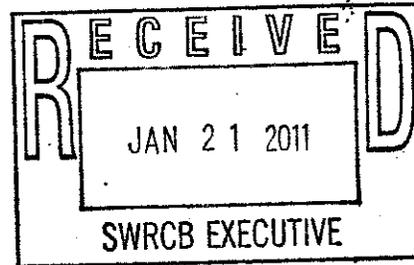




January 21, 2011

Mr. 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
VIA EMAIL: commentletters@waterboards.ca.gov

SUBJECT: *Comment Letter: Draft Policy for Toxicity Assessment and Control*

Dear Chairman Hoppin and Members:

Background

The City of Sunnyvale (City) appreciates the opportunity to submit comments on the State's Draft Policy for Toxicity Assessment and Control (Policy). The City supports and incorporates by reference the CASA, Tri-TAC, BACWA comments and the City of San Jose comments on the Policy, both dated January 21, 2011.

The proposed Policy represents a significant step backwards from the tiered chronic WET requirements that have been successfully implemented in POTW NPDES Permits (including the District's) in the San Francisco Bay area (Region 2) for over 10 years. Permits typically require monthly monitoring of chronic toxicity for large dischargers. The City operates a 29.5 mgd design capacity advanced secondary treatment facility. The City monitors both acute toxicity (flow-through bioassay) and chronic toxicity monthly.

Accelerated monitoring (twice per month testing) is triggered for shallow water dischargers such as the City, after exceeding a three sample median of 1 chronic toxicity unit (TU_c) or a single-sample maximum of 2 TU_c or greater. (These triggers are 10 and 20 TU_c respectively for deep water dischargers.) If accelerated monitoring then confirms consistent toxicity above either of these two triggers, a Toxicity Reduction Evaluation (TRE) is required to be initiated in accordance with the City's previously approved TRE Workplan. The failure of an NPDES permittee to perform required monitoring, to report and respond to test exceedance triggers, or to perform an adequate TRE investigation would constitute an NPDES permit violation and would be the basis for potential enforcement action by the Regional Water Board.

This existing Region 2 chronic toxicity WET implementation approach is reasonable and appropriate given the uncertainties inherent in whole effluent toxicity testing. Historic water column water quality monitoring data collected by the Regional Monitoring Program (RMP) indicate that the WET approach has been protective of receiving water aquatic life beneficial uses. The RMP has found no evidence of water column ambient chronic toxicity for many years.

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and therefore has ceased monitoring for given ambient chronic toxicity except for verification monitoring every five years to confirm that conditions have not changed.

Specific Comments and Recommendations

The limited and incomplete Alternatives Analysis in the Staff Report appears to weigh regulatory simplicity and state/discharger-wide consistency much more highly than a) technical rigor and b) matching permit WET requirements to individual facilities specific conditions (e.g., level of treatment) and the likelihood of their discharges to cause or contribute to adverse environmental impacts. The draft Policy ignores other pertinent EPA WET guidance and progress that has been made, and lessons learned, over at least a decade of practical experience (in the Bay Area and other areas of the State) in WET regulation.

1) Statistical Method (Staff Report Issue 1B pp. 39-44)

The Staff Report recommended Alternative 4 would adopt the TST method as a statewide protocol. The Staff Report contains a very limited and qualitative rationale for selecting the TST method versus point estimate methods. The Staff Report does not assess or provide any information on the 10 plus years of use of the IC/EC25 point source estimation approach in the San Francisco Bay Region as a potential model for the State.

The Staff Report TST recommendation is in stark contrast to USEPA which has consistently and historically recommended the use of point estimation techniques versus hypothesis testing as evidenced below.

a) The Federal Register Vol. 67, No. 223, Tuesday November 19, 2002 contains the Final Rule ratifying approval of several WET methods in 40 CFR Part 136. Page 69958 of that Federal Register states the following: "As previously stated in the method manuals (USEPA, 1993; USEPA, 1994a; USEPA, 1994b) and EPA's Technical Support Document (USEPA, 1991), EPA recommends the use of point estimation techniques over hypothesis testing approaches for calculating endpoints for effluent toxicity tests under the NPDES Permitting Program." [emphasis added]

b) The USEPA manual "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms" (EPA/600/600/R-95/136) (August 1995) states the following on p. 8: "2.2 Types of Tests 2.2.3 "Use of pass/fail tests consisting of a single effluent concentration (e.g., the receiving water concentration or RWC) and a control is not recommended." [emphasis included in the original manual text]

c) The USEPA document "National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document" (EPA 833-R-10-044) (June 2010) states the following on p. xiii: "Because TST is form of hypothesis testing, analyses in this document focus on comparing results of TST to the traditional hypothesis testing approach and not to point estimate techniques such as linear interpolation (i.e. IC25). Therefore, this document does not discuss point estimate procedures."

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The TST guidance document does not address the pros and cons of point source estimates as noted below. There is thus no information in the TST guidance document or in the record for the proposed Policy that rigorously assesses the relative merits of TST versus point estimation. The primary argument presented in the Staff Report against using point estimation is that it is too computationally intensive. This is a moot argument given the ready availability and widespread use of off-the-shelf computer programs (e.g., CETIS) that perform these calculations. Another argument for the TST was that it would encourage dischargers to produce better quality data (e.g., use more replicates). There was no information presented in the staff report to document the widespread existence of poor quality/high variability chronic toxicity data. To the extent that this is indeed a valid concern, it could be more directly addressed by including additional and/or more specific chronic toxicity testing requirements (e.g., use x instead of y number of replicates) in the Monitoring and Reporting Program (MRP) section of dischargers NPDES permits.

Recommended Action: Reject Alternative 4 and instead adopt Alternative 3 "Adopt a Point Estimate Method as a Statewide Protocol" consistent with the EPA recommendations cited above, the recommendations in the Associations comment letter, and based on the implementation experience gained in the San Francisco Bay Region over the last 10 years.

2) Objective Type (Staff Report Issue 1C pp. 44-45)

The Staff Report recommended Alternative 3 would "Adopt Statewide Numeric Objectives for Toxicity Control." The Staff Report assumes, but does not provide evidence, to support the contention that implementation of numeric objectives instead of equivalent numeric triggers would result in the conduct of more effective TRE/TIE activities by dischargers and thus better "assure the protection of aquatic life beneficial uses." As noted above, in the Bay Area the RMP has found no evidence of ambient water column chronic toxicity. Toxicity identified by the SWAMP program has been primarily in Bay sediments and has been attributed to non-point pesticide sources, not POTWs. The weight of evidence would therefore seem to support an alternative conclusion that the existing WET program with narrative objectives, numeric triggers, and tiered TRE programs has been effective in protecting aquatic life beneficial uses.

In comparison to narrative objectives, the Staff Report acknowledges a critical problem with numeric objectives: "The primary benefit of narrative objectives is the reduced number of violations assigned to dischargers that are genuinely attempting to reduce toxicity through an aggressive TRE process." This clearly defines the situation that Sunnyvale has found itself in for the last few years, namely experiencing low level, intermittent, non-persistent toxicity and being unable to identify the source(s) despite extensive monitoring and TRE and TIE efforts.

Inconclusive TREs/TIEs The City has spent over \$100,000 per year each of the past five years. (\$500,000) on chronic toxicity testing, on TIEs and related special toxicity investigations; and on associated consultant support. During the first half of 2009, the City's Water Pollution Control Plant (WPCP) experienced generally low level and non-persistent chronic toxicity. The toxicity testing was conducted using *Americamysis bahia* (Mysid shrimp) and the survival EC25 and growth IC25 endpoints. In accordance with the Plant's NPDES permit and EPA guidelines, the

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WPCP conducted accelerated toxicity testing and implemented its previously approved detailed Toxicity Reduction Evaluation (TRE) workplan. Limited TIE work was possible because most tests had results below the above cited 1.25 TUc TRE workplan TIE initiation level. Some test samples that initially exhibited toxicity about this 1.25 TUc level when retested showed the toxicity to be non-persistent and that the prior toxicity had decayed to a level below this TIE initiation threshold value.

Ammonia spiking, pH control, and ammonia removal TIE manipulations provided evidence that ammonia was responsible for the majority of the observed toxicity. Ammonia toxicity was determined to be in large part an artifact of the test protocol. The Sunnyvale effluent as discharged has a pH generally in the 7.0 to 7.5 range and unionized ammonia levels well below the Basin Plan toxicity levels. However, the Mysid chronic toxicity test requires salting up the effluent sample to the salinity of seawater. The process of adding salt raises the test solution pH from 7.0-7.5 to typically the 8.0- 8.2 range. Depending on the effluent total ammonia concentrations, the required salting up can raise the test solution unionized ammonia concentrations to levels approaching reported toxicity thresholds for Mysids.

Despite considerable time and expense, the City was not able to conclusively identify the cause(s) of the chronic toxicity observed during the January to June 2009 period, and the toxicity has not been detected since. In short, the City took all available steps to identify the cause(s) and source(s) of the observed chronic toxicity, but no definitive pollutant(s) or source(s) other than potentially ammonia were ever identified. The City continues to aggressively implement its Pretreatment and Pollution Prevention Programs, that have been in place since the early 1980s. The successes of these programs is evidenced by the fact that there were only three CTR toxic pollutants (out of 126) detected in the City's effluent at levels above the applicable CTR water quality objective and therefore required NPDES permit limits.

TST vs IC/EC 25 Comparison The City had its contract laboratory perform a comparison of 2009-2010 chronic testing results under the current IC/EC25 approach (relative to the 1 TUc effluent trigger value) to the TST approach (see attached letter from Pacific Ecorisk to Steve Schmidt, City of Sunnyvale, dated January 11, 2011). The City would have had five additional "fails" out of 31 tests under the TST method versus the IC/EC25 method. This represents an additional 16% "fails" (false positives), simply due to changing the results calculation method to the TST. The underlying effluent quality was the same for each test.

Under the draft Policy's proposed numeric objectives, monitoring frequencies, TST based compliance evaluation, and monitoring and exceedance determination provisions, during 2009-2010 the City would have had to conduct an additional 12 accelerated monitoring tests (\$3000 each or \$36,000) and have been required to conduct one additional TRE (\$14,000). The City would therefore have expended an additional approximately \$50,000 for no discernable environmental benefit.

The City would have incurred 14 chronic toxicity effluent violations during 2009-2010 if numeric objectives and effluent limits had been in place instead of narrative objectives and

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numeric triggers. The City would have been subject to a minimum of \$42,000 in fines if each of the 14 violations were deemed subject to a \$3,000 Mandatory Minimum Penalty (MMP) and potential more if RWB staff decided to instead proceed with an Administrative Civil Liability (ACL) case.

The City's aggressive monitoring efforts and TRE/TIE source identification activities during 2009-2010 would not have differed if numeric chronic toxicity effluent limits had been in place. The only difference would have been that the City would have been subject to what could only be deemed punitive penalties for violations over which it had not control.

Recommended Action: Reject Alternative 3 and instead adopt Alternative 2 "Adopt Statewide Narrative Objectives for Toxicity Control" consistent with the recommendations in the Associations comment letter and based on the implementation experience gained in the San Francisco Bay Region over the last 10 years.

3) Exceedances (Accelerated Monitoring/TRE) (Staff Report Issue 2E pp. 58-60)

The proposed Staff Report recommended Alternative 2 states that if a test results in a "fail at the IWC", dischargers shall initiate an accelerated monitoring schedule defined as "At a minimum, an accelerated monitoring schedule would consist of six, five-concentration chronic toxicity tests conducted at approximately two week intervals, over a twelve week period." The City believes that accelerated monitoring of six samples over twelve weeks is excessive. Current practice is to continue the accelerated monitoring until two consecutive samples are in compliance with the 1 TUc three sample median trigger and/or the 2 TUc single sample trigger.

The City's experience is that when chronic toxicity is detected in the effluent, it is typically at low levels (< 1.5 TUc) and many times is not persistent (i.e. is not detected in sample retesting or follow-up sampling). Under this scenario, it would be fruitless and not an effective use of public resources to continue to monitor for up to four additional events once two consecutive < 1 TUc results had been obtained.

The City supports implementation of a tiered TRE workplan where TIE efforts not be required until there were two consecutive exceedances of the applicable trigger during accelerated monitoring. The City does not believe that an exceedance in any single non-consecutive accelerated monitoring should require implementation of the TIE elements of the TRE workplan. For the reasons noted above, the toxicity needs to be demonstrated to be persistent (i.e. still present) and at a minimum magnitude, for TIE efforts to have any reasonable chance of successfully detecting the source(s) of toxicity. For the City, this TRE workplan TIE initiation level has been determined by the contract laboratory to be 1.25 TUc based on point estimated calculated IC/EC50 values.

The USEPA TIE guidance is over 15 years old (1992/1993) and has not been updated. In the City's and our contract laboratory's experience, it is a challenge using the available TIE protocols to be able successfully identify sources of toxicity at these low levels of toxicity. The proposed Policy needs to acknowledge that not all TREs and TIEs will be successful despite

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dischargers, best efforts and provide a mechanism for dischargers to not be exempt from discretionary enforcement actions when they are in this situation.

Recommended Action: Modify Alternative 2 for POTWs to define the accelerated monitoring schedule to consist of monitoring at approximately two-week intervals until two consecutive test results are below the applicable trigger. Include a statement in the policy that TRE workplans need to address and include appropriate TIE initiation TUC values.

4) Reasonable Potential Analysis (Staff Report Issue 2A pp. 52-53)

The Staff Report recommended Alternative 4 would unilaterally assign reasonable potential (RP) for all POTWs with an average daily flow above 1 mgd. The rationale given was that "*Because POTWs accept a steady, voluminous flow of effluent from a variety of municipal discharges containing numerous unknown constituents, these facilities harbor the potential to adversely impact aquatic biota.*" The rationale for this automatic RP also asserted that it "*would provide a higher level of ecological protection from the voluminous discharges ...*"

Such sweeping generalizations apply equally to pollutant specific parameters. This simplistic statement fails to take into account the differences in the types of users served by a POTW, whether the POTW has implemented a pretreatment program, whether the POTW has a robust source control and pollution prevention program, the level of treatment provided by the POTW, the initial dilution received by the discharge, and the quality of the receiving water. POTWs should have to have the opportunity to determine whether or not their discharge indeed has numeric RP and requires effluent limits to protect the receiving water and not unilaterally be saddled with permanent chronic toxicity limits that are impossible to remove, regardless of the quality of their discharge.

In 2000, the SWB faced this same issue of what RP method to include when adopting the State Implementation Plan (SIP). The January 31, 2000 Third Public Draft of the Functional Equivalent Document (FED) for the SIP. The SIP FED Chapter 1.1 presented seven alternatives for determining RP noting that "*the alternatives presented below do not differ in their impact on the environment.*" (emphasis added). This is in direct contrast to the above Staff Report assertions that POTWs require mandatory RP irrespective of their actual effluent quality.

SIP FED Alternative 7 "*Require effluent limitations for all priority pollutants*" is analogous to the "all POTWs have RP" alternative 4 recommended in the Staff Report. This alternative 7 was rejected by the SWB in favor of the current SIP methodology. The SIP FED and the Staff Report both included the USEPA Technical Support Document (TSD) alternative. The SIP FED did not select the TSD in part noting that "*determining reasonable potential under this alternative requires more calculations and data.*" The Staff Report does not adequately analyze application of RP methods for POTWs, acknowledging the TSD methods as "accurate and comprehensive" but dismissing them as too much work for Water Board staff.

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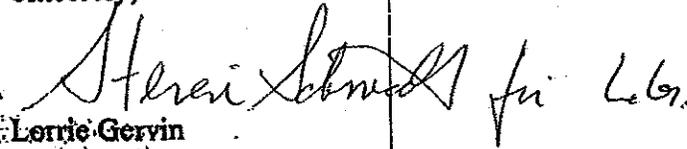
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Recommended Action: Reject Alternative 4 for POTWs and instead adopt either the Alternative 2 (Ocean Plan RPCalc) or Alternative 3 (USEPA TSD) RP approach. RPCalc is a software program developed in 2005 by former SWB staffer Steve Saiz (now with the Central Coast RWB). RPCalc is a more sophisticated version of the TDS approach, has been peer reviewed, and is applicable to both toxicity and individual pollutants. It is simple to use and provides easy to interpret graphical and numeric RP results. It is equally suitable for inland and estuarine discharger RPAs as for ocean discharger RPAs. The Ocean Plan RPCalc RP approach is also much more statistically powerful and technically defensible than the simple single sample maximum concentration approach currently included in the SIP Section 1.3.

The City appreciates the opportunity to provide these comments on the Draft Policy for Toxicity Assessment and Control. If you have any questions, please contact me at (408) 730-7268 or Dr. Tom Hall of EOA at (510) 832-2852 x110.

Sincerely,



Lorrie Gervin

Environmental Division Manager