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Central Valley Clean Water Association

Representing Over Fifty Wastewater Agencies

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August 21, 2012

Sent via electronic mail

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



Subject: Comment Letter – Policy for Toxicity Assessment and Control

Dear Chairman Hoppin and Members:

The Central Valley Clean Water Association (CVCWA) appreciates this opportunity to comment on the State Water Resources Control Board (State Water Board) June 2012 *Policy for Toxicity Assessment and Control – Public Review Draft* (Draft Policy) and *Draft Staff Report and Environmental Checklist* (Draft Staff Report).

CVCWA consists of public agencies located within the Central Valley region, and under the jurisdiction of the Central Valley Regional Water Quality Control Board. Our members provide wastewater collection, treatment and water recycling services to millions of Central Valley residents and businesses. CVCWA is also a co-signatory on comments sent by the Associations (CASA, Tri-TAC, SCAP, BACWA, CVCWA, and RCRC. In addition to those comments, this letter provides additional detailed comments on issues of greatest importance to CVCWA. Our specific comments are included below.

13.1 → 1. Numeric Objectives for Acute and Chronic Toxicity are Unnecessary and Problematic

CVCWA recognizes that ambient toxicity caused by POTW discharges is a potential threat to aquatic life beneficial uses, but does not believe that numeric toxicity objectives are necessary to address that threat. Specifically, numeric objectives are problematic in that they may result in unnecessary 303(d) listings.

The Draft Policy proposes a numeric toxicity objective that states that the water quality objective is attained if the null hypothesis is rejected in accordance with the test of significant toxicity (TST) statistical approach. Thus, a single TST failure represents an exceedance of the numeric objective. Table 3.1 of California's 303(d) listing policy¹ specifies that if two (2) or more of 24 measurements in a waterbody exceed the water quality objective, the waterbody will be listed as impaired. This is problematic because of the acknowledged rate of false positive test results using the TST method.

13.2 → According to the Draft Staff Report (page 37), a 5% statistical false positive rate was selected for the TST method because it "has been established by U.S. EPA for all hypothesis tests". There is some lack of agreement regarding the false positive rate of the single TST test – the U.S. EPA inter-laboratory validation study indicated an error as high as 15%, while the State Water Board staff's "Test Drive" indicates it approximates the 5% error rate associated with the current No Observed Effect Concentration (NOEC) statistical test. At a 15% false determination of toxicity rate, the probability of listing a non-toxic water body (i.e., of observing at least two TST exceedances in 24 samples) is 89% while at a 5% false positive rate, 34% of California's non-toxic waterbodies would be expected to be incorrectly listed as impaired based on an assessment of 24 samples. In either case, the probability of a false positive test result resulting in an impairment listing is unacceptably high.

13.3 → Narrative objectives can avoid this problem and be effective in protecting aquatic life beneficial uses. In fact, narrative objectives may provide even more incentive than a numeric limit for dischargers to investigate and control the sources of toxicity. The use of narrative objectives with clear implementation procedures is consistent with Federal, State, and Regional Guidance. A step-wise approach using narrative objectives with accelerated monitoring and TRE triggers has been effectively utilized in California for over ten years. Such an approach is supported by a diverse national expert advisory panel², which was formed by the Society of

¹ Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List. State Water Resources Control Board. Adopted September 2004.

² SETAC WET Expert Advisory Panels, <http://www.setac.org/wettre.html>, Sections 1 and 4.

Application of TIEs/TREs to Whole Effluent Toxicity Testing: Principles and Guidance. A Report of the Society of Environmental Toxicology and Chemistry (SETAC) WET Expert Advisory Panel on TIE/TRE, peer reviewed by the SETAC WET Expert Advisory Panels Steering Committee. June 1998. Produced under the SETAC Foundation's WET Cooperative Agreement with U.S. Environmental Protection Agency, No. CX 824845-01-0. <http://www.setac.org/wettre.html>.

