

US EPA ARCHIVE DOCUMENT

**Part 2- Response to Comments on the Total Maximum Daily Loads for Copper, Lead and Zinc in the Los Cerritos Channel**

*November 24, 2009 Public Notice*

**March 2010**

**COMMENTORS**

1. Mark Gold, President, Kirsten James, Water Quality Director, W. Susie Sentilena, Water Quality Scientist, Heal the Bay
2. Technical Committee for the Los Cerritos Channel Total Maximum Daily Loads for Metals (LCC Metals TMDLs): Representatives from the Cities of Bellflower, Cerritos, Downey, Lakewood, Long Beach, Paramount, Signal Hill and California Department of Transportation; Submitted by Barbara Munoz, City of Signal Hill
3. Gerald Greene, Principal Civil Engineer/Water Resources Control Specialist, City of Downey
4. Michael J. Egan, City Manager, City of Bellflower

**INTRODUCTION**

This document summarizes the comments that were submitted in response to the November 24, 2009 Public Notice, identifies the commenter or commentors (at the beginning of the comment) and responds to the comments. Any change that is made to the TMDL, in response to the comments is indicated in the response. If no change is noted in the response, then no change was deemed to be needed in the TMDL.

**REFERENCES**

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## COMMENTS AND RESPONSES

### **1. Comments From Mark Gold, Heal the Bay**

#### **Comment 1:**

Heal the Bay submitted comments on the original draft of this TMDL February 4, 2009. Since many of our concerns from that letter still stand, we would like to incorporate those comments by reference. In particular, the following concerns have yet to be addressed:

The Revised TMDL should include dry-weather *and* wet-weather numeric targets for each waterbody pollutant combination included on the 303(d) List.

The lower 10th percentile hardness value should be used to calculate numerical targets, as the choice of median hardness makes these limits under protective 50 percent of the time.

#### **RESPONSE:**

*The Los Cerritos Channel Metals TMDLs has had two public comment periods and responses to comments have thus been separated into two separate documents, Part 1 (December 8, 2008, Public Notice) and this response to comments, Part 2 (November 24, 2009, Public Notice). In response to the above listed concerns, please see response to Comments #16-20, in Part 1 - Response to Comments on the Total Maximum Daily Loads for Copper, Lead and Zinc in the Los Cerritos Channel, December 8, 2008 Public Notice.*

#### **Comment 2:**

The use of site-specific translators is under-protective and unnecessary. In general, we oppose the use of site-specific translators over CTR default translators because it is not a conservative approach. As demonstrated in this TMDL, the pursuit of translators often leads to less protective water quality standards. For example in the case of dry weather copper, the site-specific translator is over 22 percent less than the CTR default translator. Translators are sought by dischargers during TMDL development as a way to lower waste load allocations in order to make them more easily attainable. We have never seen a translator study that finds a translator that is more protective of water quality than the default. There is a sizeable risk that translators are developed with insufficient data to capture variability and critical conditions. Further as mentioned below, this translator study uses the median of the data set which is not an environmentally protective approach. For these reasons, we urge USEPA to either eliminate site-specific translators or take a more protective approach.

#### **RESPONSE:**

*EPA concludes that the site-specific translators were developed with sufficient data, accurately represent the behavior of metals moving from the total to dissolved form in the Los Cerritos Channel, and are sufficiently protective.*

*EPA performed its own independent analysis of all available wet weather data (31*

*samples representing storm events from 1/2001 – 2/2009) and produced wet weather site-specific translators for each metal. We carefully considered an analysis of existing paired metals data from the Los Cerritos watershed that yielded wet weather site-specific translators (submitted by the City of Long Beach and other commentors), and EPA's 1996 guidance (The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion).*

*We found that site-specific translators are appropriate for the Los Cerritos Channel Metals TMDLs for several reasons. Evaluation of the wet weather paired metals data in Los Cerritos Channel shows that dissolved to total ratios are not similar to those suggested by the default California Toxics Rule (CTR) conversion values, and that there appears to be very poor correlation between the fraction of particulate metals and total suspended solids (TSS). For lead, the percent of dissolved to total ratios fell below 15% in 30 of the 31 samples evaluated (See Appendix C of the TMDLs); this is drastically different from the CTR conversion value (97%). Again with copper and zinc the dissolved to total ratios seen in the data are very different from the CTR default conversion value. For copper, the percent of dissolved to total ratios observed ranged from 5% to 70%, with 28 of 31 values falling below 40%, whereas the default CTR conversion value assumes the percent dissolved to total ratio to be 96%. With zinc, the dissolved to total ratios observed range from 4% to 88%, with 28 of the 31 samples falling below 40%; whereas the default CTR conversion value for zinc is 97.8% or more.*

