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February 22, 2011

Sam Unger
Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
3 20 W. 4th Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Unger:

Subject: Comment letter – Draft Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Loads

Los Angeles Department of Water and Power (LADWP) appreciates the opportunity to comment on the proposed Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxicity Pollutants Total Maximum Daily Loads. LADWP is committed to being an environmental steward. Thus, LADWP believes that the impairments to the affected waterbodies need to be addressed properly in order to protect all beneficial uses of the area; however, LADWP has concerns, which are detailed below.

1. **How the Draft Basin Plan Amendment would be implemented in NPDES permits is unclear.**

   It is LADWP's understanding that the following allocations will be in effect:

   - **Final Water Column Allocations.** Final water column allocations are included in the Draft Basin Plan Amendment (BPA) for discharges to Dominguez Channel (which would not apply to Harbor Generating Station (HGS) or Haynes Generating Station (HnGS) and for discharges to the Inner Harbor. Concentration-based final Wasteload Allocations (WLAs) were assigned to non-MS4 point sources in the Dominguez Channel Estuary and Inner Harbor, including power generation stations. These allocations were set equal to the saltwater targets for metals and human health targets for organic compounds (see Table 1), which were derived from the California Toxics Rule (CTR). Many of these concentrations are

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very low, and may be exceeded in ambient Harbor waters that supply cooling flows to the HGS. As these are final WLAs, LADWP understands that they would be applied in NPDES permits only after year 20 of the Implementation Period. The long implementation period is necessary to evaluate and implement measures to meet the targets, and to allow evaluation of sediments in the Harbor using the Sediment Quality Objectives (SQO) Policy prior to implementing costly and extensive control measures.

Table 1: Receiving water column concentration-based final WLAs for the Inner Harbor (applicable 20 years after TMDL adoption). Taken from p. 12 of Attachment A to Resolution No. R11-XXX.

Constituent	units	WLA
Copper*	μg/L	3.73
Lead*		8.52
Zinc*		85.6
Total PAHs		-
Chlordane		-
4,4'-DDT		0.00059
Dieldrin		-
Total PCBs		0.00017

* The Draft BPA indicates that the concentration-based WLAs for metals were converted from the saltwater dissolved CTR criteria using default saltwater translators.

Sediment Allocations

- **Interim Sediment Allocations**. Interim concentration-based sediment allocations were based on the 95th percentile of sediment concentration data collected from 1998-2006 (see Table 2 below) and appear to apply to bedded sediments. Although the Draft BPA and Staff Report are silent regarding how these allocations might be implemented in NPDES permits, the Draft BPA states, "Regardless of the allocation, permitted dischargers shall ensure that effluent concentrations and mass discharges do not exceed levels that can be attained by performance of the facility's treatment technologies existing at the time of permit issuance, reissuance or modification." (Attachment A to Resolution No. R11-XXX at p. 10) Based on this statement, LADWP believes that interim sediment allocations would be implemented in the NPDES permit for the Greater Los Angeles Harbor waters as performance standards starting year 20 of the Implementation Period.

Recommendation: Regarding Water Column and Sediment Allocations and compliance, the RWQCB should explain more clearly that final compliance for the Greater Los Angeles Harbor waters will be after the 20 year implementation period. In addition, LADWP requests that the Regional Board provide additional information on the interim sediment allocations presented in the Draft BPA (see Table 2), including the dataset upon which the calculation was based and the methods used to derive the values shown. LADWP was unable to reproduce the values shown in Table 2.

Table 2: Interim concentration-based sediment allocations for the Los Angeles Inner Harbor. Taken from p. 10 of Attachment A to Resolution No. R11-XXX.

