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September 13, 2018

Elizabeth Lee  
Daniel McClure  
California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive #200  
Rancho Cordova, CA 95670

### **Re: Demonstration of Satisfying Diazinon and Chlorpyrifos Wasteload Allocations**

Dear Ms. Lee and Mr. McClure:

This letter documents the results of diazinon and chlorpyrifos stormwater monitoring throughout the county from 2001 to 2017, conducted by CCCWP and other parties during storm season, when pollutant concentrations are likely to be highest. The purpose of this letter is to demonstrate to the CVRWQCB and SFBWRWQCB staff that the wasteload allocations for these pollutants have been met, in preparation for extending coverage of the SFBWRWQCB Municipal Regional Permit to East County Stormwater Permittees and that no further implementation is required.

The water quality objectives to East County permittees as listed in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins are summarized in Table 1 below. This analysis compiles historic monitoring data and compares to the objectives listed below.

**Table 1. Water Quality Objectives for Diazinon and Chlorpyrifos**

Pesticide	Acute Objective (ng/L) (1-hour average)	Chronic Objective (ng/L) (4-day average)
Diazinon	160	100
Chlorpyrifos	25	15

Five data sources were used to compile monitoring data for diazinon and chlorpyrifos in water:

- CCCWP's Pollutants of Concern Loads Monitoring program at Lower Marsh Creek (CCCWP POC)
  - These data were obtained directly from laboratory reports obtained by CCCWP's monitoring contractor, ADH Environmental (email from Pete Wilde, ADH)

- Environmental, to Khalil Abusaba, Wood Environment & Infrastructure Solutions, 5/15/2018).
- This location is directly downstream from one of the largest continuous urbanized areas in East County.
- The State of California's Surface Water Ambient Monitoring Program (SWAMP)
  - These data were downloaded from the California Environmental Data Exchange Network.
  - None of the creeks sampled (Kirker, Mitchel, Baxter, San Pablo and Wildcat) are located in East County.
- The Department of Pesticide Regulation (DPR) Statewide Pesticide Monitoring Program
  - These data were obtained directly from DPR (email from Michael Ensminger, DPR to Lucile Paquette, CCCWP, 6/25/2018).
  - The Creeks sampled (Grayson and Walnut) are not located in East County.
- The San Francisco Estuary Institute's Small Tributaries Loading Strategy (SFEI STLS)
  - These data were downloaded from the California Environmental Data Exchange Network.
  - The single station monitored in Contra Costa County at the North Richmond Pump station is not located in East County.

In summary, the first data source represents East County jurisdictions, whereas the latter three provide countywide context from outside of East County.

Creeks in Contra Costa County, including creeks within East County Permittees' jurisdictions, are well below water quality objectives for diazinon and chlorpyrifos and well below the TMDL wasteload allocations. The chlorpyrifos data summarized in Table 2 and the diazinon data summarized in Table 3 show that detections and exceedances for both pesticides were previously sporadic, and have generally ceased since 2009.

**Table 2. Summary of Detections and Exceedances of Water Quality Objectives for Chlorpyrifos in Contra Costa County**

Program	Years	# Measured	# Detections	# Exceeding WQOs	Years, Creeks exceeding WQOs
<b>CCCWP POC</b>	2012 - 2014	8	5	0	NA
<b>SWAMP</b>	2001 - 2005	16	0	0	NA
<b>DPR</b>	2008-2009, 2017	13	1	1	2009, Grayson
<b>SFEI / STLS</b>	2013 - 2014	5	5	0	NA

Shaded rows indicate programs within East County Permittees' jurisdictions



**Table 3. Summary of Detections and Exceedances of Water Quality Objectives for Diazinon in Contra Costa County**

<b>Program</b>	<b>Years</b>	<b># Measured</b>	<b># Detections</b>	<b># Exceeding WQOs</b>	<b>Years and locations exceeding WQOs</b>
<b>CCCWP POC</b>	2012 - 2014	8	1	0	NA
<b>SWAMP</b>	2001 – 2005	16	9	9	2003, Kirker (3x) 2001-2002, San Pablo 2003, Mitchell (2x) 2002, Wildcat (2x)
<b>DPR</b>	2008, 209, 2017	13	1	1	2/15/2009, Grayson
<b>SFEI / STLS</b>	2013 - 2014	5	0	0	NA

Shaded rows indicate programs within East County Permittees' jurisdictions

Detection limits have decreased over the past two decades with the availability of more sensitive analytical techniques. During the 2001 to 2005 time frame covered by the SWAMP program, the chlorpyrifos detection limit was 20 ng/L, higher than the Water Quality Objective (15 ng/L); therefore, some of the non-detects could have included concentrations that did exceed the Water Quality Objective for that data set. However, chlorpyrifos detection limits in CCCWP's POC monitoring program (2 – 10 ng/L) are all below the lowest water quality objective, and therefore the more recent non-detects reported from those programs truly represent attainment of the water quality objective. In contrast to chlorpyrifos, historic diazinon detection limits were generally below water quality objectives. Given the numbers well below objectives, the wasteload allocations based on combined diazinon and chlorpyrifos concentrations are also being attained by a wide margin.

