STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Response to Comments on the 2012 Draft Policy for Toxicity Assessment and Control

October 26, 2018

On June 27, 2012, the State Water Resources Control Board (State Water Board) circulated the Draft Policy for Toxicity Assessment and Control (2012 Draft Policy) for public review. The public review and comment period ran from June 27, 2012, until August 21, 2012. Subsequent to the 2012 public hearing, the approach changed from developing a policy to developing a water quality control plan. Substantial edits were made to the language of the provisions and to the supporting staff report.

On October 19, 2018, the Draft Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California; and Toxicity Provisions (October 2018 Draft Toxicity Provisions) and the Draft Staff Report, Including Substitute Environmental Documentation for the Proposed Establishment of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California; and Toxicity Provisions (October 2018 Draft Staff Report) were released for public review.

The October 2018 Draft Toxicity Provisions and Staff Report were developed in part due to the public comments received in 2012. Some aspects of the 2018 drafts have not changed from 2012, while other aspects have changed. Responses to the comments submitted during the 2012 comment period appear below. Responses to comments submitted for the 2018 Draft Toxicity Provisions and the 2018 Draft Staff Report will be released separately, likely in early 2019.

Index of Commenters

Letter Number	Commenter(s)	Submitted By
1	Association of California Water Agencies	David Bolland
2	Bay Area Clean Water Agencies	James Kelly
3	City of Belmont	Warren Lieberman
4	City of Benicia	Jennifer Harrington
5	City of Burlingame Wastewater Treatment Facility	William Toci
6	Calleguas Creek Watershed Management Plan	Lucia McGovern (10.05 MB)
7	California Department of Transportation	G. Scott McGowen
8	California Stormwater Quality Association	Richard Boon
9	California Council for Environmental and Economic Balance	Robert Lucas Gerald Secundy
10	California Department of Public Health	Vicki Kramer

Letter Number	Commenter(s)	Submitted By
11	California Association of Sanitation Agencies Bay Area Clean Water Agencies Central Valley Clean Water Association Regional Council of Rural Counties Southern California Alliance of Publicly Owned Treatment Works Tri-TAC	Roberta Larson James Kelly Debbie Webster Staci Heaton John Pastore Terrie Mitchell
12	Central Contra Costa Sanitary District	Ann Farrell
13	Central Valley Clean Water Association	Debbie Webster
14	Coachella Valley Water District	Steve Bigley
15	Delta Diablo Sanitation District	Gary Darling
16	Department of Defense, Department of the Navy	C.L. Stathos
17	Eastern Municipal Water District	Jayne Joy
18	East Bay Municipal Utility District	David Williams
19	United States Environmental Protection Agency	Nancy Woo
20	California Farm Bureau Federation California Rice Commission East San Joaquin Water Quality Coalition San Joaquin County-Delta Water Quality Coalition Western Growers Association Western Plant Health Association Westside San Joaquin River Watershed Coalition	Danny Merkley Timothy Johnson Parry Klassen Michael Wackman Gail Delihant Renee Pinel Joseph McGahan
21	State of Hawaii, Department of Health, Clean Water Branch	Alec Wong
22	Heal the Bay California Coastkeeper Alliance Heal the Bay Heal the Ocean Environment California Surfrider Foundation Friends of the Santa Clara River Santa Clarita Organization for Planning and the Environment WiLDCOAST/COSTASALVAjE Californians for Alternatives to Toxics California, Clean Water Program American Rivers Ecological Rights Foundation	Kirsten James Sean Bothwell W. Susie Santilena Hillary Hauser Dan Jacobson Joe Geever Ron Bottorff Lynne Plambeck Ben McCue Patty Clary Bryan Hofmann Fred Evenson (6.54 MB)
23	General Public	John Scott
24	General Public	Joyce Dillard
25	County Sanitation Districts of Los Angeles County	Philip Friess
26	Sanitary District No. 5 of Marin County	Tony Rubio
27	Napa Sanitation District	Timothy Healy
28	Novato Sanitary District	Beverly James
29	Pacific EcoRisk	Stephen Clark R. Scott Ogle
30	City of Pacifica	David Gromm
31	City of Palo Alto	Phil Bobel
32	Pennsylvania Department of Environmental Protection, Bureau of Point and Non-Point Source Management	Sean Furjanic

Letter Number	Commenter(s)	Submitted By
33	City of Petaluma	Lena Cox
34	Partnership for Sound Science in Environmental Policy	Craig Johns
35	Pyrethroid Working Group	Fred Pearson
36	Risk Sciences	Timothy Moore
37	Sacramento Regional County Sanitation District	Terrie Mitchell
38	San Bernardino Valley Municipal Water District	Doug Headrick
39	City of San Bernardino Municipal Water Department	Stacey Aldstadt (7.45 MB)
40	City of San Diego, Transportation and Storm Water Department	Kris McFadden
41	City of San Jose, Environmental Services Department	Kerrie Romanow
42	City of San Mateo	Linda Candelaria
43	Sewerage Agency of Southern Marin	Jeff Carson
44	Santa Clara Valley Urban Runoff Pollution Prevention Program	Adam Olivieri
45	City and County of San Francisco Public Utilities Commission	Tommy Moala
46	Sonoma County Water Agency	Pamela Jeane
47	Best, Best & Krieger on behalf of Southern San Joaquin Valley Water Quality Coalition	William Thomas
48	Sacramento Stormwater Quality Partnership	Dana Booth Sherill Huun
49	City of Sunnyvale	Melody Tovar
50	City of Vacaville, Utilities Department	Royce Cunningham
51	Vallejo Sanitation & Flood District	Daniel Tafolla
52	Ventura Countywide Stormwater Quality Management Program	Gerhardt Hubner
53	Veolia Water North America	John O'Hare
54	State of Washington, Department of Ecology	Randall Marshall
55	Workable Approach to Environmental Regulation (WATER)	James Simonelli Trudi Hughes
56	West County Agency	E.J. Shalaby
57	Western Plant Health Association	Afiqur Khan
58	Western States Petroleum Association	Kevin Buchan
59	West Bay Sanitary District	Phil Scott

Applicability of Policy

Comment 11.23

The Numerous Instances Where Regional Discretion is Provided Ensure Continued Inconsistency in the Program.

Contrary to the goal of statewide consistency, the Revised Draft Policy contains a number of provisions instances [sic] where inconsistency is specifically allowed or may occur:

The Policy does not apply to ocean waters, including Monterey Bay and Santa Monica Bay, so some dischargers may have differing toxicity requirements depending on where the discharge flows. For example, the cities near the ocean or around Santa Monica Bay and Monterey Bay would have to monitor and assess toxicity under the Ocean Plan's requirements for ocean outfalls, but under the Revised Draft Policy for freshwater outfalls. This dual program is problematic and increases costs for all of these dischargers. Moreover, the requirements are not clear since the Revised Draft Policy allows the local regional board to determine whether freshwater dischargers to marine waters may use freshwater test methods. (See Revised Draft Policy at 6.)

Response

The 2018 Draft Toxicity Provisions, as part of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan), would only apply to those types of waterbodies and would not apply to those waters governed by the Ocean Plan, including the Pacific Ocean and open bays such as Monterey Bay and Santa Monica Bay (see Draft Toxicity Provisions, Section I). The Draft Toxicity Provisions would require consistency of toxicity water quality objectives and implementation procedures for all water bodies subject to the ISWEBE Plan, and therefore statewide consistency would be enhanced. Dischargers that discharge to the ocean, Santa Monica Bay, or Monterey Bay that are already governed by the Ocean Plan would continue to be governed by the Ocean Plan. The ISWEBE Plan would not apply to such dischargers and therefore would not increase costs for all dischargers in California. Discharges to inland surface waters, enclosed bays, or estuaries would be subject to the provisions in the ISWEBE Plan. See Section IV.B.1.b of the October 2018 Draft Toxicity Provisions for requirements for the Regional Water Boards regarding when freshwater and/or marine methods should be used. The Draft Toxicity Provisions explicitly states the requirements for selection by the Water Boards, based upon salinity, in section IV.B.1.b. The selection of marine or freshwater test methods would continue to be documented in each facility's NPDES permit.

Changes to the Ocean Plan are outside the scope of this project. A future project to amendment the Ocean Plan with provisions similar to the October 2018 Draft Toxicity Provisions is being considered as part of the 2019 Ocean Plan Triennial Review.

Comment 11.28

Inconsistency between discharger types is also prevalent in the Revised Draft Policy. Although all discharges may have the potential to affect receiving water toxicity, only traditional point sources are being required to have presumed reasonable potential, monitor more frequently, and be exposed to enforcement and penalties. Other discharges, such as stormwater and agricultural channelized dischargers, are being subjected to a much less stringent program notwithstanding that these discharges may also adversely affect waterways. (See Revised Draft

Policy at 13-14.) This inconsistency is unexplained and arbitrary, and should be avoided. All dischargers should be subject to similar requirements when they have similar potential effects on receiving waters.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. Sections IV.B.3 and IV.B.4. of the Draft October 2018 Provisions allow the Regional Water Boards to determine when storm water and nonpoint sources must test discharge for toxicity. See Sections 5.5 of the Draft October 2018 Staff Report for a discussion on the requirements for storm water dischargers and 5.6 of the Draft October 2018 Staff Report for a discussion on the requirements for nonpoint source dischargers. The Regional Water Boards are qualified to determine when storm water and nonpoint sources pose a threat to water quality and aquatic life beneficial uses. Regional Water Boards also have discretion in determining when non-storm water NPDES dischargers that are insignificant dischargers or POTWs serving a small disadvantaged community may be exempted from some or all of the implementation requirements in the Provisions. The exceptions to the Provisions are included in Section IV.B.2.j. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.7.4 and 5.7.5 of the Draft October 2018 Staff Report.

Comment 38.1

The proposed policy does not explain that the Whole Effluent Toxicity ("WET") test methods are intended to assess the potential for toxicity to aquatic organisms, not people. Once a sample has been found to be "toxic," the public may mistakenly perceive this to mean that the particular source water poses a threat to human health. Since the new policy now proposes to conduct regular WET tests on stormwater runoff, receiving waters, recycled water, and unpermitted channelized discharges (e.g. State Project Water), any negative result will severely undermine public trust and acceptance of these potential raw water sources. And, there is no way that agricultural operators will agree to use recycled water for irrigation where even a single adverse toxicity test might taint the perceived quality of their produce. Therefore, at a minimum, the State Board must make it absolutely clear that WET test results were never designed to, and should never be used to, suggest that there is any potential threat to human health.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Toxicity Provisions allow Regional Water Boards to determine when or if to require toxicity testing for storm water or non-point source dischargers. See Sections IV.B.3 and IV.B.4 of the October 2018 Draft Toxicity Provisions and Sections 5.5 and 5.6 of the October 2018 Draft Staff Report.

Section II.B.1. of the October 2018 Draft Toxicity Provisions list the applicable beneficial uses for the Toxicity Provisions. Section 2.5 of the October 2018 Draft Staff Report clearly states that the Provisions only apply to aquatic life beneficial uses.

Comment 38.8

The draft Policy for Toxicity Assessment and Control imposes numerous new obligations that are not required by the federal Clean Water Act (CWA). In particular, the CWA applies only to "waters of the U.S." Flood control channels and percolation ponds are not waters of the U.S. but may be considered "waters of the state." Therefore, any requirement to perform WET testing on

these intrastate waters can only be made pursuant to state authority and, in many cases, could be considered an Unfunded Mandate.

Response

The October 2018 Draft Toxicity Provisions do not constitute an unfunded state mandate for two reasons. First, the provisions affect both public and private dischargers equally. Laws of general application that are regulated with an even hand are not entitled to subvention. The fact that a requirement may result in incidental costs to local agencies is not dispositive of whether the Toxicity Provisions constitute reimbursable state mandates; where local agencies are required to perform the same functions as private industry, no subvention is required. (See County of Los Angeles v. State of California (1987) 43 Cal.3d 46; City of Richmond v. Commission on State Mandates (1998) 64 Cal.App.4th 119.) Second, no subvention is required when local agencies possess the authority to levy service charges, fees, or assessments sufficient to pay for a mandated program or increased level of service. (See Gov. Code, § 17556, subd. (d); County of Fresno v. State of California (1991) 53 Cal.3d 482, 484.) Statutory authorization to levy charges, fees, or assessments, rather than whether the local agencies actually imposes those fees, determines whether the local agency is entitled to subvention. (Connell v. Superior Court (1997) 59 C.A.4th 382; Paradise Irrigation District v. Commission on State Mandates (Oct. 1, 2018, No. C081929) __Cal.App.5th __ [2018 WL 4691078].

Comment 20.9, 20.1

As a preliminary matter, we continue to believe that it is inappropriate for the Draft Toxicity Policy to apply to agricultural dischargers. The primary purpose of this policy is to supersede Toxicity control provisions in the state's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), which is a Toxicity policy that applies only to point source dischargers subject to federal National Pollutant Discharge Elimination System (NPDES) permit requirements.

...None of the reasons or purposes for development of the Draft Toxicity Policy applies to nonpoint source dischargers such as agriculture. Agricultural dischargers are exempt from federal NPDES requirements, and not subject to the SIP. Accordingly, all provisions in the Draft Toxicity Policy with respect to agriculture, or ''channelized dischargers'' as defined in the Draft Toxicity Policy, need to be removed.

Response

The main goal of the October 2018 Draft Toxicity Provisions is to provide consistent protection of aquatic life in all inland surface waters, enclosed bays, and estuaries of the state from the effects of toxicity. Requirements for nonpoint source dischargers to use the TST approach are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report.

Comment 22.15

Agricultural Dischargers should be required to conduct toxicity testing, regardless of whether they are currently required to monitor for toxicity.

We request that channelized dischargers presently obligated to carry out toxicity testing would be required to use of the TST Method for all toxicity data analyses within one year of the effective date of the Policy. Channelized dischargers currently not performing chronic toxicity

monitoring under their current WDR, conditional prohibition, or conditional waiver cycle would be required to adhere to a chronic toxicity monitoring program developed by the appropriate Regional Water Board in the next permit cycle.

Response

The Permitting Authority has discretion to require toxicity monitoring using any test method. Requirements for nonpoint source dischargers to use the TST approach are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report.

Comment 22.16

...the Toxicity Policy will require very few agricultural dischargers to comply with the Policy and perform toxicity monitoring. This simply does not meet the legal standards required under Water Code sections 13269 and 13369, and as State Water Board Staff state, will not protect aquatic life beneficial uses.

Response

Requirements for nonpoint source dischargers, including agricultural dischargers, are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report. The Toxicity Provisions will be authorized pursuant to Water Code section 13170 and 13140. Neither Water Code section 13269 nor section 13369 are applicable. Any future order issued pursuant to Water Code section 13269 (regarding waivers of WDRs) will be required to implement the Toxicity Provisions should they be adopted and take effect. Water Code section 13369 sets forth requirements for the State Water Board to prepare a program for the purpose of implementing the state's nonpoint source management plan. The State Board *Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Implementation and Enforcement Policy), explains how the non-point source Program Plan will be implemented and enforced and, in so doing, fulfills the requirements of California Water Code (CWC) section 13369 (a)(2)(B).

Comment 22.5

The Draft Policy should include provisions to minimize toxicity caused by agriculture.

Likewise, toxicity effluent limits and monitoring requirements should also apply to agricultural dischargers, another major source of toxicity in the environment.

Response

Toxicity effluent limitations and monitoring for non-point source discharges are not requirement included in the October 2018 draft Toxicity Provisions. Requirements for nonpoint source dischargers, including agricultural discharges, to use the TST approach when appropriate are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report.

Comment 47.1

As the State Board should recognize, the Central Coast and Central Valley Regions have had those farm and ag water communities and the coalitions who represent them, completely immersed in ag waivers/general orders. These extensive new regulations deal with water

quality, toxic contaminants, water quality monitoring, etc. Those presently emerging regulatory programs have been advanced in coordination with California Department of Food and Agriculture, California Department of Pesticide Regulation, State Water Board, etc. Now, out of left field, the State Board advances this new policy that is, in many respects, inconsistent with those other similar programs. This has been done with no discussion in these other proceedings. This either needs to all be slowed down or amended by clarifying that none of these provisions will apply to agriculture, if inconsistent with an existing regulatory water quality program.

Response

Requirements for nonpoint source dischargers, including agricultural discharges, to use the TST approach are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report. There have been many opportunities for discussion throughout the development of the Toxicity Provisions, and more opportunities will be available in the future. Section 2.9 of the Draft October 2018 Staff Report describes the public outreach opportunities. Additional opportunities for stakeholders to participate in the process will occur in the future. Stakeholders are welcome to continue to participate in the public process by attending and participating in upcoming workshops, providing oral comment on the Draft October 2018 Toxicity Provisions and Staff Report at the November 28, 2018 Board Hearing, and by providing written comments during the public hearing period. Stakeholders can also participate in any future Board meetings regarding the Draft Toxicity Provisions. Information on these opportunities is available on the Statewide Toxicity Provisions home page:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 47.2

This should not be considered an extreme suggestion, as the purpose of the policy is to amend provisions in the state's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), which is a toxicity policy that applies only to point source dischargers subject to federal NPDES permit requirements.

This regulatory overreach to non-point source agricultural drainage is further apparent as the project is to develop "effluent limitations," which do not apply to agriculture. Further, the referenced resolution is to amend the state's SIP, which itself does not apply to agricultural discharge.

Response

The main goal of the October 2018 Draft Toxicity Provisions is to provide consistent protection of aquatic life in all inland surface waters, enclosed bays, and estuaries of the state from the effects of toxicity. Requirements for nonpoint source dischargers, including agricultural discharges, to use the TST approach when appropriate are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report.

Part I: Definitions

Comments 2.5, 11.16, 12.2, 16.2, 18.7, 27.4, 45.7

Use of Instream Waste Concentration is Essential to Valid Use of the TST

The Revised Draft Policy defines instream waste concentration (IWC) as follows: "In- Stream Waste Concentration (IWC) is the concentration of a toxicant or effluent in the receiving water after mixing (the inverse of the dilution factor). A discharge of 100 percent effluent will be considered the IWC whenever mixing zones or dilution credits are not authorized by the applicable Water Board." The second sentence allows deviation from the use of a true IWC when using the TST to evaluate toxicity test results, and is not appropriate, since the validity of using the TST for regulatory decision-making is based on its use in conjunction with the IWC. All documents referencing use of the TST to evaluate toxicity test data, including the Revised Draft Policy itself, staff report, and the Peer Review of the Policy, agree on this point.

The USEPA NPDES Test of Significant Toxicity Technical Document (June 2010) is particularly clear. The final sentence of the Executive Summary reads: "The TST approach is designed to be used for two concentration data analysis of the IWC or a receiving water concentration (RWC) as compared to a control concentration." The definition of IWC in this EPA Technical Document is: "In-stream Waste Concentration (IWC) is the concentration of a toxicant or effluent in the receiving water after mixing. The IWC is the inverse of the dilution factor. It is sometimes referred to as the receiving water concentration (RWC)." Thus, the USEPA guidance document that establishes the standards for using the TST in NPDES permit programs requires the IWC to be a true concentration of effluent in the receiving water after mixing.

If the policy is adopted to allow an IWC to be artificially defined as 100 percent effluent when the true IWC is lower-in some cases, significantly lower-the TST analysis will always overstate the true measurement of toxicity for that effluent in the receiving water. Under this scenario, a positive TST analysis on whole effluent will require a discharger to conduct accelerated monitoring and potentially be in violation for a positive test result that would not, in fact, exhibit similar results within the receiving water. If all the other elements of the Revised Draft Policy are retained, many dischargers will spend significant staff and monetary resources to respond to toxicity test results that are inherently overstated if the Policy does not require a true IWC to be used.

An illustration of the Policy's reliance on using IWC is found in section III.A.6, Compliance Determination, which reads: "...dischargers shall report the results of reasonable potential analyses, species sensitivity screenings, and routine toxicity tests to the applicable Water Board as either a "pass" or a "fail" at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC." A discharger will not be able to comply with the intent of this provision if the policy enables an IWC to be arbitrarily set at 100 percent effluent when the true IWC is lower since the data will never reflect the actual percent effect in the receiving water.

The intent of the policy is to establish statewide consistency and reliability in the interpretation and response to toxicity test results. A true IWC when using the TST is integral to meeting these objectives, and therefore the policy should not include a loophole that allows the IWC to be artificially limited.

To address this, we recommend the following amendment to the policy:

Remove the second sentence of the definition of IWC from the Policy so that it reads: "In-

Stream Waste Concentration (IWC) is the concentration of a toxicant or effluent in the receiving water after mixing (the inverse of the dilution factor)."

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The 2018 Draft Toxicity Provisions only require one of the test concentrations to the be the IWC, which is specified in the dischargers permit. Most CA facilities are effluent dominated and don't have mixing zones, so while many facilities will use 100 percent effluent, this will not always be the case. The current definition of Instream Waste Concentration (IWC) can be found in the glossary of the October 2018 Draft Provisions. Requirements for mixing zones and dilution credits are included in Section IV.B.2.d. of the October 2018 Draft Provisions. These requirements are discussed in Section 5.4.5 of the October 2018 Draft Staff Report.

Comment 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."

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The definition of "small disadvantaged communities" is included in the glossary of the October 2018 Draft Provisions. Exceptions for small disadvantaged communities are included in Section IV.B.2.J. of the October 2018 Draft Provisions. A discussion of exceptions for small disadvantaged communities is included in Section 5.7.4 of the October 2018 Draft Staff Report.

Comments 20.2, 47.3

Definition of Channelized Dischargers

The Draft Toxicity Policy proposes to create a new definition that would apply almost exclusively to agricultural dischargers. We find this proposed new definition inappropriate for several reasons. Most importantly, the definition is inconsistent with applicable state law and could arguably expand application of the Draft Toxicity Policy to agricultural conveyance facilities that are not waters of the United States or surface waters of the state. Specifically, the proposed definition would define agricultural dischargers as those that discharge through a directed channel that are not regulated under the NPDES permit program. All channels are not necessarily surface waters of the state. In fact, we contend that channels that are manmade agricultural conveyance facilities are not surface waters of the state and therefore discharges to such channels are not subject to the Clean Water Act (CWA) or the Porter-Cologne Water Quality Control Act (Porter-Cologne). Further, unless specifically identified in a water quality control plan (Basin Plan), constructed agricultural drains do not have designated beneficial uses

and therefore the toxicity objectives that are designed to protect aquatic life beneficial uses would not apply. (See State Water Board Order WQO 2002-0016, at p. 5.) By including all nonpoint source discharges to channels as part of the definition of channelized discharges in this policy, the Draft Toxicity Policy implies that all "channels" are surface waters of the state subject to this policy. That is factually and legally incorrect.

Further, we do not believe that it is necessary or appropriate to include a definition for "channelized dischargers." To the extent that the State Water Board determines it is appropriate to apply the numeric toxicity objectives to agriculture and include agriculture in the implementation provisions of the Draft Toxicity Policy, it is not necessary to include this definition. The same result could be reached by deleting all references to channelized dischargers, and "Irrigated Agriculture." For example, on page 14 of the Draft Toxicity Policy, the section applies to irrigated agriculture subject to any conditional waiver, conditional discharge prohibition, or waste discharge requirement. It is not necessary to artificially create a new term that has no practical or legal application.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Provisions do not contain a definition of canalized discharger. In addition, the Provisions do not discuss requirements specific to canalized discharges. Requirements for nonpoint source dischargers are included in Section IV.B.4. of the Draft October 2018 Provisions and are discussed in Section 5.6 of the Draft October 2018 Staff Report.

Comment 40.5

Regulatory Management Decision

Need to specify for what the "maximum allowable error rate" is intended; i.e., what, specifically, is the decision error rate supposed to control for or protect against?

Response

The Regulatory Management Decisions (RMD)s and error rates are discussed in Sections 5.1 and 5.3 of the October 2018 Draft Staff Report.

The selected RMDs for chronic and acute toxicity are consistent with the RMDs included in the peer reviewed U.S. EPA *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (TST Technical Document). The RMD values were developed by U.S. EPA based on comments from external peer reviewers, and from U.S. EPA's Office of Research and Development during the development of the TST. The rationale for these RMDs is discussed in U.S. EPA's Technical Document for the TST. The Technical Support Document and peer reviewed literature were used to set the b values for both chronic and acute WET testing. As put forth in the October 2018 Draft Staff Report, using a 25% effect threshold as the *b* value is consistent with U.S. EPA's use of IC_{25} as an acceptable effect threshold for determining chronic toxicity. In addition, both the TSD and scientific literature support the use of a 25% effect as a toxic threshold above which ecological effects are likely. The acute *b* value threshold of 0.8 is consistent with peer-reviewed literature indicating that 20% or greater mortality is likely to result in ecological impacts (A.C.S da Cruz et al. 2007). The results from toxicity tests are usually expressed as the lethal (LC_{50}), effective (EC_{50}), or inhibitory (IC_{50}) concentration causing mortality, abnormalities, and impairments in growth or reproduction to 50% of test organisms—however it has not been clearly proved that a 50% effect level would be

protective of ecosystems from pollution (A.C.S da Cruz et al. 2007). The recognition that these are not the best endpoints to assess contaminate effects led the U.S. EPA to suggest EC_{25} or IC_{25} as analogs of NOEC (U.S. EPA 1991). Denton et al. (1994) using response data from different organisms to toxicants, indicated that the approximate concentration from where the population effects start was below the value indicated as causing noxious effects to 25% of the exposed test organisms, for all test methods analyzed (Denton et al, 1994; A.C.S da Cruz et al. 2007).

As the selected RMDs used in the TST were proven to be scientifically valid by the U.S EPA through peer review and were supported by the State Water Board's external peer review process the TST Test Drive, these RMDs were included in the October 2018 Draft Toxicity Provisions.

Comment 46.1

Definition of small communities is too narrow and small communities will be disproportionately affected. The Water Agency is concerned that the Policy will impose a disproportionate economic burden on smaller wastewater agencies that are not deemed disadvantaged because of the high costs of conducting required toxicity testing and TREs..... The Water Agency recommends modification of the Policy to change the presumption of reasonable potential (which automatically requires implementation of the policy) from 1 MGD to 5 MGD.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed.

The Toxicity Provisions have different requirements for reasonable potential analysis and monitoring frequency for non-storm water NPDES dischargers authorized to discharge at a rate of equal to or greater than 5 MGD and those authorized to discharge at a rate of less than 5 MGD.

In addition, the exception for small disadvantage communities is not based on a discharge rate. The definition of "small disadvantaged communities" is included in the glossary of the October 2018 Draft Toxicity Provisions. Exceptions for small disadvantaged communities are included in Section IV.B.2.J. of the October 2018 Draft Toxicity Provisions. A discussion of exceptions for small disadvantaged communities is included in Section 5.7.4 of the October 2018 Draft Staff Report.

Please see Sections IV.B.2.b. and c. of the October 2018 Draft Toxicity Provisions and Sections 5.4.2 and 5.4.4 of the October 2018 Draft Staff Report for more detail.

Comments 2.4, 2.1, 6.21, 6.5, 7.9, 11.2, 11.49, 11.1, 28.4, 31.3, 37.2, 37.3, 37.7, 46.3, 50.1

There is no water quality benefit to implementing numeric objectives over narrative objectives with numeric triggers for accelerated monitoring and toxicity investigation.

Response

The benefits of a numeric water quality objectives are discussed in Section 5.1 of the October 2018 Draft Staff Report. The benefits of numeric effluent limitations are discussed in Section 5.4.3 of the October 2018 Draft Staff Report.

Comments 6.10, 6.24, and 11.43

The use of numeric objectives does not recognize the realities of addressing the causes of toxicity. Toxicity is not a pollutant, but an effect. Dischargers cannot proactively address toxicity and prevent the discharges of "toxicity". Addressing persistent toxicity requires the identification of a toxicant so that mechanisms to reduce the discharge of the toxicant can be identified. Without this step, toxicity cannot be addressed. Therefore, regardless of whether the objective is numeric or narrative, no actions to control toxicity will be possible before additional studies are conducted. Imposing a numeric objective will not alter this reality. 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.

Response

The RMDs, which are incorporated into the numeric toxicity water quality objectives provide a clear indication of when there is an unacceptable level of toxicity. The need for numeric water quality objectives for aquatic toxicity is discussed in Section 5.1 of the October 2018 Draft Staff Report. The need for numeric effluent limitations is discussed in Section 5.4.3 of the October 2018 Draft Staff Report. Per Section IV.B.2.f of the October 2018 Draft Toxicity Provisions, when a discharger has multiple violations in a single month or successive months the discharger must take further action by initiating a TRE to identify the cause of toxicity in effluent. Section 5.4.6 of the October 2018 Draft Staff Report describes this requirement for when a discharger must conduct a TRE to identify sources of persistent toxicity. Additionally, the identification of the toxicant is not always necessary to reduce toxicity.

Comment 6.14

Additionally, since the Draft Policy recognizes that setting numeric effluent limits for stormwater and agricultural dischargers is not feasible, using the justification that it is an efficient regulatory tool when expressed as effluent limits is not appropriate for non-wastewater dischargers that are also subject to the objective.

Response

The nature of many storm water and nonpoint source discharges may present challenges to setting numeric effluent limitations for aquatic toxicity. Sections IV.B.3 and IV.B.4. of the October 2018 Draft Toxicity Provisions specifies aquatic toxicity requirements for storm water and nonpoint source dischargers. The inclusion of a blanket requirement for numeric effluent limitations in nonpoint source WDRs or waivers of WDRS is likely unsuitable given the diffuse nature of nonpoint source runoff and the current strategy of addressing pollutants by implementing management practices. While the issue of the appropriateness of numeric effluent limitations for storm water dischargers continues to evolve, at this stage in the regulation of storm water it is inappropriate to impose a blanket requirement for effluent limitations for all such discharges. Under the Toxicity Provisions, Regional Water Boards will maintain responsibility for establishing monitoring requirements and effluent limitations for storm water and nonpoint source dischargers. However, the Toxicity Provisions require these dischargers to use the TST approach when the discharger is using species and test methods included in Table I of the Toxicity Provisions. As discussed in Sections 5.5 and 5.6 of the October 2018 Draft Staff Report, Requiring the use of the TST approach for storm water and nonpoint source dischargers would create consistency between programs and allow for easier data interpretation.

Comments 6.2, 11.3, 39.10

3. Numeric Toxicity Objectives with Numeric Effluent Limits Are Not Necessary to Protect Aquatic Life or Biological Beneficial Uses.

Field studies conducted by the EPA and others in the 1980s have led to a common misperception that the results of WET tests are relatively good predictors of in-stream biological impacts. However, these early studies have been criticized for selecting sites exhibiting large in-stream effects with known biological impacts and did not evaluate waters and effluents exhibiting low to moderate sublethal chronic effects.

Furthermore, none of these studies demonstrated predictive accuracy. EPA's experts now acknowledge that WET test failures caused solely by changes in growth or reproduction may not accurately predict in-stream impairment. Although EPA contends that "when significant lethality is seen in toxicity tests there is a very high potential of aquatic ecosystem impairment," EPA's experts "continue to struggle with the idea that sublethal effects on indicator species can result in detectable adverse ecosystem responses".

Furthermore, more recent scientific research on this topic has demonstrated that chronic toxicity as measured in the WET tests is a poor predictor of in-stream impacts with "nearly a 50% probability that toxicity exhibited in WET tests may not be reflected in-stream, even for those effluents exhibiting a relatively high failure rate (>90%)." Additionally, the authors concluded that "a surprising result of this study was the lack of relationship between Ceriodaphnia dubia acute and chronic endpoints and in-stream biological results" and that even when using the more robust EC/IC25 statistical analyses, "poor agreement was observed between WET results and instream biological condition, contrary to results previously reported by EPA and other research entities." A subsequent Water Environment Research Foundation (WERF) study published in 2007 described nearly identical findings, even though this study focused on effluent-dominated streams where effluent WET tests would be expected to be more predictive of in-stream effects. Even more recently, the Surface Water Ambient Monitoring Program (SWAMP) and the Southern California Coastal Water Research Program (SCCWRP) found that after analyzing over 120 sites across 15 watersheds, aquatic toxicity, as measured using Ceriodaphnia dubia chronic toxicity tests, was found to negatively correlate with biological condition measured using freshwater benthic invertebrates. If real and accurate, this slight negative correlation would nonsensically indicate that receiving waters with greater WET toxicity would be expected to have BETTER biological condition!

Therefore, the use of numeric WET objectives and limitations will not result in greater protection of receiving biological conditions. The EPA peer review of the WERF study concurred that, "the actual level of false positives in 'real life' as defined by this [EPA's Interlaboratory WET Variability, 2000] study can be expected to be higher. These tests are applied, too often, as decisive when they are far from such."

Response

Numerous studies have demonstrated the correlation between toxicity test results and instream effects. During the development of the toxicity test methods, U.S. EPA performed numerous validation studies to confirm this correlation between toxicity test results and biological or ecological impairment of receiving water systems. This has also been supported by a conclusion that was reiterated in a 1995 workshop of nationally recognized whole effluent toxicity (WET) experts (Grothe et al., 1996), including those from academia, the regulatory community, POTWs, and industry. These experts stated that "WET testing is an effective tool for predicting receiving system impacts when appropriate considerations of exposure are

considered'' (Waller et al., 1996). The workgroup also agreed that "…further laboratory to field validation is not essential for the continued use of WET testing'' (Waller et al., 1996). In 1999, U.S. EPA once again sought to determine whether toxicity test results correlate with instream effects (U.S. EPA 1999). In that review, deVlaming and Norberg-King evaluated a total of 77 independent studies in which toxicity tests were compared to instream, biological/ecological responses. In 74 percent of the studies evaluated, the WET test results were reliable qualitative predictors of instream impacts. The toxicity tests underestimated instream effects in 21 percent of the studies, and results from only five percent of the studies were inconclusive or mixed. Moreover, a court decision found in the agency's favor on this issue in Edison Electric Institute et al. v. Environmental Protection Agency, (D.C. Cir. 2004) 391 F.3d 1267. An important test characteristic is ''representativeness'', that is, the ability of test results to predict instream effects accurately; the petitioners in this case claimed that U.S. EPA failed to establish the presence of such correlations for several of the toxicity tests, particularly with regard to Western state waters, which differ chemically from their Eastern counterparts. U.S. EPA responded by pointing to the results of numerous studies on this subject conducted throughout the 1990s. These studies support the representativeness of the toxicity test methods in general, and several demonstrate representativeness with regard to particular Western waters. (See U.S. EPA, A Review of Single Species Toxicity Tests: Are the Tests Reliable Predictors of Aquatic Ecosystem Community Responses? 47-50 (July 1999)).

It is unrealistic to require correlation studies on every stream in the nation. U.S. EPA took the sensible approach of relying on sampling techniques to draw general conclusions, while leaving some implementation details to local entities. (See Am. Iron & Steel Inst. v. EPA (D.C. Cir. 1997) 115 F.3d 979, 1005). Pursuant to the Clean Water Act (CWA) section 1342(a), states retain discretion, subject to U.S. EPA guidance and recommendations, to set their effluent limitations and other conditions at the permitting stage. (See 40 C.F.R. § 122.44(d)(1)(iii)).

As discussed in Section 5.2 of the October 2018 Draft Staff Report, the Provisions are not proposing to modify the toxicity test methods. The validity of these methods has already been established by numerous studies.

Numeric water quality objectives, the TST statistical approach, and numeric effluent limitations as required in Sections III.B.2., IV.B.1.c., and IV.B.2.e of the October 2018 Draft Toxicity Provisions and discussed in Sections 5.1, 5.3, and 5.4.3 of the October 2018 Draft Staff Report, help provide a greater confidence in the outcome from WET testing, thus improving protection of water quality.

Grothe DR, Dickson KL, Reed-Judkins DK, editors. 1996. Whole effluent toxicity testing: An evaluation of methods and prediction of receiving system impacts. Pensacola FL: SETAC Press. p 346.

Waller WT, Ammann LP, Birge WJ, Dickson KL, Dorn PB, LeBlanc NE, Mount DI, Parkhurst BR, Preston HR, Schimmel SC, Spacie A, Thursby, GB. 1996. Predicting instream effects from WET tests: discussion synopsis. In: Whole effluent toxicity testing: an evaluation of methods and prediction of receiving system impacts, Grothe DR, Dickson KL, Reed-Judkins DK, editors. Pensacola FL: SETAC Press. pp 271-286.

De Vlaming V, Norberg-King, TJ. 1999. A review of single species toxicity tests: Are the tests reliable predictors of aquatic ecosystem community responses? EPA 600/R- 97/114. Mid-Continent Ecology Division, Duluth, MN.

Comment 6.20

Numeric Objectives are Inconsistent with the Implementation Provisions for Wastewater Dischargers and Could Result in TMDL-Driven WLAs for Toxicity that Produce More Restrictive Effluent Limits Than Those Outlined in the Draft Policy.

As discussed above, the numeric objectives currently lack any averaging period or allowable exceedance frequency. As a result, they are interpreted as instantaneous maximum objectives not to be exceeded at any time. In the absence of any provisions to the contrary in the Draft Policy, TMDL numeric targets will need to be interpreted as instantaneous maximums and corresponding allocations would likely be interpreted in the same way. As a result, WLAs for wastewater dischargers could be more stringent than the implementation provisions in the Draft Policy have outlined. Inclusion of narrative objectives would allow Regional Water Boards to clearly use the implementation provisions in the Draft Policy to determine the WLAs for wastewater dischargers.

Response

The October 2018 Draft Toxicity Provisions would not supersede the narrative toxicity water quality objectives in Basin Plans. Currently, an exceedance of a narrative aquatic toxicity water quality objective is assessed based on a single aquatic toxicity test. When there are multiple exceedances water bodies may be listed in the 303(d) list of impaired water bodies in accordance with the Listing Policy. Typically, under a TMDL, the Regional Water Boards have not assigned WLAs for general aquatic toxicity. For impaired waters, the toxicant or toxicants contributing to the impairment would first be identified, then WLAs may be developed to reduce those toxicants that contribute to the impairment of the narrative toxicity water quality objective.

The October 2018 Draft Toxicity Provisions would establish numeric toxicity water quality objectives. The numeric water quality objectives for aquatic toxicity are discussed in Section 5.1 of the October 2018 Draft Staff Report. Numeric water quality objectives and the program of implementation in the October 2018 Draft Provisions will increase the confidence in the outcome of each water quality decision. As discussed in the Section 5.1 of the October 2018 Draft Staff Report, water quality objectives in the Provisions are not anticipated to result in a net increase in the number of impaired water bodies. If any particular water body is determined to be impaired for the numeric aquatic toxicity objective, the applicable Water Board would undergo the process of establishing a TMDL, or other action, to address the impairment. At that time, the Regional Board would determine whether and what waste load allocations are appropriate.

Comments 6.23, 6.12, 8.2, 25.3, 52.4, 19.2

The numeric objective in the Draft Policy is problematic, while a narrative objective would be protective of aquatic health.

CASQA appreciates the revisions to the Draft Policy to recognize the complexities of addressing toxicity for non-wastewater dischargers - particularly, the recognition that application of numeric effluent limits is infeasible for stormwater dischargers. However, the numeric objective and implementation procedures established by the Draft Policy could be applied to dischargers subject to toxicity TMDLs. There is currently no discussion of how a numeric objective should be used in the context of TMDLs and no implementation procedures that prevent the application of the numeric objective as an instantaneous, single sample exceedance.

Response

Section 5.1 of the October 2018 Draft Staff Report discusses the need for numeric water quality objectives for aquatic toxicity. Section III.B.3. of the October 2018 Draft Toxicity Provisions are clear that the Toxicity Provisions will not supersede the narrative toxicity water quality objectives in the basin plans. In addition, any TMDL, including their implementation provisions, adopted by the Regional Water Boards prior to the effective date of the October 2018 Draft Toxicity Provisions will remain in effect. This is discussed in more detail in Section 2.5 of the October 2018 Draft Staff Report. For further response on TMDLs, see also response to comment 6.20

Comment 6.25

Additionally, the use of narrative objectives with clear implementation procedures is consistent with Federal, State, and Regional Guidance. Furthermore, a step-wise approach using narrative effluent limits with accelerated monitoring and TRE triggers has been effectively utilized in California for over ten years, particularly in the Los Angeles and Santa Ana regions. Such an approach is supported by a diverse national expert advisory panel, which was 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, which was specifically assembled to provide guidance on the regulatory use of toxicity test [sic] within the State. Finally, the narrative limit/numeric trigger approach has been in place since 2003 without demonstrable adverse environmental consequences, has not been objected to by EPA, and has been supported by the State Water Board. Therefore, we disagree with the Draft Policy's proposal to significantly shift the regulation of toxicity for wastewater dischargers from a narrative trigger approach to a numeric effluent limit approach.