Copper	Lead	Zinc	DDT	PAH	PCB
mg/kg sediment					
154.1	145.5	362	0.341	90.3	2.107

- **Final sediment allocations.** Final sediment allocations are included on p. 14 and p. 15 of the draft BPA for copper, lead, zinc, and total PAHs in the Inner Harbor and in San Pedro Bay. Final sediment allocations are included on p. 17 for DDT and PCBs in the Inner Harbor and on p. 18 for DDT and PCBs in San Pedro Bay. These allocations are expressed in units of kg/yr or g/yr, and are divided into waste load allocations (WLAs) and load allocations (LAs). WLAs are applicable to MS4 discharges for LA County et al., for the City of Long Beach, and for Caltrans. LAs are included for air deposition and bed sediments. WLAs are not included for discharges from NPDES permits other than the MS4 permits, and LADWP understands that these allocations would not be implemented as numeric effluent limitations or as receiving water limitations within non-MS4 NPDES permits.

Recommendation:
RWQCB should clarify that non-MS4 permits would not be covered by the final sediment allocations.

Greater Los Angeles and Long Beach Harbor Waters (including Consolidated Slip)

Because HGS is located within the Inner Harbor, LADWP assumes that the implementation provisions included in pp. 28-29 of the Draft BPA would apply to HGS, and interprets those requirements as detailed below.

The implementation provisions of the Draft BPA specify that "responsible parties" shall develop a Monitoring Plan, an Implementation Plan, and a

Sediment Management Plan. It appears that the Monitoring Plan would be developed by all responsible parties for the water body as a whole; developing the Monitoring Plan will require extensive coordination amongst the diverse responsible parties, and as such, requiring the plan to be completed within six (6) months is unreasonable. The Draft BPA should be revised to require submittal of the Monitoring Plan at least 12 months after TMDL adoption, and implementation of the Monitoring Plan at least 12 months after that date.

Recommendation: The Draft BPA should be revised to require submittal of the Monitoring Plan at least 12 months after TMDL adoption (increased from 6 months as written in the draft BPA), and implementation of the Monitoring Plan at least 12 months after that date.

2. Stormwater Wasteload Allocations

Page 12 of the draft Basin Plan Amendment (BPA) has concentration-based WLAs for General Construction and General Industrial Stormwater permits (as well as generating stations). For the stormwater permits, stormwater regulations compliance should be measured by the installation of Best Management Practices (BMPs).

Recommendation:
The BPA should clarify that compliance for stormwater requirements should be expressed as BMP implementation for construction and industrial stormwater permits. The BPA should also specify the maximum design storm that dischargers should use in planning BMPs for reduction of pollutants.

3. Use of Effects Range Low Values as TMDL Targets

For sediment toxicity, the WLAs given are based on Effects Range Low (ERLs) and Threshold Effects Concentrations (TECs) rather than quantities based on the triad approach specified by the California Sediment Quality Objectives. ERLs appear to be unreliable or unreasonably over-protective values to be used for WLAs. For this reason, the State required Sediment Quality Objectives to be developed[1]. As noted on page 7 of the SQO Policy,

> *"None of the individual LOE [line of evidence] is sufficiently reliable when used alone to assess sediment quality impacts due to toxic pollutants. Within a given site, the LOEs applied to assess exposure as described in Section V.A. may underestimate or overestimate the risk to benthic communities and do not indicate causality of specific*

[1] State Water Resources Control Board, 2009. *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality*

> *chemicals. The LOEs applied to assess biological effects can respond to stresses associated with natural or physical factors, such as sediment grain size, physical disturbance, or organic enrichment. Each LOE produces specific information that, when integrated with the other LOEs, provides a more confident assessment of sediment quality relative to the narrative objective. When the exposure and effects tools are integrated, the approach can quantify protection through effects measures and also provide predictive capability through the exposure assessment."*

The impairment assessment of the Draft BPA did not utilize the SQO Policy, and cannot be considered to have been done using best available science. In addition, the failure to perform stressor identification, as required by the SQO Policy, means that there is no information to support the assumption of the Draft BPA that the pollutants for which targets are included in the Draft BPA are responsible for sediment impairment. Perhaps more importantly, stressor identification would be necessary to identify additional pollutants (e.g., pyrethroids) that, are more likely to cause impairment than the pollutants regulated by the Draft BPA.

While a margin of safety is a requirement for TMDLs, use of the ERLs amounts to an excessively large margin of safety. Furthermore, Effects Range Median values (ERMs) and not ERLs were used to initially determine the sediment impairments.

