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May 21, 2014



VIA ELECTRONIC MAIL ONLY

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SUBJECT: Comment Letter - Santa Maria Pesticide TMDL

Dear Ms. Townsend:

Our firm represents the Pyrethroid Working Group (PWG), which is a coalition of registrants of pyrethroid pesticides. We appreciate the opportunity to comment on the Proposed Approval of an Amendment to the Water Quality Control Plan for the Central Coastal Basin to Establish Total Maximum Daily Loads (TMDLs) for Toxicity and Pesticides in the Santa Maria River Watershed in Santa Barbara, San Luis Obispo, and Ventura Counties (Santa Maria Pesticide TMDL). The comments provided below are in compliance with Title 23 of the California Code of Regulations, section 3779, subdivision (f) in that these comments were submitted to the Central Coast Regional Water Quality Control Board (Central Coast Water Board),¹ and, as indicated below, the responses provided by the Central Coast Water Board were inadequate. Where such comments were not raised below, a statement of explanation is provided as to why the PWG was unable to raise such comment. In general, we believe that the Santa Maria Pesticide TMDL raises important policy and technical issues of first impression that need to be considered by the State Water Resources Control Board (State Board) in its review of the Santa Maria Pesticide TMDL. We understand at this time that the State Board intends to consider this matter at its June 17, 2014 Board hearing date. Considering the significant issues raised, we believe a June 17, 2014 hearing date is too soon, and that the State Board should allow itself sufficient time to evaluate the contents of the Santa Maria Pesticide TMDL and comments it receives with respect to the TMDL. Accordingly, we request that the hearing on this matter be delayed to later this summer.

¹ The PWG's comments were submitted to the Central Coast Water Board by Mr. James W. Wells, President, Environmental Solutions Group, LLC, on behalf of the PWG, and are included as Attachment A to this letter (hereafter referred to as "PWG March 29, 2013 comments").

The specific issues of concern we raise below are as follows: (1) the Central Coast Water Board failed to comply with State Board's *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (State's Listing Policy) in making determinations of impairment for pyrethroid pesticides simultaneously while developing the total maximum daily load (TMDL); (2) the Central Coast Water Board used data that lacks scientific rigor and transparency to make determinations of impairment; (3) the Central Coast Water Board used water quality criteria developed by the University of California, Davis (UCD) as numeric water quality targets that have not been subject to rigorous public review or comment; (4) the Central Coast Water Board improperly compared total water sample measurements to dissolved criteria; and, (5) the Central Coast Water Board is improperly mandating use of the Test of Significant Toxicity (TST). With respect to many of these issues, the Central Coast Water Board has responded inadequately. Some issues are new that arose due to changes made after the close of the written comment period. Based on the significant errors contained in the TMDL, and in light of all of the evidence in the record, the inclusion of pyrethroid pesticides in the Santa Maria Pesticide TMDL by the Central Coast Water Board was arbitrary and capricious. Using its authority under Water Code section 13245, the State Board must return the Santa Maria Pesticide TMDL to the Central Coast Water Board for further consideration, and include specific direction to ensure that such further consideration complies with state law and policy.

I. Improper Finding That the State Listing Policy Does Not Apply to Impairment Determinations Made Simultaneously With TMDL Development

In the PWG March 29, 2013 comments, we argued that the Central Coast Water Board's findings of impairment for the pyrethroid pesticides, which then triggered their inclusion into the Santa Maria Pesticide TMDL, were improper because such findings of impairment were not consistent with the State's Listing Policy. Specifically, we argued that the State's Listing Policy applies for determinations of impairment, regardless if pollutant/waterbody combinations are being declared as impaired as part of the State's listing process or at the time of TMDL development. (See PWG March 27, 2013 comments, p. 2.) The Central Coast Water Board responded merely by stating that since they were not adding any pollutant/waterbody combinations to the State's 303(d) list that the State's Listing Policy did not apply. (Final Project Report, Attachment 6, p. 54.) In other words, it is the position of the Central Coast Water Board that they have the discretion to make determinations of impairment as part of TMDL development in a manner that does *not* need to comply with the State's Listing Policy, and that they may add new pollutants at the time of TMDL development in any manner that they determine appropriate. Under the Central Coast Water Board's approach, impairment determinations can be made at the time of TMDL development that would otherwise *not* be impairments under the State's Listing Policy. Such a position fails to comply with state policy, and ultimately undermines the intent and purpose of the State's Listing Policy and the public's confidence in the regulatory process.

The PWG recognizes, and does not dispute the fact, that regional water quality control boards (regional boards) have the discretion to simultaneously identify impaired waterbodies and establish a TMDL. (*City of Arcadia v. State Water Resources Control Board* (2006) 135 Cal.App.4th 1392, 1418.) However, such discretion does not alleviate a regional board's duty to make such determinations of impairment, at the time of TMDL development, in a manner that is consistent with state policy.

The Clean Water Act (CWA) section 303(d)(1)(A) requires states to identify waters that are not meeting water quality standards (i.e., impaired), and to schedule such waters for TMDL development. (33 U.S.C. § 1313(d)(1)(A).) The CWA then requires that for such waters not meeting standards (i.e., those impaired under section 303(d)(1)(A)), the state is to develop a TMDL. (33 U.S.C. § 1313(d)(1)(C).) Thus, TMDLs are prepared for waters found to be impaired under section 303(d)(1)(A). Federal regulations further require states to describe the methodology used for development of the list, or in other words, the methodology used for findings of impairment. (40 C.F.R. § 130.7(b)(6)(i).) Based on the language of the CWA, it then follows that when a determination of impairment is being made simultaneously with TMDL development, such a determination is still being made pursuant to CWA section 303(d)(1)(A) and must comply with such requirements accordingly.

In 2004, the State Board adopted the State's Listing Policy to ensure consistent compliance with CWA section 303(d), and applicable federal regulations. Specifically, the policy provides that, "this State policy describes the process by which the State Water Resources Control Board [] and Regional Water Quality Control Boards [] *will* comply with the listing requirements of section 303(d) of the [] CWA." (State Listing Policy, p. 1, emphasis added.) Or, in other words, the policy includes a standard methodology for making determinations of impairment, which then triggers the requirement for TMDL development. (*Ibid.*) Because the State's Listing Policy applies to state and regional board decisions for findings of impairment under CWA section 303(d), which then triggers the need for TMDLs, it then necessarily also applies to determinations of impairment that are made simultaneously with TMDL development. The Central Coast Water Board's response to the contrary clearly indicates that inclusion of pyrethroid pesticides in the Santa Maria Pesticide TMDL is an arbitrary and capricious action because the determination to include such pesticides failed to comply with applicable law and policy.

