

**STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION  
895 Aerovista Place, Suite 101  
San Luis Obispo, CA 93401-7906**

April 7, 2014

**PUBLIC COMMENTS AND STAFF RESPONSE  
For  
TMDLs for Chlorpyrifos for the San Lorenzo River Watershed  
(including San Lorenzo River, Zayante, Creek, and Branciforte Creek)  
and Arana Gulch Watershed, Santa Cruz County, California**

Water Board staff received comments from:

1. Janet Parrish, USEPA, as an email attachment received December 15, 2013.
2. Jeremy Farr, City of Santa Cruz Water Department, as an email attachment December 19, 2013.

Staff responses to these comments are provided below. All comments are direct transcriptions from the letters.

## **Comments and Responses**

### **#1 Janet Parrish - USEPA**

#### Comment 1.1

U.S. Environmental Protection Agency (EPA) recommends and supports your Board's certification of the proposed Total Maximum Daily Loads (TMDLs) for the San Lorenzo and Arana Gulch Watersheds, including San Lorenzo River, Zayante Creek, Branciforte Creek, Arana Gulch, and all tributaries in the watersheds. The proposed TMDLs meet federal regulatory requirements under the Clean Water Act, and appropriately set waste load allocations, load allocations, and load reduction milestones to meet water quality standards for these pesticides. The TMDLs address impairments related to chlorpyrifos, which were not detected in recent monitoring of the waterbodies. Combined with Integrated Pest Management Policies from municipalities and UC Santa Cruz, EPA's residential-use cancellations, and lack of use by agricultural operators, it appears likely that water quality standards will continue to be met for chlorpyrifos, leading to its eventual delisting for these waterbodies.

EPA supports the analysis used to develop the TMDLs, and finds that the TMDLs are consistent with EPA water quality guidelines for chlorpyrifos. We appreciate that you

have included numeric targets equivalent to the water quality objectives for acute and chronic conditions.

If you have additional questions or need clarification on the comments above, please call me at (415) 972-3456.

**Staff response  
Staff appreciates the comments.**

**#2 Jeremy Farr – City of Santa Cruz**

Comment 2.1

Thank you for the opportunity to comment on the Central Coast Regional Water Quality Control Board's Proposed Certifications of Total Maximum Daily Loads for Chlorpyrifos in the San Lorenzo River Watershed (including San Lorenzo River, Zayante Creek, and Branciforte Creek) and Arana Gulch Watershed. Please accept the following comments with regard to the proposed TMDL certification for chlorpyrifos in the San Lorenzo River (SLR) Watershed.

Decision to Certify TMDL for San Lorenzo River Watershed

The City of Santa Cruz questions the need for the 2010 303(d) listing and the proposed TMDL for chlorpyrifos in the SLR Watershed given the results of recent sampling efforts and lack of current and historical sources of the contaminant. The initial 2006 sampling efforts occurred during the wet season and after an unseasonably wet spring that resulted in numerous landslides in April 2006. Since chlorpyrifos binds strongly to sediment, these erosion events would have increase turbidity and likely mobilized legacy pesticides. Sampling efforts by the Central Coast Ambient Monitoring Program (CCAMP) in 2010 showed no detection for chlorpyrifos at any of the sampling sites. In addition, the Project Report identifies no known current sources and limited historic sources of chlorpyrifos in the SLR Watershed.

The Project Report also indicates that existing efforts by local governments and organizations to eliminate the use of chlorpyrifos have been in place for nearly 10 years. These programs have been effective in eliminating the use of chlorpyrifos, as shown by the results of the 2010-2011 sampling event. The proposed TMDL does not require any additional regulations or program beyond the existing programs. Given the lack of ongoing sources of contaminants, the effectiveness of implemented programs, and the lack of exceedances for chlorpyrifos during the most recent sampling event, we request that the TMDL for the SLR Watershed not be certified and steps be taken to delist the SLR Watershed from 303(d) list for chlorpyrifos in the near future.

With that said, the City of Santa Cruz would like to comment on the proposed TMDL certification and Project Report submitted by the Central Coast RWQCB for public comments.