*The 90% value selection for wet weather is based on the California Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP, 2005) (Section 1.4.1) as such percentile is associated with acute criteria, which applies during wet weather conditions. The SIP states: "The translator shall be derived using the \*median of data for translation of chronic criteria and the \*90<sup>th</sup> percentile of observed data for translation of acute criteria."*

*The Regional Board and USEPA have agreed that USEPA will establish these and other TMDLs in order to meet the 13-year schedule for development of TMDLs in the Los Angeles Region established in a consent decree between USEPA and several environmental groups, entered by the District Court on March 24, 1999 (Heal the Bay Inc. v. Browner). Because these TMDLs address impairments in California waters, USEPA determined that deriving the translator by using data medians and the 90<sup>th</sup> percentile criteria as indicated in California's SIP was appropriate.*

*The existing loadings of lead to Los Cerritos Channel are less than the loading capacity calculated using a site-specific translator. EPA's final decision is to use the observed mean total concentration based on existing conditions (55.8 µg/L ) in order to assure that each pollutant source meets the TMDL target and that freshwater quality for this pollutant does not degrade below current levels, as well as to ensure that lead levels in downstream sediments do not increase in the future. For further information on using the observed mean for lead numeric targets, please see response to Comment #7.*

*EPA added further protection to offset any uncertain estimates that may be part of the translation, by electing to include an explicit margin of safety equal to 10% of the loading capacity or existing load available for all wet weather allocations.*

**Comment 3:**

Metals translators chosen by direct measurement should be based on the upper 90th percentile of data rather than median for both dry and wet weather. In the Revised TMDL, the 90th percentile value was selected from the wet weather data set for the wet weather metals translator, and the median value was chosen for dry weather. We understand this approach was based on guidance in the *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP); however, we disagree with the SIP approach. Choosing the median value for the dry weather targets is not a protective approach, as the median will only be protective of aquatic life half of the time. In addition, the dry weather data shows a large range of values and the target currently lacks an explicit margin of safety as discussed below. Hence, we urge the EPA to take a more protective approach than the one mentioned in the SIP guidance and to choose the 90th percentile value for the dry-weather translator as was done for the wet-weather translator.

**RESPONSE:**

*Because these TMDLs address impairments in California waters, USEPA determined that deriving the translator by using data medians and the 90<sup>th</sup> percentile criteria as indicated in California's SIP was appropriate. Please see response to Comment #2.*

**Comment 4:**

The TMDL should contain an explicit margin of safety for both wet and dry weather targets. We are very supportive of the fact that an additional 10% explicit margin of safety was assigned for wet weather TMDLs to address uncertainties in developing the waste load allocations. We believe this is an important step forward from the previous draft of the TMDL. However, we believe that it is critical that this margin of safety is also applied to dry weather waste load allocations. Non-conservative assumptions, variability, and uncertainties introduced in other aspects of the TMDL, such as flow calculations, hardness value calculations, and metals translator calculations likely have led to underestimations of pollutant loadings. In light of the dry weather TMDL approach, a 10% explicit margin of safety is even more critical than for wet weather.

As mentioned above, the selection of the “median of data for translation of chronic criteria” (SIP page 14) is certainly not fully protective of aquatic life. Also, the freshwater targets were calculated using the 50th percentile hardness. Again, this means that approximately half of the time the hardness values will be lower than this value and pollutants will become more bioavailable. Pursuant to Section 303(d), TMDLs must include a margin of safety to reflect uncertainties regarding discharges and water quality. 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7(c)(1) (“TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS with seasonal variations *and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent*

limitations and water quality.”) (emphasis added); see also *Minnesota Center for Environmental Advocacy v. U. S. Environmental Prot’n Agency*, 2005 U.S. Dist. LEXIS 12652 (D.Minn.2005) (holding that regulatory agencies “...must comply with the statutory and regulatory mandate to establish a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.”). Thus, EPA is required to include a margin of safety for both wet *and* dry weather and it must be sufficiently protective to ensure that water quality standards are attained and maintained by the TMDLs. *Id.*

**RESPONSE:**

*EPA has included an explicit margin of safety (MOS) equal to 10% of the loading capacity or existing load available for wet weather allocations, and an implicit MOS for both dry and wet weather allocations. The implicit MOS results from USEPA’s determination to evaluate dry weather and wet weather conditions separately, and then assign allocations based on two disparate critical conditions.*

*EPA concludes that the explicit MOS for wet-weather is appropriate in order to account for additional uncertainty in the wet weather TMDLs. Limiting the application of the explicit MOS to wet weather conditions is reasonable because the variations in dissolved to totals metals ratios, flow, and hardness are much greater during wet weather than during dry weather. For example, with copper, there is a significant variability of total copper concentrations within storm events (standard deviation., 46.4 ug/L), whereas during dry weather the variability of total copper concentrations is much smaller (standard deviation, 5.4 ug/L). Variations in flow data are also higher during wet weather due to the high variability of storms. Over the course of 8 years, wet weather flows ranged from 0 - 975 cubic feet per second (cfs), whereas dry weather flows ranged from 0.06 – 7.10 cfs over the course of 8 years.*