II. Data Used Lacks Scientific Rigor and Does Not Meet Data Requirements Established in the State's Listing Policy

The PWG March 29, 2013 comments included significant information on the adequacy of data used to make determinations of impairment for pyrethroid pesticides. Specifically, the PWG comments identified major technical concerns and a lack of transparency associated with the data and information contained in the *Santa Maria River Watershed and Oso Flaco Creek Watershed TMDL Monitoring Study - Final Report*, prepared by Philips, B., et al., from the University of California, Davis (Philips 2010), which is the

Central Coast Water Board's bases of information for all pyrethroid water column samples, and more than half of the sediment samples for pyrethroids. (See Final Project Report, Appendix C-3, pp. 1-2, Table 1, and p. 4, Table 3.) The PWG comments addressed the fact that data from this study did not meet the data requirements as set forth in the State's Listing Policy, and that the data as reported was questionable and that Philips 2010 failed to include sufficient information to judge the quality of the data. (See PWG March 29, 2013 comments, pp. 3-6.) However, rather than responding to the PWG's substantive comments with respect to the study, its lack of transparency, and concerns with the efficacy of the data contained in the study, the Central Coast Water Board dismissed all of the PWG comments by stating, "The above comments on data and information preprocessing are in regards to the Listing Policy, and staff did not add water bodies to the 303(d) list. The comments are outside the scope of the TMDL." (Final Project Report, Attachment 6, pp. 57, 58.) Such a response is completely inadequate and lacking in that it (1) ignores the fact that the State's Listing Policy does apply (see discussion above); and (2) ignores the significant substantive comments made on the study in general. (See, e.g., PWG March 29, 2013 comments, p. 4 [the study used abbreviated toxicity identification evaluations (TIEs), which meant that treatments were not used to determine toxicity between various classes of pesticides].)

The Central Coast Water Board's failure to consider such comments is a fatal flaw on its own, and reason enough for the State Board to reject the Santa Maria Pesticide TMDL. However, there are other technical reasons for rejecting the Santa Maria Pesticide TMDL's inclusion of pyrethroid pesticides. Specifically, the Central Coast Water Board's inclusion of pyrethroid pesticides in the Santa Maria Pesticide TMDL is arbitrary and capricious because it relies on suspect data, mixes sediment and water column data to find impairment for pyrethroid pesticides, and improperly compares total water samples to dissolved criteria.

First, as discussed above, the Central Coast Water Board relied primarily on data from Philips 2010 to find that certain waterbodies in the Santa Maria watershed were impaired for pyrethroid pesticides. As explained in the PWG March 29, 2013 comments, Philips 2010 used j-flagged values (i.e., estimated concentrations) and made conclusions that were not supported by data in the study, and used abbreviated TIEs due to resource constraints. These concerns and others question the reliability of the data contained in the study and, thus, use of such data for making impairment determinations for pyrethroid pesticides.

Second, the Santa Maria Pesticide TMDL improperly combines water column and sediment exceedances, as compared to the criteria used in the TMDL, to make generic findings of impairment. Water and sediment are different environmental media with different criteria, and they need to be evaluated separately. Further, determinations of impairment need to be made for water and sediment independent from one another. If impairment is found for pyrethroids in the water column, then it might be appropriate for a TMDL to address such impairments with appropriate wasteload and load allocations that apply to water. Similarly, if impairment is found for pyrethroids in sediment, then it would be appropriate for a TMDL to address such impairments with wasteload and load allocations that apply to sediment. In this

case, and assuming *arguendo* that the Philips 2010 data are valid, the Santa Maria Pesticide TMDL found impairment for surface waters in general by combining exceedances in sediment and water, includes numeric targets for both water and sediment, recommends monitoring for both water and sediment, and includes wasteload and load allocations for additive pyrethroid toxicity in sediment.² (See Final Project Report, Appendix C-3, p. 1.) The approach taken here is not consistent with state policy, and further indicates that the Central Coast Water Board's adoption of the Santa Maria Pesticide TMDL is arbitrary and capricious.

Third, the Santa Maria Pesticide TMDL uses total water sample measurements and compares these measurements to criteria developed by the University of California, Davis (UCD criteria) that are stated to be dissolved criteria. The PWG did not make this specific comment before the Central Coast Water Board because it was not apparent that the Central Coast Water Board was making such a comparison until this was explained in Appendix C-3, which was added after the written comment period closed. Specifically, Appendix C-3 properly acknowledges that the UCD criteria state that freely dissolved concentrations of pyrethroid pesticides in water only samples are likely the best indicator of toxicity. (Final Project Report, Appendix C-3, p. 3.) But, Appendix C-3 then states that the Central Coast Water Board chose to use UCD criteria to evaluate whole water samples because "the concentrations are many times above the criteria and due to the high concentrations of pyrethroids in sediment, particularly for bifenthrin in Blosser Channel." (*Ibid.*) On its face, this statement does not make sense. More importantly, it provides no technical reason or justification for improperly applying and evaluating total water sample measurements to dissolved criteria. Further, contrary to this statement, dissolved levels can be many times below total measurements, depending on the amount of organic carbon in the water.

Taken together, this information clearly shows that the Central Coast Water Board's inclusion of pyrethroid pesticides in this TMDL was arbitrary and capricious, and entirely lacking in evidentiary support. At the very least, findings of impairment to water from pyrethroid pesticides and the inclusion of water column targets for such pesticides lack any evidentiary support in that there was no water column toxicity for pyrethroids, and total water measurements were improperly compared to dissolved water criteria.

III. TMDL Improperly Uses UCD Criteria To Interpret Data and as Numeric Water Column Targets

The Santa Maria Pesticide TMDL uses the UCD criteria to interpret the narrative toxicity objective. Their use here is the first time such criteria have been used by a regional board in a regulatory manner.³ To provide a brief background, the UCD criteria were

² It should be noted that Philips 2010 did not attribute water toxicity to pyrethroids.

