

# **Toxicity Plan: Implementation Update**

**December 8, 2020  
BACWA Permits Committee**

**Robert Schlipf  
San Francisco Bay Water Board**



# Overview

- **Part of the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California***
  - **Supersedes Regional Board Basin Plan and SIP**
  - **Establishes *numeric* acute and chronic toxicity objectives**
- **Requires Toxicity Test Methods and Analyses**
  - **Data Analysis using Test of Significant Toxicity (TST)**
  - **Tier Classifications for Test Species**
- **Prescriptive Implementation for POTWs**
  - **Species Sensitivity Screening & Reasonable Potential Analysis**
  - **Effluent Limits**
  - ***Ceriodaphnia specific requirements***
  - **Monitoring Requirements**
  - **Toxicity Reduction Evaluation**

# Test of Significant Toxicity

1. **Statistical t-test** that compares the Instream Waste Concentration (IWC) response to control response
2. **Null Hypothesis.** IWC is toxic.
3. **Alternative Hypothesis.** IWC not toxic, if you reject the null hypothesis.

# Test Species

1. **Tier 1 (West Coast test species)** shall be used unless unavailable.
2. **Tier II (East Coast test species)** in Region 2 permits include mysid shrimp (*Americamysis bahia*) and inland silverside (*Menidia beryllina*)

# Species Sensitivity Screening

1. **Conduct** screening prior to or within 18 months after the first permit reissuance, unless a representative screening has been done in the last 10 years.
2. **Then** at least every 15 years (after initial screening)

# Screening Requirements

1. **Species screening** one vertebrate, one invertebrate, and one plant
2. **Four sets of tests** over one year, seasonal or intermittent discharges may use fewer than four sets of tests
3. **Screen** at IWC or higher effluent concentration
4. **Select test species** with highest percent effect at IWC

# Reasonable Potential Analysis

- POTW  $\geq$  5.0 MGD, with pretreatment program, effluent limits required.
- POTW  $<$  5.0 MGD, RPA required.
- Reasonable Potential exists if:
  - Any toxicity test results in a “fail” of TST, or
  - Percent effect is greater than 10% at IWC

# Effluent Limits

- 1. Maximum Daily Effluent Limit:** “fail” at the IWC and percent effect greater than or equal to 50 percent.
- 2. Monthly Median Effluent Limit:** No more than one test in a calendar month may result in a “fail” at the IWC for any endpoint



# Ceriodaphnia Effluent Limits

Current Permit Effluent Limitations	Permit Effluent Limitations through December 31, 2023 for New Permits
<p>Scenario 1: No numeric effluent limitations</p>	<p>MDEL using <i>C. dubia</i> MMET using <i>C. dubia</i></p>
<p>Scenario 2: Existing numeric effluent limitations</p>	<p>Option A: MDEL using <i>C. dubia</i> MMEL using <i>C. dubia</i></p> <p>Option B: MDEL using <i>C. dubia</i> MMET using <i>C. dubia</i> MMEL using green alga or fathead minnow</p>

# Monitoring Frequency

Facility Type	Routine*	Reduced
POTW $\geq$ 5 MGD	Monthly	Quarterly
POTW < 5 MGD with RP	Quarterly	Twice per year

\*New Category for POTW < 1 MGD, Twice per year monitoring.

# Reduced Monitoring

1. **If permit includes effluent limits:** Will need to show compliance for five years.
  
2. **If no effluent limits:**
  - a. Analyze all toxicity tests (minimum of 10) with TST
  - b. No “fails” at the IWC or at a higher concentration

# Reduced Monitoring

3. *Twice per year compliance monitoring*,  
under the following:

- a. Initial dilution of at least 20:1
- b. Additional twice per year “*surveillance monitoring*”<sup>\*</sup> at a concentration at least double the IWC

<sup>\*</sup>Test at 10 percent effluent.

# Toxicity Reduction Evaluation

1. Required when two or more MDEL or MMEL\* violations occur in a month or two successive calendar months.
2. Regional Board may require when surveillance monitoring shows two consecutive “fails”

\*MMET for Ceriodaphnia

# Timeline

- 1. December 2020:** Adopted by the State Water Board
- 2. Between April and June 2021:** OAL and U.S. EPA approval
- 3. After EPA Approval:** Incorporate in Region 2 NPDES Permits