**2. Comments From the Cities of Bellflower, Cerritos, Downey, Lakewood, Long Beach, Paramount, Signal Hill and California Department of Transportation, Technical Committee for the LCC TMDLs**

**Comment 5:**

The Technical Committee supports EPA’s use of its guidance on translators, *The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion* (USEPA, 1996) to evaluate the potential for a site-specific dry-weather translator for copper. Use of the 1996 Guidance to translate the dry-weather dissolved copper load to an equivalent total recoverable copper load increases the accuracy of the dry weather target for total recoverable copper. Although the committee would have preferred that the target be expressed as a dissolved metal target to avoid the need for translation, we find that the site-specific translator of 0.737 now used for the dry-weather total recoverable copper is a more accurate reflection of conditions in the watershed.

**RESPONSE:**

*Comment noted.*

**Comment 6:**

The Technical Committee also supports EPA's use of its 1996 Metals translator Guidance to evaluate the potential for site-specific translators for wet weather. The Committee appreciates the willingness of EPA to evaluate the analytical results after applying the three options in the Guidance for deriving site-specific translators. As with the dry-weather numeric target for copper, the application of EPA's Guidance has improved the accuracy of the numeric targets in the TMDLs. Use of Option 1 has corrected the problem we noted in the November 2008 Draft TMDLs that the use of the California Toxics Rule (CTR) default conversion factors over-estimated the dissolved portion of metals in stormwater. The correction is particularly notable for lead. Use of Option 1 negated the need for an arbitrary conversion factor to compensate for significant overestimation of total recoverable of lead when using the CTR default conversion factor for lead because of a small dissolved fraction of total recoverable lead observed in wet-weather monitoring data for the Freshwater Los Cerritos Channel Watershed. In fact, the more accurate site-specific lead translator in the revised Draft TMDLs indicates that there is actually not a lead impairment in the Los Cerritos Channel, and a wet-weather lead TMDL is not needed.

**RESPONSE:**

*Comment noted.*

**Comment 7:**

The Technical Committee has serious concerns with the inclusion of a lead TMDL. Neither direct comparisons of dissolved lead concentrations with the CTR chronic criterion nor application of EPA's 1996 Metals Translator Guidance to the total recoverable lead data suggest that the freshwater portion of the Los Cerritos Channel should be reconsidered impaired due to lead. Therefore, a wet-weather TMDL for lead should not be established by EPA and the lead impairment should be delisted by the California Water Boards pursuant to the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List.

EPA appears to be concerned that discharges of lead could contribute to sediment impairment in the Los Cerritos Channel Estuary. However, we are not aware of data that suggest that lead is elevated in sediments within the estuary as it extends from Atherton Street to Alamitos Bay.

Data from both the SCCWRP Bight '03 and the more recent survey conducted by Kinnetic laboratories, Inc. indicate that lead is below the Probable Effects Level (PEL) of 112 mg/Kg-dry. SCCWRP measure the concentrations of lead at three locations in the Estuary. The highest lead concentration reported was 109 mg/Kg dry at a site located just north of the Seventh St. Bridge. Concentrations at the other two sites ranged from 64.8 to



66.4 mg/Kg-dry. The more recent 2009 survey conducted by Kinnetic Laboratories, Inc., indicated that lead concentrations ranged from just 13.3 mg/Kg-dry in a non-depositional environment near Atherton Street up to 62.8 and 71.1 mg/Kg-dry at sites in the lower estuary near Alamitos Bay. Although lead is elevated above the Effects Range Low (ERL; 46.7 mg/Kg-dry) level in the lower reaches of the estuary, there is no evidence of any recent measurements exceeding the PEL (see attached letter). [Commenter attached letter: *Survey of Chlorinated Hydrocarbons and Metals in Sediments of the Los Cerritos Channel Estuary*, Prepared for the City of Long Beach Stormwater Management Program by Kinnetic Laboratories, Inc., July, 2009).]

If EPA's concern is based on any historic data related to the Los Cerritos wetlands, which are tributary to the estuary channel, it is unlikely that the discharges from the freshwater watershed would have been a significant contributor of lead to the wetlands. In addition, there are former landfills within the vicinity of the wetlands and the wetlands have active oil operations existing within them.

The State Water Board recently adopted sediment quality objectives (SQOs) which were approved by EPA in August 2009 (See attached letter) and which clearly indicate that multiple lines of evidence and stressor identification should be used instead of sediment quality guidelines to assess sediment quality objectives and to identify responsible pollutants. The Scientific Steering Committee established by the State Water Board consisted of international experts on this subject matter, including individuals such as Ed Long who developed the original sediment quality guidelines that were derived from a single line of evidence. This group of experts found that it was inappropriate to assess sediment quality using sediment quality guidelines and that their inappropriate use should be discontinued. The adopted and USEPA-approved SQOs will be used in the future to assess sediment quality, and the State Water Board is beginning the process of revising related policies (e.g. the 303(d) Listing Policy) accordingly.

