

From: [Tess Dunham](#)
To: [Epp, Jennifer@Waterboards](#)
Cc: [Meertens, Peter@Waterboards](#)
Subject: Re: Clarification on one of your comments on the TMDL for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed
Date: Friday, June 17, 2016 5:47:36 PM
Attachments: [image.gif](#)

Yes

On Jun 17, 2016, at 5:06 PM, Epp, Jennifer@Waterboards
<Jennifer.Epp@waterboards.ca.gov> wrote:

Tess,

Thanks Tess. I've changed it to " It is recommended (not required) that..."

We will let you know if anything changes as the document moves through review here so you don't have any surprises.

With that addition, can we consider your comment (on the TST being a recommended approach) as addressed?

Thanks,

-Jennifer

From: Tess Dunham [<mailto:tdunham@somachlaw.com>]
Sent: Friday, June 17, 2016 4:34 PM
To: Epp, Jennifer@Waterboards
Cc: Meertens, Peter@Waterboards
Subject: Re: Clarification on one of your comments on the TMDL for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed

Jennifer,

How about "It is recommended, but not required,"

Tess

On Jun 17, 2016, at 2:20 PM, Epp, Jennifer@Waterboards
<Jennifer.Epp@waterboards.ca.gov> wrote:

Hi Tess,

Have you had a chance to look at this?

Thanks,

-Jennifer

From: Epp, Jennifer@Waterboards
Sent: Monday, June 13, 2016 2:45 PM

To: Tess Dunham (tdunham@somachlaw.com)
Cc: Meertens, Peter@Waterboards
Subject: Clarification on one of your comments on the TMDL for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed

Hi Tess,
Thank you for the call last week.

We have a question on your comment regarding adding additional clarity that the TST method is recommended and not required. We have revised the language on page 2 of the Basin Plan Amendment to provide clarity that the TST approach is recommended (see attached). I had in my notes from the hearing that you were concerned about the use of the word "shall" in the document implying that the TST approach is required. Do I remember correctly that you were concerned about the two uses of "shall" I have highlighted in yellow in the attached document?

We plan to keep the two yellow highlighted "shall" because those sentences are not talking about the TST approach, but are talking about the test in Table 1 and the USEPA chronic toxicity test, which are not optional. Does that make sense?

Thanks,

Jennifer Epp, P.E.
TMDL Program Manager
Central Coast Regional Water Quality Control Board
805-594-6181
Jennifer.Epp@waterboards.ca.gov
<image001.jpg>

<image001.gif>

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Numeric Targets

Numeric targets are water quality thresholds developed and used to ascertain when and where water quality objectives are achieved, and hence, when beneficial uses are protected.

Sediment Toxicity Numeric Target

Species and method identified in Table 1 shall be used to assess whether the sediment toxicity numeric target is achieved. Assessments will be conducted with receiving water(s) sampled at key indicator sites, which will be defined in proper sampling plans with quality assurance and quality controls consistent with SWAMP protocols.

Table 1. Standard aquatic toxicity tests

Parameter	Test	Biological Endpoint Assessed
Sediment Toxicity	Hyaella azteca (10-day chronic)	Survival

Toxicity to invertebrates shall be tested using chronic toxicity test, 10-day sediment exposure with *Hyaella azteca* (USEPA, 2000). It is recommended that toxicity determination is based on a comparison of the test organisms' response to the receiving water sample compared to the control using the recommended Test of Significant Toxicity, also referred to as the TST statistical approach (USEPA 2010; Denton et al., 2011). If a sample is declared "fail" (i.e., toxic), then the target is not met and additional receiving water sample(s) should be collected and evaluated for this specific receiving water to determine the pattern of toxicity and whether a toxicity identification evaluation, also referred to as a TIE, needs to be conducted to determine the causative toxicant(s). If the causative toxicant(s) is already known (e.g., based on land use patterns and similar responses in sub-watersheds) then implementation of management practices, management plans etc. should be examined for effectiveness if already in place, or implemented to reduce the toxicant(s).

Pyrethroid Sediment Concentration Toxicity Unit Numeric Target

The pyrethroid sediment concentration toxicity unit (TU) numeric targets are a comparison of toxic levels of pyrethroids in sediment to published criteria (refer to Table 2). Samples and criteria are for organic carbon normalized concentrations (oc). The pyrethroid TU formula is as follows:

$$\text{Pyrethroid TU} = \frac{\text{sample concentration (oc)}}{\text{known LC50 concentrations values (oc)}}$$

Pyrethroid TUs for the pyrethroid concentrations measured in sediment are summarized using the following formula. The summary is for two toxicity unit formulas but it could be applied to additional pyrethroids in found in Table 2:

$$\text{Sum Pyrethroid TUs} = \text{Pyrethroid TU (1)} + \text{Pyrethroid TU (2)}$$

The numeric target for the sum pyrethroid TUs is where:

$$\text{Sum Pyrethroid TUs} < 1.0$$

Table 2. Pyrethroid sediment criteria

Chemical	LC 50 ¹ ng/g ² (ppb ³)	LC50 ug/g ⁴ oc ⁵ (ppm ⁶)	Reference
Bifenthrin	12.9	0.52	(Amweg et al., 2005)