

CALLEGUAS CREEK

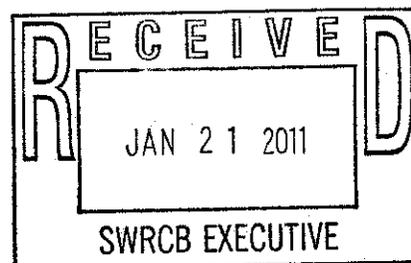


A COOPERATIVE STRATEGY FOR RESOURCE MANAGEMENT & PROTECTION

January 21, 2011

Via Electronic Mail

Charles R. Hoppin, Chairman and Members
State Water Resources Control Board
c/o Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, Sacramento, CA 95814
commentletters@waterboards.ca.gov



Subject: Comment Letter – Policy for Toxicity Assessment and Control

Dear Chairman Hoppin and Members:

The Management Committee for the Parties implementing TMDLs in the Calleguas Creek Watershed (Parties) appreciates the opportunity to provide comments on the Draft Policy for Toxicity Assessment and Control (Draft Policy).

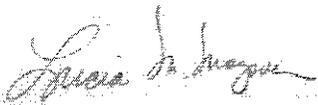
The Parties have a strong interest in the Draft Policy for both its implications to individual dischargers and its use in TMDLs. As part of the Calleguas Creek Watershed Management Plan (CCWMP), the Parties have worked diligently with the Los Angeles Regional Water Quality Control Board (Regional Board), State Water Resources Control Board (State Board), and US Environmental Protection Agency (EPA) to develop the Calleguas Creek Watershed Toxicity TMDL (CCW Toxicity TMDL - effective March 2006). During this coordinated development effort, the Parties assisted Regional Board staff in developing a TMDL that appropriately and efficiently identifies toxic environmental conditions and allows for adequate implementation actions in areas where true toxic conditions have been identified. The implementation of this TMDL has been successful in reducing toxic conditions in the watershed and we hope that any adopted toxicity policy will facilitate the work that has already been done in the watershed.

The following comments have been developed by the Parties and discussed by Steering Committee of the Calleguas Creek Watershed Management Plan on January 19, 2011. The Parties comments include the issues identified as impacting the majority of the participating agencies. Additional comment letters are being submitted by individual agencies that include additional comments that more directly impact individual dischargers. The Parties also support the comments submitted by the participating parties.

The Parties support the goal of the SWRCB in developing a consistent statewide policy for toxicity that adequately protects the receiving environment, including declaring samples toxic when they are indeed toxic and non-toxic when they are not toxic. However, we feel that the Draft Policy as written has significant technical and policy flaws that prevent it from achieving these goals. Our primary concern is with the inclusion of numeric objectives and the impacts of the inherent false positive rate on dischargers and TMDL listing decisions resulting from the use of numeric objectives. We are also concerned about the discretion given to State and Regional Water Boards by the Draft Policy and feel it will be counter to the Draft Policy goal of consistently implementing toxicity standards statewide.

The attached comment letter details the significant concerns identified by the Parties with the technical approach and implementation procedures in the Draft Policy. The attachment also includes recommended alternative approaches that we feel would provide the desired statewide consistency and provide a comprehensive framework for cost-effectively addressing persistent toxicity associated with all types of dischargers. We request that these recommended changes be considered and evaluated and modifications to the Draft Policy be made to address all of the concerns included in this letter and those submitted by our participating agencies. Thank you again and if you have any questions, please feel free to contact Lucia McGovern at (805) 388-5334.

Sincerely,



Lucia McGovern
Chair, TMDL MOA Management Committee
Parties Implementing TMDLs on the Calleguas Creek Watershed



Henry Graumlich
Chair, Steering Committee
Calleguas Creek Watershed Management Plan

Parties Implementing TMDLs on the Calleguas Creek Watershed: Camrosa Water District; Camarillo Sanitary District; the cities of Camarillo, Moorpark, Oxnard, Simi Valley, Thousand Oaks; County of Ventura; Ventura County Waterworks District No. 1; U.S. Department of the Navy; California Department of Transportation; and Ventura County Agricultural Irrigated Lands Group, a subdivision of the Farm Bureau of Ventura County. Fiscal Agent: Calleguas Municipal Water District

**Calleguas Creek Watershed
MOA Management Committee:**

Comments on the Draft Policy for Toxicity Assessment and Control

The CCW MOA has the following comments on the Draft Policy for Toxicity Assessment and Control (Draft Policy). These comments represent the significant issues identified by the parties as impacting the majority of the CCW MOA participating agencies during the review of the Draft Policy. Additional comment letters are being submitted by individual agencies that include comments that more directly impact individual dischargers. The CCW MOA also supports the comments submitted by the participating parties.