³ The UCD criteria were used by the United States Environmental Protection Agency (U.S. EPA) in their development of the Oxnard Drain TMDL. However, as stated, this is the first use of such criteria by a regional board, and is the first time that use of such criteria is before the State Board.

developed by the University of California, Davis through a contract with the Central Valley Water Board. Although funding was provided by the Central Valley Water Board, the Central Valley Water Board itself has not evaluated the UCD criteria to determine if they are appropriate for interpreting the narrative toxicity objective, or if they are appropriate as water quality objectives. Response to the PWG March 29, 2013 comments properly acknowledges this fact, however, it then implies that adoption of the criteria by the Central Valley Water Board is a given. (Final Project Report, Attachment 6, pp. 58-59.) The Central Coast Water Board does not know, nor can it speculate to the action that the Central Valley Water Board will take in the future. Accordingly, the Central Coast Water Board's response to this comment is only partially correct.

More importantly, the UCD criteria themselves have been subject to only limited public review and comment, and are not appropriate for use here until there has been more rigorous review of their efficacy before being used for regulatory purposes.⁴ As noted, the Central Valley Water Board is currently in the process of developing a basin plan amendment that will likely consider and evaluate the UCD criteria, and determine if they are appropriate for adoption as water quality objectives. Through the Central Valley Water Board's process, it is anticipated that the UCD criteria will be subject to significant public review and comment, and through this process, issues with respect to how they should be applied (e.g., total vs. dissolved) and other issues will be fully discussed.

Unlike the Central Valley Water Board's process, however, the Central Coast Water Board determined that use of the criteria was appropriate here because development of the criteria was supported by the Central Valley Water Board. (See, e.g., Final Project Report, Appendix C-3, p. 4.) This is not a proper legal or technical basis for use of the UCD criteria, and again, ignores the fact that the Central Valley Water Board is subjecting the criteria to a significant public review process prior to their use. Further, it is important to note that as of now, the Central Valley Water Board has *not* used the criteria in its regulatory programs to interpret the narrative toxicity objective.

Another key factor, and perhaps the most significant issue of concern, is that the Central Coast Water Board has determined it appropriate to compare total water sample measurements (referred to in the Final Project Report as whole water samples) against the criteria, which are based on dissolved water measurements. The UCD criteria documents correctly note that with respect to pyrethroid pesticides, the issue of concern is the amount that is bioavailable. Even though the Central Coast Water Board is aware of this fact as is shown by statements in the Final Project Report, it decided to compare total sample measurements against the "dissolved" criteria and claim that it provided for a "margin of safety." There is no rationale or justification provided that explains how such a comparison is

⁴ The PWG acknowledges that limited public review was provided during the development phase of the UCD criteria, and that such criteria have subsequently been published in a peer reviewed journal. But such review is not equivalent to the level of review that is currently occurring before the Central Valley Water Board, and that occurs by U.S. EPA when it publishes criteria under section 304(a) of the CWA.

proper and appropriate for creating a margin of safety. Use of total water sample measurements by claiming “margin of safety” further ignores the fact that the UCD criteria themselves include several different levels of “margins of safety” and are very conservative.

An additional key factor as to why use of the UCD criteria is not appropriate without further rigorous public review and discussion pertains to issues associated with native *Hyaella* versus laboratory *Hyaella*. Specifically, the UCD criteria incorporate data from samples that have been analyzed with laboratory cultures of *Hyaella azteca*. The UCD criteria do not incorporate data from samples that have been analyzed with native cultures of *Hyaella*, which are more environmentally relevant. Recent studies with native cultures of *Hyaella* show that *Hyaella* in the environment are not as sensitive as laboratory *Hyaella*. This fact is not addressed or considered in the UCD criteria or directly in the Final Project Report because such information has come to light in the more recent past. With respect to this issue before the Central Coast Water Board, such issues were generally raised at the hearing on the Santa Maria Pesticide TMDL, but there was no real discussion. At most, Central Coast Water Board staff had Tessa Fujot make limited comments on this issue before the Central Coast Water Board in an effort to try and dismiss the relevance of such information, but such comments were brief and no response to her claims was allowed.

In light of these serious concerns with the UCD criteria and how they were applied in this TMDL, the State Board should remand the Santa Maria Pesticide TMDL back to the Central Coast Water Board with specific direction to either not apply such UCD criteria, or, at the very least, apply the UCD criteria as dissolved criteria to dissolved data.

IV. Santa Maria Pesticide TMDL Mandates Use of the TST for Determining Compliance With Aquatic Toxicity Numeric Targets

In the January 25, 2013 draft version of the Santa Maria Pesticide TMDL, it recommended—but did not mandate—use of the TST for implementing the TMDL. (January 25, 2013 Draft Technical Project Report, p. 24.) Now, the Santa Maria Pesticide TMDL mandates the use of the TST. (Final Project Report, Attachment 2, p. 24.) It further adds new language stating that the causative toxicant can be identified based on land use patterns and similar responses in sub-watersheds. We have significant concerns with both of these issues. Our comments are provided here since these are new issues, and there was not the opportunity to provide such comments previously.

First, with respect to the TST, the State Board is in the process of adopting a statewide Toxicity Policy that may include use of the TST. However, at this time, the policy has not been adopted. Thus, mandating the use of the TST here is premature until the Toxicity Policy is adopted and in effect. Second, it is improper to speculate as to the specific pollutant or pollutants that may be causing toxicity based on land use patterns and responses in other sub-watersheds. There are many environmental factors that can cause toxicity in the aquatic environment that are unrelated to land use patterns. By automatically assuming that toxicity is caused by a pollutant without actually having data that connects the pollutant to the toxicity,

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efforts to address the issue may be misplaced and may result in an inefficient and improper use of resources. Due to these concerns, we believe it necessary for the State Board to further remand the Santa Maria Pesticide TMDL to the Central Coast Water Board with direction to remove mandates associated with the TST, and remove language that allows for improper speculation as to pollutants that may or may not be causing toxicity.

V. Conclusion

As shown above, the inclusion of pyrethroid pesticides into the Santa Maria Pesticide TMDL is an arbitrary and capricious action that lacks evidentiary support. As a fundamental matter, the Central Coast Water Board fails to acknowledge or apply the State's Listing Policy for determining if there is in fact impairment for such pesticides because it "claims" that the State's Listing Policy does not apply. This alone is cause for remand, and makes the determinations of impairment for pyrethroid pesticides arbitrary as a matter of law. Further, the data used for impairment determinations is flawed, lacks scientific rigor, and the study from which they come is not transparent. Finally, the Santa Maria Pesticide TMDL relies on UCD criteria as numeric water column targets yet such criteria have not been subject to the level of public review necessary for their use in a regulatory process, and more importantly, the Central Coast Water Board applies the criteria in a manner that is contrary to the criteria as developed. For these reasons, the State Board must remand the Santa Maria Pesticide TMDL back to the Central Coast Water Board to remove pyrethroid pesticides. Alternatively, the State Board could remand the Santa Maria Pesticide TMDL back to the Central Coast Water Board with specific direction to: (1) remove water column targets; (2) remove reference to the UCD criteria; (3) remove statements that imply impairment to water from pyrethroid pesticides; and, (4) remove mandates associated with the TST and causative language. Such an action would be appropriate because there is *no* evidence in the record that supports findings of impairment for pyrethroid pesticides in water.

