

Comment Summary and Responses

Colorado Lagoon Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs), Sediment Toxicity, Polycyclic Aromatic Hydrocarbons (PAHs), and Metals TMDL

Table 1. Commenters

1. City of Long Beach
2. County of Los Angeles Department of Public Works
3. Heal the Bay
4. United States Environmental Protection Agency (USEPA)
5. State of California Department of Transportation (Caltrans)
6. City of Signal Hill

Table 2. Comments Received by September 8, 2009 and Responses

No.	Date	Author	Comment	Response
1	09/02/09	City of Long Beach		
1.1			General Comments: PAHs: Historical data from the BPTCP (Anderson et al. 1998) presented for PAHs appear inconsistent with data in the BPTCP reports and database files. Data from these reports would suggest that inclusion of PAHs on the 303(d) list may have been in error unless a single measurement of 1770 ppb phenanthrene is considered adequate for listing all PAHS. The Effects Range Median (ERM) for phenanthrene is 1500 ppb. We suggest that these data be reassessed to determine if this listing was based upon typographical errors and, if so, remove PAHs should be removed from the TMDL.	Regional Board staff has reviewed recent sediment quality data and found that the ERM and ERL values for PAHs are not exceeded. However, the data collected do not meet the minimum sample size of 28 as required in the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List adopted in September 2004. Regional Board staff will address this comment through our next 303(d) listing cycle, if adequate data are available. However, recent sediment chemistry data continue to show exceedances of other TMDL constituents.
1.2			Utilization of "probable background levels" "Probable background levels" are used as one of several "criteria" for assessing whether levels of contaminants in Colorado Lagoon sediments were contributing to	The "probable background levels" were only referenced in the Staff Report as the initial basis for the 303(d) listings for OC pesticides, PCBs, sediment toxicity, PAHs, and metals in Colorado

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			impairment. The probable background levels appear to have been extracted from the Regional Board's 1996 Water Quality Assessment. These numbers are supposed to represent background conditions at locations distant from direct point sources. However, these values clearly do not reflect background conditions and are not referenced to any known database. As noted below, these numbers would suggest that chlordane is typically more than 16 times the ERM rather than rarely being detected. We recommend removing these values from the data evaluation process.	Lagoon from the 1996 Water Quality Assessment and were not used in the TMDL data evaluation process. More recent sediment chemistry data show exceedances of ERM and ERL values.
1.3			▪ Better definition of chlordane and PCBs Both chlordane and PCBs consist of a large number of individual compounds. Different studies have tended to use a variety of different definitions to represent these compounds making it difficult to compare data sets. Technical chlordane is a complex mixture of approximately 140 compounds and PCBs consist of 209 separate congeners. The National Oceanic and Atmospheric Administration (NOAA) considers seven compounds as representative of the major components of technical chlordane. These include alpha-chlordane, gamma-chlordane, cis-nonachlor, trans-nonachlor, heptachlor, heptachlor epoxide and oxychlordane. Note that heptachlor was also used independently as a termiticide. The BPTCP used four compounds to represent chlordane and the Bight '03 studies have limited their measurements to just two compounds. Similar issues exist for the PCBs. None of the field studies that we are aware of in Southern California (including analyses conducted by EPA's Region 9 laboratory for this TMDL) has attempted to measure all congeners as suggested in the TMDL. We recommend identification of	Analysis of required constituents listed in the TMDL will follow Surface Water Ambient Monitoring Program (SWAMP) protocols. A detailed description of required monitoring elements shall be provided in the monitoring work plan for the Executive Officer's approval.

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			specific chlordane compounds and a set of PCB congeners such as those used for the Bight '03 studies so that there is standardization in how improvements are measured.	
1.4			Delete all reference to IIRMES/FOCAL data We recommend removal of discussion of the IIRMES/FOCAL data set since it was clearly a student project conducted as a class learning exercise. There is not even basic information as to where each sample was taken within the Lagoon.	The Staff Report will be revised to clarify that sampling locations were not available in the IIRMES annual report. However, the IIRMES/FOCAL data are still referenced in the Staff Report as the data were generated by California State University of Long Beach and available for public review.
1.5			ERL / ERMs The use of ERMs as a benchmark for listing sediment on the 303(d) list and setting the TMDL target at the Effects Range Low (ERL) value creates an excessive Margin of Safety (MOS). This approach is inconsistent with TMDLs addressing water quality where the listing criteria is an acute or chronic water quality criteria and goals are met by loads that allow the water quality to meet the original listing criteria. In the case of PAHs, a 90% reduction is required to simply reduce sediment concentrations from the ERM to the ERL. We recommend establishing initial sediment numeric targets at a value of 85-90 % of the ERM which would provide an explicit MOS of 10-15%.	The goal of the TMDL is to remove impairment and restore beneficial uses. The Effects Range Low (ERL) values represent the levels below which adverse biological effects are not expected to occur, and therefore are the appropriate threshold for ensuring that aquatic life beneficial uses are fully supported and that impairment is eliminated. The use of ERLs as the numeric targets is consistent with previously adopted TMDLs in the Los Angeles Region, including the Calleguas Creek OC pesticides, PCBs, and Siltation TMDL and the Marina del Rey Harbor Toxic Pollutants TMDL.
1.6			Fish tissue targets vs mussels Tissue targets were established on the basis of fish with the intent of protection of human health. There are few species found in the Lagoon that are commonly targeted for human consumption. It is also unlikely that the same species will be consistently available. In addition, it is impossible to know how long fish captured in the Lagoon have been present. Use of mussel tissue targets would be more appropriate especially since resident and transplanted mussels were the primary source of tissue data that lead to the original listing. There is also a substantial database established by the State Mussel	Fish tissue targets are used in order to specifically protect the commercial and sport fishing (COMM) beneficial use and other uses of Colorado Lagoon such as water contact recreation (REC-1) and shellfish harvesting (SHELL). Therefore, fish tissue targets were selected for protection of human health from consumption of fish and shellfish. Evidence of sport fishing at the lagoon has been documented and is available in the administrative record of the TMDL.

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			Watch Program that can assist in the interpretation of the data. We recommend that mussel tissue targets be developed in lieu of fish tissue targets and that mussels are used instead of fish for monitoring and assessing bioaccumulation of contaminants of concern.	
1.7			▪ Dredging of Northern Arm The TMDL suggests that the Northern Arm of Colorado Lagoon should be dredged if “high sediment concentrations” still remain after proposed actions are implemented. This inference that the Northern Arm of the Lagoon has high levels of sediment contamination levels is misleading. None of the target analytes exceed the ERM in surficial sediment samples from the Northern Arm. Two metals, lead and zinc exceed the ERLs but not the ERMS. In 2000, concentrations of total DDT exceeded the ERL but not the ERM. Surficial sediments analyzed by EPA in 2008 had no detectable DDT but reporting limits were relatively high. A composite of three sediment cores (1.5 to 3.5 feet, average of 2.7 feet) taken in the Northern Arm in 2004 provided evidence that the depth of contamination is not extensive. Concentrations of both lead and zinc in the composite samples were less than the ERLs but total DDT concentrations were about 1/10 of the ERM and 4-5 times the ERL. DDT at this level is comparable to background levels found throughout inland waters in this region. The EFDC model also appears to indicate that DDT concentrations will be near the ERL regardless of which implementation scenario is eventually followed. Field studies conducted by Chamber’s Group in 2004 also indicate that the Northern Arm supports a typical benthic assemblage for this type of habitat. Overall, the costs of removing and disposing of sediment with very limited contaminants of concern and an apparently healthy benthic assemblage would seem to outweigh any ecological improvements.	Sediment samples from the Northern Arm of the lagoon, collected in 2008 by the Regional Board, showed exceedances of ERL targets for lead and zinc. Concentrations of lead and zinc also exceeded ERL targets in sediment samples collected in 2000 by Tetra Tech. However, the TMDL does not require dredging of the Northern Arm at this point; implementation of the proposed remediation actions in the Central and Western Arms and other restoration and implementation actions in and around the lagoon should ameliorate the exceedances in the Northern Arm and result in attainment of the TMDL. If the proposed actions are not implemented or otherwise do not result in attainment of the numeric targets in the Northern Arm, additional implementation actions, which may include dredging, may be necessary to achieve the TMDL. The TMDL does not require dredging of the Northern Arm. The Colorado Lagoon TMDL

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			We would not recommend dredging the Northern Arm simply on the basis of the concentrations of three analytes being measured between the ERL and ERM. Further consideration of dredging should not be considered unless multiple lines of evidence (e.g. persistent sediment toxicity or bioaccumulation exceeding guidelines) indicate that sediments from the Northern Arm are at levels of ecological concern. Long, Field and McDonald (1998) summarized incidence of toxicity relative to exceedences of a variety of sediment guidelines and found that amphipod tests showed evidence of highly toxic responses in 13% of sediments with 1-4 analytes exceeding just the ERL. That compares to sediments with no ERL exceedences being highly toxic to amphipods in 11% of the cases. It would be difficult to justify the cost and ancillary impacts of dredging simply on the basis of 3 ERL exceedences.	monitoring program will determine compliance with WLAs and LAs and also monitor contaminated sediment levels in the Lagoon, especially in the Northern Arm of the Lagoon, to determine if additional implementation actions, which may include dredging of the Northern Arm, will be necessary to achieve the numeric targets in the Northern Arm.
1.8			Monitoring Adjustments are suggested to make the monitoring program more efficient and allow more direct assessment of targets. ○ We suggest complete elimination of water quality monitoring based upon existing monitoring efforts that indicate that concentrations of contaminants of concern are either measured below relevant water quality criteria or are not detectable at Minimum Levels as defined by the State Implementation Plan.	• Regional Board staff agrees that water quality in the lagoon does not appear to exceed the water quality objectives for the TMDL constituents at this time based on current detection limits. As new analytical methods with lower detection limits become commercially available, water quality monitoring is essential to confirm that water quality objectives are achieved. On-going water quality monitoring is required to ensure that water quality continues to meet water quality objectives set to protect the beneficial uses of the lagoon and to assess success in attaining fish