Recommendation:
RWQCB should work with dischargers or interested parties to gather data and develop a method to express WLAs using a triad approach instead of inappropriate sediment quality guidelines (such as ERLs, TECs, and ERMs), as well as gather data necessary to support de-listing of the sediment.

4. Other Potential Sources of Toxicity

Pyrethroids have recently been cited as being significant sources of toxicity in regional waters. A recent study[2] of Ballona Creek Estuary indicated that concentrations of TMDL listed compounds often exceeded target levels, but there was a poor correlation between these concentrations and toxicity. Furthermore, analysis of sediments and porewater found that pyrethroid pesticides were the likely primary source of toxicity within the estuary. Comparison of these pesticides' toxicity thresholds to chemical analysis results confirmed that sufficient pyrethroids were present in the estuary sediments to cause toxicity.

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[2] Bay, Steven, Darrin J. Greenstein, Keith A. Maruya and Wenjian Lao, 2010. *Toxicity Identification Evaluation of Sediment (Sediment TIE) in Ballona Creek Estuary, Final Report*

Recommendation:
The WLAs for sediment toxicity should be reexamined to verify the major source(s) of toxicity within the Dominguez Channel, Los Angeles Harbor, and Long Beach Harbor regions covered by the TMDL document.

5. Existing USEPA-Approved Variances

Page 3 of the draft BPA for this TMDL (also Page 44 of the Staff Report) states that the numeric toxicity target of 1 TUc is established for the TMDL. However, for some NPDES permits variances for best Available Technology Economically Achievable (BAT) for total residual chlorine and toxicity are allowed pursuant to Clean Water Act Section 301(g). These variances should not be superseded by the WLAs and TMDL targets in the BPA.

Recommendation:
RWQCB should clarify that EPA-approved variances are allowed for qualified dischargers.

6. Modeling Issues

Model predictions, used in the estimation of allocations, have limited or no agreement with observations, and major modeling assumptions appear to be flawed.

Two models were used in the derivation of the TMDL. The LSPC watershed model was used to simulate flows and sediment loads from tributary watersheds to the water bodies regulated by the Draft BPA. The EFDC model was used to simulate the fate of these loads within the Harbors, including the fate of sediment particles (and associated pollutants) that enter the Harbor area via both dry and wet weather flows. LADWP has several primary concerns with the modeling efforts and with how the modeling results were used in the development of the Draft BPA, detailed briefly as follows:

- The loading capacity for each segment was calculated as the product of the model-estimated sediment flux to the Harbor bed and the TMDL target. This total allocation was divided amongst point sources (MS4s permittees) and non-point sources (air deposition and bed sediments). **The procedure used to divide the loading capacity amongst various sources is without scientific basis.**
    - As indicated in Appendix III (Tetra Tech memorandum dated November 29, 2010), two model scenarios were considered – an existing scenario ("base") and a hypothetical scenario of no upland contamination (i.e., only absolutely clean sediments delivered to the watersheds, called the "no upland sources" model scenario). Concentrations of pollutants in the sediments of the receiving water were estimated using the LSPC and EFDC models, for the various waterbodies in the TMDL for both the "base" and "no upland

sources" model scenarios. The model results were used to calculate the difference between bed sediment concentrations in the base scenario and the "no upland sources scenario." For some pollutant/water body segments, the modeled difference was significant (e.g., for copper in Dominguez Channel estuary, the "no upland sources" scenario was simulated to result in bed sediment concentrations about 28% lower than for the base case). But for many water body/pollutant segments, the difference in bed sediment concentrations was negligible (e.g., for copper in Cabrillo Marina), indicating that reducing pollutant loads from the watershed to zero would have no effect on pollutant concentrations in bed sediments. The loading capacity for each water body appears to have been divided into LAs and WLAs using these "% difference" values. In this manner, MS4 permittees discharging to Dominguez Channel estuary were assigned 28% of the total load capacity for that waterbody, and MS4 permittees discharging to Cabrillo Marina were assigned 1.49% of the load capacity for copper for that water body segment. The problem with this calculation method is that it actually penalizes dischargers to water bodies—i.e., dischargers are required to reduce their loadings to water bodies to near zero levels when model results indicate that their discharges have no effect on bed sediment concentrations, and when continued discharge at current levels would result in an identical outcome. For example, in Cabrillo Marina, bed sediment concentrations are simulated to remain at about 235 mg/kg copper whether upland sources are held at existing levels or reduced to zero. The problem with the calculation is that the "% difference" calculated from the two model runs has no relationship to the division of the loading capacity between sources. LADWP requests that the Regional Board revisit and recalculate load and waste load allocations using an appropriate methodology.

