

**STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION**

**STAFF REPORT FOR REGULAR MEETING OF MAY 3, 2012**

Prepared March 26, 2012

**ITEM NUMBER: 15**

**SUBJECT: Adopting a Total Maximum Daily Load for Chlorpyrifos in the San Antonio Creek Watershed**

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**SUMMARY**

Staff recommends adoption of the proposed Total Maximum Daily Load (TMDL) for chlorpyrifos in the San Antonio Creek Watershed.

The geographic scope of this TMDL (the project area) encompasses approximately 153 square miles of the San Antonio Creek Watershed located in Santa Barbara County. The watershed is a westerly trending drainage that extends from southeast of the town of Los Alamos and discharges to the San Antonio lagoon at the Pacific Ocean. The San Antonio Creek is listed as impaired because the water quality objectives for pesticides and toxicity are not being met due to the excessive concentration of chlorpyrifos.

The proposed TMDL, numeric targets, and load allocations for chlorpyrifos will result in meeting narrative water quality objectives for pesticides and toxicity in the San Antonio Creek Watershed. Central Coast Water Board staff has identified sources of chlorpyrifos that are causing or contributing to water quality impairment, has identified parties responsible for these sources, and has proposed load allocations necessary to achieve the TMDL.

Staff has identified the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands in the Central Coast Region* (Agricultural Order) as the existing regulatory mechanism to achieve the TMDL. No new regulatory mechanism is being proposed to implement and achieve the TMDL.

This TMDL is being adopted not through a basin plan amendment, but through the Central Coast Water Board's approval of the resolution associated with this agenda item, which includes findings that the Agricultural Order will implement the TMDL. According to state policy, the Board is encouraged to take this approach of TMDL approval when the impairments can be addressed through a single action by the Board; the approach conserves valuable state resources and avoids regulatory redundancy.

San Antonio Creek is on the 2008-2010 Clean Water Act section 303(d) list of impaired waters due to the chlorpyrifos. The water quality objectives for pesticides and toxicity are not being met because concentrations of chlorpyrifos are present at levels toxic to the environment.

In this agenda item, staff recommends the Central Coast Water Board approve the resolution (Attachment 1 to this Staff Report) that establishes a Total Maximum Daily Load (TMDL) for chlorpyrifos in the San Antonio Creek Watershed.

Staff developed the technical basis for the TMDL and associated allocations, which is provided in the Final Project Report (Attachment 2 to this staff report). The Project Report is provided at the Central Coast Water Board's website:

[http://www.waterboards.ca.gov/centralcoast/water\\_issues/programs/tmdl/docs/san\\_antONIO\\_ck\\_op/index.shtml](http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/san_antONIO_ck_op/index.shtml)

## DICUSSION

### Project Development for the TMDL

Staff developed the TMDL using data and information from the Central Coast Ambient Monitoring Program (CCAMP) and California Department of Pesticide Regulation (CDPR). Staff also used land use data and conversations with staff from other agencies.

### Numeric Targets

The Basin Plan contains general water quality objectives for all inland surface waters, enclosed bays, and estuaries. The narrative water quality objective for toxicity states, in part:

*“All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life.”*

The narrative water quality objective for pesticides states, in part:

*“No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses.”*

The TMDL numeric targets are numeric interpretations of the narrative water quality objectives for pesticides. The numeric targets for the proposed TMDL are identical to numeric targets derived by the California Department of Fish and Game in 2004 and the Central Valley Regional Water Quality Control Board for chlorpyrifos. These targets were subsequently approved by USEPA through several TMDLs developed by the Central Valley Regional Water Quality Control Board. Additionally, USEPA reviewed the chlorpyrifos TMDLs for the Lower Salinas River Watershed and supported Central Coast Water Board approval; the Central Coast Water Board approved the TMDL on May 5, 2011. Achieving the proposed TMDL numeric targets will result in achieving the water quality objectives for pesticides in water bodies degraded by chlorpyrifos.