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			○ Conduct sediment toxicity testing annually consistent with sediment quality testing as opposed to conducting quarterly testing during the first year and semi-annual testing thereafter. ○ Eliminate use of fish for tissue monitoring and replace with a transplanted mussel monitoring program. More details on these issues are provided in the following pages.	tissue targets. • Regional Board staff agrees that it is appropriate to align the frequency of sediment toxicity testing to that for sediment chemistry. See the revised Basin Plan amendment in which both are required annually. • Fish tissue monitoring is required to ensure human health is protected. Fish species with the potential for human consumption will be targeted. To further assess and track tissue impairment, tissues from resident California or bay mussels will also be evaluated. The BPA has been revised to be consistent with the requirement of annual testing of mussel tissue specified in the Staff Report.
1.9			Specific Comments Section 2: ▪ p. 17. The Draft TMDL Report indicates that REC1 and REC2 Beneficial Uses are impacted by constituents addressed by this TMDL. The TMDL addresses contaminants in sediments and tissues. There are no water quality data that support the assumption that REC1 and REC2 Beneficial Uses are impacted by contaminants that are the subject of this TMDL.	Section 2.1.1 identifies the beneficial uses that are designated in the Basin Plan as existing and potential beneficial uses of Colorado Lagoon. The REC-1 beneficial use includes fishing. The 1996 water quality assessment, which was the basis for the initial impairment listings, included water quality data that support the conclusion that the REC-1, COMM, WARM, WILD and SHELL beneficial uses are not supported.
1.10			▪ p. 18. The footnote to Table 2-2 indicates that total PCBs are defined as the sum of all congener or isomer or homolog or Aroclor analyses. This broad definition is used throughout the report including sections addressing monitoring requirements. PCB analysis of sediments collected by the BPTCP in January 1993 included 18 PCB congeners. The NOAA status and trends program utilizes 20 congeners in sediments. The 2004 Kinnetic Laboratories, Inc/Moffatt Nichols report utilized the	Staff agrees that different programs may have required and tested different numbers and combinations of PCB congeners. For purposes of the monitoring requirements established in the TMDL, the protocols of the Surface Water Ambient Monitoring Program (SWAMP) established by the State Water Resources Control Board (State Board) should be used to determine which PCB congeners should be analyzed.

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			summation of Aroclors to characterize PCBs. SCCWRP's Bight '03 studies use as set of 41 congeners to characterize PCBs in sediments in Southern California. Few laboratories run the full set of 209 PCB congeners due to both cost and benefit issues. Standardization is needed to provide a consistent basis for assessment of PCBs in sediments and tissues.	
1.11			p. 20. Table 2-3 appears to have been extracted from the Regional Board's 1996 Water Quality Assessment. We recommend that the approach of using probable "background" levels be removed from the TMDL. These numbers do not represent typical "background" levels and are not referenced to any known dataset. For example, chlordane background levels in sediments are cited as 100 ppb which is over 16 times the Effects Range Median (ERM) value of 6 ppb. The Bight '03 studies found chlordane compounds detected in only 8% of the samples and concentrations were elevated only in coastal water bodies heavily impacted by urban or industrial activities. Mean area-weighted chlordane concentrations were highest (11 ppb) in Los Angeles estuaries.	The intent of Section 2.2 is simply to summarize the basis for the initial 303(d) listings for OC pesticides, PCBs, sediment toxicity, PAHs, and metals in Colorado Lagoon, which stems from the 1996 Water Quality Assessment conducted by Regional Board staff. At that time, there were no widely accepted sediment quality guidelines available to use in the assessment. Now that sediment quality guidelines (e.g. ERM, ERL values) are available, "Probable background levels" are not used as numeric targets in the TMDL, and are no longer used or for listing decisions.
1.12			p. 21 Table 2-4. Guidelines applicable exclusively to freshwater should be excluded. Colorado Lagoon has no freshwater habitat.	Table 2-4 is simply excerpted from the 1996 water quality assessment and includes all standards that were used at that time to assess tissue data. The numeric targets used in the TMDL are those appropriate for the brackish environment of the lagoon.
1.13			p. 21 Table 2-4. PCBs are listed twice with incomplete information in both cases.	See response to comment 1.12.
1.14			p. 22 Table 2-5. As noted earlier, use of background level approach should be eliminated and should not be considered as one of the criteria for the 303(d) listings.	See response to comment 1.11.
1.15			p. 22 Table 2-5. REC 1 and REC 2 should not be listed as impaired uses due to contaminants in sediment and	See response to comment 1.9. The Staff Report will be revised to remove the REC-2 use from

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			tissues.	Table 2-5.
1.16			p. 22 Table 2.6. Much of the BPTCP sediment data appears to be inconsistent with the BPTCP database (bptcp514.dbf) and the report (Anderson et al. 1998). The PAHs listed in the table are far greater than those listed in the database. Total PAHs should be 10,270.7 ppb, low molecular weight PAHs should be 2,238.4 ppb, and high molecular weight PAHs should be 6,946 ppb. Calculations for low and high molecular weight PAHs were based upon the lists used in Anderson et al. (1998). Since they did not include all analyzed PAHs, the two classifications do not add up to the total PAHs. The only PAH compound exceeding an ERM should be phenanthrene which was 1770 ppb compared to the ERM of 1500 ppb. Total DDTs are 181.42 ppb in Table 2.6 but the database indicates that six DDT compounds sum to 208.1 ppm. Total chlordane is listed as 74.32 in the table but the text does not indicate which compounds are summed. The total of cis-chlordane and alpha-chlordene would be 81.5 ppb. The remaining values seem consistent with the database and report.	Note taken. Table 2-6 in the Staff Report will be corrected.
1.17			p. 23 Table 2-7. Alpha-chlordane and gamma-chlordane should be alpha-chlordene and gamma chlordene. Total chlordane needs to be footnoted to indicating the seven compounds combined to assess total chlordane. The other chlordane compounds, especially trans-nonachlor which was a significant component of total chlordane, should be included in this summary table.	Note taken. Table 2-7 of the Staff Report will be revised to reflect the changes.
1.18			p. 24. All data and reference to the IIRMES study should be removed from this document. These analyses were from a class project, so the whole project (sampling through analysis) was a training experience for the students. Basic QAQC are available for the sediment analyses that would indicate that these analyses are likely reasonable but sampling locations are mostly	See response to comment 1.4.

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			undocumented. GPS coordinates exist for only 3-4 of the 16 sites listed in Table 2-13 on p. 31. Sites with known locations do not include Sites 8 and 9 that were indicated to have elevated levels of PAHs. It is indicated that these sites were taken near storm drains. QAQC for the tissue samples are known to be poor with only about 20% recovery from the CRM and MS. While the data are interesting and provide some insight into potential small scale variability, it is not appropriate to include these data or the generalizations included in the IIRMES Annual Report.	
1.19			p. 25 and 26. Information available to KLI/Moffatt Nichols in 2004 indicated that the CL-East site was actually in the Northern Arm, not in the central portion of the Lagoon near the culvert.	Note taken. The Staff Report will be revised to reflect the changes.
1.20			p. 27. Table 2-10. Use of freshwater translators to convert dissolved lead and zinc criteria to total recoverable concentrations is not appropriate. The saltwater translators in the CTR (0.951 for lead and 0.946 for zinc) should be used IF any criteria are cited. It should also be noted that the listed criteria are chronic (CCC) criteria and that the translators are based upon acute data since chronic translators for saltwater criteria are not available. (CTR p. 31717).	Note taken. The Staff Report will be revised to reflect the changes.
1.21			p. 27. Section 2.4.1.3. Text indicates that “High” concentrations of metals were detected. Conversely, would you state concentrations of all organics were “Low” since all but two compounds (see next comment) are reported as “not detected” (ND)? Please indicate what criteria are being used to designate concentrations measured at all sites as high. Concentrations of zinc measured in sediments from the Western Arm consistently exceeded the ERMs but data from both surveys at the other two sites exceeded only the ERL.	The Staff Report will be revised to clarify that concentrations of lead and zinc were above the ERL at all three sites during both sampling events and above the ERM in the Western Arm during both sampling events.
1.22			p. 29. Table 2-11. Gamma-chlordane at CL-1 on 2/28/08	Comment noted; however, it is not necessary to

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			should be reported as 14 with a J qualifier. Similarly, the value of 17 reported for endosulfan-I should be J-qualified since this compound was detected below the quantification limit. This table would be more valuable if the quantification limits were reported as they are on the previous tables.	revise the table.
1.23			p. 30. Table 2-12. Please include quantification limits as they are on previous tables in this section.	Note taken. The Staff Report will be revised to reflect the changes.
1.24			p. 30. IIRMES/FOCAL. As previously noted, this section should be eliminated.	See response to comment 1.4.
1.25			p. 32. typo on mussel genus, should be <i>Musculista senhousia</i>.	Note taken. The Staff Report will be corrected.
1.26			p. 32. Typo on dominant alga, should be <i>Enteromorpha</i>.	Note taken. The Staff Report will be corrected.
1.27			p. 32, third paragraph from top, “The lack of invertebrate diversity in the Western Arm may be related to toxicity in sediments or to relatively low dissolved oxygen in this part of the lagoon.” The 2004 review of water quality data found that oxygen levels can be depressed at times but there was no indication that oxygen levels in the Western Arm were any lower than any other segment of the Lagoon. In fact, one would expect that the heavy cover of <i>Enteromorpha</i> and <i>Ulva</i> would have very significant diurnal impacts on dissolved oxygen levels in the Northern Arm of the Lagoon. Please include a reference for this conclusion or data that demonstrates significant spatial differences in dissolved oxygen within the Lagoon. Alternatively, delete the second half of the sentence.	Note taken. The Staff Report will be revised to reflect the changes.
1.28			Section 3 p. 32. General. This section incorporates water targets. The text states that “Multiple numeric targets are often employed when there is uncertainty that a single numeric target is sufficient to ensure protection of designated beneficial uses.” Unfortunately, inclusion of water targets does not provide any measureable benefit. As detailed	See the first bullet of the response to comment 1.8.