The most recent detected and quantified results from CCCWP's POC monitoring program help make quantitative evaluations of whether diazinon and chlorpyrifos are "well below" water quality objectives (Table 4, Figure 1, Figure 2). The most stringent applicable water quality objective for chlorpyrifos is 15 ng/L; in comparison, the range of recently (2012 – 2014) detected chlorpyrifos concentrations in Marsh Creek is 1 to 7 ng/L, well below the water quality objective. Likewise, the only recently (2012 – 2014) detected concentration of diazinon in Marsh Creek was 1.7 ng/L, well below the water quality objective of 100 ng/L.

The observation that water quality objectives were sporadically exceeded in the past but are consistently attained since 2009 follows statewide and national trends, whereby prevention of diazinon sales for most outdoor, non-agricultural uses leads to a significant decrease in surface water occurrences (Banks et al, 2005).

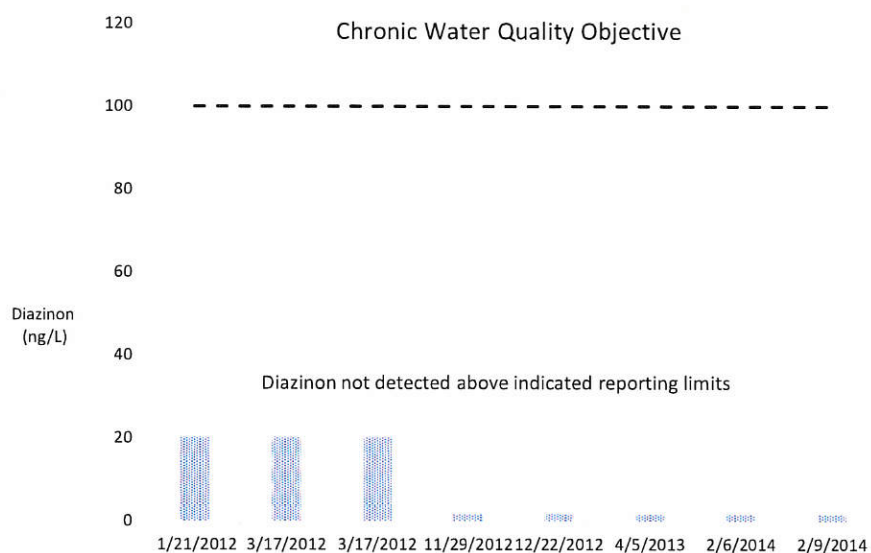
**Table 4. Details of Diazinon and Chlorpyrifos Monitoring Results from Marsh Creek, downstream of East County MS4 areas**

Date	Diazinon Result (ng/L)	Diazinon Reporting Limit (ng/L)	Chlorpyrifos Result (ng/L)	Chlorpyrifos Reporting Limit (ng/L)	Analytical Method
1/21/2012	ND	20	ND	10	EPA 614
3/17/2012	ND	20	ND	10	EPA 614
3/17/2012	ND	20	ND	10	EPA 614
11/29/2012	ND	1.5	1	0.2	EPA 8270
12/22/2012	1.6*	1.7	6.6	3.4	EPA 8270
4/5/2013	ND	1.5	1.3	2	EPA 8270
2/6/2014	ND	1.5	2.4	2	EPA 8270
2/9/2014	ND	1.5	2.1	2	EPA 8270

All results are below lowest applicable water quality objective.

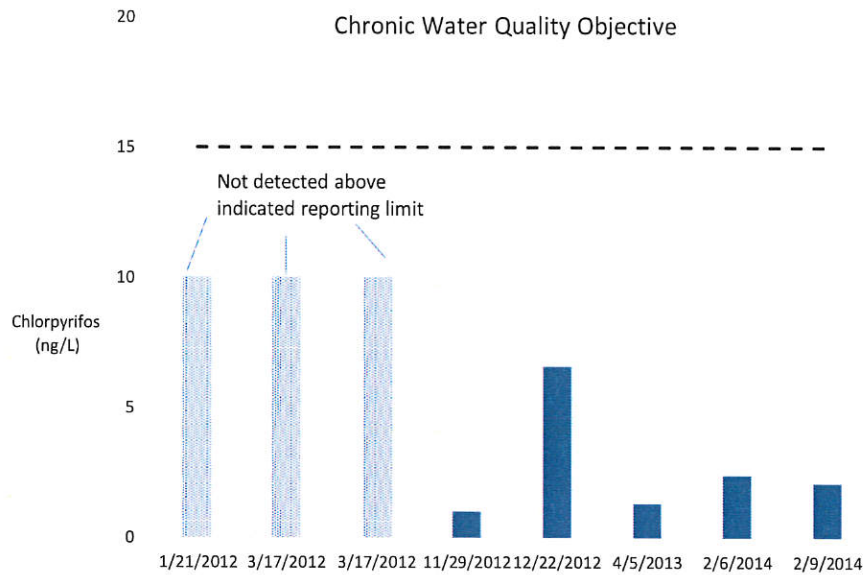
\* Sample reported as below reporting limit, therefore detected but not quantified

**Figure 1. Summary of Diazinon Results from Marsh Creek Downstream of East County Permittee's MS4 Areas in Comparison to the Lowest Applicable Water Quality Objective.**



Hatching pattern indicates the reporting limit for samples that were below the reporting limit.

**Figure 2. Summary of Chlorpyrifos Results from Marsh Creek Downstream of East County Permittee's MS4 Areas in Comparison to the Lowest Applicable Water Quality Objective.**



Hatching pattern indicates the reporting limit for samples that were below the reporting limit.

If you have questions, or if you would like to discuss this matter further, please contact me directly at 925-313-2392.

Regards,

Courtney Riddle  
Program Manager