Response

U.S. EPA has objected to the use of numeric triggers for whole effluent toxicity in NPDES permits for discharges that have the reasonable potential to cause or contribute to an exceedance of water quality objectives for toxicity. (See, e.g., September 4, 2014 letter from Jane Diamond, Director of the Water Division, U.S. EPA Region IX to Samuel Unger, Executive Officer of the Los Angeles Regional Water Quality Control Board.) EPA has also supported the State Water Board's effort toward developing numeric water quality objectives and numeric effluent limitations for aquatic toxicity. As discussed in Section 5.4.3 of the October 2018 Draft Staff Report, the 2014 U.S. EPA Permit Quality Review for California identified several problems regarding how water quality based effluent limitations were developed in NPDES permits. The review recommended that State Water Board develop, clarify and standardize the approach for calculating numeric limitations for toxic pollutants and whole effluent toxicity. Numeric water quality effluent limitations for aquatic toxicity are already included in some permits in California.

The options for establishing statewide water quality objectives, including advantages and disadvantages of the options considered are discussed in Section 5.1 of the 2018 Staff Report. The options for establishing statewide effluent limitations, with their advantages and disadvantages are discussed in Section 5.4.3 of the 2018 Staff Report.

Comments 6.26, 47.8

A well-articulated toxicity regulatory strategy using narrative effluent limitations with numeric toxicity triggers with enforceable TRE requirements would be able to address the goals of the Draft Policy and address the concerns identified above. Consistent narrative effluent limitations with numeric toxicity triggers will allow time for toxicant identification without being in violation of the permit, while failure on the part of a discharger to adequately implement this process in response to toxicity would constitute a violation of the narrative toxicity limitation and expose the discharger to the imposition of penalties and other enforcement actions. The narrative effluent

limit approach provides an incentive to the discharger to aggressively identify and control the constituents causing the toxicity, as inaction will result in a violation. The Draft Policy causes dischargers to be in violation regardless of whether or not actions are taken to address the toxicity. As a result, there is a potential disincentive to spend money to identify and control the toxicity if violations occur regardless of whether or not you are taking actions. Additionally, with a narrative effluent limitation, efforts are focused on identifying and controlling persistent toxicity and resources are not wasted on situations that are unlikely to be controllable, such as sporadic events or non-toxic samples erroneously identified as toxic.

Response

Section IV.B.2.e. of the October 2018 Draft Toxicity Provisions specifies MMELs and MDELs for aquatic toxicity. MMELs are based on more than one fail within a calendar month and MDELs are based on a fail and a significant toxic effect for any one sample. The way in which MMEL and MDEL violations are identified reduces the probability of a violation from a single sporadic insignificant event or erroneous toxic identification. Under the October 2018 Draft Toxicity Provisions dischargers have an incentive to identify and control toxicity. The options for establishing statewide effluent limitations, with their advantages and disadvantages are discussed in Section 5.4.3 of the 2018 Staff Report. The options for when to require dischargers to conduct a TRE are discussed in Section 5.4.6 of the 2018 Staff Report.

Comments 6.3, 6.1, 6.7, 11.32

We are concerned that the justification for the selection of numeric targets (and the Draft Policy as a whole) seems focused on the need to define numeric effluent limitations for wastewater dischargers. We feel this is an inappropriate justification for setting objectives and does not adequately consider the implications of the objectives that are being set. Following is a discussion of our key concerns with the justification for the selection of numeric toxicity objectives.

Justification for Selection of Numeric Objectives is Based Solely on Discharge Considerations

In the Draft Staff Report Analysis of Issues and Alternatives, Issue 1C discusses the alternatives for determining the statewide toxicity objective. This section provides the justification for the selection of numeric toxicity objectives including the following statements:

"Numeric toxicity objectives are an efficient regulatory tool when expressed as effluent limits because the measurement of compliance is clearly defined."

"The duty of achieving and maintaining compliance lies with the discharger."

"Numeric objectives represent a compliance-driven model of toxicity control that provides clearly defined and consistently applied requirements to determine the protection of aquatic life."

All of these statements focus on the discharge, discharger compliance, and the application of the objectives into permit requirements. Although a few statements in the justification mention the protection of aquatic life beneficial uses, the discussion never explains why a numeric objective will provide more protection for beneficial uses than a narrative objective other than it is more efficient and less resource intensive. While we recognize that efficient use of resources is important, setting numeric toxicity objectives solely for that purpose is not warranted, particularly given the implicants of the use of the numeric objectives discussed in the following

section.

In order to justify the use of numeric objectives over narrative objectives, the Draft Policy would need to explain why numeric objectives are necessary to protect beneficial uses.

Response

The need and justification for using numeric water quality objectives is discussed in Section 5.1 of the October 2018 Draft Staff Report. The Draft Staff Report points out that the numeric water quality objectives in the Draft Toxicity Provisions incorporate regulatory management decisions (RMDs) that clearly defines biologically unacceptable levels of toxicity. The RMDs provide an unambiguous measurement of a test concentration's toxicity, while low false positive and false negative rates provide more statistical power to correctly identify a test concentration as "toxic" or "non-toxic. The TST Test Drive demonstrated that without a numeric water quality objective and associated RMDs some current statistical approaches may declare some toxicity tests as non-toxic with mean effects above 30 percent. The TST Test Drive also demonstrated that the TST approach with numeric RMDs declared fewer tests with a mean percent effect below 10 percent as toxic. Numeric water quality objectives are necessary to provide consistent assessment with a high degree of confidence in the outcomes.

Comment 6.9

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. 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. Additionally, more than one exceedance of a toxicity threshold is needed to define persistent toxicity that could possibly be addressed and prevented. Not including an averaging period and exceedance frequency 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." However, establishing a numeric objective for toxicity that adequately defines an appropriate averaging period and exceedance frequency when considering the varying types of waterbody conditions, discharges to the waterbodies and potential beneficial use impacts is not feasible.

Response

Although the TST approach is not discussed in U.S. EPA documents that predate the development of the TST approach, the TST approach is consistent with methods for hypothesis testing. The numeric water quality objectives in the Provisions are consistent with the U.S. EPA June 2010 National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document. In addition, the Provisions do not alter the Listing Policy. Persistent toxicity will continue to be identified consistent with the Section 3.6 of the Listing Policy. As discussed in Section 5.1 of the 2018 Staff Report, the Provisions are not anticipated to result in an increase in the number of water bodies listed on the 303(d) list of impaired waters. See response to Comment 6.20.

Comment 11.22

The Revised Draft Policy Fails to Achieve its Goal of Statewide Consistency.

a. A Consistent Statewide Narrative Toxicity Objective Will Further the State Water Board's Goal of Attaining a Consistent Regulatory Program.

Although one goal of the Revised Draft Policy is to resolve discrepancies between toxicity requirements statewide and to promote a more consistent regulatory program for toxicity statewide (Staff Report at 4; see also Revised Draft Policy at 1 ("improves regulatory consistency"), the Revised Draft Policy fails to meet this goal by maintaining ten inconsistent narrative toxicity Basin Plan objectives. (See Revised Draft Policy at 1 ("This Policy does not supersede the narrative toxicity objectives established in the Basin Plans."); Staff Report at 11 ("the policy will not supersede the narrative toxicity objectives established in each of the ten Basin Plans").) Our Associations recognize that a properly drafted toxicity policy can bring consistency and clarity to the current region-by-region approach. However, the policy choice to overlay new numeric objectives over the existing 10 regional narrative objectives is problematic for several reasons:

(1) Many of the narrative objectives contain quasi-numeric factors that must be made consistent in order for the State Water Board to be able to adequately define an implementation plan as required under Water Code section 13242. The following are examples:

- Regions 1,3,5,7, and 9 require compliance to be evaluated with a 96-hour bioassay,
- Region 2 defines acute toxicity as "a median of less than 90%, or less than 70%, 10% of the time, of test organisms in a 96-hour static or continuous flow test."
- Region 4 states that the "acute toxicity objective dictates that the average survival in undiluted effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival..."
- Region 8 interprets the "consistently exceeds" trigger as failures on separate samples.

(2) Maintenance of inconsistent narrative objectives will not further statewide consistency and may lead to regional regulatory differences sought to be avoided in the Revised Draft Policy.

(3) The maintenance of these narrative objectives may be used by regional water boards to require more restrictive and more costly toxicity testing requirements than those proposed in the Revised Draft Policy.

Instead, the State Water Board could adopt a single statewide narrative toxicity objective, such as "There shall be no acute or chronic toxicity to aquatic organisms in ambient waters caused by non-natural or reasonably controllable water quality factors, outside any designated mixing zone." The Policy could then implement this objective through defined effluent limits where reasonable potential exists and through monitoring requirements for other discharges, such as stormwater and agricultural discharges.

Response

Section 5.1 of the 2018 Staff Report explains that the Provisions would supersede portions of the basin plans to the extent that they specify procedures of assessing compliance with any numeric or narrative toxicity water quality objective or specify aquatic toxicity testing and/or interpretation of toxicity data and to the extent that the basin plans are in conflict with the Provisions. An indication of the language that would be superseded by the Provisions is available in Appendix E of the 2018 Staff Report. By superseding these portions of the basin plans the Provisions and introducing consistent statewide numeric water quality objectives the Provisions are able to achieve goal one of the Provisions listed in Section 2.2 of the October 2018 Draft Staff Report, of adopting consistent, statewide water quality objectives for acute and chronic toxicity and a program of implementation that are protective of California's waters from both known and unknown toxicants.

The Provisions would not supersede the narrative objectives in the basin plans. This would allow Regional Water Boards to continue to use their narrative toxicity water quality objectives to derive chemical-specific limits, targets, or thresholds to protect water quality, as explained in Section 5.1 of the 2018 Staff Report.

Comment 11.4

4. Use of a Narrative Objective with Statewide Numeric Accelerated Testing and TRE Triggers is Consistent with Federal, State, and Regional Guidance.

The EPA Technical Support Document (TSD) recommends that a discharger conduct a toxicity identification evaluation (TIE) in response to a positive WET test result and that chemical-specific limits on the identified constituent be applied along with continued WET monitoring. (See accord 40 C.F.R. §122.44(d)(1)(v)(no effluent limit required for WET where chemical specific limits can attain narrative toxicity standard).) The TSD further recommends that if toxicity is observed subsequently, this process should be repeated. EPA Region 9 and 10 WET guidance indicates that "the principal mechanism for bringing a discharger into compliance with a water quality-based WET requirement is a toxicity reduction evaluation." The EPA has indicated that the current 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 NPDES WET program [see footnote 10, p. 7].

Response

The October 2018 Draft Toxicity Provisions require a discharger to conduct a TRE to identify the source of toxicity whenever a discharger has multiple violations in a single month or successive months. Section 5.4.6 of the October 2018 Draft Staff Report describes this requirement for when a discharger must conduct a TRE to identify sources of persistent toxicity. The requirements for when dischargers must conduct a TRE is discussed in Section 5.4.6 of the 2018 Staff Report.

As discussed in Section 5.4.3 of the October 2018 Draft Staff Report, the 2014 U.S. EPA Permit Quality Review for California identified several problems regarding how water quality based effluent limitations were developed in NPDES permits. The review recommended that State Water Board develop, clarify and standardize the approach for calculating numeric limitations for toxic pollutants and whole effluent toxicity. The reasons for including numeric water quality based effluent limitations in the Toxicity Provisions are discussed in Section 5.4.3 of the 2018 Staff Report.

Comment 12.6

Unintended Consequences of Branding POTW Effluent as "Toxic"

The District recommends the Policy be designed to minimize the effect of unintended consequences resulting from falsely labeling POTW dischargers' effluent as toxic.

Ensuring use of a true IWC and adopting other modifications (e.g. use Numeric Action Levels) will result in a Policy that can minimize the potential for unintended adverse consequences from occurring.

The District strives to properly treat the wastewater collected in our service area and return it as clean water to the environment. An important program for the District is the delivery of highly treated recycled water for specified uses by customers (e.g. landscaper irrigation). If the Policy is implemented in a manner that designates the District's effluent as toxic when it actually does not have toxic effects within the receiving water, then programs such as recycled water could be significantly curtailed because customers will not want the toxic water being delivered to lawn areas that their families are using.

Response

The anticipated effects from using the TST approach are discussed in Section 5.3 of the 2018 Staff report. Included in that section is a discussion of the TST Test Drive. The TST Test Drive concluded that using the TST approach is not expected to result in a net increase in the number of toxicity tests declared toxic. In addition, five of the nine Regional Water Boards include the TST approach in non-storm water NPDES permits. Since the inclusion of the TST approach, these permits have not experienced a noticeable increase in the number of tests declared toxic as compared to previous statistical approaches. In addition, a violation of the MMEL is based on more than one exceedance in a single calendar month and a violation of the MDEL is based on a fail and a significant toxic effect. Under the October 2018 Draft Toxicity Provisions effluent that is not toxic will not be designated as toxic.

To the extent that the use of recycled water is not regulated by an NPDES permit, the October 2018 Draft Toxicity Provisions only requires use of the TST if the discharger is required to conduct toxicity tests using the species in Table 1 of the October 2018 Draft Toxicity Provisions. The October 2018 Draft Toxicity Provisions do not require monitoring, and the Permitting Authority would continue to have discretion to or not to require non-point source dischargers to conduct monitoring. The October 2018 Draft Provisions are not expected to impact recycled water use.

Comment 25.2

If the State Water Board continues to move forward with the current numeric chronic toxicity objective, it should include specific 303(d) listing guidance in Part II of the draft Policy to address uncertainties associated with the TST pass/fail approach. The recommended guidance would direct regulatory authorities to use a 66% “pass” rate among all toxicity tests conducted in a receiving water reach as evidence of a receiving water meeting toxicity objectives. Use of a 66% TST "pass" rate is consistent with the two out of three multiple TST test approach used for final effluent compliance, which addresses uncertainty in the analytical and statistical methods. Additionally, guidance allowing continued use of the Listing Policy would be appropriate for evaluating results exhibiting effects greater than twice the regulatory management decision (e.g., a 50% effect for chronic toxicity testing), which is consistent with proposed chronic maximum daily effluent limits (MDELs). Employing this recommended listing guidance would

result in less than 1% of non- toxic waters being erroneously listed as "impaired," assuming a 5% false determination of toxicity error rate, and less than 2% would be incorrectly listed if that error rate is 15%.

Response

As discussed in Section 5.3 of the 2018 Staff Report, the current statistical approaches have a 5 percent false positive rate. The TST approach has the same false positive rate of 5 percent. Therefore, there will be no increase in the uncertainty in the outcome. Section 5.3 of the 2018 Staff Report points out that the TST approach improves the confidence in the outcome by incorporating false negative rates and regulatory management decisions (RMD)s. Section 5.1 of the 2018 Staff Report discusses the anticipated impacts from the numeric water quality objectives on the 303(d) list of impaired waters. In determining which water bodies are impaired the Water Boards will continue to follow Section 3.6 of the Water Quality Control Policy for Developing California's Clean Water Action Section 303(d) List (Listing Policy).

Comment 37.4

The SWRCB recently adopted narrative sediment quality objectives to assess sediment toxicity;

Response

The sediment water quality objectives are based on a multiple lines of evidence approach, which considers several factors that may contribute to sediment toxicity. Because of the complexity of using multiple lines of evidence approach it is not possible to use a single numeric water quality objective for sediment toxicity. For more information on the sediment water quality objectives and the reasons for using a narrative water quality objective for sediment toxicity see Section 5 of the September 2008 Staff Report for the Water Quality Control Plan for Enclosed Bays and Estuaries – Part I Sediment Quality.

Aquatic toxicity is assessed using the method described in U.S. EPA methods manuals, which are included in IV.B.1.b. of the October 2018 Draft Toxicity Provisions. These aquatic toxicity test methods do not rely on multiple lines of evidence, so they are compatible with using a numeric water quality objective. The reasons for adopting numeric water quality objectives for aquatic toxicity are discussed in Section 5.1 of the October 2018 Draft Staff Report.

Comment 57.2

WPHA believes that the Board's use of the null hypotheses relative to the proposed control strategy is not appropriate. The chronic toxicity objective is expressed as a null hypothesis and a regulatory management decision of 0.75 for chronic toxicity methods, where a 0.25 effect level (or more) at the instream waste concentration (IWC) demonstrates an unacceptable level of chronic toxicity. The acute toxicity objective is expressed as a null hypothesis and a regulatory management decision of 0.80 for acute toxicity methods, where a 0.20 effect level (or more) at the IWC demonstrates an unacceptable level of acute toxicity. In our previous comments we noted that the actual level of protection is much greater than that implied by the Regulatory Management Decision (RMD) criteria.

... The definition of the RMD and the expression of the null hypothesis state that chronic effect up to 25% and acute effects up to 20% are permitted.

The Test of Significant Toxicity (TST) approach, described in the policy, is discussed in detail in Denton et al. (2011) which shows that an effluent that is performing at the RMD level of

producing a 25% effect has the probability of being declared toxic of between 0.8 and 0.95 depending on the alpha-level of the statistical test (Denton et al., 2011, Figure 3). This shows that a 25% effect is NOT allowed under this procedure. The degree to which the effective RMD is less than 25% depends on the variability of the data. At high levels of variability this procedure may require the effluent to perform better than the control to be assessed as nontoxic.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The definition of the RMD in the Toxicity Provisions does not contain the same language from the Draft policy. The TST approach incorporates RMDs that represent the maximum allowable error rates and the thresholds for toxicity that would result in an unacceptable risk to aquatic life. Section 5.1 of the October 2018 Draft Staff Report explains why the null hypothesis and alternative hypothesis in the Provisions were chosen and is appropriate in the toxicity water quality objectives.

Part III (A)(1): Reasonable Potential Analyses and Species Sensitivity Screening (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comments 2.20, 2.19

The methodology for determining the most sensitive species needs to take additional factors into account beyond simply the greatest percent effect at the IWC during a screening test.

BACWA recommends that the following language be added to Part III (A)(4) of the Policy for Toxicity Assessment and Control: "In cases where percent effect measured during a species selection screening does not identify a statistically significant difference in TST percent effect or sensitivity between species, dischargers and Regional Boards shall evaluate additional factors to determine which test species should be required for permit compliance testing. Examples of additional factors are published species sensitivity values for inorganic and organic pollutants, the nature of the discharge (i.e. detected pollutants of concern), test species sensitivity to the detected pollutants, the discharger's historical toxicity testing results, species availability, and seasonal variations in quality of test species."

For example, when all percent effects of a screening study for all species are below their established Regulatory Management Decisions at IWC, and all tests pass using the TST, but the discharger still has reasonable potential, it is not possible to determine which species is truly "most sensitive." It is impossible to discern sensitivity because no species exhibits sensitivity.

Response

Section IV.B.2.a. of the October 2018 Draft Provisions includes requirements for species sensitivity screening. This section states that, "[t]he Permitting Authority has the discretion to choose how the most sensitive species is selected from the species sensitivity screening." When dilution credit or a mixing zone has been granted the Regional Water Board may direct the discharger to use a higher concentration of effluent than the IWC to increase the likelihood that potential effects can be observed for the purposes of determining the most sensitive species. Section 5.4.1 of the October 2018 Draft Staff Report provides a greater explanation of the species sensitivity screening requirements in the Provisions.

Comment 2.23

General Comment: The Policy imposes a new definition of "Toxicity" that will result in unintended consequences.

By implementing the Test of Significant Toxicity (TST) method, this Policy changes the paradigm that defines toxicity. The TST is, in part, a comparison of coefficients of variation and therefore penalizes variability. With the Policy's adoption, variability rather than a concentration response will become the determining factor. This alone suggests that future toxicity monitoring results will be different.

The range of variability that is experienced in toxicity testing depends in part on the type of test and test species that is used. Using the TST, the rate of false determinations of toxicity increases as test variability increases. Therefore, a likely unintended outcome is that eventually most municipal agencies will determine from Effluent Characterization and RPA studies that the highly variable test animals are the most sensitive. It then follows that toxicity testing will

increasingly become an evaluation of effluent variability as opposed to an evaluation of the magnitude of toxicity that may be present. On the one hand, this policy will encourage municipal agencies and testing laboratories to take steps to reduce test variability. On the other hand, over time reasonable potential analyses and species sensitivity screenings will determine that the inherently variable test species are more sensitive and therefore will become the selected species. Overall, it is not possible to determine whether this new paradigm will benefit the waters of the State.

Response

As with all statistical approaches, reducing the within-test variability will increase the confidence in the outcome. As described in Section 5.3 of the October 2018 Draft Staff Report, the TST approach provides dischargers with an incentive to reduce the within-test variability, which helps to increase the confidence in the outcome. This section also points out that five of the nine Regional Water Boards already require non-storm water NPDES dischargers to use the TST approach to assess aquatic toxicity data. As discussed in Section 5.4.1 of the October 2018 Draft Staff Report, many Regional Water Boards already use the species exhibiting the highest percent effect at the IWC to select the most sensitive species. Section IV.B.2.a.iv of the Toxicity Provisions allows Regional Water Boards to have discretion in choosing how the most sensitive species is selected.

Comments 2.7, 11.45, 12.3, 13.9, 18.2, 49.2

The calculation of reasonable potential is not based on science or precedent.

BACWA recommends that the method for determining reasonable potential in the Policy be reviewed and replaced with a method that allows POTWs to determine reasonable potential based on the quality of their effluent, rather than the quantity of their flow. Additionally, the Policy should assign a RP threshold on a scientific basis rather than at an arbitrary percent effect level.

The Policy assigns reasonable potential (RP) for all POTWs with an average daily flow above 1 MGD. The rationale in the Staff Report 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 of these facilities than that of an isolated test…. "

This general statement fails to take into account the wide variety of POTW effluents that are due to differences in the types of users served, whether the POTW has implemented a pretreatment program, whether the POTW has a robust source control and pollution prevention program, the level and type of treatment, the initial dilution received by the discharge, and the quality of the receiving water. Municipal agencies should have the opportunity to demonstrate whether or not their discharge indeed has numeric RP, and requires effluent limits to protect the receiving water. Reasonable Potential should be based each agency’s historical results, such as for toxic constituents as indicated in the State Implementation Plan. Agencies should not automatically be given permanent chronic toxicity limits that do not consider the quality of their discharge.

For municipal agencies who are already not presumed to have RP for chronic toxicity based on flow, the Policy assigns it if the TST detects a percent effect at the IWC greater than 0.10. In other words, a waste discharge will be determined to have reasonable potential to cause or contribute to an excursion above the water quality objectives of 25 percent effect for chronic toxicity, and 20 percent effect for acute toxicity, if a toxicity test detects a 10% effect. There are

two major flaws with this approach:

*Assigning an RP threshold that is so far beneath the water quality objective is nonsensical, does not appear to be supported by any regulatory documents or precedence, and is not scientifically defensible. The Staff Report does not adequately analyze alternative RP methods for POTWs, acknowledging the EPA's Technical Support Document's methods as ''accurate and comprehensive'' but dismissing them as too much work for Water Board staff.

*The 10 percent effect is within the inherent variability of toxicity tests for some test species. This rule practically assures that waste dischargers and all waterbodies in California will eventually be determined to have RP.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. POTW dischargers that are authorized to discharge at a rate of less than 5 MGD or greater would be required to conduct reasonable potential for chronic aquatic toxicity. However, POTW dischargers that are authorized to discharge at a rate equal to or greater than 5 MDG would be required to conduct routine chronic toxicity monitoring and comply with effluent limitations without the need for a reasonable potential analysis. The 2018 Draft Toxicity Provision do not include a determination or an assumption that POTWs that are authorized to discharge at a rate equal to or greater than 5 MDG have reasonable potential. This requirement is discussed in Section 5.4.2 of the 2018 Staff Report.

The 2018 Draft Toxicity Provisions continue to use a threshold of a 10 percent effect for determining a reasonable potential for aquatic toxicity. This is consistent with methods for determining a reasonable potential to exceed numeric water quality objectives. Reasonable potential is generally established at a threshold that is below an exceedance of the water quality objective. The justification for determining that dischargers that exceed a 10 percent threshold have a reasonable potential is also discussed in Section 5.4.2 of the 2018 Staff Report.

Comment 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 from the proposed 10% effect level to a 25% effect level, which represents the regulatory management decision (RMD).

Response

As discussed in Section 5.7.4 of the 2018 Staff Report, Regional Water Boards may exempt small disadvantaged communities from some or all of the requirements of the Provisions. To allow such an exemption, the Regional Water Board must first make a finding that the

discharger will have no reasonable potential to cause or contribute to an exceedance of the toxicity water quality objectives. In making such a finding, the Regional Water Board would not need to us the procedures in the Provisions for determining the reasonable potential. Regarding the 10 percent threshold for establishing a reasonable potential see response to comment 2.7, 11.45, 12.3, 13.9, 18.2, 49.2.

Comment 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.

Response

The Toxicity Provisions do not change the toxicity test methods. See Section 5.2 of the October 2018 Draft Staff Report for a discussion on the toxicity test methods. Regarding species sensitivity screening please see response to comment 2.20, 2.19. Please see Section 9.1.4 of the October 2018 Draft Staff Report for a discussion of the 2018 Economic Analysis.

Comment 22.12

The Draft Policy lacks clarity on how often the RPA will be applied to dischargers.

... The Draft Policy does not explicitly state how often dischargers will be required to perform RPA. It may be misconstrued that a discharger who performs RPA once will be exempted from ever having to conduct a RPA again.

Response

IV.B.2.b. of the Provisions states that, “If a reasonable potential analysis is required pursuant to this Section, a reasonable potential analysis shall be conducted prior to every permit issuance, renewal, or reopening (to address toxicity requirements).” The reasonable potential requirements are discussed in greater detail in Section 5.4.2 of the October 2018 Draft Staff Report.

Comment 22.9

The Draft Toxicity Policy should not employ the reasonable potential analysis (RPA) approach to determine if numeric limits should be placed in NPDES permits.

...the Draft Policy should eliminate the use of RPA for determining whether or not to include toxicity limits. Reasonable potential to cause or contribute to aquatic toxicity should be presumed for all discharges based on the nature of the discharge using the Boards best professional judgment (BPJ).

Response

Per Section IV.B.2.b. of the October 2018 Draft Toxicity Provisions a discharger has reasonable potential to cause or contribute to an exceedance of the chronic or acute toxicity water quality objective if a chronic or acute toxicity test conducted at the IWC and analyzed using the TST approach results in a fail or has a greater than 10 percent effect. Furthermore, other information or data, including, but not limited to, fish die off observation, lack of available dilution, or existing data on toxic pollutants, may be used by the Permitting Authority to determine if there is a

reasonable potential to cause or contribute to an excursion above the toxicity water quality objective. The options considered for conducting a reasonable potential, along with the advantages and disadvantages of each option are discussed in Section 5.4.2 of the 2018 Staff Report.

Comment 35.3

Page 6, paragraph 4 - The salinity threshold (1 ppt or greater) used for testing marine organisms is very low. Marine organisms, typically found at 35 ppt, may be stressed by oligohaline conditions. It is not clear how controls will be handled in this situation. For example, if the ambient water tested is 2 ppt salinity and the marine test species are held at 35 ppt, an salinity [sic] acclimation procedure should be used.

Response

The 2018 Staff Report offers guidance for when to use marine versus freshwater test methods and species. Consistent with the U.S. EPA Technical support documentation for Water Quality based Toxics Control "…freshwater organisms [shall be] used when the receiving water salinity is less than 1,000 mg/L, and …marine organisms [shall be] used when the receiving water salinity equals or exceeds 1,000 mg/L." For coastal areas and estuaries where the salinity is subject to change, freshwater organisms shall be used for receiving water in which salinity is less than 1,000 mg/L at least 95 percent of the time. Marine organisms shall be used for receiving water in which salinity equals or exceeds 1,000 mg/L at least 95 percent of the time. The use of 95 percent is consistent with current regional board basin plans, the CTR, and the National Toxics Rule. The timeframe from which the data used to calculate the salinity of the receiving water will be left to Regional Board discretion. For waters with salinities between these two categories, or tidally influenced freshwater the water body classification will be left to Regional Water Board discretion. Detailed test methods can be found in U.S. EPA Method Manuals for acute toxicity include; Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition (EPA-821-R-02-012); Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014); and Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition (EPA-600-R-95-136).

Comment 37.14

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."

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..:

--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.

SRCSD 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.

Response

For non-storm water NPDES dischargers, species sensitivity screening requirements and procedures are clearly described in Section IV.B.2.a. of the 2018 October Draft Toxicity Provisions. Discussion of these requirements is included in Section 5.4.1 of the 2018 Staff Report. Storm water dischargers and nonpoint source dischargers are not required by the Provisions to conduct a species sensitivity screening. Requirements for storm water dischargers and nonpoint source dischargers are included in Sections IV.B.3 and IV.B.4 respectively of the October 2018 Draft Toxicity Provisions. These requirements are also discussed in Sections 5.5 and 5.6 of the October 2018 Draft Staff Report.

Comment 40.2

Available historical data should also be considered for this determination. [of Reasonable Potential]

Response

Section IV.B.2.b. of the Provisions requires Regional Boards to review the previous 5 years of data in making a reasonable potential assessment. This section of the Provisions states that, “the Permitting Authority may also evaluate older toxicity test data to determine reasonable potential.” The Provisions allows Regional Boards to also consider other information or data in conducting a reasonable potential assessment. The reasonable potential requirements in the Provisions are discussed in Section 5.4.2 of the 2018 Staff Report.

Comment 40.6

Reasonable Potential Analysis – Time Frame

A specific time-frame is lacking for the four test events required to determine Reasonable Potential. Are they to be conducted over four months? Over a year? Please clarify.

Response

Pursuant to IV.B.2.b.iii. of the October 2018 Draft Toxicity Provisions, "[a]ll toxicity test data generated within five years prior to permit issuance, renewal, or reopening (to address toxicity requirements) that is representative of effluent quality during discharge conditions shall be evaluated in determining reasonable potential." A minimum of four of these tests that use species included in Table 1 of the October 2018 Draft Toxicity Provisions, conducted at the IWC must be analyzed using the TST approach. If no tests have been analyzed using the TST, the October 2018 Draft Toxicity Provisions leave it to the discretion of the Regional Board to determine which four or more tests should be re-analyzed using the TST. Since software for using the TST approach is readily available, data generated for analysis using other statistical approaches can generally be analyzed using the TST approach with minimal effort. If the minimum data is unavailable, meaning that there isn't data for at least four tests conducted at the IWC using species included in Table 1 of the October 2018 Draft Toxicity Provisions within the past five years, then the discharger must complete four tests that are compatible with the TST approach prior to the Permitting Authority completing a reasonable potential analysis.

A discussion of the reasonable potential analysis requirements is included in Section 5.4.2 of the 2018 Staff Report.

Comments 40.7, 40.1, 41.5, 41.4, 58.17

The City feels strongly that the use of a 10% effect criteria outlined in the policy to establish Reasonable Potential is much too restrictive. There is no scientific justification for this value and given natural variability observed in toxicity tests it is highly unlikely that any sample will pass four rounds of 3-species tests without at least one not having a 10% difference from control. The TST is defensible and should suffice for this determination. This over-restrictive policy will result in unjustifiable testing, mandating the City to allocate limited resources based on a single non-significant result.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. The 2018 Draft Toxicity Provisions continue to use a threshold of a 10 percent effect for establishing a reasonable potential for aquatic toxicity. This is consistent with methods for establishing a reasonable potential for many toxicants for which there are numeric water quality objectives. Reasonable potential is generally established at a threshold that is below an exceedance of the water quality objective. The justification for determining that dischargers that exceed a 10 percent threshold have a reasonable potential is also discussed in Section 5.4.2 of the 2018 Staff Report.

Comment 40.9

Reasonable Potential Analysis - Steps if Pass

As written the Draft Policy is unclear on what is required if Reasonable Potential for toxicity is

not identified during the initial four tests of the RPA. Part III (A) (4) states that the applicable water board has the discretion to require NPDES and point source dischargers to conduct periodic chronic or acute toxicity in the absence of reasonable potential. Is re-screening required during each Permit re-opener every 5-years?

Annually? Is any additional toxicity testing required? Please clarify.

Response

Section IV.B.2.b of the Provisions states that, “If a reasonable potential analysis is required pursuant to this section, a reasonable potential analysis shall be conducted prior to every permit issuance, reissuance, renewal, or reopening (to address toxicity requirements).”

Section IV.B.2.b. of the Provisions further states, “If a reasonable potential analysis indicates no reasonable potential for either chronic or acute toxicity, the permitting authority may include a reopener clause in the permit authorizing the permitting authority to reopen the permit, reevaluate reasonable potential, and add maximum daily effluent limitations (MDEL) and median monthly effluent limitations (MMEL), if warranted, after the evaluation of new data and information.”

Reasonable Potential Analysis is discussed in Section 5.4.2 of the 2018 Staff Report.

Section IV.B.2.h. of the Provisions also authorizes Permitting Authorities to require additional monitoring for aquatic toxicity, even for those dischargers that do not have reasonable potential.

Comment 58.15

The 2012 Draft Toxicity Policy also recommends using "invertebrate" species for any future acute RP analyses (Policy, pg. 6). To our knowledge, this is unprecedented in the state and has not been validated by the toxicity expert community.

As outlined in Pacific EcoRisk's comment letter, originally dated January 21, 2011, serious concerns exist with respect to feasibly implementing the method per the 2012 Draft Toxicity Policy that has yet to have been addressed. No alternative species for M. pyrifera exists. Additionally, the issue of species only being available during a portion of the year is a logistical concern that burdens the lab and introduces more variability in the test results. The 2012 Draft Toxicity Policy also recommends using "invertebrate" species for any future acute RP analyses (Policy, pg. 6). To our knowledge, this is unprecedented in the state and has not been validated by the toxicity expert community.

Response

The October 2018 Draft Toxicity Provisions require discharges to use only species included in Table 1 of the October 2018 Draft Toxicity Provisions. All species in Table 1 are included in the U.S. EPA methods manuals listed in Section IV.B.1.b. of the October 2018 Draft Toxicity Provisions. These U.S. EPA methods manuals include acute methods for some invertebrate species, which can be used for reasonable potential analysis and to determine compliance with the water quality objectives and effluent limitations.

If the most sensitive species is only available for a portion of the year, a different species may be used pursuant to Section IV.B.2.a.iv. of the Provisions, which states, “When that species cannot be used, such as when discharger encounters unresolvable test interference or cannot secure a reliable supply of test organisms, the Executive Director or Executive Officer may

specify the next applicable species as the most sensitive species and document that determination."

Comment 58.16

Reasonable potential analyses (RPA) conditions specified by the 2012 Draft Toxicity Policy will result in unnecessary effluent limitations. The 2012 Draft Toxicity Policy results in a finding of reasonable potential under either of two conditions: (1) if an effluent sample fails the TST method or (2) if the percent effect (i.e., the difference between responses of the effluent sample and the control) is greater than 10 percent. Because of the variability inherent in toxicity testing, particularly for sublethal, chronic toxicity endpoints, the second condition would be expected to be frequently exceeded.

Analyses conducted by WSPA demonstrated a false failure rate of the RPA of 25% for chronic toxicity tests using C. dubia for reproduction from USEPA WET blank data.

Response

The justification for using a 10 percent threshold for establishing a reasonable potential is discussed in Section 5.4.2 of the Provisions. See response to Comment 2.7, 11.45, 12.3, 13.9, 18.2, 49.2.

Part III (A)(2): Numeric Effluent Limitations in Permits (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comments 1.2, 2.8, 3.1, 3.6, 4.1, 4.3, 5.1, 5.3, 11.21, 13.22, 14.7, 14.3, 14.1, 15.1, 15.3, 15.8, 18.1, 26.1, 28.1, 30.1, 31.1, 41.1, 42.1, 42.2 43.2, 43.1, 43.3, 45.4, 45.5, 45.1, 46.4, 46.2, 50.3, 51.1, 56.1, 59.1

BACWA recommends that the Policy not include numeric effluent limits. If the Policy must include numeric effluent limits, these must be expressed as median or other percentile limits that require more than one test result to assess a permit violation Contrary to EPA guidance, the proposed Policy includes an MDEL that would result in an effluent limit violation as a result of a single sample exceedance. It is inappropriate to assess single sample violations for WET analyses due to the variability and uncertainty in biological testing. The promulgated EPA method for chronic toxicity states that "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."

There are numerous sources of uncertainty in toxicity testing. One source is the inherent variability of individual test organism response, which leads to statistical uncertainty that can only be partially reduced by increasing the number of replicates tested. There are also numerous potential causes for organism's response that are unrelated to toxicity, including variability in batches of test organisms, the quality of food during chronic tests, the presence of pathogens, or a deficiency of necessary conditions in the sample. For example, there are well documented toxic effects of samples with low hardness on organisms such as Ceriodaphnia or fathead minnows.

Response

As discussed in Section 5.4.3 of the October 2018 Draft Staff Report, NPDES regulation in 40 C.F.R. Section 122.45(d) require that for continuous dischargers permit limitations must include daily discharge limitations for all dischargers other than POTWs and average weekly effluent limitations for POTWs, unless unpractical to do so. In aquatic toxicity testing average weekly effluent limitations are impractical so MDELs are included in the Toxicity Provisions for all non-storm water NPDES discharger types. Section IV.B.2.e. of the October 2018 Draft Toxicity Provisions specifies MMELs and MDELs for aquatic toxicity. MMELs are based on more than one fail within a calendar month and MDELs are based on a fail and a significant toxic effect for any one sample. The way in which MMEL and MDEL violations are identified reduces the probability of a violation from a single sporadic event or erroneous toxic identification. The options for establishing statewide effluent limitations, with their advantages and disadvantages are discussed in Section 5.4.3 of the 2018 Staff Report. The options for when to require dischargers to conduct a TRE are discussed in Section 5.4.6 of the 2018 Staff Report. Additionally, please see the response to comments 11.47, 37.9.

Comments 6.11, 11.5, 13.3, 37.5, 37.6

Furthermore, a step-wise approach using narrative effluent limits with accelerated monitoring and TRE triggers has been effectively utilized in California for over ten years, particularly in the Los Angeles and Santa Ana regions. Such an approach is supported by a diverse national expert advisory panel, which was 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, which was specifically assembled to provide guidance on the regulatory use of toxicity test within the State. This Task Force included representatives from non- governmental organizations, POTWs, EPA, State and Regional Water Boards and reached complete consensus that the State Water Board should adopt a process to implement toxicity objectives that included routine monitoring, accelerated testing triggers, and toxicity reduction evaluation (TRE) triggers very similar to those proposed in this letter and in previous comments submitted by the Associations. The Task Force also recommended that the State Board "should adopt a provision that: No single test result shall constitute a violation." (Id.)

Response

The Los Angeles and San Diego Regional Water Boards have been including numeric effluent limitations in non-storm water NPDES permits similar to the MMELs and MDELs in the Provisions. The San Francisco Regional Water Board also includes numeric MDELs and average monthly effluent limitations for aquatic toxicity in non-storm water NPDES permits. A discussion of the current effluent limitations and the effluent limitations in the Provisions can be found in Section 5.4.3 of the 2018 Staff Report.

The October 2018 Draft Toxicity Provisions do not rely on TRE triggers and accelerated monitoring to determine when a TRE must be conducted. Rather, a TRE is required when there are two or more violations within a calendar month or in successive calendar months. This approach avoids the need for conducting additional monitoring tests under an accelerated monitoring schedule, while still effectively assessing if persistent toxicity may be present in the effluent. Requirements for when a non-storm water NPDES discharger must conduct a TRE is included in Section 5.4.6 of the October 2018 Draft Staff Report.

Comments 11.10, 13.23, 25.4, 50.4

6. Allowing Applicable Regional Water Boards Discretion to Require and Incorporate Acute Toxicity Provisions for Dischargers Already Subject to a Chronic Toxicity Testing Requirement is Not Appropriate.

The Revised Draft Policy requires applicable water boards to conduct a reasonable potential analysis for all WDR dischargers for chronic toxicity, except for large (greater than 1 mgd) POTWs that are inappropriately presumed to always have reasonable potential. If it is determined that reasonable potential exists for chronic toxicity, the applicable water board must include chronic toxicity limits into any permits issued. However, the Revised Draft Policy grants the applicable water board the discretion to also conduct reasonable potential for WDR dischargers for acute toxicity and, if reasonable potential is determined to exist for acute toxicity, the applicable water board must also include acute toxicity limits into any permits issued. With reasonable potential assumed for all dischargers over 1 mgd, allowing the regional water board the discretion to evaluate acute toxicity makes it likely that both acute and chronic toxicity limits will be incorporated into some, if not most, discharger 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.