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			below, NONE of the water quality monitoring surveys in Colorado Lagoon has provided evidence that water quality objectives have been exceeded and there is no reason to believe that further monitoring will provide different results. Two more water quality surveys are scheduled to be conducted after construction is complete but we see no benefit from conducting further routine water quality monitoring. As noted on p. 35, constituents of concern in this TMDL “have a high affinity for particles and the delivery of these pollutants is generally associated with the transport of suspended solids from the watershed or from sediments within the lagoon.” Conditions that might result in suspension of solids in the lagoon only happen episodically with storm events. Even monitoring during such events would only result in data that would be difficult to interpret. Use of the sediment and tissue numeric targets will provide the level of protection necessary and, more importantly, these targets provide an integrated measure of changes within the lagoon and endpoints that can be realistically measured. As noted on p. 64, “the potential effects of OC pesticides, PCBs, PAHs, and metals are related to bioaccumulation in the food chain and sediment accumulation over long periods of time, short term variations in concentration are not likely to cause significant impacts upon beneficial uses.”	
1.29			▪ p. 32 last paragraph, first sentence. “associated with metals and selenium.” should be corrected to reflect constituents of concern in this TMDL.	Note taken. The Staff Report will be revised to reflect the changes.
1.30			▪ p. 33, Table 3.1. Water quality sampling in Colorado Lagoon was reported by Kinnetic Laboratories, Inc/Moffatt Nichols (2004). Additional sampling was performed by the Regional Board/EPA in 2008 as part of the current TMDL effort. Two rounds of water quality sampling were also conducted by Kinnetic Laboratories,	Depending on the origin of the water quality objectives or criteria, those regulations may specify EPA approved methods and their Minimum Levels (MLs) or Detection Limits (DLs). If not, commercially available methods with the lowest available DLs shall be used with prior Executive

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			Inc./ Moffatt Nichols as part of the pre-construction monitoring effort. None of this sampling has resulted in exceedences of water quality standards despite use of extremely low detection limits for the 2008 pre-construction monitoring surveys. None of the previous sampling has included PAHs. The targets established for chlordane compounds, total DDT compounds, dieldrin and PCBs are well below conventional low detection limits and could only be achieved by very expensive nonconventional methods that utilize large sample volumes and involve preconcentration procedures. The following table provides a summary of target levels requested versus reporting limits used at the US EPA Region 9 laboratory and the lowest achievable by a local, commercial laboratory with extensive experience in marine chemistry.	Officer approval. As new analytical methods with lower DLs become commercially available, the monitoring plan shall be updated to include these methods.																				
			<table><tr><td>Constituent</td><td>Table 3.1 Water Quality Target (ug/L)</td><td>EPA Region 9 Laboratory Limits (ug/L)</td><td>KLI/Moffatt Nichol Reporting Limits¹ (ug/L)</td></tr><tr><td>Chlordane</td><td>0.00059</td><td>0.02²</td><td>0.1-0.005³</td></tr><tr><td>Total DDT</td><td>0.00059</td><td>0.05⁴</td><td>0.001-0.005⁵</td></tr><tr><td>Dieldrin</td><td>0.00014</td><td>0.05</td><td>0.01-0.005</td></tr><tr><td>PCBs⁶</td><td>0.0007</td><td>0.05-0.09</td><td>0.5-0.02⁷</td></tr></table>	Constituent	Table 3.1 Water Quality Target (ug/L)	EPA Region 9 Laboratory Limits (ug/L)	KLI/Moffatt Nichol Reporting Limits ¹ (ug/L)	Chlordane	0.00059	0.02 ²	0.1-0.005 ³	Total DDT	0.00059	0.05 ⁴	0.001-0.005 ⁵	Dieldrin	0.00014	0.05	0.01-0.005	PCBs ⁶	0.0007	0.05-0.09	0.5-0.02 ⁷	
Constituent	Table 3.1 Water Quality Target (ug/L)	EPA Region 9 Laboratory Limits (ug/L)	KLI/Moffatt Nichol Reporting Limits ¹ (ug/L)																					
Chlordane	0.00059	0.02 ²	0.1-0.005 ³																					
Total DDT	0.00059	0.05 ⁴	0.001-0.005 ⁵																					
Dieldrin	0.00014	0.05	0.01-0.005																					
PCBs ⁶	0.0007	0.05-0.09	0.5-0.02 ⁷																					

¹ Analyses performed by CRG Marine Laboratories.

² Based upon a single chlordane component (alpha-chlordane). Detection limit for technical chlordane was 2.3 ug/L.

³ RL is for a single component of DDT. EPA lab reported three DDT compounds.

⁴ CRG now reports a capability of meeting a reporting limit of 0.005 ug/L for alpha-chlordane with similar limits for the other major components of chlordane. The lower detection limits were used for 2008 pre-construction monitoring.

⁵ CRG now provides a lower detection limit of 0.005 for single components of DDT such as 4,4'-DDT and reports 6 isomers. The lower limit was used in the two recent water quality surveys conducted for 2008 pre-construction monitoring.

⁶ As the sum of seven Aroclors.

⁷ Reporting limits are for Aroclors. RLs for individual congeners are approximately 0.005 ug/L.

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			Utilizing the ERL values as sediment targets provides an excessive Margin of Safety (MOS). The current State Board listing policy utilizes the ERM as a basis for placement on the 303(d) list. In the case of total PAHs, there is a full order of magnitude difference between the ERM and ERL. The approach of using the ERLs to provide an implicit margin of safety is inconsistent with strategies used in other TMDLS (Chollas Creek and Calleguas Creek) where explicit margins of safety were used that ranged from 10 to 15 percent. In the extreme case of total PAHs, a 90% reduction is required just to cover the difference between the ERM and ERL. This issue will require a much more thorough and critical review to establish target values that are rational and scientifically supportable. We suggest setting the sediment targets at a level that would be 10-15% less than the ERM which is used for listing the sites. This would provide an explicit MOS of 10-15% consistent with most other TMDLS.	While the current State Board listing policy utilizes the ERM values as a basis for placement on the 303(d) list, the Effect Range Low (ERL) values represent the levels below which adverse biological effects are not expected to occur, and are more applicable to the prevention of impairment. The goal of the TMDL is to remove impairment and restore beneficial uses; therefore, the ERLs for sediment are selected as numeric targets over the ERMs to limit adverse effects to aquatic life. ERLs were also selected as numeric targets in other adopted TMDLS including the Calleguas Creek Watershed OC Pesticides, PCBs, and Siltation TMDL, and the Marina del Rey Harbor Toxic Pollutants TMDL.
1.31			p. 36, Section 3.2 Water Quality Criteria. As previously noted, including water quality targets does not provide any significant benefits and should be removed from the TMDL. Colorado Lagoon meets the Basin and CTR definitions of a saltwater environment based upon the fact that salinities are equal to or greater than 10 ppt at least 95% of the time in a normal water year. Therefore, saltwater quality criteria apply to these receiving waters. The draft report incorrectly states that Colorado Lagoon would be considered a tidally influenced fresh water environment that supports estuarine beneficial uses. Please revise the text accordingly.	See response to comment 1.8. Note taken. The Staff Report will be revised to reflect the changes.
1.32			p. 36, Section 3.3 Fish Tissue Target. While we agree that Fish Tissue Targets have merits, the issues of the mobility of fish and unknown exposure times should be noted as a	See response to comment 1.8.

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			confounding factor. Based upon data in Section 2, it is questionable as whether PAHs should be included in this TMDL. In addition, PAHs are typically metabolized rapidly in fish the mixed oxidase function system in the liver such that measurement of PAH body burdens may not prove useful. Apparently in recognition of this issue, PAHs were not included in the fish tissue monitoring specified on pages 78 and 79. We recommend tissue targets be established for mussels rather than fish. This would eliminate questions of residence time and species availability. It would also be consistent with tissue data that were used to initially place Colorado Lagoon on the 303(d) list due to tissue burdens.	
1.33			▪ p. 37. Clarify that the EPA PAH Screening Level of 5.47 ug/kg is for recreational fisherman (EPA 2000, EPA 823-B-00-007). It also should be noted that the following 15 PAHs with existing Toxicity Equivalency Factors (TEF) should be used for measurement of total PAHs. • Dibenz[a,h]anthracene • Benzo[a]pyrene • Benz[a]anthracene • Benzo[b]fluoranthene • Benzo[k]fluoranthene • Indeno[1,2,3-cd]pyrene • Anthracene • Benzo[g,h,i]perylene • Chrysene • Acenaphthene • Acenaphthylene • Fluoranthene • Fluorene • Phenanthrene • Pyrene	Note taken. The Staff Report will be revised to reflect the changes. As for the measurement of total PAHs, for purposes of the monitoring requirements established in the TMDL, the protocols of the Surface Water Ambient Monitoring Program (SWAMP) established by the State Water Resources Control Board (State Board) should be used to determine which PAHs should be analyzed.
1.34			Section 4 ▪ p. 40. MS4 Stormwater permits. The City of Long Beach	Note taken. The Staff Report will be revised to reflect the changes.

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			MS4 permit was issued, not renewed, in 1999.	
1.35			p. 41. Section 4.2.2. Please include the land use specific EMC values in the tables.	Note taken. The Staff Report will be revised to reflect the changes.
1.36			p. 42. Rainfall records from the Long Beach Daugherty Airport may be more appropriate. Average rainfall for calendar years 2006 through 2008 was 11.82 inches.	Note taken. The Staff Report will be revised to reflect the changes.
1.37			p.43. Section 4.2.4 Point Sources Summary. The text references Table 5-3 which is in the next section and contains loading capacity information. It could be Table 4-3 but that sums only stormwater runoff. Is there a missing table that sums stormwater and dry weather flows?	The text should reference Table 4-3. There is no other table summing stormwater and dry weather flows. The Staff Report will be revised to reflect the changes.
1.38			p. 44. Section 4.2.4 Point Sources Summary. Last paragraph. A component of the lead load still reflects historical uses. Lead should still be considered a legacy contaminant. Extremely high concentrations of lead are found along major traffic arteries. During periods of intense rainfall, lead from these areas can be mobilized. It is our understanding that Caltrans is currently implementing a variety of BMPs to reduce the potential for these reservoirs to continue serve as sources for lead.	Note taken. The Staff Report will be revised to reflect the changes.
1.39			p. 45. Change "...the first flush normally exhibits a heavy spike in concentration discharged to the lagoon" to "...the first flush would be expected to exhibit a heavy spike in concentration discharged to the lagoon". There are no stormwater data for Colorado Lagoon.	Note taken. The Staff Report will be revised to reflect the changes.
1.40			p. 45. first paragraph. Please reference the source for these generalizations or delete the last two sentences. The information is not consistent with other work such as that conducted on first flush metals by Michael Stenstrom's group and Caltrans (Kim et al. 2003).	Note taken. The Staff Report will be revised to reflect the changes.
1.41			p. 45. Section 4.3.2 Atmospheric Deposition, second paragraph. Reference to Table 5-5 should be 4-5.	Note taken. The Staff Report will be revised to reflect the changes
1.42			Section 5 p. 51. First paragraph, last sentence. The tide gates were	Note taken.

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			partially closed at all times but flows easily pass through the structure due to the condition of the gates at the time of the study.	
1.43			p. 51. Second paragraph, last sentence. “As can be seen from the comparison indicated in Figure 5.3, the hydrodynamic model provides a good foundation for the simulation of water quality for the Colorado Lagoon.” It is not clear that this statement is valid given the inability to accurately duplicate existing limits on low tides. Differences of roughly two feet of water at low tides would seem to have a substantial impact on how well the model simulates existing conditions.	While staff acknowledges a difference between modeled and observed low tides, a good comparison between modeled and observed values of water quality concentrations in the sediment bed and water column as presented in Figures 5-4 through 5-20 confirmed the applicability of the calibrated hydrodynamic and water quality model to the Colorado Lagoon.
1.44			p. 53. Table 5.1 Please identify purpose of red highlights in the data table.	Note taken. The Staff Report will be revised for clarification.
1.45			p. 64. Table 5.2. This table identifies a sixth subbasin that is not identified as one of the subbasins listed on p. 10 and on the map on p. 11. This subbasin appears to be equivalent in size to Subbasin D (Line M).	Line 5104 discharges to the Marine Stadium side near the outlet of Colorado Lagoon and, for this reason, is not included in the group of sub-basins that discharge to the lagoon that are listed on p.10 and the map on p. 11. The loading from this storm drain is included in the analysis to estimate the annual loading to the lagoon including the loading from the Marine Stadium. The Staff Report will be revised to include descriptions of the drainage area discharging to Line 5104.
1.46			p. 65. 5.5 Margin of Safety. Utilization of multiple targets, ERLs and incorporation of an additional 10% Margin of Safety provides an excessive level of protection. The additive nature of using all of these factors can result in use of an MOS that corresponds to a full order of magnitude (see earlier discussion of PAH ERL/ERMs) which is not the intent of the TMDL program. None of the sediment data from the Northern Arm of the Lagoon have provided evidence that would indicate that this portion of the Lagoon should have been included in the original	See responses to comments 1.5, 1.6, and 1.8.

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			303(d) listing since ERM's were not exceeded. As noted on p.32, "Colorado Lagoon supports a relatively diverse benthic invertebrate community in the central and northeast portions of the Lagoon." We recommend maintaining tissue targets, eliminating the water targets which do not contribute to effective monitoring of improvements, and using the ERM as a target with incorporation of an explicit MOS as a percentage of the ERM.	
1.47			Section 6 p. 66. Table 6-1. Numbers in this and all subsequent tables (Tables 6-2 through 6-4) need to be adjusted to reflect the correct number of significant figures.	Note taken. The Staff Report will be revised to reflect the changes.
1.48			p. 67. end of first full paragraph. This is the first mention of Line N in the draft report. Is this synonymous with 5104? If so, early data indicates similar solids loads to Subbasin D (Line M)?	Line N is not synonymous with 5104. Line N is a small storm drain that serves a localized area adjacent to the lagoon. The Staff Report will be revised to include a description of Line N.
1.49			Section 8 p. 78 Section 8.1 Water, Sediment, Fish Tissue Monitoring. As previously noted, quarterly water quality sampling will not provide significant information for evaluating effectiveness of the Implementation Program. All constituents of concern are strongly associated with particles. The 2004 sampling by Kinnetic Laboratories, Inc/Moffatt Nichols was conducted at low detection limits as were the organic analyses conducted by the Regional Board/EPA in 2008. Detection limits were at or below Minimum Levels. Two additional rounds of water quality sampling (Figure 1, Table 1) were performed in the late 2008 by Kinnetic Laboratories, Inc./Moffatt Nichols. Data from these two surveys also utilized low detection limits (at or below the State Implementation Policy Minimum Levels). All constituents of concern met applicable water quality criteria. We recommend that water quality sampling be eliminated from the Monitoring Program	Because water quality from the lagoon has been below detection limits or meeting the WQOs, the sampling frequency for water column and suspended solids is changed from quarterly to semi-annually. However, if WQOs are exceeded at any time, the sampling frequency will revert to quarterly until the exceedances cease. See the revised Basin Plan amendment.

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			since additional data are not be expected to provide any substantive benefits with regard to evaluation of the effectiveness of the Implementation Program. The draft report recommends that sediment toxicity testing be conducted quarterly during the first year and semiannually thereafter. We recommend this testing be limited to annual testing in conjunction with the sediment sampling effort such that chemistry is available to help interpret sediment toxicity results.	See response to comment 1.8.
1.50			▪ p. 79 Section 8.1 Water, Sediment, Fish Tissue Monitoring. The monitoring program specifies fish tissue monitoring. The last sentence adds analysis of tissues from resident or bay mussels to evaluate potential human impacts. The tissue targets were established for fish and should not necessarily apply to mussels. Monitoring of fish tissues introduces a number of uncertainties. These include unknown exposure time and the real potential that target species will vary among years. Furthermore, very few species targeted by fisherman for consumption are abundant in the Lagoon. This will make the data very difficult to evaluate. As noted in Section 2, tissue 303(d) listings were based upon resident and transplanted mussels analyzed by the State Mussel Watch Program. Establishing tissue targets for mussels and exclusive use of mussels for the monitoring program would provide much more relevant and interpretable data for measuring improvement of conditions in the Lagoon. (Refer to Table 1 in the attached comment letter from the City of Long Beach)	See response to comment No. 1.8.
1.51			Section 9 ▪ p. 80 and 81. Table 9.1 and 9.2 appear to be identical except slightly reordered?? Table 9.1 was supposed to show dry weather flow and water quality. Table 9.2 was supposed to show conditions under restoration scenarios. The set of four tables on these two pages are basically	Note taken. Clarification will be made in the Staff Report. The model presented in section 9 of the Staff Report includes the predicted loads to the lagoon, including those from Marine Stadium (represented by Line 5104), while the five sub-basins identified in section 1 are the areas draining

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			uninterruptable at this time. In addition, as previously noted, the six basins modeled appear to conflict with the five subbasins described in Section 1 and false accuracy implied by use of up to eight significant figures needs to be addressed.	directly to the lagoon.
1.52			p. 84. This section refers to Tables 9.5 and 9.6. Table 9.5 is indicated as representing “increased concentrations due to annual loading”. Table 9.6 is indicated as representing background concentrations estimated at 10% of the existing concentrations as determined by the two 2008 sediment surveys. The text indicates that the final concentrations are obtained by adding the concentration data in Table 9.5 to the concentration data in Table 9.6. The text does not clearly explain how the model can calculate increases in concentration without considering background concentrations and why concentrations are considered additive. It appears that the model is calculating the quantity and quality (mass of solids combined with pollutant concentrations) that would be deposited to the Lagoon. Addition of any sediment with concentrations below the assumed background levels would be expected to decrease final sediment concentrations. If background concentrations are exceeded in the newly deposited sediments then one would expect an increase. Obviously, this is based upon a simple case with no resuspension and transport but is intended only to illustrate the point.	The model was used to evaluate which restoration plans could be effectively implemented to maintain water and sediment quality at levels below the numeric targets. The increased concentration obtained by the model is added to the background concentration that is reasonably estimated at 10% of the existing contamination in the sediment to get the final sediment concentration. Of course, this modeling assumption will not exactly estimate true final sediment concentrations. However, the resuspension effect is considered to be small based on small tide-induced velocity and no wave action in the Colorado Lagoon. Thus, the assumption of no resuspension in the modeling approach is considered to be appropriate for the evaluation of restoration implementation plans.
1.53			p. 85. Last paragraph, last sentence. This sentence states that “It is recommended that the dredging of the sediments in the Northern Arm should be considered if high sediment concentrations still remained after proposed actions are implemented.” There is very little evidence to suggest that this action would result in a significant environmental benefit. According to 303(d) listing guidelines, these sediments would not have been listed in	See response to comment 1.7.