If, for some reason that we do not understand, EPA feels it is necessary to issue a wet-weather lead TMDL, it should be based on existing loads based on measured event mean concentrations (EMCs) – not modeled event mean concentrations. Appendix E, Table 6 shows that the modeled EMC of lead is 48.2% less than the observed event mean concentration of lead in the Los Cerritos Channel.

As EPA staff noted in a January 5, 2010 presentation to the Technical Committee, the total lead EMC for monitoring data from 31 events over the past 9 years is 55.8 micrograms per liter. However, the proposed wet-weather numeric target for lead based on the modeled mean concentration which is only 23.9 µg/L. A numeric target based on the observed mean concentration would allow an average annual load of more than 500 kilograms of lead, while the proposed numeric target for lead based on the modeled mean concentration permits only an average annual load of 223 kilograms of lead. The allowable average annual load based upon CTR chronic criteria would be 1,680 kilograms of lead. A numeric target based on the observed mean concentration would still be less than one-third of the allowable load. Because existing lead concentrations are currently below the CTR target, it is inappropriate to require further reductions in lead

concentration. Application of more stringent limits by incorporation of an additional 10% margin of safety is also inappropriate and unnecessary, as existing concentrations are well below levels allowable by the CTR.

A similar discrepancy exists for modeled EMCs for Total Suspended Sediment (TSS). The model predicts a TSS EMC that is 39.9% less than the observed EMC for TSS. The underestimation of sediment concentrations would be expected to have a strong influence on the ability of the model to effectively simulate concentrations of total lead.

If a Waste Load Allocation is included for lead, we request that it be based upon average EMC data from the 31 events monitored in this watershed, the 10% margin of safety (MOS) be eliminated, and language be added to footnotes for Tables 6-4 and 6-5 and to the associated text, specifying that the wet-weather mass-based allocations for combined stormwater permittees (g/day) for all metals (including lead) are long term averages. As is clearly shown by the existing monitoring data, the total lead concentration varies significantly between storm events, sometimes falling above and sometimes falling below 55.8 µg/L. Thus it should not be implied or required that all storm events have EMC values for total lead below 55.8 µg/L, but rather that the long-term average concentration of total lead (i.e., over multiple storm events and multiple seasons) in storm flow be 55.8 ug/L or less.

**RESPONSE:**

*Los Cerritos Channel was included on the 1998, 2002, 2006 California 303(d) lists as an impaired waterbody for copper, lead and zinc. A TMDL is thus required for each metal to ensure that applicable water quality standards are achieved in Los Cerritos Channel. EPA does not agree that the existing lead concentrations are currently below the CTR criteria. The Los Cerritos Channel water data reviewed by USEPA show a total of 22 dissolved lead exceedances of the chronic criteria in 9 years, or more than seven exceedances every three years on average. The exceedance frequency observed is therefore greater than the exceedance frequency permitted in the CTR. See, 40 CFR 131.38, Note to Table 4 of paragraph (c)(2). EPA concludes that a wet weather TMDL for lead must be established to address the impairment in the freshwater portion of Los Cerritos Channel and the impairment should not be delisted.*

*EPA also reviewed available data pertaining to the Los Cerritos Channel (LCC) estuary, downstream of the impaired freshwater segment. We reviewed water and sediment data, including BPTCP (1994), Bight (2003), SWAMP (2005) and the commentor's submitted document, **Survey of Chlorinated Hydrocarbons and Metals in Sediments of the Los Cerritos Channel Estuary**, prepared for the City of Long Beach Stormwater Management Program by Kinnetic Laboratories, Inc., (2009). We found elevated dissolved Cu in water, relative to CTR saltwater chronic criteria. Sediment Pb and Zn levels were above sediment quality guideline levels recommended by the CA 303(d) listing policy as well as CA SQO levels that apply to assessment within bays and*

estuaries<sup>1</sup>. Under typical estuarine conditions, when dissolved metals in freshwater cross the freshwater/salt water interface, the metals precipitate, deposit and accumulate in the estuary's salt water sediments. The data reviewed support the conclusion that this precipitation, deposition and accumulation of metals is occurring in Los Cerritos Channel Estuary. USEPA has determined to include a wet weather Pb TMDL to assure that freshwater quality for this pollutant does not degrade below current levels and to ensure that downstream sediment levels do not increase in the future.

As indicated above, the existing loadings of lead to Los Cerritos Channel are less than the loading capacity calculated using a site-specific translator. EPA's final decision is to use the observed mean total Pb concentration based on existing conditions (55.8 µg/L) and to include the 10% margin of safety to account for the significant variability of total lead concentrations between storm events (standard deviation, 71.7 ug/L). The copper and zinc TMDLs calculated site-specific translators require 75% and 69% load reductions respectively.

**Comment 8:**

The Technical committee agrees with use of a 10% margin of safety. Use of an explicit margin of safety is more defensible than the use of excessively conservative targets as an implicit margin of safety. However, as noted above, we are concerned with the addition of a margin of safety to a proposed numeric target based on a modeled mean concentration that is already much lower than the observed mean concentration.

**RESPONSE:**

EPA has revised the TMDLs numeric target for lead to be based on the observed average concentration, with a 10% margin of safety. Please see response to Comment #7 above.

**Comment 9:**

The Technical Committee agrees with the addition of the Hathaway Terminal Tank Farm to the list of NPDES permittees in the Los Cerritos Channel. The Tank Farm discharges stormwater through the MS4 to the headwaters of the freshwater Los Cerritos Channel, and the Committee has followed the Regional Water Board's process for re-issuing the Tank Farm's NPDES permit for freshwater because of a concern that appropriate discharge limits might not be included in the reissued permit.

**RESPONSE:**

Comment noted.

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<sup>1</sup> Listing Policy FED (2004) provides sediment quality guideline values for various toxic pollutants (Pb = 112 mg/kg dry wt.; Zn = 410 mg/kg dry wt.) CA Sediment Quality Objectives – Part I for Bays and Estuaries (LRM level 4 = 78 mg/kg dry wt.; Zn = 244 mg/kg dry wt.)

**Comment 10:**

The Technical Committee appreciates the modification to the watershed boundary based on information submitted by the City of Downey. However, we were surprised that the information submitted for Caltrans was not used to correct the boundary and appreciate that this error will now be corrected. The Committee also appreciates the technical changes made to the wet-weather model used to estimate required load reductions and provide guidance for TMDL implementation. In particular, we appreciate the revisions to land use groupings, assignment of variable percent impervious values for each land use/sub-basin combination, and the use of a revised copper potency factor. The revisions to land use groupings were particularly important as they better defined the broad land use categories used in the model.

**RESPONSE:**

*EPA modified the LCC watershed boundary based on the City of Downey's field reconnaissance, resulting in the removal of 9 acres overall. Downey requested the reassignment of an additional 5.05 acres of land from the LCC watershed, indicating that it is CalTrans property that drains to the Los Angeles River. Confirmation of this drainage pattern was not received until the modeling was completed; therefore this area is included in the modeling and subsequent modeling results. EPA did, however, exclude the 5.05 acres from TMDLs calculations and allocations, and related tables and text (except those presenting modeling results) in the TMDLs document. Considering this is a very small area (less than 0.02 percent of the watershed area), it is assumed to have a negligible impact on the wet weather modeling results. EPA will provide the City of Downey and the Los Cerritos Channel Technical Committee with modeling files, so that this change may be incorporated into any future maps or modeling and implementation planning.*

**Comment 11:**

a) The Technical Committee's primary concern with the revised Draft TMDLs has been addressed above. We do not understand why EPA has determined that a wet-weather TMDL is needed for lead. Use of an appropriate translator consistent with *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit From a Dissolved Criterion* (USEPA, 1996) has demonstrated that the freshwater portion of the Los Cerritos Channel is not impaired by lead. The allowable average annual load of 1,680 kg is approximately 7.5 times higher than the modeled average annual load, which is higher than the existing average annual load based on observed event mean concentrations.

A TMDL is not required even for compliance with the State Water Board's Antidegradation Policy. As noted in the revised draft TMDLs, "Any actions that can adversely affect water quality in all surface and ground waters must be consistent with the maximum benefit to the people of the state, must not unreasonably affect present and anticipated beneficial use of such water, and must not result in water quality less than that prescribed in water quality plans and policies." Furthermore, there is no evidence that the absence of a wet-weather lead TMDL would result in non-compliance with 40 CFR

131.12(a)(2). Rather, the state has banned lead wheel weights in California and Caltrans has undertaken measures that will sequester legacy lead in freeway rights-of-way in the vicinity of the Los Cerritos Channel Watershed. Therefore, a wet-weather TMDL is not necessary to be consistent with the State's Anti-degradation Policy or EPA's Anti-degradation Policy.