Sincerely,



Theresa A. Dunham

Attachment

cc: James Wells, Environmental Solutions Group, LLC

TAD:cr

ATTACHMENT A
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March 29, 2013

VIA E-MAIL AND FIRST CLASS MAIL

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Re: Pyrethroid Working Group's Comments – Santa Maria Pesticide TMDL

Dear Mr. Meertens,

These comments are submitted on behalf of the Pyrethroid Working Group (“PWG”), a coalition of manufacturers of pyrethroid pesticides, pursuant to the Central Coast Regional Water Quality Control Board’s (“Regional Board”) Notice of Proposed Approval of an Amendment to the Water Quality Control Plan for the Central Coast Basin to adopt Total Maximum Daily Loads for Toxicity and Pesticides in the Santa Maria Watershed in Santa Barbara, San Luis Obispo and Ventura Counties (“Proposed Amendment”). The PWG submits these comments because of multiple concerns with the Proposed Amendment. First and foremost, the PWG objects to the inclusion of pyrethroids in the Proposed Amendment because the Regional Board has not properly followed the state’s *Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List* (“Listing Policy”) with respect to determining if the waterbodies in question are impaired by pyrethroid pesticides. Second, no state adopted water quality objectives (“WQOs”) or United States Environmental Protection Agency (“U.S. EPA”) 304(a) criteria exist for the pyrethroid pesticides, and the draft criteria used to determine impairment and that are also used as the numeric targets and load allocations in the proposed total maximum daily loads (“TMDLs”), are inappropriate and insufficiently defined. For these reasons, pyrethroid pesticides must be removed from the Proposed Amendment. If pyrethroid pesticides are retained in the Proposed Amendment, significant questions remain with respect to the environmental analysis prepared for compliance with the California Environmental Quality Act (“CEQA”). Further, we must also express concerns with the document as a whole because it lacks transparency with respect to the actual data used for the listing as highlighted by the various points listed below.

As a preliminary matter, the PWG finds significant problems and errors with documents distributed for public review and comment. As clearly indicated in the January 2013 Technical Project Report (“Technical Report”), “no surface waters are currently placed on the 2008-2010 303(d) list as impaired for pyrethroids.” (Technical Report, p. 13.) Rather, since adoption of the 2008-2010 303(d) list, staff claim to have identified the Santa Maria River, Main Street Canal,¹ and Bradley Channel as being impaired for pyrethroids (Attachment 1 to Staff Report, p. 2), and proposes water column TMDLs for these three waterbodies, and Orcutt Creek (Attachment 1 to Staff Report, p. 6.). The proposed TMDLs are for three specific pyrethroid pesticides – bifenthrin, cyfluthrin, and L-cyhalothrin. (*Ibid.*) These statements alone are inconsistent with each other, and fail to clearly indicate staff’s process for determining impairments and establishing TMDLs for those waterbodies identified as being impaired. Further, based on our review of the public documents, it appears that Regional Board staff have inappropriately grouped all pyrethroids into one class to make determinations of impairment, but then proposes numeric targets and TMDLs for three specific pyrethroids. The Proposed Amendment then also makes a blanket, unsupported statement that “water column TMDLs will result in achieving zero toxicity in sediment from pyrethroids.” (Attachment 1 to Staff Report.) As discussed further below, the Technical Report provides insufficient information to tie water column concentrations to sediment toxicity in general. Considering these essential errors, the Regional Board should not adopt the Santa Maria Watershed Pesticide and Toxicity TMDL, at least to the extent it includes pyrethroid pesticides.

I. Improper Determination of Impairment

Staff’s identification of these waterways as being impaired for pyrethroid pesticides fails to comply with the state’s Listing Policy. We recognize that according to applicable case law, the Regional Board is considered to have “discretion to simultaneously submit to the EPA the identification of the impaired water body and a TMDL for it.” (*City of Arcadia, et al. v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1419 (“*City of Arcadia*”).) However, such discretion does not extend to, or include, the ability of the Regional Board to ignore compliance with the state’s Listing Policy, which was not at issue in the *City of Arcadia* case.

The state’s Listing Policy is a regulation adopted by the State Water Resources Control Board (“State Board”), and approved by the state’s Office of Administrative Law. It describes the state’s process by which the State Board and the regional boards will comply with the federal Clean Water Act (“CWA”) section 303(d) requirements for listing impaired waterbodies. (Listing Policy, p. 1.) With respect to determining listings of impairment, the Listing Policy mandates that data and information from waterbodies be “analyzed under the provisions of [the] Policy using a weight-of-evidence approach.” (*Ibid.*) The weight-of-evidence approach articulated in the Listing Policy includes: (1) soliciting and assembling data and information; (2) evaluating data and information using the decision rules specifically contained within the Listing Policy; and, (3) presenting an assessment in fact sheets. Regional Board staff’s identification of impairment by pyrethroid pesticides in the specified waterbodies fails to comply with the weight-of-evidence steps required by the Listing Policy.

¹ The Proposed Amendment uses the terms Canal and Channel interchangeably for Main Street.

A. Data and Information Preprocessing

The first step for determining impairment requires that “all data and information for existing listings shall be solicited and assembled as appropriate” (§§ 6.1.1 and 6.1.2.1). Waterbody fact sheets (§ 6.1.2.2) describing the assessments shall be prepared. Evaluation guidelines (§ 6.1.3), if needed, shall be selected and the quality of the data (§ 6.1.4) and quantity of data (§ 6.1.5) shall be assessed.” (Listing Policy, p. 2.) Regional Board staff’s process as articulated in the Technical Report fails to comply with this provision for a number of reasons. First, to our knowledge, the Regional Board did not actively solicit for data. (See Listing Policy, § 6.1.1, p. 17.) While the Technical Report indicates that staff evaluated data from the Central Coast Ambient Monitoring Program and from three other monitoring studies, the Regional Board did not specifically solicit data with respect to these waterbodies, and for determining if these waterbodies were impaired by pyrethroid pesticides.