Staff response

The 2008-2010 303(d) listings of the four waterbodies for chlorpyrifos (San Lorenzo River, Zayante Creek, Branciforte Creek, and Arana Gulch) were made in accordance with the State Water Resource's Control Board's 2004 "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List," (Listing Policy). According to the Listing Policy, a waterbody shall be listed if two or more samples exceed water quality criteria for a given toxicant (pg. 3, Table 3.1). While there was an unseasonably wet spring in 2006 that may have contributed to some of the exceedances, Arana Gulch, Branciforte Creek, and Zayante Creek all had an exceedance of the criteria in January as well (San Lorenzo River did not – both exceedances were in May). City staff is correct that CCAMP sampling showed no detections for chlorpyrifos in 2010. Water Board staff point out that there were also no detections for chlorpyrifos in 2011.

Staff recommends continuing with certification of this TMDL in order to comply with the Clean Water Act and the direction of management and USEPA; Regional Boards must address current 303(d) listings. However, as noted in more detail in specific responses below, should future sampling efforts indicate that levels of chlorpyrifos are protective of beneficial uses in these waterbodies, staff will propose delisting these waterbodies as soon as possible during the appropriate listing cycle. It should also be noted that although staff has included a wasteload allocation for chlorpyrifos for the City of Santa Cruz's stormwater, as recommended by USEPA, staff also included clear language concluding that the wasteload allocation is already met. Hence, no new requirements pertaining to the City's stormwater permit are necessary or proposed.

Comment 2.2

Comments on TMDL Listing

Based on the samples collected in 2006 by CCAMP, chlorpyrifos was not detected in the upper reaches of the SLR Watershed. Given that the Project Report for this TMDL identified no current sources of chlorpyrifos in the SLR Watershed, there is insufficient data to list the entire 27 miles of SLR in the TMDL. Future sampling efforts identified in the Project Report are limited to the lower reaches of SLR. Therefore, we request that the geographic scope of the TMDL be limited to the lower reaches of SLR, south of the confluence of SLR and Zayante Creek.

Staff response

City staff is correct. Water Board staff amended the Final Project Report consistent with the commenter's suggestion. Therefore, Water Board staff described the length of impairment in Table 2-4 of the Final Project Report as seven miles. Water Board staff also visually showed that only the lower portion of the San Lorenzo River (below sampling site 304SLB) was considered impaired in Figure 2-3. Water Board staff added language to both Figure 2-3 and the text in section 2.5.2 *Problem Statement* to clarify that only the lower reach of the San Lorenzo River is considered impaired.

Comment 2.3

Comments on TMDL Certification Notice

Regarding the TMDL Certification Notice, we request additional text somewhere in the Certification Notice, possibly Item #10, that states “no additional regulation or implementation is being proposed because of the existing regulations implemented by the various agencies responsible for the watersheds.” This statement occurs frequently throughout the Project Report and is an important statement that should be included in the TMDL certification notice. Furthermore - without assurances that local jurisdictions have rigorous enforcement mechanisms and prioritize their focus on activities in the upper watershed which have led to the current proposal - it is unclear that falling back on existing regulatory structures will enable successful implementation of a TMDL, should one ultimately be developed.

Staff response

**Consistent with the City of Santa Cruz staff’s request, Water Board staff added a finding to the certification at number 12 and included the text the City recommends.**

Comment 2.4

Comments on Draft Project Report

Please address the following comments on contents of the Draft Project Report for the San Lorenzo River Watershed TMDL for chlorpyrifos.

1. In Section 2.5.1.2, Table 2-4 and Table 2-5 summarize the samples taken and analyzed for chlorpyrifos in the waterbodies identified in this TMDL. The exceedence criteria for Table 2-4 is listed as 0.025 µg/L, but the exceedence criteria for Table 2-5 is listed as 0.015 µg/L. We would like clarification on the reasoning behind using the chronic toxicity criteria in 2011 as opposed to the acute toxicity criteria used for the original TMDL samples in 2006. Given that past sampling efforts consisted of one ‘grab’ sample in both wet and dry seasons, the most appropriate exceedence criteria value would be 0.025 µg/L. In addition, we request that the specific toxicity criteria for future samples be explicitly identified in this document to reduce any confusion.