Numeric Objectives for Chronic Toxicity are Unnecessary and Problematic

As demonstrated by the CCW MOA's participation in the CCW Toxicity TMDL development and the ongoing efforts to reduce toxicity in the watershed through implementing the TMDL, the CCW MOA acknowledges that toxic discharges represent a threat to beneficial uses. We support the State Board efforts to develop a consistent statewide policy to eliminate toxic discharges to waters of the State. However, we disagree with the Draft Policy's assertion that numeric objectives for chronic toxicity are necessary to adequately protect beneficial uses and feel that a modification to the narrative standards would be sufficient.

The Draft Staff Report provides three reasons why narrative objectives are not the selected alternative:

1. Narrative objectives do not provide a clear measurement of compliance.
2. Because there is not a clear measurement of compliance, enforcing the policy would deplete Regional Water Board's resources.
3. The potential for ecological harm would likely increase as a result of these vague objectives.

We feel that these reasons are not sufficient to justify the use of a numeric objective for the following reasons.

- *Modifications to the narrative objectives to clarify compliance and reduce use of Regional Board resources were not evaluated.* The Draft Staff report only considers the use of a statewide narrative objective that is implemented using current procedures. Although the Draft Staff Report does not describe the enforcement difficulties with this approach, it is clear that there is concern with the current implementation. However, we feel that a narrative standard combined with clear enforceable requirements for action could be developed that would allow a narrative objective to contain clear measurements of compliance. This alternative needs to be evaluated and considered before selecting a numeric objective. Additionally, as will be discussed in the next section, we feel that the technical issues associated with the selected numeric objectives will actually potentially increase the use of Regional Board resources to develop TMDLs for non-toxic waterbodies.
- *Chronic toxicity tests are poor indicators of instream impacts due to toxicity.* Although there is a common perception that the results of WET tests are relatively good predictors

of instream biological impacts, scientific research has not shown this to be true. The most definitive study conducted on the subject indicates that chronic WET tests are generally poor predictors in instream impacts even when using the more robust EC/IC25 statistical analyses.¹ Several quoted findings of this study include, “*In general, poor agreement was observed between WET results and instream biological condition, contrary to results previously reported by EPA and other research entities.*” and “*Results from acute and chronic Ceriodaphnia tests were not significantly related to measures of instream impairment – even after accounting for habitat factors ($p > 0.05$).*”

A subsequent follow-up WERF study published in 2007 described nearly identical findings,² even though it focused on effluent-dominated streams where effluent WET tests would be expected to be more predictive of in stream effects. Therefore, the use of a sensitive numeric objective will not result in greater protection of receiving biological conditions than a narrative objective.

- *Properly implemented narrative objectives can reduce toxicity and protect beneficial uses.* In Region 4, the wastewater and stormwater permits and agricultural conditional waivers all include narrative limits, specific triggers for additional action, and specific actions that must be taken once those triggers are exceeded. According to the *Summary of Toxicity in California Waters: 2001-2009* prepared for the Surface Water Ambient Monitoring Program (figure on page 20), the Los Angeles Region demonstrated the second lowest level of water column toxicity in the state.³ According to the figure, almost 90% of the samples were non-toxic and only 5% were moderately or highly toxic. For a region that contains significant urban and agricultural areas, these study results demonstrate that the implementation of the narrative objective in Region 4 is working pretty effectively. It follows that a similar application of a policy including narrative objectives with clearly defined implementation requirements could be effective if consistently implemented statewide.

For these reasons, we feel that the justification in the Draft Staff Report for not using narrative objectives is insufficient and does not warrant rejecting the narrative objective option. Additionally, we feel that use of numeric objectives for toxicity is problematic for a number of other reasons that were not considered in the Draft Staff Report when selecting numeric objectives as the preferred alternative. If these issues were fully evaluated, we feel that the narrative objectives would be a more reasonable alternative. Additional issues with numeric objectives include the following:

- *Biological systems are inherently variable and toxicity tests used to measure impacts on these systems are impacted by variables that are not concerns in chemical testing.* Toxicity tests are measures of how certain organisms respond to a particular water sample. As a result, the measurements are impacted by factors such as ionic changes in water chemistry, seasonality, light levels, temperature, and health of the organisms – all

¹ Evaluating Whole Effluent Toxicity Testing as an Indicator of Instream Biological Condition. Water Environment Research Foundation (WERF) Project Report 95-HHE-1. 1999.

