Los Angeles Department of Water & Power
CUSTOMERS FIRST

December 21, 2018

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Dear Ms. Townsend,

Subject: Comment Letter – Toxicity Provisions

The Los Angeles Department of Water and Power (LADWP) would like to thank the State Water Resources Control Board (SWRCB) for the opportunity to comment on the Proposed Amendments to the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California and the Toxicity Provisions (Amendments) released October 29, 2018.

LADWP has reviewed SWRCB's recently issued draft proposed Amendments pertaining to aquatic toxicity (Toxicity Provisions) (SWRCB 2018a) and accompanying Staff Report (Staff Report) (SWRCB 2018b). LADWP appreciates the opportunity to provide technical comments on the documents, as detailed below.

1. **LADWP requests that theToxicity Provisions be revised to allow dose-response data from a full dilution series to be considered when the toxicity of water samples is evaluated using the Test of Significant Toxicity (TST) results. (Toxicity Provisions, Section IV.B.1.b, Section IV.B.1.c, Section IV.B.1.e, pp. 7, 9-10)**

   The SWRCB's proposed Toxicity Provisions would replace current toxicity analysis methods, such as the NOEC method, with the TST method developed by the U.S. EPA (U.S. EPA 2010). The proposed Toxicity Provisions require toxicity data to be collected using methods identified in the Code of Federal Regulations, title 40, part 136 ("40 CFR 136 methods"), which require that toxicity tests be conducted on a "dilution series" constructed using a range of effluent concentrations. However, the TST method evaluates toxicity in only two samples: a control and an effluent sample

at the "instream waste concentration" (IWC). Thus, the proposed Toxicity Provisions fail to evaluate or consider dose-response data from the full dilution series.

However, analysis of dose-response data from a full dilution series provides important information in the evaluation of toxicity. Dose-response data show an organism's response to increasing concentrations of effluent, allowing the analyst to confirm trends in the organism's response and to identify potential experimental errors. Dose-response data are also valuable in preparing the groundwork for a Toxicity Reduction Evaluation (TRE), should a TRE be necessary. Evaluation of a control and a single effluent sample cannot provide these same benefits. It is for these reasons that dose-response data are required by 40 CFR 136.3.

Given the value of dose-response data, LADWP requests that the Toxicity Provisions be revised to allow dose-response information from the full dilution series to be considered when evaluating toxicity test results. Requested revisions to the language of the proposed Toxicity Provisions are as follows:

(1) "Test results shall be analyzed using the TEST OF SIGNIFICANT TOXICITY (TST) as described in Section IV.B.1.c. To the extent that U.S. EPA-approved methods require that observations should be made of organism RESPONSES in multiple concentrations of effluent ~~or receiving water~~, the INSTREAM WASTE CONCENTRATION (IWC) shall be included as one of the selected concentrations, and that TST shall be conducted using the IWC and control as described in Section IV.B.1.c. **Dose-response data from the multiple concentrations of effluent may be considered in evaluating test results obtained using the TST.**" (Toxicity Provisions at Section IV.B.1.b, p. 7)

(2) "***Step 8*: Data from the multiple concentrations of effluent may be used to confirm TST test results.**" (Toxicity Provisions at Section IV.B.1.c, p. 9-10)

(3) "Results obtained from toxicity tests shall be reported to the PERMITTING AUTHORITY as either a "pass" or a "fail," and the PERCENT EFFECT at the IWC for each endpoint. The results and any required supporting data, **including data from the multiple concentrations of effluent,** shall be submitted in the format specified by the PERMITTING AUTHORITY." (Toxicity Provisions at Section IV.B.1.e, p. 10)

2. **LADWP requests that allowable methods for calculating dilution credits be expanded to include methods for cases in which traditional approaches (e.g., those employing the 1Q10 and 7Q10) are not appropriate. (Toxicity Provisions, Section IV.B.2.d, p. 20)**

It appears that Table 3 of the Toxicity Provisions (p. 20) constrains the allowable methods for calculating dilution ratios to exclude many circumstances in which a discharge is subject to significant dilution. Table 3 specifies that the acute dilution ratio should be calculated using the "Lowest [receiving water] flow that occurs for one day with a statistical frequency of once every 10 years,"—the 1Q10—while the chronic dilution ratio should be calculated using the "average [receiving water] low flow that occurs for seven consecutive days with a statistical frequency of once every 10 years"—the 7Q10. These receiving water flow conditions are inappropriate for dilution ratio calculations in tidal estuaries, enclosed bays, tidally-influenced rivers, lakes and reservoirs, and for storm water discharges, even though these kinds of receiving water often provide significant dilution.