Second, with respect to evaluation guidelines, Table 2-5 identifies sediment toxicity guidelines based on LC50s, and an evaluation guideline for cyfluthrin as stated in *Fojut, T.L., Tjeerdema, R.S. 2010*, for determining impairments by pyrethroids in general. (Technical Report, pp. 18-20.) In contrast, however, the Staff Report includes pyrethroid water column TMDLs for bifenthrin, cyfluthrin, and L-cyhalothrin. (Staff Report, p. 7.) The evaluation guidelines used for determining impairment, at least as implied in Table 2-5, are inconsistent with the Proposed Amendment. Further, the Technical Report fails to include or provide any supporting documentation as to why the evaluation guidelines identified are appropriate for interpreting the narrative objectives at issue. Although the Regional Board maintains considerable discretion with respect to interpreting evaluation guidelines, such an interpretation cannot be arbitrary, capricious, or entirely lacking in evidentiary support. (*City of Arcadia, supra*, 135 Cal.App.4th at p. 1409.) Based on the information identified in the Technical Report, the Regional Board has not met even this minimal burden of providing evidentiary support for the evaluation guidelines selected.

More importantly, Regional Board staff have failed to comply with the Listing Policy in that the data used for determination of impairment (as identified in Table 2-5) do not meet the data quality and quantity requirements as required by the Policy. For example, the Technical Report indicates that one of the studies relied on to determine impairment from pyrethroid pesticides was the *Santa Maria River Watershed and Oso Flaco Creek Watershed TMDL Monitoring Study – Final Report*, prepared by Philips, B., et al., from the University of California Davis. This is referred to as the “UCD TMDL Monitoring Study.” The Listing Policy states that numeric data are considered credible and relevant for listing purposes (i.e., for determining impairment) if it meets minimum quality assurance/quality control requirements. These minimum requirements include the need for a Quality Assurance Project Plan (“QAPP”) or equivalent documentation, and must contain a number of identified elements, including proper chain of custody procedures, statement certifying adequacy of the QAPP, and the rationale for selection of sampling sites, water quality parameters, sampling frequency and methods that assure the samples are spatially and temporally representative of surface water conditions. Our review of the UCD TMDL Monitoring Study indicates that it does not meet the data quality assessment requirements in the Listing Policy. In general, the

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documentation of the analytical chemistry methods for pyrethroid measurements in this study was lacking. This is particularly important when extremely low concentrations (low ng/g and ng/L) values are suspected to be toxic to aquatic organisms. Specifically, the EPA method 625M NCI used is very generic and may or may not be appropriate for pyrethroids, and given the low reporting limits it is extremely important to show the precautions taken to identify and avoid interferences.

Further, the study is very limited spatially (two to three sites per sub-watershed) to meet the goals of the study. With respect to the sample sites, there is no discussion regarding how the sample sites were selected, and the criteria used for site selection. The study does not include site coordinates, and instead includes a poor Google earth image to identify site locations. The discussion for sediment sampling methods is inadequate, and fails to indicate how or why certain depositional areas were targeted. The study's data interpretation and analysis with respect to toxicity is also inadequate. For example, there is no discussion with respect to how well the toxicity identification evaluations ("TIE") worked, considering that toxicity was only slightly greater than 20% difference between ambient samples and the control. Further, there appeared to be significant variability of toxicity in the water sampling, which questions the scale of sampling. Moreover, and as admitted by the authors, the study project used abbreviated TIEs.

In addition, the study inappropriately uses estimated values (i.e., j-flagged values) of pyrethroid concentrations to compare to toxicity thresholds. (See UCD TMDL Monitoring Study, Table 7, p. 24.) Because estimated values are below reporting limits, they should not be used to determine if toxicity exists.

The study also includes conclusions that are not supported by the data in the study. For example, the authors make the following statement, "Two of the toxic 312ORC sediment samples and one of the toxic 312SMA sediment samples did not have any chemistry analyzed; therefore, it is not possible to link the cause of toxicity to specific chemicals during these events. However, given evidence from previous monitoring at these sites, toxicity here was likely caused by a combination of the same pesticides." (UCD TMDL Monitoring Study, p. 48.) In another example, the authors indicate that the TIE results were "somewhat constrained by the design of the TIEs." (*Id.*, p. 52.) Abbreviated TIEs were used due to a lack of resources. As a result, treatments that would be used to determine toxicity between the various classes of pesticides were not performed. This is a serious flaw with the study, and questions the TIE analysis results within the study.

With respect to data quantity assessment requirements, the Technical Report also fails to meet the Listing Policy requirements. The Listing Policy indicates that Regional Boards have wide discretion to establish how data and information are evaluated. However, the Listing Policy also includes a list of specific considerations that the Regional Board must consider in using data to assess water quality standards attainment. Estimated data (i.e., j-flagged values) may be used as an ancillary line of evidence but should not be used independently to make a determination of impairment. (Listing Policy, p. 23.) With respect to determining if the Regional Board has met the data quantity assessment requirements of the Listing Policy, it is virtually impossible to do so because Table 2-5 fails to include any discussion of the essential information, as is required by the Listing Policy. This alone indicates that the Regional Board has not met the data quantity assessment requirements. For example, the actual data referenced in the exceedance column is not specifically identified. There is no way to tell from Table 2-5, what data exceeded the evaluation

guideline identified. Without this essential information, the Technical Report fails to provide adequate evidence to support its findings of impairment.

Accordingly, the data and information vaguely referred to in the Technical Report does not comply with the data quality and quantity requirements of the Listing Policy, and, thus, such data and information do not support a determination of impairment, and by extension, the inclusion of pyrethroid pesticides in the Proposed Amendment.

B. Data and Information Processing

When making listing decisions, or determinations of impairment, the Listing Policy requires that all data and information be evaluated (assuming that the data and information meet the quality and quantity requirements expressed above) using the decision rules listed in section 3 (California Listing Factors) of the Policy. (Listing Policy, p. 3.) The determinations of impairment as specified in Table 2-5 of the Technical Report do not comply with section 3 of the Listing Policy. Even assuming for our purposes here that the data referenced meets data quality and quantity requirements, Table 2-5 provides for improper determinations of impairment for pyrethroid pesticides.

