition to the broad-based regulation of discharges under the MS4 Permit, the discharge of pollutants, including diazinon, from utility companies and utility vaults is directly regulated under the Regional Board's General Permit for Utility Vaults *(State Board Order No.2001-11-DWQ NPDES No.CAG 990002)*. The Regional Board will revise the General Permit for Utility Vaults as needed for consistency with this TMDL.

Furthermore, the State Water Resources Control Board (State Board) has issued three additional NPDES storm water permits that regulate the discharge of pollutants including diazinon in the Chollas Creek watershed. These permits are the statewide Caltrans Municipal Storm Water Permit *(State Board Order No. 99-06-DWQ NPDES No. CAS 000003)*, the statewide General Industrial Storm Water Permit *(State Board Order No. 97-03-DWQ NPDES No. CAS 000001)*, and the statewide General Construction Storm Water Permit *(State Board Order No. 99-08-DWQ NPDES No. CAS 000002)* which directly regulate discharges from Caltrans owned and operated facilities, and from industrial and construction sites respectively, located within the Chollas Creek watershed. Discharges from industrial and construction sites in the Chollas Creek watershed are also indirectly regulated under the MS4 Permit which holds each municipal Copermittee ultimately responsible for all discharges from industrial and construction sites within its jurisdiction. The Regional Board will request the State Board to amend each of these three statewide general permits as needed for consistency with this TMDL. Modifications to waste discharge requirements can occur when permits are reopened or reissued.

8. **Adoption of New Waste Discharge Requirements / NPDES Permits**

The Regional Board may adopt new waste discharge requirements / NPDES permits for any significant source(s) of diazinon identified by the municipal Copermittees during the conduct of the comprehensive Diazinon Source Analysis in the Chollas Creek watershed.

9. **Additional Investigations and Reports Pursuant to CWC Section 13255**

The Regional Board may use its authority under California Water Code Section 13255 to request the municipalities in the Chollas Creek watershed to conduct additional investigations which are beyond the purview of the MS4 permit and to report on the findings of such investigations. Any such investigations will address diazinon-related issues in the Chollas Creek watershed for the ultimate purpose of reducing diazinon discharges to ~~in~~ the watershed.

10. **Monitoring Plan**

Pursuant to the MS4 permit and under the authority of Water Code Section 13267, the Regional Board will direct the municipal Copermittees in the Chollas Creek watershed to develop and implement a Monitoring Plan. The Plan shall be designed to assess the effectiveness of this TMDL, its implementation measures, and progress towards the

attainment of applicable water quality standards in the Chollas Creek watershed. The Plan should contain the components described in the Regional Board Technical Report, *Total Maximum Daily Load for Diazinon in Chollas Creek Watershed San Diego County*, dated June 12, 2002, or equivalent components.

11. **Schedule of Implementation** ~~**(still under development as of 4/26/02)**~~

As described in Provision 2, *Modification of Existing Waste Discharge Requirements/ NPDES Permits*, compliance with numeric limitations for diazinon will be required in accordance with a phased schedule of compliance. All other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits as described below.

Action	Description	Responsible Parties	Due Date
US EPA cancels registration for indoor household uses of diazinon		USEPA	March 31, 2001
IPM Workshop(s)	Conduct first workshop	Chollas Creek Watershed Municipal Copermitees	and annually thereafter
Monitoring Plan	Initiate Monitoring Plan	Chollas Creek Watershed Municipal Copermitees	30-days after US EPA approves of TMDL
Diazinon Toxicity Control Plan	Initiate DTCP	Chollas Creek Watershed Municipal Copermitees	30-days after US EPA approves of TMDL
Retail sales of diazinon (indoor uses) end		USEPA	December 31, 2002
Manufacturing of diazinon for all lawn, garden and turf uses end		USEPA	June 31, 2003
Sales and distribution to retailers ends		USEPA	August 31, 2003
Phase out and eliminate diazinon usage and sales in the Chollas Creek Watershed. Ensure proper disposal		USEPA	2003 for non-agriculture uses.
Modify MS4 Permit for consistency with TMDL		Regional Board	No later than 2006

Action	Description	Responsible Parties	Due Date
consistency with TMDL			
Implement legal authority to reduce diazinon discharges reduction activities in Chollas Creek watershed.		Chollas Creek Watershed Municipal Copermitees	6 months after US EPA approval of TMDL
~~Conduct diazinon source analysis in Chollas Creek watershed~~	~~Initiate Source Analysis~~	~~Chollas Creek Watershed~~ ~~Municipal Copermittees~~	~~6 months after US EPA approval of TMDL~~
Compliance with MS4 Permit		Chollas Creek Watershed Municipal Copermittees	Ongoing
Compliance with Existing Waste Discharge Prohibitions		Diazinon Dischargers	Ongoing
Enforcement Authority of Regional Board		Regional Board	Ongoing
Modification of Other Existing Waste Discharge Requirements		Regional Board	No later than next reissuance
Adoption of New Waste Discharge Requirements / NPDES Permits	For significant diazinon sources only.	Regional Board	As needed
Additional Investigations and Reports Pursuant to CWC Section 13255		Diazinon Dischargers	As needed
Submit Annual Reports	Effectiveness Reports and Monitoring Reports	Chollas Creek Watershed	June 15 of each year

Action	Description	Responsible Parties	Due Date
		Municipal Copermittees	

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