LATE REVISION OPTIONS FOR

Item 7 – Proposed Basin Plan Amendment and TMDL for the Control of Pyrethroid Pesticide Discharges – Consideration of Adoption

1. Change the terms "Environmental Laboratory Accreditation Program (ELAP) certification" and "ELAP-certified" to "ELAP accreditation" and "ELAP-accredited" in the Resolution on page 18 and in the Staff Report on pages xliii, 148, 149, and 150.

2. Revise General Comment No. 4 and the associated Response on pages 7 and 8 of the Response to Public Comments as shown in redline/strikeout as follows:

General Comment No. 4 – Request for ~~Certified~~ Reliable and Reproducible Methods for Chemical Analysis and Toxicity Testing: Seven commenters (City of Roseville, Dr. Donald Weston, Sacramento Regional County Sanitation District, Roseville Wastewater Utility, Port of Stockton, Central Valley Clean Water Association, and Pacific EcoRisk) had concerns regarding the availability of multiple laboratories to perform pyrethroid analyses and both water column and sediment toxicity testing with *Hyalella azteca* in both ambient water samples and effluent samples. There were also concerns about the need for standardized or harmonized protocols for these analyses.

RESPONSE:

Adequate laboratory capacity and standardized or harmonized protocols will be necessary to ensure reliable data to support the proposed control program. Central Valley Water Board staff have begun engaging with State Board staff in the Environmental Laboratory Accreditation Program (ELAP) and Surface Water Ambient Monitoring Program (SWAMP) in order to ensure that there will be reliable methods and protocols for the analyses needed for this Basin Plan Amendment, and discussion of these ongoing activities has been added to Section 8.5 of the staff report.

ELAP provides evaluation and accreditation of environmental testing laboratories to ensure ~~the~~ known and documented quality and defensibility of ~~quality of~~ analytical test methods for ~~data used for~~ regulatory purposes. ELAP-accredited laboratories have demonstrated capability to analyze environmental samples using approved methods.

When feasible, ~~T~~the use of ELAP-~~certified~~accredited methods is ~~the expectation~~recommended for both chemical analyses of pyrethroids and toxicity testing with *Hyalella azteca*. Typically there are multiple laboratories ~~certified~~ accredited for a particular ~~field of testing~~analytical test method and Regional Board staff is working with ~~the~~ ELAP ~~officer~~ to request that more laboratories ~~get certified~~become accredited for pyrethroids analysis and *Hyalella azteca* toxicity testing~~, and to request that lower reporting limits are developed for pyrethroids using certified methods~~. Regional Board staff is working through an established framework for state agency

requests to ELAP for new analytical test methods and lowered reporting limits ~~through the Environmental Laboratory Technical Advisory Committee (ELTAC)~~ to ensure there are ~~at~~ reliable methods for pyrethroids chemical analysis and toxicity testing with *Hyalella azteca* ~~are~~ available from multiple laboratories. Through this process, Regional Board staff will also request that the Chief of ELAP contact all laboratories ~~certified~~ accredited in ~~fields of testing~~Fields of Testing (FOT) relevant to pyrethroids chemical analysis (FOT 105 and/or FOT 111 – Semi-volatile organic chemistry) and toxicity testing (FOT 113/119 – Toxicity bioassay) to request that more laboratories offer pyrethroids analysis and testing with *Hyalella azteca* in order to encourage more laboratories to offer these analyses.

Currently, ELAP can only accredit labs for standardized methods, which are not available for all six of the pyrethroids included in this amendment; however, in the future they will be transitioning their program to accredit for non-standardized methods. Because standardized methods are not available for all six pyrethroids, other methods may be used to obtain the required data, as is being done in various programs throughout the state in which pyrethroid monitoring is required. Additional description of the available methods and recommendations for monitoring has been added to sections 8.4-8.6 to the draft staff report.

For water column *Hyalella azteca* toxicity testing, a recent intercalibration study performed the Southern California Coastal Water Research Project (SCCWRP) demonstrated that when test organism age and size are more tightly constrained, the toxicity results across labs are highly comparable (Schiff & Greenstein 2016). Recommendations to follow the SWAMP measurement quality objectives for the water column *H. azteca* toxicity test and the guidance on test organisms from the SCCWRP intercalibration study have been added to the staff report in section 8.6.

NPDES dischargers are typically required to use ELAP ~~certified~~ accredited labs for their analyses, however if dischargers do not use ELAP ~~certified~~ accredited labs, additional quality assurance and quality control information would need to be provided to ensure the results will be reliable.