Bradley Channel – Table 2-5 claims that two of three samples exceeded the guidelines. This information fails to indicate if these are sediment samples or water samples, or a combination of both. For determinations of impairment, sediment and water samples cannot be combined. To actually determine if Bradley Channel is impaired for sediment or water, sample types need to be separated. Further, review of the pyrethroid data in Appendix C-3 to the Technical Report fails to provide clarity with respect to the data referenced in Table 2-5. For example, Table 2-5 identifies the monitoring sites as 312BRO and 312BRJ. While there is a 312BRO site identified in Table 1 of Appendix C-3, there is no 312BRJ site. Also, the indication of exceedances as expressed in Table 2-5 does not appear to match information and data contained in Appendix C-3. Accordingly, there is insufficient evidence for the Regional Board to make any determinations of impairment with respect to any of pyrethroids for Bradley Channel.

Main Street Canal – Table 2-5 indicates that two of two sediment channels, and one of one water samples exceeds the identified evaluation guidelines. Again, sediment and water column chemistry results cannot be combined to determine impairment. While the two of two sediment samples meet the binomial test requirements of the Listing Policy, the one of one water sample does not. More importantly, the summary of pyrethroid sediment data contained in Appendix C-3 indicates that there is only one sediment sample that exceeded the evaluation guideline being used by Regional Board staff for the sampling location identified. Thus, based on the data summarized in Appendix C-3, the determinations of impairment for the Main Street Channel does not meet the binomial test requirements. With respect to the water column sample, not only does it fail to meet the binomial test but the water column result in question is an estimated, j-flagged value, and not an actual measured concentration of the pyrethroid in question. Thus, the Main Street Channel should not be determined as being impaired for pyrethroids.

Santa Maria River – Table 2-5 indicates that one of two sediment samples exceeded the evaluation guideline for sediment, and that one of one sample exceeded the evaluation guideline for water. In this case, neither sample set meets the binomial test requirements of the Listing Policy. Further, based on the information in Appendix C-3, it appears that only one of three samples exceeded the evaluation guideline for sediment. Thus, there is not sufficient data and information to support a finding that the Santa Maria River is impaired for pyrethroids.

Orcutt Creek – The Staff Report at Table 7 includes a pyrethroid water column TMDL for Orcutt Creek. Table 2-5 of the Technical Report does not include Orcutt Creek, and thus does not indicate that it is impaired for pyrethroid pesticides.

II. Proposed TMDL Includes Numeric Targets and Load Allocations Based on Improper Criteria

The Technical Report includes proposed numeric targets and TMDLs for the following synthetic pyrethroid pesticides: Bifenthrin, Cyfluthrin, and L-Cyhalothrin. According to the Proposed Amendment, the numeric targets in the TMDLs are numeric interpretations of two narrative WQOs contained in the Water Quality Control Plan for the Central Coast Basin (“Basin Plan”): (1) “*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;*” and, (2) “*No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses.*” (Staff Report, p. 2.) For the pyrethroid pesticides in question, the staff report indicates that “additional information regarding the derivation of water column targets is provided in Appendix B of the Technical Report.” (Staff Report, p. 2.) However, Appendix B of the Technical Report is titled “Load Duration Curves,” and it is specific to chlorpyrifos and diazinon. There is no other appendix to the Technical Report that provides additional information with respect to derivation of the water column targets at issue.

At most, the Technical Report includes two brief paragraphs to explain that the synthetic pyrethroid water column numeric targets were taken from the draft water column criteria developed by the Central Valley Regional Water Quality Control Board (“Central Valley Water Board”) with the University of California, Davis (“UCD”). (Technical Report, pp. 22-23.) This statement alone is incorrect as it implies that the Central Valley Water Board has adopted and endorsed the criteria in question, which is not the case. The draft water column criteria were developed by UCD through a contract with the Central Valley Water Board, but the criteria have not been approved or endorsed by the Central Valley Water Board itself in any format. In fact, it is unlikely that Central Valley Water Board members are even aware that the criteria exist as the effort to date has been managed at a staff level. Thus, the criteria in question are not and should not be considered adopted WQOs under the Porter-Cologne Water Quality Control Act, Water Code section 13000 et seq. (“Porter-Cologne”).

To our knowledge, there are no WQOs or U.S. EPA 304(a) criteria for the pyrethroid pesticides included in the Proposed TMDL. Without explanation, the Technical Report asserts that UCD criteria are appropriate for application here as numeric targets, and to interpret the narrative WQOs. Use of these criteria as numeric targets here is problematic for several reasons. First, the “criteria” in question are not adopted WQOs, and they have not been subject to a formal public

review and comment process before the Central Valley Water Board. The water quality criteria in question are contained in a series of Water Quality Criteria Reports as prepared by UCD. The reports were prepared using UCD's "Methodology for Derivation of Pesticide Water Quality Criteria for the Protection of Aquatic Life – Phase II, Methodology Development and Derivation of Chlorpyrifos Criteria" ("UCD Methodology"). When the UCD Methodology was completed, the Central Valley Water Board released a letter to put the UCD Methodology into context. The Central Valley Water Board's letter clearly explains as follows: "Although the development of the UCD Methodology was funded by the Regional Water Board, the UCD Methodology has not been adopted or endorsed by the Regional Water Board. Therefore, criteria developed using the UCD Methodology should not be viewed as being inherently more appropriate than other available criteria." (Attachment 1 hereto, Letter to Interested Parties from Jerrold A. Bruns, Environmental Program Manager, Central Valley Water Board (Sept. 29, 2009).) The letter also clearly states that, "criteria developed using the UCD Methodology should not be considered adopted water quality objectives, unless and until the Regional Water Board adopts, and the State Water Board and the U.S. EPA approve the criteria as water quality objectives pursuant to all applicable statutory requirements." (*Ibid.*) Thus, by the Central Valley Water Board's own admission, the UCD criteria are not appropriate to use in a regulatory manner until such time that the criteria are adopted as WQOs pursuant to state law, and approved by the State Board and U.S. EPA. It is wholly inappropriate for the Regional Board to disregard the Central Valley Water Board's caution and portray the criteria as something that have been adopted or endorsed by the Central Valley Water Board.