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			the first place since the ERM is not exceeded. It is not uncommon for the ERL to be exceeded by one compound in otherwise healthy habitat. Bight '03 surveys (Schiff, Maruya and Christensen, 2006) indicated that over half the sites sampled had exceedences of 1 to 4 ERLs and many of these sites were located far from sources of contaminants. Toxicity tests showed many of these sites to be categorized as nontoxic and had benthic assemblages considered to meet reference conditions. Dredging of this area would destroy the existing benthic community and would consume disposal capacity that could be more effectively utilized by sediment with more substantial contamination.	
1.54			p. 95. PAH value for CL-2 under Scenario 1 should be 153 not 1,153 ug/Kg-dry. Remove added "0" for PCBs at CL-2 under Scenario 2	Note taken. The Staff Report will be revised to reflect the changes.
2.1	09/08/2009	County of Los Angeles Department of Public Works	Inappropriateness of Naming the Los Angeles County Flood Control District as a Responsible Party The proposed Basin Plan Amendment (BPA) inappropriately names the Los Angeles County Flood Control District (LACFCD) as a responsible party. Land areas that drain to the single LACFCD storm drain that empties into Colorado Lagoon are under the jurisdiction of the City of Long Beach (City). The LACFCD drain functions simply as a conveyance for urban runoff and stormwater from the City and does not generate any of the pollutants of concern at issue in the TMDL. Further, the LACFCD cannot control land uses within the City and, therefore, does not have the authority to reduce the amount of constituents of concern entering its facilities, water bodies, and ultimately the ocean. Page 67 of the Draft Staff Report notes that since "Colorado Lagoon is located completely in the City of Long Beach and land area serviced by storm drain systems that currently discharge stormwater to the lagoon is under	Under the Clean Water Act, a point source is "any discernable, confined and discrete conveyance ...from which pollutants are or may be discharged." (33 U.S.C. § 1362(14).) Under the Clean Water Act, therefore, the fact that a point source may merely convey pollutants, and does not generate them, does not absolve the point source operator of responsibility for discharges of pollutants from the point source. The BPA clarifies that Colorado Lagoon is located completely within the jurisdictional boundaries of the City of Long Beach and land areas serviced by storm drains that currently discharge to the lagoon are under the jurisdiction of the City of Long Beach. Therefore, the WLAs to all the storm drains that currently discharge to the lagoon are assigned to the City of Long Beach. The LACFCD, however, owns and operates the Project 452 Storm Drain, which discharges to Colorado Lagoon; therefore, the

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			the jurisdiction of the City of Long Beach, the Waste Load Allocations (WLAs) are assigned primarily to the City of Long Beach." Therefore, the LACFCD should not be responsible for pollutants generated in the tributary watershed, since it has no jurisdiction or authority over the activities of landowners in the City. We request that the LACFCD be removed from the list of responsible parties for the proposed TMDL.	LACFCD is also responsible in its capacity as owner and operator of the storm drain that is discharging to the lagoon, for achieving the WLAs assigned to the Project 452 Storm Drain. The LACFCD and the City of Long Beach are required to implement actions to prevent pollutants from entering and accumulating in Colorado Lagoon at levels above the numeric targets and associated WLAs.
2.2			2. Inappropriateness of Joint Responsibility for TMDL Compliance The proposed BPA purports to make the LACFCD jointly responsible for the actions, or inactions, of other responsible jurisdictions, such as the City and California Department of Transportation (Caltrans). The LACFCD has no authority to compel the City or Caltrans to come into compliance. Thus, under the proposed BPA, the LACFCD could meet its assigned WLAs, and yet, still be out of compliance with the TMDL. For these reasons, the LACFCD cannot accept such a role in this TMDL. We request that the responsibility of the responsible jurisdictions be clearly distinguished and specified in the proposed BPA.	Comment noted. Please see the revised BPA. The LACFCD is responsible for the water quality in Colorado Lagoon as discussed in the response to comment 2.1, but is not required to jointly implement any remediation actions. Responsible agencies are only responsible for areas under their management. However, responsible agencies are encouraged to collaborate or coordinate their efforts to avoid duplication and reduce associated costs.
2.3			3. Need for Reevaluation of Sediment Impairment In evaluating the sediment impairment in Colorado Lagoon, the Regional Board utilized sediment quality guidelines and numeric objectives established by the National Oceanic and Atmospheric Administration (NOAA). As described in Long et al. (1995)¹, the NOAA guidelines and objectives were developed based on a single-line-of-evidence sediment chemistry data, and were intended to be used as screening tool for identifying and	While the commenter states that others have noted the lack of association between ERL values and impacts in sediment, in the case of Colorado Lagoon, impairments have been identified on the basis of data on sediment chemistry, sediment toxicity and biological impairment. This TMDL was developed to address this suite of related impairments. As such, the TMDL is consistent with the MLOE approach set forth in the recently

¹ Long et al., 1995: Incidence of adverse biological effects within ranges of chemical and concentrations in marine and estuarine sediments. *Environmental Management*, 19(1), 81-97.

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			prioritizing the greatest biological risk areas, but were never intended to be used as numeric targets for TMDLs. The use of the effects-range-low (ERL) numeric targets for individual pollutants as a measure of toxicity in sediments is wholly unsupported by the scientific literature, as several studies (e.g., Chapman et al., 2001¹ ; Bay et al., 2007²) have noted the lack of association between the ERL values and impacts in sediments. The characterization of sediment toxicity is more complex than can be discerned using the ERL single numeric target for individual pollutants. The fact that a chemical in sediment exceeds the ERL value neither justifies impairment nor establishes the causes for the impairment. The State Water Resources Control Board (State Water Board) on September 16, 2008, adopted Sediment Quality Objectives (SQO) for Enclosed Bays and Estuaries³. Colorado Lagoon is one of the water bodies to which the State SQO applies. The State SQO was established based on the most recent scientific information available and, hence, is a more robust and scientifically sound approach to determine sediment impairment than the ERL values. For the purpose of assessing sediment impairment, the State SQO utilizes the multiple-line-of-evidence (MLOE) approach. Given that the State SQO supersedes the NOAA criteria, the State SQO must be used for evaluation of sediment impairment in Colorado Lagoon. The TMDL should utilize the MLOE approach, which incorporates biological effects as well as exposure end points. Because staff did not evaluate the sediment in Colorado Lagoon	adopted Statewide Enclosed Bays and Estuaries Plan, Part 1-Sediment Quality. The State's SQOs, as set forth in Part 1 of the Plan, do not supersede the ERL values, since Part 1 of the SQOs does not establish numeric sediment quality objectives; numeric targets are a required element of a TMDL.

¹ Chapman et al., 2001: Assessing sediment contamination in estuaries. Environmental Toxicology and Chemistry, 20(1), 3-22.

² Bay et al., 2007: Comparison of national and regional sediment quality guidelines for classifying sediment toxicity in California. Technical Report, Southern California Coastal Water Research Project.

³ State Water Board, 2008: Adoption of water quality control plan for enclosed bays and estuaries — Part 1 Sediment Quality. Resol. No. 2008-0070.

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			using the State's SQO MLOE approach, reassessment is required for the evidence of the existence of sediment impairment in Colorado Lagoon. Until that reassessment has been completed using the State's SQO MLOE approach, further development of the TMDL for sediment toxicity is inappropriate. We urge the Regional Board to take the following steps: • Using the State's SQO MLOE approach, examine whether sediment impairment in Colorado Lagoon is justified; • If impairment is justified based on MLOE, identify water quality constituents that are responsible for the impairment; and • Apply SQO to set the TMDL targets for the identified responsible constituents and to evaluate TMDL compliance.	
2.4			4. Unclear WLAs for Stormwater Discharges The TMDL specifies two different approaches for the WLAs for stormwater discharges: (i) mass-based and (ii) concentration-based, as indicated on page 5 of the proposed BPA and Section 6.2.1 of the Draft Staff Report. Having two different allocations for the same discharge is unreasonable and impractical, as they demand different implementation measures. Unless the two approaches are provided as options to choose from, we request that the mass-based WLAs be used for municipal stormwater discharges. Accordingly, we request that the concentration-based WLAs for stormwater discharges, Subsection 1(B) under the WLAs Section on page 5 of the BPA, be removed. Further, we request that the last sentence of the paragraph under the mass-based WLAs for stormwater discharges, Subsection 1(A) on page 5 of the BPA, be corrected as follows:	Regional Board staff finds that the reduction of loadings from storm drain systems to the lagoon would be adequately addressed through the assigned mass-based WLAs, which contain a 10% explicit MOS. Therefore, the Basin Plan amendment is revised to include only mass-based WLAs for the five major storm drain outfalls that currently discharge to the lagoon. Concentration-based WLAs are assigned to all other minor storm drains discharging to the lagoon.

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			"Mass-based WLAs are applied as annual limits, and compliance with the mass-based WLAs for sediment will be determined by pollutant mass at the storm drain outfalls to the lagoon."	
2.5			5. Need to Assign Load Allocations to Runoff from Surrounding Parks and Recreational Areas The Draft Staff Report identifies two nonpoint sources of pollution for Colorado Lagoon: (i) sheet flow near the shores of the lagoon and (ii) direct atmospheric deposition onto the lagoon water surface. In the BPA, the only load allocation established is for direct atmospheric deposition. It is unclear why there is no load allocation established for the runoff from recreational parks and other lands surrounding the lagoon. Not assigning load allocations for these sources could potentially result in continued impairment of the lagoon even after all point-source contributions have been contained or have met their WLAs. We request that load allocations be specified for the runoff from the nearby surrounding lands and appropriate measures be implemented to help meet the established target for Colorado Lagoon.	The Staff Report identifies sheet flow near the shores of the lagoon as a potential nonpoint source of pollution for Colorado Lagoon. However, data are not available at this time to estimate the loading from urban and recreational park areas and to assign an appropriate load allocation. It is expected that any loading from park areas is minimal and will be further reduced by the planned restoration activities around the lagoon. If the monitoring program determines that loading from nonpoint sources is significant and causes exceedances, the TMDL may be reconsidered to incorporate LAs for urban runoff. Nevertheless, there is no prejudice to the commenter as the assessment of a concentration-based LA to an additional non-point source would not affect the WLAs assigned to the point sources.
2.6			6. High Uncertainty in Water Quality Modeling As discussed in Sections 5 and 9 of the Draft Staff Report, water quality modeling was used to simulate the relationship between the pollutant loadings and the numeric targets and to evaluate the water quality condition in Colorado Lagoon under different proposed implementation scenarios. The use of modeling to conduct such analysis is a common practice. However, our review of the modeling exercise reveals that there were insufficient historical flow and water quality data available for developing, calibrating, and validating the model. Consequently, the modeling exercise required	Staff acknowledges that there is uncertainty in the water quality modeling due to limited data on water elevation and flow velocity in the modeling area. However, the hydrodynamic model provides a good foundation for the simulation of water quality for the Colorado Lagoon. The model results were compared with four observed data sets at three stations (CL-1, CL-2, and CL-3), not a single data point, to calibrate the water quality model. The concentrations in the water and sediment bed at Marine Stadium were also used as the ocean boundary condition.

¹ See Figs. 5-4 to 5-16 in the Draft Staff Report.

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			numerous assumptions, resulting in a high degree of uncertainty in the model's output and the resulting conclusions drawn thereof. For example, it was concluded that the calibration results for the pollutants of concern in the sediment bed and water column showed a good correlation between modeled and observed values, though we know that only a single discrete data point was available for most of the sites during the course of the water quality model calibration¹. Further, no uncertainty analysis was conducted for the model parameters. It is important that the limitations of the model be acknowledged as appropriate and the conclusions be drawn accordingly.	In the model calibration, the model results for metals, PAHs, PCBs, and DDT concentrations in the sediment bed and water column as presented in Figure 5-4 through Figure 5-20 showed a good comparison between modeled and observed values. Thus, it confirmed the applicability of the calibrated hydrodynamic and water quality parameters to the Colorado Lagoon.
2.7			7. Natural Sources and Atmospheric Deposition Loadings Were Not Properly Accounted for in the Allocations Several studies (e.g., Stein et al., 2007¹) show that significant portions of pollutant loadings to receiving waters originate from natural background (i.e., nonanthropogenic sources). These natural sources could be attributed to both overlying land cover and underlying geologic formations. For example, trace metals occur naturally in soil environment and could leach to water bodies during weathering and hydrologic processes. Further, wildfires are common in Southern California and are known to contribute significant pollutant loadings to water bodies (e.g., Stein et al., 2008²). Even though Colorado Lagoon Watershed is located some distance from typical burn areas in the region, the ash materials left behind at the burn location can be transported through the air, creating atmospherically transported pollutants to the watershed. Atmospherically deposited pollutants also	Based on the characteristics of the pollutants of concern and the watershed, it is unlikely that significant portions of pollutant loadings to the lagoon originate from natural background. Many of the pollutants are man-made. Furthermore, given the predominant land uses of high density residential and commercial, it is unlikely that significant loads of naturally occurring trace metals are leaching to the lagoon from the land surface and underlying geologic formations. Regarding direct atmospheric deposition, the water area of Colorado Lagoon is small, approximately 15 acres or 1% of the watershed. Therefore, direct atmospheric deposition of metals to the lagoon is insignificant relative to other sources. Based on the source analysis, Regional Board staff concluded that loading from atmospheric deposition, both direct and indirect, to the lagoon is insignificant relative to

¹ Stein et al., 2007: Assessment of water quality concentrations and loads from natural landscapes. *Technical Report*, Southern California Coastal Water Research project

² Stein et al., 2008: Direct and indirect effects of Southern California wildfires on stormwater runoff. *Proceeding*, CASQA Conference.

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			emerge from other sources, such as emissions from different industries in the region (USEPA, 2007¹). Pollutant load contributions from these natural sources and atmospheric deposition are often high and, at times, even exceed established water quality standards. Despite such high contributions from natural and atmospheric sources, the proposed TMDL is making municipal agencies solely responsible for addressing contributions from such sources. The control of such sources of pollution is beyond the authority of the municipal agencies, and it is inappropriate to make local municipalities accountable for pollutants that emerge from such sources. The Regional Board should work with the State Water Board, the Air Resources Board, and the U.S. Environmental Protection Agency (USEPA) to address such sources. We request that the proposed TMDL acknowledge such sources and that studies be conducted to make appropriate adjustments to the WLAs in the future.	annual loading from the MS4 discharges.
2.8			8. Insufficient Time for Developing Monitoring Plan and Achieving Final WLAs As noted above, the LACFCD objects to the requirement in the proposed BPA that requires preparation of a joint monitoring plan. Moreover, based on experience with previous TMDLs, it is not possible to develop a sound monitoring plan in a six-month time frame. This is so because the development of monitoring plans often requires the involvement of experts in the field as well as coordination with other agencies. Therefore, we request that the time frame in Table 7-30.2 of the BPA for the development of the monitoring plan be extended from six months to one year to allow for interagency coordination	Please see the response to comment 2.2. Given the size of the lagoon and the small number of responsible agencies, Regional Board staff finds that a six-month time frame is reasonable for developing a monitoring plan. This time frame has been applied to TMDLs that were previously adopted by the Regional Board and has been found to be achievable.

¹ USEPA, 2007: Survey of new findings in scientific literature related to atmospheric deposition to the Great Waters *Technical Report*

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			and to identify and address the new challenges posed by both sediment- and water-focused monitoring. Further, the proposed BPA does not provide adequate time for the responsible jurisdictions to attain the final WLAs. The Draft Staff Report provides no evidence as to how the responsible jurisdictions are to meet the seven-year compliance schedule provided in the proposed BPA. There should be sufficient time for the responsible parties to conduct the necessary monitoring and research needed during the course of implementation of the TMDL. Collaboration and integration with other adjacent regional water resources management programs is also necessary. We, therefore, request that the seven-year implementation schedule proposed in Table 7-30.2 of the BPA be extended to 15 years.	Regional Board staff has worked closely with the City of Long Beach and the County of Los Angeles Department of Public Works to develop a reasonable implementation schedule that provides sufficient time for implementing proposed remedial actions and complying with the final allocations. The planning, design and environmental certifications for several key remedial actions is already complete, therefore, staff has concluded that a 7-year implementation schedule is reasonable.
2.9			9. Need Schedule for Reopener During the development of any TMDL, it is common that there are always uncertainties associated with the identification of pollutant sources, the quantification of loading capacity and allocations, the water quality standards used, and the implementation schedules. These uncertainties arise from the lack of sufficient data and scientific information needed for the development of the TMDL. This leads to making assumptions or basing decision on limited information wherever there is a data gap. The Colorado Lagoon TMDL cannot claim to be perfect as these uncertainties are well imbedded in it. Knowledge about a TMDL is gained over time as more data and results of special studies are available. Therefore, we request that a schedule for a reopener be incorporated into Table 7-30.2 of the proposed BPA so that appropriate data collection and research are conducted and WLAs and implementation schedules be reevaluated as new knowledge and data are available. We recommend	The revised BPA and staff report have incorporated the language to revise the WLAs based on additional information developed through monitoring or special studies. The Regional Board may reconsider the TMDL at any time if additional information warrants it.

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			reopening this TMDL six years from the effective date of the TMDL, with the final compliance date set to 15 years as noted above under comment No. 8.	
2.10			10. The California Ocean Plan Criteria Is Not Applicable As stated in the Draft Staff Report and the proposed BPA, the numeric target for Polycyclic Aromatic Hydrocarbons (PAHs) is based on the California Ocean Plan (Ocean Plan) criteria. However, it is clearly stated in the Introduction, Section (c) of the Ocean Plan, that the Ocean Plan water quality objectives are applicable only to direct measurements in the ocean water. The Ocean Plan criteria thus cannot apply to enclosed bays, estuaries, or in-land water bodies such as Colorado Lagoon. Colorado Lagoon is an in-land water body and reflects different water quality and ecological characteristics compared to the ocean. Therefore, it is inappropriate to use the Ocean Plan criteria for setting water quality targets in Colorado Lagoon.	Staff agrees with the comment. Although there are no numeric criteria for total PAHs in the CTR, the criteria for specific PAHs are conservatively selected as the numeric target for total PAHs to protect human health. The BPA has been revised to incorporate the numeric target of 0.049 ug/l for total PAHs, instead of 0.0088 ug/l. The staff report will also be revised to reflect the change.
2.11			11. Inappropriate Target for Polychlorinated Biphenyls The proposed BPA is based on a water quality target of 0.00007 pg/L for Polychlorinated Biphenyls (PCBs). This is overly conservative and inconsistent with other similar TMDLs developed in the region, such as the Marina del Rey Toxic Pollutants TMDL, which has used the California Toxics Rule (CTR) human health criteria of 0.00017 pg/L for PCBs. Further, currently available analytical methods do not have the ability to detect PCB concentrations at this very low level. Therefore, it is unnecessary and illogical to set the PCB target to such an undetectable low level.	Comment noted. Upon further evaluation, Regional Board staff has determined that the objective of 70 pg/l (0.00007 ug/l) contained in the Basin Plan is specifically applicable to discharges of PCBs that are “passed through” the treatment processes of wastewater treatment facilities and remain in the effluent at very low levels. The relevant objective for protecting Colorado Lagoon is the CTR human health criterion of 0.00017 ug/l for PCBs. The BPA has been revised and the staff report will be updated accordingly.
2.12			12. Unnecessary and Expensive Sampling Requirements The proposed TMDL requires quarterly sampling of water column and suspended solids. Such frequent sampling is unnecessary and expensive. We request that the sampling frequency for water column and suspended solids be	Comment noted; the sampling frequency for water column and suspended solids is changed from quarterly to semiannually. However, if WQOs are exceeded at any time, sampling frequency will be accelerated to quarterly thereafter until the WQOs

