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CENTRAL VALLEY WATER BOARD COMMENTS ON DRAFT DIURON CRITERIA

California Regional Water Quality Control Board, Central Valley Region staff has reviewed the draft diuron criteria document and have the following comments and suggestions for improving the document.

The authors have done a thorough review of the toxicology literature, and applied the UC Davis criteria derivation methodology developed by Tenbrook, et al., in a sound and transparent manner to derive criteria that should be protective of aquatic life.

For the acute criteria, the preliminary acute criterion of 168 ug/L was higher than the 96-hour LC₅₀ for *gammarus lacustris* (160 ug/l) from the supplemental data set. Therefore an additional safety factor is applied to the preliminary acute criterion to come up with the final acute criterion of 84 ug/L. The toxicity value for *gammarus lacustris* was in the supplemental data set since the study it came from did not rate high enough to be in the primary data set used in the direct calculation of criteria. The *gammarus lacustris* study did rate high enough to be included in the supplemental data set. It makes sense to consider the toxicity values from the supplemental data for species that do not have any toxicity values in the primary data set. Considering values for sensitive species from the supplemental data set is consistent with Section 3-6.1 of the criteria derivation methodology. Absent any fatal flaw or reason to believe that the *gammarus lacustris* study is invalid, it seems to make sense to adjust the criteria to ensure that criteria are protective of *gammarus* species. On the other hand there is some uncertainty about the one available *gammarus lacustris* study in the supplemental data set. As we have not reviewed the issue in detail, we are not making a recommendation at this time as to whether the evidence about the sensitivity of *gammarus* species is sufficient to warrant adjusting the criteria downward. We do recommend that the final report should provide more detail on the potential adjustment of the criteria in response to the *gammarus lacustris* study from the supplemental data set.

The Criteria statement indicates that the recommended criteria would be protective of aquatic life in the Sacramento and San Joaquin River Basins. The specificity of these criteria to those basins should not be over-emphasized. It would be useful to note in the criteria statement that these criteria should also likely be protective of aquatic life in freshwater ecosystems in North America, unless species more sensitive than are represented by the species examined in the development of these criteria are likely to occur in those ecosystems.

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It would be useful to explicitly discuss the USEPA (1985) methodology and whether adequate data were available to meet the requirements of the USEPA methodology, and, if possible, what criteria derived using the USEPA methodology would likely look like.

The criteria document compares the derived criteria to the benchmarks developed by the USEPA office of pesticide programs (OPP). It is important to properly qualify these OPP benchmarks. These benchmarks were published by OPP, not USEPA's Office of Water, and they are not "established" as, or intended to be, aquatic life criteria. Therefore in the criteria document, comparison with OPP benchmarks should either be removed or highly qualified. The OPP plant benchmark for diuron is an EC₅₀. Setting a water quality criteria at a level where known toxic effects occur would not be consistent with the level of protection required by the Basin Plan.

The discussion of uncertainty in section 17 should review the following information gaps:

- The genera that would be needed to do a full species sensitivity distribution.
- The need for a *gammarus species toxicity* study that ranked high enough to be included directly in the criteria calculation.
- The lack of directly applicable information on the synergistic effects of the combination of diuron with other compounds, especially those for which there is indications of synergistic effects – organophosphate pesticides and fungicides.
- The need for follow up on the studies discussed in section 12 for species which had toxicity values lower than the derived criteria to see if any of the species or endpoints involved could warrant further lowering the recommended criteria.

A table of contents would make the document easier to read. If possible, it would be useful to display the toxicity information in data tables in order of species sensitivity.

We appreciate the tremendous effort that has gone into development of this document and look forward to seeing it finalized.

Daniel McClure, P.E.
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Enclosure(s)

cc: