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August 20, 2012

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 "I" Street
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Via email to commentletters@waterboards.ca.gov

SUBJECT: Comment Letter: Draft Policy for Toxicity Assessment and Control (SRCSD)

Dear Ms. Townsend:

The Sacramento Regional County Sanitation District (SRCSD) appreciates the opportunity to comment on the Revised Draft Policy for Toxicity Assessment and Control (Policy) that was released for public comment in June 2012. SRCSD provides wastewater conveyance, treatment, and reclamation for over 1.4 million residents in the Sacramento metropolitan area.

We appreciate the efforts of the State Water Board in working with the affected dischargers in attempts to resolve the outstanding issues related to this Policy, including holding workshops and informational meetings and also in providing a revised Policy. However, many of the comments and significant issues related to the draft Policy remain unresolved. SRCSD's primary concerns are related to:

- Numeric effluent limits;
- False positives;
- Violations based on a single test exceedance;
- Use of MDEL, MMEL, and calendar month basis;
- Inadequate cost evaluation; and
- Lack of uniformity and consistency in the Policy.

The following comments provide details related to items that should be corrected prior to release of a final Policy for public review and comment. We are also providing comments on portions of the draft Staff Report and Environmental Checklist dated June 2012 (Staff Report) related to the draft Policy. We believe our concerns are shared with many other dischargers who would be regulated under a final policy related to toxicity assessment and control.

Comment #1, General Comment on Uniformity and Consistency.

The draft Policy as written does not appear to meet the State's goal of providing a consistent and uniform toxicity monitoring approach. Implementation of the Policy, as written, would result in inconsistencies and variances in its application including: variations between the species testing and number of species tested, the number of replicates used for the testing, the application of dilution ratios and instream waste concentrations, requirements for acute testing, and the distribution of costs amongst discharges and discharger groups.

As written, the draft Policy leaves a large amount of discretion to each regional board in how the Policy is implemented. While the statistical method might be a standard method, the physical application of the method is left open to a range of inconsistent application between regions and between individual discharge permits. It's unclear how the adoption of the Policy would result in consistency or uniformity or how the Policy would provide an improvement over current methods currently used for toxicity assessment and control.

Comment #2: Numeric Effluent Limits in Permits are not Necessary.

SRCSO does not support the use of numeric effluent limits for toxicity in permits as proposed. SRCSO supports the use of narrative acute and chronic effluent limits with numeric triggers for Toxicity Reduction Evaluations which are fully protective of California's surface waters for the following reasons:

- SRCSO recommends that narrative objectives should be implemented using existing methods such as the EC/IC25 (point estimate) method as recommended in the methods promulgated by EPA.
- A narrative objective with numeric accelerated testing and toxicity reduction evaluation (TRE) triggers is consistent with federal, state, and regional guidance;
- The SWRCB recently adopted narrative sediment quality objectives to assess sediment toxicity;^[1]
- The EPA has indicated that the current whole effluent toxicity (WET) regulatory strategy utilized in California (i.e., narrative limit with numeric triggers to accelerated testing and toxicity identification) meets its requirements, as it is "fully implementing" its National Pollution Discharge Elimination System (NPDES) WET program;^[2]
- Narrative toxicity limits are supported by a national expert advisory panel^[3] formed by the Society of Environmental Toxicology and Chemistry (SETAC) and funded by the EPA to provide guidance on WET issues and by the State Water Board Toxicity Task Force^[4], which was specifically assembled to provide guidance on the regulatory use of toxicity testing within the State;
- The narrative approach provides incentive for dischargers to avoid a violation (or TRE) by quickly identifying and reducing effluent toxicity.

Comment #3: Single Test Violations are Inappropriate.

SRCSO opposes numeric effluent limits based on a single WET test violation and recommends that that the maximum daily effluent limitation (MDEL) be deleted from this Policy for the following reasons:

- “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.”^[5]
- One of the State Water Board’s own Toxicity Task Force members^[6] recommended that the SWRCB “should adopt a provision that: No single test result shall constitute a violation.”
- Interpreting the results of any single chronic WET test is problematic “because of the inherent variability and sometimes unavoidable anomalies in biological data.”^[7]
- Field studies^{[8][9]} have demonstrated that WET testing is a conservative estimate of effluent toxicity and it is unlikely that toxicity will be observed in the receiving water when toxicity is observed in a WET test.

The appropriate response to a WET test indicating the presence of toxicity is to conduct follow-up testing to confirm the initial result, and then to investigate the cause if persistent toxicity is confirmed. Therefore, SRCSD recommends that the Policy, if adopted with numeric effluent limits, must include provisions that require more than one test result to assess a permit violation. This could be accomplished with a multiple test median or other approaches.

Comment # 4: A Maximum Daily Effluent Limit (MDEL) is Unreasonable.

A toxicity limit expressed as a maximum daily effluent limitation will cause confusion during implementation of the Policy because the tests are conducted for 96 hours or more (4 days or more). However, any test resulting in a fail does not necessarily mean that the effluent was toxic during each day of the test. Federal regulations specify that “all permit effluent limitations” for POTWs “shall be stated as average monthly and average weekly limitations unless impracticable.” (40 C.F.R. §122.45(d)(2)). Yet, the draft Policy specifies that all effluent limitations are to be expressed as MDELs and MMELs. No justification is given for the departure from the federal rule to include an MDEL. SRCSD requests that the MDEL be deleted from this Policy and, if the SWRCB feels that a numeric effluent limit is absolutely necessary, then this only effluent limit should be the average monthly effluent limitations (AMEL).

Comment # 5: The Monthly Median Effluent Limit (MMEL) Based on a Calendar Month is Unreasonable.

While SRCSD supports the multiple test approach set forth for the monthly effluent limitations for Publically Owned Treatment Works (POTWs), we are very concerned that the use of a calendar month for testing may be logistically impossible at all times. There are a limited number of laboratories capable of perform the required toxicity testing. Those labs may be overwhelmed with requests for testing at the beginning of each month which could significantly impact those regulated under the proposed Policy by increasing the costs for testing, force unnecessarily onerous testing/sampling requirements as written and increase the potential for testing errors. Dischargers will face multiple challenges related to conducting three tests (one routine monitoring and two accelerated chronic WET tests) in a calendar month. It will be particularly difficult to meet this requirement for fathead minnows and *Ceriodaphnia* chronic WET tests. The fathead minnow test takes 8 to 9 days to complete, followed by additional time for data review and evaluation of test acceptability criteria and statistical analysis. Time may also be needed between tests for the shipment of test organisms, sample collection and schedule coordination between the discharger and testing laboratories, etc. If any of the WET results do not pass the test acceptability criteria, it would be nearly impossible to repeat the

test and perform two more valid WET tests within the same calendar month, as required by the draft Policy.

If the Policy's intent is to repeat testing within a short defined time frame, then SRCSD recommends the Policy describe a 30 day window from initiation of the routine monitoring test to the starting day of the second repeat test to meet an MMEL (i.e., a 30-day compliance period). This will allow some logistical flexibility.

Comment #6: The False Positive Rate has not Accurately Been Described.

SRCSD agrees with many others who have commented on the draft Policy that the false positive error rates are underestimated and may be significantly higher than estimated by the draft Policy and Staff Report. The TST statistical method estimates a false positive error rate of 5%. However, EPA's WET Inter-laboratory Variability Study^[10] calculated a significantly higher false positive rate^[11] based on testing non-toxic samples. The one sample EPA tested with low toxicity had a 28% false positive rate relative to the median response with *Ceriodaphnia* chronic results^[12]. There is no way to accurately ascertain in advance what the variability of the individual tests will be. These false positive rates could significantly increase accelerated monitoring testing, trigger unnecessary or false TRES, and result in violations assessed inaccurately on non-toxic effluent samples.

SRCSD remains concerned over the potential for an increased rate of false positive test results that may occur during tests performed for routine monitoring, control sample testing, and accelerated testing. The SWRCB should carefully evaluate and consider the comments received regarding the potential for false positive toxicity results and consider options that would reduce the resulting impacts, including:

- a. Define toxicity as a test failure that is confirmed by at least one of two follow-up toxicity tests, rather than as a numerical effluent limit violation; and,
- b. Allow concurrent use and comparison of the TST with NOEC and EC/IC25 methods for validation or confirmation of compliance testing.

Comment #7: The Number of Replicates Tested will be Inconsistent and Isn't Adequately Addressed in the Draft Policy and Staff Report.

The draft Staff Report describes the potential for increasing replicates in the WET test in order to reduce false positives as follows:

“Provisions increasing the minimum number of test replicates beyond what are promulgated in Code of Federal Regulations, title 40, section 136.3 would be established in the Policy for each test method in order to reduce the potential number of tests being declared toxic with a percent effect below the respective unacceptable RMD.” (Draft Staff Report, Alternatives, Issue 2C Effluent Limitation Expression, Page 53)

However, the draft Policy does not reflect this relevant language. The Policy should clearly state and attempt to describe benefits from increasing the number of replicates, as described by the SWRCB Staff Report and other documents associated with the Policy^[13].

As written, the number of replicates will be determined by the most sensitive species, the minimum number prescribed by the Policy, a discharger's ability to pay for additional tests, and the

discharger's assessment of the risk of false positives. The number of replicates may vary between dischargers and also may vary from year to year for a single discharger, unless the Policy provides further clear direction.

Comment #8: The Policy Includes the Potential for Testing / Statistical Errors.

Many dischargers follow the EPA test manual for acute toxicity testing which allows for two replicates and has percent survival as the only test end point. In these cases, the low number of replicate samples creates a potential issue with the TST statistic. The TST statistical analysis cannot be completed when both the control and treatment replicates have zero variance because the t-statistic cannot be calculated. Note that this is also applicable to chronic WET test data; although less likely than for acute effects with fewer replicates and a survival endpoint represented by whole numbers. SRCSD recommends that the SWRCB Policy provide further guidance on how the TST would be interpreted under these conditions.

Comment #9: The Determination and Application of the Single Most Sensitive Species is Unclear and Likely to Result in Inconsistencies and Non-Uniformity.

The draft Policy states under Part III Implementation Procedures, Section A NPDES Wastewater Dischargers and Point Source WDR Dischargers, Item 1 Reasonable Potential Analyses and Species Sensitivity Screening, page 6, that dischargers assumed to have reasonable potential will be required to perform species sensitivity testing *“to identify or confirm the most sensitive test species for routine monitoring use.”* Also that *“The test species that exhibits the highest percent effect at the IWC during a reasonable potential analysis/species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle.”*

The phrase used in the draft Policy *“most sensitive species”* implies, but does not clearly state, that only one species will be used for toxicity monitoring.

This lack of clarity on the *“most sensitive species”* is further supported by the testimony of the State Water Board's Chief Deputy Director Jonathon Bishop during the public meeting / hearing held on February 8, 2012 at the San Diego Regional Water Quality Control Board where he stated, *“Once you have determined that, you use the most sensitive species of each of those parts of the bio to continue your ongoing tests.” [Emphasis added.]*

The species selection is further open to interpretation and inconsistent application by including language in other sections of the Policy that leave items open to Regional Board discretion. An example of this is the section titled *“Methodological Guidance”* on pages 39-40, where the following are stated (with emphasis added):

- Therefore, **options** for selecting test species should be considered.
- The **recommendation** for conducting most sensitive species screenings for storm water is dependent upon prior knowledge at a site. If there is no previous knowledge at a site, then the **recommendation** is to screen storm water samples **with at least three species** (a fish, an invertebrate, and a plant) for chronic testing and two species (a fish and an invertebrate) for acute testing...”

There is a need for further clarity because the word *“species”* is both singular and plural and the current language would lead to confusion and inconsistency in applying the Policy as written. The Policy does not clearly state that only one single most sensitive species will be used for the TST testing.

SRCSO recommends replacing the phrase “*most sensitive species*” with the phrase “*Only the single most sensitive species*” where testing of the selected species is discussed. This modification will clarify the Policy's intent to test only one species (singular) so that there will not be an extra burden on dischargers to test multiple species.

Comment #10: Incomplete Direction is Provided in the Toxicity Reduction Evaluation Trigger.

The draft Policy text and Appendix D Figure 2 do not describe all possible outcomes from accelerated monitoring. The text states in Part III Implementation Procedures, Section A NPDES Wastewater Dischargers and Point Source WDR Dischargers, Part 6 Compliance Determination, “*Any toxicity test conducted by an NPDES wastewater or point source WDR discharger, during accelerated monitoring, that results in a “fail” and exhibits a percent effect equal to, or greater than 0.25 for chronic toxicity tests or 0.20 for acute toxicity tests will be required to conduct a Toxicity Reduction Evaluation (TRE). A discharger shall conduct a TRE in accordance with a TRE Work Plan developed pursuant to the requirements of the applicable Water Board*” The flow diagram summarizes this as “*Fail $\geq 0.20/0.25$ (any test)*” to trigger a TRE. The other outcome from accelerated monitoring listed on the flow diagram is “*All Tests Pass*”.

However, a third possibility is that one or more tests could fail the TST but have a percent effect of less than 20% or 25%. Although this might be uncommon, SRCSO recommends that the SWRCB provide direction for dischargers to follow. That direction should be stated clearly in the Policy to avoid confusion and inconsistency in applying the Policy.

Comment #11: Inconsistent with WET Test Guidance

The proposed use of the TST does not consider the effects of a non-monotonic dose response (an irregular dose response) as described in the EPA Guidance^[14]. There are multiple examples of WET test results from serial dilutions where the response at any single effluent concentration cannot be interpreted (i.e., the NOEC or other hypothesis testing endpoints like the TST). Results that fit into these categories are considered by EPA to be inconclusive and testing should be repeated. The use of “*a single-concentration test*” for routine monitoring, rather than a serial dilution, would circumvent the tools available to validate test data. SRCSO supports the use of serial dilutions in accelerated testing described in the draft Policy (Section 6.c.) and recommends that the Policy expand the reason for this beyond “*provide useful information regarding the intensity of the toxic effect(s), should the discharger progress to a TRE.*” These additional data allow for the consideration of expanded validation of the toxicity data concentration-response curve as per EPA Guidance.

Additional Comments Related to Costs:

The Staff Report did not contain a complete or accurate representation of costs for the Policy implementation. SRCSO provided comments related to the cost analysis contained in the original Staff Report on January 21, 2011. Many of those comments were not addressed in either the revised Staff Report or the revised draft Policy. As detailed in the comments below and in other sections of this letter, the cost estimate omits costs for implementation, varying numbers of replicates, acute testing and possible capital improvement projects required. The following comments are related to inaccuracies or corrections that should be made related to the cost for the implementation of the draft Policy

Comment #12: Costs

The Staff Report indicates in Exhibit 5-1 Potential Incremental Policy Costs for the Sample Facilities that there will be an overall net cost savings to SRCSD of (-\$52,600) associated with the monitoring required by this Policy. SRCSD disagrees that this number accurately represents the costs for our facility. Due to a number of items that remain unresolved in the Policy including items such as the number of species required to be tested, the number of replicates, the requirements for acute testing, the costs for implementation, and the interpretation of the Policy by the Regional Board are undetermined at this time, we are unable to provide a detailed cost estimate.

Comment #13: Costs

The Staff Report states on page 4-5 “*Thus, for this analysis Abt Associates assumed that dischargers will only receive chronic toxicity monitoring requirements.*” Acute testing may be required for some dischargers and not for others, based on either a reasonable potential or based on Regional Board discretion as allowed in the Policy. Acute toxicity testing is currently required for SRCSD, but it appears that these costs were not taken into account in the Staff Report. A capital improvement project may be required for changes to our acute testing program as a result of this Policy to accommodate the additional replicates required for the TST statistical method.

Comment #14: Costs

The Staff Report, Section 4 Method for Evaluating Compliance and Costs, page 4-2 explains the method for evaluating compliance and cost. This section also states, “*Factors that may affect the potential magnitude of compliance costs include:*”

- *Facility type (municipal/industrial)*
- *Flow (for process controls)*
- *Industrial processes*

This section of the Staff Report acknowledges that the costs will vary based on several factors. However, this list is not complete and should include the following additional costs at a minimum: costs for TREs, costs related to variability dependent on the most sensitive species tested, the number of replicates, false positive test results, acute toxicity testing requirements, capital improvements projects required to comply with this Policy, administrative costs and costs for implementation.

Comment #15: Costs

Exhibit 4-4 of the Staff Report titled Summary of WET Test Costs on page 4-8 contains average costs that are significantly lower than SRCSD’s costs for similar testing. For instance, a single concentration flow through acute test for *Oncorhynchus mykiss* EPA Method 2019.0 costs approximately \$800 versus the average of \$330 listed in Exhibit 4-4 for EPA method 2000.0 and \$487 listed for EPA method 2019.0. Note that there are additional costs to those shown. For instance, dischargers would incur additional costs for increasing the number of replicates for acute toxicity tests and for costs associated with capital improvements, operations, and maintenance to perform flow-through or continuous testing.