It is commonly accepted that chronic toxicity testing represents a more sensitive measurement of toxicity than acute testing. Chronic toxicity tests typically utilize a more critical and sensitive life-stage (typically larvae), 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 discharger with an acute and chronic limit or trigger failing an acute threshold would also be expected to fail the chronic threshold on the same sample.

For this reason, the Policy should not include toxicity objectives for acute toxicity, and should specifically instruct regional water boards that where a chronic limit or trigger is required, no acute limit or trigger should be incorporated into the WDR.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The reasonable potential requirements are discussed in Section 5.4.2 of the 2018 Staff Report.

POTW dischargers that are authorized to discharge at a rate of less than 5 MGD or greater would be required to conduct reasonable potential for chronic aquatic toxicity. However, POTW dischargers that are authorized to discharge at a rate equal to or greater than 5 MDG would be required to conduct routine chronic toxicity monitoring and comply with effluent limitations without the need for a reasonable potential analysis. The 2018 Draft Toxicity Provision do not include a determination or an assumption that POTWs that are authorized to discharge at a rate equal to or greater than 5 MDG have reasonable potential. This requirement is discussed in Section 5.4.2 of the 2018 Staff Report.

Regional Water Boards have discretion for determining when a POTW must conduct a reasonable potential analysis for acute toxicity. Even when a discharger must conduce routine chronic toxicity monitoring, sensitive habitats or threatened or endangered species may still be at risk from acute toxicity. The Regional Water Boards are qualified to determine if receiving waters are vulnerable to acute toxicity. All other non-storm water NPDES dischargers must conduct a reasonable potential analysis for acute toxicity. Although a chronic toxicity test may generally be more protective than an acute toxicity test, this is not always the case, depending on the nature of the toxicants that may be present and the specific physical and environmental factors in the receiving water. Conducting a reasonable potential analysis for acute toxicity assures a greater protection of receiving waters.

Comment 11.19

13. TMDL-Driven WLAs for Toxicity Could Result in More Restrictive Effluent Limits Than Those Outlined in the Draft Policy.

Section 2 on page 7 of the Revised Draft Policy fails to address numeric limits associated with toxicity TMDL waste load allocations. In the absence of significant changes in the 303(d) Listing Policy or inclusion of clarifying language in the final Toxicity Policy associated with WET listings, the policy must include language that would prevent regional water boards from imposing inappropriate and more restrictive WET limits in response to toxicity TMDLs. This can be easily accomplished by the recommended edits (in quotations) to Section 2. of page 7 (please note that additional changes would be recommended by the Associations to this paragraph to address other issues raised in this letter):

"2. Numeric Effluent Limitations in Permits"

If the applicable Water Board determines that reasonable potential exists for any NPDES wastewater discharger or point source WDR discharger "or if a TMDL derived waste load allocation for toxicity is warranted," in accordance with Part III (A)(1), the applicable Water Board shall include numeric effluent limitations for chronic toxicity in any permit issued, reissued, or reopened to address toxicity requirements after the effective date of the Policy…

Response

As discussed in Section 5.3 of the 2018 Staff Report, the use of the TST approach is not anticipated to lead to an increase in the number of water bodies on the 303(d) list of impaired waters. This Provisions are not proposing any changes to the way in which Regional Water Boards develop waste load allocations or TMDLs. Per Section III.B.3. of the October 2018 Draft Toxicity Provisions, any TMDL, including the implementation provisions, adopted by a Regional Water Board prior to the effective date of the Toxicity Provisions, remain in effect and do not require reconsideration for the purposes of complying with the Toxicity Provisions. As with virtually all TMDLs, any future TMDLs that include more stringent effluent limitations as part of the associated implementation would require State Water Board approval.

Comment 11.34

Moreover, EPA has recently reaffirmed the use of narrative effluent limitations for toxicity in NPDES permits. (EPA, NPDES Permit Writer's Manual, EPA 833-K-10- 001 (Sept. 2010) at pp. 6-40.)

Response

This section in the NPDES permit writers' manual discusses the Permitting Authority's choice in using narrative or numeric aquatic toxicity effluent limitations when there is reasonable potential to cause or contribute to an in-stream excursion above a narrative water quality objective. The NPDES permit writer's manual does not indicate that a narrative effluent limitation is preferred over numeric effluent limitations, when there is reasonable potential to cause or contribute to an in-stream excursion above a numeric water quality objective, nor does it reaffirm use of narrative effluent limitations. On the point of the expression of numeric effluent limits for WET, see comment letters from U.S. EPA Region 9's Water Division Director to the State Water Board dated August 20, 2012 and January 21, 2011, which states that the current practice of implementing narrative toxicity objectives as numeric triggers and TREs does not create an accountable means of controlling toxicity. \

Comment 11.46

Numeric Effluent Limitations

The Revised Draft Policy requires numeric effluent limits when such limits are not required by federal or state law. (See Communities for a Better Environment (CBE) v. State Board/Tesoro, 109 Cal.App.4th 1089, 1103-07 (2003); State Board Order No.

WQ 91-03, 1991 WL 135460, at 12; 40 C.F.R. § 122.44(k); see also 40 C.F.R.

§122.44(d)(1)(v).) As the State Water Board itself has acknowledged in the context of sediment toxicity, "[a] narrative objective coupled with indicators to interpret the narrative objectives represents a logical means to assess sediment quality." Staff Report and Draft Water Quality Control Plan for Enclosed Bays and Estuaries - Part 1 Sediment Quality (July 18, 2008), Appendix E, at p. 68.) Thus, the narrative approach recommended by the Associations is appropriate and legally sound, and should be the preferred alternative under the Revised Draft Policy.

Response

While the narrative approach coupled with indicators is an appropriate means to assess sediment toxicity, it is not necessarily an appropriate approach for effluent limitations for whole effluent toxicity. No federal court has interpreted "feasibility" in this context, and U.S. EPA has

made it clear that it believes that numeric effluent limits are feasible. The October 2018 Draft Toxicity Provisions propose the establishment of numeric water quality objectives. A description of the numeric water quality objective is included in section 5.1.1 of the 2018 Draft Staff Report. Clear and specific numeric toxicity objectives are needed to help ensure consistent statewide protection of aquatic life. See response to Comment 37.4

The Water Boards are authorized to include numeric effluent limitations in NPDES permits. In fact, several Regional Boards have already required numeric effluent limitations for acute and chronic toxicity effluent limitations in NPDES permits. The use of numeric effluent limitations to achieve compliance with water quality standards is not necessarily a more stringent requirement than the use of narrative effluent limits or best management practices. (See State Water Board Order No. WQ 2006-012 (Boeing).) Regardless of whether one considers the proposed numeric effluent limitations more stringent than any potential narrative effluent limitations, CWA section 301(b)(1)(C) grants states the authority to impose more stringent effluent limitations and other limits than those established in the CWA, in order to meet water quality standards. A description of effluent limitations is included in section 5.4.3 of the 2018 Draft Staff Report.

Comments 11.47, 37.9

C. Maximum Daily Effluent Limitations

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)(emphasis added).) Yet, the Revised Draft Policy specifies that all effluent limitations, including those for POTWs, imposed pursuant to the Policy are to be expressed as maximum daily effluent limitations (MDELs) and median monthly effluent limitations (MMELs). The only justification for this departure from the federal rule to allow MMELs is that monthly average limits would be "impracticable using the TST statistical method, because the primary output of the approach is a non-numeric result of 'pass' or 'fail'." (Revised Draft Policy at 7, n.1.) No justification is given for the MDEL.

MDELs are not justified because a single discharge of toxic effluent has not been demonstrated to cause an in-stream excursion of water quality objective and to impact aquatic life. Thus, the proposal to include MDELs is not supported with adequate findings and evidence, and is flawed for several reasons. First, as noted above, no evidence links a failure of a toxicity test with instream effects. Second, no need for such limits is provided and any purported need is disproved by current practices among the regional water boards. Effluent triggers for toxicity based on Basin Plan narrative toxicity objectives have routinely been implemented as monthly medians with no evidence of receiving water toxic effects as a result. The Staff Report's alternative analysis is lacking since there is no consideration of an alternative using just longer term average limits. (See Staff Report at 52-54 (No consideration of monthly and weekly average limits for POTWs, or just MMELs due to impracticability of applying a daily limit to a test that takes up to 9 days (67 Fed. Reg. 69953 (2002 Final WET Rule)("short term methods for estimating chronic toxicity [ ] use longer durations of exposure (up to nine days) to ascertain the adverse effects of an effluent or receiving water on survival, growth and/or reproduction of the organisms.").)

Response

The use of an MDEL is consistent with Federal Regulations and U.S. EPA recommended methodology. Permit limit expression is governed by 40 C.F.R. 122.45(d), which says, "For continuous discharges, all permit effluent limitations, standards, and prohibitions, including

those necessary to achieve water quality standards, shall unless impracticable be stated as: (1) Maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works; and (2) Average weekly and average monthly discharge limitations for POTWs." Given that MDELS for aquatic toxicity are already in use in a number of permits in this and other states, staff do not believe it is scientifically defensible to consider MDELs impracticable. In contrast, section 5.2.3 of the Toxicity Technical Support Document (EPA/505/2-90-001) does declare AWL impracticable for POTWs. Specifically, section 5.2.3 states, "in lieu of an AWL for POTWs, EPA recommends establishing an MDL (or a maximum test result for chronic toxicity) for toxic pollutants and pollutant parameters in water quality permitting. This is appropriate for at least two reasons. First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed. An MDL, which is measured by a grab sample, would be toxicologically protective of acutely (higher magnitude) toxic impacts." The effluent limitation requirements and options are discussed in Section 5.4.3 of the 2018 Staff Report.

In regard to the correlation between toxicity testing and instream effects, see response to comment 11.3.

Comment 11.48

Numeric Effluent Limitations Are Not Required and Narrative Limits Will be Protective.

The law is clear that effluent limitations need not be numeric. (See Communities for a Better Environment (CBE) v. State Board/Tesoro,109 Cal.App.4th 1089, 1103-07 (2003); State Board Order No. WQ 91-03, 1991 WL 135460, at 12; 40 C.F.R. §122.44(k).) Under the CBE case, the appellate court specifically held that the federal regulation at "section 122.44(d) does not require a numeric WQBEL [water quality based effluent limitation]." (CBE, 109 Cal.App.4th at 1104.) The Court in CBE further held:

"We see nothing in the regulation which mandates numeric WQBELs in all circumstances. The definition of "effluent limitation" in the CWA refers to "any restriction", does not specify that the limitation must be numeric, and provides that an effluent limitation may be a schedule of compliance. (33 U.S.C. 1362(11).) Moreover, section 122.44(k)(3) permits non-numeric WQBELs where numeric ones are not feasible." (Id.)

Therefore, the Associations fundamentally disagree with the proposal to significantly shift the regulation of toxicity from a narrative trigger approach to a numeric effluent limit approach.

The narrative limit/numeric trigger approach has been in place since 2003 without demonstrable adverse environmental consequences, has not been objected to by EPA, and has been supported by the State Water Board as recently as in a 2009 order, amended in 2012. (See accord In the Matter of the Own Motion Review of City of Lodi Waste Discharge Requirements, Order WQ 2009-0005 as revised by Order WQ 2012-0001, 2012 WL 566321 at *16 (February 07, 2012) (citing "precedential decision in Water Quality Order 2008-0008 (City of Davis), adopted on September 2, 2008.) In that order, the Board concluded that a numeric effluent limitation for chronic toxicity was not appropriate in the permit under review, but that the permit had to include a narrative effluent limitation for chronic toxicity.").) Narrative toxicity requirements were also included in the recent Pesticide Applicator permit (See Statewide NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications, Water Quality Order No. 2012-0003-DWQ, General Permit

No. CAG 990004, (Amending Water Quality Order No. 2011-0002-DWQ), 2012 WL 1520326 at *8 (April 3, 2012) (includes a narrative Receiving Water Limitation for toxicity and acute and chronic toxicity testing requirements for residual pesticides of concern).) No demonstration has been made that a numeric chronic toxicity limitation is now suddenly appropriate, and no justification exists for treating POTWs more stringently than entities applying pesticides, designed to cause toxicity, directly to receiving waters.

A WET regulatory strategy that employs narrative toxicity objectives with multiple test numeric triggers for POTWs has been implemented throughout the state for years with no evidence of receiving water toxic effects as a result. The use of multiple test triggers would satisfy the State Water Board's goals of establishing a consistent and enforceable objective that will be effective in identifying discharges that could have adverse toxic effects in receiving waters. Continuing the narrative limit/numeric trigger approach will also, through enforceable permit requirements, require the investigations necessary to identify and control the chemical constituents causing the toxicity in such discharges and provide incentives for permit holders to be responsive and timely.

Response:

The need for the proposed numeric objectives and effluent limitations is based on several factors. First, the State Water Board directed staff to consider numeric effluent limitations and amend the narrative toxicity control provisions in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) as needed. (State Water Board Order No. WQO 2003-0012 (Los Coyotes).) State Water Board staff concluded existing narrative toxicity objectives are extremely flexible and should be retained under the proposed Policy.

However, narrative objectives are also subject to interpretation. There is inconsistency in the translation of narrative objectives to numeric levels for use in determining reasonable potential and establishing effluent limitations and receiving water limitations.

Second, numeric water quality objectives and numeric effluent limitations are clearly authorized by state and federal law. The use of numeric effluent limitations to achieve compliance with water quality standards is not necessarily a more stringent approach than the use of narrative effluent limits or best management practices. (See State Water Board Order No. WQ 2006-012 (Boeing).) Regardless of whether one considers the proposed numeric objectives more stringent, CWA section 301(b)(1)(C) grants states the authority to impose more stringent effluent limitations and other limits than those established in the CWA, in order to meet water quality standards.

In addition, numeric water quality objectives and an associated program of implementation including numeric effluent limitations would better achieve the project's goals. Consistent interpretation of toxicity data will improve the Regional and State Water Boards' ability to consistently assess and address toxicity.

40 Code of Federal Regulations part 122.44 requires that when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the numeric criterion for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity. On the point of the expression of numeric effluent limits for WET, see comment letters from U.S. EPA Region 9's Water Division Director to the State Water Board dated August 20, 2012 and January 21, 2011, which states that the current practice of implementing narrative toxicity objectives as numeric triggers and TREs does not create an accountable means of controlling toxicity. A discussion of the selected effluent

limitations is included in section 5.4.3 of the 2018 Draft Staff report.

Comment 12.1

Numeric Action Levels

The District recommends the following amendment to the Policy: Modify the current thresholds of violations of Maximum Daily Effluent Limit (MDEL) and Minimum Median Effluent Limit (MMEL) to be Numeric Action Levels that require dischargers to complete initial review of operations in response to an exceedance and repeat toxicity sampling (daily sampling within 20 days of original MDEL exceedance and three samples within the month following the MMEL exceedance). Violations occur if the MDEL and MMEL are exceeded again during a repeat toxicity sampling event and appropriate accelerated monitoring is initiated.

Section III.A.7 identifies that exceedance of the Maximum Daily Effluent Limit (MDEL) or Medium Monthly Effluent Limit (MMEL) is a violation. Due to the inherent variability of the toxicity testing methods, violations should not be assessed in response to one exceedance of the thresholds proposed in the Policy. The District recommends inserting Numeric Action Levels into the Policy to require dischargers to respond to exceedances of MDEL and MMEL thresholds in a specified manner. If the toxicity event is confirmed with additional test result(s), then a violation of the MDEL and MMEL are recorded and the discharger continues with accelerated monitoring and implementation of Toxicity Reduction Evaluation (TRE) if needed.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. The options considered and the reasons for selection the effluent limitations in the Provisions are discussed in Section 5.4.3 of the October 2018 Draft Staff Report. See also response to Comments 11.47, 37.9

Comment 17.2

Clarity in what constitutes a violation of MDEL and MMEL for non-continuous dischargers.

First, EMWD is not in support of numeric effluent limits for toxicity and recommend that the maximum daily effluent limitation be deleted, as no single chronic toxicity test should result in a violation that could result in mandatory minimum penalties (MMPs) or lawsuits from third parties. EMWD is in support of the CWA's stance that use of a narrative objective with numeric accelerated testing and TRE triggers will be fully protective.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed to better clarify what constitutes a violation of the MDEL and MMEL. What constitutes a violation of the MDEL and MMEL is included in IV.B.2.e. of the Provisions and is discussed in Section 5.4.3 of the 2018 Staff Report. Please see response to Comment 6.26, 47.8.

Comment 18.6

3. The Policy allows Regional Water Boards to impose acute toxicity limits and monitoring requirements without demonstration of Reasonable Potential.

Chronic toxicity testing is expected to be more sensitive than acute toxicity testing, since the sub-lethal effects measured in chronic tests should be observable at lower concentrations of toxicants than those required for lethal effects. Therefore, acute toxicity testing is generally duplicative, and should not be imposed on dischargers without adequate justification.

While the Policy states that Regional Water Boards may require Reasonable Potential analysis for acute toxicity, it allows the Regional Water Boards to impose permit limits for acute toxicity testing in the absence of a demonstration of Reasonable Potential: "If acute toxicity limitations are included in the permit, the applicable Water Board shall document the need for acute limitations in the NPDES fact sheet or WDR information sheet (or equivalent document)." (p. 7)

The District recommends that the Policy only allow acute toxicity permit limits if a Reasonable Potential analysis based on past test results indicates that they are necessary.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Section IV.B.2.c.ii. of the October 2018 Draft Toxicity Provisions only requires dischargers to conduct routine acute toxicity monitoring and comply with acute aquatic toxicity effluent limitations if reasonable potential for acute toxicity is demonstrated. Regional Water Boards have the discretion for determining if a reasonable potential analysis is required for a POTW discharger. A reasonable potential analysis for both chronic and acute toxicity is required for all other non-storm water NPDES dischargers. See Section 5.4.2 of the October 2018 Draft Staff Report for a discussion on reasonable potential analysis requirements in the Draft Toxicity Provisions. See Section 5.4.4 of the October 2018 Draft Staff Report for a discussion on routing monitoring requirements in the Draft Toxicity Provisions.

Comment 22.10

Since toxicity testing should capture the toxic effects of any constituent, it is the only water quality test that addresses complex effluent from many POTWs and agricultural and storm water runoff. Thus, it is critical that toxicity monitoring and toxicity effluent limits exist in all NPDES permits, regardless of RPA findings.

Response

Section IV.B.2.b. of the October 2018 Draft Toxicity Provisions requires all POTW dischargers that are authorized to discharge at a rate equal to or greater than 5 MGD to conduct routine monitoring and comply with effluent limitations for chronic toxicity. POTW dischargers authorized to discharge at a rate of less than 5 MGD must conduct a reasonable potential analysis for chronic toxicity. Regional Boards have discretion whether to require POTW dischargers to conduct a reasonable potential analysis for acute toxicity. All other non-storm water NPDES discharger must conduct a reasonable potential analysis for both chronic and acute toxicity. These requirements are discussed in greater detail in Section 5.4.2 of the October 2018 Draft Staff Report. Regional Water Boards have discretion for requiring chronic or acute aquatic toxicity monitoring for storm water and nonpoint source dischargers. See Sections 5.5 and 5.6 of the October 2018 Draft Staff Report for a discussion of the requirements for storm water and nonpoint source dischargers.

Comment 22.13

Acute toxicity limits should be required in areas where dilution credits are applied to chronic toxicity.

...there are situations where acute WET objectives would potentially be the more protective toxicity end point for discharge, and should thus be required in all NPDES permits .....If a region has such a dilution credit applied to chronic toxicity, it would be possible for acute toxicity testing to show toxicity in situations where chronic toxicity is not demonstrated.

Response

Pursuant to Section 4.B.2.b of the October 2018 Draft Provisions, except for POTW dischargers, all other non-storm water NPDES dischargers must conduct a reasonable potential analysis for acute toxicity. Regional Water Boards may require POTW dischargers to conduct a reasonable potential analysis for acute toxicity. One of the factors that Regional Water Boards may consider in determining if a POTW discharger must conduct a reasonable potential analysis for acute toxicity is the allowance of dilution credits and mixing zones. The reasonable potential requirements are discussed in Section 5.4.2 of the October 2018 Draft Staff Report.

Comment 22.20

The maximum daily effluent limitation (MDEL) should not include a multiplier of the numeric toxicity objectives.

Under the Compliance Determination provisions of the Draft Policy (Part III(A)(6)(B)), "[a] chronic toxicity test result indicating a "fail" with a percent effect at or above 0.50 is an exceedance of the chronic MDEL" (Draft Policy at Page 9). These percent effect values are twice the regulatory management decision (RMD). Or in other words, this is twice the numeric toxicity objectives in Part II of the Draft Policy. This allows for 40 percent mortality and 50 percent chronic effects before an automatic violation of the MDEL occurs. If the RMD represents the acceptable risk to aquatic life, how does the State Board justify doubling this for the MDEL values?

...At a minimum, the State Board should use toxicity observed at 1.5 times the RMD as this is more protective than what is currently proposed in the Draft Policy.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. An MDEL with a percent effect threshold reduces the probability of a violation from a single sporadic insignificant event or erroneous toxic identification while still addressing high level toxicity events. To address the concern that a false positive may result in an MDEL violation with a single test, an additional threshold of 50 percent effect is included to be certain the magnitude of toxicity is high enough by itself to warrant a permit violation. The MDEL is consistent with an LC_{50}, which is a measurement often used in toxicity to demonstrate a significant toxicity effect. Support for the acute and chronic MDEL in the Provisions is discussed in Section 5.4.3 of the 2018 Staff Report. Please see response to Comment 11.47, 37.9 and Comment 6.26, 47.8

Comment 37.8

Comment #3: Single Test Violations are Inappropriate.

SRCSD 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."

--One of the State Water Board's own Toxicity Task Force members 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."

--Field studies 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.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. Support for the MDEL in the October 2018 draft Toxicity Provisions is discussed in Section 5.4.3 of the 2018 Staff Report. Please see response to Comment 11.47, 37.9 and Comment 6.26, 47.8, and Comment 22.20.

Comment 40.8

Expression of Numeric Effluent Limitations

The City appreciates the State Board’s policy change in response to previous public comments by incorporating a two-tiered determination of violation using the statistical result of the TST analysis and percent effect relative to the control (i.e. _50% chronic or _40% acute for routine monitoring). In addition, the introduction of a second level evaluation including a median monthly effluent limitation (MMEL) for those tests with <50% chronic response (<40% for acute) is welcome. The City feels that this will help mitigate unnecessary allocation of limited resources in response to minor, low level differences that would have been considered a violation under the former draft policy. The City is committed to protecting and improving water quality in our region and wants to make the best use of its limited funds by focusing on those instances most likely to have a positive impact on the receiving environment.

Response

The MMEL and MDEL are included in Section IV.B.2.e of the October 2018 Draft Toxicity Provisions, a discussion of these effluent limitations is included in Section 5.4.3 of the October 2018 draft Staff Report.

Part III (A)(3): Test Methods (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comment 6.8, 41.3

Alternatives Evaluation Does Not Fully Consider the Ability to Define an Appropriate Numeric Toxicity Objective Give [sic] the Nature of Toxicity Testing.

Finally, we feel that the justification provided for the selection of numeric objectives does not take into account factors inherent to toxicity testing that make the establishment of numeric objectives inappropriate. Similar to the discussion included in the Draft Policy as to why numeric effluent limitations for stormwater and agricultural discharges are not appropriate, there are a number of reasons why numeric objectives for toxicity cannot be determined.

- 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. Interpretation of toxicity data is a complex undertaking because of the inherent variability and anomalies associated with biological data. 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 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 objectives 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."

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." As a result, an appropriate numeric objective would need to address this inherent variability and allow for consideration of factors that influence toxicity testing. The numeric objective in the Draft Policy does not address this issue.

Response

Justification for the numeric water quality objectives in the Provisions is discussed in Section 5.1 of the 2018 Staff Report. See Response to Comment 6.2, 11.3, 39.10 and Comment 6.26, 47.8.

As discussed in Section 5.3 of the October 2018 Draft Staff Report, within-test variability can be reduced by adding additional replicates above the minimum required by the test methods. This will provide greater confidence in the outcome. The TST approach provides dischargers with an incentive to reduce the within-test variability.

Comment 9.2

CCEEB believes that it is incorrect to increase reliance on living organism-testing methods. Because of the differences between organisms, even of the same species, there is an inherent question of how to best interpret results. This proposed Policy's reliance on sub-lethal test standards unnecessarily increases that uncertainty. It also runs counter to using live animals as

test subjects. Considering past Board actions, we believe it seems entirely inconsistent for the Board to adopt a Policy that requires imperiling even more live organisms.

Response

The Provisions are not a substitute for chemical specific limits. Per Section III.B.3. of the October 2018 Draft Toxicity Provisions, any Basin Plan provisions regarding the application of narrative toxicity water quality objectives to derive chemical specific limits, targets, and other thresholds will remain in effect. Thus, the Toxicity Provisions do not change or replace chemical specific limits. Aquatic toxicity testing considers the cumulative and synergistic effects of all toxicants on test organisms. Thus, aquatic toxicity testing provides an important backstop from the cumulative effects of toxicants, which cannot be assessed using chemical specific testing alone, as well as providing an important protection against unknown toxicants. See response to Comment 25.2

Comment 20.12

1. Toxicity testing is based on pseudoreplication and therefore not a valid evaluation of the toxicity of environmental samples or effluent

The statistical testing of an environmental sample and the laboratory control are a classic case of ''pseudoreplication'' as originally defined by Hurlbert (1984). Pseudoreplication is defined as ''the use of inferential statistics to test for treatment effects with data from experiments where either treatments are not replicated (though samples may be) or replicates are not statistically independent.'' In the case of toxicity testing, a single sample is collected from a water body in a single glass bottle. That bottle is returned to the laboratory and a small number of subsamples are poured from the same bottle into from 2 to 4 different containers.

...In the example above, the subsamples water are from the same bottle; the water has just been divided into four containers rather than two in order to gain statistical significance. Authors of the TST would argue that this is exactly the point of the new procedure; change the null hypothesis (but see below) and use more ''replicates'' to reduce the variance and make the statistical test more reasonable. However, this rationale demonstrates a fundamental misunderstanding of the term ''replicates.'' Adding numerous small containers to the toxicity test only increases the number of subsamples from the single sample of environmental water or control water. It does not increase the number of replicates which by definition must be independent. The consequence of pseudoreplication is that it is not possible to assign a difference in the means of the two groups to any cause as there is only one sample for each of the two treatments. In a laboratory setting, it may be claimed that the only variable that is different between the control and the treatment is a toxic compound, but there are other potential factors that could affect the outcome of the test including the location of the containers within environmental chambers, the way the water was replaced in one container relative to another, etc. In order for the toxicity test to be valid using the four small containers, the sample for each container must come from different bottles collected at slightly different times (for example a minute apart) from the field. If the example used above is placed into the framework of the ''null'' and alternative hypotheses of the TST, the problem of pseudoreplication is the same. Using the survival of organisms in two containers, there is a failure to

reject the null hypothesis of a difference between the two treatments, and with the results from the four containers in each treatment, one rejects the null hypothesis and accepts the alternative hypothesis of no differences. These tests are equally as invalid as the tests performed using the classical null and alternative hypotheses because there is still only a single sample of control water and a single environmental sample.

Response

The October 2018 Draft Toxicity Provisions do not propose to change the aquatic toxicity test methods. The required test methods are discussed in Section 5.2 of the 2018 Staff Report. As explained in Section 5.3 of the Staff Report the TST approach provides dischargers with an incentive to provide high quality data. This encourages laboratories to reduce or eliminate other factors that could influence the within-test variability and thus improve the confidence in the outcome of each test. See Response to Comment 6.2, 11.3, 39.10

Comment 38.4

Naturally elevated mineral concentrations, common to waters in our area, may increase the risk of test failure as even small differences in the balance between major anions and cations can interfere with the normal reproductive cycle of sensitive invertebrate species. EPA's official WET test method manual also warns that ionic imbalance is a well-known source of interference in the standard chronic toxicity test method. Despite this fact, existing federal guidance does not yet provide any instruction on how to distinguish ionic interference from true toxicity when conducting a TIE. And, even well-qualified labs have struggled with this issue for years.

Elevated hardness, alkalinity, conductivity and TDS may increase the risk of false test failures by as much as ten times the normal error rate (e.g. 50% vs. 5%) regardless of whether one uses the NOEC, IC-25 or TST to make the determination (see appendix A). There is no doubt that if a particular water body fails 10-50% of all toxicity tests that state authorities and the general public will conclude that it is "toxic" when it is merely more mineralized than EPA's recipe for non-toxic control water. That formula is based on the general ionic composition of Lake Superior because EPA's laboratory is located in Duluth, MN. But, the mineral structure of natural water supplies in the arid west don't bear much chemical resemblance to Lake Superior. So serious is the problem of ionic interference that some samples will also "fail" the WET test when the receiving water is "too clean." Low levels of hardness, alkalinity and conductivity can also inhibit growth and reproduction to a level that may be mistaken for "toxicity." This phenomena may greatly complicate our ability to rely on state-of-the-art treatment technologies (such as reverse osmosis and microfiltration) to produce ultra-clean water from seawater, municipal effluent, seawater or captured stormwater if doing so all but assures the subsequent WET test will fail. Even rain water, collected in sterile containers, has been shown to fail the chronic WET test due to low pH and conductivity (see Appendix C).

How will suppliers demonstrate to the Department of Water Resources or the Department of Public Health that our product water is "safe" if such water can "fail" a toxicity test due to the relative deficiency of some minerals? Differences in reproduction or growth among the standard test organisms must first account for the confounding effects of any possible mineral imbalances before concluding that a particular sample is actually "toxic."

Response

The requirements in the October 2018 Draft Toxicity Provisions do not increase the probability that toxicity tests will result in a fail. See response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4

Ion imbalances can cause toxicity in effluents. When toxicity effluent limits or monitoring triggers are exceeded, the permittee needs to implement a TRE as described in their TRE work plan. Where TDS is a suspected toxicant, the permittee should utilize U.S. EPA’s TIE procedures, in

conjunction with recommendations prescribed by Goodfellow et al. (2000) to identify the specific ions contributing to TDS toxicity; regulatory or technical solutions may be possible if ions are identified as the only responsible effluent toxicant. In situations where ions and another toxicant are identified, the toxicant is usually addressed first. After that toxicant is dealt with, then ion-specific toxicity in the discharge can be appropriately addressed and potential management and regulatory options will be considered by the Permitting Authority.

Comment 58.14

Part III.3 - Test Methods - of the 2012 Draft Toxicity Policy states "Dischargers required to monitor acute toxicity shall follow the toxicity test methods established in Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition (EPA-821-R-02-012)". Table 15 of this Fifth Edition protocol requires a minimum of 10 test organisms per chamber and a minimum of 2 replicate chambers per test. The TST statistical method will always result in a value of FAIL if the required minimum number of test chambers and organisms are used. Therefore, the 2012 Draft Toxicity Policy does in fact change the acute toxicity testing procedures that dischargers are required to follow. This demonstrates that the 2012 draft Toxicity Policy does not adequately evaluate acute toxicity testing, and is a new method which must be EPA approved under 40 CFR Part 136.

Response

As noted in the TST Technical Document, Implementation Document and the October 2018 Draft Toxicity Staff Report, the minimum number of replicates indicated for acute toxicity testing is four replicates. The U.S. EPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition (EPA -821-R-02-012) indicates that at a minimum two replicates should be used. However, it does not restrict the number of replicates to only two. This test method allows for the addition of replicates without changing the test method itself.

As discussed in Section 5.2 of the October 2018 Draft Staff Report, the Provisions are not proposing to modify the toxicity test methods. As explained in Section 2.6 of the October 2018 Draft Staff Report, the TST approach is not a toxicity test method and the TST approach does not alter the approved U.S. EPA toxicity test methods.

Part III (A)(4): Routine Monitoring (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comment 2.11, 11.17, 11.18, 17.3, 17.1

Monitoring frequency for non-continuous dischargers is inconsistent with sampling requirements.

Part 111(A)(4)(a) of the proposed Policy states that chronic toxicity testing for dischargers who discharge at a rate greater than or equal to one-million gallons per day, shall occur every calendar month in which a discharge lasting more than two days occurs. As mentioned in the CWA comment letter and EMWD's practice when sampling for chronic toxicity per EPA's WET method manual, chronic toxicity testing requires three samples being collected at a minimum of over a five day period. While EMWD is a wet season discharger, in the past there have been times when maintenance/shutdown of facilities or pipelines necessitated discharge of recycled water to surface waters for less than five days. EMWD has always been granted the exception of conducting chronic toxicity testing during these events by the Regional Board due to the need for there to be more than 5 days to collect such samples. Thus, EMWD concurs with the CWA's suggestion to revise the proposed Policy to state that chronic toxicity testing shall occur with a discharge lasting more than six days.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Section IV.B.2.c.i. of the Provisions requires dischargers that conduct quarterly routine chronic toxicity monitoring to sample in each calendar month in which there is expected to be at least 15 days of discharger. Dischargers that conduct quarterly routine chronic toxicity monitoring are required to sample in each calendar quarter in which there is expected to be at least 15 days of discharge. At a minimum, a chronic toxicity routine monitoring shall be conducted at least once per calendar year. Routine monitoring frequencies are discussed in Section 5.4.4 of the 2018 Staff Report.

Comments 2.13, 3.2, 4.4, 5.4, 13.14, 13.19, 13.17, 14.4, 15.4, 20.6, 26.2, 26.3, 27.5, 27.6, 28.5, 30.2, 31.4, 33.1, 34.4, 37.20, 41.2, 42.3, 43.5, 43.4, 51.2, 53.1, 56.3, 59.2

Increased monitoring frequency –

The Toxicity Policy will save money for some municipal agencies. But costs will increase for most municipal agencies due to more frequent testing. Appendix H largely looked at Agencies that already have monthly chronic toxicity testing requirements, and extrapolated these results. However, only three of the 44 municipal agencies in the Bay Area currently perform monthly chronic toxicity monitoring now. If the policy is adopted, 32 agencies will increase their chronic testing to monthly frequency, and four agencies will begin monitoring for the first time.

...Replicates to minimize the effects of variability - TST test is sensitive to variability. Therefore, the remedy for false determinations of toxicity, for those municipal agencies that have variable effluent quality or use a more variable test animal, is to increase replication in the toxicity tests, which also eliminates any cost savings. BACWA performed a cost impact analysis to examine the effects of the policy on our Region. The report is provided in Attachment 1. In summary, region-wide costs are expected to increase by a minimum of $181,000, assuming municipal agencies use one sample to determine compliance, or a maximum of $ 540,000, assuming municipal agencies continue to use multiple samples to minimize the likelihood of having a violation assessed due to a false determination of toxicity.

Response

An economic analysis was conducted for the October 2018 Draft Toxicity Provisions. This analysis considered a representative sample of various types and sizes of dischargers. Please see Section 9.1.4 of the 2018 Staff Report and the referenced 2018 economic analysis for an analysis of the anticipated economic impact of the October 2018 Draft Toxicity Provisions.

Comment 5.6, 50.5

Chronic toxicity testing with our contract laboratory takes a minimum of 45 days to schedule. As this is a highly specialized test, we are unable to perform chronic toxicity in-house as we do with acute toxicity. We have a major concern that if increased frequency as proposed, would overwhelm Aqua Science and we would have to "wait in line" for a scheduled vacancy to conduct the 7-day chronic toxicity testing that could put the agency at risk of late reporting. The impact on the environment with regards to small agencies that use courier service to transport daily samples from the agency to the laboratory performing the test would also have a negative effect. In our case these composite samples gathered over a period of 7 days would add approximately 6.6 tons of CO2 emissions to the atmosphere per year for the City of Burlingame facility alone.

Response

Section 5.4.4 of the 2018 Staff Report acknowledges that for some non-storm water NPDES dischargers the chronic toxicity routine monitoring frequency might increase. The Permitting Authority can determine the beginning of the calendar month, so that calendar months can be staggered so as not to overwhelm local laboratory resources. In addition, the frequency of required monitoring would be specified in the NPDES permit, allowing time to schedule anticipated monitoring. Sections 7.5.3 and 7.5.7 of the 2018 Staff Report discuss the potential environmental impacts from transporting samples in vehicles.

Comment 11.50

7. The Proposed Policy Adversely Impacts Small Communities

In addition, our Associations remain concerned that the Revised Draft Policy will impose a disproportionate economic burden on smaller wastewater agencies, given the high costs of conducting the required toxicity testing and TREs, and the increase in monitoring frequency for many small communities. The Revised Draft Policy requires routine chronic testing monthly for all POTWs over 1 mgd and quarterly for all POTWs under 1 mgd (average dry weather flow) except for those considered to be economically disadvantaged. (Revised Draft Policy at 8-9.) Each chronic toxicity test costs approximately $1,000, a TRE is estimated to cost $40,000 (conservatively and without including implementation of specific control actions), and the Revised Draft Policy significantly increases the number of tests required for many small POTWs. Many smaller agencies are currently required to test once per permit cycle, or at most once per year, for toxicity. To address these concerns, we recommend the following alternative approach:

*If reasonable potential (RP) for POTWs is assumed for larger discharges over our objections, we recommend that the threshold for this presumption (which implies automatic applicability of effluent limitations for chronic toxicity) be raised from 1 mgd to 5 mgd. This is consistent with the discharge level used by EPA as a threshold for the requirement of industrial pretreatment programs.

*The criteria for determining RP should be adjusted from the proposed 10% effects level [sic] to a 25% effect level, which represents the RMD.

*Routine toxicity monitoring should be modified to annually for POTWs smaller than 1 mgd, and quarterly for POTWs between 1 and 5 mgd.

*Under the Revised Draft Policy, RP is forever. Once an effluent limitation has been imposed in an NPDES permit, no mechanism exists in the Revised Draft Policy for the effluent limitation to be reconsidered, no matter how many "clean" tests the POTW has reported. For all POTWs, and particularly those under 5 mgd, the Regional Boards should be required to reassess RP each permit cycle (just as they do for chemical-specific effluent limitations).

These proposed changes are consistent with other State Water Board policies which address small community concerns including the Board's Water Quality Enforcement Policy (May 20, 2010) (Enforcement Policy) and Resolution No. 2008-0048, Promoting Strategies to Assist Small and/or Disadvantaged Communities with Wastewater Needs (July 1, 2008). The Enforcement Policy recognizes that "complying with environmental laws and regulations will require higher per capita expenditures in small communities than in large communities." (Enforcement Policy, p. 3.) As a result of this recognition combined with the significant costs associated with traditional water quality enforcement practices, the Enforcement Policy eases enforcement burdens on all small communities, not just those that are disadvantaged. (Ibid.) Specifically, the Enforcement Policy generally directs that informal enforcement or compliance assistance be the first steps taken to return a facility serving a small community to compliance. (Ibid.) Resolution No. 2008-0048 also recognizes that small communities, not just those that are economically disadvantaged, lack economies of scale and the funding necessary for compliance with water quality regulations. Therefore, Resolution No. 2008-0048 directs Board staff to take certain actions related easing the financial burdens of regulatory compliance.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Section IV.B.2.c. of the Provisions requires all POTW dischargers that are authorized to discharge at a rate equal to or greater than 5 MGD to conduct monthly routine chronic toxicity testing and comply with chronic toxicity effluent limitations. This requirement and the justification are discussed in greater detail in Section 5.4.2 of the October 2018 Draft Staff Report. Smaller POTW dischargers (those authorized to discharge at a rate less than 5 MGD) and other non-stormwater NPDES dischargers are required to conduct a reasonable potential analysis for chronic toxicity with each permit renewal, reissuance, or reopening (to address toxicity requirements).Per Section IV.B.2.b of the Provisions, a reasonable potential analysis is required with each permit issuance, reissuance, renewal, or reopening (to address toxicity requirements).The requirement of using a 10 percent threshold in the reasonable potential analysis has not been changed significantly in the October 2018 Draft Toxicity Provisions. The justification for using a 10 percent threshold for establishing a reasonable potential is discussed in Section 5.4.2 of the Provisions. Please see response to Comment 2.7, 11.45, 12.3, 13.9, 18.2, 49.2.

The monitoring frequencies are discussed in Section 5.4.4 of the 2018 Staff Report.

Comment 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.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Section IV.B.2.c.i.(B) of the October 2018 Draft Provisions includes an allowance for the Permitting Authority to reduce the monitoring frequency if the discharger meets the specified requirements of that Section. Monitoring frequencies and the allowance of reduced monitoring schedules are further discussed in Section 5.4.4 of the October 2018 Draft Staff Report.

Comment 22.7

The threshold between major and insignificant dischargers should be 500,000 gallons per day.

The Draft Policy considers non-continuous dischargers and dischargers that discharge less than one million gallons per day (MGD) as "insignificant dischargers." This threshold is inappropriately high and arbitrary. The Draft Policy should not assume "major POTW" facilities are the only facilities with a high risk of toxicity. The discharge of a lesser amount, such as 900,000 gallons per day in a stream or enclosed waterbody is hardly insignificant. Many types of facilities that discharge much less than one MGD have clear reasonable potential to contribute to exceedances of standards.

Response

Section IV.B.3.b. of the October 2018 Draft Toxicity Provisions require all POTW dischargers authorized to discharger at a rate equal to or greater than 5 MGD to conduct routine monitoring and comply with effluent limitations for chronic toxicity. POTW dischargers that are authorized to discharge at a rate of less than 5 MGD and other non-stormwater NPDES dischargers must conduct a reasonable potential analysis for chronic toxicity with each permit issuance, reissuance, renewal, or reopening (to address toxicity requirements). These requirements are discussed in Section 5.4.2 of the October 2018 Draft Staff Report. In addition, the October 2018 Draft Toxicity Provisions include an exception for insignificant dischargers. The permitting authority is authorized to exempt certain insignificant non-stormwater NPDES dischargers from some or all of the provisions in the October 2018 Draft Toxicity Provisions when the Permitting Authority makes a determination that the discharge will not have reasonable potential to cause or contribute to an exceedance of the numeric water quality objectives. Insignificant discharges are discharges determined to be a very low threat to water quality by the Permitting Authority.

Comment 27.2

Non-continuous discharges must have sufficient time to conduct a toxicity test during a partial-discharge month.

A single chronic toxicity test typically requires the collection of three samples over at least a 5-day period. Therefore, any minimum discharge periods should be compatible with this typical sampling requirement, including a margin for error and consistent with requirements for stormwater discharges. The District requests that the last sentence at the bottom of page 8 in Part Ill.A.4.a. in the Proposed Policy be revised from two days to six days.

Response

Non-storm water NPDES dischargers with a monthly routine monitoring frequency for chronic toxicity are required to conduct routine monitoring in any calendar month in which there is expected to be at least 15 days of discharge. This amount of discharge would allow the discharger to collect the initial sample and refresh water samples needed in accordance with chronic toxicity tests methods. Dischargers with a quarterly routine monitoring frequency for chronic toxicity are required to conduct a routine chronic toxicity test in any quarter in which there is expected to be at least 15 days of discharge. Compliance monitoring for non-storm water NPDES dischargers is included in IV.B.2.c. of the October 2018 Draft Toxicity Provisions and is discussed in Section 5.4.4 of the October 2018 Draft Staff Report. The Provisions do not include monitoring requirements for storm water and nonpoint source dischargers.

Comment 40.17

Chronic tests would be more applicable and acceptable for receiving water monitoring.

Response

The Provisions do not contain requirements for receiving water monitoring. The Permitting Authority has discretion in establishing the receiving water monitoring requirements in permits and WDRs.

Comment 58.10

In fact, determining compliance using one in-stream waste concentration (IWC) does not meet the minimum number of four samples and of two species required under Title 40 section 122.21.

Response

40 C.F.R. 122.21 sets the requirements for permit application, and not requirements for determining compliance with effluent limitations. The requirements in the October 2018 Draft Toxicity Provisions do not conflict with the minimum information required when applying for an NPDES permit. Requirement for determining reasonable potential are included in October 2018 Draft Toxicity Provisions and are discussed in greater detail in Section 5.4.2 of the October 2018 Draft Staff Report.

Part III (A)(5): Statistical Method (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4

WPHA believes the requirement for Test of Significant Toxicity (TST) method as proposed will lead to a significant number of false positive test results (i.e., incorrectly identifying non-toxic samples as toxic). WPHA believes this is significant considering the fact that such toxicity test results will burden the agricultural communities with many different compliance requirements. Successive toxicity finding [sic] or results for irrigated agricultural entities in the Central Valley will require additional toxicity identification evaluations (TIE) and possibly a revised farm management plan.

Response

Commenters have not provided credible evidence to support their assertions of an excessive false positive rate associated with the TST approach. The false positive rate is explicitly defined in the TST and has been validated in numerous analyses, including peer-reviewed simulations. U.S. EPA conducted an extensive blank study (2001) which demonstrated that U.S. EPA's biological methods for WET achieve the method false positive error rate goal of at most five percent. U.S. EPA's blank study was externally peer-reviewed, and the U.S. Court of Appeals concluded that EPA's reported method false positive error rate is correct. From U.S. Court of Appeals, D.C. Circuit, decision (2004): "Petitioners allege false positive rates between 12.5 percent and 56 percent, while EPA, again analyzing the same data, finds an overall false positive rate of 1.3 percent, with no individual test's rate exceeding 5 percent. See Final Rule, 67 Fed. Reg. at 69,968.

The scientific validity of the TST has been vetted by seven external peer reviewers; five of which were selected via U.S. EPA's external peer review process, while the remaining two were selected via the State Water Board's external peer review process. Both U.S. EPA's peer reviewers and California's peer reviewers agree that the TST is superior and appropriate for addressing the needs of the WET program. The scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report.

In developing the TST hypothesis testing approach, EPA did not change the biological methods, the measured biological endpoints, or how the WET test is conducted. Rather, the TST is another statistical tool that utilizes the allowed hypothesis testing approach. The false positive error rate for the TST was held at the same statistical level (0.05) established for EPA's biological methods. This is significant because the same method false positive rate will apply regardless of which statistical hypothesis approach chosen. Tests analyzed using a NOEC approach are still being performed using the same toxicity test methods, subject to the same error rates. Thus, the TST approach as required by the October 2018 Draft Toxicity Provisions should not increase the number of false positives.

Despite the lack of evidence for concerns regarding the false positive rate a Test Drive was conducted. The TST Test Drive used actual data provided by California dischargers and additional ambient data from the Surface Water Ambient Monitoring Program (SWAMP). Section 5.3 of the 2018 Staff Report discusses the results of the TST Test Drive, which demonstrate the TST approach is anticipated to result in little or no increase in the number of

exceedances as compared to other statistical approaches. The overall results from the TST Test Drive show a similar percentage of tests as toxic and non-toxic using the NOEC approach and the TST approach. It also demonstrated that the TST approach is more likely to identify a sample as toxic when effects are substantial, above the RMD (i.e., a true positive), and less likely to identify a sample as toxic when the effects are negligible, with a median effect of 10 percent or less (i.e., a true negative). In addition, for those tests with a mean effect below the RMD, tests having generally lower within-test variability and greater test power had a much lower percentage of tests declared toxic using the TST approach than when using the NOEC approach (Diamond et al. 2013). The TST Test Drive is available at: https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/final_testdrive.pdf.

Despite the strong evidence for a low false positive rate, the MMEL and MDEL in the Draft Toxicity Provisions are designed so that a single exceedance with a low percent effect will not result in a violation of the effluent limitations. An exceedance of the MMEL is two fails within a single calendar month. An exceedance of the MDEL is a fail using the TST approach and a 50 percent effect of the survival endpoint. If the test does not include a survival endpoint, then an exceedance of the MDEL is a fail and a 50 percent effect for a sublethal endpoint.

For nonpoint sources, the October 2018 Draft Toxicity Provisions only requires use of the TST if the non-point source discharger is required to conduct toxicity tests using the species in Table 1 of the October 2018 Draft Toxicity Provisions. The October 2018 Draft Toxicity Provisions do not require non-point sources dischargers (including agriculture) to conduct monitoring, or a toxicity reduction evaluation. The Permitting Authority would continue to have discretion to or not to require non-point source dischargers to conduct monitoring.

Reference: Diamond J, Denton D, Roberts J, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples. Environmental Toxicology and Chemistry. 32(5): 1101–1108.'

Comment 2.2

The TST method has not been tested in any other State, and its implementation may have unintended consequences.

Response

Section 1.1 of the October 2018 Draft Staff Report lists the states and regions that currently incorporate the TST approach into non-storm water NPDES permits. States that require the TST approach are Pennsylvania and Hawaii. Regional Water Boards in California that incorporate the TST approach in non-storm water NPDES permits are the North Coast Regional Water Quality Control Board, the Central Coast Regional Water Quality Control Board, the Los Angeles Regional Water Quality Control Board, Colorado River Regional Water Quality Control Board, and the San Diego Regional Water Quality Control Board.

Comment 2.3, 6.16, 6.22, 6.17, 8.3, 11.6, 11.9, 13.18, 13.2, 13.1, 18.5, 20.4, 25.1, 34.5, 38.3, 38.7, 48.4, 50.2, 52.5, 55.4, 55.5, 58.21

Implications for 303(d) Listings

The proposed numeric toxicity objective states that ''attainment of the water quality objective is demonstrated by rejecting this null hypothesis in accordance with the statistical approach described in Appendix A.'' This functionally indicates that a single TST failure in a receiving

water bioassay test represents an exceedance of the numeric objective. Table 3.1 of California's 303(d) Listing Policy specifies that if two or more of 24 measurements in a waterbody exceed the water quality objective, the waterbody will be listed as impaired. As discussed above, the false positive error rate is inherently at least 5% and could be as high as 15%. Using either estimate, application of the proposed numeric objective will result in an unacceptably high number of non-toxic receiving water bodies being incorrectly listed as toxic. 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 minimal 5% error rate, 34% of California's non-toxic waterbodies would be expected to be incorrectly listed as impaired based on an assessment of 24 samples.

We acknowledge that the use of narrative objectives could also result in a similar ''over listing'' of waters as impaired for toxicity. However, we feel that the Draft Policy should address the identified concerns through inclusion of specific 303(d) listing guidance into the Draft Policy or considering revisions to the Listing Policy. The provisions should include multiple TST failures to define an ''exceedance'' of the objective. This multiple TST failure approach is similar to what is being proposed by State Board staff to implement the objectives into wastewater effluent limits.

Response

As explained in Section 5.3 of the 2018 Staff Report, the false positive rate for the TST approach is set at 5 percent, which is the same as the commonly used NOEC approach. Section 5.3 of the 2018 Staff Report also discusses the conclusions of the TST Test Drive.

Section 5.1 of the 2018 Staff Report explains that the numeric water quality objectives in the Provisions are not anticipated to result in a net increase in the number of water bodies listed on the 303(d) list of impaired waters.

Please see response to Comments 6.20 and Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 6.18

False Positives have Significant Implications for Agricultural and Stormwater Dischargers

For stormwater and agricultural dischargers in the CCW (Calleguas Creek Watershed), 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 Draft Policy requires the use of the TST for those agricultural and stormwater dischargers that already have toxicity monitoring requirements in their permits or Conditional Waivers. All of the dischargers to the Calleguas Creek watershed are already subject to toxicity testing and would therefore have to evaluate their data using the TST.

...These Conditional Waivers set requirements for how data collected under the program is utilized to determine actions that must be taken by dischargers. In Ventura County, the Conditional Waiver requires the following:

1. Sample results be compared to water quality benchmarks. Toxicity is included as a benchmark and the current benchmark is 1.0 TUc.

2. If a benchmark is exceeded in a sample, a water quality management plan must be developed that identifies how the exceedance will be addressed and includes a schedule for implementing the identified actions.

3. Every year, the water quality management plan is updated to address the benchmark exceedances in the previous year's monitoring and actions are updated as necessary to address any new benchmark exceedances.

Given this process, the implications of false determinations of toxicity are significant. Every false determination of toxicity will result in a benchmark exceedance which triggers the development or revision of a water quality management plan and the implementation of BMPs. Since there will inherently be continued false determinations of toxicity based on the regulatory management decisions used in the TST, the Ventura County Agricultural Irrigated Lands Group (VCAILG) will never be able to cease the iterative BMP implementation process for exceedances of toxicity benchmarks, resulting in wasted resources. Additionally, VCAILG is not a single entity, but rather a coalition of over 1000 growers. Implementation of BMPs involves coordinated evaluations and implementation by numerous entities, none of which has ultimate control over the final quality of the agricultural discharge to the receiving water. The cost of outreach and education to inform the growers about the issues and BMPs to implement is also significant.

Response

As explained in Section 5.3 of the 2018 Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The TST Test Drive, also discussed in Section 5.3 of the 2018 Staff Report concluded that using the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. See response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

In addition, Section III.B.3 of the Provisions states, “[a]ny total maximum daily loads (TMDLs) including their implementation provisions, adopted by a Regional Water Board prior to the effective date of these Toxicity Provisions, remain in effect, and do not require reconsideration (for purposes of compliance with the Toxicity Provisions).”

Comment 16.19

For stormwater entities, the impact of the establishment of numeric objectives is even more significant. The Ventura County MS4 permit includes receiving water limitations that are set equal to the water quality objectives. On July 13, 2011, the United States Court of Appeals for the Ninth Circuit issued an opinion in Natural Resources Defense Council, Inc., et al., v. County of Los Angeles, Los Angeles County Flood Control District, et al. (NRDC v. County of LA) determined that a municipality is liable for permit violations if its discharges cause or contribute to an exceedance of a water quality standard. This revised interpretation of the receiving water limitations language in the Ventura County MS4 permit means that MS4 permittees could be subject to permit violations due to the numeric receiving water objectives for toxicity.

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 corresponding use of single exceedances of the numeric objectives to determine 303(d) listings and correspondingly drive BMP implementation and potential permit limit violations. These impacts

were not evaluated in selecting the numeric objectives as the preferred alternative and would be mitigated by the inclusion of a narrative objective in the Draft Policy.

Response

As explained in Section 5.3 of the 2018 Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The TST Test Drive, also discussed in Section 5.3 of the 2018 Staff Report concluded that using the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches.

Section 5.1 of the 2018 Staff Report explains that the numeric water quality objectives in the Provisions are not anticipated to result in a net increase in the number of water bodies listed on the 303(d) list of impaired waters.

Please see response to Comments 6.20 and Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 9.1

CCEEB has reviewed the Draft Policy for Toxicity Assessment and Control and has serious concerns about the underlying science and public process relied upon to date. We believe that further study is needed to support this proposed testing and application that would be required by this Policy. CCEEB does not believe that this proposed Policy is suitably supported by scientific evidence to warrant its consideration at this time. The Policy proposes to reverse the null hypothesis from an assumption that an effluent is presumed to be non-toxic until demonstrated otherwise to an assumption that all discharges are toxic unless demonstrated otherwise. We see no justification for making this change. We believe that it introduces a great uncertainty of fair enforcement because of the high number of false positive results that will lead to enforcement actions.

Response

A TST Test Drive was conducted. Results of the TST Test Drive are discussed in Section 5.3 of the October 2018 Draft Staff Report. Results of the scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report. The justification for the restated null hypothesis is discussed in Sections 5.1 and 5.3 of the October 2018 Draft Staff Report. As explained in Section 5.3 of the October 2018 Draft Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. Please see response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Public outreach for the project is discussed in Sections 2.9, 2.10, and 2.11 of the October 2018 Draft Staff Report.

Comments 9.6, 11.14, 11.31, 17.4, 34.2, 39.3, 39.12, 58.1

The TST method required by the 2012 Draft Toxicity Policy is not approved for use under current federal requirements. The TST method creates a new objective (see 2012 Draft Toxicity

Policy, pg. 5) and is not EPA-approved. 40 CFR Part 136 contains guidelines establishing test procedures for the analysis of pollutants.

As outlined in the letter by PSSEP and the WATER Coalition, the TST method is new and has not been approved as meeting these guidelines. No federal register notices were released concerning the TST guidance. No estimates were made of interlaboratory test precision, which is required for any new method. It has not yet been authorized as an alternate test procedure pursuant to 40CFR 136.5 Approval of Alternate Test Procedures.

Response

As explained in Section 2.6 of the October 2018 Draft Staff Report, the TST approach is not a toxicity test method and the TST approach does not alter the approved U.S. EPA toxicity test methods. Rather, the TST approach is a statistical approach to analyze the data generated by the existing U.S. EPA approved toxicity test methods. Dischargers would be required to use U.S. EPA approved test methods listed in IV.B.1.b. of the Provisions. To the extent that U.S. EPA methods require that observations should be made of organism responses in multiple concentrations, the instream waste concentration should be included as one of the selected concentrations. An alternative test procedure is not required under 40 CFR 136.5.

Public outreach for the project is discussed in Sections 2.9, 2.10, and 2.11 of the October 2018 Draft Staff Report. The proposed adoption of the October 2019 Draft Toxicity Provisions is being conducted pursuant to a public process that comports with the requirements of U.S. EPA and the California Office of Administrative Law As such, the State Water Board's adoption of the Draft Policy does not constitute an underground regulation (see Cal. Code Regs., tit. 1, § 250, subd. (a)).

Comment 11.13

This issue of incorrectly identifying a non-toxic sample as toxic using blind testing on known non-toxic blank samples was a critical component in the United States Court of Appeals ruling in the case of Edison Electric Institute, et al v. USEPA. According to that ruling, "EPA defines a false positive test result as one indicating toxicity in a blank study." The ruling further described that the results of the EPA's WET Interlaboratory Variability Study conducted on non-toxic blank samples demonstrated that no individual test's false positive error rate exceeded 5% using the NOEC or EC/IC25. Additionally, the same false positive error rates were also instrumental in the eventual promulgation of the WET methods. Citing the results obtained from the EPA's WET Interlaboratory Variability Study, EPA determined that the false positive error rate associated with the NOEC and EC/IC25 as determined using non-toxic blank samples was 3.7% and 4.35% for the Ceriodaphnia dubia and fathead minnow chronic tests, respectively.

Response

In Edison Electric Institute et al. v. Environmental Protection Agency (D.C. Cir 2004) 391 F.3d 1267, the court found in U.S. EPA's favor against the petitioners' central contention that WET test methods produce an unacceptably high number of false positives.

As explained in Section 5.3 of the October 2018 Draft Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The TST Test Drive, also discussed in Section 5.3 of the October 2018 Draft Staff Report concluded that using the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. Please see response

to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 11.8

However, using either estimate, application of the proposed numeric objective will result in an unacceptably high number of non-toxic receiving water bodies being incorrectly listed as toxic. 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 minimal 5% error rate, 34% of California's non-toxic waterbodies would be expected to be incorrectly listed as impaired based on an assessment of 24 samples.

Response

As explained in Section 5.3 of the October 2018 Draft Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The TST Test Drive, also discussed in Section 5.3 of the October 2018 Draft Staff Report concluded that using the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches.

Section 5.1 of the October 2018 Draft Staff Report explains that the numeric water quality objectives in the Provisions are not anticipated to result in a net increase in the number of water bodies listed on the 303(d) list of impaired waters. Please see response to Comments 6.20 and Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 16.1, 21.1, 32.1, 54.1

We believe the Test of Significant Toxicity (TST) provides certainty in the evaluation of Whole Effluent Toxicity (WET) testing that was not provided previously by the Technical Support Document for Water Quality Based Toxics Control, 1991(TSD) and Percent Minimum Significant Difference (PMSD) documentation and commend the work to develop its use and implementation. We believe that when the TST is applied appropriately, at a concentration equal to the Instream Waste Concentration (IWC), the test results will provide good prediction of toxicological effects in receiving waters.

Response

The TST approach is discussed in Section 5.3 of the October 2018 Draft Staff Report.

Comment 17.5

Due to EMWD's uncertainty and lack of confidence in the TST method we would find it difficult to have our legally responsible officials sign self-monitoring reports certifying the validity and accuracy of toxicity test results utilizing the TST method.

Response

The validity and accuracy of the TST approach are supported by U.S. EPA's June 2010 National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document. The validity and accuracy of the TST approach is also supported by the technical

peer reviews discussed in Section 2.12 of the October 2018 Draft Staff Report, and by the TST Test Drive, discussed in Section 5.3 of the October 2018 Draft Staff Report.

See response to comment 2.2 for a list of states and regions that currently rely upon the TST approach to assess aquatic toxicity data from WET tests.

Comment 18.3

2. The Water Quality Objective for chronic toxicity is based on the unproven TST statistical method, which to date has not been used in any other state NPDES program. As applied to the testing of ambient water bodies, the TST would assume that the water bodies of California are toxic, unless proven otherwise with a statistical margin for error.

Response

Section 1.1 of the October 2018 Draft staff Report lists the states and regions that currently incorporate the TST approach into non-storm water NPDES permits. The TST approach is discussed in Section 5.3 of the October 2018 Draft Staff Report. See response to Comment 2.2.

Comment 19.3

Effluent, Stormwater, and Ambient Toxicity Test Drive Analysis of the Test of Significant Toxicity (TST) Test Drive Report (SWRCB, 2011) confirms that the TST approach more reliably identifies toxicity-in relation to chronic (25%) and acute (20%) effect levels of concern-than the current hypothesis testing approach (NOEC) used by many Regional Water Boards. TST results are also more transparent and statistically rigorous than the point estimate model approach (EC25), used by the San Francisco Bay Region. Your external peer review concluded that the TST approach and proposed numeric toxicity objectives effectively unify toxicity control and management across California's water programs, creating a simple, transparent, and cost effective approach for assessing toxicity in wastewater, storm water, and surface waters. We concur. Unlike current approaches, the TST provides a clear incentive for regulated stakeholders to reach a definitive conclusion in each toxicity test as to whether unacceptable toxicity has indeed occurred. This is a key improvement that is superior to the way current approaches address within-test variability and the error rates that are of ongoing concern to both permitting authorities and dischargers.

Response

Comment noted. Please refer to the October 2018 Draft Toxicity Provisions for the revised proposal. The Toxicity Provisions aim to incorporate a statewide statistical approach to analyze test results that will provide a transparent determination of toxicity with high confidence in those results, and provide an incentive to generate valid, high quality test data.

Comment 20.13

2. Correct interpretation of statistical results of the TST does not allow an ''acceptance'' of the hypothesis of differences between control and treatment water

Although there are several statistical arguments against using the TST, one of the basic aspects of the new procedure that has been overlooked is the interpretation of the results in the context of the null and alternative hypotheses. Traditional hypothesis testing in inferential statistics (like the t-test used in toxicity testing) is based on a null hypothesis of no differences among treatments and an alternative hypothesis that states that at least one of the treatments is

different. A posteriori tests allow a determination of which treatments are different from other treatments, e.g. one of the treatments is different from the control group. But the important point is how the evidence from the statistical test is interpreted. Formally, the results of the statistical test allow one to either reject the null hypothesis of no differences, or fail to reject the hypothesis of no differences. ''Accepting'' the null hypothesis is not an option. Consequently, it is never possible to state unequivocally that the treatments are not different, or equivalently, that the treatments are ''the same'' (see example in point 2 below). All one can say is that the evidence presented using the sample drawn from the population does not allow the rejection of the null hypothesis at the confidence level (alpha value) established by the experimenter...It is commonly misstated in numerous documents and on the internet that a statistical analysis leads to the conclusion that a hypothesis is true or has been proven. It is more correct to say that the evidence supports the hypothesis or is consistent with the hypothesis of no differences...Despite a plethora of published papers or sites on the internet that claim that if $p > 0.05$ in a statistical test, the null hypothesis is true, this interpretation is incorrect. The fact that this interpretation is commonly applied does not make it correct. The correct interpretation of $p > 0.05$ as the failure to reject the null hypothesis is what should be used by the State and Regional Boards to use the results of toxicity testing in a weight--of--evidence approach - not as a numeric water quality objective. Using a weight--of--evidence approach, if other lines of evidence (e.g., water chemistry or benthic community analyses) suggest or indicate a negative impact of some stressor, the Regional Board could then conclude that beneficial uses are not being supported despite the failure of a toxicity test to indicate significant toxicity.

Response

This is why the null hypothesis states that the discharge is “toxic”. By demonstrating that they can reject the null hypothesis, dischargers are able to show that their discharge is not toxic. Under a traditional null hypothesis, a discharger can only demonstrate that their discharge is toxic, but can never demonstrate that their discharge is non-toxic. It is incumbent upon the dischargers to show that their effluent is non-toxic. The October 2018 Draft Staff Report refers to samples having acceptable vs unacceptable levels of toxicity and the acceptance of the alternative hypothesis, but the Provisions do not state the null hypothesis will ever be accepted.

Technical aspects of the TST approach are discussed in U.S. EPA’s June 2010 National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document. Support of the numeric water quality objectives in the Provisions and the TST approach are included in Sections 5.1 and 5.3 of the October 2018 Draft Staff Report.

Comment 20.3, 39.1, 47.4, 58.3

The TST methodology will deem compliant, non-toxic samples as toxic. The TST statistical methodology departs from traditional and widely accepted aquatic toxicology principles by assuming that a sample is toxic unless it is statistically determined that it is not. This is referred to the ''null hypothesis'' and inappropriately presumes a permit holder in violation until they demonstrate they are not. This is in direct contrast to the reasonable and fair manner in how whole effluent toxicity (WET) policies have been historically implemented in the state.

Response

As discussed in Section 5.3 of the October 2018 Draft Staff Report, the TST Test Drive concluded that the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. Justification for using the TST approach and consideration of other possible approaches is also included in Section 5.3 of the 2018 Staff Report. Additionally, please see response to comments 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 29.1

Issue 1. Initial Derivation of the Method: Did Setting the Sample CV Equal to the Control CV Skew the Determination of Alpha?

The key objective of the TST tool is to identify whether or not the magnitude of impairment of test response in a sample is sufficient that the sample should be considered to be toxic. Of particular concern is the tool's determination of "sample is toxic" when the magnitude of impairment relative to the Control is less than the RMD threshold of 25%, but still high enough to be considered an indication of toxicity based upon the inter-replicate variability observed for that test. By definition, reductions of this magnitude are in the "partial response" portion of the concentration/response curve. This is important, as it should be expected that, in general, the interreplicate variability will be larger in the "partial response" part of the curve than it will be at either extreme of the curve (i.e., at the Control treatment part of the curve, or at the complete impairment part of the curve). However, in the peer-reviewed article on the TST development and validation (Denton et al. 2011), the authors state that in their simulation analyses used to select alpha values, all analyses were based on "equal variances between the sample and control for each scenario examined". However, in the real world, CVs for samples with 10-25% effects should be expected to be higher than the control CVs. This means that the respective test alphas were generated using CVs for the sample that are overly conservative, and not representative of the CV that should be expected to occur at the 10-25% impairment levels for IWC samples (e.g. effluent, stormwater, etc.). We are not statisticians, and are not presuming to fully understand how to select the most accurate alpha values. However, we are concerned that the existing approach may have resulted in a TST tool that is overly conservative in the indication of IWC samples being toxic, particularly as the magnitude of the sample response approaches 25%.

Response

Further analyses conducted during the development of the TST demonstrated that even a 9-fold difference between the control and sample CVs did not affect the error rates established using the alpha values identified for each method. This is due to the conservative nature of the Welch's t-test which specifically reduces the type of bias identified in this comment. These analyses are reported in Appendix A of the TST Technical Document and Denton et al., 2011 and clearly demonstrate the lack of effect of real-world differences in CVs on the error rates and the appropriateness of the alpha values based on 890 effluent tests and 3,201 ambient tests. The TST analysis declared 3.7 percent of all tests as toxic which had a mean effect at the IWC less than 25 percent for chronic methods or less than 20 percent for acute methods, despite up to a 6-fold difference in CVs between effluent and control in some tests. The NOEC analysis declared 5.5 percent of those tests as toxic. The TST analysis declared 0.1 percent of all tests as toxic which had an effect less than or equal to ten percent, while NOEC analysis declared 2.8 percent of those tests as toxic. These results demonstrate that truly non-toxic samples were

more often declared non-toxic using TST than using the NOEC approach even when CVs in the control and sample were not equal. These results demonstrate the method-specific alpha values were derived appropriately. Please see Section 5.3 of the October 2018 Draft Staff Report for a discussion on statistical approaches and the TST Test Drive.

Reference: Denton D, Diamond J, Zheng L. 2011. Test of Significant Toxicity: a statistical application for assessing whether an effluent or site water is truly toxic. Environmental Toxicology and Chemistry. 30(5): 1117–1126

Comment 29.2

Issue 2. Initial Derivation of the Method: Did the Use of Pre-2002 Test Data Skew the Determination of Alpha?

In response to lawsuits regarding various aspects of the WET tests, the EPA's chronic toxicity test methods were revised in 2002. Amongst the more significant revisions was the change in the calculation of the sublethal reproduction and growth endpoints: [See table p. 2 original letter]

The objective of this change was to increase the sensitivity of the test endpoints by adding a survival component into the assessment of growth. While achieving that objective, we are concerned that the inevitable occurrence of random mortalities in the control treatments may effectively inflate the ''biomass'' CVs (relative to the pre- 2002 mean dry weight CVs), such that the pre-2002 control CVs for the growth endpoints were lower than the post-2002 test CVs.

In the peer-reviewed article on the TST development and validation (Denton et al. 2011), the authors state that for their analyses, the ''data for other WET test methods were obtained mostly after 2002, the year in which those test methods were substantially refined''. The term ''mostly'' in that statement indicates that some pre- 2002 test data were included. It is unclear whether any of the pre-2002 test data used by Denton et al. included the growth endpoints for these tests, and if so, whether the data had been re-analyzed to generate inter-replicate variability reflective of the post- 2002 test analysis approach.

Response

According to the authors, all the test endpoints that measure growth were analyzed as a biomass calculation, such that the weight of surviving fish/mysids were divided by the original number of fish/mysids at test initiation.

Comment 29.3

Issue 3. The Role of "Adjusting the Degrees of Freedom (df)" in Determining Whether a Sample is "Toxic" vs. "Non-Toxic"

The EPA implementation document for the NPDES Test of Significant Toxicity (EPA 833-R-0-003) states: "For mean effect levels greater than 10 percent but less than the unacceptable toxicity RMD threshold (20 percent for acute and 25 percent for chronic WET tests), the TST approach will still declare the IWC non-toxic depending on within-test variability". This implies that as the reduction in test response (relative to the Control) moves from 25% down to 10%, there is a progressively moving set of 'within test' variabilities that will determine whether or not the reduction for a particular test will result in the sample being declared "toxic" vs. "non-toxic".

Based upon our review, it is not discussed in the EPA TST document, the peer-reviewed publication, nor the State's draft policy document just how this is achieved. We are left to

conclude that this is being accomplished by use of the “adjustment of degrees of freedom (df)”step in the performance of the TST analysis (see Appendix A of the EPA TST document and the State’s June 2012 draft policy document), as this adjustment includes measures of inter-replicate variability, such that increased variability results in a shift in the applicable critical t-value (from Table B1 in the EPA TST document and Table 2 in the State’s June 2012 draft policy document) that make it easier to declare as sample as being toxic.

The absence of any discussion on how this “adjustment of df” was developed (indeed, the use of the “adjustment of df” step in the TST analysis is not even mentioned in Denton et al. 2011) is somewhat troubling as there is no readily apparent information available that discusses what levels of variability were deemed to be acceptable (i.e., resulting in a sample being declared nontoxic) vs. the variability that would result in a sample being “toxic”.

Response

This comment has confused the calculation of the Welch's t-test degrees of freedom (DF) with declaring a sample unacceptable in ranges below the toxic RMD. The calculation of DF is dependent in part on the variance observed in the control and test replicates; this formulation is well documented and has been used by statisticians for over 50 years. If the variance of the control and sample are equal, the formulation reverts to that used in standard t-tests to compute degrees of freedom for two-sample comparisons. Whether or not a sample is identified as toxic when the mean percent effect is less than the toxic RMD is more a function of the t-calculation formula itself and the method-specific alpha value, rather than the DF calculation. However, there will be some relationship between these values because both calculations are affected by within-test variability. The TST documents produced by U.S. EPA make this point very clear - adjustment of DF is based on Welch’s formula and is calculated based on within-test variability observed, and not so much the percent effect observed.

Comment 34.7

PSSEP respectfully urges the State Board to refrain from dictating that one specific tool of many afforded by the science of aquatic toxicology be used to in the name of "statewide consistency". Contrary to staff presumptions regarding the "need" for the proposed policy there are actually outstanding examples of constructive approaches using such tools from its own Regional Boards. Notably, the San Francisco Regional Board has employed WET requirements, including numeric effluent limits since the early 1960s. These requirements have progressed to include increasingly stringent acute toxicity limits in the ensuing decades and chronic toxicity effluent limits since the early 1990s.

According to years of monitoring data compiled by the discharger supported and highly respected San Francisco Estuary Institute, there are deminimus examples of toxicity-related water quality problems in the San Francisco Bay. This data clearly indicates that the San Francisco Regional Board’s Basin Plan approach to implementing 40 CFR 122.44(d) has been successful. It also serves as a glowing example of what can continue to be achieved by the constructive collaboration of technical and regulatory professionals from both public and private institutions.

Response

The justification for requiring a single statewide statistical approach for aquatic toxicity is included in Section 5.3 of the October 2018 Draft Staff Report. Other statistical approaches are considered in this section, including a point estimate approach as is used in many San Francisco Regional Water Quality Control Board permits.

Comments 34.8, 58.2

Several states across the U.S. have expressed serious concern over the implementation of the TST method and implementation policy (see Texas Congressional letter to Lisa Jackson, 2011). To our knowledge, no state has adopted the TST in approved policies governing evaluation of water bodies or NPDES permit limits.

Response

Section 1.1 of the 2018 staff Report lists the states and regions that currently incorporate the TST approach into non-storm water NPDES permits. See response to comment 2.2.

Comment 35.1

Comment #1 From the State Water Resources Board Policy for Toxicity Assessment and Control we have this definition:

Regulatory management decision (RMD) is the decision that represents the maximum allowable error rates and thresholds for chronic and acute toxicity (and non-toxicity) that would result in an acceptable risk to aquatic life.

The decision criterion assumes that the effluent is toxic and specifies that effects as large as the RMD should be permitted.

Chronic Toxicity

The chronic toxicity objective is expressed as a null hypothesis and a regulatory management decision (RMD) of 0.75 for chronic toxicity methods, where the following null hypothesis shall be used:

Ho: Mean response (IWC) < 0.75 x mean response (control)

Attainment of the water quality objective is demonstrated by rejecting this null hypothesis in accordance with the statistical approach described in Appendix A.

Acute Toxicity

The acute toxicity objective is expressed as a null hypothesis and an RMD of 0.80 for acute toxicity methods, where the following null hypothesis shall be used:

Ho: Mean response (IWC) < 0.80 x mean response (control)

Attainment of the water quality objective is demonstrated by rejecting this null hypothesis in accordance with the statistical approach described in Appendix A.

This stipulates the Chronic effects up to 25% and Acute effects up to 20% are permitted.

The details for the Test of Significant Toxicity (TST) approach described in the above document are discussed in detail in paper by Denton et al. (2011) recently published in Environmental Toxicology and Chemistry (Volume 30: 1117 - 1126). Therefore, the Denton et al 2011 paper was reviewed.

Figure 3 from Denton et al (2011) shows that if an applicant has an effluent that is performing at the RMD level of producing a 25% effect (vertical green dashed line in figure), then the probability of the effluent being declared toxic is between 0.8 and 0.95 depending on the alpha-level of the statistical test. This shows that in reality a 25% effect is NOT allowed under this procedure. Even a 20% effect has a probability greater that [sic] 0.4 of being declared toxic. To have less than 5% risk of having the effluent being declared toxic, then the effect must be less that 10% if the CV= 0.1, less than 5% if the CV = 0.15, essentially 0% if the CV = 0.2, and if the CV = 0.25, then the effluent will have to perform BETTER than the control.

These results show that this procedure is not allowing a 25% RMD as stated in the policy document. The degree to which the effective RMD is less than 25% depends on the variability of the data. At high levels of variability this procedure may require the effluent to perform better than the control to be assessed as nontoxic.

Response

The October 2018 Draft Toxicity Provisions does not stipulate the Chronic effects up to 25% and Acute effects up to 20% are permitted. Rather, per III.B.2.a of the Provision, attainment of the water quality objective is demonstrated by rejecting the null hypothesis and accepting the alternative hypothesis. Section 5.3 of the October 2018 Draft Staff Report acknowledges that some tests that have a mean effect below the RMD may be declared toxic using the TST approach. However, as demonstrated by the TST Test Drive, the TST approach declares test with a percent effect below the RMD as toxic at about the same rate as other common statistical approaches and the TST approach declares fewer tests with a mean effect below 10 percent as toxic than other common statistical approaches.

Comments 35.2, 57.3

Comment #2

Figure 3 from Denton et.al. (2011) makes clear that the effective RMD is not the same as the coefficient of the mean response (control) as stated in the policy document. However, Figure 3 does show that by adjusting this coefficient it is possible to achieve an acceptable risk of being declared toxic at the RMD. For example, for a CV = 0.1, if the coefficient of mean response (control) were changed from 0.75 to 0.6, then the probability of being declared toxic if the applicant effluent had a 25% effect would be less than 0.05. If the CV is greater than 0.1, then the adjustment will have to be larger. The most reasonable way to accomplish this is to fix the coefficient at a level that results in a reasonable effect RMD when variability is low but achievable.

Response

The TST approach includes a fixed regulatory management decision (RMD) or b coefficient, which is based on a decision as to what level of toxicity is unacceptable. Setting a fixed b coefficient also fixes the beta value which ensures that the test maintains a low Type II (false positive) error rate (0.05). Changing the b coefficient would have a conceptual disadvantage because the b value is related to both the RMD and the Type II error rate. Instead of a variable RMD and beta value, the TST approach uses alpha values that vary with the type of experimental design. Outside expert peer reviewers recommended this approach rather than changing b values. The RMD is discussed in greater detail in Section 5.1 of the October

2018 Draft Staff Report, and the alpha and beta values are discussed in greater detail in Section 5.2 of the October 2018 Draft Staff Report.

Comment 35.6

Two examples are provided below for Daphnia magna reproduction and Selenastrum growth where under typical conditions this approach will have adequate power under normal experimental design conditions but not under high variance scenarios that may be encountered in routine testing. Data are not available to determine whether the criteria in Table 1 are reasonable for most other species.

...Power Calculation Example:

Daphnia Reproduction (TYS21). For routine studies, Vrep ranges from 100 to 238 and the control mean ranges from 74 to 161. From Table 1, the appropriate chronic effect is 25% and the false negative rate is 20%. The critical value is dependent on the number of replicates, or more specifically, on the degrees of freedom of the t-test. Assuming homogeneous variances and common number, r, of reps in treatment and control, the formula for t is [See equation, p. 5]

The following table was constructed using the mean value, 117.5, for the control mean, and three values, 100, 169, and 238 for the variance, representing the minimum, mean, and maximum observed variances. [Table 3, p. 5]

Thus, under the minimum variance scenario (VREP=100), the observed effect at IWC cannot exceed 9% of the control mean to pass if there are 3 reps per treatment and control. With 10 reps in each group, the observed effect at IWC cannot exceed 18%. Under the maximum variance scenario, if there are only 3 reps in each group, then any effect exceeding 1% at IWC will fail. Again, under the maximum variance scenario, if there are 10 reps per group, then any observed effect exceeding 15% will fail. [Table 4, p. 6]

For Selenastrum, 3 reps per group is typical, so that a maximum observed effect at the IWC that will pass is 12% under the high variance scenario and 21% under the minimum variance scenario. The variances and means are typical of routine testing.

Fathead Survival. Fathead survival was examined assuming 10% control mortality and otherwise following the guidelines of Table 2. Table 5 summarizes the power properties. The table shows only combinations of number of fish per group, number of reps per group, and maximum percent reduction from control mean will pass the criteria. Since there is no entry with 4 reps and sample size 10, it should be inferred that for such a design, the test will invariably fail. With 5 reps of size 10, the test will fail if the observed mortality in the IWC group exceeds that of the control by more than 4%. Since 4% of 40 is 1.6, this means that if more than one additional fish dies in the treatment group beyond what die in the control, the test will fail. This is a severe failure criterion. With 4 reps of 20 fish each, the maximum increase in mortality over the control is 7%. Since 7% of 40 is 2.8, this means if 3 or more fish die in the treatment group over the number of control mortalities, the test will fail. The stated failure criteria for percent effects appear too strict to be of practical importance and will trigger further testing routinely. [Table 5, p. 6]

Response

The Daphnia magna reproduction test is not an approved test method in California's WET Policy or in Table 1 of the October 2018 Draft Toxicity Provisions. Simulation results reported for the Selenastrum chronic test and fathead minnow acute survival test have much higher within-test variability than has been observed. The TST Test Drive clearly demonstrated that variances are much lower than was used in this example. Using the information presented in this comment for these two test methods, the TST calculation indicates that the tests would be declared not toxic.

The results reported in these simulations appear to be incorrect and cannot be further reviewed without additional detail on how these calculations were performed.

Section 5.3 of the October 2018 Draft Staff Report states that one of the advantages of the TST approach is that it "provides an incentive for dischargers to produce high quality data, as data with low within-test variability increases the confidence that correct determination are made."

Comment 35.7

The power to detect an effect of a given size should be specified as well as specific statistical tests. The size of the sample on which it is based, the variability of the response across samples, and the statistical significance of the comparison are all critically important. The proposed method places a premium on one calculation without regard to sample size, sample-to-sample variability, power, or statistical significance.

The additional references cited provide some of the missing detail but do not alter the fact that a single observation is used to determine whether additional testing is required. This deficiency is partly addressed in section 6 Statistical Method, page 7, where Welsch's t-test [sic] is indicated, and Table 1, page 9, where different requirements are given on a per-species basis. There is difficulty with the description of the test given in steps 4 and 5, page 8. [see equation, original letter, p. 4]

This test statistic, t, will be positive if the response at the IWC exceeds 75% of the control mean, which means the sample passes according to the earlier cited text. However, the instructions are to compare the value t to the appropriate positive critical value in Table 2 and fail the test if t does not exceed the critical value. This test assumes the contaminant is toxic unless the data demonstrate otherwise, the opposite of most toxicity tests, where a compound is assumed non-toxic unless the data demonstrate otherwise. Depending on variability, this may not be reasonable for the applicant, as sample sizes to achieve sufficient power to demonstrate nontoxicity can be large.

Response

The TST approach incorporates test method-specific alpha values which are capable of accounting for normal method variability further ensuring that an effluent is not declared toxic when it is truly not toxic and declaring an effluent as toxic when it is truly toxic. Because both types of decision errors (alpha and beta errors) are addressed using the TST approach, this leads to greater confidence in WET regulatory decisions. The underlying analysis and the alpha values derived for each test method were based on the minimum required test design for each WET test method (i.e., the number of organisms and the number of replicates) as well as the method- specific variance to derive method specific alpha levels to achieve the desired RMDs. U.S. EPA methods have always maintained that permittees/laboratories may conduct tests using more than the minimum number of replicates in the test design. The TST approach provides incentives to do so to increase the probability of being declared not toxic so long as the mean effect at the IWC is not greater than the toxicity RMD (20 percent effect for acute and 25 percent effect for chronic tests). Reasons for selecting the TST approach in the Toxicity Provisions are discussed in Section 5.3 of the October 2018 Draft Staff Report.

Regarding the comment that a single observation will be used to determine if additional testing is required; the October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Rather, the Draft Toxicity Provisions use routine toxicity tests to determine when a discharge must conduct a TRE. A TRE will be required whenever toxicity testing results in two or more violations within a single calendar month or in successive calendar months. The MMEL

and MDEL are included in Section IV.B.2.e. of the October 2018 Draft Toxicity Provisions. For more discussion on the MDEL and MMEL, see Section 5.4.3 of the October 2018 Draft Staff Report and the response to comment 22.20.

Comment 36.1

At a workshop held in November of 2010, the State Board agreed to sponsor a "test drive" of EPA's new TST methodology. Several speakers that morning emphasized the importance of ensuring that the study design include a review of TST performance on method blanks as this is the only way to accurately gauge the true error rate for non-toxic samples. Unfortunately, for reasons that have never been clearly defined, the final test drive failed to evaluate any method blanks whatsoever. So, we did it for them and the results are presented in this comment letter.

Response

The Test Drive was designed to subject existing toxicity data in California to both the TST and the current toxicity analysis approach (NOEC) to determine the difference in results, if any. No new data were generated for the Test Drive, including method blanks, as this was not the intent of the Test Drive, nor the State Water Board's directive. However, the Test Drive included data from several samples that had a mean effect below 10 percent, compared to the control, which could be considered clearly non-toxic, the same as blanks. The TST Test Drive clearly demonstrated that nearly all (99.9 percent) of these tests were declared not toxic using TST approach. The current NOEC approach, however, declared 2.8 percent of these tests toxic, indicating that the TST approach is much more likely to declare a truly clean sample (i.e. a blank) non-toxic than the NOEC approach. It should be noted that both approaches declared these non-toxic samples "toxic" well below the established five percent false positive rate. Please see response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 36.2

Like EPA, we relied on Monte Carlo simulation techniques to determine the performance traits of the TST methodology. We began by constructing a synthetic populations [sic] of 20,000 Ceriodaphnia dubia with an average reproduction of 26 offspring per female and a defined standard deviation of 7.8 (interreplicate coefficient-of-variation = 30%). This corresponds to the average interreplicate CV reported for control organisms during EPA Interlaboratory WET Variability Study. [For description of simulation methods and results, see original letter, pp. 1-3.]

Response

This comment is based on an outdated U.S. EPA inter-laboratory WET study. U.S. EPA’s analysis of more current laboratory data for this test method, conducted during the development of the TST, demonstrated that laboratories have improved their performance of chronic reproduction tests for *C. dubia*. Laboratories have been obtaining more precise data for this test and standard deviations are now lower than what the commenter used in their analysis. Using a high coefficient of variation (CV) value from outdated reports inflates the error rate for the test. Using an updated average performance for the *C. dubia* reproduction test method (CV = 20 percent) results in a very low false positive error rate (0.9 percent as calculated using the commenter’s Table 1).

Comment 37.13

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 endpoint. 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.

Response

The TST cannot provide reliable results if there are fewer than four replicates per treatment as this comment states. This issue is only applicable to acute fish tests, in which the minimum acceptable test design is two replicates. All other test methods approved by California for use in the WET program do not have this issue (i.e., they use four replicates per treatment as a minimum). It should be noted that using only two replicates in fish acute tests does not often provide high statistical power or precision resulting in sometimes wide confidence intervals (i.e., uncertain confidence) in point estimate endpoints, such as LC_{50}. Use of four replicates would greatly increase the quality of fish acute data. While the t-statistic cannot be calculated if there is zero variance, as this comment notes, the TST approach recognized this condition. In these instances, the percent effect at the IWC is compared to the RMD (20 percent for acute tests/25 percent for chronic tests), and if it is less than the RMD, the effluent is declared "non-toxic." Statistics are not needed when there is no variance in the data due to the high confidence in the results. Please see step 2 of section IV.B.1.c of the October 2018 Draft Provisions for guidance on the uses of the TST approach with and without variance.

Comments 37.16, 39.4, 58.9

The TST precludes confirmation of a valid dose-response relationship. A central tenet of toxicology is that valid dose-response determinations are essential to confirm the presence of toxicity, and multiple concentration tests are required to evaluate the dose-response. The simple, one-concentration/one blank test specified in the TST is inadequate for this purpose and inhibits the regulated community's ability to determine non-toxic variability without engaging the need for additional monitoring.

Response

The utility of the concentration response curve relationship depends on the question that is being answered. The October 2018 Draft Toxicity Provisions has been developed to address the question "is the effluent toxic?" This requires a yes or no answer, which is determined via hypothesis testing such as in the TST approach. On the other hand, if generating toxicity test values for criteria development or for registering pesticides, where it is important to obtain an endpoint that can be compared to other chemicals, then it is necessary to generate concentration response curves to elicit the NOEC and point estimate values. In determining effluent compliance with WET objectives, having the concentration- response data may or may not be helpful. In some cases, concentration-response data can be helpful in determining how toxic the effluent sample is, which is useful for conducting TIEs. In addition, per Section IV.B.1.b of the October 2018 Draft Toxicity Provisions, and as discussed in Section 5.2 of the October 2018 Draft Staff Report, the Toxicity Provisions do not change the toxicity test methods.

Comment 38.6

The draft policy proposes use of a new statistical procedure (the TST) as the primary method for assessing potential toxicity in a water sample. A key element of that procedure is the initial presumption (called a null hypothesis) that the exposure to the sample will cause unacceptably poor survival, reproduction or growth until a test demonstrates otherwise. The assumption that all water is toxic until shown to be non-toxic (guilty until proven innocent) is scientifically unfounded and a public relations disaster for the State of California. No doubt our competitors in Nevada, Arizona, Texas and other states will exploit this self-imposed presumption (that the State's waters are toxic) at every opportunity. What business would want to locate in a state where government authorities assume all the water is toxic? Even more troubling is the fact that the new procedure resolved any statistical uncertainty in favor of continuing to conclude the water sample is toxic. This is utterly unacceptable and an insult to all agencies such as ours that are dedicated to providing clean safe water to all of our customers.

Response

As discussed in Section 5.3 of the October 2018 Draft Staff Report, the TST statistical approach is based on a type of hypothesis testing referred to as bioequivalence testing. Bioequivalence is a widely accepted statistical approach that has been used in evaluating clinical trials of pharmaceutical products and by the Food and Drug Administration and U.S. EPA programs. This section of the 2018 Staff Report also discusses the TST Test Drive, which concluded that approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. Additionally, please see response to comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4. Use of the proposed null hypothesis is part of the statistical approach to analyzing test results that will provide a transparent determination of toxicity with high confidence in the results, and provide an incentive for dischargers to generate valid, high quality data.

Comments 38.9, 49.4, 58.5, 58.8, 58.7, 58.6

In previously submitted comments WSPA provided an illustration that, if a discharger is required to perform monthly chronic testing for one species, over a 5 year period the probability of passing all 60 monthly tests is less than 5 percent even if the effluent is chemically identical to the non-toxic control water used by the laboratory.

Response

As discussed in Section 5.3 of the 2018 Staff Report, the TST approach maintains the same false positive rate as the widely accepted NOEC approach. The TST Test Drive concluded that the TST approach performed better in declaring truly non-toxic samples (tests with a mean effect below 10 percent) as non-toxic than the NOEC approach. Additionally, please see the response to comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4

Comment 39.11

At a workshop before the SWRCB in November of 2010, numerous stakeholders throughout the state cited the above example [see Table 1, page 4 of letter] and requested that the Board direct staff to conduct a new study designed to assess the TST error rate when evaluating known non-

toxic (method blank) samples. However, the so-called "test drive" focused exclusively on assessing effluent samples where the true toxicity was unknown or where reference toxicant samples were already known to be toxic. No effort was made to assess the accuracy of the TST technique on method blanks as the State Board members promised in the workshop and as EPA had done in the Interlaboratory WET Variability Study to validate the NOEC and IC25. Since this problem has been brought to the Board's attention in previous testimony and numerous comment letters, it is incomprehensible that the issue continues to be ignored.

Response

As discussed in Section 5.2 of the October 2018 Draft Staff Report the Provisions use the same U.S. EPA aquatic toxicity test methods as are currently required for NPDES dischargers. Therefore, the same data generated from other tests can be used to analyze the results using the TST approach. The TST Test Drive included a number of test samples with a mean effect below 10 percent, which can act as blanks for the purposes of comparing statistical approaches. In the TST Test Drive the TST approach declared just 0.1 percent of these tests as toxic, while the NOEC approach declared 2.8 percent of these tests toxic. See response to Comment 36.1.

Comment 39.2

Since San Bernardino's current permit was issued in December of 2006, San Bernardino has performed more than 70 chronic toxicity tests and observed only 3 failures. This failure rate is BELOW what one would expect to occur by random chance (<5% of all tests). We reanalyzed all of this data using EPA's TST procedure and found that the number of apparent test "failures" more than doubles under the SWRCB's proposed policy (see Appendix A). All of these additional "failures" would have been deemed to have passed both of the statistical endpoints (NOEC& IC25) currently authorized under EPA's regulations at 40 CFR Part 136. In each instance, reproduction among the effluent-exposed organisms was actually greater than 75% of that exhibited by the control group; nevertheless, under the TST procedure, San Bernardino's effluent would be declared toxic despite clear data indicating to the contrary.

Similar side- by-side comparisons performed by other NPDES permittees in the Santa Ana watershed identified similar problems. Inland Empire Utilities Agency and Yucaipa Valley Water District both found that the number of reported test failures increased using the proposed TST procedure compared to the existing NOEC or IC25 methods (see e.g., Appendix B). Results derived from the TST procedure are clearly not consistent with or comparable to those produced using the previously promulgated WET test methods.

Response

As discussed in Section 5.3 of the 2018 Staff Report, the TST Test Drive demonstrated that the TST approach and the NOEC approach reach the same outcome about 90 percent of the time. The TST Test Drive concluded that the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. However, because the TST approach incorporates clear RMDs and both false positive and false negative error rates, the TST approach provides greater confidence in the outcome than the NOEC approach. Tests that are declared non-toxic using the NOEC approach and toxic using the TST approach tend to have high within-test variation and poor data quality.

Comment 39.6

Because of the inherent uncertainties in WET tests and the additional problems with the TST procedures described in this letter, dischargers will be unable to certify TST results on the

monthly Discharge Monitoring Reports (DMRs). In March of 2000, U.S. EPA published guidance regarding the certification of WET test results on the DMR wherein EPA stated:

"When a person certifies that the submission of WET testing information is accurate to the best of their knowledge and belief, the person certifies that the results obtained using the WET testing procedures are faithfully and truthfully transcribed on the information submission, and that the results were, in fact results that were obtained using the specified testing procedures."

Since the TST method has not been approved as part of a Part 136 method, dischargers cannot legally certify the results derived from this method. The fact that the TST procedure relies on only two rather than the minimum six test concentrations mandated in the promulgated method also makes it impossible to certify the results. And, finally, the City of San Bernardino would not and could not certify TST results as "true" or "accurate" where the conclusions were inconsistent with those reported using the IC25 procedure that EPA endorsed in the original rule promulgating the existing methods .....The City's position is also consistent with the U. S. Court of Appeals finding in the Amoco case.

Response

As discussed in Section 5.2 of the October 2018 Draft Staff Report the Provisions require the same U.S. EPA aquatic toxicity test methods as are currently required for NPDES dischargers. Therefore, there will be no change in the aquatic toxicity test methods, including the number of dilutions, used to assess aquatic toxicity. As explained in Section 2.6 of the October 2018 Draft Staff Report, the TST approach is not a toxicity test method and the TST approach does not alter the approved U.S. EPA toxicity test methods. Section 5.3 of the October 2018 Draft Staff Report points out that the TST approach includes a clear determination of what is considered toxic through RMDs and includes both false positive and false negative error rates, thus providing greater confidence in the outcome as compared to the NOEC approach.

Comment 39.9

Many of the QA/QC procedures established by EPA to assure the accuracy and reliability of WET test results become obsolete and irrelevant if the TST method is mandated by the SWRCB. For example, laboratories routinely prepare control charts reporting the results of their reference toxicant tests based on the NOEC or IC25. Neither EPA or the State have established an equivalent control chart metric for the TST. Nor is it clear whether or how the discharger could demonstrate compliance with the existing requirement to calculate the PMSD (a mandatory measure of test sensitivity) once the TST is enacted.

Response

As discussed in Section 5.2 of the 2018 Staff Report, the October 2018 Draft Toxicity Provisions do not change or alter U.S. EPA aquatic toxicity test methods listed in Section IV.B.1.b. The QA/QC procedures are unchanged and remain relevant. The requirement to conduct reference toxicant tests to provide information on trends in sensitivity and laboratory performance is still necessary (and remains the same). To the extent that U.S. EPA toxicity test methods require that observation should be made of organism response in multiple concentrations, the October 2018 Draft Toxicity Provisions require the IWC to be included as one of the selected concentrations. Laboratories can continue to evaluate the degree to which the reference toxicant test result is outside of control chart limits, the width of the limits, the direction of a deviation (toward increased test organism sensitivity or toward decreased test organism sensitivity), the test conditions of both the effluent tests and the reference toxicant tests, and the objective of the test. Additionally, the lab should track the ongoing performance of individual QC

measures such as the average and CV of the control response. All of these QA measures are the same as those practices being conducted previously (no changes). The practice of plotting control mean response and standard deviation will be helpful to the lab in determining whether additional replicates may be appropriate.

Comment 40.14

Statistical Power

References to minimum and maximum significant difference criteria are recommended. These values can protect against tests that have high variability and little power to detect differences (potentially invalid), or those that have excessively low variability and the ability to detect a very small difference relative to control that may not be biologically significant (see the EPA 2000 WET Technical Support Document - EPA 833-R-00-003). The new TST approach and % effect criteria addresses these statistical power concerns, but the result (pass/fail) is less meaningful than quantifiable and acceptable measures of statistical power. Several, but not all EPA test methods already include percent minimum and maximum significant difference (PMSD) criteria for chronic endpoints. Suggested PMSDs for the test methods and endpoints listed in the Draft Policy are provided in the EPA 833-R-00-003.

Response

The TST was designed in such a way as to replace the need for using PMSDs as a test review component for WET testing. PMSDs were used by U.S. EPA to help permitting authorities and permittees determine whether within-test variability exceeded a tolerable maximum, based on lab performance for the method, as reported in U.S. EPA's WET variability guidance (U.S. EPA 2000) and in the promulgated or approved U.S. EPA methods. If the test exceeded the maximum acceptable PMSD, within-test variability could mask true toxicity effects in the test, resulting in a high Type II error rate (false negative using the traditional hypothesis approach). Similarly, U.S. EPA identified lower PMSD bounds for test methods, for test results, if the test had a PMSD below the lower bound, then results would be analyzed according to the U.S. EPA 2000 guidance. The TST, by its very nature, precludes the need for PMSDs. The alpha and beta error rates for each WET test method design, as well as the other regulatory management decisions used in TST, were developed to provide appropriate protection against Type I and Type II errors, while also providing incentives to permittees to lower within-test variability. So, while PMSDs were used to constrain what is considered acceptable within-test variability for a given WET method and endpoint, TST instead uses regulatory management decisions and control of both error rates (based on routine within-test variability) to identify whether a sample is toxic or not. This provides incentives for the permittee to control within-test variability, rather than making it a test acceptability criterion. Please see Section 5.3 of the October 2018 Draft Staff Report for a discussion on statistical approaches.

U.S. Environmental Protection Agency. 2000. Understanding and accounting for method variability in whole effluent toxicity applications under the National Pollutant Discharge Elimination System Program. Denton DL, Fox J, Fulk FA, Greenwald K, Narvaez M, Norberg-King TJ, Phillips L, editors. EPA/833/R-00-003. Office of Water. Washington, DC.

Comment 55.2

In light of its known [sic] potential to result in false determinations of toxicity, we are concerned that adopting the TST would hinder California's small businesses, cities and local governments.

For example, the comment letter prepared by multiple associations representing the clean water agencies in California has noted that applying the proposed numeric water quality objectives for acute and chronic toxicity, even at the minimum 5% error rate acknowledged for the test of significant toxicity (TST), as many as 34% of California's non-toxic water bodies could be expected to be incorrectly listed as impaired.

Response

As explained in Section 5.3 of the October 2018 Draft Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The TST Test Drive, also discussed in Section 5.3 of the October 2018 Draft Staff Report concluded that using the TST approach is not anticipated to result in a significant increase in the number of exceedances. See response to Comments 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4

Section 5.1 of the 2018 Staff Report explains that the numeric water quality objectives in the Provisions are not anticipated to result in a net increase in the number of water bodies listed on the 303(d) list of impaired waters. See response to Comments 6.20

Comment 55.3

We are equally concerned that determinations of toxicity, without adequate basis, will trigger responses to the perceived exceedance of a water quality standard. These responses and impacts could include the following:

- Assertions that any discharger upstream caused or contributed to an exceedance of a water quality standard.

- Requirements for accelerated, additional monitoring, and studies and reports to "disprove" the erroneous presumption of toxicity or impairment.

Response

Please see the response to comment 55.2.

Comment 58.12

Use of the USEPA's TST "Test Drive" demonstrated statistical false determinations of toxicity. Several San Francisco Bay Area dischargers used the TST "Test Drive" tool to evaluate historic toxicity data that indicated compliance with their NPDES limits adopted per current SFRWQCB policy. As shown in Table 1, in contrast with all the reviewed tests indicating full compliance with all applicable numeric WET effluent limits, the pass/fail determination varied across the board.

These analyses indicate that the use of the TST method will lead to an increase in false determinations of toxicity, resulting at a minimum in unnecessary additional monitoring. This in turn will lead to the unnecessary expenditures of additional resources and an increased burden by State and Regional Water Boards, Accredited Laboratories, and the discharger community to respond to non-toxic, false indications of toxicity. In addition, potentially unwarranted enforcement actions would be expected.

Response

As explained in Section 5.3 of the 2018 Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The point estimate approach, which is mainly used by permittees in the San Francisco Region does not include a false positive rate, so it may be greater than 5 percent.

The TST Test Drive, also discussed in Section 5.3 of the 2018 Staff Report concluded that using the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. The inclusion of the RMDs along with both false positive and false negative error rates provides greater confidence in the outcome using the TST approach, compared to the NOEC and point estimate approaches. Please see the response to comment 6.20 and comments 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

Comment 58.13

The USEPA's Test Drive protocol for the TST statistical method (comparison of calculated t-value to table t-value) requires the use of 4 replicate chambers per test. Assuming 100 percent control survival and 4 replicates with 10-15 fish each, the test will FAIL in some instances of 90 - 91.7 percent effluent survival.

Response

As stated in Section 5.1 of the October 2018 Staff Report, the RMD for acute toxicity is set at 80 percent, or 0.80, which means a 20 percent or more effect in the test sample is consider evidence of unacceptable acute toxicity. Using a statistical hypothesis test paired with this RMD does not mean that all acute toxicity test with a mean effect below 20 percent will be declared non-toxic. Using the TST approach, those test that have a mean effect below the RMD and low within-test variability have a high probability of rejecting the null hypothesis and being declared non-toxic. As demonstrated by the TST Test Drive, for tests with a mean effect below the RMD an increase in the within test variability increases the probability that the test will fail to reject the null hypothesis and be declared toxic. The TST approach is designed to declare nearly all tests as non-toxic when the test mean is below 10 percent, even when there is high within-test variability.

The TST Test Drive gives empirical perspective about the likelihood of the scenario that the commenter describes. The TST Test Drive used two datasets: WET data from toxicity tests of effluent and ambient waters, and WET data collected by the SWAMP and CEDEN programs (see TST Test Drive, Appendix A and Appendix B, respectively). In the first dataset 238 tests were survival tests for fish (i.e., *O. mykiss*, *M. beryllina*, *A. affinis*, and *P. promelas*). Of those, 120 tests had a control response of 100 percent. Of the 120 tests, only four had a response at the IWC between 90 and 91.7 percent. Of those, only a single test failed using the TST. This is less than a tenth of a percent of all of the tests. The one test that failed had high within-test variability compared to the other tests in the dataset. In the second dataset, 240 of tests had a control response of 100 percent. Only nine of these tests had a response at the IWC between 90 and 91.7 percent. None of these tests failed using the TST.

This single fail noted above by itself would not constitute a violation of the effluent limitations in the October 2018 Draft Toxicity Provisions. However, a fail at the IWC using the most sensitive species would require the discharger to conduct additional MMEL compliance tests. See response to Comments 6.26, 47.8.

Comment 58.20

The 2012 Draft Toxicity Policy will increase the need for additional State Water Board resources. Due to the increased stringency under the TST statistical method, the discharger community expects to have increased frequency of exceedances when no toxicity is being demonstrated. Such erroneous exceedances would mandate accelerated monitoring and require extensive oversight and review by agency staff. Dischargers who believe the TST has inaccurately deemed their discharge in violation will also need to appropriately engage agency staff to resolve the discrepancy. In addition, multiple exceedances will require a Toxicity Reduction Evaluation, which will require further staff resources to review, approve and track for completion.

Response

The TST Test Drive discussed in Section 5.3 of the October 2018 Draft Staff Report concluded that using the TST approach is anticipated to result in little or no increase in the number of exceedances as compared to other statistical approaches. The inclusion of the RMDs along with both false positive and false negative error rates provides greater confidence in the outcome using the TST approach, compared to the NOEC and point estimate approaches. See Response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4

The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. MMELs and MDELs are discussed in Section 5.4.3 of the October 2018 Draft Staff Report.

Comment 58.22

The USEPA Test of Significant Toxicity Technical Document specifically incorporates a legal disclaimer. The USEPA "Test of Significant Toxicity Technical Document" published in 2010 by U.S. EPA mandated by the 2012 Draft Toxicity Policy was succinctly prefaced by a "Notice and Disclaimer" that it "does not and cannot impose any legally binding requirements on the EPA, states, NPDES permittees or laboratories conducting or using WET testing for permittees." Contrary to this disclaimer, the 2012 Draft Toxicity Policy would impose such legally binding requirements on California permittees.

Response

The U.S. EPA Test of Significant Toxicity Technical Document does not impose any legally binding requirements. The document and the disclaimer do not prohibit states from using the TST in NPDES permits, or prohibit the State Board from specifying use of the TST in the October 2018 Draft Toxicity Provisions. The State Board is authorized to adopt the October 2018 Draft Toxicity Provisions under authority provided by Water Cod section 13140 and 13170 and therefore, if adopted would be legally binding.

Part III (A)(6): Compliance Determination (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comments 2.9, 2.10, 25.6, 27.3, 28.7, 31.6, 37.10, 39.7, 41.6, 45.9, 50.6, 51.4

Calculating the MMEL on a calendar month basis will cause logistical problems at contract laboratories.

BACWA recommends the language be changed to allow the two additional tests to be conducted within 30 days of the completion of the "failed" initial toxicity test. If both additional toxicity tests "pass" and at least one test is performed in the following calendar month, it may be used as the initial monthly toxicity test for routine monitoring.

To accommodate two additional tests within a calendar month, municipal agencies will have to perform routine testing during the first week of each calendar month. Viable organisms are not always available and also, since many municipal agencies do not perform chronic toxicity testing in-house, this approach would result in an undue scheduling burden on the contract laboratories, and concomitant increased costs for municipal agencies.

Response

The calendar month may start at any time during a month to allow laboratories to stagger when toxicity tests are performed. Please see the definition of a calendar month in Appendix A of the Provisions. For a discussion of the routine monitoring and MMEL compliance monitoring requirements please see Section 5.4.4 of the 2018 Staff Report.

Comments 3.3, 49.3

The USEPA TIE guidance is over 15 years old (1992/1993) and has not been updated. In Sunnyvale's and our contract laboratory's experience, it is a challenge using the available TIE protocols to be able to 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 dischargers' best efforts and to provide a mechanism for dischargers to be exempt from discretionary enforcement actions when they are in this situation.

Response

Updating guidance for conducting TIEs and TREs is beyond the scope of this project. The Permitting Authority has discretion in specifying how TIEs and TREs are conducted. The TRE requirements are discussed in Section 5.4.6 of the October 2018 Draft Staff Report. TRE's are required after a discharger has two or more MMEL and/or MDEL violations within a single calendar month or within successive calendar months. Dischargers will not be exempt from discretionary enforcement action when conducting a TRE. However, the Permitting Authority may reduce the frequency of routine monitoring during that time period.

Comments 3.4, 5.7, 13.24, 14.5, 15.6, 26.5, 30.3, 31.7, 31.2, 33.3, 42.5, 42.4, 46.8, 51.5, 56.5, 59.3

Inconclusive TREs/TIEs

We are concerned that the Policy fails to differentiate real, persistent toxicity from episodic low-level toxic events and the false determinations of toxicity that are built in to the TST method.

Costs associated with conducting Toxicity Reduction Evaluations (TREs) and Toxicity Identification Evaluations (TIEs) can be high and long lasting, as can be the cost associated with unnecessary treatment upgrades in response to false determinations of toxicity. The District has spent over $4,000 per year each of the past five years on chronic toxicity testing, on TIEs and related special toxicity investigations, and on associated consultant support.

Response

Per Section IV.B.2.f. of the October 2018 Draft Toxicity Provisions a TRE is required when a discharger has two or more MMEL and/or MDEL violations within a single calendar month or within successive calendar months. See section 5.4.6 of the 2018 Draft Staff Report for a description on how to determine if a TRE is required.

The use of the TST approach is not anticipated to result in an increase in the number of false positives or exceedances. See response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4.

The economic analysis is discussed in Chapter 9 of the October 2018 Draft Staff Report.

Comment 11.11

7. Toxicity Cannot Be Proactively Addressed for Many Dischargers.

Under the Revised Draft Policy, POTWs that discharge without dilution credits must produce effluent that free of toxicity at all times. Yet POTWs cannot proactively cause their non-toxic effluent to be more non-toxic or more reliably non-toxic. When effluent toxicity does occur, the cause of the toxicity cannot be addressed through source control or additional treatment until the source of the toxicant has been identified. In these cases, it is not appropriate to consider the discharge "out of compliance" or "in violation" while the cause of the toxicity is still under investigation, as long as the discharger is aggressively seeking the source of the toxicity and, if identified, takes responsible action(s) to reduce the source. A well-articulated toxicity regulatory strategy using numeric toxicity triggers with enforceable TRE requirements would allow time for such identification, while failure on the part of a discharger to adequately implement this process in response to toxicity would constitute a violation of the narrative toxicity limitation and expose the discharger to the imposition of penalties and other unnecessary enforcement actions. The Revised Draft Policy must also expressly recognize that the source of fleeting toxicity may never be known, and this failure to find the source(s) should not result in enforcement exposure for the POTW since, as explained above, this laboratory toxicity unlikely resulted in any receiving water impacts. (Moreover, water quality criteria promulgated by EPA routinely incorporate a once-in-three-year exceedance rate such that sporadic exceedances are not required to be considered violations.)

Response

Dischargers will not be exempt from discretionary enforcement action when conducting a TRE. However, the Permitting Authority may reduce the frequency of routine monitoring during that time period. Section IV.B.2.c.i.(B) of the October 2018 Draft Toxicity Provisions allows Permitting Authorities to approve a temporary reduction in the frequency of routine monitoring for dischargers conducting a TRE. This is discussed in Section 5.4.4 of the October 2018 Draft Staff Report. A discussion of when a discharger is required to conduct a TRE is included in Section 5.4.6 of the Staff Report.

For further discussion, see response to Comment 6.26, 47.8.

Comment 22.17

The Draft Toxicity Policy should require a more expedited accelerated monitoring schedule once the MDEL or maximum monthly effluent limitation (MMEL) is exceeded. If a violation of the MDEL or MMEL is observed, the Draft Policy requires accelerated monitoring, which consists of the collection of six samples over eight weeks. Since toxicity violations are such a major concern, and due to the often abrupt nature of detrimental toxic events, the accelerated monitoring program should truly be accelerated. We suggest six samples over a three-week period to increase the chances of identifying and abating toxicity sources in a timely and environmentally protective manner.

Response

The October 2018 Draft Toxicity Provisions do not contain requirements for accelerated monitoring. Section IV.B.2.f. of the October 2018 Draft Toxicity Provisions specify when a discharger is required to conduct a TRE. Section 5.4.6 of the October 2018 Draft Staff Report includes a discussion of the TRE requirements.

Comment 28.3

More importantly, the District has recent, first-hand experience with a Toxicity Reduction Evaluation and accelerated monitoring that were necessary because of pathogen interference in a small number of chronic toxicity tests. With the TST test, we would have incurred violations under the proposed policy, even though EPA has specifically stated, and it is widely agreed, that pathogen interference is not toxicity. This experience has clearly demonstrated the error of relying upon a single test to understand whole effluent toxicity, whether for identifying its source or assessing a violation.

Response

The TRE requirements are discussed in Section 5.4.6 of the October 2018 Draft Staff Report. TRE’s are required after a discharger has two or more MMEL and/or MDEL violations within a single calendar month or within successive calendar months. See response to Comment 6.26, 47.8 for a discussion on MMELs and MDELs.

Comment 40.11

Accelerated Monitoring

It is not entirely clear what the implications are during accelerated monitoring if the TST statistical procedure results in a "fail", but the percent effect is less than 25% for chronic testing or 20% for acute testing.

Response

The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Section 5.4.6 of the October 2018 Draft Staff Report includes a discussion of the TRE requirements.

Comment 40.12

Accelerated Monitoring

It is unclear if the timeframe for completing accelerated monitoring has been shortened from 12 weeks to 8 weeks. The draft policy states 8 weeks, yet the associated staff report recommends 12 weeks (Section IV, Issue 2F(2)). If a shorter time frame is being proposed, no rationale is given for this change.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Section 5.4.6 of the October 2018 Draft Staff Report includes a discussion of the TRE requirements.

Comment 41.7

[Regarding Part III.A.6.c]: If the intent is to switch to the IC25 method for evaluation of accelerated test results, this should be clearly stated in the Draft Policy and appropriate EPA guidance documents and test methods need to be referenced. If the intent is to evaluate the five-concentration dilution series using the "Pass" or "Fail" TST methodology, then this paragraph does not make sense. ....There are many reasons why TUs as determined from the IC25 method do not correlate with percent effect evaluated by the TST method. The five-concentration requirement for accelerated testing either needs to be removed or much more carefully explained.

Recommendation: Remove the words "five-concentration" from the second sentence of paragraph A.6.c. Remove the words "and four additional concentrations" from the third sentence. Remove the fourth sentence.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Section 5.4.6 of the 2018 Staff Report includes a discussion of the TRE requirements. Section 5.2 of the 2018 Staff Report discusses the required test methods.

Comment 45.3

Phase-in period needed.

The new methods and changes in the proposed toxicity policy are significant and sweeping. ... At a minimum, the State Water Board should proceed with extreme caution by utilizing a phase-in period of two-to-four years.

Response

Per IV.B.2. of the October 2018 Draft Toxicity Provisions, “[t]he Permitting Authority shall include the requirements specified in this Section (Section IV.B.2) for NPDES permits issued, reissued, renewed, or reopened after the effective date of these provisions for non-storm water NPDES dischargers.” In addition, many non-storm water NPDES dischargers already

incorporate the TST approach into their permit requirements and some permits also incorporate similar effluent limitations.

The requirements for stormwater discharges and nonpoint source dischargers are discussed in Sections 5.5 and 5.6, respectively of the 2018 Staff Report. Storm water dischargers and nonpoint source dischargers would be required to comply within one year of receiving 13267 or 13383 orders.

Comment 53.2

If the facility were to fail this [chronic toxicity] test, the policy change requires accelerated monitoring of 5 consecutive testing [sic] in an 8 week period. With the current requirements, a retest is performed to show compliance. If this test passes, the process stops. The cost of 5 tests represents approximately $15,000 - $20,000.

... This type of analysis cannot be performed by all commercial laboratories. Only specialized laboratories have the capability due to the extensive quality assurance and quality control procedures [sic]. The number of laboratories in the State of California is limited, which may require facilities to utilize out of state laboratories. This may create delays in reporting.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Section 5.4.6 of the 2018 Staff Report includes a discussion of the TRE requirements. Section 5.2 of the 2018 Staff Report discusses the required test methods. The economic analysis is discussed in Chapter 9 of the October 2018 Draft Staff Report.

Comment 53.3

The March 2, 2000, Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP) established provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. This policy currently requires accelerated monitoring based on toxicity unit failure and implementation of the toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) procedures in accordance with Provision VI.C.2.d. As noted the current policy is already very stringent and additional monitoring is unnecessary.

Response

Section III.B.3. of the October 2018 Draft Toxicity Provisions state that the Toxicity Provisions supersede Section 4 of the SIP. The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Section 5.4.6 of the 2018 Staff Report includes a discussion of the TRE requirements.

Comment 58.19

The 30 calendar day requirement for chronic follow up testing is not achievable. If a routine monthly test fails and the percent effect (i.e., percent difference) is less than 50 percent, 2 additional tests must be completed within the calendar month. A chronic toxicity test is performed over a 7-day period and a few extra days are necessary for the lab to review and QA (quality assure) the data before reporting it to the discharger. It is likely unachievable to

complete and report 3 chronic toxicity tests in a 30-day period. If the chronic toxicity test begins after the 1st of the month, it will likely be impossible to complete and report 3 chronic toxicity tests by the end of the month.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. The MMEL compliance test requirements are discussed in Section 5.4.4 of the October 2018 Draft Staff Report. Section IV.B.2.c.iv. of the October 2018 Draft Toxicity Provisions requires a discharger to initiate two MMEL compliance test within the same calendar month that the first routine monitoring test was initiated that resulted in the fail at the IWC. Although the MMEL compliance tests must be initiated within the same calendar month, laboratory analysis does not need to be completed within that same calendar month as the initial toxicity test that resulted in a fail.

Comment 58.26

Lastly, the 2012 Draft Toxicity Policy is complicated. Additionally, it is unclear what criteria must be achieved for the discharger to no longer be required to conduct accelerated monitoring.

We have provided our interpretation of the chronic statistical methodology of the 2012 Draft Toxicity Policy in a flow chart, labeled Attachment A.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. Section 5.4.6 of the 2018 Staff Report includes a discussion of the TRE requirements.

Part III (A)(7): Violations (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comments 2.16, 3.5, 4.6, 5.8, 14.6, 15.7, 26.6, 27.1, 30.4, 33.4, 42.7, 42.6, 43.8, 46.5, 46.7, 51.6, 56.6, 59.4

Increased costs due to violations:

The cost of increased violations were not considered in the Economic Impacts Analysis in the Staff Report. A major difference between this Policy and how toxicity is currently managed is that exceedances of acute and chronic toxicity limits are Clean Water Act violations subject to State penalties of up to $10,000 per day or $10.00 per gallon, and federal penalties of up to $37,500 per day per violation. The Policy does not dictate over what time period these penalties are assessed. For example, in a worst-case scenario, the penalty could be assessed over the time period of accelerated monitoring and TRE/TIE investigations, which is 6 months under the Policy. In addition, our agency would still be subject to third party lawsuit and attorney fee liability, particularly if regulators decide to take no enforcement actions.

Response

The goal of the 2017 Water Quality Enforcement Policy (Policy) is to protect and enhance the quality of the waters of the State by defining an enforcement process that addresses water quality problems in the most fair, efficient, effective, and consistent manner. The Water Boards have ability to impose civil liability administratively in amounts specified in Water Code section 13385. In addition, mandatory minimum penalties are usually not assessed for violations of toxicity effluent limitations. The October 2018 Draft Toxicity Provisions do not change the process or frequency in which enforcement actions are taken by the Water Boards, and as such a discussion on penalties is not required or included in the economic analysis section in the 2018 Draft Staff Report.

Existing permits already include numeric effluent limitations in the San Diego Region, Los Angeles Region, and in the San Francisco Region. As such, there should be no change in the frequency of third party lawsuits. Other Regional Boards include numeric triggers and requirements to conduct a TRE in non-stormwater NPDES permits instead of numeric effluent limitations. Since a numeric effluent limitation provides clear and consistent interpretation of results, it is possible that the October 2018 Draft Toxicity Provision could lead to a violation for those dischargers that do not currently have to comply with numeric effluent limitations. The October 2018 Draft Toxicity Provision could provide additional protection from third party lawsuits by providing a clear regulatory management decision that is not open to inconsistent interpretation between the Regions or an interested litigant.

Comment 2.22

On the other hand, no regional discretion is allowed for interpretation of toxicity testing results where common sense and local knowledge could be beneficial: MDEL and MMEL violations are mandatory apparently even if a discharger can clearly demonstrate that the toxic result was an artifact of the test or that the receiving waters were not impacted. This policy will unfortunately encourage a few to several of the nine Regional Boards to routinely assign greater stringency. The ultimate result will be numerous toxicity MDEL and MMEL violations based on increasingly dubious test results.

Response

Potential violations under the October 2018 Draft Toxicity Provisions are discussed in Section 5.4.3 of the Draft October 2018 Staff Report. See response to Comment 6.26, 47.8 and Comment 11.47, 37.9.

In addition, the goal of the 2017 Water Quality Enforcement Policy (Policy) is to protect and enhance the quality of the waters of the State by defining an enforcement process that addresses water quality problems in the most fair, efficient, effective, and consistent manner. The Water Boards have ability to impose civil liability administratively in amounts specified in Water Code section 13385. In addition, mandatory minimum penalties are usually not assessed for violations of toxicity effluent limitations. The October 2018 Draft Toxicity Provisions do not change the process or frequency in which enforcement actions are taken by the Water Boards,

Comment 11.25

Other inconsistencies built into the Revised Draft Policy relate to assessing violations. For example, the "safe harbor" possibly preventing a discharger from being assessed numerous violations while conducting accelerated monitoring and a Toxicity Reduction Evaluation (TRE) may not be available in all regions since the Revised Draft Policy now prescribes this protection only "if appropriate". (See Revised Draft Policy at 10.) In addition, a regional board has the discretion to impose additional violations and initiate an enforcement action for failing tests after six months from the initial violation. This inconsistency must be avoided so that all dischargers are subject to a consistent and fair enforcement program.

Response

Dischargers will not be exempt from discretionary enforcement action when conducting a TRE. However, Section IV.B.2.c of the October 2018 Draft Toxicity Provisions allow Regional Water Boards to approve a reduced routine monitoring schedule for dischargers while they are conducting a TRE. This is further discussed in Section 5.4.4 of the October 2018 Draft Staff Report.

Requirements for when a discharger must conduct a TRE is discussed in Section 5.4.6 of the October 2018 Draft Staff Report.

For a discussion on violations see response to Comment 6.26, 47.8.

Comments 11.39, 45.8

Apart from the potential for false violations, if real toxicity violations occur, even the Revised Draft Policy requires a process to determine if the toxicity is recurring through the accelerated monitoring program, and then to implement a TRE, which may take many months. If an unknown toxicant is causing the toxicity test failures, then the permittee may be deemed to be in ongoing violation throughout at least part of that investigatory period, due to the discretionary language of the policy and the time period set forth (which equates to roughly only 3 months given the initial testing and accelerated monitoring periods). This is true even if the discharger is fully complying with all of the required toxicity testing and investigation procedures specified in the Revised Draft Policy (and its permit).

The Revised Draft Policy allows the exceedances occurring during accelerated monitoring and the TRE to not be considered violations, if appropriate. (Revised Draft Policy at 10.) Additional violations can accrue if the discharger fails to proceed with accelerated monitoring and TRE in a timely manner and if the both are completed within 6 months of the initial exceedance. (Id.) Given that the initial monitoring and confirmatory monitoring take a month to conduct followed

by accelerated monitoring over an 8-week period, this allows just 3 months to complete a TRE, which is inadequate and too short to guarantee additional violations are not imposed. A better solution would be to maintain the currently effective trigger approach, which encourages more testing, instead of setting the discharger up for more failure/violations just because additional testing was done. The proposed program does not "provide dischargers with a positive incentive to generate high quality data" as alleged in the Staff Report. (Staff Report at 40.)

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Dischargers will not be exempt from discretionary enforcement action when conducting a TRE. However, Section IV.B.2.c of the October 2018 Draft Toxicity Provisions allows Regional Water Boards to approve a reduced routine monitoring schedule for dischargers while they are conducting a TRE. This is further discussed in Section 5.4.4 of the October 2018 Draft Staff Report.

Requirements for when a discharger must conduct a TRE is discussed in Section 5.4.6 of the October 2018 Draft Staff Report.

For a discussion on violations, please see the response to comment 6.26, 47.8.

Comment 11.42

Secondly, the Revised Draft Policy makes upset conditions a violation (see Revised Draft Policy at 10 and 24) when the data from such events should not even be used since not representative, and would be subject to an affirmative defense in an enforcement action. (40 C.F.R. §122.41(n); Weyerhaeuser Company v. Costle, 590 F.2d. 1011, 1056 (D.C. Cir. 1978)("Waste treatment facilities occasionally release excess pollutants due to such unusual events as plant start-up and shut-down, equipment failures, human mistakes, and natural disasters."); Marathon Oil v. EPA, 564 F.2d 1253, 1273 (9th Cir. 1977) (concluding that a facility using proper technology operated in an exemplary fashion would not necessarily be able to comply with effluent limitations one hundred percent of the time)(emphasis added); Natural Resources Defense Council, Inc. v. U.S.E.P.A, 859 F.2d at 206 (finding meritorious industry's claim that EPA acted arbitrarily when it declined to provide an upset defense to WQBELs).)

Response

Any exceedance of effluent limitations resulting from upset conditions is a violation. It is incumbent upon the discharger to raise this affirmative defense and provide evidence demonstrating that an upset has occurred to the permitting authority. This existing paradigm has not been changed by October 2018 Draft Toxicity Provisions.

Under the Clean Water act, upset condition "means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee." C.F.R. §122.41(n). The U.S. EPA regulations, recited as a standard provision of NPDES permits, state that "determination[s] made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review." (40 C.F.R. § 122.41(n)(2).) The October 2018 Draft Toxicity Provisions do not change this existing paradigm for technology based permit effluent limitations.

An upset defense for water quality-based permit limitations is not required by the Clean Water Act. However, Porter- Cologne Water Quality Act also contains language similar to the NPDES

regulations as to what constitutes upset conditions (Wat. Code, § 13385, subd. (f)(2)) and allows the discretion to consider a discharger's culpability and prior history when upset conditions occur. (Id., subd, (e).)

Comment 12.4

Violations During TRE Implementation

The District recommends the following amendment to the Policy: Remove the second element to the criteria to suspend assessment of violations for exceedances during accelerated monitoring and TRE implementation so that section III.A.7 reads: "...Any exceedances occurring during a required accelerated monitoring period and, if appropriate, a TRE period shall not constitute additional violations provided that the discharger proceeds with the accelerated monitoring and TRE (if required) in a timely manner. The applicable Water Board has the discretion to impose additional violations and initiate an enforcement action for toxicity test results in a "fail" after completion of the TRE. Additionally, a discharger's failure..." Section 1II.A.7 suspends assessing violations for exceedances during accelerated monitoring periods and TRE implementation with the condition that the TRE be completed within 6 months after the initial violation. The suspension of violations during these periods is a positive change to the Policy but the limit to six months of TRE implementation is not appropriate. POTW dischargers have a significant exposure to failing a chronic toxicity test as a result of licensed pesticides being discharged to the sanitary sewer even in very low concentrations. The District has experience trying to regulate the use of licensed pesticides and options for POTW dischargers are very limited; essentially public education campaigns and pursuing product bans through the pesticide licensing agencies. These efforts require many years to complete and have limitations on success.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Dischargers will not be exempt from discretionary enforcement action when conducting a TRE. However, Section IV.B.2.c of the October 2018 Draft Toxicity Provisions allow Regional Water Boards to approve a reduced routine monitoring schedule for dischargers while they are conducting a TRE. This is further discussed in Section 5.4.4 of the October 2018 Draft Staff Report.

Requirements for when a discharger must conduct a TRE is discussed in Section 5.4.6 of the October 2018 Draft Staff Report.

For a discussion on violations see response to Comment 6.26, 47.8.

Comment 22.18

The Draft Policy should clearly state that every exceedance of the MDEL and MMEL must be considered an enforceable violation of the NPDES permit limits. This will ensure the discharger quickly abates the problem.

In contrast, the Draft Policy provides an inappropriate "free pass" by allowing "[a]ny exceedances occurring during a required accelerated monitoring period and, if appropriate, a TRE period shall not constitute additional violations provided that: (1) the discharger proceeds with the accelerated monitoring and TRE (if required) in a timely manner; and (2) the accelerated monitoring and TRE are completed within six months of the initial exceedance" (Draft Policy Part III(7) at Page 10). In other words, exceeding the limit simply "triggers"

additional testing and a TRE, during which a discharger can freely discharge at levels toxic to aquatic organisms without risk of enforcement. This lax approach is inconsistent with standing toxicity prohibitions and does not provide an incentive for dischargers to ensure the prohibition of discharged toxic effluent or runoff.

We recommend that the State Water Board revise the compliance determination language in the Draft Policy to be consistent, and read: "A test result indicating a "fail" is interpreted as a violation of the objectives established in Part II. Failure to meet these objectives may result in appropriate enforcement action." It would be left to the discretion of the respective Regional Board to enforce the violation.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. All chronic or acute toxicity tests conducted using the most sensitive species at the IWC are subject to possible MMEL and MDEL violations. What constitutes a violation of the MMEL and the MDEL is included in Section IV.B.2.e. of the October 2018 Draft Toxicity Provisions and are further discussed in Section 5.4.3 of the October 2018 Draft Staff Report.

Dischargers will not be exempt from discretionary enforcement action when conducting a TRE. However, as discussed in Section 5.4.4 of the October 2018 Draft Staff Report, the October 2018 Draft Toxicity Provisions allow Regional Water Boards to approve a reduced routine monitoring schedule for dischargers while they are conducting a TRE.

Requirements for when a discharger must conduct a TRE is discussed in Section 5.4.6 of the October 2018 Draft Staff Report.

Comment 38.2

Significant risk of product liability may make it legally and economically impossible to serve or recharge any water where the state-mandated test procedure indicates that a sample is "toxic". The proposed policy enacts new numeric objectives, instead of merely adopting an official method for translating the narrative objective found in most basin plans into a numeric water quality target.

...Heretofore, toxicity tests have only rarely been as general tools of assessment and investigation in receiving waters. The new policy now makes each test failure a potential violation of the regional water quality control plans. Consequently, agencies like ours could be exposed to considerable legal liability if we elected to serve or recharge any such water until the "source" of toxicity was identified and

eliminated. It not uncommon for typical Toxicity Identification Evaluations (TIE) to take many months or even years to resolve. In the meantime, perfectly good water may go unused in contravention of key provisions in the state constitution that prohibit the "waste of water".

Response

As explained in Section 5.3 of the October 2018 Draft Staff Report, the TST approach does not have a higher false positive rate than other common statistical approaches currently being used. The false positive rate for the TST approach is set at 5 percent, which is the same as the NOEC approach. The TST Test Drive, also discussed in Section 5.3 of the October 2018 Draft Staff Report concluded that using the TST approach is anticipated to result in little or no increase in

the number of exceedances as compared to other statistical approaches. See response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4Section 5.1 of the Draft October 2018 Staff Report explains that the numeric water quality objectives in the Provisions are not anticipated to result in a net increase in the number of water bodies listed on the 303(d) list of impaired waters. See response to Comments 6.20

In addition, the October 2018 Draft Toxicity Provisions include an exception for insignificant dischargers. The permitting authority is authorized to exempt certain insignificant non-stormwater NPDES dischargers from some or all of the provisions in the October 2018 Draft Toxicity Provisions when the Permitting Authority makes a determination that the discharge will not have reasonable potential to cause or contribute to an exceedance of the numeric water quality objectives. And insignificant discharges are discharges determined to be a very low threat to water quality by the Permitting Authority. To the extent that the use of recycled water is not regulated by an NPDES permit, the October 2018 Draft Toxicity Provisions only requires use of the TST if the discharger is required to conduct toxicity tests using the species in Table 1 of the October 2018 Draft Toxicity Provisions. The October 2018 Draft Toxicity Provisions do not require monitoring, and the Permitting Authority would continue to have discretion to or not to require non-point source dischargers to conduct monitoring. The October 2018 Draft Provisions are not expected to impact the ability to recharge waters.

Comment 43.7

The costs of violations will be greatly increased under this new policy.

Response

What constitutes a violation of the MMEL and the MDEL is discussed in Section 5.4.3 of the Draft October 2018 Staff Report. Regarding potential penalties See response to Comment 2.16, 3.5, 4.6, 5.8, 14.6, 15.7, 26.6, 27.1, 30.4, 33.4, 42.7, 42.6, 43.8, 46.5, 46.7, 51.6, 56.6, 59.4.

Comment 46.6

...[V]iolations will be subject to State and Federal penalties that are assessed per day and per gallon discharged. The Policy does not dictate over what time period these penalties are assessed. For example, in a worst-case scenario, the penalty could be assessed over the time period of accelerated monitoring and TRE/TIE investigations, which is defined as 6 months under the Policy.

Response

See response to Comment 2.16, 3.5, 4.6, 5.8, 14.6, 15.7, 26.6, 27.1, 30.4, 33.4, 42.7, 42.6, 43.8, 46.5, 46.7, 51.6, 56.6, 59.4.

Comment 49.5

Sunnyvale 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 numeric triggers. Sunnyvale 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) (Sunnyvale understands that it would not be subject to MMPs under current MMP provisions, given that its NPDES permit contains toxic pollutant effluent limits). Sunnyvale would also be

subject to monetary penalties if RWB staff had decided to proceed with an Administrative Civil Liability (ACL) case and be subject to potential third party lawsuits.

Response

Section 5.3 of the October 2018 Draft Staff Report Includes a discussion of the TST Test Drive. The TST Test Drive concluded that using the TST approach is not expected to result in a net increase in the number of toxicity tests declared toxic. Section 5.4.3 of the October 2018 Draft Staff Report explains that the inclusion of numeric effluent limitations, which are subject to violations, are expected to result in an increase in the overall number of violations because currently several non-storm water NPDES permits in California include only triggers, which are not subject to violations. Regarding potential penalties see response to Comments 2.16, 3.5, 4.6, 5.8, 14.6, 15.7, 26.6, 27.1, 30.4, 33.4, 42.7, 42.6, 43.8, 46.5, 46.7, 51.6, 56.6, 59.4.

Part III (A)(8): Compliance Schedules (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comment 11.26

Compliance schedules are similarly discretionary, such that two equally situated dischargers might be given disparate treatment just because they reside in different regions. (See Revised Draft Policy at 10.) A consistent policy must be adopted to provide certainty statewide.

Response

The October 2018 Draft Toxicity Provisions do not change the State Water Board's current compliance schedule policy, adopted under Resolution No. 2008-0025. Compliance schedules are discussed in Section 5.7.1 of the October 2018 Draft Staff Report.

Comment 11.37

4. The Proposed Policy Does Not Include a Schedule of Compliance for Dischargers to Identify and Address Toxicity.

Federal and state law allow for the use of compliance schedules where immediate compliance with newly established water quality objectives is not feasible. The State Water Board recently enacted a Compliance Schedule Policy that allows up to 10 years to come into compliance with new more stringent effluent limitations where there is a showing that the discharger needs time to implement improvements. (Resolution WQ 2008-0025.)

The Revised Draft Policy:

(1) Requires that every POTW with a permitted capacity over one million gallons per day (mgd) have a chronic toxicity effluent limitation;

(2) Establishes numeric effluent limitations by which a single toxicity test failure or two failures in a month would constitute a violation (even when confirmatory or the other tests pass);

(3) Requires use of a toxicity test method with a set false determination of toxicity rate of 5% and false non-toxic determination when the water is actually toxic of between 10% and 25%. (Revised Draft Policy at 17.)

Response

Compliance schedules are discussed in Section 5.7.1 of the October 2018 Draft Staff Report. For a discussion on effluent limitations, see section 5.4 of the October 2018 Draft Staff Report.

Comment 11.40

Further, the Revised Draft Policy provides no possibility for a permittee already conducting toxicity monitoring to be granted a compliance schedule for exceedances of the proposed effluent limitations, placing all of these dischargers in immediate noncompliance once an exceedance occurs. (Policy at 11.) Any "compliance schedules" allowed in the Revised Draft Policy are solely for developing and putting into place a toxicity testing program and limited to two years. The compliance schedule authority sunsets in 10 years, notwithstanding the fact that new dischargers may need a compliance schedule after that date. This section of the Revised

Draft Policy should be amended to all dischargers that already monitor and/or have narrative effluent limitations to be eligible for "compliance schedules."

Response

The October 2018 Draft Toxicity Provisions do not change the State Water Board's current Policy for Compliance Schedules In National Pollutant Discharge Elimination System Permits, adopted under Resolution No. 2008-0025. Consistent with the Compliance Schedule Policy, compliance schedules are not authorized in permits for new dischargers. For existing dischargers, the Permitting Authority would have discretion to include a compliance schedule in NPDES permits when the effluent limitations in the current NPDES permit is less stringent than the required effluent limitations specified in the October 2018 Draft Toxicity Provisions. Compliance schedules are discussed in Section 5.7.1 of the October 2018 Draft Staff Report.

Comment 22.21

The Draft Toxicity Policy should not allow for compliance schedules.

Another major shortcoming with the Draft Policy is the inclusion of a provision for Regional Water Boards to grant compliance schedules to achieve the objectives in Part II of the Draft Policy at their discretion (Draft Policy at Page 60). We appreciate the Draft Policy excluding dischargers with existing toxicity limits from being eligible for these compliance schedules, but the Draft Policy still proposes to give other permittees two additional years from "the date of permit issuance, reissuance, or reopening to address toxicity for up to ten years after the approval of this Policy" (Draft Policy at Pages 10-11).

Response

The October 2018 Draft Toxicity Provisions do not change the State Water Board's current Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits, adopted under Resolution No. 2008-0025. Compliance schedules are discussed in Section 5.7.1 of the October 2018 Draft Staff Report.

Part III (A)(9): Exceptions (NPDES Wastewater Dischargers and Point Source WDR Dischargers)

Comment 10.1

CDPH has reviewed the draft policy and supports the exemption for essential vector control activities provided in Part III (A) (9) (c) Categorical Exemptions (1) Seasonal exemption for pest control and vector control by public agencies to fulfill statutory requirements established in the California Health and Safety Code. Page 11, Section (2) At the request of CDPH, Brian Ogg of SWRCB provided clarification regarding section (2); that the reporting requirements in this section (2) are maintained without regard to inclusion of an agency in the categorical exemption provided in the previous section (1).

It is critical that vector control personnel and agencies have the flexibility to apply pesticides when needed to protect public health. The necessity of the ability to quickly react to changing conditions is recognized in an exemption from prior notification requirements in the California Food and Agriculture Code (Section 6620).

Response

Variances for vector control actions are included in Section IV.B.5. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.7.6 of the October 2018 Draft Staff Report.

Comment 10.2

CDPH would oppose any reporting or notification requirements beyond the current Pesticide Application Plan submitted with each agency's NPDES General Vector Control Permit application and detailed annual report of pesticides applied to Waters of the United States.

Response

For short-term seasonal exceptions the discharger would need to notify the Permitting Authority and submit the information required by IV.B.4.b. of the October 2018 Draft Toxicity Provisions.

Comment 11.27

The Revised Draft Policy purports to provide exemptions for small communities and insignificant discharges. (See Revised Draft Policy at 11.) However, these exemptions could be eviscerated by the discretion provided to regional boards to withdraw or not allow these exemptions.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. The Permitting Authorities are authorized to provide these exemptions but are not required to do so. Regional Water Boards are qualified to determine when these exemptions should be allowed. Exceptions for small disadvantaged communities and insignificant discharges are included in Section IV.B.2.J. of the October 2018 Draft Provisions and are discussed in Section 5.7.4 and 5.7.5 of the October 2018 Draft Staff Report.

Comment 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.

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

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The Permitting Authorities are authorized to provide exemptions for small disadvantaged communities from some or all of the provisions in Section IV.B.2. of the October 2018 Draft Toxicity Provisions, if the Permitting Authority makes a finding that the discharge will have no reasonable potential to cause or contribute to an exceedance of the water quality objectives. In making this determination the Permitting Authority does not need to use the reasonable potential methods set forth in Section IV.B.2.b. of the October 2018 Draft Toxicity Provisions. Exceptions for small disadvantaged communities and insignificant discharges are included in Section IV.B.2.J. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.7.4 and 5.7.5 of the October 2018 Draft Staff Report.

Comment 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 that 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.

Response

The definition of a small disadvantaged community is included in Appendix A of the October 2018 Draft Toxicity Provisions and is consistent with the definition of small disadvantaged communities in Water Code section 13193.9, subdivision (c). Exceptions for small disadvantaged communities and insignificant discharges are included in Section IV.B.2.J. of the October 2018 Draft Provisions and are discussed in Sections 5.7.4 and 5.7.5 of the October 2018 Draft Staff Report.

Comment 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. 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 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.

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[see page 7 of comment letter]. Most of these small POTWs will need to significantly increase its chronic toxicity testing frequency because of the Draft Policy.

...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 [see page 7 of comment letter]. 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.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. POTWs that are authorized to discharge at a rate equal to or greater than 1 MGD are not assigned reasonable potential. However, POTWs that are authorized to discharge at a rate equal to or greater than 5 MGD are required to conduct monthly routine chronic toxicity monitoring and comply with effluent limitations and no reasonable potential analysis is required. POTW dischargers that are authorized to discharge at a rate of less than 5 MGD, that are determined to have a reasonable potential would be required to conduct quarterly toxicity monitoring. Section IV.B.2.J.i. of the October 2018 Draft Toxicity Provisions includes exceptions for POTWs serving small disadvantaged communities. These requirements are discussed in Section 5.7.4 of the October 2018 Draft Staff Report.

Section IV.B.2.c.i. of the October 2018 Draft Toxicity Provisions includes chronic toxicity monitoring frequencies for non-storm water NPDES discharges. These requirements are discussed in Section 5.4.4 of the October 2018 Draft Staff Report.

Comment 22.11

The Draft Policy should include the definition of "small community" established in the California Water Code.

...According to the State Water Board's revised economic analysis, 53 out of the 465 NPDES dischargers in California are expected to be classified as "small communities" under the Draft Policy. This is a significant percentage of the state's POTWs and allows for a loophole in the policy..... There is no reason a community generating more than one MGD should be excluded from toxicity limits. For this reason, we believe the Draft Policy should, instead at a minimum, narrow the definition of "small community" by utilizing the definition of established under Water Code section 13385, subdivision (k).

Response

A definition of a Small Disadvantaged Community is included in Appendix A of the October 2018 Draft Toxicity Provisions. Section IV.B.2.j. of the October 2018 Draft Toxicity Provisions authorizes Permitting Authorities to exempt POTWs serving small disadvantaged communities from some or all of the provisions in IV.B.2. of the October 2018 Draft Toxicity Provisions if they make a finding that the discharger does not have a reasonable potential to cause or contribute to an exceedance of the water quality objectives.

Comment 22.8

...the Draft Policy defines "insignificant dischargers" as "discharging entities that are deemed a very low threat to water quality by the applicable Water Board." However, the Draft Policy does

not give clear criteria for what constitutes a "low threat." ... At the very least, the State Water Board should add clarifying language and criteria for which discharges constitute a "low threat" and require monitoring for POTWs discharging more than 500,000 gallons per day, regardless of the outcome of the RPA.

Response

The requirements in the 2012 Draft Policy referred to in this comment have not been changed significantly in the October 2018 Draft Toxicity Provisions. A definition of an insignificant discharger is included in Appendix A of the October 2018 Draft Toxicity Provisions. Section IV.B.2.j. of the October 2018 Draft Toxicity Provisions authorizes Permitting Authorities to exempt insignificant dischargers from some or all of the provisions in IV.B.2. of the October 2018 Draft Toxicity Provisions if they make a finding that the discharger does not have a reasonable potential to cause or contribute to an exceedance of the water quality objectives.

Part III (B): Storm Water Dischargers Regulated Pursuant to NPDES Permits

Comments 7.11, 8.1, 31.8, 44.1, 44.5, 44.3, 48.3, 48.2, 51.7, 55.1

...our concern is that the Draft Policy and attached guidance will lead to routine but expensive data collection that provides limited additional information to our understanding of the causes of stormwater toxicity. Ongoing routine aquatic toxicity monitoring generates additional data that are not necessary for the characterization of stormwater discharges, and diverts considerable resources away from addressing known causes of toxicity.

Considering the resources required to identify and manage toxicity, and the limited resources currently available to our public agencies, we believe that the State should focus the toxicity policy on addressing the causes of known recurring toxicity. Given these factors, we recommend that stormwater discharges (Part III B) be removed from the Draft Policy, and a separate policy be drafted to appropriately address toxicity related to stormwater.

Response

Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Comment 7.8

Caltrans is potentially subject to multiple methods requiring toxicity testing from the Regional Boards. The policy states that its imposition on Caltrans is at the discretion of the State Board. Imposition of the policy may provide consistency for Caltrans, as the nine Regional Boards have differing requirements. However, this does not prevent the Regional Boards from requiring their own toxicity standards in addition to this policy. Application of multiple standards and analyses would result in increased costs.

Caltrans Request: Provide for consistent regulation within Caltrans' statewide permit by limiting Caltrans to one toxicity monitoring policy.

Response

Caltrans storm water discharges are regulated under the Caltrans MS4 general permit, which grants some discretionary authority to the Regional Water Boards. The Toxicity Provisions would not alter this authority, nor would it require Caltrans to conduct toxicity monitoring. Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Comment 11.29

Within categories of dischargers, there are also inconsistencies. For example, it is not clear whether the California Department of Transportation will be required to meet the same requirements as all other stormwater dischargers in California. (See Revised Draft Policy at 13.) Similarly, dischargers not currently monitoring for toxicity are treated differently from those currently monitoring. (See Revised Draft Policy at 13-14.) Regulatory requirements should be based on likelihood of adversely affecting receiving waters, not on current regulatory status.

Response

Requirement for storm water dischargers, including Caltrans projects, are included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Comment 16.4

We have consistently identified the need for California's water programs to consider the significant contribution of deposition from aerial and mobile sources in storm water toxicity. Substantial research continues to show that sources such as automobile brake pads, and their contribution of metals, are key sources of toxicity. These sources are beyond the immediate control of facility operators whether that operator be a public agency, private businesses, or municipality.

We believe that any toxicity policy must recognize that the reduction of toxicity, especially in urbanized areas must come from holistic changes such as the DTSC brake pad program created by SB 346 (Kehoe.) Absent this approach, the multiple testing requirements of the Toxicity Policy will merely affirm what we already know: first flush urban storm water runoff is toxic. Instead, we believe the policy should focus on promoting transformational changes and using toxicity testing that actually seeks to measure a true impact to receiving waters.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Implementation requirements for storm water dischargers, including discharges from municipal and highway runoff, is included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Additionally, the Water Boards are active leaders in the holistic Strategy to Optimize Resource Management of Storm Water, also known as STORMS. The strategy identifies a ten-year vision and mission with an anticipated outcomes to sustainably manage storm water. More information is available at:
https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/ch_1.shtml.

Comment 19.5

We support the revised draft policy language on exceedance of effluent limits, which clarifies that an exceedance of an effluent limit is a violation. This is consistent with CWA section 309, which provides that any exceedance of an NPDES effluent limit is a violation subject to enforcement. EPA's 1995 WET enforcement policy recommends the initial response to a single exceedance of a toxicity effluent limit, causing no known harm, should not be a formal enforcement action with a civil penalty. We also support the policy provision authorizing the limited use of compliance schedules and recommend this authorization be extended to storm water discharges under Part III.B.

Response

Effluent limitations are specified in Section IV.B.2.e. of the October 2018 Draft Provisions. Additional discussion of the effluent limitations is included in Section 5.4.3 of the October 2018 Draft Staff Report. Compliance schedules are discussed in Section 5.7.1 of the October 2018 Draft Staff Report. Requirements for storm water dischargers are included in Section IV.B.3. of

the October 2018 Draft Provisions. The October 2018 Draft Provision do not require toxicity effluent limitations for stormwater NPDES permits, and it is up to the Permitting Authority's discretion whether to include effluent limitations. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Comment 22.14

Storm water permittees should be required to conduct toxicity testing, regardless of whether they have existing toxicity monitoring requirements.

Federal law mandates that permits issued to MS4s must require management practices that will result in reducing storm water pollutants to the Maximum Extent Practicable, yet at the same time, requires that non-storm water discharges be effectively prohibited from entering the MS4. Specifically, MS4 permits (1) "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers" and (2) "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or State determines appropriate for the control of such pollutants."

In California, storm water discharges from MS4s and industries have been identified as a probable source of impairment in an estimated 1,326.27 miles of rivers, streams, and creeks. Presently, only a portion of MS4 and individually permitted industrial storm water dischargers are required to conduct toxicity monitoring, with requirements varying among dischargers. Therefore, the Draft Toxicity Policy will require a very limited amount of stormwater permittees to monitor using the TST Method. Not requiring stormwater permittees to conduct toxicity monitoring does not meet the MEP standard, and is illegal.

We urge the State Board to require all individual industrial stormwater dischargers and Phase I and II MS4s that discharge to inland surface waters, enclosed bays, and estuaries be subject to minimum toxicity monitoring requirements. The October 2010 draft more appropriately addresses this issue by requiring four toxicity tests each year of the permit cycle. At a minimum, the State Board should revert to this previous language. In addition, a failing test result should lead to changes in the abatement and mitigation measures currently contained in MS4 and individual industrial storm water permits. As currently drafted, remedial measures are only recommended.

Response

Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Option 2 of Section 5.5.1 of the October 2018 Draft Staff Report explicitly considers requiring toxicity numeric effluent limitations for storm water discharges.

Comments 22.3, 22.2, 45.2

The Draft Policy should include effluent limits and monitoring requirements for storm water dischargers.

The Draft Toxicity Policy has taken a big step backwards from the previous draft, as it no longer requires toxicity monitoring requirements in MS4 and individual industrial storm water permits; it merely recommends that these dischargers implement a monitoring program (Draft Policy at

Page 13). Our primary concern, as stated in the past, is that the Draft Policy does not require any numeric toxicity limit for stormwater dischargers.

...We urge the State Water Board to require numeric toxicity limits for storm water dischargers within the Draft Policy. Also, the Draft Policy should reinstate the toxicity monitoring requirements, as was included in previous drafts. At the very least, the Draft Policy should encourage Regional Boards to evaluate storm water discharges to determine if there is reasonable potential to cause or contribute to aquatic toxicity. If toxicity is found, Regional Water Boards should have the ability to include a numeric limit, as was the case in the October 2010 draft of the Draft Toxicity Policy that stated "the applicable Water Board has the discretion to apply numeric effluent limitations for toxicity in these permits" (November 2010 Draft Policy at Page 13). Although this may be the intent, it is unclear.

Response

Please see the response to comment 22.14.

Comment 52.1

Stormwater should be addressed through a separate policy and Appendix E should be issued as a separate guidance document from the Draft Policy.

While we do agree that there are specialized studies or investigations where targeted toxicity sampling is highly useful, our concern is that the Draft Policy and attached guidance will lead to routine but expensive data collection that does not add to our understanding of stormwater composition. Considering the resources required to identify and manage toxicity, and the limited resources currently available to many of our public agencies, we believe that the State should focus the toxicity policy on addressing the occurrences and causes of recurring toxicity. Given these factors, we recommend that stormwater discharges (Part Ill B) be removed from the Draft Policy, and a separate policy be drafted to appropriately address toxicity related to stormwater.

...The Program recommends that stormwater be addressed through a separate policy issued as a separate guidance document, and the guidance to indicate that monitoring for toxicity assessment of stormwater should initially occur in the receiving water and subsequently, and only if necessary, move to the stormwater outfalls.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Part III (B)(1): Application of TST Methodology to Existing Toxicity Monitoring Requirements (Storm Water)

Comment 34.3

The TST approach has been reviewed and assessed by scores of respected, credible scientists who have repeatedly expressed serious concerns about the inevitability of ''false toxicity determination'' errors which will cause dischargers to ''report'' the presence of toxicity when, in fact, there is no toxicity. This ''false toxicity determination'' error peril should be enough for the State Board to reject a test methodology which - again - has never been formally approved by U.S. EPA, nor any other state in the nation, to our knowledge.

Response

Peer reviewed journal articles supporting the TST approach are discussed in Section 2.12.2 of the October 2018 Draft Staff Report. The false positive error rates for the TST approach and some other statistical approaches is discussed in Section 5.3 of the October 2018 Draft Staff Report. The TST approach is not a laboratory procedure that must be added to the approved methods in 40 C.F.R. part 136. U.S. EPA provides guidance in 40 C.F.R. part 136 for statistical analysis of whole effluent toxicity data and the TST is a statistical option that has been added to the current recommended approaches by U.S. EPA. The TST approach is also included in EPA's Technical Support Document as a recommended approach. Section 1.1 of the October 2018 Draft Staff Report lists the states and regions that currently incorporate the TST approach into non-storm water NPDES permits.

Comment 19.4

We fully support the reasonable potential procedure and required numeric daily maximum and monthly median effluent limits for all NPDES wastewater dischargers that show reasonable potential. We are concerned the proposed language in Part III.B and definitions in Part I have been revised to draw an invalid distinction concerning the applicability of water quality standards and evaluation of water quality based effluent limits to storm water discharges. As addressed in Defenders of Wildlife v. Browner (191 F 3rd 1159 (9th Cir. 1999)), permitting authorities have some latitude in interpreting how water quality based requirements are established for municipal storm water permits pursuant to CWA section 402(P)(3)(B)(iii). However, as discussed in Defenders, development of water quality based effluent limits for other storm water (e.g., industrial and construction storm water) and wastewater discharges are governed by CWA section 301 (b)(1)(C), which requires water quality based effluent limits for pollutants where reasonable potential is established. Accordingly, to accurately characterize storm water permitting requirements under the CWA and its implementing regulations, the following language should be inserted at the beginning of Part III.B prior to the storm water monitoring guidance:

> 'Determination of the need for toxicity effluent limitations in storm water permits is based on analysis of permit-specific data and information and should occur when Water Boards consider issuance of individual and general storm water permits. This policy neither requires nor precludes establishment of numeric effluent limitations for toxicity in MS4 permits. Effluent limitations are required for non-MS4 storm water permits (including, but not limited to, industrial and construction storm water permits) for which the discharge demonstrates reasonable potential to exceed numeric toxicity objectives (40 CFR 122.44(d)(l)(iv)). For non-MS4 storm water permits, if the effluent at the IWC produces a test result of ''fail'', or if the percent effect at the IWC is greater than 0.10, then Water Boards shall apply effluent

limitations based on either: (1) the numeric effluent limitation for chronic toxicity of "fail" at a percent effect equal to or greater than 0.25 for a chronic toxicity test, or (2) best management practices if numeric effluent limitations are infeasible (see 40 CFR 122.44(k))."

Response

Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.5 of the October 2018 Draft Staff Report. The October 2018 Draft Toxicity Provisions do not require storm water discharges to conduct routine toxicity monitoring for storm water dischargers. However, the October 2018 Draft Toxicity Provisions do not preclude Regional Water Boards from imposing routine toxicity monitoring requirements for acute or chronic toxicity on storm water dischargers.

Part III (B)(2): Toxicity Monitoring Program Recommendations (Storm Water)

Comment 7.10, 7.1, 8.4, 9.3, 16.3, 40.3, 40.13, 52.6, 58.18

The Draft Policy should provide justification for requiring chronic toxicity testing for stormwater dischargers.

The variable nature of stormwater runoff presents unique challenges in accurately characterizing water quality and potential receiving water impacts. This is especially true for toxicity monitoring, where the science required to effectively characterize the duration, exposure, and environmental impacts of stormwater toxicity is lacking, and the application of methods derived for continuous wastewater discharges is not appropriate. The standard EPA whole effluent toxicity (WET) test methods were developed for continuous point source wastewater discharges and do not take into account the unique features of stormwater. The applicability of the WET method for use on intermittent stormwater samples has never been properly validated. Of primary concern is the mismatch between the exposure periods for toxicity testing, typically lasting four to ten days, and the duration of stormwater discharges, typically lasting some number of hours, and rarely exceeding one full day.

Appendix E recommends a chronic toxicity test renewal strategy using the initial stormwater sample - thus exposing the test organism to stormwater for periods far exceeding the duration of actual exposure to stormwater in the real world. The State Water Board acknowledges these challenges in Appendix E of the Draft Policy [see Tiefenthaler et al. 2008 reference in comment letter]. Nonetheless, Part B.2 of the Draft Policy recommends that "...stormwater dischargers implement a chronic toxicity monitoring program" but does not provide justification for a chronic exposure period. Mandating toxicity test chronic exposure periods that can be seven days or more is overly conservative for assessing stormwater events.

Response

Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.5 of the October 2018 Draft Staff Report. The October 2018 Draft Toxicity Provisions do not require storm water discharges to conduct routine toxicity monitoring for storm water dischargers. However, the October 2018 Draft Toxicity Provisions do not preclude Regional Water Boards from imposing routine toxicity monitoring requirements for acute or chronic toxicity on storm water dischargers.

Comment 48.1

Appropriateness of Required Urban Runoff Discharge Monitoring Part B.2 of the Draft Policy applies to "...monitoring of storm water discharges from municipal separate storm sewer systems (MS4)...", and the Appendix E guidance document notes that there are several advantages of toxicity testing over chemical measurements alone and states "...toxicity tests can capture effects of unmeasured chemicals and variability in bioavailability." and "...scientists know that many toxicants can interact to create synergistic or antaagonistic effects on test organisms." While these statements are not without merit, the constituents of concern for urban runoff are well known and although the registered pesticides may change, their presence in urban runoff is well understood. These other synergistic effects are best understood through special studies, not mandated urban runoff discharge monitoring. Furthermore, urban runoff discharges occur during periods of high background flow and urban runoff discharge monitoring alone is not sufficient to understand the environmental context (i.e., synergistic and additive effects) of any identified toxicity in the receiving water. The SSQP requests that Part B.2 of the Draft Policy be revised to specify that toxicity testing should be considered case-by-case on a special study basis.

Response

Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.5 of the October 2018 Draft Staff Report. The October 2018 Draft Toxicity Provisions do not require storm water discharges to conduct routine toxicity monitoring for storm water dischargers. However, the October 2018 Draft Toxicity Provisions do not preclude Regional Water Boards from imposing routine toxicity monitoring requirements for acute or chronic toxicity on storm water dischargers.

Part III (C)(2): Toxicity Monitoring Program Recommendations (Channelized Dischargers)

Comment 20.11

Third, the Draft Toxicity Policy recommends that irrigated agricultural programs implement quarterly chronic toxicity testing. As indicated previously, chronic toxicity testing is significantly more expensive than acute toxicity testing. Further, for irrigated agriculture there is no scientific or technical reason that would justify the significant increase in cost for the change from acute toxicity testing to chronic toxicity testing. The proposed draft monitoring and reporting program (MRP) for the ESJWQC will require chemical-specific monitoring in ambient surface water. The cost of analysis for the multiple new chemicals (that are ultimately agreed upon as being appropriate) will result in a substantial increase in the cost of chemical analysis. Monitoring for specific chemicals in surface waters coupled with the establishment of trigger limits will be protective of aquatic life in waterways of the Eastern San Joaquin River watershed. Requiring chronic toxicity testing will not provide additional protection above that already provided by agreed upon chemical specific monitoring and the establishment of trigger limits. Acute toxicity testing is sufficient to identify additional contaminants such as ammonium that could cause toxicity but are not discharged from irrigated agriculture. Thus, chronic toxicity testing requirements, or any recommendation for chronic toxicity testing requirements, must be removed.

Response

Requirements for nonpoint source dischargers, including agricultural discharges, are included in Section IV.B.4. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.6 of the October 2018 Draft Staff Report. The October 2018 Draft Toxicity Provisions do not require nonpoint source discharges to conduct routine toxicity monitoring for storm water dischargers. However, the October 2018 Draft Toxicity Provisions do not preclude Regional Water Boards from imposing routine toxicity monitoring requirements for acute or chronic toxicity on nonpoint source dischargers.

Comment 22.6

Identification of the sources of toxicity is necessary before successful source abatement measures can be implemented as required under the SIP. The Draft Policy merely recommends channelized dischargers monitor for chronic toxicity four times per year. At a minimum, the Draft Policy should require monitoring. A discharge that does not violate a discrete, chemical-specific water quality standard but nevertheless causes or contributes to acute or chronic toxicity should trigger the discharger to initiate a toxicity identification evaluation (TIE) or even some less formal procedure to identify the nature and source of the runoff toxicity.

Response

Requirements for nonpoint source dischargers, including agricultural discharges, are included in Section IV.B.4. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.6 of the October 2018 Draft Staff Report. The October 2018 Draft Toxicity Provisions do not require nonpoint source discharges to conduct routine toxicity monitoring for storm water dischargers. However, the October 2018 Draft Toxicity Provisions do not preclude Regional Water Boards from imposing routine toxicity monitoring requirements for acute or chronic toxicity on nonpoint source dischargers. Under the October 2018 Draft Toxicity Provisions, Regional Water Boards would also be responsible for determining TRE requirements for nonpoint source dischargers.

Comment 47.6

The suggestion of shifting to or additionally adding long term chronic toxicity to all the historic acute testing that has been required since the regions started to deal with non-point source is meritless, and merely a staff attempt to increase very costly chronic testing.

Response

Requirements for nonpoint source dischargers, including agricultural discharges, are included in Section IV.B.4. of the October 2018 Draft Toxicity Provisions and are discussed in Section 5.6 of the October 2018 Draft Staff Report. The October 2018 Draft Toxicity Provisions do not require nonpoint source discharges to conduct routine toxicity monitoring for storm water dischargers. However, the October 2018 Draft Toxicity Provisions do not preclude Regional Water Boards from imposing routine toxicity monitoring requirements for acute or chronic toxicity on nonpoint source dischargers.

Appendix A: Test of Significant Toxicity

Comment 2.12, 29.6

The plant species list is inadequate. (There are no marine or estuarine phytoplankton test species listed in Table 1 on page 17 of the Policy.) BACWA recommends that an alpha value be determined for the 96-hour growth test with *Thalassiosira pseudonana* and added to the list of approved test species in the current Policy.

The Policy, and EPA guidance generally, requires that " ...reasonable potential analyses and species sensitivity screenings for chronic toxicity shall include one vertebrate, one invertebrate, and one aquatic plant." But, Table 1 on page 17 only provides two aquatic plant test species to choose from, neither of which is desirable or completely appropriate for assessing toxicity in an estuarine environment. This is a problem for municipal agencies in the San Francisco Bay area who may be precluded from using Selenastrum capricornutum (freshwater, green, unicellular algae) due to its demonstrated sensitivity to the anionic and cationic matrix (saltiness) of some wastewaters. The giant kelp (Macrocystis pyrifera) is a coastal oceanic species not found in estuaries.

Response

The acceptable test species are found in Table 1 in Section IV.B.1.b. of the October 2018 Draft Toxicity Provisions. Further study would be required to add *Thalassiosira pseudonana* to this list. Expanding the list is outside the scope of this project. If test species, not included in Table 1 of the October 2018 Draft Toxicity Provisions are found to be more sensitive to potential toxicants in the effluent or in ambient receiving water then then per Section IV.B.2.h. of the October 2018 Draft Toxicity Provisions the Permitting Authority may require additional toxicity testing using species not included in Table 1.