² Evaluation of WET Testing as an Indicator of Aquatic Health in Effluent-Dominated Streams. Water Environment Research Foundation Project Report 03-ECO-2T. 2007.

³ The Santa Ana Region showed 100% of the samples to be non-toxic, but only 2 sites were evaluated.

factors which can vary to different, unpredictable, degrees between water samples and test applications. Although the toxicity test procedures attempt to minimize variability, the inherent variability of biological testing procedures cannot be eliminated and make the use of numeric effluent limits problematic. This issue is highlighted in EPA guidance on WET testing: *"The interpretation of the results of the analysis of data from any of the toxicity tests described in this manual can become problematic because of the inherent variability and sometimes unavoidable anomalies in biological data."*⁴ Furthermore, USEPA guidance states, *"The allowable frequency for criteria excursions should refer to true excursions of the criteria, not to spurious excursions caused by analytical variability or error."*⁵

- *Numeric objectives limit the ability of the Draft Policy to effectively and fairly address both toxic and non-toxic discharges and TMDL implications.* As will be discussed in the following section, significant technical concerns exist with the Draft Policy. Although alternatives may be available to address some of the technical issues, the use of a numeric toxicity objective in and of itself is problematic. Interpretation of toxicity data is a complex undertaking because of the inherent variability and anomalies associated with biological data. Toxicity is not a pollutant, but an effect, and therefore test results only provide an indication that an effluent may cause toxicity in receiving waters but do not identify the exact cause. Additional studies (such as accelerated monitoring, TIEs and TREs) are needed to establish the persistence and magnitude of the toxicity and the toxicant(s) causing the toxicity. Numeric objectives do not provide flexibility in addressing this complex problem or in addressing the need to do additional studies. Under the Draft Policy, numeric objectives lead to numeric effluent limitations for wastewater dischargers, which require immediate findings of violation, despite the fact that the additional studies needed to confirm toxicity and establish the cause and remedy have yet to be performed. It would be more effective in achieving the ultimate intent of a toxicity policy – the reduction of toxicity in receiving waters – to use toxicity tests as a starting point to identify the cause(s) rather than as a regulatory endpoint. Narrative objectives provide more flexibility to appropriately address the complex issues associated with toxicity testing.
- *The selected numeric objectives do not conform to EPA guidance and cannot easily be altered to address the guidance.* The selected numeric objectives do not contain an appropriate averaging period or exceedance frequency. As a result, the numeric objectives are currently equivalent to an instantaneous maximum with no allowable exceedances. This is inconsistent with EPA guidance and the nature and impact of toxicity. EPA's *Guidelines for Developing Water Quality Criteria to Protect Aquatic Life* states: "Because aquatic ecosystems can tolerate some stress and occasional adverse effects, protection of all species at all times and places is not deemed necessary." Additionally, the Guidelines acknowledge that "a statement of a criterion as a number that is not to be exceeded any time or place is not acceptable."

⁴ EPA. Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms, Fourth Ed., EPA-821-R-02-013. October 2002. Section 9.4.1.1, p. 39.

⁵ Technical Support Document for Water Quality-Based Toxics Control, EPA Office of Water, March 1991, EPA/505/2-90-001. See Appendix entitled "Technical Support Document for Water Quality Based Toxics Control – Responsiveness Summary," p. 11.

- *Instantaneous maximum numeric chronic toxicity objectives do not achieve the goal of identifying and controlling persistent toxicity.* Firstly, the concept of an instantaneous maximum objective for chronic toxicity does not make sense. Chronic toxicity tests are designed to capture toxicity resulting from longer term exposures to contaminants in water samples. Secondly, more than one exceedance of a toxicity threshold is needed to define persistent toxicity that could possibly be addressed and prevented. However, the definition of persistent toxicity and the methods for identifying it will vary depending on the type of discharge. For continuous dischargers it may be possible to identify a numeric objective with an averaging period that would appropriately identify persistent toxicity because dischargers can collect multiple samples to determine a median or average. However, these same strategies would not work for non-continuous discharges, such as agriculture and stormwater. These types of discharges are monitored at a significantly different frequency than wastewater discharges and often have intermittent and varied flow rates (as discussed in the Draft Staff Report). It may be cost prohibitive or not possible (due to lack of flow or sampling of a stormwater event) to collect multiple samples for comparison to an averaging period. As a result, the nature of these types of discharges essentially results in their samples being compared to objectives on a single sample basis regardless of the averaging period of the objective (i.e. one sample in a month is assumed to be equal to a monthly median). This approach does not adequately identify and define persistent toxicity for all types of dischargers and it is not feasible to appropriately define a numeric objective that can achieve these goals for all types of discharges and applications.