13.3 → Environmental Toxicology and Chemistry (SETAC) and funded by the U.S. EPA to provide guidance on Whole Effluent Toxicity (WET) issues and by the State Water Board Toxicity Task Force³, which was specifically assembled to provide guidance on the regulatory use of toxicity test within the State. A narrative limit/numeric trigger approach has been in place since 2003 without demonstrable adverse environmental consequences, has not been objected to by U.S. EPA, and has been supported by the State Water Board.

➤ ***CVCWA recommends that the Draft Policy be revised to incorporate narrative rather than numeric toxicity objectives.***

13.4 → **2. Requirements for small disadvantaged communities should be modified and clarified**

CVCWA appreciates that the State Water Board is taking steps to provide regulatory relief to small disadvantage communities.

The Draft Policy defines “small” communities based on both population and economic status. The definition in the Policy should be revised to refer to “small and disadvantaged” communities, a subset of the class of “small” communities, recognizing the economic requirements included in the definition.

➤ ***CVCWA recommends that the Draft Policy revise the references of “small communities” to “small and disadvantaged communities”.***

13.5 → Unless otherwise exempted in Part III (A)(9), the Draft Policy (page 6) automatically determines that POTWs with a dry weather design capacity of 1 million gallons per day (MGD) or more have reasonable potential and are required to implement the Part III: Implementation Procedures of the Draft Policy, which will automatically result in numeric effluent limits and monthly chronic toxicity sampling. Part III (A)(9) of the Draft Policy exempts “small” (and disadvantaged) communities from the implementation procedures unless the Regional Water Board “finds them to have an impact on receiving water quality”. This exemption also does not preclude the Regional Water Board from “requiring periodic toxicity testing for small communities”.

The Draft Policy leaves significant discretion to the Regional Water Board for defining “an impact on receiving water quality”. Because discharges from POTWs may have some, even if minor, impact on receiving water quality, all “small” (and disadvantaged) communities may not qualify for the exemption from Part III: Implementation Procedures. In most cases, water quality impacts associated with small community discharges are not substantial.

³ Memo to Members of the State Water Resources Control Board from the Toxicity Task Force, September 27, 1995. Recommendations 2, 5, 9, and 10.

13.5 → **CVCWA recommends the Draft Policy state that an impact would need to be shown to be substantial to void the small community exemption.**

13.6 → The Draft Policy defines small communities as those communities with populations of 20,000 or less, and with a median household income below 80 percent of the statewide median household income (MHI). Small communities may also be defined as disadvantaged if they have a population of 20,000 or less, a median income above 80 percent of the MHI, and “more than four percent of their MHI is paid toward wastewater infrastructure.” This is an unreasonably high affordability threshold which will likely not be met by most small communities. The threshold value is proposed without a supporting basis and is much higher than the affordability value established in USEPA’s 1995 *Interim Economic Analysis Guidance for Water Quality Standards*. The USEPA affordability threshold is 1 to 2 percent of MHI, taking into consideration all infrastructure and operating and maintenance costs for pollution control for a community.

➤ **CVCWA strongly recommends modification of the proposed threshold value to be consistent with USEPA guidance.**

13.7 → **3. Small Communities will be Disproportionately Affected**

There are small communities that only meet the “population” criteria of the definition of “small communities” in the Draft Policy (i.e. population of 20,000 or less), but have facilities with design capacities of 1 MGD or greater, thereby automatically triggering reasonable potential and monthly monitoring rates. The 1 mgd threshold is too low and will impact many small communities.

A conservative design standard for POTWs is to assume a per capita flow rate of 100 gallons per day.⁴ Using this design standard, a POTW with a design capacity of 1 MGD would only be able to service 10,000 people, rather than the 20,000 figure referenced in the proposed Policy. It is also important to note that treatment plant design capacity may not be a direct function of size, but could be based on other factors such as the size of a unit processes, peak design flows or future population growth which has not occurred. Under these scenarios, even if a community is small by size due to its population, the community would be required to implement the procedures in Part III of the Draft Policy because it automatically would be found to exhibit reasonable potential. This design standard is overly conservative because it does not account for typical per capita flows, other design factors, or any commercial or industrial flows that may discharge to the POTWs. A large industrial user, or multiple industrial users collectively, can easily contribute significant wastewater flow to POTW resulting in average dry weather flows (ADWF) received at POTW of 1 MGD or greater, thereby triggering reasonable potential and substantially more intensive monitoring requirements.