Comments 11.20, 25.5

14. The Arc-sine Square Root Transformed Data Contains an Apparent Bias.

Transforming percentage data (e.g., survival responses) is a commonly accepted practice prior to conducting hypothesis testing where normal distribution assumptions are critical in the statistical analysis. When using the commonly applied arc-sine transformation, a bias resulting in the calculated response or effect using the transformed data is typically greater than the actual observed response of effect. This bias poses little concern when traditional hypothesis testing is conducted because all transformed treatments are compared directly to the transformed control. However, with the TST hypothesis test, the transformed treatments are compared to 75% of the transformed control. By not similarly transforming the binomial "b" or bioequivalency factor (75% for chronic tests and 80% for acute tests), this bias will significantly increase the probability of identifying a sample as toxic. The effect and magnitude of this bias in real world samples exhibiting observed effects ranging from zero (0) to 25% are presented in Figure 2 [see comment letter].

a. All Calculated Effects Should Be Determined Using Untransformed Data.

The fathead minnow survival data example contained on page 22 of the Revised Draft Policy calculates the percent effect in the instream waste concentration (IWC) using arc-sine transformed survival data as represented below:

% Effect at IWC = [(1.412 - 1.219) / 1.412] * 100 = 13.7%

However, when conducting the same calculations using original, untransformed data we would find:

% Effect at IWC = [(10 - 8.75) / 10] * 100 = 12.5%

After reviewing the EPA's TST spreadsheet tool (version 1.5), it is clear that all effects are to be calculated using original, not transformed data. Considering that there is significant positive bias associated with calculating percent effects at the IWC using transformed data, EPA TST tools calculate percent effects using untransformed data, and that accurate calculations of these estimates are critical for reasonable potential determination, MDEL evaluation, and TRE trigger determination, all references and examples in the Revised Draft Policy should clearly indicate that original units are to be used for these calculations.

Response

Current U.S. EPA statistical guidance recommends using an arcsine square root transformation of percent l data (e.g., survival, larval development) prior to analysis. This is because percent survival data is typically non-normally distributed and often has no variance within a treatment (e.g. all organisms survive in the control and therefore, there is zero variance in the control survival endpoint). Both simulation analyses and analyses of actual WET data by EPA has demonstrated that when there is approximately a 25 percent effect in the IWC and precision within the test is normal for the test method, no bias is observed using the transformed data. At lower percent effects in the IWC (between 10 and 25 percent effect), a slight underestimate of the effect (< 2.25 percent) is observed using the transformed data which is unlikely to affect the test outcome in most cases. As control performance improves, the arcsine square root transformation tends to bias the percent effect of the IWC somewhat higher (2.25 percent on average). These effects of transformed data occur using the traditional NOEC approach as well as using the TST. The apparent bias using transformed percent survival data has nothing to do with the b value or the TST approach; it is a property of the transformation being used. In the case of TST, the slight difference that may occur between using transformed or untransformed data does not affect the statistics of TST calculations because the balance between Type I and II errors (i.e., the selection of alpha for TST and percent survival endpoints) was determined based on arcsine square root transformed survival data. The fathead minnow example cited by the commenter, however, was an error on the part of staff in the 2012 Draft Toxicity Policy. Please see Appendix B of the October 2018 Draft Toxicity Provisions for and updated fish survival example. Please note untransformed data is used when calculating percent effect. Additionally, see Appendix B of the October 2018 Draft Provisions for *Ceriodaphnia* example calculations.

Comment 29.4

Issue 4. Inability of TST to Evaluate Ceriodaphnia Chronic Test Survival Results

We have already received several phone calls from discharger clients who have attempted to use the TST spreadsheet to analyze their data expressing concern that they were unable to analyze Ceriodaphnia dubia chronic toxicity test survival data. While their queries were easily resolved, they reflect that the current limitation of explaining this issue in the State's draft policy document as a footnote to Table 1 is inadequate. We recommend that this be more explicitly discussed in the main narrative body of the policy document.

Response

The TST spreadsheet tool has been modified and is available on the State Water Board Toxicity Program webpage. Additionally, see Appendix B of the Provisions for example calculations using Ceriodaphnia.

Comment 29.5

Issue 5. Listed Tier 1 and Tier 2 Test Species

Based on our extensive experience performing toxicity testing with the Tier 1 and Tier 2 species listed in Table 1 of the Policy for Toxicity Assessment and Control, we submitted comments to the State Water Board staff (dated January 21, 2011 – see Attachment A) indicating that there were very real challenges in obtaining many of the Tier 1 species used for the chronic "West Coast" marine methods. Although the State Board staff received our comments, they were not addressed in the June 2012 draft.

As noted in our previous submittal:

--Larger dischargers will be required to perform monthly toxicity testing;

--Many of the Tier 1 West Coast marine species are not available year round, or are only available from one vendor in the entire US;

--The a priori prioritization of West Coast Tier 1 species for testing complicate the permit compliance process for the discharger since it will require the dischargers to open dialogue with the Water Board to receive approval to change to Tier 2 species during times of the year when the West Coast Tier 1 species tend to not be available for toxicity testing; and

--The prioritization of West Coast Tier 1 species will result in a necessary flipflopping back and forth between test species, which simply complicates the permit compliance process for the discharger.

Succinctly put, we believe that the "tiered species" process that still exists in the draft policy should be removed, and the species should simply be listed as options for the discharger to use for their determination of reasonable potential and compliance monitoring.

Response

The table delineating Tier I and Tier II test species is consistent with the California Ocean Plan, and the selection of an appropriate test species is left to Regional Board discretion and is discussed in section IV.B.2.a of the October 2018 Draft Toxicity Provisions. Permits should include language specifying that, when Tier I species (such as topsmelt) are not available, Tier II species (such as inland silverside) can be used. This is the current approach utilized by the Water Boards and it is not altered under the 2018 Draft Toxicity Provisions.

Comment 35.4

Page 15, Appendix A, Step 1 - Step 1 states that "Prior to analysis, if the measured response is reported as a percentage (e.g., percent survival, percent fertilization) it must be transformed using the arc sine square root transformation". The transformation described is appropriate for percentage data derived from a binomial experiment where n organisms or other experiment units are used in a test and binary responses (e.g., live/dead) are obtained for each

experimental unit. It is not appropriate for percentage data derived from continuous measures such as percent reduction in weight and is not appropriate for non-percentage data. Specifying that the arcsine square root transformation methodology must be used limits the opportunity to use more modern methods for analyzing binary response data such as General Linear Models with random effects. It even limits the use of other traditional approaches such as logit or probit transformations which might be more appropriate

Response

TST is a hypothesis testing procedure to compare two concentrations. The arcsine square root transformation is a commonly recommended approach for percent data to obtain normally distributed data so that hypothesis tests can be performed. Moreover, this is the practice currently utilized for toxicity data analyses.

Comment 35.5

There is an error in the methodology for handling percent effects, such as survival. Step 1 on page 7 indicates that percent effect should be changed to proportion effect and then transformed by the arc-sine square-root transform before calculating the test statistic t shown above. While there is no disputing the value of such a transform, the formula for t is not correct for transformed data. This is because a 100b% effect in the response (percent or proportion survival) is not the same as a 100b% effect in the transformed response. Nor is there a simple fix. If the percent survival in the control is 100% and the number of observations per rep is 10, then the value of (see comment letter) is 1.5708 - arcsin(squareroot(1/40))=1.5458. If the desired effect to find is 80%, such as for fathead survival, then 0.8* (see comment letter) =1.237. But a back transform of 1.237 is 0.89, so the test compares the observed treatment effect to an 11% mortality rate, not a 20% rate, a much more severe restriction. If the number of observations per rep is 20 instead of 10, then the maximum passing observed treatment mortality rate is 15%. If the number of observations per rep is 5 then only a 5% or lower observed mortality passes.

Furthermore, if the control survival is 90%, then a 20% reduction in the control survival is a survival rate of 72%.. However, a 20% reduction in arc-sin square-root of 0.9 is 1.237 which back-transforms to 0.89, only 1% more mortality than in the control, so the formula is much more restrictive than the nominal value and it becomes almost impossible to pass. These calculations are refined below in the example for fathead survival.

The problem indicated for survival responses is a simple example of the broader problem of computing a p% effects concentration using a transformed response. There is no simple solution.

Response

Under the October 2018 Draft Toxicity Provisions, percent effect is changed to proportion effect and then transformed by the arcsine square root transformation before calculating the test statistic t. As pointed out in Denton et al. 2011, the effective RMD is not the same as the percent response (the equation on page seven of the Policy document). Therefore, the b values (0.75 for chronic tests and 0.8 for acute tests) as presented in the t calculation formula do not indicate a 25 percent or 20 percent effect. Instead, they are proportional constants that cannot or should not be back-transformed. The simulation performed (Denton et al. 2011) to find the alpha values for percent data of each toxicity test incorporated the b values for transformed data.

Reference: Denton D, Diamond J, Zheng L. 2011. Test of significant toxicity: a statistical application for assessing whether an effluent or site water is truly toxic. Environ. Toxicol. Chem. Vol. 30:1117-1126.

Comment 37.12

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.

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.

Response

The October 2018 Draft Toxicity Provisions do not change the U.S. EPA test methods. The U.S. EPA aquatic toxicity test methods that may be used for assessing compliance with the acute and chronic water quality objectives and effluent limitations are included in Section IV.B.1.b. of the October 2018 Draft Toxicity Provisions. Section 5.2 of the October 2018 Draft Staff Report contains additional discussion on the aquatic toxicity test methods. The benefits of adding additional replicates is discussed in Section 5.3 of the October 2018 Draft Staff Report.

Appendix B: Example of Permit Effluent Limitation Language

[No comments]

Appendix C: Examples of Compliance Determination

Comment 40.15

Degrees of Freedom Formula

The degrees of freedom (15) resulting from the example formula does not match the 16 degrees of freedom in the following sentence. Confirm and revise as appropriate.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions, Staff Report and examples have been changed. See Appendix B of the October 2018 Draft Toxicity Provisions for updated examples.

Appendix D: Decision trees

Comment 6.6

For wastewater dischargers, Figure 2 on page 24 of the Draft Policy shows the compliance determination process for wastewater dischargers.

The graphic fails to identify that violations of the permit would occur if any of the additional monitoring or TREs were not conducted.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. This figure is no longer relevant and is not included in the October 2018 Draft Toxicity Provisions or the Draft Staff Report. In addition, the effluent limitations are discussed in Section 5.4.3 and TRE requirements are discussed in Section 5.4.6 of the October 2018 Draft Staff Report.

Comment 12.5

Appendix D Figure 2 Compliance Determination for Wastewater Dischargers Decision Tree

The Decision Tree in Appendix D Figure 2 needs to be modified under the Fail greater than/equal to MDEL branch. The flow from the Verification Test diamond currently reads Fail (any % effect). This threshold needs to read "Fail greater than/equal to 25% chronic effect or 20% acute effect." This Decision Tree needs further modifications to describe the procedures followed under the Numeric Action Level model identified above.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. This figure is no longer relevant and is not included in the October 2018 Draft Toxicity Provisions or the Draft Staff Report. In addition, the MDEL is discussed in Section 5.4.3 of the October 2018 Draft Staff Report.

Comment 37.15

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 _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, SRCSD 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.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The October 2018 Draft Toxicity Provisions do not include accelerated monitoring requirements. TRE requirements are discussed in Section 5.4.6 of the October 2018 Draft Staff Report. The figure referred to by the commenter is not included in the October 2018 Draft Toxicity Provisions or Staff Report. Appendix G of the October 2018 Draft Staff Report provides a flow chart of these requirements.

Comment 40.16

Flow Chart Edit

The bottom triangle ''Do all 4 tests pass with % effect < 0%'' is missing the 1. As stated, we feel this 10% effect level for Reasonable Potential is over conservative and inappropriate (see Comment # 3).

Response

This decision tree is not included in the Provisions or the 2018 Staff Report. Please see Appendix G of the October 2018 Draft Staff Report for a current decision tree regarding TRE requirements. TRE requirements are discussed in Section 5.4.6 of the October 2018 Draft Staff Report.

Appendix E: Guidance for Storm Water Dischargers

Comment 7.2

The Method EPA-821-R-02-013 required by the Policy states that freshly prepared solutions are used to renew the tests daily immediately after cleaning the test chambers. For on-site toxicity studies, fresh effluent or receiving water samples should be collected daily, and no more than 24h should elapse between collection of the samples and their use in the tests. Similar language is found in the other tests methods mandated by the policy. This language is not consistent with EPA methods. If implemented, it would result in a large increase in sampling, handling and analytical costs.

Caltrans Request: Caltrans recommends that the duration of toxicity testing align with the period of exposure of aquatic life to stormwater discharges.

Response

The October 2018 Draft Toxicity Provisions do not alter the test methods. Section IV.B.1.b. of the October 2018 Draft Provisions specifies the U.S. EPA methods that must be used for demonstrating compliance with the water quality objectives and effluent limitations. Section 5.2 of the October 2018 Draft Staff Report contains additional discussion on the acceptable test methods.

Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report. Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would be responsible for determining whether to require monitoring for storm water dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Comment 7.3

2. Appendix E of the Draft Policy should specify that toxicity testing only be performed for discharges if there is toxicity detected in the receiving waters. The Draft Policy allows the ''applicable Water Board'' to authorize in-stream waste concentrations (IWC) of less than 100 percent, and that the IWC is for the test sample. In Caltrans draft permit, the IWC for Caltrans discharges is given as 100 percent (i.e. no dilution or mixing credit is to be given). Past studies have already shown that highway runoff discharges may frequently be toxic. Given this, it makes sense to do toxicity testing on discharges only if there is any evidence of toxicity in the receiving water. This is particularly true since many Caltrans discharges intermix with other municipal runoff and therefore undergo some form of modification or transformation before entering the receiving water. If the receiving water demonstrates toxicity, it is recommended to monitor only outfalls that discharge directly to receiving waters and use an IWC equivalent to the estimated percentage of the discharge in the receiving water. If deemed necessary, we recommend allowing an IWC less than 100 percent for non-direct discharges. This lower IWC could be implemented as the percentage of the discharge in receiving water, or the percentage in the downstream mixed discharges. Caltrans Request: Modify Appendix E to reorder the questions to ask first whether there is toxicity in the receiving water prior to initiating outfall toxicity monitoring. If outfall monitoring is required, an IWC should be applied based on the percentage of the discharge in the receiving water.

Response

Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would be responsible for determining whether to require monitoring for storm water dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report.

Mixing zone requirements are included in Section IV.B.2.d. of the October 2018 Draft Toxicity Provisions. Additional discussion on the requirements for mixing zones and dilution credits is included in Section 5.4.5 of the October 2018 Draft Staff Report

Comment 7.4

3. Appendix E (guidance for stormwater dischargers) should more explicitly allow discretion in the trigger for storm monitoring.

Appendix E provides a recommended default trigger for storm monitoring of 50% Probability of Precipitation (POP). From Caltrans' experience, this trigger results in too many false mobilizations. Since the Caltrans permit requirement is to capture only 3 storms per season, we request that the Draft Policy allow Caltrans to continue to use our standard 75% POP as a trigger for monitoring. Additionally, Appendix E recommends that the trigger for storm monitoring be 0.25'' Quantitative Precipitation Forecast (QPF). From Caltrans experience, this trigger should be adjusted for local rainfall patterns. As an example, 0.25'' is too high for Southern California but may be too low for Humboldt County.

Appendix E also states that samples that are successfully collected from a storm that arc < 0.1inch precipitation should be discarded and another storm sampled. This may be difficult to do in dry areas, and result in wasteful expenditure. Caltrans recommends allowing more flexibility to assess whether a successfully captured storm is determined to be reasonably representative. This determination could be based on technical criteria (e.g., the range of expected storm events for a region) or simply on best professional judgment and a sufficient rationale for the determination. There is more than sufficient regional precipitation information (in addition to Caltrans experience) to make informed decisions about minimum targeted and representative precipitation events. Caltrans Request: Appendix E should be modified to conform to long-standing existing Caltrans monitoring guidance. Specifically, it should clearly specify higher POP and flexibility to adjust the QPF monitoring triggers based on regional conditions. Additionally, the policy should allow more flexibility (based on technical rationale or best professional judgment of the stormwater permittee) to determine whether a successfully captured storm is determined to be reasonably representative.

Response

Under the October 2018 Draft Toxicity Provisions, Regional Water Board would be responsible for determining monitoring requirements for storm water dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report.

Comment 7.5

4. The State Board should clearly state that data from tests initiated within 72 hours would be acceptable for regulatory purposes. Appendix E of the Draft Policy discusses the difficulties associated with meeting the 36 hour hold time for toxicity, and implies that a 72-hour hold time is acceptable with regulatory approval. However, the guidance only states that 36 hours should be targeted but no more than 72 hours should elapse before initial use of the sample. Caltrans Request: Provide a clarifying statement that data from tests initiated within 72 hours will be acceptable for regulatory purposes.

Response

The October 2018 Draft Toxicity Provisions do not alter the U.S. EPA test methods. Section IV.B.1.b. of the October 2018 Draft Toxicity Provisions specifies the U.S. EPA test methods that must be used for demonstrating compliance with the water quality objectives. Section 5.2 of the October 2018 Draft Staff Report contains additional discussion on the acceptable test methods. Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would be responsible for determining whether to require monitoring for storm water dischargers. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report.

Comment 7.6

5. The Draft Policy should allow flexibility to identify the most sensitive species for toxicity testing based on past data. The screening tests recommended by the Appendix E of the Draft Policy are not in the Caltrans draft permit. This recommendation, if implemented, would increase costs, since all the ASBS and TMDL sites would require screening tests. Caltrans Request: The policy should be modified to allow flexibility to identify most sensitive species based on past data.

Response

The October 2018 Draft Toxicity Provisions do not require storm water dischargers to conduct species sensitivity screening. Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would have discretion to require toxicity monitoring for stormwater dischargers and which species would be required. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report.

For non-storm water NPDES dischargers, Section IV.B.2.a. of the October 2018 Draft Provisions includes requirements for species sensitivity screening. Section 5.4.1 of the October 2018 Draft Staff Report provides a greater explanation of the species sensitivity screening requirements for non-storm water NPDES dischargers in the Provisions.

Comment 7.7

6. There should be no requirement in the Toxicity Policy Appendix E for dry weather toxicity monitoring in stormwater systems.

The Appendix E guidance, in which dry weather toxicity monitoring is recommended for stormwater management programs, appears in conflict with the Clean Water Act that requires the MS4 to effectively prohibit non-stormwater flows (i.e., dry weather flows). Furthermore, Caltrans current draft Tentative Order (No. 2012-xx-DWQ, NPDES NO. CAS000003; April 27, 2012) requires Caltrans to effectively prohibit dry weather discharges to stormwater

management systems. Based on this objective. there is no need to further characterize dry weather discharges. and monitoring of toxicity (or any chemical constituents) is not necessary to determine compliance or the effectiveness of Caltrans' management in reducing and eliminating these discharges. Procedures and monitoring needed to determine program compliance and effectiveness in eliminating these discharges is documented in Caltrans' Stormwater Management Plan and referenced in the permit. (e.g., visual monitoring ofMS4s or outfalls that discharge directly to receiving waters, with appropriate follow-up source investigations). Caltrans Request: Eliminate the language in Appendix E indicating that the default sampling frequency includes two dry weather sampling events.

Response

Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would have discretion to require toxicity monitoring for stormwater dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report

Comment 8.5

Stormwater should be addressed through a separate policy, Appendix E should be issued as a separate guidance document from the Draft Policy…

...and its subject matter should be addressed in a separate guidance document developed with stakeholder input and thorough technical review.

Response

Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would have discretion to require toxicity monitoring for stormwater dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report

Comment 44.4

...[T]he Draft Policy will provide monitoring guidance that will result in significant increases in monitoring costs to municipalities throughout the San Francisco Bay Area and the State.

Response

Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would have discretion to require toxicity monitoring for stormwater dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report

Comment 48.5

Recommended Species Without EPA Approved Method

The Appendix E guidance document specifies several test species, including Hyalella azteca. However, there is no EPA promulgated test method for this species for whole effluent toxicity let alone urban runoff discharge. While water column testing is performed by a smaller subset of specialty laboratories, use of water column Hyalella azteca test should be limited to research endeavors. Hyalella azteca is included as a supplemental species in the "Methods Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marin [sic] Organisms" (EPA 2002, Fifth Edition). In this context it is intended to validate the test species. No Hyalella azteca specific test, test parameters, or method development data were included in the test method development. While the Hyalella azteca water column testing is useful in research projects in its current development, it is not appropriate for permit mandated urban runoff discharge monitoring, especially given the potential for future impairment listings based on the Draft Policy numeric objectives. The SSQP requests that the Draft Policy be modified to specify that urban runoff discharge mandated monitoring would only be required using fully vetted species in EPA promulgated methods.

Response

All species in Table 1 are included in the U.S. EPA methods manuals that may be used for determining compliance with the Toxicity Provisions. These U.S. EPA methods manuals are listed in Section IV.B.1.b. of the October 2018 Draft Toxicity Provisions. Hyallela azteca is an approved test species as listed in Appendix B of the 5th edition of U.S. EPA's Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (2002). This manual states, at 6.1.4, that "Additional species may be suitable for toxicity tests in the NPDES Program. A list of alternative acute toxicity test species and minimal testing requirements (i.e. temperature, salinity, and life stage) for these species are provided in Appendix B." The test methods and species are discussed in Section 5.2 of the October 2018 Draft Staff Report.

Section IV.B.1.h. of the October 2018 Draft Toxicity Provisions allows Regional Boards to require additional monitoring using species not included in Table 1 of the Toxicity Provisions. Further discussion on additional monitoring is included in Section 5.7.3 of the October 2018 Draft Staff Report.

Under the October 2018 Draft Toxicity Provisions, the Permitting Authority would have discretion to require toxicity monitoring for stormwater dischargers. Implementation requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report.

Comment 52.3

Furthermore, Appendix E fails to identify the locations for the monitoring. Whether the locations are to be discharges or receiving waters is key to answering the first question. We suggest that the guidance policy base its monitoring suggestions on the goal of characterizing toxicity in the receiving water, and then identify follow-up procedures for characterizing urban runoff once toxicity is identified.

Response

Toxicity testing sample and location are indicated in Section IV.B.1.a of the October 2018 Draft Toxicity Provisions. Monitoring locations are determined on a discharge-by-discharge basis. It is up to the Permitting Authority to determine the monitoring location requirements and to include that information in the NPDES permit, Waste Discharge Requirement, or 13383 or 13267 Order.

Monitoring requirements for non-storm water NPDES dischargers are included in Section IV.B.2.c of the October 2018 Draft Toxicity Provisions. Additional discussion of monitoring requirements is included in Section 5.4.4 of the October 2018 Draft Staff Report.

Implementation requirements for storm water dischargers, including municipalities, is included in Section IV.B.3. of the October 2018 Draft Toxicity Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Appendix E of the 2012 Draft Toxicity Policy is not included in the October 2018 Draft Toxicity Provisions or the 2018 Draft Staff Report.

Economic Analysis

Comments 2.14, 2.6, 4.5, 5.5, 13.15, 15.5, 26.4, 27.7, 28.6, 30.5, 31.5, 33.2, 37.18, 43.6, 51.3, 56.4

Acute Toxicity monitoring –

The Policy gives Regional Boards discretion in assessing Reasonable Potential (RP) for acute toxicity. Therefore, it must be assumed that regulators in any given region could decide to continue to require acute testing. If this is the case, the large cost decrease that is assumed in Appendix H of the Staff Report would not be realized in this Region. Furthermore, Region 2 municipal agencies have already invested significant resources into developing acute toxicity testing capability in-house, so even if the acute toxicity testing is not required, we will not realize the savings described in the Staff report.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the revised economic analysis for the October 2018 Draft Toxicity Provisions. This section of the October 2018 Draft Staff Report discusses the possible economic costs to non-storm water NPDES dischargers, including POTW dischargers, if they are required to conduct routine toxicity monitoring for acute toxicity.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 6.13

The Draft Staff Report does not evaluate the ability of these dischargers to meet the proposed numeric objectives in a cost effective manner when considering the type of objective to select.

Response

Chapter 6 of the October 2018 Draft Staff Report discusses the reasonably foreseeable methods of compliance for the Toxicity Provisions and the possible control options for aquatic toxicity. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the revised economic analysis for the October 2018 Draft Toxicity Provisions.

Comment 9.4

Additionally, the economic analysis conducted for this Policy is inadequate, as it does not appropriately address the costs associated with its application to stormwater discharges (and other discharges) that could become subject to the Policy.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions. The implementation requirements in the October 2018 Draft Toxicity Provisions only require storm water dischargers to use the TST approach to analyze aquatic toxicity Data, if the test species is included in Table 1 of the Toxicity Provisions. Because the October 2018 Draft Toxicity Provisions do not require any additional monitoring beyond that which is already required for storm water dischargers and the TST approach is not anticipated to result in an increase in the number of exceedances, the economic analysis concluded that the October 2018 Draft Toxicity Provisions will not result in an increase in costs to storm water dischargers.

Comments 11.54, 20.8

9. The Water Code Section 13241 and Economic Analyses Are Inadequate.

The Revised Draft Policy includes new numeric water quality objectives for toxicity, as well as new permit effluent limitations. The Water Boards are "under an affirmative duty to consider economics when adopting water quality objectives." (Memorandum to Regional Water Board Executive Officers from William R. Attwater, Chief Counsel, Jan. 4, 1994 at p. 1.) The Water Code requires that objectives be reasonable; "economic considerations are a necessary part of the determination of reasonableness." (Id. at p. 3.) The economic assessment requires a determination of the following factors:

- Whether the objective is currently being attained;

- What methods are available to achieve compliance with the objective, if it is not currently being attained;

- The costs of those methods. (Id at p. 1.)

The analysis in support of the Revised Draft Policy does not satisfy the requirements of Water Code sections 13241 and 13263. For one thing, the analysis lacks a determination that the objectives are currently being attained. In addition, there are no citations to facts or evidence to support any conclusions made. (See Staff Report at 63-64). The law requires adequate consideration of all 13241 factors; the decision must demonstrate a rational connection between those factors, the choice made, and the purposes of the Porter Cologne Water Quality Control Act. (Id. at 5; see also California Hotel & Motel Assn v Industrial Welfare Commission, 25 Cal 3rd 200, 212 (1979).

Response

Water Code section 13241 does not require a cost-benefit analysis of a proposed water quality objective. Rather, the Water Code only requires the Water Boards to "consider" economics when establishing water quality objectives. State Water Board staff fulfilled this requirement by working with consultants (Abt Associates) to prepare a detailed estimate of the costs associated with the Draft toxicity provisions.

The commenter cites an internal advisory memo from the State Water Board's Office of Chief Counsel to the Regional Water Boards (Advisory Memo). Contrary to the commenter's statement, the Advisory Memo does not "require" a determination of certain factors. The Advisory Memo states that an economic assessment, pursuant to Water Code section 13241, "will generally require" three listed factors. The Advisory Memo did not mandate this requirement. It was drafted with a focus on the adoption or modification of water quality objectives by the Regional Water Boards in their respective Water Quality Control Plans (Basin plans). Each situation may present unique circumstances that do not lend themselves to a "one size fits all" set of criteria.

In a similar vein, the commenter notes that in accordance with the Advisory Memo, the Staff Report of the June 2012 Public Review Draft of the Policy does not determine whether the objectives are being maintained. Again, the Advisory Memo was drafted with a focus on the adoption or modification of water quality objectives by the Regional Water Boards in their respective Basin Plans. Nonetheless, the 2018 Draft Staff Report outlines the existing toxicity water quality objectives in the eleven Basin Plans, and Appendix F includes a table of the 2014 and 2016 Listing of Water bodies impaired for toxicity, taken from the California Integrated Report. Given the breadth of the proposed amendment's applicability (all inland surface waters, enclosed bays, and estuaries within the state), a detailed analysis listing each individual water body's maintenance or violation of its respective toxicity objective would yield little value.

Chapter 9 of the October 2018 Draft Staff Report includes a discussion of the 13241 factors for the October 2018 Draft Provisions.

Comment 11.55

Further, the economic analysis that is relied upon in the Staff Report may be obsolete, as the analysis must have been conducted on a prior draft version of the policy, which was different than the current version of the Revised Draft Policy.

Response

An economic analysis was completed in July 2018 for the October 2018 Draft Toxicity Provisions. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions.

Comment 11.56

Further, the economic analysis significantly underestimates the cost impacts of the Revised Draft Policy. The only costs considered are those for monitoring (which are incomplete); the economic analysis fails to consider costs of compliance, including treatment, or the costs associated with unnecessary enforcement, or citizen suit penalties. All of these costs need to be considered as they are all above the current baseline condition.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions. This section discusses both the cost of monitoring and the potential costs from implementing potential toxicity control options.

Comment 11.57

While it may be true in the most general sense that "end-of-pipe treatment can be costly, making dischargers most likely to first pursue lower cost options such as process optimization and pollution prevention (e.g., chemical substitution and pretreatment modifications)" (Abt Report at 4-1131), no evidence has been provided that these types of improvements will be sufficient to comply with the proposed objectives given the inherent 5 percent false toxicity determination percentage. The State Water Board must consider the costs of all compliance methods available.

Response

Foreseeable methods of compliance are discussed in Chapter 6 of the October 2018 Draft Staff Report. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions.

Comment 11.58

An assessment of treatment technologies was not undertaken because the treatment needed is "highly site-specific" or "due to a lack of site-specific data." (SAIC Economic Analysis at 7; Abt Report at 4-11.) While it may be difficult to identify treatment needs and therefore the costs, there are methods for estimating and evaluating the potential costs that should at least be discussed and considered. It is not sufficient to summarily dismiss the possibility of additional treatment costs due to the site-specific nature of toxicity. For example, during the State Water Board's evidentiary hearing regarding the City of Vacaville's permit, CASA presented expert testimony regarding the unit cost and unit energy requirements for the use of advanced wastewater treatment facilities to address specific pollutants that might pose compliance issues for POTWs discharging to inland surface waters in California. At a minimum, the economic analysis should discuss the costs and energy demands of the most likely treatment technologies to be employed to address toxicity and estimate the percentage of facilities that will be required to implement these technologies statewide.

Response

Partially in response to this and other comments on the Staff Report for the 2012 Draft Policy, the October 2018 Draft Staff Report incorporated this information. Potential costs for treatment controls and ongoing operations and maintenance costs are discussed in Section 9.1.4 of the October 2018 Draft Staff Report.

Comment 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.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions. The economic analysis for the project relied on a sample of facilities throughout California that represent various discharge types and permitted rates of discharge. Small POTW dischargers were included in the sample of facilities so that the economic impact to small POTW dischargers could be analyzed.

Comment 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.

Response

The 2018 economic analysis of the October 2018 Draft Toxicity Provisions does consider the costs to facilities for conducting species sensitivity screening. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions.

Comment 13.16

- It [Economic analysis] 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.

Response

Most dischargers are required to collect monthly or quarterly samples to test for other pollutants. Any increased sampling for aquatic toxicity (monthly for discharges greater than or equal to 5 MGD and quarterly for discharges of less than 5 MGD) can be collected and shipped with other samples, thus resulting in little or no increase in costs associated with collecting and shipping aquatic toxicity samples. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions.

Comment 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.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions. The economic analysis for the project relied on a sample of facilities throughout California that represent various discharge types and permitted rates of discharge. Small POTW dischargers were included in the sample of facilities so that the economic impact to small POTW dischargers could be analyzed.

Comment 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.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions. The economic analysis for the project relied on a sample of facilities throughout California that represent various discharge types and permitted rates of discharge. Small POTW dischargers were included in the sample of facilities so that the economic impact to small POTW dischargers could be analyzed. This section includes a discussion on possible costs for acute toxicity monitoring.

Regarding false positive rate see response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4

Comment 20.5

Next, the State Water Board has failed to comply with Porter-Cologne in its proposed attempt to adopt new water quality objectives for toxicity. Specifically, Water Code section 13241 requires the State Water Board to consider a number of factors when it adopts water quality objectives, including the water quality conditions that could reasonably be achieved, and economic considerations. (See Wat. Code, § 13241.) With respect to economic considerations, water boards are "under an affirmative duty to consider economics when adopting water quality objectives." (Memorandum to Regional Water Board Executive Officers from William R. Attwater, Chief Counsel (Jan. 4, 1994) at p. 1.) When considering economics, the economic assessment requires a determination of the following factors: (1) whether the objective is currently being attained; (2) what methods are available to achieve compliance with the objective, if it is not currently being attained; and, (3) the costs of those methods.

(Ibid.) With respect to agriculture (and others), the analysis is superficial to nonexistent. First, the economics analysis does not evaluate costs of compliance with the proposed numeric toxicity objective, but looks only to costs of toxicity testing. By looking only at monitoring costs, the Economic Considerations report claims that in the Central Valley, Central Coast, and Los Angeles regions the incremental costs would be minimal. However, its limited review of monitoring costs alone is inadequate. The Economic Considerations report fails to properly account for the added expense of the TST approach, and that the recommended monitoring for chronic toxicity would greatly increase toxicity monitoring costs for agriculture.

Response

A consideration of the 13241 factors and other required considerations, including the economic analysis are discussed in Chapter 9 of the October 2018 Draft Staff Report. The only direct change to permit requirements for all nonpoint source and storm water dischargers that are required to monitor for toxicity with test methods specific in the October 2018 Draft Toxicity Provisions is the requirement to use the TST approach to analyze test data. The Permitting Authority would continue to have discretion whether or not to include toxicity testing requirements. In addition, the October 2018 Draft Toxicity Provisions do not include requirements for storm water and non-point source dischargers to conduct accelerated monitoring or TREs. Nor is there expected to be an overall net increase in the number of waterbodies listed as impaired for toxicity. In regard to the comments addressing the perceived inadequacies of the economic analysis, see response to comment 11.54.

Comment 34.6

The staff report for the draft policy includes a consultant’s report on the economic impacts if it is adopted entitled Economic Considerations of Proposed Whole Effluent Toxicity Control Policy for California. Cost estimates in this report are highly suspect and should be carefully questioned by Board members. From just a cursory review, PSSEP found the consultant's report erroneously concluded that adoption and implementation of the Proposed Toxicity Policy would actually decrease the costs for permit required acute and chronic toxicity testing at two Bay Area petroleum refineries. In fact, these costs are expected to increase substantially.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Toxicity Provisions. For some facilities costs were estimated to decrease due to decreased monitoring (e.g. a facility no longer being required to conduct routine acute toxicity monitoring). For other facilities costs were estimated to increase due to the addition of acute or chronic toxicity monitoring or an increase in monitoring frequency.

Comment 37.17

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.

Response

The October 2018 Draft Toxicity Provisions provide greater clarity on the requirements regarding the number of species that need to be tested, species sensitivity screening, reasonable potential analysis, toxicity test methods, and requirements for acute toxicity testing. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 37.19

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.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions. Factors listed in this comment were considered in the July 2018 economic analysis of the Toxicity Provisions and are discussed in this section.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 37.20

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.

Response

Section IV.B.2.g. of the October 2018 Draft Toxicity Provisions stipulate that for existing flow through systems that are not amenable to use the TST approach, the Permitting Authority specify the statistical analysis and endpoint. Therefore, the methods and analysis for existing flow-through systems will not change under the October 2018 Draft Toxicity Provisions. In addition, the October 2018 Draft Toxicity Provisions do not require dischargers to install flow-through acute toxicity systems or monitor for acute toxicity from flow-through systems. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comments 37.21

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.

Response

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 38.10

And, the economic analyses performed by SAIC and ABT Associates failed to consider the cost or consequences of these more frequent failures, including enforcement actions and implementation of any compliance options. Nor do these economic analyses consider the added cost of performing tests on three different species (fish, invertebrate and plant) until the most sensitive single species is identified.

Response

The economic analysis discussion in Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of potential costs for implementing toxicity control options. The July 2018 economic analysis includes the potential costs for species sensitivity screening.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Regarding the potential for more frequent failures under the Toxicity Provisions, see response to Comment 1.1, 2.15, 4.7, 4.2, 5.2, 5.9, 6.15, 11.7, 11.63, 11.38, 11.12, 11.41, 14.2, 15.2, 17.7, 18.4, 20.10, 28.2, 37.11, 39.5, 43.9, 45.6, 47.7, 47.5, 56.2, 57.1, 57.4, 58.4. For a discussion of penalties in the economic analysis, see response to Comment 2.16, 3.5, 4.6, 5.8, 14.6, 15.7, 26.6, 27.1, 30.4, 33.4, 42.7, 42.6, 43.8, 46.5, 46.7, 51.6, 56.6, 59.4

Comment 38.5

The economic analyses performed by SAIC and ABT Associates did not consider the cost of special adjustments and additional testing needed to address the ionic interference problems that are likely to occur when WET testing is applied more widely throughout the state.

Response

WET testing is already widely applied throughout the state. Any economic assessment of possible test interference scenarios that may arise after the adoption of the Toxicity Provisions would be purely speculative. The July 2018 economic analysis does consider the possible costs for monitoring and conducting a TRE. See response to Comment 38.4 regarding ionic interference.

For a discussion on the July 2018 economic analysis see Section 9.1.4 of the October 2018 Draft Staff Report. The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 39.8

Like the previous analysis conducted by SAIC, the economic impact analysis prepared by ABT Associates contains numerous errors and severely underestimates the true cost of compliance with the SWRCB's proposed policy. ABT examined all of the WET test data reported on San Bernardino's DMR's between June of 2006 and June of 2008 to estimate the incremental costs likely to occur in the draft policy is approved. However, ABT made this comparison using the incorrect permit. Their analysis was based on NPDES No. CA0105392 not NPDES No. CA800034. The former is a rarely used permit that allows the City to (temporarily) discharge disinfected secondary effluent without Title-22 filtration only when there is 20-to-1 dilution available in the receiving water. The latter is the permit which governs the City's day-to-day discharges from the tertiary filtration facility known as "RIX." The City has only been able to effect discharges under the temporary permit about once in every 10 years when higher rainfall associated with an El Nino winter swell flows in the receiving water. And, even then, the City is rarely able to discharge for more than a week or two before river flows no longer provide the required 20-to-1 dilution. The terms and conditions of Permit No. CA0105392 bear little relationship to those found in Permit No. CA800034. Thus, ABT's analysis and conclusions with respect to the costs likely to be incurred at San Bernardino are wholly invalid.

In addition, ABT's analysis was done by comparing the NOEC failure rate against the TST failure rate. However, San Bernardino uses IC25, not the NOEC, to calculate the Toxicity Units (TUc) value used to trigger accelerated testing or TIE requirements. This distinction makes a

great deal of difference because the final effluent has only failed the IC25 endpoint twice in the last five years, but would have failed five times during the same time period using the TST. The elevated failure rate, likely due to the increased incidence of false toxicity indications, greatly increases the City's total monitoring costs and exposure to enforcement actions and penalties.

ABT also assumed there would be considerable saving associated with running only two test concentrations rather than the six that are currently required. However, as previously noted, federal regulations require that at least five effluent dilutions be run even if the TST uses only data from the control group and the undiluted effluent to estimate compliance. Consequently, ABT was mistaken to assume that a more simplified test design might save the City money. ABT's estimate is less than half of our actual expense for sample shipping and laboratory testing.

ABT's fundamental lack of understanding for how WET testing works in the real world, and other errors on the detailed requirements in our relevant existing permit, calls into question the validity of their conclusions. If ABT made the same mistakes calculating the incremental cost of compliance for other dischargers as were made when they evaluated San Bernardino's permit, then the analysis is severely flawed and lacks the credibility necessary to demonstrate that the SWRCB made a good faith effort to consider economics as required by §13241 of the California Water Code. At a minimum, ABT's analysis should be audited and peer-reviewed. Based on our direct review of ABT's false statements regarding San Bernardino's discharge, we believe the study should be discarded and redone.

Response

The July 2018 economic analysis included Permit No. CA800034, which the commenter indicated is the correct permit. The July 2018 economic analysis does not assume any cost savings from using fewer concentrations. Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions. The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 48.6

Inaccurate Cost Impact Assumptions

The Economic Considerations of Proposed Whole Effluent Toxicity Control Policy for California document included as Appendix H to the Staff Report erroneously assumes that the cost impact to the SSQP would be zero. If urban runoff discharge monitoring is mandated as described and recommended in Part B.2 of the Draft Policy, significant additional testing would be required. Part B.2 of the Draft Policy and Appendix E guidance document do not clearly state how many urban runoff discharge locations would be tested, but the SSQP would estimate that at least our three current long-term sites would be added to our current seven receiving water locations that require toxicity testing. The SSQP estimates that the additional toxicity testing would add from $20,000 to $80,000 of additional annual cost, depending on the number of species and the extent of follow-up toxicity identification testing. The SSQP requests that the Appendix H cost analysis be updated to reflect this more accurate SSQP cost impact estimate.