Developing a numeric objective that can appropriately regulate toxicity, define an appropriate averaging period based on the impacts of toxicity, and address the concern of the objective being used for single sample compliance for all types of discharges is problematic. However, the use of a narrative objective, combined with triggers or action levels that are specific to each type of discharge, would still achieve the goals of the Draft Policy and address the identified concerns. As a result, if the impacts of a numeric objective on discharges other than wastewater had been considered, narrative objectives may have been the preferred alternative.

For these reasons, we strongly support the use of narrative limits with accelerated monitoring and toxicity reduction evaluation (TRE) triggers rather than numeric limits. This step-wise approach is consistent with guidance from the EPA, both at the national⁶ and regional⁷ levels, a diverse national expert advisory panel⁸ formed by SETAC and funded by the EPA to provide guidance on WET issues, and the State Board Toxicity Task Force⁹ specifically assembled to provide guidance on the regulatory use of toxicity tests within the State.

Recommendation: Define a consistent narrative objective for all inland surface waters, enclosed bays, and estuaries of the state.

⁶ Technical Support Document for Water Quality-Based Toxics Control, EPA Office of Water, March 1991, EPA/505/2-90-001, p. 62, Section 3.3.7.

⁷ EPA Regions 9 and 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs, EPA, May 31, 1996, pp. 2-1, 4-1, and 5-2.

⁸ SETAC Wet Expert Advisory Panels, <http://www.setac.org/wettre.html>, Sections 1 and 4.

⁹ Memo to Members of the State Water Resources Control Board from the Toxicity Task Force, September 27, 1995. Recommendations 2, 5, 9, and 10.

Impacts of False Determinations of Toxicity Under the Draft Policy Would Be Significant

The CCW MOA is very concerned about the interpretation of false determinations of toxicity (i.e., incorrectly identifying a non-toxic effluent as toxic) under the Draft Policy and the impacts that will result. In particular:

1. The TST method outlined in the Draft Policy includes an inherent 5% statistical false positive error rate for individual tests which is unacceptably high when utilized as a numeric objective and effluent limit.
2. Statistical analysis of the method shows that the actual statistical false positive rate would be even higher.
3. Analysis of toxicity tests run using EPA blank water shows that the rate of falsely finding clean water to be toxic was 15% using the TST method.
4. Regardless of whether the rate is 5% or higher, the impact of false determinations of toxicity has significant implications for dischargers and 303(d) listings.

Issues with the Inherent 5% Statistical False Positive Error Rate

According to the Staff Report (page 40), a 5% statistical false positive rate was selected for the TST method because it is the same statistical false positive rate as the current approach. No evaluation was done of alternative statistical false positive rates or of the impact of the selected statistical false positive rate on the Draft Policy. The value was simply selected to maintain the statistical false positive rate of the current approach.

This selection is problematic because the Draft Policy does not maintain the rest of the current approach that made the statistical false positive rate more acceptable, namely utilizing the numeric value with the 5% statistical false positive rate as a trigger for additional monitoring and investigation. The 5% statistical false positive rate is acceptable in the current approach because a positive test triggers additional testing and evaluation of the presence of persistent toxicity, but does not necessarily result in a violation – thereby allowing the follow up testing to validate the test result before action is required. The statistical false positive rate becomes much more critical in the application of the Draft Policy, as positive tests result in required actions and violations without the allowance of additional testing to fully validate the positive test result and confirm the presence of persistent toxicity. Additionally, the current approach does not include single sample determinations of toxicity as violations and in some cases evaluates toxicity as a monthly median. Although falsely determining a non-toxic sample as toxic under the current approach may result in additional monitoring costs, it did not result in a violation of a numeric objective or effluent limit as would be the case under the Draft Policy. As a result, it is inappropriate to utilize the same false positive rate for the Draft Policy without considering the additional costs and impacts of the change in approach. Additionally, although the stated statistical false positive rate for the Draft Policy is 5%, we are concerned that the actual rate of false determinations of toxicity will be higher.