**RESPONSE:**

*For analysis of why a wet weather TMDL for lead is needed please see response to Comment #7.*

**Comment 12:**

a) The Committee also continues to have concerns with the model used to estimate current loads, which helps to determine load reduction required to meet numeric targets. As Tetra Tech noted in a December 15, 2009 conference call, in an attempt to do this model in a cost effective manner, it was built based on the modeling of other watersheds in the Los Angeles area. The regional modeling approach developed for the Los Angeles Region has been calibrated in other watersheds, most of which have significant non-urban land use components and segments of soft-bottom channels. The Los Cerritos Channel Freshwater Watershed is a relatively small, totally urban watershed with a drainage system consisting of storm drain pipes and hardened channels. The model should have been calibrated early for this watershed.

b) As noted in Section 4.2.2. of the revised draft TMDLs, "wet weather sources of metals are generally associated with the accumulation and wash off of metals on the land surface during rain events." Members of the Technical Committee are concerned that the model does not accurately represent the wash off of metals because it does not properly handle infiltration rates. The model is apparently not able to incorporate infiltration rates for local soils information. In the case of the Los Cerritos Channel Watershed, the soils information available for the County of Los Angeles provides infiltration rates for each of the several soils found in the watershed. The average of these infiltration rates is much higher than the 0.17 inches per hour infiltration rate used for most of the land uses within the watershed in the model. We have also noted that pervious portions of low-density residential land use areas were set at 0.05 inches per hour. It is still not clear why such a unique and very low infiltration rate is applied to low-density residential land uses that comprise a substantial portion of the watershed. Use of erroneous infiltration rates appears to have under-estimated infiltration and overestimated transport of metals to the receiving waters. In addition, we do not understand why the use of sand, silt, and clay do not add up to one. We would appreciate a further explanation of the use of the use of soil fractions in the model.

The inability of the model to include more detailed overlays of soils and infiltration rates also weakens the model's usefulness for implementation of the TMDLs. Runoff reduction through infiltration and implementation of other green infrastructure practices is being encouraged by EPA and the Water Boards, but the model does not provide

sufficient capabilities to incorporate soils and infiltration information useful in guiding the implementation of green infrastructure.

c) The model's usefulness was improved by the changes made in land use groupings, changes to the designation of percent impervious, and the use of revised copper potency factors when it was rerun. However, it could have been more accurate and more useful from the beginning of the process if the model had been calibrated and validated for the Los Cerritos Channel Watershed. The problems with this model demonstrate that models should not be used in any way to measure compliance with TMDLs.

**RESPONSE:**

*a) The development of the regionally-calibrated modeling parameters involved simulations for various land uses. The modeling process begins in subwatersheds with relatively homogenous land use types that drain to flow gages and/or water quality monitoring stations. These sub watersheds were calibrated and independently validated; thereby establishing parameters for these particular land uses using drainage areas that are as homogenous as possible. Since the LSPC model used requires parameterization for each land use, the appropriate parameters are applied, regardless of the other land uses in the watershed.*

*In addition, Ballona Creek has many similar characteristics to Los Cerritos Channel. The Ballona Creek watershed is about 60% residential and is composed of primarily urban areas (17% open space as compared to 6.2% open space in the Los Cerritos Channel). Except for its estuarine section, Ballona Creek is entirely concrete lined and extends into a network of storm drains. The Ballona Creek watershed was one of the primary watersheds used in development of the regionally-calibrated modeling parameters, especially the metals potency factors and parameters used for sediment prediction.*

*b) The LSPC model is able to use local soil infiltration rates during the model calibration-validation process. However, it was not possible to incorporate this local information into the regional modeling approach because the hydrology parameters are all interrelated and modifying just the infiltration rates would have resulted in inaccuracies in flow prediction and required modification to other parameters (thereby, effectively recalibrating the model from scratch). The cost of recalibrating the model to include local soils data in this instance made this option infeasible. The specific infiltration rates were determined through the calibration process for other watersheds in the Los Angeles Region. Different infiltration rates can be included for the various land use-soil combinations. We agree that the regionally-calibrated value for low density residential appears low and intend to reevaluate the value when the regional modeling parameters are updated. While the exact number of hydrologic parameters can be debated, it is important to evaluate how the model is performing. As indicated in Appendix E, the model is predicting hydrology well in Los Cerritos Channel watershed.*

*The sediment card in the LSPC model is used to partition the fraction of different types of sediment (sand, silt, and clay). The documentation for this card in the LSPC model*

*erroneously indicates that these fractions should add up to one. This is an error in the model documentation; the values do not need to result in a sum of one. The fractions are directly applied to the bulk sediment mass.*

*EPA acknowledges that the model is not able to provide extensive guidance on green infrastructure, however the model may be linked to other modeling tools such as the System for Urban Stormwater Treatment and Analysis INtegration (SUSTAIN), which do provide support to select Best Management Practices (BMPs) and Low Impact Development (LID).*

*c) Comment noted.*

**Comment 13:**

Members of the Technical Committee were also disappointed that EPA was not willing to work with the permittees on the development of a third-party proposed implementation plan for the TMDLs. We understand that EPA established TMDLs are not required to include implementation plans, but, to our knowledge, EPA is not restricted from including an implementation plan in a TMDL that it establishes. In light of California's fiscal difficulties and the willingness of the permittees to fund the development of an implementation plan, the Los Cerritos Channel Metals TMDLs presented an opportunity for a collaborative effort to develop TMDLs with an implementation plan in a timely and cost-effective manner. Permittees in the watershed are already acting to reduce runoff and address sources of metals in the watershed. However, these efforts would be better coordinated and more effective if the TMDLs were accompanied by an implementation plan.