Just as the proposed Toxicity Provisions allow the determination of mixing zones using multiple methods (i.e., including but not limited to tracer studies, dye studies, modelling studies, and monitoring upstream and downstream of the discharge), LADWP requests that the Toxicity Provisions be modified to allow the calculation of dilution credits on the basis of these proven, alternative methods, consistent with the provisions of U.S. Environmental Protection Agency (U.S. EPA) (1991). Specifically, LADWP requests the following changes:

> "The DILUTION RATIO shall be determined ~~using the parameters~~ **as** specified in Table 3." (SWRCB 2018a, p. 20)
>
> Add footnote to Table 3 reading as follows: "**Alternatively, MIXING ZONE studies may be used to establish dilution ratios.**"
>
> "DILUTION RATIO: The critical ~~low~~ flow **within** ~~of~~ the ~~upstream~~ receiving water divided by the flow of the effluent discharged. **The DILUTION RATIO may be determined by a MIXING ZONE study.**" (Appendix A: Glossary, p. 27)

3. **LADWP suggests that the Toxicity Provisions be revised to clarify allowable methods for assessing storm water toxicity. (Toxicity Provisions, Section IV.B.3, p. 25)**

It appears that the Toxicity Provisions allow the use of non-40 CFR 136 methods for storm water toxicity monitoring (i.e., "multi-concentration testing is not required..." SWRCB 2018a, at p. 25). LADWP suggests that the Toxicity Provisions be revised to specify that 40 CFR 136-compliant methods (i.e., dilution series testing) be used for determining reasonable potential and permit compliance, and that dose-

response data be used in evaluating the toxicity of storm water samples and interpreting the results of TST analyses.

Specifically, LADWP requests the following change:

> "~~Multi-concentration testing is not required except to the extent required by federal law or specified by the PERMITTING AUTHORITY.~~ **Toxicity testing shall be conducted using the methods described in Section IV.B.1.b.**" (SWRCB 2018a, at Section IV.B.3, p. 25)

4. **LADWP suggests that the Toxicity Provisions be revised to account for the fact that storm water events occur irregularly and over a short time-frame. (Toxicity Provisions, Section IV.B.3, p. 25)**

In Section IV.B.2.c, the Toxicity Provisions specify that, for non-storm water discharges, toxicity sampling must be conducted at regular intervals, and that follow-up sampling must be conducted within a set period (e.g., 30 days) after a sample is determined to be toxic. We don't believe it was the SWRCB's intent to apply these requirements to storm water, as the State Water Board has not specified a monitoring frequency or follow-up sampling protocol for storm water discharges in Section IV.B.3 (SWRCB 2018a, at p. 25). However, LADWP notes that regular and follow-up sampling is likely not possible for storm water discharges since they occur irregularly. Additionally, since storm water events are often shorter than four days—the averaging period for determining chronic toxicity—it is unlikely that a storm water discharge will result in exposures long enough to cause chronic toxicity. LADWP recommends that the following language be inserted after the third paragraph of Section IV.B.3 (SWRCB 2018a, at p. 25):

> **Since storm water events occur at irregular intervals, the PERMITTING AUTHORITY will not require toxicity monitoring for storm water on fixed regular intervals (e.g. monthly, quarterly, biannually, etc.). Rather, any storm water toxicity monitoring schedule prescribed by the PERMITTING AUTHORITY will be flexible in order to accommodate the natural irregularity of storm water events. The PERMITTING AUTHORITY will not prescribe chronic toxicity monitoring for storm water events with a duration shorter than four days, the averaging period for determining chronic toxicity.**