Further, to the extent that the Regional Board intends to use the criteria to essentially determine if aquatic life beneficial uses are being impacted, then the Regional Board should consider such criteria to be de facto WQOs, and should essentially comply with the provisions in Porter-Cologne applicable to adoption of WQOs. Specifically, protection of water quality in California is governed by Porter-Cologne. A fundamental premise of Porter-Cologne is that water quality regulation must be reasonable. (See, e.g., Wat. Code, § 13000.) The Regional Board is empowered to adopt Water Quality Control Plans (also known as Basin Plans), which must include: beneficial uses of the waterbodies in the region; WQOs to reasonably protect the beneficial uses; and a program of implementation for the WQOs. (Wat. Code, §§ 13050(h) & (j), 13240, 13241, 13242.) In formulating a water quality control plan, the Regional Board must seek "to attain the highest water quality which is *reasonable*, considering all demands being made and to be made on waters of the state and the values involved." (Wat. Code, § 13000, emphasis added.)

WQOs are defined as "the limits or levels of water quality constituents or characteristics which are established for the *reasonable protection of beneficial uses* of water or the prevention of nuisance within a specific area."² (Wat. Code, § 13050(h), emphasis added.) When establishing WQOs, the state must consider a series of factors, including economics, attainability, and other public interest factors. (See Wat. Code, § 13241.) As the State Board's Chief Counsel has previously explained, Porter-Cologne requires that "*objectives must be reasonable*, and economic considerations are a necessary part of the determination of reasonableness." (*Memorandum to Regional Water Board Executive Officers from William R. Attwater, Chief Counsel, State Water*

² Beneficial uses may include, but are not limited to, "domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves." (Wat. Code, § 13050(f).)

Resources Control Bd. (Jan. 4, 1994), at p. 3, emphasis added.) In adopting WQOs, the state must ensure that the WQOs provide for the reasonable protection of beneficial uses after considering the factors required by Water Code section 13241, including economics and attainability. (See *United States v. State Water Resources Control Bd.* (1986) 182 Cal.App.3d 82, 109-110 [state “is required to ‘establish such water quality objectives . . . as in its judgment will ensure the reasonable protection of beneficial uses’ ” (citing Wat. Code, § 13241); *id.* at p. 118 [state shall consider “all competing demands for water in determining what is a reasonable level of water quality protection.”].)

Accordingly, prior to using the UCD criteria as a WQO (or to interpret a narrative WQO), the Regional Board must comply with Porter-Cologne and consider economics and attainability. That has not occurred here.

III. Comments Regarding CEQA Review

Adoption of the Proposed TMDL is subject to requirements under CEQA. To comply with CEQA, the Regional Board proposes a “Substitute Document” Report for Basin Plan Amendment. (See Attachment 3 to Staff Report, otherwise referred to as the “Substitute Environmental Document” or “SED”.) The SED is the Regional Board’s attempt to consider potential environmental impacts that may arise from the reasonably foreseeable means of compliance with the TMDLs. (SED, pp. 3-6.) However, the SED fails to consider a number of reasonably foreseeable means for compliance, and the potential environmental impacts that may occur from such compliance.

A. Evaluation of Implementation Program

Water Code section 13242 provides that the Regional Board shall develop a program of implementation for achieving WQOs that includes a description of the nature of actions that are necessary to achieve the objectives, a time schedule for the actions to be taken, and a description of surveillance to determine compliance with objectives. (See Wat. Code, §§ 13242(a)-(c).) The project description needs to include and clearly describe the implementation program so that the environmental impacts of the “whole of the action” can be adequately assessed as part of the CEQA process. To that end, the SED must evaluate the environmental impacts associated with all actions identified in the implementation program, as well as the reasonably foreseeable actions that will be required to comply with the Proposed Amendment. (*City of Sacramento v. State Water Resources Control Bd.* (1992) 2 Cal.App.4th 960, 969 [regional board’s consideration of rice pesticide plan must address environmental effects of steps required to implement plan]; *City of Arcadia, supra*, 135 Cal.App.4th at pp. 1395-1396 [rejecting regional board’s functional equivalent document for water quality regulatory plan for failure to consider reasonably foreseeable environmental effects of actions required to implement plan].)

The Implementation and Monitoring Program for the Proposed TMDL is expressly contained in Attachment 1 to the Staff Report (i.e., proposed Basin Plan Amendment language), and is discussed in section 6 of the Technical Report. Generally, implementation for agriculture is expected to occur through compliance with the Regional Board’s Conditional Waiver of Waste Discharge Requirements for Irrigated Lands (Order No. R3-2012-0011), and for urban stormwater

through development and implementation of a Wasteload Allocation Attainment Program. However, the information contained in the Technical Report is much more extensive than that included in the Staff Report, and implies that the actions for implementation of the Proposed TMDL go above and beyond what is required under the Conditional Waiver of Waste Discharge Requirements for Irrigated Lands. In either case, the SED must evaluate the environmental impacts associated with the Implementation and Monitoring Program. However, the Reasonably Foreseeable Methods of Compliance included in the SED are not consistent with the Proposed Amendment's implementation components. Thus, the SED is defective on its face.

B. Determination of Significant Impacts

One outcome of the establishment of TMDLs for pyrethroids may be improved water quality and habitat for aquatic species. However, if the TMDLs substantially result in the decline in use of pyrethroid pesticides, the project will have widespread secondary impacts that were not assessed in the SED. The SED is supposed to clearly describe the range of actions that would be anticipated to be required to implement the WQOs and the environmental tradeoffs associated with regulation and TMDL implementation. For example, if the establishment of TMDLs leads to restricted or reduced use of pyrethroid pesticides, the SED needs to describe the extent of the anticipated limitations and the consequences of such reductions. This has not occurred.

For example, the primary uses for pyrethroid pesticides in urban areas include structural pest control, landscape maintenance, rights-of-way, and public health pest control. (Daniel R. Oro, et al., *Pyrethroid Insecticides: An Analysis of Use Patterns, Distributions, Potential Toxicity and Fate in the Sacramento-San Joaquin Delta and Central Valley* (Oct. 7, 2005), p. 43.) However the SED omits mention of the important use of pyrethroid pesticides – protection of public health. Specifically, the SED does not mention vector control as a use of synthetic pyrethroids – only agriculture and home applications are mentioned. Pyrethroids are used by agencies charged with the protection of public health for the control of mosquitoes, yellow jackets, and ticks. The SED needs to address the implications for all existing and foreseeable uses of pyrethroids, including their critical role in public health protection.