⁴ *Recommended Standards for Wastewater Facilities, 2004 Edition (Ten States Standard).*

13.7 → Based on a survey of 86 POTWs with wastewater NPDES permits under the jurisdiction of the Central Valley Regional Water Board, 23 POTWs have average dry weather capacities over 1 MGD, but a service area population of less than 20,000 people. While these 23 POTWs may or may not meet the mean household income (MHI) requirement to be classified as a “small” (and disadvantaged) community under the proposed Policy, the minimum discharge flow rate requiring implementation of the Draft Policy will group these small POTWs in the same classification as the largest POTWs in the State.

The Draft Policy requires that POTWs discharging less than 1 MGD be subject to a minimum chronic toxicity testing frequency of quarterly. Of the 86 POTWs surveyed, 34 POTWs discharge less 1 MGD. Only three of these 34 POTWs currently monitor chronic toxicity at a quarterly frequency. All the other small POTWs monitor significantly less frequently. The general toxicity testing requirements in these POTW NPDES permits is presented in Table 1. Most of these small POTWs will need to significantly increase its chronic toxicity testing frequency because of the Draft Policy.

**Table 1. POTWs with a Population Less Than 20,000 People
with an Average Dry Weather Design Capacity of Less Than 1 MGD**

Monitoring Frequency	Acute Toxicity (Number of POTWs)	Chronic Toxicity (Number of POTWs)
Monthly	1	0
Quarterly	10	3
Semiannually	13	10
Annually	10	13
Twice per permit term	0	3
Once per permit term	0	5

Currently, all 23 POTWs that have a population of less than 20,000 people, but a design capacity of 1 MGD or greater, are required to conduct both acute and three-species chronic toxicity testing at some frequency. While some POTWs are only required to conduct toxicity testing during periods of discharge to the receiving water, other POTWs may have multiple discharge points that must be monitored. The general toxicity testing requirements in these POTW’s NPDES permits is presented in

Table 2.

**Table 2. POTWs with a Population Less Than 20,000 People
with an Average Dry Weather Design Capacity of 1 MGD or Greater**

Monitoring Frequency	Acute Toxicity (Number of POTWs)	Chronic Toxicity (Number of POTWs)
Monthly	4	0
Quarterly	15	12
Semiannually	1	1
Annually	3	6
Twice per permit term	0	3
Once per permit term	0	1

13.7 → The Draft Policy will significantly increase the frequency of chronic toxicity monitoring to monthly monitoring for the 23 POTWs that meet the population criteria for “small” communities in the Draft Policy, but cannot qualify as disadvantaged.

Of the 86 Central Valley POTWs surveyed, there are currently 63 POTWs with design capacities of less than 5 MGD. A breakdown of the toxicity testing frequencies for these facilities is provided in

Table 1.

Table 1. POTWs with an Average Dry Weather Design Capacity of Less Than 5 MGD

Monitoring Frequency	Acute Toxicity (Number of POTWs)	Chronic Toxicity (Number of POTWs)
Monthly	7	0
Every Two Months	2	0
Quarterly	27	20
Semiannually	14	12
Annually	13	19
Twice per permit term	0	6
Once per permit term	0	6

13.7 → As shown by the table, all POTWs surveyed that have ADWF capacities greater than 1 mgd but less than 5 mgd will see an increase in chronic toxicity sampling requirements. The requirements based on POTW size as well as Regional Water Board-determined reasonable potential substantially impacts small communities economically. While CVCWA recognizes the importance of testing, testing frequencies should be significantly reduced, based on the size of the POTWs, from the proposed levels.

- **CVCWA recommends that maximum routine monitoring frequency for POTWs under 1 MGD be annual and that the maximum routine monitoring frequency for POTWs between 1 and 5 MGD be quarterly.**

13.8 → The policy contains no provisions for reduced monitoring frequencies for POTWs that have a demonstrated track record of complying with chronic toxicity objectives. Maintaining the frequency of monitoring for toxicity when there is no history of toxicity does not make sense and is not a good use of public resources.