5. **LADWP suggests that the Toxicity Provisions be revised to allow 45 days for accelerated monitoring to accommodate limited analytical capacities and sample analysis times of laboratories. (Toxicity Provisions, Section IV.B.2.c.iv, p. 19)**

The proposed Toxicity Provisions include requirements that follow-up toxicity testing be conducted within 30 days. See the Staff Report at p. 19:

> "*For chronic toxicity, if any chronic toxicity routine monitoring test results in a "fail" at the IWC, then the discharger is required to initiate two chronic toxicity MMEL compliance tests within the same calendar month. If more than one most sensitive species chronic toxicity test in a calendar month results in a "fail" at the IWC, then there is a violation of the MMEL.*
>
> *For acute toxicity, MMEL compliances tests are prompted in the same way as chronic toxicity, but with acute toxicity tests. If any acute toxicity test results in a "fail" at the IWC, then the discharger is required to initiate two MMEL compliance tests within the same calendar month. If more than one most sensitive species acute toxicity test in a calendar month results in a "fail" at the IWC, then there is a violation of the MMEL.*"

It is not practical to require initiation of all routine monitoring and compliance tests within the same calendar month. As an example, if a sample for chronic toxicity testing were collected on the afternoon of the 1st of the month, the test would run from the 2nd through the 8th of the month. Preliminary results would be generated and reviewed by approximately the 10th of the month. However, toxicity samples will not always be able to be collected on the 1st, and laboratories likely will not always have the capacity to conduct tests for all dischargers on the 1st of the month. Thus, results from routine toxicity tests will more likely be available mid-month. Scheduling two additional sample collections within two weeks presents logistical challenges for both the laboratory, which will have to order additional test organisms (or have in-house cultures that are routinely sufficient to handle the sporadic demand), and the discharger.

Given the challenges associated with collecting and analyzing follow-up samples, LADWP requests that the policy be changed such that if any chronic toxicity routine monitoring test results in a "fail" at the IWC, the two additional MMEL compliance tests shall be initiated within 45 calendar days from the date the initial routine monitoring sample was collected. Specific language changes are suggested as follows:

> "If an acute or chronic toxicity ROUTINE MONITORING test results in a "fail" at the IWC, then NON-STORMWATER NPDES DISCHARGERS shall conduct a maximum of two MMEL COMPLIANCE TESTS. The MMEL COMPLIANCE TESTS shall be initiated within ~~the same CALENDAR MONTH that~~ **45 days of the date that** the first ROUTINE MONITORING test was initiated that resulted in the "fail" at the IWC..." (Toxicity Provisions at p. 19, Section IV.B.2.c.iv).

6. **LADWP suggests that the Toxicity Provisions be revised to account for cases in which receiving waters are toxic. (Toxicity Provisions, Section IV.B.1.a, p. 5)**

According to the Toxicity Provisions, receiving waters should be used for control testing and as the dilution water in IWC samples:

> *"Dilution and control waters should be obtained from an area unaffected by the discharge in the receiving waters. For rivers and streams, dilution water should be obtained immediately upstream of the wastewater outfall. Standard dilution water, as defined by the test methods, can be used if the above sources exhibit toxicity or if approved by the PERMITTING AUTHORITY."* (Toxicity Provisions at Section IV.B.1.a, p. 5)

However, the use of receiving waters introduces a significant additional source of variability, as the composition of background receiving waters may be variable over time and may introduce additional sources of toxicity. Receiving waters may also have a chemical composition that is significantly different from the laboratory waters used to raise test organisms, which may cause adverse responses in test organisms that could falsely be interpreted as toxicity. LADWP believes that the use of receiving waters for dilution and control is contrary to existing test methods.