Staff response

**During the 2008-2010 303(d) listing cycle, 0.025 µg/L of chlorpyrifos (acute or CMC (criterion maximum concentration)) was used to evaluate data from waterbodies in the central coast region. This was done because the available samples were grab samples and we did not have four-day average samples. State Water Board staff working on the current listing cycle have advised Water Board staff that potential future 303(d) chlorpyrifos listings will be evaluated against the 0.015 µg/L chlorpyrifos concentration (chronic or CCC (criterion**

continuous concentration)). The rationale is that this lower concentration is consistent with basin plan language (Basin Plan page III-4).

**Toxicity:** 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...

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

To protect the aquatic life from “detrimental physiological responses,” we use the chronic criteria as it is protective of not just survival of the organism, but the growth and reproduction of aquatic life as well. In other words, the chronic criterion is more protective of aquatic life and will be used to evaluate future samples.

Staff added language in the Project Report (section 2.5.1.3) to explain this rationale and appreciates the commenter’s request for clarification.

Comment 2.5

2. In Table 3-1 and Table 5-1, the table cites “CDFG, 2000, 2004” as references for the chlorpyrifos numeric targets. CDFG, 2004, however, is not listed in the References section of the Project Report. Please identify which document the citation is referring to.

**Staff response**

The reference in the Draft Report was a typographical error; staff fixed the error. The reference should have been dated 2005 and should have been referenced as “Central Valley Water Board. Report prepared by Diane Beaulaurier, Joe Karkoski, Gene Davis, Danny McClure, Mary Menconi, Matthew McCarthy. 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 Lower San Joaquin River. Appendix E – Criteria Calculations for Diazinon and Chlorpyrifos, Final Staff Report, October 2005.” Staff corrected the citation, included it in the references cited section, and hyperlinked it to the document on Region 5’s website.

The 2005 reference is included because the Central Valley Water Board’s calculated chlorpyrifos criteria are slightly higher than the CDFG calculated acute criterion (0.025 v. 0.02 µg/L) and chronic criterion (0.015 v. 0.014 µg/L). The differences in results are likely due to differences in rounding. Staff added language that cites this reference and describes the slight differences in the criterion from CDFG’s original 2000 reference in a footnote in section 2.3.5.

Comment 2.6

3. In Section 6.3, the text reads, “Staff recommends the CCAMP monitoring efforts include chlorpyrifos, if funding permits.” We request stronger language be used regarding monitoring efforts since the only proposed monitoring for the TMDL would be conducted by CCAMP during their rotation sampling. Since there are no current sources of chlorpyrifos identified in the TMDL, the sampling efforts are critical to showing whether chlorpyrifos is still being used in the watersheds and whether targets in the TMDL are being met.

**Staff response**

**Consistent with the commenter’s request, staff strengthened the language in the section cited. Additionally, if the City or other entities wish to conduct sampling, Water Board staff will include the additional data in future analyses.**

**Comment 2.7**

4. In Section 6.4, please identify which numeric targets will be chosen for the TMDL. As specified in an earlier comment, the exceedence criteria values for both acute and chronic toxicity were used to evaluate past samples. If there are specific conditions which determine whether acute or chronic toxicity standards are applied, please list these conditions. Given that past sampling efforts consisted of one ‘grab’ sample in both wet and dry seasons, the most appropriate exceedence criteria value would be 0.025 µg/L.

**Staff response**

**Both the acute and chronic numeric target concentrations apply. When the necessary numbers of samples are collected within the timeframe to use the chronic concentration target, then the chronic concentration applies. For single grab samples, the acute concentration will apply. Although the current strategy is to use the chronic concentration target for 303(d) listing purposes with single samples, we cannot predict whether this strategy will continue in the future. We can, however, predict that both the chronic and acute concentration targets are protective of beneficial uses, and therefore are appropriate numeric targets. For purposes of analysis to determine when the TMDL is achieved and the waters can be delisted, Regional Board staff will propose an analysis that accurately depicts whether beneficial uses are being protected and is consistent with policy, potentially including a weight of evidence approach that applies the acute concentration targets against single samples. Please also see response to comment 2.4.**