Numeric targets for the TMDL include acute and chronic water column numeric targets for chlorpyrifos.

The water column numeric targets for chlorpyrifos are outlined in the table below:

Compound	CMC <sup>A</sup> (ppb)	CCC <sup>B</sup> (ppb)
Chlorpyrifos	0.025	0.015

- <sup>A</sup> CMC – Criterion Maximum Concentration or acute (1- hour average). Not to be exceeded more than once in a three-year period
- <sup>B</sup> CCC – Criterion Continuous Concentration or chronic (4-day (96-hour) average). Not to be exceeded more than once in a three-year period

### Source Analysis

Discharges from irrigated agriculture in the project area are the single controllable source causing impairment due to chlorpyrifos.

In 2001, USEPA began a phase-out of allowable chlorpyrifos and diazinon use. Retail sales of these pesticides ended in 2002. Phase-out of the pesticides used for management of structural pests, such as termites, was complete in 2005. Agricultural applications of chlorpyrifos remain as the single significant use of this pesticide.

The half-life of chlorpyrifos in the water column ranges from 30-138 days, depending on field conditions. Based on application dates, staff concludes that it is likely that exceedance of chlorpyrifos targets seen in 2002 and 2004 were the result of granular application of chlorpyrifos to vegetable crops.

Impaired waterbodies in the project area are flanked by lands used for agricultural purposes where chlorpyrifos is applied. Staff described and geographically illustrated chlorpyrifos applications in the project area in Chapter 4 of the Final Project Report (which is Attachment 2 of this staff report) and in Appendix C of the Final Project Report. There is a strong relationship between agricultural application of chlorpyrifos and the impairments addressed in the proposed TMDL.

### TMDL and Allocations

The TMDL for chlorpyrifos in San Antonio Creek is a concentration-based TMDL, and is equal to the numeric targets, as described in the numeric targets section above.

Concentration-based TMDLs are an appropriate expression of TMDLs and meet USEPA requirements for TMDL approval. USEPA has approved concentration-based chlorpyrifos TMDLs for the Central Valley Regional Water Quality Control Board and USEPA has expressed its support for the concentration-based chlorpyrifos and diazinon TMDLs for the Lower Salinas River.

Recall that the numeric targets, and therefore the TMDL, were developed by California Department of Fish and Game in 2004 and the Central Valley Regional Water Quality Control Board, which were subsequently approved by USEPA.

Owners and operators of agricultural lands using chlorpyrifos are assigned load allocations equal to the TMDL and numeric targets.

### Implementation and Monitoring

The TMDL will be implemented through the requirements established in the *Conditional Waiver of Waste Discharge Requirements For Discharges from Irrigated Lands* (Agricultural Order); this includes the order currently in effect and renewals of it. Requirements outlined in the Agricultural Order will prioritize implementation efforts in the San Antonio Creek watershed aimed at addressing discharges of chlorpyrifos, including requirements to:

- Implement proper handling, storage, application, disposal, and management of pesticides to prevent or control discharge into surface waters to the extent that the TMDL numeric targets are achieved.
- Develop or update and implement Farm Plans to include specific measures aimed at preventing or controlling the discharge of pesticides into surface waters to the extent that the TMDL numeric targets are achieved.
- For growers who have applied chlorpyrifos in the past year (from March 2011 or any time thereafter) or may apply chlorpyrifos between March 2012 and October 2014: Develop and implement a monitoring plan aimed at assessing the effectiveness of management measures in place to prevent or control the discharge of chlorpyrifos into surface waters to the extent that the TMDL numeric targets for chlorpyrifos are achieved. Monitoring efforts can be implemented individually, cooperatively with other interested parties, or a combination thereof. Note that current monitoring efforts, e.g. through the Cooperative Monitoring Program and anticipated monitoring efforts of the Central Coast Ambient Monitoring Program, may be used to help demonstrate compliance and progress. Monitoring plans shall be developed and implemented by October 2012. Monitoring plans and results shall be made available to the Water Board within 30 days, upon request.