Comment #16: Costs

It doesn't appear that the costs for TREs added as a result of false positive test results have been included in the cost evaluation. TREs can cost in excess of \$100,000. The Policy Part III Implementation Procedures, Section A NPDES Wastewater Dischargers and Point Source WDR Dischargers, Item 6 Compliance Determination of the draft Policy adds the requirement for TREs for acute toxicity effects, which should also be included in the cost evaluation.

Closing Comment

We appreciate the efforts of the State Water Board and staff in attempting to resolve several key issues associated with this Policy and encourage you to continue to work with the discharger community to ensure that the conclusion of this effort is successful. If this Policy is imminent, additional stakeholder meetings must be conducted and another draft version should be provided for public review and comment to address the comments of SRCSD and others.

SRCSD is supportive of the comment letter provided by the clean water associations (CASA, BACWA, SCAP, CVCWA, TriTAC, and RCRC). In particular, we support the following concepts from that letter:

- The proposed TST Policy is not part of an approved or formally proposed EPA method and is not compliant with EPA regulations.
- There has not been an adequate demonstration that numeric chronic toxicity limits are more appropriate than narrative limits as there are no examples of surface water impairment due to permitted dischargers with narrative toxicity objectives and multiple test numeric triggers.
- The use of maximum daily effluent limitations (MDELs) and median monthly effluent limitations (MMELs) are inappropriate for the TST.
- Any items contained within this Policy that conflict with federal law, EPA methods, or the draft Staff Report should be addressed in a revised Policy.

If you have any questions or concerns regarding our comments, please contact me directly at 916-876-6092 or mitchellt@sacsewer.com or Lysa Voight at 916-876-6038 or voightl@sacsewer.com.

Sincerely,



Terrie Mitchell
Manager, Legislative and Regulatory Affairs

cc: Stan Dean, District Engineer
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Ruben Robles, Director of Operations
Kurt Ohlinger, Chief Scientist
Mitch Maidrand, Principal Civil Engineer
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Footnotes:

1. SWRCB. 2008. Water Quality Control Plan for Enclosed Bays and Estuaries - Part 1 Sediment Quality. Draft.
2. USPEA. 2000. September 29, 2009 EPA Headquarters EPA NPDES WET Program presentation provided by Linda Boornazian, Director of Water Permits Division, Laura Phillips (EPA WPD/OWM), and Debra Denton (EPA Region 9) –slides 6 and 7 of Appendix 1.
3. 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>.
4. Memo to Members of the State Water Resources Control Board from the Toxicity Task Force, September 27, 1995. Recommendations 2, 5, 9, and 10.
5. USEPA. 1995. National Policy Regarding Whole Effluent Toxicity Enforcement. Memorandum. <http://www.epa.gov/npdes/pubs/owm602.pdf>
6. Memo to Members of the State Water Resources Control Board from the Toxicity Task Force, September 27, 1995. Recommendations 2, 5, 9, and 10.
7. USEPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms Fourth Edition. October. Office of Water. Washington, DC. EPA-821-R-02-013
8. Diamond, J. and C. Daley. 2000. What is the relationship between whole effluent toxicity and instream biological condition? *Environ. Toxicol. Chem.* 19:158-168.
9. Diamond, J. J. Stribling, M. Bowersox, and H. Latimer. 2008. Evaluation of Effluent Toxicity as an Indicator of Aquatic Life Condition in Effluent-Dominated Streams: A Pilot Study. *Int. Env. Assess. Man.* 4:456-470.
10. USEPA. 2001. 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.
11. U.S. Court of Appeals-D.C. Circuit Judgment (Edison Electric Institute, et al v. Environmental Protection Agency; Case No. 96-1062; Dec. 10, 2004).
12. USEPA. 2004. Final Report: Interlaboratory Variability Study of EPA Short-Term Chronic and Acute Whole Effluent Toxicity Test Methods, Vol. 1 ("Interlab Variability Study"), EPA 821-B-01-004 (Sept) Table 9.8, pp. 81-82.
13. SWRCB. 2011. Effluent, Stormwater, and Ambient Toxicity Test Drive Analysis of the Test of Significant Toxicity (TST).
14. USEPA. 2000. Method guidance and recommendations for whole effluent toxicity (WET) testing (40 CFR Part 136). Office of Water, U.S. Environmental Protection Agency, Washington, D.C. 20460. EPA/821/B-00/004.
15. USEPA. 2002. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. Fourth Edition. October. EPA-821-R-02-013.
16. USEPA. 2000. Understanding and Accounting for Method Variability in WET Applications Under the NPDES Program.