- ***CVCWA recommends that the Draft Policy allow Regional Water Boards to reduce monitoring frequency for POTWs with a good track record of compliance.***

13.9 → 4. **Reasonable Potential Should not be Automatic and Should be Re-Evaluated when Permits are Renewed**

As described more in depth in the Association letter, CVCWA recommends that the Draft Policy be modified such that the threshold for the presumption of reasonable potential (which automatically applies implementation of the Draft Policy) be removed for all sized POTWs. At minimum, this threshold should be raised from 1 MGD to 5 MGD, unless the Regional Water Board finds a POTW to have a substantial impact on receiving water quality. This recommended approach is consistent with the U.S. EPA discharge threshold for the requirement of most industrial pretreatment programs, and is based not simply on the POTW's ability to pay, but on the reduced threat to beneficial uses posed by smaller discharges. Additionally, the presence of an industrial pretreatment program provides the legal authority and resources for the POTW to identify and enforce against potential causes of toxicity. This recommendation is also consistent with the State Water Board's Enforcement Policy and Small Community Strategy, as described in the Association letter.

- ***CVCWA recommends that the Draft Policy be modified such that the threshold for the presumption of reasonable potential (which automatically applies implementation of the Draft Policy) be removed, or at minimum, raised from 1 MGD to 5 MGD, unless the Regional Water Board finds a POTW to have a substantial impact on receiving water quality.***

The Draft Policy does not include a mechanism to re-evaluate reasonable potential once assigned (e.g., once a POTW is found to have reasonable potential for toxicity, it permanently has reasonable potential). The current approach of the Draft Policy on reasonable potential based on POTW size as well as Regional Water Board-determined reasonable potential substantially impacts small communities economically.

- ***CVCWA recommends that Regional Water Boards be required to re-assess reasonable potential for all POTWs during each permit reissuance cycle, particularly those under 5 MGD ADWF, just as they currently do for chemical-specific effluent limitations.***

13.10 → 5. Proposed Effect Levels for Determining Reasonable Potential for Small Communities Should Be Modified

Given the low risk associated with small community discharges, the criteria for determining reasonable potential should be at the RMD effect level (25%) rather than the 10 % effect level specified in the Draft Policy. The 25% effect level is appropriate since there is some confidence that a toxic endpoint has been reached and that the observed level of effect is of concern.

- ***CVCWA recommends that the criteria for determining reasonable potential be adjusted from the proposed 10% effect level to a 25% effect level, which represents the regulatory management decision (RMD).***

13.11 → 6. The Economic Analysis Does Not Accurately Assess the Cost Impacts on Small Communities

The *Economic Considerations of the Proposed Whole Effluent Toxicity Control Policy for California* (June 2012) (Economic Analysis), included as Appendix H of the Draft Policy, does not accurately assess the cost impacts on small communities. The Economic Analysis is significantly flawed because:

- It does not assess the economic impact on POTWs that discharge less than 1 MGD. For POTWs discharging less than 1 MGD, the increase of toxicity testing to a quarterly frequency will have a significant economic impact not only on analytical costs, but also indirect costs associated with monitoring.
- It does not assess, in its case studies, a POTW that discharges 1 MGD or more with a population less than 20,000 people with the exception of the Camrosa Water District (CWD) treatment plant. Regardless of whether CWD is classified as a small community (e.g., also meeting the MHI threshold) or not, it is not representative of the small communities discussed above because it has not discharged to surface water since 1998.

13.12 → It assumes no cost for conducting four chronic toxicity tests for each of the three species required in the three-species screening. The justification of not including the costs of conducting a three-species screening test is that it is assumed that the most sensitive species would have already been determined by the regular chronic toxicity testing. It is possible that existing chronic toxicity testing data may not identify the most sensitive species.

13.13 → Similarly, using single-concentration testing for the chronic toxicity screening may not identify the most sensitive species or the level of toxicity to the species. These situations will result in additional testing costs for the three-species screening that are not included in the cost analysis.