Evaluation of the Actual Statistical False Positive Error Rate Using the TST Method

According to the TST, to be identified as non-toxic, samples must be significantly greater than 80% of control performance for acute tests and 75% of control performance for chronic tests. False positive decisions occur when samples are incorrectly identified as toxic when the true sample condition is nontoxic as defined by the Policy. False negative decisions occur when samples are incorrectly identified as nontoxic when the true sample condition is toxic as defined by the Policy. The Policy states that false positives (samples incorrectly identified as toxic) are controlled by setting a low β value (0.05), equivalent to a 5% false positive error rate. However, the TST method does not achieve this goal and in fact does not control or balance the false positive rate with the false negative rate.

The actual false toxicity determination rate resulting from the Draft Policy TST method was evaluated by conducting Monte-Carlo simulations of the results of *Ceriodaphnia* acute toxicity tests and applying the Draft Policy TST method. The assumptions of the evaluation presented herein were as follows:

- Acute *Ceriodaphnia* test conditions consisted of 10 replicates each for controls and test samples, and 10 individual organisms per replicate.
- Organism response was modeled as a random binomial distribution with survival frequency estimated as the true average sample response.
- Average survival for controls was set to 97.5%.
- Average survival for test or effluent samples was set at 74%-90%.

Simulations were conducted consisting of 1,000 trials for each "true" average sample survival response rate, and the number of "Fail" and "Pass" decisions were recorded. "Fail" decisions for samples with an average survival of >80% of control were counted as false positives. "Pass" decisions for samples with an average survival of \leq 80% of control were counted as false negatives.

A summary of the results of the simulations are provided in **Table 1** and **Table 2**. These results for *Ceriodaphnia* acute tests document that statistical false positive error rates are much higher than the stated goal of 5%, and are actually approximately 23% for all samples with a mean survival response >80% of the controls. For samples with a response close to the 80% criterion, statistical false positive rates are as high as 86%, and for samples with responses from 81-90% of the control, the overall statistical false positive error rate is approximately 49%. On the other hand, the statistical false negative rate averaged only 5%. Therefore the stated goal of the Draft Policy to balance false positive and false negative rates does not appear to be achieved.

Table 1. Monte Carlo Simulation Results for *Ceriodaphnia* tests of non-toxic samples.

Avg Sample Response (% Survival)	Avg Percent of Control (Based on average control survival of 97.5%)	Number Passing TST (1000 trials)	Number Failing TST	% Passing (Correct Decision)	% Failing (False Positive)
79%	81%	139	861	14%	86%
80%	82%	177	823	18%	82%
81%	83%	270	730	27%	73%
82%	84%	362	638	36%	64%
83%	86%	504	496	50%	50%
84%	86%	568	432	57%	43%
85%	87%	640	360	64%	36%
86%	88%	745	255	75%	26%
87%	89%	834	166	83%	17%
88%	90%	894	106	89%	11%
89%	91%	934	66	93%	7%
90%	92%	968	32	97%	3%
91-100%	>93%	10,000	0	100%	0.0%
Totals for all non-toxic samples		17035	4965	77%	23%

Table 2. Monte Carlo Simulation Results for *Ceriodaphnia* tests of toxic samples.

Avg Sample Response (% Survival)	Avg Percent of Control (Based on average control survival of 97.5%)	Number Passing TST (1000 trials)	Number Failing TST	% Passing (False Negative)	% Failing (Correct Decision)
74%	76%	24	976	2.4%	97.6%
75%	77%	32	968	3.2%	96.8%
76%	78%	44	956	4.4%	95.6%
77%	79%	63	937	6.3%	93.7%
78%	80%	91	909	9.1%	90.9%
Totals for all non-toxic samples		254	4746	5.1%	94.9%

Evaluation of the Actual False Positive Error Rate Using the Non-Toxic Sample Analysis

In addition to the statistical analysis conducted above, the rate at which the Draft Policy determines non-toxic samples to be toxic was evaluated by using the TST method to evaluate the results of toxicity tests conducted on totally non-toxic, clean water blank samples. In 2000, EPA conducted an extensive inter-laboratory WET study¹⁰ in support of WET method development. As part of this study, EPA sent out blank, clean water, non-toxic samples to labs with documented proficiency in running toxicity tests. The raw results from this study were obtained for the blanks that were analyzed for *Ceriodaphnia dubia* chronic toxicity. When the raw data from that study is analyzed using the TST procedure, 15% of those clean water samples would have been incorrectly identified as toxic. Since all these samples were known non-toxic blank samples, any identification of toxicity would be a false determination of toxicity. Details of these results are contained in **Table 3**.