**RESPONSE:**

*Implementation measures may be developed in the future by the Regional Board through an implementation plan, NPDES permits, non-point source enforcement or other means. These TMDLs, along with others in the Los Angeles Region, are required to be established under consent decree, and EPA and the Regional Board have agreed these Los Cerritos Channel metals TMDLs will be established by EPA. EPA is not required to develop an implementation plan when a TMDL is established. See, 40 CFR 130.7. In light of the schedule governing the TMDL's completion and other considerations, EPA has determined that an EPA-developed implementation plan is not warranted.*

**Comment 14:**

Lastly, we appreciate having been provided this week with an executable copy of Version 4 of the LSPC model and summary of the differences between Version 3 and Version 4. However, it would have helped our review of the TMDL if we had received the material earlier

**RESPONSE:**

*Comment noted.*

### 3. Comments From Gerald Greene, City of Downey

#### **Comment 15:**

We acknowledge your agency's initiative in hosting the December 16, 2009 "modeling" conference call and hope it helped to convey why local representatives have suggested additional transparency and clarity in documenting the assumptions and parameters used in model development and execution for this watershed. It came as little surprise that a 50% error in Manning's "n", produced little change in the Q, since this model was run in hour time steps (resulting in an averaging of intense short duration intense events) and probably adjusts conveyance facility size based on flow, rather than what's "in the ground" (this is still a local assumption, but is true for many hydrology models). Your effort has convinced us that this model is insensitive to Manning's "n" and therefore unsuitable for peak flow (Qp) or conveyance design purposes. Hopefully it helped persuade the EPA that not all of the parameters in the "calibrated" model were selected based on best professional judgment. Unfortunately, this leaves us all to wonder about the impact of individual parameters. Knowing that you were able to easily rerun the model by simply changing this variable, we like to reiterate our request that you similarly rerun the model with soil infiltration rates appropriate to the subareas or at least (the Los Angeles County Hydrology Manual minimum for this area) 0.35 inch per hour. We believe this change might clarify why residential areas seem to have unexpectedly high metal fluxes, since the model could be assuming relatively high volumes of runoff during even low intensity historic rainfall events.

#### **RESPONSE:**

*EPA disagrees that the model is overall insensitive to Manning's "n". It is important to note that the Manning's n value being discussed is the in-channel Manning's n (which did have limited sensitivity) and there is a separate Manning's n value applied to overland flow, which may be more sensitive. In addition, the LSPC model is not being used for peak flow (Qp) or conveyance design purposes; therefore, this is not of concern for TMDL development. Unfortunately, incorporating soil infiltration rates from the LA County Hydrology Manual is not a simple "rerun" of the model as described above. Since the hydrology parameters are all interrelated (and were simultaneously calibrated and validated during development of the regional modeling approach), modifying just the infiltration rates would have resulted in inaccuracies in flow prediction and required modification to other parameters (thereby, effectively recalibrating the model from scratch).*

*While the County of Los Angeles layer has more detail than the other national data layers, it does not provide a direct linkage to the hydrologic soil groups required for modeling. The individual infiltration rates cannot simply be put into the model; they must be incorporated using a layer that has linkage capability. Because of the limitations associated with these other, more recent data, the State Soil Geographic (STATSGO) data that was used in the model is the only available dataset with adequate information on hydrologic soil groups for application of the regional modeling approach.*



*The model selected has been used in similar watersheds throughout the Los Angeles area and validated with each use. Although the hydrologic, sediment, and water quality parameters were identical to the regional approach, the model was modified to incorporate stakeholder comments and more local watershed-specific data. The land use classifications were modified based on comments received from watershed stakeholders and revised potency factors from the Southern California Coastal Water Research Project (SCCWRP, 2005) for copper were utilized. In addition, variable percent impervious values were incorporated throughout the watershed (see Table 2 in Appendix E) in order to more accurately simulate local hydrology. For these reasons we feel that this was an appropriate model to use for modeling metals transport and loading in Los Cerritos Channel.*

**Comment 16:**

The high metals flux rate may also result from one of the inconsistencies in the draft document. At the top of page 18, the document asserts “A Southern California stormwater study conducted between 2001-2005 found that industrial land use sites contributed substantially higher fluxes and event mean concentrations of copper and zinc”, but Table 5 on Page E-15 reported that copper wash off potency factors for Agriculture, Commercial, High Density Residential, and Mixed Urban were all higher than for Industrial land use sites and Low Density Residential was equal. The zinc wash off factor was highest for Commercial, High Density Residential, Mixed Urban and then Industrial. Development, applicability to the LCC, and interaction of the potency factors on Table 5 of Page E-15 to other model factors should be more transparently presented for contrast with observed data from the 2001-5 Southern California Stormwater Study by Tiefenthaler et al. 2007.