- 13.14 → While the POTWs that currently have a minimum of quarterly chronic toxicity monitoring frequency may see a minimal savings in analytical cost resulting from only conducting chronic toxicity testing for one species under the Draft Policy, other POTWs currently with less frequent chronic toxicity testing will see a significant increase in analytical costs resulting from the Draft Policy.
- 13.15 → It speculates that acute toxicity will not be required upon implementation of the Draft Policy because Regional Water Boards will have the discretion to require acute toxicity testing. Under this assumption, the Economic Analysis realizes cost savings from no further acute toxicity testing. Regional Water Boards currently have discretion for setting acute toxicity testing requirements, and the Central Valley Regional Water Board has required both acute and chronic toxicity testing for each of the 86 POTWs surveyed above. For the purpose of determining cost impacts as long as the Regional Water Board retains discretion to require acute toxicity testing, it is inaccurate to assume the complete elimination of acute toxicity testing requirements and the associated costs.
- The Draft Policy includes requirements for a reasonable potential analysis for acute toxicity. In order to determine reasonable potential for acute toxicity, acute toxicity testing will be needed. As stated above, costs for acute toxicity testing are not included in the Economic Analysis.
- 13.16 → It does not include non-analytical costs associated with increased monitoring efforts including, but not limited to, labor for collecting samples and costs for shipping and/or transporting samples to the analytical laboratory.
- 13.17 → The TST method in the Draft Policy inherently assumes a 5% false positive rate. Because additional testing is required if an exceedance is observed, POTWs may needlessly conduct up to two additional chronic toxicity tests to verify toxicity. In situations where accelerated monitoring is required by a false positive result, the costs significantly increase because the Draft Policy requires multi-concentration chronic toxicity testing during accelerated monitoring. The Economic Analysis should reflect the potential impact of false positive results on costs.
- 13.24 → The expected false positive rate of the TST method will result in additional violations, which will subject the POTW to implementing costly Toxicity Reduction Evaluation /Toxicity Identification Evaluation (TRE/TIE) studies as well as associated administrative civil liabilities (ACLs) fines and third party lawsuits. While speculative, these are significant costs associated with adopting the Draft Policy with a built-in 5% false positive rate.

13.18 → The expected false positive rate of the TST method will result in 34% of the State's non-toxic water bodies to be incorrectly listed as impaired. A listing of impairment requires development of a Total Maximum Daily Load (TMDL), associated monitoring, and implementation of appropriate control measures. These efforts are a significant cost to the State Water Board and local entities.

13.19 → The TST is highly sensitive to variable test results typical of biological assays. In order to reduce variability, additional replicates may be taken; however, these replicates will increase analytical costs. This situation is not accounted for in the Economic Analysis.

13.20 → While these costs can impact POTWs of all sizes, small communities are disproportionately impacted because there is a smaller ratepayer base to support the fixed costs associated with toxicity testing, accelerated monitoring, TRE/TIE studies, implementation of control measures, ACLs, and third party lawsuits. Also, the case studies used in the Economic Analysis were biased towards larger facilities that currently have a higher frequency of toxicity testing. While these larger facilities may or may not realize actual savings under the Draft Policy, extrapolation of these potential savings as identified in the Economic Analysis for all facilities is not representative and inaccurately portrays the impacts on small POTWs based on the reasons listed above.

13.21 → Additionally, some water treatment plants have wastewater NPDES permits because filtration backwash must be treated and disposed of as wastewater. These facilities will also be required to implement the Draft Policy, which may result in some communities bearing the cost impact from both water and wastewater utilities under the Draft Policy.