¹⁰ U.S. EPA. Final Report: Interlaboratory Variability Study of EPA Short-term Chronic and Acute Whole Effluent Toxicity Test Methods-Vol. 1 & 2; EPA-821-B-01-004; September, 2001.

Table 3. Valid *Ceriodaphnia dubia* reproduction “blank” data from the EPA Inter-laboratory Validation Study.

Sample Code	Mean Control Response	Mean Sample Response	% Effect	TST Results
9330	31.9	33.6	-5.5	Non-Toxic
9332	18.8	16.3	13.2	Toxic
9337	23.3	23.9	-2.6	Non-Toxic
9338	24.2	21.3	12.0	Non-Toxic
9340	16.0	19.8	-23.8	Non-Toxic
9341	30.0	27.3	9.0	Non-Toxic
9344	19.4	22.5	-16.0	Non-Toxic
9349	30.8	30.9	-0.3	Non-Toxic
9350	29.5	23.0	22.0	Toxic
9356	25.2	29.1	-15.5	Non-Toxic
9367	23.1	19.4	16.0	Toxic
9371	23.4	25.6	9.4	Non-Toxic
9376	20.4	17.8	12.7	Non-Toxic
9379	29.5	34.2	-15.9	Non-Toxic
9381	26.5	27.3	-3.0	Non-Toxic
9382	27.5	25.7	6.5	Non-Toxic
9384	17.3	18.7	-8.1	Non-Toxic
9402	16.0	16.2	-1.2	Non-Toxic
9409	32.0	34.2	-6.9	Non-Toxic
9410	33.2	32.2	3.0	Non-Toxic
9429	31.6	32.7	-3.5	Non-Toxic
9432	18.8	19.1	-1.6	Non-Toxic
9436	30.0	31.8	-6.0	Non-Toxic
9439	18.9	19.1	-1.1	Non-Toxic
9445	23.6	23.4	0.8	Non-Toxic
9446	28.0	28.3	-1.1	Non-Toxic
9450	19.4	4.1	78.9	Toxic

Since the 2000 EPA study was not designed to specifically evaluate the TST method false positive rate, we recognize that it is not possible to determine the actual false positive error rate for the Draft Policy through evaluation of this data. However, the evaluation of the data combined with the statistical analysis shown above indicates that the actual false positive rate for the Draft Policy is likely greater than the stated 5%.

Implications of the False Positive Rate

Based on the discussion above, the statistical false positive error rate for the Draft Policy will likely be somewhere between the stated 5% and over 20%. Using this range, the potential implications for dischargers and 303(d) listings and TMDLs is significant. These high rates of

false determinations of toxicity will translate into many incorrect determinations of non-compliance with POTW effluent limits and associated risks for State and Federal penalties resulting from Clean Water Act Violations. The associated effluent limit violations will result in RWQCB enforcement resources being diverted away from real water quality violations. For stormwater and agricultural dischargers in the CCW, the false determinations of toxicity would result in expenditures for Best Management Practice implementation and a potentially unending iterative implementation loop as required by their permit and conditional waiver to implement the CCW Toxicity TMDL.

The CCW TMDL Implementing Parties are a primary concerned over the implications of the false determinations of toxicity for the CCW Toxicity TMDL. The implementation of the toxicity TMDL in the CCW since 2006 has significantly reduced toxicity in receiving waters in the watershed. However, false determinations of toxicity resulting from the Draft Policy could reduce the ability of the TMDL implementing parties to ever meet the requirements of the TMDL and delist toxicity in the watershed.

The TMDL monitoring program consists of quarterly dry weather monitoring and two wet weather events for toxicity, resulting in six toxicity monitoring results per year at each monitoring location. In order to delist toxicity in a reach, a minimum of 28 samples are required by the State Listing Policy. It will take five years of monitoring to achieve the minimum sample size under the current TMDL monitoring program. Based on the statistical false positive rate of 5% in the Draft Policy, at least one and possibly two non-toxic samples will be determined to be toxic as a result of the statistics during the five-year monitoring period. If the actual statistical false positive rate is closer to 15%, up to 5 samples could be falsely determined to be toxic by the Draft Policy. In order to delist with a sample size of 28 to 36, no more than two samples can exceed water quality objectives. As a result, samples that were falsely determined to be toxic by the Draft Policy would prevent the waterbody from being delisted at a minimum if any other sample exhibited toxicity during the five year period and potentially without any truly toxic samples being collected. This is despite the fact that the State Listing Policy does not consider a water to be impaired if less than 10% of the samples, as determined through the binomial method, exceed water quality objectives. Consequently, the CCW could be achieving the toxicity objectives per the State Listing Policy and not be able to delist as a result of false determinations of toxicity under the Draft Policy.