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			changed from quarterly to semiannually. Sampling twice per year, one during dry season and one during wet season, should suffice to evaluate the progress of water quality improvement in the lagoon.	are not exceeded. See the revised Basin Plan amendment.
2.13			13.The Proposed TMDL Does Not Comply With the Requirements of the Water Code Because it is adopting a BPA, the Regional Board is required to consider the impact of the proposed TMDL in light of Water Code, Section 13000, and the factors set forth in Section 13241. These sections require the Regional Board to review the effects of the TMDL on the local economy, the development of housing, and other societal impacts. To the extent that such factors were allegedly considered, as set forth in the proposed Regional Board's resolution, the analysis is conclusory and without reference to evidence in the record.	Water Code section 13000 expresses legislative policies embodied in the provisions of the Porter-Cologne Water Quality Control Act. That section does not contain operative language, but rather expressed the intent of the legislature in adopting the Act, and what the Act is intended to achieve. Water Code section 13241 does not apply to every modification of the basin plan. By its own terms, 13241 only applies to the adoption of water quality objectives. 13241 does not apply to the establishment of beneficial uses, a program of implementation, the anti-degradation policy, or the subject of this proceeding, the establishment of TMDLs. TMDLs are implementation tools required by federal law, and pursuant to federal law, they must be established at a level necessary to ensure attainment of already existing water quality objectives (and other components of the water quality standards), with a margin of safety. TMDLs therefore are not water quality objectives, and 13241 does not apply. (See Office of Chief Counsel Memorandum dtd. June 12, 2002 “The Distinction Between a TMDL’s Numeric Targets and Water Quality Standards”, section III.) Consistent with the Supreme Court’s decision in <i>City of Burbank v. SWRCB</i>, section 13241 cannot be used, as the commenter desires, to relax the requirements of federal law. The economic considerations for the TMDL are included in Section 11 of the Staff Report and

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				identify the estimated costs of the proposed implementation actions, as required by Public Resources Code section 21159 (CEQA). The implementation program for this TMDL recognizes the economic limitations on achieving immediate compliance. The TMDL allows the use of BMPs, to the extent authorized by law, for various stormwater discharges. Economic considerations were made and reflected in the implementation schedule for dischargers to comply with the final allocations. While not required in the development of a TMDL, the need for housing within the region has been considered, but this TMDL is unlikely to affect housing needs. Whatever housing impacts could materialize are ameliorated by the flexible nature of this TMDL and the implementation schedule.
3.1	09/08/2009	Heal the Bay	I. Implementation and Monitoring Plans Will the increased tidal flow stemming from the cleaning of the culvert and the relocation of the Termino Avenue drain bring an increase of contaminants from the Marine Stadium? Under the proposed implementation plan, we are concerned that contamination may reenter the Colorado Lagoon via the proposed reopening of connections to Marine Stadium. The Staff Report mentions implementation strategies that would clean the existing culvert between the Colorado Lagoon and Marine Stadium or create an open channel or new underground culvert between the two waters. This is meant to increase tidal range and flushing in the lagoon and improve water and sediment quality. With an increased exchange between the lagoon and the marina, it is important to ensure that water entering the lagoon will serve the sole purpose of increasing circulation and will not contribute to further	Regional Board staff collected samples in Marine Stadium at the outlet of the Lagoon together with three locations in the Lagoon on February 28 and May 20, 2008. Both water and sediment testing results showed no exceedance of water and sediment quality objectives. Therefore, an increase in tidal flushing should improve water quality in the Lagoon. The TMDL monitoring program also requires monitoring water, sediment, and fish tissue from Marine Stadium near the outlet of the lagoon to ensure that water entering the lagoon from Marine Stadium does not exceed the WQOs in the future.

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			contamination of the lagoon. However, the Draft Staff Report provided no data or documentation to show that water and sediment within the Marine Stadium is not toxic or contaminated. Please provide this information in the TMDL to demonstrate that tidal circulation and runoff from the Termino Drain will not cause beneficial use attainment problems in the lagoon. In the event that data is not available, a special study should be required to characterize the pollutant contributions from these sources. In the event that lagoon water and/or runoff are polluted, it is quite possible that by increasing circulation and tidal mixing between the Lagoon and the Marine Stadium, the project will allow contaminated water and sediment to be pushed back into the lagoon during flood tides. In addition, all three implementation scenarios presented in the Draft Staff Report include a project to redirect the Termino Avenue Drain to discharge to Marine Stadium instead of to Colorado Lagoon. In fact, the relocation of the Termino Drain opens up the possibility for that runoff to come back into the Lagoon during flood tides. What BMPs are in place to ensure that potentially poor water quality in Marine Stadium will not be pushed back into the lagoon during flood or high tides? It is important that this data be reviewed before these projects are considered effective implementation strategies.	
3.2			The Regional Board should require special studies and include additional milestones in the implementation schedule in the proposed Basin Plan Amendment. Several special studies are necessary for understanding source contributions, choosing appropriate TMDL implementation strategies, and protecting beneficial uses in Colorado Lagoon. The Staff Report describes a special	A special study to identify sources of contaminants was conducted in 2004; the results of the study showed no hot spots. While the special studies may be useful, Regional Board staff has determined that the TMDL monitoring program would be sufficient to monitor the effectiveness of implementation actions proposed by the responsible agencies.

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			study to investigate soil pollutant concentrations and identify hot spots in the lagoon (Special Study #1) and a study to evaluate the effectiveness of sediment allocations in protecting the beneficial uses of Colorado Lagoon (Special Study #2). Language in the Draft TMDL infers that all special studies are optional. Given the uncertainty of the North Arm's contribution to the lagoon's impairment alone, these studies should be required. Further, the implementation schedule provided in the Draft Basin Plan Amendment does not give a timeframe for performing the special studies mentioned in the Draft Staff Report. Special studies should be completed no more than 2.5 years into the implementation schedule in order to allow responsible parties to have ample time to gather the information needed to determine if additional implementation actions shall be required to put implementation measures back on track for achieving final WLAs by the time the proposed seven-year timeframe is up. Submission of a sediment removal and disposal plan should also be added to the implementation schedule by the end of year 3. This plan should be formed taking into consideration the results from the special studies.	The monitoring requirements in the TMDL will provide information on water and sediment quality to determine whether any additional implementation actions may be necessary to eliminate the impairments in the Lagoon, especially in the Northern Arm.
3.3			The Regional Board should maintain quarterly monitoring and require more monitoring in the North Arm of the Colorado Lagoon A comprehensive monitoring plan with an adequate collection frequency is essential to assess progress towards meeting the WLAs and ultimate compliance with the WLAs. We agree with the general components of the monitoring program included in the draft TMDL, including ambient monitoring and compliance assessment monitoring. We also are supportive of the Board outlining specific monitoring frequencies and locations within the Basin Plan Amendment. Although this allows some	The monitoring requirements specified in the BPA are comprehensive, including sampling of the water column, sediment, sediment toxicity, and fish and mussel tissue.

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			flexibility for responsible parties to further develop details of the MRP, it outlines the structure of a monitoring regime that will ensure lagoon conditions are adequately captured. The TMDL requires monitoring at the West, Central, and North Arms, at the outlet of the lagoon to Marine Stadium, and at the outlet of the storm drains discharging to the lagoon. We recommend that the Regional Board also require the sediment samples within in the Lagoon to be positioned in the deepest portion of the West Arm, North Arm, and Central Lagoon where the most sediment is likely to accumulate. In addition, sediment cores should be collected for these monitoring efforts to better understand the extent and depth of any contamination. Of note, the staff report states that contamination is found at 5 feet depth in some areas. Also, the TMDL implies that additional monitoring is necessary in the North Arm, as it has not yet been determined that dredging will be needed in this location, but does not require increased monitoring efforts in the North Arm. The Regional Board should not only require more monitoring in the North Arm, but should also require source removal action in this area. According to the Staff Report uncertainty associated with this arm contributed to the need for a margin of safety. The Staff Report states, “Assumption of natural removal of sediment at the bottom of the lagoon especially at the northern arm of the lagoon where dredging is not currently planned to remove contaminated sediment may not result in compliance with the sediment quality objectives.” (Page 65). The Regional Board addressed the issue of legacy pollutants quite differently in the recently adopted Calleguas TMDL for organochlorine pesticides and PCBs, which calls for the removal of contaminated sediment. The Regional Board Staff Memorandum for the Calleguas	The actual sampling locations will be proposed in the monitoring plan, which must be approved by the Executive Officer. Regional Board staff at that point will ensure that the proposed sampling locations adequately represent the lagoon sediment condition. Regional Board does not have the authority to require specific implementation actions to implement the TMDL. However, the proposed implementation actions including Termino Drain Avenue and Colorado Lagoon Restoration Projects proposed by the County of Los Angeles Department of Public Works and the City of Long Beach already had their respective EIRs certified and are ready to be implemented. The proposed scenarios were put into the EFDC model to estimate the results of meeting the TMDL allocations. The