➤ ***CVCWA recommends that the Economic Analysis be updated to reflect the true costs (i.e., increased labor, shipping, transportation) of the Draft Policy that breaks down the cost impacts on small, medium, and large POTWs. The Economic Analysis should also include additional costs based the 5% false positive rate of the TST that will trigger additional testing and potential TRE/TIE studies as well as an expectation that acute toxicity testing may continue to be required based on existing Regional Water Board practices.***

13.22 → **7. The Maximum Daily Effluent Limitation Should Be Removed**

Contrary to U.S. EPA guidance, the Draft Policy includes a maximum daily effluent limitation (MDEL) that would result in an effluent limitation violation as a result of a single sample exceedance. Despite the higher effect level associated with the MDEL, it is inappropriate to assess single sample violations for WET analyses due to the variability and uncertainty inherent in testing biological organisms. The promulgated U.S. EPA method for chronic toxicity, which is required by the Draft Policy, states that "[t]he interpretation of the results of the

13.22 → 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”.

Numerous sources of uncertainty exist in toxicity testing. One is the inherent variability of individual test organism response that leads to statistical uncertainty and can only be partially reduced by increasing the number of replicates tested. There are also numerous potential causes for organisms response that are unrelated to toxicity, including variability in batches of test organisms, the presence of pathogens, or a deficiency of necessary conditions in the sample. For example, there are well-documented effects of samples with low hardness or high salinity on organisms such as *Ceriodaphnia* or fathead minnows. In these cases, the apparent “toxicity” of the sample is due to the absence of essential elements in the test solution. Single sample exceedances that are not part of a pattern of toxicity should be viewed with suspicion, as they may be due to transient causes unrelated to actual chronic toxicity in the water tested.

For these reasons, the U.S. EPA memo entitled *National Policy Regarding Whole Effluent Toxicity Enforcement (1995)* states, “EPA does not recommend that the initial response to a single exceedance of a WET limit, causing no known harm, be a formal enforcement action with a civil penalty”. The appropriate response to a WET test indicating the presence of toxicity is to investigate the cause, starting with follow up testing to confirm the initial result.

- ***CVCWA recommends that the Draft Policy, if it must include numeric effluent limits, include only median or other percentile limits that require more than one test result to assess a permit violation.***

13.23 → **8. The Requirement For Acute Toxicity Testing Should Be Removed**

The Central Valley Regional Water Board currently has discretion on setting acute toxicity limits and monitoring requirements. The Central Valley Regional Water Board implements acute toxicity effluent limits using justification from the USEPA Region IX guidance entitled, *Guidance for NPDES Permit Issuance* (February 1994). As a result, all POTWs under the Central Valley Regional Water Board jurisdiction currently have non-reasonable potential-based acute toxicity effluent limits and monitoring requirements.

It is commonly accepted that chronic toxicity testing represents a more sensitive measurement of toxicity than acute testing. Chronic toxicity tests typically utilize more sensitive life-stage(s), have longer exposure durations, and incorporate more sensitive endpoints than survival, such as growth and reproduction. Therefore, any sample exhibiting acute toxicity would be expected to exhibit at least as much toxicity in a chronic test and in most instances, more toxicity. Therefore, a POTW with an acute and chronic limitation or trigger failing an acute threshold would also be expected to fail the chronic threshold on the same sample.

The Draft Policy grants the Regional Water Boards the discretion to also conduct a reasonable potential analysis for POTWs for acute toxicity, and to apply acute toxicity effluent limitations,

13.23 → and subsequent acute toxicity monitoring, if reasonable potential is observed. Regardless of the outcome of the reasonable potential analysis for acute toxicity, the Draft Policy maintains that Regional Water Boards may still have discretion in applying acute toxicity effluent limitations for reasons such as those (i.e., *Guidance for NPDES Permit Issuance*) used to currently justify inclusion of acute toxicity effluent limitations and monitoring requirements in current NPDES permits. This practice will not achieve the State Water Board's goal of statewide consistency for toxicity requirements and will potentially result in a discharger failing two toxicity limits (acute and chronic) for the same event.

➤ ***For these reasons, CVCWA recommends that the Draft Policy should not include toxicity objectives for acute toxicity, and should specifically instruct Regional Water Boards that where a chronic toxicity effluent limitation or trigger is required, no acute toxicity effluent limitation limit or trigger should be incorporated into the permit.***

CVCWA appreciates your consideration of these comments. Please contact me at (530) 268-1338 or eofficer@cvcwa.org if I can be of further assistance.

Sincerely,



Debbie Webster,
Executive Officer