To evaluate the impact of the Draft Policy on Calleguas Creek Watershed Toxicity TMDL, data from the Calleguas Watershed TMDL Monitoring Program was evaluated using the TST and compared to the test results obtained using the NOEC. All of the samples evaluated were receiving water samples. The following table summarizes the results.

Table 3. Evaluation of CCW Toxicity TMDL Monitoring Data Using the TST

Reach	# Events (8/08-8/10)	Total # Samples (survival and reproduction combined)	# Samples Exceeding 1.0 TUc	# Samples identified as toxic by the TST^b
Somis	13	26	6	7
Adolf	13	26	3	4
Gate	11	22	0	1
University (3)	13	26	9	9 ^a
Belt	9	18	1	1 ^a
Hitch	13	26	10	12

- a. At this site, one sample was identified as being non-toxic while exceeding the 1.0 TUc and one sample was identified as toxic when not exceeding 1.0 TUc.
- b. All of the samples determined to be toxic using the TST that did not exceed 1.0 TUc were for the reproduction endpoint, not survival, for *Ceriodaphnia Dubia* tests.

The results show that the TST identified 7 samples as toxic that did not exceed the 1.0 TUc target. The TST identified at least one additional sample as being toxic at each monitoring location over the course of about 13 monitoring events, which is what would be expected of a method with a 5% rate of false determinations of toxicity. The TST also identified 2 samples as not toxic that had a TUc greater than 1.0 using the NOEC. It is important to note that these samples were conducted by a laboratory that generates very high quality data (Pacific Ecorisk) and 10 replicates were conducted for each sample. As a result, it is unlikely that the differences in the results can be explained because the quality of the data needs to be improved.

Although we cannot determine if the additional samples determined to be toxic by the TST are false positives, the analysis shows that the TST would likely result in additional observations of toxicity in the receiving waters. However, these observations would be at such low levels of toxicity that actions could likely not be taken to identify the cause of the toxicity. For reaches where several observations of toxicity have occurred, the impact will likely not be that significant until toxicity reductions occur. However, for reaches with little or no toxicity observations, the impact will be a continued need to monitor and evaluate the site and determine if any actions need to be implemented to address toxicity that is intermittent and for which the constituent(s) causing the toxicity cannot be easily defined. It will also potentially create issues with delisting the watershed for toxicity as discussed above.

If the CCW cannot be delisted for toxicity, the TMDL implementing parties will be subject to ongoing monitoring and TMDL management costs to address a non-toxic waterbody. Additionally, because the toxicity objectives are included as wasteload and load allocations in the TMDL, POTWs, stormwater and agricultural dischargers in the watershed would be subject to ongoing permit requirements related to the TMDL.

These implications are not limited to the CCW. False determinations of toxicity will result in 303(d) listings for non-toxic waterbodies and the inability of listed waterbodies throughout the state to be delisted even after a TMDL has been developed and controls have been implemented for identified toxicants. These additional 303(d) listings will result in Regional Water Board resources being utilized to develop TMDLs and community resources being spent to implement TMDLs for non-toxic waterbodies. As a result, water quality will suffer, because the real toxicity problems will be lost in all the noise and may go unresolved.

The false determinations of toxicity have more significant impacts under the Draft Policy than under the current policy because of the inclusion of numeric objectives and the use of single exceedances of the numeric objectives to determine 303(d) listings, effluent limit violations, TRE requirements, trigger TRE requirements, and BMP implementation. Therefore an alternative approach is necessary to mitigate the potential impacts of the false determinations of toxicity under the Draft Policy. The recommended alternative approach consists of the following:

1. Defining a consistent narrative objective for all inland surface waters, enclosed bays, and estuaries of the state.
2. Defining numeric values that appropriately represent the narrative standard and that will be used to trigger additional actions by dischargers and make 303(d) listing decisions. The action levels should reflect the nature of the discharge, be designed to identify and trigger actions only for persistent toxicity, and help control the inherent issues with toxicity test procedures, such as false positives and false negatives by only requiring actions after multiple exceedances of the numeric values.