Guidance on the factors to be considered by the Executive Officer in approving acceptable methods has been added to the proposed amendment. Under the proposed amendment, the Executive Officer will consider whether the method is ELAP-~~certified~~accredited, whether a new method has undergone independent scientific peer review or has been part of an inter-laboratory study design, if there is a quality assurance project plan (QAPP) in place that can provide assurance that the method used will be reliable, or other factors in determining acceptable methods.

3. Revise General Comment No. 1 and the associated Response on pages 4 and 5 of the Response to Public Comments as shown in redline/strikeout as follows:

General Comment No. 1 – Concerns with Bioavailability Approach:

Four commenters (USEPA, Dr. Donald Weston, California Department of Fish and Wildlife, and Environmental and Fisheries Groups) expressed a number of related concerns with the proposed bioavailability approach, which would utilize calculated freely dissolved pyrethroid concentrations to assess attainment of the proposed concentration goals. The concerns with the bioavailability approach expressed were:

1) Significant variability in the partition coefficients used to calculate the freely dissolved pyrethroid concentration, which may vary by orders of magnitude based on the characteristics of organic matter and the particles in a given area.
2) Uncertainty in how representative the freely dissolved pyrethroid concentration is of the bioavailable concentration because bioavailability is affected by the rate of release of pyrethroids from particles, as well as how organisms interact with sediment.
3) Potential underestimation of effects of sediment-bound pyrethroids for species that ingest sediment particles and for sensitive life-stages of fish, which may interact with sediments in the winter when sediments are mobilized and toxicity may be increased due to lower temperatures, particularly in the Delta, where sediments are deposited and many threatened and endangered species reside.
4) ~~Novelty of the approach, which~~The fact that this approach has not been used before in total maximum daily loads or for setting levels intended to be protective of beneficial uses.

RESPONSE:

1) It is true that partition coefficients can vary greatly depending on the nature of the particles, and the staff report acknowledges this in section 5.2.2.2. A range of experimental partition coefficients are shown in Table 5-1 and Table 5-2 of the staff report, which demonstrate the potential range of values that may be encountered in environmental samples. The proposed partition coefficients are not at the extremes of the range of partition coefficients; all of the proposed partition coefficients fall within the second and third quartiles of the range (47th-75th percentile of the range of partition coefficients presented in Table 5-1 and Table 5-2 of the staff report). The proposed partition coefficients were recommended because they were determined using an analytical technique that minimizes calibration errors, which may cause partition coefficients to be overestimated. In addition, the proposed amendment allows for the use of site-specific or additional study-based partition coefficients if they become available. The technical basis of the proposed bioavailability approach, including the use of the proposed partition coefficient was supported by the independent scientific peer reviewers. Also, as new information becomes available, these values may be refined to reflect the newest scientific information. In addition, the proposed amendment includes toxicity testing. This testing will provide additional information to evaluate the effectiveness of the program.

2 & 3) The proposed amendment would require toxicity testing with Hyalella azteca to provide additional information regarding the toxicity of pyrethroids in the dissolved

phase and those bound to organic matter and/or particles. Toxicity testing of both water and sediment will provide information necessary to assess whether there are ambient toxicity concerns. If pyrethroid levels in sediment are reduced below levels toxic to Hyalella 5 azteca, which is the most sensitive organism that has been tested, then they will also be below any levels with potential to cause toxicity to organisms that ingest sediments. Staff will evaluate how the chemical analysis data and toxicity testing results correspond as this data is collected. This is a phased control program and the Regional Board is committed to re-visiting the program, including the use of the freely dissolved pyrethroid concentrations and the partition coefficients used to estimate the freely dissolved concentrations, no later than 15 years after the amendment is effective.

4) It is true that using the freely dissolved concentrations ~~is a novel approach~~has not previously been used for regulation of pyrethroids in water; however, this approach is based on the best available science to provide the most accurate measure of the toxic potential of pyrethroids. Accounting for bioavailability of pyrethroids in environmental samples will result in a more accurate predication of potential toxicity to aquatic organisms in aquatic ecosystems. This is a reasonable approach that protects aquatic life, while accounting for environmental characteristics and reducing the likelihood that samples that would not cause harm to aquatic organisms would be determined to exceed the pyrethroid concentration goals. The technical basis of the proposed bioavailability approach was supported by the independent scientific peer reviewers.