Further, if pyrethroid pesticides are not available for these purposes, what alternatives are expected to be used and what are the impacts associated with those alternative control methods, including potential impacts to human health if alternatives are less effective? Pyrethroid pesticides are also widely used in agriculture to protect crop viability and yield. If the TMDL is expected to lead to reduced pyrethroid use, what would be the expected effect on crop yield and economic viability of existing agricultural practices? If restrictions on pyrethroid pesticides cause substantial economic impacts that lead to crop shifting or crop idling, these economic impacts could cause significant environmental impacts by contributing to the conversion of agricultural land.

As noted, the SED must describe the specific means of compliance with the TMDL and the potential environmental impacts associated with such compliance. The SED does not do so.

Peter Meertens
Re: PWG's Comments – Santa Maria Pesticide TMDL
March 29, 2013
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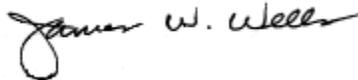
One of CEQA's basic purposes is to inform government decision-makers and the public about the potential significant environmental effects of proposed projects. (CEQA Guidelines, § 15002(A)(1); *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 532 Cal.3d 553.) "[A] paramount consideration is the right of the public to be informed in such a way that it can intelligently weigh the environmental consequences of any contemplated action and have an appropriate voice in the formulation of any decision." (*Environmental Planning and Information Center v. County of El Dorado* (1982) 131 CalApp.3d 350, 354.) To fulfill this mandate, the SED needs to provide sufficient information about the environmental tradeoffs and related economic effects associated with the TMDLs. However, the SED does not meet this mandate, and thus it fails to comply with the requirements of CEQA.

The SED should also include information about the anticipated economic impact of the TMDLs and all alternatives, as this information is critical to an evaluation of their feasibility and also to the assessment of significant impacts. As noted previously, significant economic impacts to agriculture could have unintended significant environmental impacts if economic impacts caused crops to be taken out of production or cropping patterns to change. But again, the SED is inadequate in this respect. The alternatives discussion in the analysis includes only the preferred alternative, and the "no project alternative." It fails to account for or consider other potential alternatives that could occur, such as a Proposed TMDL applicable to only some of the pesticides identified.

IV. Conclusion

The PWG appreciates the opportunity to provide these comments on the Proposed TMDL and associated documents. However, as indicated in the detailed comments above, the PWG finds that the Proposed Amendment and associated information fails to adequately support the inclusion of pyrethroid pesticides in the TMDL. Most importantly, there is inadequate data and information to support a conclusion that pyrethroid pesticides are impairing the waterbodies in question. Further, the Regional Board has failed to comply with the Listing Policy to reach such a conclusion, and the SED is inadequate to support Regional Board action. As a result, the Regional Board must remove pyrethroid pesticides from the Proposed Amendment as there is no basis for their inclusion. Please contact me at (916) 443-2793 or jwells@esgllc.net if you have any questions with regard to the above comments.

Very truly yours,



James W. Wells, President

Attachment
cc (via email only): Theresa A. Dunham (tdunham@somachlaw.com)



California Regional Water Quality Control Board Central Valley Region

Karl E. Longley, ScD, P.E., Chair



Linda S. Adams
Secretary for
Environmental
Protection

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Arnold
Schwarzenegger
Governor

29 September, 2009

Interested Parties

PESTICIDE WATER QUALITY CRITERIA DERIVATION METHODOLOGY FOR THE PROTECTION OF AQUATIC LIFE IN THE SACRAMENTO AND SAN JOAQUIN RIVER BASINS

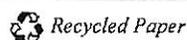
The California Regional Water Quality Control Board – Central Valley Region (Regional Water Board) has contracted the University of California, Davis (UC Davis), to identify and review existing methods for deriving pesticide water criteria for the protection of aquatic life, and, if necessary, to develop an alternative method for developing criteria. The resulting report, "Methodology for Derivation of Pesticide Water Quality Criteria for the Protection of Aquatic Life - Phase II, Methodology Development and Derivation of Chlorpyrifos Criteria", details a general methodology (UCD Methodology) to develop water quality criteria for pesticides for the protection of aquatic life, and provides an application of the methodology for the development of chlorpyrifos water quality criteria. In future reports, currently under development by UC Davis, the UCD Methodology will be applied to develop water quality criteria for additional pesticides. The UCD Methodology was developed as part of the larger Central Valley Pesticide TMDL and Basin Plan Amendment project, which is described in detail at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/central_valley_pesticides/index.shtml

Although the development of the UCD Methodology was funded by the Regional Water Board, the UCD Methodology has not been adopted or endorsed by the Regional Water Board. Therefore criteria developed using the UCD Methodology should not be viewed as being inherently more appropriate than other available criteria. Further, criteria developed using the UCD Methodology should not be considered adopted water quality objectives, unless and until the Regional Water Board adopts, and the State Water Board and the U.S. EPA approve the criteria as water quality objectives pursuant to all applicable statutory requirements.

Regional Water Board staff intend for pesticide criteria developed using the UCD Methodology to be among the criteria considered for adoption as water quality objectives. The UCD Methodology was developed to derive criteria that are protective of aquatic life, but several additional considerations must be evaluated before pesticide water quality objectives can be adopted. First, the adopted water quality objectives must be reasonable, considering all demands being made and to be made on the water. Second, the Regional Water Board must comply with specific statutory requirements when adopting water quality objectives, which include but are not limited to the considerations specified in the Porter Cologne Water Quality Control Act, Section 13241 (which includes attainability and economic considerations), the

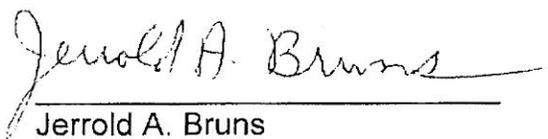
California Environmental Protection Agency



ATTACHMENT 1

State's antidegradation policy, and other applicable state and federal laws and regulations. The adoption of water quality objectives as part of a Basin Plan Amendment is done through a public process involving multiple opportunities for public input. Provided they are protective of beneficial uses and meet all other legal and regulatory requirements, the water quality objectives adopted by the Regional Water Board could be equivalent to, higher or lower than the criteria developed using the UCD Methodology.

For questions related to the application of this methodology or the Central Valley Pesticide TMDL and Basin Plan Amendment project, please feel free to contact Danny McClure at dmcclure@waterboards.ca.gov or (916) 464-4751, or Joshua Grover at jgrover@waterboards.ca.gov or (916) 464-4691.

A handwritten signature in cursive script that reads "Jerrold A. Bruns". The signature is written in black ink and is positioned above a horizontal line.

Jerrold A. Bruns
Environmental Program Manager