The Agricultural Order includes monitoring and reporting requirements. The Cooperative Monitoring Program and the Central Coast Ambient Monitoring Program's sampling efforts will inform progress toward achieving this TMDL.

#### **Time Schedule for Tracking Progress and Achieving the TMDL**

The target date to achieve the allocations, numeric targets, and TMDL in the impaired waterbodies addressed in this TMDL is March 2016. This date coincides with planned monitoring efforts to help defray costs to implementing parties and reflects the apparent decrease in chlorpyrifos use in the San Antonio Watershed and associated ease with which the TMDL can likely be achieved.

The Central Coast Water Board Agricultural Regulatory Program will establish timeframes for individual dischargers to achieve water quality standards; achieving water quality standards will result in achieving TMDL allocations. Highest priority dischargers should have the shortest timeframe, such as those dischargers who pose the greatest risk to water quality due to toxicity from chlorpyrifos. Lower prioritized dischargers that are also contributing to the impairments could have a longer timeframe, with the ultimate goal of verifiable progress towards achieving water quality objectives, and therefore the TMDL, no later than March 2016.

Water Board staff will reevaluate impairments caused by chlorpyrifos when monitoring data is submitted and during renewals of the Agricultural Order. Water Board staff will propose modifications of the Agricultural Order or other regulatory mechanisms, if necessary, to address remaining impairments.

#### **ANTI-DEGRADATION**

The proposed TMDL is consistent with the provisions of the State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" and 40 CFR 131.12. The TMDL requires actions that will result in improved water quality throughout the watershed and maintenance of the level of water quality necessary to protect existing and anticipated beneficial uses. The TMDL is implemented through the Agricultural Order, which is adopted in compliance with Water Code section 13269. The Order includes conditions and prohibitions requiring compliance with water quality

standards, implementation of management practices to attain water quality objectives, and monitoring and reporting programs. The Order is enforceable and subject to review at least every five years.

## **PUBLIC INVOLVEMENT**

Staff conducted stakeholder outreach efforts during TMDL development. Staff made a presentation in December 2011 and engaged with stakeholders during the development of the TMDL. Attendees of the presentation included representatives of the following:

- Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties
- County of Santa Barbara
- Resources Conservation Districts
- Individual owners or operators of agricultural operations

Staff conducted another stakeholder meeting on February 28, 2012. Staff solicited information from growers regarding changes in management practices and answered questions that growers or other individuals had. Attendees of the stakeholder workshop included individual growers, a pest control advisor, and a representative from the Agricultural Commissioner's office.

Staff received one comment letter during the public comment period from the USEPA in support of the TMDL. In addition to stating their support, USEPA also asked for a clarification regarding protection of all beneficial uses. Staff made the clarification in the Project Report.

Staff recently received information that growers in the San Antonio Creek Watershed will no longer be applying chlorpyrifos to their operations subsequent to the approval of the Agricultural Order on March 15, 2012. Staff will follow up on this assertion with Department of Pesticide's Pesticide Use Reporting database. Additionally, the Cooperative Monitoring Program's monitoring of organo-phosphate pesticides in 2013 and the Central Coast Ambient Monitoring Program's monitoring in 2015 will identify whether there is any detectable chlorpyrifos at selected sampling stations.

## **RECOMMENDATION**

Adopt Resolution No. R3-2012-0019.

## **ATTACHMENTS:**

The attachments are available at:

[http://www.waterboards.ca.gov/centralcoast/water\\_issues/programs/tmdl/docs/san\\_antonio\\_ck\\_op/index.shtml](http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/san_antonio_ck_op/index.shtml)

1. Draft Resolution No. R3-2012-0019
2. Final Project Report: "Total Maximum Daily Load for Chlorpyrifos in San Antonio Creek Watershed"
3. Notice of Public Hearing