At this time, it is possible to develop a consistent narrative objective and appropriate numeric values to trigger actions for wastewater dischargers. However, as discussed in the Draft Staff Report, the nature of agricultural and stormwater discharges does not allow for the application of numeric values at this time. As a result, the Draft Policy implementation procedures should only address wastewater entities at this time.

Recommendation:

Revise the Draft Policy as follows:

1. Replace the numeric objective with a clear narrative chronic toxicity objective.
2. Revise Section III.A to include multi-sample triggers for accelerated monitoring and conducting TREs.
3. Remove all references to wastewater implementation provisions from Section III.B and III.C.
4. Include an explicit statement in Sections III.B and III.C that the intent of the Draft Policy is only to define consistent monitoring requirements for agricultural and stormwater dischargers and that implementation provisions and triggers will be determined at a future date after the appropriate technical information has been developed. The implementation provisions for wastewater dischargers are not to be used for regulating other types of discharges.
5. Include a statement that the State Listing Policy will be revised to be consistent with Draft Policy and define appropriate numeric values for interpreting the narrative standard once the technical analysis has been conducted to appropriately identify the value.

No Justification for More Stringent Requirements by Regional Water Boards

As discussed in the Draft Policy, the Policy will supersede the State Implementation Plan (SIP) toxicity control and toxicity testing procedures, but not the narrative objectives established in Basin Plans. Additionally, the Draft Policy gives the State and Regional Water Boards the discretion to:

- establish acute toxicity limitations and monitoring requirements
- apply numeric effluent limitations for toxicity in MS4 and individual industrial stormwater permits and in Conditional Waivers or WDRs for agricultural dischargers
- apply “remediation measures established in Part III, Section A-7, or other remediation measures as appropriate” for stormwater and agricultural dischargers

These provisions are in stark contrast to other major policies recently adopted by the State Water Board in that they would allow Regional Water Boards to depart from the Draft Policy provisions at their sole discretion. (As examples of policies expressly superseding Basin Plan provisions governing the same subject, see Policy for Compliance Schedules in NPDES Permits (2009) at p. 7; Water Quality Control Plan for Enclosed Bays and Estuaries—Sediment Quality Objectives, August 25, 2009 at p. 1) The purpose and intent of the Draft Policy as well as the justification for many of the decisions made in developing the Draft Policy (as stated in the Staff Report) is the development of statewide consistency in addressing water column toxicity. If State and Regional Boards are given the discretion to impose more stringent requirements, the Draft Policy will fail to achieve consistency. Additionally, the Draft Policy will not achieve consistency unless the proposed objectives and implementation expressly supersede existing narrative objectives in the individual basin plans and preclude Regional Water Boards from “translating” the narratives into additional or different testing procedures or limitations.

Requested Changes:

Identify that the Draft Policy supersedes the narrative objectives in Basin Plans. Remove all references to Regional Board discretion in the Draft Policy, particularly in Sections III.B. and III.C.

Recommendations Summary

In summary, the CCW MOA feels that the Draft Policy as proposed has significant technical and policy issues. We are concerned that the Draft Policy includes numeric objectives, has an unacceptably high rate of false determinations of toxicity, and will result in the inability of dischargers to prove compliance with the CCW Toxicity TMDL. We feel that all of these issues need to be addressed to result in an acceptable Toxicity Policy. As such we request that:

1. The Draft Policy include narrative standards and associated narrative effluent limits rather than the numeric objectives and numeric effluent limits for wastewater dischargers.
2. Multi-sample triggers for actions be defined for wastewater dischargers that appropriately limit the impact of false positives.
3. The Draft Policy explicitly states that the intent of the Draft Policy is only to define consistent monitoring requirements for agricultural and stormwater dischargers and that implementation provisions and triggers will be determined at a future date after the appropriate technical information has been developed. The implementation provisions for wastewater dischargers should not be used for regulating other types of discharges.
4. Include a statement that the State Listing Policy will be revised to be consistent with Draft Policy and define appropriate numeric values for interpreting the narrative standard once the technical analysis has been conducted to appropriately identify those values.
5. SWRCB and RWQCB discretion to deviate from the State Policy be removed and that the Policy expressly supersede narrative objectives in Basin Plans.