- As noted above, model-estimated sediment concentrations for the "no upland scenario" were found in many cases to exceed the TMDL targets, indicating that **even if all upland contaminant inputs are completely eliminated, TMDLs would continue to be exceeded**.
- An additional concern with the use of the model results in determining allocations is the fact that load allocations were assigned to bed sediment. A load allocation is defined as that portion of future or existing nonpoint source loads to a waterbody. As such, it is unclear how a load allocation can be assigned for bedded sediment, which is already contained within the water body. Rather, the combination of waste load (point source) and load (non-point source) allocations should be used to establish the amount of a particular pollutant that can be contributed to a water body.

Because pollutants already present in bed sediments appear to be the main cause of exceedances of Draft BPA targets (e.g., Tetra Tech notes that "DDT bed sediment contamination is predominantly a legacy issue and upland sources appear to be contributing loads of sediment that are cleaner than what is currently in bed sediments...suggesting that sediment remediation is required in each [water body] zone to achieve sediment targets"), it appears that a **TMDL, which regulates loads to a water body, is not a suitable regulatory vehicle** for addressing these supposed sediment impairments.

- As noted above, allocations were calculated as the product of the sediment flux to the bed and the TMDL target (i.e., and ERL or TEC value). It is unrealistic, particularly for storm flow conditions, to assume that all sediment will deposit on the sediment bed. Rather, some portion of the sediment transported to the Harbor, particularly during wet conditions, by streams/tributary watersheds will remain suspended in the water column and be carried out of the Harbor area. **Failing to include the sediment flux out of the Harbor results in allocations that are unnecessarily and unrealistically low**. For example, using LSPC model estimates of sediment inflow to the Harbor (Appendix I, p.56) and EFDC estimates of sediment deposition in the Harbor (Appendix III, p. III-4), about 65% of inflowing sediment passes through the Harbor and out to sea without depositing to the sediment bed within the Harbor. A large fraction of the loading to the watershed (e.g., for DDT about 72%-97%) passes through the Harbor without depositing to the Harbor sediments. Thus, the Draft BPA requires that DDT loads from the watershed be reduced by 99.91% to 99.991%. Similar load reductions are required of other pollutants in the Draft BPA, even though the modeling of Appendix III suggests that reductions of this magnitude will have a modest or negligible impact on pollutant concentrations in bed sediments.

- Pollutant concentrations for DDT and PCBs on sediments transported by tributary streams were assumed to be equivalent to pollutant concentrations on sediments in the top 5 cm of the sediment layer in the receiving water bodies. The modeling also assumed that all pollutants in the top-most sediment layers resulted from the recent deposition of sediments from streams and near-shore watersheds. This assumption is unrealistic and is contradicted by the fact that most measurements of these pollutants in tributary streams are present below detection levels. (e.g., all measurements of PCBs were below detection limits and only runoff from agricultural land use had detectable levels of DDT, see p. 40 of Appendix II).
- The concentrations of pollutants in bedded sediments were assumed to be uniform with depth. This assumption is also unrealistic, particularly for

legacy pollutants such as DDT, which was banned in 1972. This assumption has two important implications: (1) At least some, if not most, of the pollutant mass present in the surface sediment layers within the Harbor is likely the result of historic legacy discharges, and transport of pollutants from deeper sediment layers to the surface by processes such as porewater diffusion and bioturbation. Neglecting these processes results in over-estimating the pollutant load delivered by tributary streams and watersheds. (2) Higher pollutant concentrations at depth may be disturbed and exposed by remedial activities such as dredging.