Thus, LADWP requests the following changes to the toxicity provisions (SWRCB 2018a, at Section IV.B.1.a, p. 5):

"Dilution and control waters ~~should~~ **shall** be obtained **consistent with the test methods identified in the following section (Section IV.B.1.b).** ~~from an area unaffected by the discharge in the receiving waters. For rivers and streams, dilution water should be obtained immediately upstream of the wastewater outfall. Standard dilution water, as defined by the test methods, can be used if the above sources exhibit toxicity or if approved by the PERMITTING AUTHORITY~~"

7. **LADWP suggests that the Toxicity Provisions be revised to reduce the amount of discretion afforded to Regional Boards in determining reasonable potential and applying narrative toxicity water quality objectives. (Toxicity Provisions, Section III.B.4, Section IV.B.2.b, pp. 4, 15; Staff Report, p. 76)**

In several places, the Toxicity Provisions appear to provide broad discretion to the Regional Boards. For example, the Reginal Boards are afforded significant

discretion in determining whether a discharger has reasonable potential to cause or contribute to exceedances of toxicity water quality objectives (reasonable potential) (SWRCB 2018a, p. 15; SWRCB 2018b, p. 76), and they have wide discretion in determining how to apply the narrative toxicity water quality objectives contained in Basin Plans (SWRCB 2018a, p. 4).

LADWP believes that this wide discretion afforded to the Regional Boards in the Toxicity Provisions is contrary to the stated central purpose of the Toxicity Provisions, namely to foster statewide consistency in the application of toxicity water quality objectives where in the past Regional Boards have taken differing approaches (SWRCB 2018b, pp. vii, 8, 74). Thus, to improve clarity and support the goal of statewide consistency in the application of toxicity water quality objectives, LADWP suggests that Section III.B.4 of the Toxicity Provisions (SWRCB 2018a, at p. 4) be revised as follows:

> Section IV.B. includes a program of implementation for toxicity that shall be used to assess whether ambient receiving water meets the numeric aquatic toxicity water quality objectives, whether a PERMITTING AUTHORITY shall require aquatic toxicity effluent limitations for non-storm water National Pollutant Discharge Elimination System (NPDES) dischargers, and whether dischargers' effluent complies with applicable permit terms. **Compliance with narrative toxicity water quality objectives shall be determined via an evaluation of compliance with these Toxicity Provisions.**
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> ~~Compliance with narrative toxicity water quality objectives is determined by use of indicator species, analysis of species diversity, pollution density, toxicity tests or other appropriate method as specified by the PERMITTING AUTHORITY. The PERMITTING AUTHORITY may also consider all material and relevant information submitted by the discharger and other interested parties and numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. EPA, and other appropriate organizations, to evaluate compliance with narrative toxicity water quality objectives.~~
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> ~~The PERMITTING AUTHORITY shall have discretion regarding the application of narrative toxicity water quality objectives to derive chemical specific effluent limitations, receiving water limitations, targets, and other thresholds.~~
>
> ~~In addition to implementing the requirements of Section IV.B. using a species and endpoint identified in Table 1 of Section IV.B.1.b., the PERMITTING AUTHORITY shall have discretion regarding the application of narrative~~

~~toxicity water quality objectives to derive effluent limitations for aquatic toxicity endpoints not addressed by any of the acute and chronic aquatic toxicity test methods identified in Table 1 of Section IV.B.1.b (e.g., endocrine disruption).~~

~~The PERMITTING AUTHORITY shall have discretion regarding the application of narrative or numeric toxicity water quality objectives to derive narrative effluent or receiving water limitations.~~

To support the goal of statewide consistency in determinations of reasonable potential, LADWP recommends the following revision to Section IV.B.2.b of the Toxicity Provisions (SWRCB 2018a, at p. 15):

~~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 REASONABLE POTENTIAL to cause or contribute to an excursion above the toxicity water quality objectives specified in Section III.B.2.~~

Similarly, LADWP recommends the following revision to the Staff Report (SWRCB 2018b) at p. 76:

If all valid chronic or acute aquatic toxicity tests at the IWC, analyzed using the TST approach, result in a "pass" and no test has a mean percent effect of greater than 10 percent, as compared to the mean control response, then the toxicity test data does not indicate reasonable potential to cause or contribute to an excursion above the toxicity water quality objectives. ~~However, other relevant information may still be used by the Regional Board to consider if reasonable potential exists.~~