**RESPONSE:**

*Washoff potency factors (POTFWs) were developed by SCCWRP, and incorporated into the LSPC water quality model accordingly. Incorporation of the potency factors has been done and the applicability validated previously in other Southern California TMDLs. EPA has described the incorporation of the potency factors into the model in Appendix E of the TMDLs. For additional information concerning the applicability and interaction of the potency factors with the model, please see response to Comments #35 and 36, in Part 1 - Response to Comments on the Total Maximum Daily Loads for Copper, Lead and Zinc in the Los Cerritos Channel- December 8, 2008 Public Notice.*

**Comment 17:**

We were disappointed and confused to see the dry weather flow rate estimate reduced from 2.98 CFS to 2.35 CFS in the Revised 2009 TMDL. While we agree that more recent and improved scientific and technical data should generally be incorporated into regulations, we hope that you can appreciate that this change lowers our baseline conditions and penalizes the local agencies for doing exactly as has been demanded of us by the Los Angeles Regional Water Quality Control Boards and Elected Officials Statewide during this TMDL development process. Had we known this, it would have

been in the best interest of local government to ignore the many water conservation, illicit discharge control and Low Impact Development (LID) efforts. Despite having just over 200 acres in the LCC watershed, City of Downey residents and businesses has installed an estimated 4,280 cubic feet of detention capacity, which is likely to have reduced our annual stormwater runoff volume by 4%. It appears that this change in the TMDL puts us in the untenable position of either violating current state MS4 Permits or future federal TMDLs and potentially the double jeopardy of being prosecuted under both regulations. The 2009 LCC TMDL should acknowledge that LID and other water quality and runoff reduction initiatives are resulting in reduced flow volumes and pollutant loads, during both dry and wet weather, that may not be reflected as reductions in metal concentrations.

**RESPONSE:**

*In the revised Los Cerritos Metals TMDLs ( public noticed on November 24, 2009), the dry weather flow estimate (an average of flow data) was reduced from 2.98 cubic feet per second (cfs) to 2.35 cfs, due to the inclusion of additional monitoring data collected and submitted by the Los Cerritos Technical Committee ( the commenter is a member of this committee). Additional monitoring data collected since the original 2008 public noticing of the Los Cerritos Metals TMDLs was included in both dry and wet weather analysis in order to best reflect the past and current condition in the channel. EPA appreciates the City of Downey's concern that a change in the dry weather flow estimate could influence the copper dry weather loading capacity for the TMDLs. In this case, however, the change was minimal and the inclusion of a dry-weather site-specific translator has led to an increase in the dry-weather loading capacity from the original copper TMDLs.*

*In addition, TMDLs allocations for the Stormwater, MS4 and NPDES permittees are in mass based allocations.*

*EPA has inserted language into Section 7.6, Implementation Recommendations, Source Control Alternatives, that describes LID and storm water retention efforts implemented by the City of Downey that have reduced runoff and presumably pollutant loads. EPA recommends these efforts be taken into consideration by the Regional Board when implementing permits.*

**Comment 18:**

While the City of Downey warmly acknowledges the 9 acre reduction in watershed area, we remain perplexed that areas collected by the I-105 Freeway, and identified in emails from CalTrans and the City on October 26, 2009, are still being attributed to this watershed instead of the Los Angeles River. We hope this was simply a miscommunication or perhaps the model shape files (which have not been posted) do not reflect the figures in the TMDL, but it seems especially capricious with respect to development of a copper, lead and zinc TMDL, since freeways are generally recognized as significant sources of these pollutants. Areas draining to the Los Angeles River, should not be identified in the LCC TMDL or included in its watershed model, especially if the model is being used in developing loads as appears to be the case for the lead portion of the LCC Metals TMDL.

**RESPONSE:**

*Please see response to Comment #10.*

**Comment 19:**

The City of Downey supports the comment letter submitted by the LCC TC and encourages thoughtful review of its contents by EPA.

**RESPONSE:**

*Comment noted.*

**4. Comments From Michael J. Egan, City of Bellflower****Comment 20:**

Thank you for the opportunity to provide comments on the revised draft Los Cerritos Channel Metals TMDL (LCC Metals TMDL). The City of Bellflower (City) incorporates by reference the correspondence, exhibits, and documents submitted by the LCC Metals TMDL Technical Committee to the U.S. Environmental Protection Agency (USEPA) (comment letter dated January 8, 2010). The City supports the Technical Committee's recommendations.

**RESPONSE:**

*Comment noted.*