- The detailed model results and sensitivity analyses presented in the Draft Staff Report are for dry season conditions. However, pollutant mass fluxes are orders of magnitude larger during wet/storm conditions than during dry weather conditions. Failing to analyze wet conditions in detail is a significant shortcoming of the modeling effort.

Recommendation: RWQCB should review the method of determining WLAs by taking into account the above concerns, especially including sediment that may drift out to the open ocean (this would allow more correct higher WLAs since the waterbody would have a higher assimilative capacity for pollutants).

7. It is not clear how the sediment load and waste load allocations were divided between and assigned to the responsible parties.

Once derived using model analyses, as described above, the overall allocations were divided into LAs and WLAs. No explanation is provided for how LAs and WLAs were derived, or what formula was used to divide the allocation amongst various categories. Of particular interest is the fact that LAs were assigned to bed sediment. A load allocation is defined as that portion of future or existing nonpoint source loads to a waterbody. As such, it is unclear how a load allocation can be assigned for bedded sediment, which is already contained within the water body. Rather, the combination of waste load (point source) and load (nonpoint source) allocations is used to establish the amount of a particular pollutant that can be contributed to a water body.

Recommendation: RWQCB should provide a more detailed explanation on how sediment pollutant loads were divided and allocated among responsible parties.

8. Atmospheric Deposition Alone Appears to Exceed the TMDL.

For certain pollutants such as DDT, air deposition loading to the water surface alone exceeds the loading capacities calculated for certain water body. For example, the Draft BPA specifies that the total allocation for DDT in the Inner Harbor is 3.56 g/yr, but air deposition is assigned an allocation of 129 g/yr, based on measurements of ambient deposition made by SCCWRP. The allocation assigned to bed sediments is -125 g/yr, indicating that even if all other inputs are completely eliminated, TMDLs would continue to be exceeded and dredging or

other remedial measures would be required on an ongoing basis. Moreover, as indicated in Appendix III (pg. III-46), the flux of DDT from the sediment to the Harbor waters is positive, indicating that the sediments are a significant source of DDT to the overlying water column. Thus, a failure to meet water quality standards for DDT in the water column cannot be regarded as indicating that current sources need to further reduce DDT loadings to the receiving water.

Recommendation:
RWQCB should focus on the sources of the air pollutants and on reducing the emissions of those sources that contribute to the air deposition applicable to this TMDL, and adjust the TMDL and implementation schedule accordingly.

9. Economic and Environmental Impacts were Underestimated.
Because of the way in which TMDL targets were derived and applied, the estimated cost of $ 680 million to dredge seven areas within the Harbor complex is likely a gross underestimate. The volume of material to be dredged was estimated by the Staff Report to be more than 11 million cubic yards (using the SQO Policy). If the targets of the Draft BPA are used, an estimated 36 million cubic yards would need to be dredged from the TMDL area. Indeed, as shown in the Atmospheric Deposition comment above, dredging could be required on an ongoing basis for the indefinite future since air deposition loadings exceed the allocations assigned to some of the waterbodies regulated by the Draft BPA by such a wide margin. Since many of the pollutants present in the Harbor are legacy pollutants, dredging could potentially last for years and result in extraordinary environmental impacts. Also as noted above, because many of the pollutants present in the Harbor are legacy pollutants, it is likely that the concentrations of these pollutants are higher at depth. Thus, it is reasonably foreseeable that dredging activities could result in resuspension of sequestered contaminants, recontamination of sediments in the Harbor, and increased bioavailability of pollutants in Harbor sediments. It is also reasonably foreseeable that dredging activities would significantly increase air pollution, construction activities, energy consumption, and have a detrimental effect for NPDES compliance of facilities that use Harbor water for intake and discharge.

Recommendation: RWQCB should use updated cost estimates based on 36 million cubic yards of dredging.

If there are any questions, please contact Mr. Clayton Yoshida of the Wastewater Quality and Compliance Group at (213) 367-4651.

Sincerely,

Katherine Rubin
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c: Thanhloan Nguyen/RWQCB
Clayton Yoshida