**Comment 2.8**

5. In Section 6.4, the Project Report states that “Staff concludes that allocations are currently being met. Future sampling will confirm this.” The Project Report also states in Section 4.6 that there are no current sources of chlorpyrifos causing exceedence in the San Lorenzo River or Arana Gulch watersheds. Given those two statements, we request that the Project Report identifies criteria for potentially

delisting these waterbodies on the October 2016 target date or any later date. Specifically, whether the TMDL will be held to the delisting criteria identified in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List. Section 4.1 of the Listing Policy states that a waterbody may not be delisted with samples less than 28. Assuming the number of samples and time between sampling rotations would stay consistent with the 2010-2011 sampling event, it would take 20 years to delist San Lorenzo River (16 samples with 4 samples per rotation) and significantly longer for the other three waterbodies (24 samples with 2 samples per rotation).

**Staff response**

**Staff added language to section 6.4 as follows: Should future sampling confirm that allocations are being met, staff will recommend delisting these waterbodies during the next listing cycle. Staff anticipates using a weight of evidence approach (Listing Policy, Section 4.11), as opposed to strictly following Table 4.1 in the Listing Policy. In other words, should future sampling not detect any chlorpyrifos, staff will move forward with their delisting proposal without firmly adhering to the sample size described in Table 4-1 of the Listing Policy.**

**Comment 2.9**

**Comments on Appendix A of the Draft Project Report**

In Section 2.5.1.2 of the Project Report, the sampling efforts from 2006-2011 are presented in two tables. At the end of the section, the reader is referred to Appendix A to view raw data. The version of Appendix A uploaded to the website with the Draft Project Report does not contain any raw data for the 2010-2011 samples. Since that data is referred to throughout the Project Report, we request the raw data for 2010-2011 samples be included in Appendix A.

**Staff response**

**The commenter refers to Appendix A, which is a spreadsheet containing data. The spreadsheet contains tabs located at the bottom of the spreadsheet; there is a "2006 data" tab, and a "2010-2011 data" tab. The commenter apparently did not notice the 2010-2011 data tab; staff has since advised the commenter about the location of the data.**

**Comment 2.10**

**Conclusion**

While the City of Santa Cruz understands the need for water quality regulations and the benefits of a healthy ecosystem, in this particular instance, we question whether a TMDL is necessary given the limited sources of contaminants and existing efforts of local entities. The limited sampling in 2006 showed the presence of chlorpyrifos, but subsequent sampling indicates that chlorpyrifos is not a persistent contaminant in SLR. Since the proposed TMDL explicitly states that no additional regulations or programs

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would be required, it would be less burdensome on all parties to work towards a plan to delist SLR rather than certifying a TMDL. In this instance, we question the need for a TMDL, but we have always made stewardship of our waterways a priority and will continue to do so.

Thank you for the opportunity to comment on the proposed TMDL, and for your consideration of our comments. We look forward to hearing your responses to our concerns. If you have any questions, please do not hesitate to contact me.

**Staff response**

**Staff appreciates the comment. Staff is required to develop TMDLs in accordance with the federal Clean Water Act in a timely manner and on the basis of available data. While we will take future sampling into account, neither management nor USEPA advises us to consider future sampling efforts as the basis for deferring a TMDL. That said, staff appreciates the concern of the City of Santa Cruz and has therefore developed and edited the TMDL to a point that clearly concludes that no new requirements or regulation are necessary. This TMDL simply supports our conclusion that no new requirements upon the City of Santa Cruz are necessary, while at the same time fulfills our obligation to develop TMDLs and address current 303(d) listings. Finally, it is important to note that staff is not proposing any change to the City's requirements as described in Attachment G of the Phase 2 general stormwater permit, which outlines requirements approved in TMDLs. Given this information, and the fact that TMDLs themselves are not regulation, from a regulatory standpoint, the TMDL is benign.**

**Staff commends the City's (and other entities') progressive efforts with their pest control policies. As stated, we anticipate future samples will show levels of chlorpyrifos that are protective of beneficial uses. When we receive data indicating protective levels of chlorpyrifos, we will move forward with delisting these waterbodies in a timely manner.**

References:

State Water Resources Control Board, "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List." September 2004.