8. LADWP requests that Section IV.B.5 of the Toxicity Provisions, "Variances and Exceptions to the Toxicity Water Quality Objectives," be clarified. (Toxicity Provisions, Section IV.B.5, p. 26)

The language in Section IV.B.5 of the Toxicity Provisions, "Variances and Exceptions to the Toxicity Water Quality Objectives" (SWRCB 2018a, p. 26), is unclear regarding the conditions under which a discharger might be required to obtain a water quality variance for toxicity, and the process by which a discharger might obtain such a variance.

For example, suppose a permittee finds it necessary to apply aquatic pesticide(s) to a Water of the U.S. (WOTUS) for the purpose of vector or weed control, and that the application may cause the water body to exceed toxicity water quality objectives temporarily.

In this case, it is not clear from Section IV.B.5 whether the discharger would require a water quality variance. The language of that section applicable to WOTUS (Section IV.B.5.a) states that the permitting authority *may* grant a variance to toxicity water quality objectives, but it is unclear whether a variance is required for such activity. Additionally, the language of that section applicable to WOTUS states that such variances are "subject to review and approval of the U.S. EPA." However, if this process required approval by the Regional Board, SWRCB, Office of Administrative Law, and U.S. EPA, the process could become so extended as to preclude timely application of necessary vector or weed control measures. It is not clear from the language of Section IV.B.5 what the approval process requires.

Finally, Section IV.B.5.b suggests that applications of aquatic pesticides for vector or weed control might fit within a "short-term or seasonal exception from meeting numeric and narrative water quality objectives for toxicity." However, the heading of Section IV.B.5.b suggests that these short-term exceptions are only applicable to "Waters of the State that are Not Also Waters of the U.S." Therefore, it seems that toxicity water quality objective exceptions of this type would not be available for applications of aquatic pesticides to WOTUS, even if the purpose of the discharge were vector or weed control.

In short, LADWP suggests that Section IV.B.5 of the Toxicity Provisions be clarified to include the conditions under which a toxicity variance or exception is required, and the process by which a discharger might obtain either one. LADWP also requests that this section of the Toxicity Provisions be modified to clarify that a toxicity variance or exception can be granted with the approval of the Regional Water Board's Executive Officer.

9. LADWP requests that Sections IV.B.2.c.i.(A) and IV.B.2.c.i.(B) of the Toxicity Provisions be revised to require reduced chronic toxicity monitoring frequencies under appropriate conditions. (Toxicity Provisions, Section IV.B.2.c.i, pp. 16-18)

The language in Sections IV.B.2.c.i.(A) and IV.B.2.c.i.(B) of the Toxicity Provisions (SWRCB 2018a, pp. 16-18) suggests that the permitting authority *may* reduce chronic toxicity monitoring frequencies under certain conditions. LADWP believes that the conditions specified would merit reduced monitoring frequencies in all cases. Therefore, LADWP requests the following revisions to these sections.

Section IV.B.2.c.i.(A):

> The PERMITTING AUTHORITY shall have the discretion to require NON-STORM WATER NPDES DISCHARGERS with an MDEL and an MMEL in their permit to conduct more frequent chronic toxicity ROUTINE MONITORING than that which is prescribed in this subsection. The

PERMITTING AUTHORITY **shall** ~~may~~ approve a reduction in the frequency of ROUTINE MONITORING in accordance with the requirements in Section IV.B.2.c.i.(B).

Section IV.B.2.c.i.(B):

The PERMITTING AUTHORITY **shall** ~~may~~ approve a reduction in the frequency of the ROUTINE MONITORING specified in Section IV.B.2.c.i.(A) for dischargers upon reissuance, renewal, or reopening (to address toxicity requirements) of an NPDES permit when during the prior five consecutive years the following conditions have been met:

1) The MDEL and MMEL as specified in Section IV.B.2.e have not been exceeded;
2) The toxicity provisions in the applicable NPDES permit(s) have been followed.