Response

The October 2018 Draft Provisions do not mandate aquatic toxicity testing for storm water dischargers. Implementation requirements for storm water dischargers, including municipalities, is included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report.

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Comment 58.23

The cost analysis underestimates the economic impacts. The economic analyses contained in the Staff Report for the 2012 Draft Toxicity Policy include measurable factual errors and underestimates the likely monitoring costs. Neither the economic and environmental impact analyses considered the reasonably foreseeable costs of compliance. In order to comply with the provisions in the 2012 Draft Toxicity Policy, we are additionally concerned that additional treatment facilities may be required (potentially including nitrification, disinfection by UV/ozone, activated carbon, and/or reverse osmosis, and new testing laboratories to run the revised acute TST method), even if the findings of toxicity are false. These are in addition to the measurable increase in laboratory analysis costs that will be necessary for standard monitoring and accelerated monitoring when required.

Response

The reasonably foreseeable methods of compliance are discussed in Chapter 6 of the October 2018 Draft Staff Report. Toxicity Controls are not identified as a reasonably foreseeable method of compliance, however for informative purposes, a discussion of possible toxicity controls is included in Chapter 6.

Section 9.1.4 of the October 2018 Draft Staff Report includes a discussion of the economic analysis for the October 2018 Draft Provisions.

The July 2018 economic analysis for the Provisions is available on the State Water Board's Toxicity web page at:
https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html

Staff Report

Comment 11.62

Finally, as pointed out above, the peer reviewers missed serious mathematical errors in the Revised Draft Policy that may have adversely affected their recommendations had these errors been found. For these reasons, the Associations believe that the peer review process should not be substantially relied upon to justify adoption of the Revised Draft Policy.

Response

The peer review concluded that the scientific basis for the Toxicity Provisions is based upon sound scientific knowledge, methods, and practices. The peer review analysis and conclusions are still valid. The scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report.

Comment 34.1

The TST methodology, on which the entire Proposed Toxicity Policy is based, is not simply a "new approach for analyzing toxicity data" developed by U.S. EPA. (Staff Report at p. 37.) In fact, the TST approach has never been formally adopted by U.S. EPA, and thus never been subjected to a rigorous peer review and public comment process.

Response

The scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report. Public outreach for the project is discussed in Sections 2.9, 2.10, and 2.11 of the October 2018 Draft Staff Report. The proposed adoption of the October 2018 Draft Toxicity Provisions is being conducted pursuant to a public process that comports with the requirements of U.S. EPA and the California Office of Administrative Law, and as such, does not constitute an underground regulation (see Cal. Code Regs., tit. 1, § 250, subd. (a)).

Comment 58.25

Unavailability and inadequacy of peer reviews conducted by EPA IX and the SWRCB.

A very limited portion of the USEPA peer review materials from the first and the 2012 Draft Toxicity Policy have been made available, however we have several concerns after reviewing them and the lack of transparency is troubling. The detailed individual peer review comments from the USEPA peer review are not yet available. In addition, the summary of the peer review comments indicates several serious issues with the TST method. The USEPA peer reviews did not address several important aspects of the State Board's proposed policy, namely the peer-reviewed USEPA TST document did not include the additional components that are unique to the State Board's proposed Policy (e.g., RPA procedures, application of the TST method to stormwater discharges). These aspects of the State’s proposed Policy were never reviewed by the USEPA peer reviewers.

The State Board peer review was based in large part on the USEPA TST Technical Document. Although USEPA maintained that this June 2010 guidance was peer reviewed, USEPA released only a summary report describing its peer review and not the peer review comments themselves (as noted above). Because the full peer reviews were not made available by USEPA, the State

Board initiated its own peer review of the State's 2012 Draft Toxicity Policy (focused on use of USEPA's TST), and received peer review comments from two (2) reviewers.

Important aspects of the 2012 Draft Toxicity Policy have not been subjected to the peer review. The State Board Staff's request to peer reviewers was limited to four specific topics. The State Board Staff did not ask for peer review of other important and fundamental aspects of the 2012 Draft Toxicity Policy such as,

- the use of numeric objectives to assess toxicity in permits;

- the proposed methodology for conducting RPA; or

- the scientific basis for requiring chronic toxicity tests for stormwater discharges.

Two toxicologists conducted the review, and one of the two reviewers may not be sufficiently qualified. One of the reviewers is a molecular toxicologist whose research focuses on toxicological effects at a cellular/molecular level. This review is two pages in length and does not discuss in detail many important aspects of the 2012 Draft Toxicity Policy.

The reviewers appear to have limited their review to the benefit of the TST approach "in theory" (i.e., the conceptual approach of the TST) but do not appear to have examined whether values selected for parameters in the TST approach were scientifically defensible.

Both the reviews were strongly supportive of the TST approach, apparently because it was designed to control both the error rate of determining toxic samples non-toxic and the error rate of determining non-toxic samples toxic, and also because it incorporates the concept of effect size.

However, it does not appear that the reviewers evaluated the scientific basis of the selected values for the error rates and the effect size. Peer reviewers for USEPA's draft TST Technical Document, by contrast, were very critical of the values selected to describe the effect size and recommended additional analysis for the selection of the effect size.

The value that was criticized by the USEPA peer reviewers was carried forward into the State's 2012 Draft Toxicity Policy on the basis of "best professional judgment" and without the analysis recommended by the USEPA peer reviewers. None of the State Board reviewers commented on this issue.

Further, the State Board reviewers asserted that it is advancement in environmental regulation to put the burden of proof on dischargers, which may be a policy decision and therefore outside of their technical expertise.

Response

The scientific peer reviews for the Toxicity Provisions are discussed in Section 2.12 of the Draft October 2018 Staff Report. Documents associated with the peer reviews are available at https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.html. The Water Board peer reviewer was not limited to specific topics as it included big picture questions, such as “Taken as a whole, is the scientific portion of the draft Policy based on sound scientific knowledge, methods, and practices?” The peer review concluded that the scientific basis for the Toxicity Provisions is based upon sound scientific knowledge, methods, and practices. Additionally, in regards to error rates and the effect size, please see the response to Comment 40.5 under the Part 1: Definitions section of this response to comments document.

Comment 11.61

In addition, the validity of the peer review process is called into question by the fact that the Policy was revised from the version that went to the peer reviewers after the review process occurred. (Compare http://www.swrcb.ca.gov/water_issues/programs/peer_review/docs/calif_toxicity_policy/draft_toxicity_policy_pr.pdf to http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/draft_tox_policy_0612.pdf.) Thus, the current version was not peer reviewed. By way of example of the changes, the proposed monthly limit was changed from a monthly average (AMEL) to a monthly median (MMEL) after the peer review.

Response

While changes have been made to the Toxicity Provisions since peer review, the scientific basis of the Toxicity Provisions remains unchanged. Additional peer review is not required. The peer review concluded that the scientific basis for the Toxicity Provisions is based upon sound scientific knowledge, methods, and practices. The peer review analysis and conclusions are still valid. The scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report.

Comment 9.5

With regard to process issues, we are concerned that the peer review conducted by the USEPA does not meet California's standards.

Response

As required by Health and Safety Code section 57004, the scientific basis of the Toxicity Provisions was peer reviewed. The scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report.

Comments 11.60, 17.6

The Peer Review Process Employed by the State Water Board was Inadequate.

Under California Health and Safety Code section 57004, the State Water Board has obligations to provide peer review of the scientific basis and portions of any rule or regulation. While the State Water Board did conduct a peer review, it is not clear that this peer review was conducted in accordance with section 57004's requirements, and agency guidance (see http://www.calepa.ca.gov/publications/Reports/PEERRVW.PDF,

http://www.waterboards.ca.gov/water_issues/programs/peer_review/docs/rb1_klamath_river/peer_review_guide_010709.pdf and http://www.swrcb.ca.gov/water_issues/programs/peer_review/.

First, it is not clear that the peer reviewers reviewed all portions of the Revised Draft Policy that include a "scientific basis" or "scientific portions" as defined by H&S Code section 57004(a)(2). It is also not clear that the peer reviewers met the requirements of section 57004(b). The State Water Board gave the peer reviewers only particular sections of the policy for them to review and provide their feedback and comments (see http://www.swrcb.ca.gov/water_issues/programs/peer_review/docs/calif_toxicity_policy/attachment_2.pdf.) These sections of the policy did not include key scientific portions of the policy,

including, but not limited to, the validity of the numeric objectives or effluent limitations. In addition, the way the sections were described by the water board staff may have inserted bias into the process.

Response

As required by Health and Safety Code section 57004, the scientific basis of the Toxicity Provisions was peer reviewed. The scientific peer reviews are discussed in Section 2.12 of the October 2018 Draft Staff Report. The peer reviewers were provided with the full 2012 Draft Policy, a summary of the policy, findings to be addressed, a list of project participants, supporting documents, and project milestones.

Comment 6.4

Alternatives Evaluation Does Not Fully Consider the Ability of Numeric Objectives to Address Concerns with the Existing Approach to Toxicity Regulation

The alternatives evaluation did not include an evaluation of all alternatives, or fully evaluate the alternatives that were presented. As a result, the analysis does not support the selection of numeric objectives as the preferred alternative. For example, the Draft Staff Report (p. 42) provides four reasons why narrative objectives are not the selected alternative:

1. Narrative objectives do not provide a clear measurement of compliance and ultimately obligate the permitting authority to prove that a violation occurred before enforcement actions can be taken.

2. This approach represents an oversight-driven model of toxicity control that essentially requires the regulatory agency to manage the dischargers' efforts to reduce and control toxicity.

3. The significant amount of resources that would be required to ensure water quality objectives are met under such a policy would encumber the Regional Water Boards.

4. The potential for ecological harm would likely increase as a result of these vague objectives.

While these issues may be of concern with the current narrative approach, the State Water Board staff did not evaluate an approach that utilized a statewide narrative objective combined with statewide implementation procedures for wastewater dischargers that include numeric triggers for additional action to address persistent toxicity and defined enforcement provisions. Despite the Stakeholders and other Associations, such as CASA and Tri-Tac's, support of an alternative narrative approach in earlier comments and testimony, the Draft Staff report only considers the use of a statewide narrative objective that is implemented using current procedures.

Response

The specific project options that were considered for the Toxicity Provisions are discussed in Chapter 5 of the October 2018 Draft Staff Report. Project alternatives are discussed in Chapter 8 of the October 2018 Draft Staff Report.

Comment 11.15

No information in the TST guidance document or in the record for the Revised Draft Policy rigorously assesses the relative merits of TST versus point estimation. In fact, the EPA

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 a 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.

The primary argument presented by State Water Board staff 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 and are already used by many dischargers. Another argument for the TST was that it would encourage dischargers to produce better quality data (e.g., using more replicates) while use of the NOEC would discourage dischargers from producing better quality data (e.g., use of less replicates). However, with point estimates, no inherent "benefit" or incentive exists for a discharger to produce poor quality data. Finally, there was no information presented in the Staff Report to document the current widespread existence of poor quality/high variability chronic toxicity data. To the extent that this is indeed a valid concern, it must be directly addressed in the Staff Report by including evidence to support this contention. Then, 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 could resolve this concern instead of transitioning to the non-approved TST statistical method.

Response

A point estimate approach is not the preferred approach for several reasons. First, the available point estimate models do not include false positive and false negative error rates. With a point estimate approach these error rates are unknow, thus reducing the power of the test and confidence in the outcome. A point estimate approach would need to be developed using 95 percent confidence intervals generated by the analysis in order to appropriately determine the power of the analysis and certainty of the mean IC_{25} result.

Second, the 1995 Pellston workshop on WET, which included 50 experts from around the U.S., could not agree on the appropriate model to use to calculate point estimates such as IC_{25}. More recent published literature on this subject continues this debate.

Third, the approach U.S. EPA recommended to calculate IC_{25}s (linear interpolation) in its 1991 publication, the Technical Support Document for Water Quality-based Toxics Control (and still in use now) may not adequately take into account high within-test variability in the controls, resulting in fewer incentives on the part of the permittee to obtain more precise, high quality data. This, combined with the data "smoothing" technique included in the linear interpolation IC_{25} approach, can yield results of uncertain quality. The TST approach corrects these disadvantages, while rewarding higher quality data

A discussion of statistical approaches, including the TST approach and point estimates are discussed in Section 5.3 of the October 2018 Draft Staff Report.

Comment 11.33

However, without a great deal of explanation, the Staff Report rejects use of narrative objectives and recommends numeric objectives instead because "[n]arrative objectives" do not provide a clear measurement of compliance and ultimately obligate the permitting authority to prove that a violation occurred before enforcement actions can be taken." (Staff Report at p. 42.) This analysis ignores the fact that the State Water Board recently developed, through a scientifically

valid process, and adopted narrative sediment quality objectives ("SQO") to address sediment toxicity. According to the SQO staff report, "narrative objective can be proposed that can be implemented with a high degree of confidence using a robust suite of tools." (SQO Staff Report at pp. 5-11.) Thus, this conflicts with the Staff Report's conclusions for water column toxicity, and the Staff has provided no evidence or valid rationale for concluding that a similar approach would not work for controlling water column toxicity.

Response

The numeric water quality objectives are included in Section IV.B.2.a and b. of the October 2018 Draft Provisions. These numeric water quality objectives, including the reasons for using numeric rather than narrative toxicity water quality objectives are discussed in Section 5.1 of the October 2018 Draft Staff Report. See response to Comment 37.4 and Comment 11.46.

Comments 11.35, 11.36, 58.24, 58.11

The need for the 2012 Draft Toxicity Policy has not been demonstrated. The Staff Report fails to set forth why the 2012 Draft Toxicity Policy is necessary. Statements in the Staff Report regarding toxicity in waterbodies and effects of the same are qualified with phrases such as "potential," "may be," "might be," or "could be." Examples in the Staff Report include page 35 (beneficial uses "might be compromised"), page 38 ("will likely persist"), page 41 ("would likely prove challenging" and "potential impacts to aquatic life beneficial uses"), and page 44 ("may help reduce the effects of toxicity").

There are no specific examples of water quality benefits provided. The Staff Report on page 42 includes only conclusory statements that are not supported by references to any evidence in the record; namely that "numeric toxicity objectives ... will assure the protection of aquatic life beneficial uses. The Surface Water Ambient Monitoring Program (SWAMP) report entitled Toxicity in California Waters (Toxicity Report), which was released in October 2011, indicates that 49 percent of the sampled streams, river, canals, and lakes in California show no toxicity; 70 percent show no to some toxicity; and 30 percent show moderate to high toxicity. Further, 100 percent of sampled harbors and bays show no water column toxicity. See Figure 7 in the Toxicity Report.

The Toxicity Report also indicates that pesticides (especially pyrethroid pesticides) are a primary cause of surface water toxicity in California. Various TMDLs have been developed for waterbodies impacted by the pesticides, and USEPA and the California Department of Pesticide Regulation (CDPR) have been developing regulations for pesticides (p. 19 in the Toxicity Report). The findings of the Toxicity Report indicate that surface toxicity is an issue for certain waterbodies, but toxicity does not appear to be a state-wide issue. Further, a wide range of efforts are already underway to enhance surface water quality and reduce toxicity in California waterbodies. Based on these findings, it is unclear what benefits the 2012 draft Toxicity Policy will have in terms of enhancing the water quality of waterbodies in California.

Response

Section 3.1 of the October 2018 Draft Staff Report discusses the regulatory background and authority for the Toxicity Provisions and discuss the necessity for the Toxicity Provisions. The project goals are listed in Section 2.2 of the October 2018 Draft Staff Report.

Comment 11.51

8. The Alternatives Analysis and CEQA Checklist Are Inaccurate and Lacking in Detail.

The Revised Draft Policy is founded on perceived water quality benefits from assessing and controlling toxicity, even though no evidence in the record substantiates these claimed benefits.

Response

The CEQA checklist can be found in Section 7.5 of the October 2018 Draft Staff Report. The Alternatives analysis can be found in Chapter 8 of the October 2018 Draft Staff Report. The specific project options that were considered for the Toxicity Provisions, including a comparison of the preferred option to current conditions, are discussed in Chapter 5 of the October 2018 Draft Staff Report.

Comment 11.52

It is likely that in some cases, the only available alternative for compliance will be construction of additional advanced treatment facilities, such as reverse osmosis. This is acknowledged in the economic analyses done for the Revised Draft Policy, which states that reverse osmosis or other control technologies may be required for some pollutants causing toxicity (see SAIC Economic Analysis at 5-7; Abt Associates, Economic Considerations of Proposed Whole Effluent Toxicity Control Policy for California, June 2012, at 4-11.) Yet, the checklist concludes there is "no impact" to air, greenhouse gases, noise, and public services, or from the construction of new wastewater or stormwater treatment facilities. (See Staff Report at 69, 71, 74, 75, 76.) This checklist must be revised to address the environmental impacts of construction as well as the significant adverse environmental impacts that arise from the operation of these treatment technologies, including higher energy consumption, greenhouse gas generation, and the potential need to dispose of highly concentrated residual brines.

The Staff Report's CEQA analysis also fails to acknowledge the State Water Board has substantial discretion as to how to regulate the discharges for toxicity and the failure to consider all potential impacts of its policy choices renders these proceedings an abuse of discretion. (Valley Advocates v. City of Fresno (2008) 160 Cal.App.4th 1039, 1063 ("CEQA's policy of promoting informed decision making leads to the conclusion that a prejudicial abuse of discretion occurs when a public agency is misinformed regarding its discretionary authority and, as a result, does not actually choose whether to exercise that discretionary authority.")

The Revised Draft Policy chooses an inappropriate baseline since the starting point for an adequate environmental analysis relies on an adequate project description. (City of Redlands v. County of San Bernardino (2002) 96 Cal.App.4th 398, 406 ("An accurate and complete project description is necessary for an intelligent evaluation of the potential environmental impacts of the agency's action.").) The "project" must be interpreted broadly in order to protect the environment. (National Parks & Conservation Assn. v. County of Riverside (1996) 42 Cal.App.4th 1505, 1514.) In other words, the project must include not just the State Water Board's policy choices and ultimate decision, but also the physical improvements that the dischargers will have to make to comply with the new rules.

The Staff Report and environmental checklist fail to describe any of the physical improvements that the dischargers would undertake to comply with the new rules. These are part of the project, and must be included. CEQA requires a detailed analysis of potential environmental impacts. (Friends of Sierra Madre v. City of Sierra Madre (2001) 25 Cal. 4th 165, 184, 185.)

The CEQA checklist fails to discuss and analyze any significant cumulative impacts. (Staff Report at 77-80; CEQA Guidelines § 15130(a).) The checklist fails to list past, present, and probable future projects to address toxicity that could have cumulative impacts, nor does it discuss another planning document describing or evaluating conditions contributing to any

cumulative effects. (CEQA Guidelines § 15130(b).) In fact, the checklist (as well as the economic analysis discussed more below) improperly avoids discussion of cumulative impacts by relying on future project-level CEQA review. This ignores the potentially cumulative nature of this program's impacts, which have not been analyzed "in connection with... the effects of probable future projects." (CEQA Guidelines § 15065(a)(3).) Indeed, there is no real analysis or even identification-of other past, present, and future projects that the Revised Draft Policy that could have cumulative impacts. (See Staff Report at 77-79 (calling all such projects "purely speculative.").) Such a "conclusory statement 'unsupported by empirical or experimental data, scientific authorities, or explanation of any kind' not only fails to crystallize issues but 'affords no basis for a comparison of the problems involved with the proposed project and the difficulties involved in the alternatives.'" (Whitman v. Bd of Supervisors (1979) 88 Cal. App. 3d 397, 411 (citations omitted).) Cumulative impact discussion that is "but a conclusion utterly devoid of any reasoned analysis" is insufficient. (Id.)

Response

Chapter 2 of the October 2018 Draft Staff Report includes a brief description of the project, with further detail provided in Chapter 5 of the October 2018 Draft Staff Report. Chapter 6 of the October 2018 Draft Staff Report discusses the reasonably foreseeable methods of compliance for the Toxicity Provisions. The CEQA checklist can be found in Section 7.5 of the October 2018 Draft Staff Report. Some of the potential impacts discussed in the October 2018 Staff Report relate to the construction and operation and maintenance of possible new or upgraded toxicity controls. Even though the possibility that any given discharger would choose to implement a specific toxicity control as a method of complying with the Provisions is a speculative possibility, and therefore toxicity controls are not considered to be reasonably foreseeable methods of compliance, this information is included in the October 2018 Staff Report for the purpose of informing decision makers and public of any possible effects that may result, however unlikely. The project level analysis is expected to be conducted by the appropriate public agencies prior to implementation of specific projects.

The case cited by the commenter, Valley Associates v. City of Fresno (2008) 160 Cal.App.4th 1039, 1063, does not apply to the current situation. In Valley Associates, the decision-making body was affirmatively misinformed about its discretion resulting in a prejudicial abuse of discretion. The commenter has not alleged or provided any facts that the State Water Board is unaware of its discretionary authority as it relates to the regulation of discharges for toxicity.

Comment 11.53

The alternatives analysis is similarly lacking. The Staff Report provides its recommendations for the alternatives considered (which the Associations do not believe are sufficiently comprehensive), but fails to provide support for its recommendations. Both the range of alternatives and level of analysis in this Staff Report are inadequate. The Staff Report provides no explanation of the staff's reasons for selecting the considered alternatives. (CEQA Guidelines § 15126.6(c).) The Staff Report should identify all alternatives that were considered, but were rejected as infeasible during the scoping process, and explain why they were rejected. (Id.) The Staff Report fails to do this, and merely sets forth a "Recommendation" to "Adopt" a particular alternative.

This action does not include "sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project." (CEQA Guidelines § 15126.6(d) (emphasis added); Save Round Valley Alliance v. County of Inyo (2007) 157 Cal. App. 4th 1437, 1457 (citation omitted) ("If an alternative is identified as at least potentially

feasible, an indepth discussion is required.").) The Staff Report also fails to contain a quantitative and comparative analysis of alternatives. (Kings County Farm Bureau v. City of Hanford (1990) 221 Cal. App. 3d 692, 735.) For all of these reasons, the environmental review and CEQA checklist are inadequate and unlawful.

Response

The specific project options that were considered for the Toxicity Provisions are discussed in Chapter 5 of the October 2018 Draft Staff Report. The State Water Board's guidelines require "[a]n analysis of reasonable alternatives to the project... to avoid or reduce any significant or potentially significant adverse environmental impacts." (Cal. Code Regs., tit. 23, § 3777, subd. (b)(3).) An analysis of the range of reasonable alternatives to the project and reasonably foreseeable methods of compliance to avoid or substantially reduce any potentially significant adverse environmental impacts is not included in Chapter 8 of the October 2018 Draft Staff Report, because no potentially significant impacts were identified in Chapter 7 related to the reasonable methods of compliance with the October 2018 Draft Toxicity Provisions. However, to provide additional information, a discussion of alternatives are included that would avoid or substantially lessen the potentially significant impacts from the construction and operation and maintenance of toxicity controls. Project alternatives are discussed in Chapter 8 of the October 2018 Draft Staff Report. The CEQA checklist can be found in Section 7.5 of the October 2018 Draft Staff Report.

Comment 20.15

Moreover, the June 2012 Draft Staff Report and Environmental Checklist to the Draft Toxicity Policy (Staff Report) states that the "State Water Board's goals for this project are to have the Regional Water Boards convert the Policy's toxicity objectives into effluent limitations in order to: protect aquatic life beneficial uses; provide regulatory consistency; provide a basis for equitable enforcement; and fulfill the requirements of State Water Board Resolution No. 2005-0019." (Staff Report, p. 12.) The aforementioned resolution pertains specifically to the State Water Board's intent to adopt amendments to the SIP, and it directed staff to "introduce amendments to the SIP to address narrative toxicity control provisions ....." (Resolution No. 2005-0019, p. 2.)

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions have been changed. The statement of the necessity for the Toxicity Provisions found in Section 3.1.1 of the October 2018 Draft Staff Report discusses State Water Board Resolution No. 2005-0019. If adopted, the October 2018 Draft Toxicity Provisions will supersede Section 4 of the SIP.

Comment 20.7

Further, the Staff Report does not discuss if the proposed numeric objectives can be reasonably achieved, considering the coordinated control of all factors that affect water quality. Considering the high bar that the numeric objectives proposed, and associated error rates with toxicity testing, it is not reasonable to expect that the numeric objectives will be achieved.

Response

The water quality conditions that could reasonably be achieved through coordinated control of all factors affecting water quality is discussed in section 9.1.3 of the October 2018 Draft Staff

Report. The proposed water quality objectives are discussed in Section 5.1 of the October 2018 Draft Staff Report. The implementation measures for achieving the water quality objectives are discussed in sections 5.4, 5.5, and 5.6 of the October 2018 Draft Staff Report.

Comment 49.1

The limited Alternatives Analysis in the Staff Report focuses on acknowledged statistical problems with historic No Observed Effect Concentration (NOEC) protocols vis-à-vis the proposed TST protocols. It does not adequately convey the potential advantages of the point estimate (Option 3) or dual endpoint (Option 5) approaches.

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 hypothesis testing based method versus point estimate methods. The Staff Report does not assess or provide information on the 20 plus years of EPA WET recommendations on use of the the IC/EC25 point source estimation approach (over hypothesis testing) or on the experience from the San Francisco Bay Region as a potential model for the State.

The Staff Report TST recommendation is notably silent on historic USEPA guidance which has consistently 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/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 a 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.

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 poor experimental design can introduce bias into the calculations. This is an avoidable flaw that is not unique to point estimate approaches.

Response

Partially in response to this and other comments on the 2012 Draft Policy, the October 2018 Draft Toxicity Provisions and associated Draft Staff Report have been changed. Section 5.3 of the October 2018 Draft Staff Report discusses the statistical approaches considered. Option 3 in this section discusses the potential use of a point estimate approach along with the advantages and disadvantages of using a point estimate approach.

Other Comments

Comment 19.1

Toxicity is a widespread cause of surface water quality impairment in California. The current approach to using toxicity testing relies on a patchwork of narrative and numeric objectives, implementation procedures, and policies contained in basin plans, statewide policies, and individual permit decisions. This approach has led to inconsistent and incorrect evaluations of toxicity data, unclear expectations of dischargers, and ineffective toxicity controls in permits. For the NPDES permit program, the current practice of implementing narrative toxicity objectives as numeric triggers and Toxicity Reduction Evaluations does not create an objective, accountable means for controlling toxicity in effluents and does not meet basic Clean Water Act (CWA) requirements for water quality based effluent limits. California needs, and this policy provides, an effective approach to improving toxicity control by providing a consistent framework for setting toxicity effluent limits and addressing toxicity when it occurs.

We support the proposed numeric toxicity objectives and process for developing NPDES effluent limits for wastewater facilities based on the Test of Significant Toxicity (TST) hypothesis testing approach. In 2010, EPA formally endorsed the TST approach as an improved hypothesis testing tool to evaluate data collected using authorized whole effluent toxicity (WET) methods. The TST method is currently used in EPA Region 9-issued permits, Hawaii permits, and in Orange County Sanitation District's ocean discharge permit.

Response

Comment noted. Please refer to October 2018 Draft Toxicity Provisions for the revised proposal. The Toxicity Provisions aim to provide consistent protection of aquatic life beneficial uses in waters throughout the state and protect aquatic habitats and biological life from the effects of known and unknown toxicants.

Comments 2.21, 11.30, 11.24, 40.4, 40.10

The Policy will not enhance statewide consistency.

A major project goal for the development of this policy is to attain statewide consistency. This goal will not be achieved if significant elements are left to the discretion of the Regional Boards. Regional regulators tend to be conservative. Given a mission to protect the waters of the State, they will generally be inclined to err on the side of greater protection. …

In many respects, the Policy allows discretion of Regional Boards on the wrong issues. Discretion is allowed for assignment of broad general factors that will influence, even bias, toxicity testing results: determination of Instream Waste Concentration (IWC), and requirement for acute toxicity testing in addition to chronic testing. Ironically, these two factors require fairly detailed knowledge of the limitations of toxicity testing, statistical theory, and the EPA guidance documents.

Response

The October 2018 Draft Toxicity Provisions are designed to attain statewide consistency in certain aspects of toxicity assessment (e.g., consistent water quality objectives, test methods, statistical approaches, effluent limitations, and monitoring frequencies), with flexibility where consideration of site-specific factors would be appropriate. The parts of the 2018 October 2018

Draft Toxicity Provisions that provide Regional Water Board discretion are best handled by the Regional Water Boards due to their knowledge of the geography, hydrology, water quality conditions, beneficial uses, and dischargers within their region. It is not feasible for a statewide policy to address all site-specific situations. Regional Water Boards are qualified to determine how to exercise this discretion.

Comment 6.27

Our final concern is with the remaining discretion given to Regional Water Boards within the Draft Policy. 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.

However, 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. If State and Regional Boards are given the discretion to impose more stringent requirements or translate existing narrative objectives in individual Basin Plans into additional or different testing procedures or limitations, the Draft Policy will fail to achieve consistency.

Recommendations

Have the Draft Policy establish a consistent statewide narrative objective that supersedes the existing narrative objectives in the individual Basin Plans. Remove the option to evaluate reasonable potential for acute toxicity and include acute effluent limitations and monitoring requirements for wastewater dischargers.

Response

As indicated in Section IV.B.3 of the October 2018 Draft Toxicity Provisions, narrative toxicity objectives would not be superseded. Section IV.B.4 of the October 2018 Draft Toxicity Provisions would not allow the permitting authority to include numeric effluent limitations for aquatic toxicity endpoints addressed by any of the acute and chronic toxicity test methods identified in Table 1 except as indicated in the October 2018 Draft Toxicity Provisions. Please see the response to Comment 2.21, 11.30, 11.24, 40.4, 40.10 in this Other Comments section of this response to comment document. Additionally, section 5.1 of the October 2018 Draft Staff Report discusses the retention of narrative water quality objectives in individual basin plans; section 5.4.2 discuss procedures for determining reasonable potential, including for acute toxicity; and section 5.4.4 discusses monitoring requirements.

Comment 11.59

In addition, because the Revised Draft Policy prescribes permit requirements more stringent than required by federal law (e.g., daily limits for POTWs, automatic reasonable potential, numeric objectives and limits), the State Water Board is also obligated to do a Water Code section 13241 analysis. (See accord City of Burbank v. SWRCB, 35 Cal. 4th 613 (2005).)

Response

States are not precluded from omitting or modifying any provision of the Clean Water Act to impose more stringent requirements (40 C.F.R. 123.25(a).) The October 2018 Draft Toxicity provisions do not include a determination or an assumption that POTWs with an NPDES

permitted flow equal to or greater than five MGD have reasonable potential. Instead, a reasonable potentially analysis would not be required for these dischargers before a Permitting Authority included routine monitoring and effluent limitations for chronic toxicity in the permit.

The other requirements mentioned by the commenter related to the establishment of a water quality objective and the specification of effluent limitations for non-stormwater NPDES dischargers are not more stringent than that required by federal law.

Please see response to comment 11.46 regarding stringency of permit requirements. Additionally, Water Code section 13263 applies to waste discharge requirements for discharges and is not applicable to the establishment of the October 2018 Draft Toxicity Provisions as a component of a water quality control plan.

Chapter 9 of the 2018 Draft Staff Report includes a Water Code 13241 analysis.

Comment 22.1

The undersigned are very supportive of many aspects of the Draft Policy. It is based on sound science, such as the whole effluent toxicity (WET) test methods, which has withstood peer-review and legal challenges. We support the Draft Policy's use of the EPA's Test of Significant Toxicity statistical method ("TST Method"), which is a peer-reviewed statistically superior approach to current methods because it regulates the instances of both false positives and false negatives that may result from toxicity testing. The TST Method also encourages transparency and good lab practices for improved statistical certainty. In addition, conversion to this method would not put significant additional cost burden on permittees for testing because the proposed testing methods are less expensive than current methods. The TST Method also provides a clear objective that can easily be translated into limits that Regional Water Boards can incorporate into permits.

Response

Comment noted. Please refer to October 2018 Draft Toxicity Provisions for the revised proposal. The Toxicity Provisions aim to provide consistent protection of aquatic life beneficial uses in waters throughout the state and protect aquatic habitats and biological life from the effects of known and unknown toxicants.

Comment 23.1

One major problem I see occurring in the water treatment industry is the relevance of enforcing fish bioassay without consideration of cost impact and improvement to actual receiving waters. For example, ion exchange is a common methodology to remove iron and manganese from groundwater in order to meet discharge standards. However, the same ion exchange resins can also remove chloride. Without chloride, you will likely not have passing survival rate for fish bioassay test. In order for industry to meet the survivability, they end up adding chloride to discharged water. Once discharged, these waters are combining with waters already known to have very high chloride issues that only exacerbate the problem further. These considerations to an overall improvement of receiving waters should be considered on enforcement of fish bioassay testing. Our goal should be improvement of the overall water quality shed and not a point source which will also benefit industry by not adding additional costly process streams to their treatment trains.

Response

Section 9.1.4 of the October 2018 Draft Staff Report discusses the economic analysis for the Provisions. Additionally, as a standard practice sea salt may be added to samples in the laboratory, in accordance with U.S. EPA laboratory methods, so that marine species can be used to test effluent samples. Adding chloride to test samples in accordance with EPA laboratory methods does not mandate that the same treatment be added to effluent prior to discharge. The October 2018 Draft Toxicity Provisions would not require chloride to be added to effluent prior to discharge to receiving waters. Section IV.B.1.b. of the October 2018 Draft Provisions lists the acceptable toxicity test methods. Section 5.2 of the October 2018 Draft Staff Report contains a discussion of the toxicity test methods.

Comment 24.1.a

This policy is too general to address the problems of regional Basin Plans.

. . . One size does not fit all in the State of California.

Response

Please see the response to Comment 2.21, 11.30, 11.24, 40.4, 40.10 in this Other Comments section of this response to comment document.

Comment 24.1.b

CEQA conceptually identifies "the way that environmental damage can be avoided or significantly reduced." That concept is not being applied. There remains a potential for harm.

Response

Chapter 6 of the October 2018 Draft Staff Report discusses the reasonable foreseeable methods of compliance with the October 2018 Draft Toxicity Provisions, and chapter 7 of the staff report discusses the potential environmental effects.

Comment 24.1.c

In Section 4 of the Region 4 Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, it states:

> The Southern California Coastal Water Research Project (SCCWRP), the Santa Monica Bay Restoration Project (SMBRP), and the University of Southern California (USC) Institute for Ocean and Coastal Studies have evaluated the characteristics of urban runoff, including pollutant loads, impacts, and toxicity, to coastal waters. The pollutant load and toxicity of urban runoff in the Region were found to be comparable to that of sewage effluent. The USEPA performed a nationwide evaluation of the environmental hazards posed by priority pollutants in urban runoff and found that cadmium, copper, lead, and zinc exceeded freshwater acute aquatic criteria in up to 50% of the samples analyzed (USEPA, 1983). In addition, these pollutants, along with cyanide, mercury, and silver, exceeded freshwater chronic criteria in at least 10% of the samples.

Not stated is the adjudicated groundwater basins compared to the unadjudicated groundwater basins which include Santa Monica Bay Watershed, historically a major problem of contamination.

Also not stated is the J. F. Poland report "Geology, Hydrology and Chemical Charters of the Ground Water in the Torrance-Santa Monica Area, California" which talks about the relationship with the Silverado water bearing zone and the West Basin. The retention of clay layers are of importance as water.

Not mentioned is House Document 389, May 13, 1954 which is critical to the Basin Plan. There is a cloud to the control of the Santa Monica Bay Restoration Project (SMBRP) and its representation under a state agency or a private foundation acting as a state agency without contractual commitments. This may be the basis for omitting critical information in the planning stages for the Basin Plan policy.

Response

Possible revisions to the Water Quality Control Plan for the Los Angeles Region to include these references is outside of the scope of this project. Additionally, it is helpful to share information relevant to the Water Quality Control Plan for the Los Angeles Region with the Los Angeles Region.

Comment 24.1.d

Permits have not been reviewed as to validity. We mean, by this, that temporary NPDES permits may be continuously and fraudulently used without the monitoring, assessment and supervision necessary.

When this happens, volatile compounds including hydrogen sulfide enter the system without the proper checks and balances.

The process is obviously flawed and the problem NEVER addressed by the enforcement agencies involved.

Dewatering volumes placed in the system is not measured.

You have a major problem with source identification and BMP Best Management Practices is a substitute for negligence.

No infrastructure analysis is submitted for aspects of broken pipes like sewers and water mains. Federal Pipeline and Hazardous Materials Safety Administration know of pipeline deterioration and safety under their jurisdiction. You fail to tie in General Plans and their Elements with the Basin Plans. They are both State jurisdictions.

This policy is based on the assumption of POTW and NPDES alone. This is too short-sighted to resolve by implementing testing policy as a solution while ignoring the intent altogether of avoiding harm to the water.

Therefore, you state:

Toxicity tests estimate the effects of discharges on the survival, growth and reproduction of test species, and are used to determine compliance with the objectives for toxicity established in the ten Regional Water Quality Control Plans (Basin Plans) adopted by the nine Regional Water Quality Control Boards (Regional Water Boards).

Each Basin Plan contains narrative toxicity objectives that require all waters to be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, terrestrial animals, and aquatic organisms.

The premise is false. There is no guarantee that waters will be free of toxic substances in concentrations etc.

Response

The permitting authority develops a permit for a particular facility or group of dischargers based on the information relevant for that specific discharge and waterbody (e.g., type of activity, nature of discharge, receiving water quality). The permitting authority issues the NPDES permit to the facility after an opportunity for public comment. Dischargers are not permitted to discharge using "temporary NPDES permits" as the commenter suggests. In addition, the goal of the 2017 Water Quality Enforcement Policy (Policy) is to protect and enhance the quality of the waters of the State by defining an enforcement process that addresses water quality problems in the most fair, efficient, effective, and consistent manner.

The main goal of the October 2018 Draft Toxicity Provisions is to provide consistent protection of aquatic life in all inland surface waters, enclosed bays, and estuaries of the state from the effects of toxicity. Section III.B.2 of the October 2018 Draft Toxicity Provisions stipulates the interaction between the Toxicity Provisions and the Basin Plans. Implementation requirements for non-storm water NPDES dischargers are included in Section IV.B.2. of the October 2018 Draft Toxicity Provisions and are further discussed in Sections 2.6 and 5.4 of the October 2018 Draft Staff Report. Requirements for storm water dischargers are included in Section IV.B.3. of the October 2018 Draft Provisions. Additional discussion of requirements for storm water dischargers is included in Section 5.5 of the October 2018 Draft Staff Report. Requirements for nonpoint source dischargers are included in Section IV.B.4. of the October 2018 Draft Provisions and are discussed in Section 5.6 of the October 2018 Draft Staff Report.

Comment 24.1.e

You state:

The Secretary for Natural Resources has certified the following regulatory programs of the State Water Board as exempt: the adoption or approval of standards, rules, regulations, or plans to be used in the Basin/208 Planning program for the protection, maintenance, and enhancement of water quality in California (Cal. Code Regs., tit.14, §15251, subd. (g)).

You have failed to even address that goal properly and responsibly and without harm.

You have not even addressed the geology of oil and gas in Region 4 and its contribution to contamination directly and indirectly (fracking fluid). We urge you to take the care involved in the policy. The items in the Environmental Checklist are marked incorrectly. The Economic Impacts to the public are UNBEARABLE.

Response

Chapter 7 of the October 2018 Draft Staff Report discusses the potential environmental effects of the October 2018 Draft Toxicity Provisions. Implementation requirements for non-storm water NPDES dischargers, such as discharges from refineries and industrial facilities with a point source discharge, are included in Section IV.B.2. of the October 2018 Draft Provisions and are further discussed in Sections 2.6 and 5.4 of the October 2018 Draft Staff Report.

Comment 37.1

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.

Response

The specific project options that were considered for the Toxicity Provisions, including a comparison of the preferred option to current conditions, are discussed in Chapter 5 of the October 2018 Draft Staff Report. Please see the response to Comment 2.21, 11.30, 11.24, 40.4, 40.10 in this Other Comments section of this response to comment document.

Comment 58.29

Attachment: Texas Congressional Delegation Letter to Lisa Jackson, June 13, 2011.

Response

Thank you for submitting the additional information provided in the letter from the Texas Congressional Delegation to U.S. EPA Administrator Lisa Jackson.