The PERMITTING AUTHORITY **shall** ~~may~~ approve a reduced frequency ROUTINE MONITORING schedule from one CHRONIC TOXICITY TEST per CALENDAR MONTH, as required in Section IV.B.2.c.i.(A) to one per CALENDAR QUARTER. The PERMITTING AUTHORITY **shall** ~~may~~ approve a reduced frequency ROUTINE MONITORING schedule from one CHRONIC TOXICITY TEST per CALENDAR QUARTER, as required in Section IV.B.2.c.i.(A), to two CHRONIC TOXICITY TESTS per CALENDAR YEAR. In addition, the PERMITTING AUTHORITY **shall** ~~may~~ approve a reduced frequency of one CHRONIC TOXICITY TEST per Calendar year when the following conditions have been met: (1) the discharger has an initial dilution of at least 10:1, and (2) for dischargers authorized to discharge, at a rate equal to or greater than 5.0 MGD, the PERMITTING AUTHORITY requires additional monitoring in accordance with Section IV.B.1...

The PERMITTING AUTHORITY **shall** ~~may~~ also approve a temporary reduction in the frequency of the ROUTINE MONITORING specified in Section IV.B.2.c.i.(A) for dischargers conducting a TRE. When a discharger is conducting a TRE, the PERMITTING AUTHORITY **shall** ~~may~~ temporarily reduce the ROUTINE MONITORING frequency to two CHRONIC TOXICITY TESTS per CALENDAR YEAR.

10. **LADWP identified a number of concerns with the recently compiled "test drive data" used to compare available toxicity evaluation methods. LADWP requests that, prior to adoption of the Toxicity Provisions, the SWRCB provide access to the full dataset, including raw data, in order to conduct a more thorough review of relevant toxicity data.**

A dataset was compiled for use in comparing available toxicity testing methods as provided in State Board (2018b) and U.S. EPA (2010) (U.S. EPA 2011). These "test drive" data are available for download in an Excel file from the State Board website, but data are provided in a compiled format, and to our knowledge, raw data have not yet been made available. LADWP has identified a number of concerns regarding these data, including the following:

- Control and instream waste concentration (IWC) toxicity data from Source I are reported with unrealistically consistent high rates of survival and low rates of variability.
- The number of data points and facilities in the test drive dataset appear to be inconsistent.
- *Ceriodaphnia dubia* reproduction tests appear to have been omitted from TST analysis.

To evalulate these concerns and available toxicity testing methods more thoroughly, LADWP requests that the SWRCB make publicly available the full set of raw toxicity data before adoption of the Toxicity Provisions.

Thank you again for the opportunity to provide these comments. LADWP looks forward to working with the SWRCB staff to finalize this Policy. Should you have any further questions regarding this letter or need more information, please contact Ms. Chloe Grison of the Wastewater Quality and Compliance group at 213-367-1339.

Sincerely,

Katherine Rubin
Manager, Wastewater Quality and Compliance
Los Angeles Department of Water and Power

c:
Ms. Felicia Marcus, Chair, SWRCB
Mr. Joaquin Esquivel, SWRCB
Ms. Tam Doduc, SWRCB
Ms. Dorene D'Adamo, SWRCB
Mr. Sean Maquire, SWRCB
Ms. Chloe Grison

REFERENCES

SWRCB. 2018a. Draft Water Quality Control Plan for Inland and Surface Waters, Enclosed Bays, and Estuaries of California. October 19.

SWRCB. 2018b. Draft Staff Report, Including Substitute Environmental Documentation for the Proposed Establishment of the Water Quality Control Plan for Inland and Surface Waters, Enclosed Bays, and Estuaries of California; and Toxicity Provisions. October 19.

USEPA. 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. EPA/505/2-90-001. March.

U.S. EPA. 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document. EPA 833-R-10-004. Office of Wastewater Management. Washington, DC.

U.S. EPA. 2011. Whole effluent toxicity test drive analysis of the test of significant toxicity. US. Environmental Protection Agency. Region 9. Sacramento, CA.