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			TMDL states, “Attenuation may be occurring in the Calleguas watershed, but it is neither adequate nor reliable as the sole method for removal, due to the slow degradation rate. Also, flushing to the ocean does not represent attenuation; rather, it represents transfer of the problem to another site...When these [hotspot] areas are identified, removal and proper disposal will be implemented.” It is unclear why the sediment management approach would be any different for the Colorado Lagoon TMDL. Natural attenuation of legacy chlorinated organics (not to mention metals) in sediment can take a significant period of time—decades, if not centuries. Indeed, the slow rate of attenuation is even more significant in the lagoon where there is infrequent flushing of sediment. Thus, the pollutants at issue are not likely to degrade measurably or get transported elsewhere within the compliance timeframe of the TMDL. Instead, it is highly likely that these contaminated sediments will remain there for a long time, thus preventing the attainment of beneficial uses. The TMDL proposes quarterly sediment monitoring in the first year, and annual monitoring thereafter. To further ensure conditions are appropriately measured, we recommend the Regional Board require quarterly monitoring to continue after the first year to ensure variability in the lagoon is adequately captured. If the data demonstrates that annual sampling is sufficient, responsible parties can submit this change for approval by the Executive Officer. The Regional Board should also require any proposed changes to the monitoring program to be approved by the Executive Officer prior to implementation. In addition, the Regional Board should allow for public review of the Monitoring and Reporting Plan submitted to the Board for Executive Officer	model results demonstrate that the proposed restoration scenarios with an open channel or without an open channel would maintain sediment concentrations within numeric targets. Regional Board staff has included language in the BPA to clarify if the proposed actions do not result in attainment of allocations, additional implementation actions shall be required. Regional Board staff finds that the annual sediment monitoring requirement is sufficient to monitor the effectiveness of the proposed implementation actions, determine compliance with OC pesticides, PCBs, metals, and PAHs waste load and load allocations.

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3.4			approval. II. Margin of Safety (“MOS”) The Regional Board must go further to incorporate an explicit margin of safety into the TMDL waste load allocations (“WLAs”). Heal the Bay strongly supports the Regional Board’s inclusion of an explicit margin of safety into the mass-based load allocations for this TMDL. There are precedents for applying explicit margins of safety to a TMDL within EPA Region 9. The Pinto Creek Copper TMDL that was established by EPA included an explicit margin of safety equal to 10% of the loading capacity available for some target sites and equal to 20% of the loading capacity available for allocation for target sites containing more uncertainty in potential source areas. The mass based WLAs for ammonia in the Calleguas Creek Nitrogen and Related Effects TMDL include a 10% explicit margin of safety to account for uncertainty concerning the relationships between WLAs and attainment of the water quality standards addressing algae and other listed stressors associated with nutrient loads. Thus, in keeping with these precedents, the Regional Boards decision to include an explicit margin of safety in the proposed TMDL is reasonable and justified. From conversations with Staff, we understand the explicit MOS was applied to the mass based TMDLs. However, even after inspecting staff calculations, it is not apparent in the Basin Plan Amendment where the 10% explicit MOS was applied. Staffs calculated total MS4 WLAs differ from those present in the Draft Basin Plan Amendment. The Regional Board should clarify which load allocations have this explicit margin of safety. We encourage the Regional Board to include a 10% explicit	Note taken. Note taken. As stated in the Basin Plan amendment, a 10% explicit margin of safety (MOS) is included for mass-based WLAs. However, the mass-based WLAs assigned to major storm drain outlets were incorrectly calculated into the TMDL. See the revised Basin Plan amendment for the corrected mass-based WLAs.

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			margin of safety to both mass-based and concentration-based WLAs. In establishing the margin of safety in this TMDL, the Regional Board acknowledged some uncertainties in the calculation of the TMDL, such as the uncertainty brought on by the use of the simplifying assumption that the relationship between OC pesticides and PCBs concentrations in fish tissue and sediments is linear. In addition, the use of models to estimate contaminant concentrations in receiving water and estimation of atmospheric deposition further contribute to the amount of uncertainty. We believe an explicit MOS is the only way to ensure that an adequate margin of safety is provided in a TMDL, and believe the Board must go further to protect the lagoon by incorporating an explicit MOS into all WLAs, especially to concentration-based sediment WLAs, which address legacy contamination causing impairments in the lagoon. Staff maintains that there is an implicit margin of safety in the choice of CTR human health criteria and ERLs as numeric targets and load allocations for the sediment. We support these targets, but we do not agree they provide an adequate MOS. CTR criteria themselves have associated uncertainties. For instance, as described in the Federal Registry, “[a]n aquatic life criterion derived using EPA's CWA section 304(a) method might be thought of as an estimate of the highest concentration of a substance in water which does not present a significant risk to the aquatic organisms in the water and their uses.” (45 FR 79341.) ... EPA's 1985 Guidelines attempt to provide a reasonable and adequate amount of protection with only a small possibility of substantial overprotection or under protection. The approach EPA used is believed to be as well balanced as possible...[emphasis added]” 40 CFR part 131. We	Both implicit and explicit margins of safety are included in this TMDL. An implicit margin of safety has been included by choosing the most conservative numeric targets available for water, fish tissue and sediment targets to protect human health and aquatic life. A 10% explicit margin of safety is also added to address uncertainty in the analysis of the TMDL. Regional Board staff has determined that the inclusion of both implicit and explicit margins of safety adequately addresses uncertainties in the TMDL. The compliance monitoring outlined in the Implementation Plan will examine the effectiveness of attaining the WLAs and LAs over time, and adjustments will be made if necessary to ensure achievement of standards. Comment noted. The Effect Range Low (ERL) values represent the levels below which adverse

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			support the Regional Boards use of Effects Range-Low (ERL) values as the numeric targets for sediment within the Colorado Lagoon because the ERLs are easily measured numeric values that can function as effective indicators of healthy sediments. However, ERLs do not account for any synergistic effects of multiple pollutants or effects related to bioaccumulation, which are both significant problems in the lagoon due to the number and type of impairing pollutants present. In addition, the ERL represents a level below which toxicity is observed in one or more species and, therefore, leaves no margin of safety. Also, some Colorado Lagoon species could be more sensitive to pollutants targeted in this TMDL than the species observed in the development of the ERL values. Use of CTR criteria and ERLs is not a conservative assumption that provides an implicit margin of safety, but it is good policy.	biological effects are not expected to occur, and are most applicable to the prevention of impairment. The more detailed explanation for using ERLs is available in the Staff Report section 3.1.2.
4.1	09/08/09	USEPA	1. Section 1.2 defines Colorado Lagoon as a tidally influenced lagoon. However, the TMDLs identify stormwater and air deposition as the only sources. Please provide clarification on whether Colorado Lagoon is considered a salt water, fresh water, or brackish Lagoon. If ocean water is a significant source to Colorado Lagoon, please provide a source load analysis for ocean water.	Colorado Lagoon is a tidal lagoon connected to Alamitos Bay and the Pacific Ocean via a culvert to Marine Stadium (p. 9 of Staff Report). Under this tidal influence, Colorado Lagoon is considered a saltwater lagoon; therefore, numeric targets for sediment and water quality were included based on those necessary to protect salt water quality, saltwater aquatic life, and human consumption. In the source analysis, staff determined on the basis of sample results that the tidal exchange of water from Marine Stadium is not a source of pollutants to the lagoon. The water samples collected in 2008 indicated no elevated concentrations of the target constituents in this TMDL.
4.2			2. Explain how sediment toxicity will be addressed by these TMDLs. Also, please incorporate sediment toxicity monitoring into the implementation plan.	The numeric targets for sediment chemistry established for chlordane, DDT, dieldrin, PCBs, PAHs and metals will address sediment toxicity in

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				Colorado Lagoon. The responsible parties are required to monitor sediment toxicity, as specified in the Monitoring Plan section of the BPA.
4.3			3. The McGrath Lake organochlorine pesticides TMDL has water quality criteria values for 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, but not for total DDT. Please make these TMDLs consistent or explain the difference.	The Colorado Lagoon is listed for DDT. According to data collected by Regional Board staff in 2008, 4, 4'-DDD, 4, 4'-DDE, and 4, 4'-DDT were not detected in the sediment and water column. The criterion for 4-4'-DDT shall serve as the target for DDT. Footnotes are revised for clarification. See revised BPA.
4.4			4. Please give a better description of the amphipod sediment toxicity test described on pages 19-20. In particular, clarify the background concentrations of PAHs, chlordane, PCBs, DDT, zinc, and lead, and the rationale for assigning the pollutants a non-zero value. Furthermore, please explain in detail the selection of background areas "removed from direct point sources."	The detail procedure for conducting the amphipod toxicity test is available in the <u>Methods for Assessing the Toxicity of Sediment- Associated Contaminants with Estuarine and Marine Amphipods</u>, EPA/600/R-94/025 (USEPA, 1994). The "probable background levels" were only referenced in the Staff Report as the bases for development of the initial 303(d) listings for OC pesticides, PCBs, sediment toxicity, PAHs, and metals in Colorado Lagoon from the 1996 Water Quality Assessment, and were not used in the TMDL data evaluation process.
4.5			5. EDL's are not used as limits or allocations in these TMDLs. Therefore, it is appropriate to remove all EDL data and references presented in Table 2-5.	Table 2-5 summarizes the criteria used in the 1996 Water Quality Assessment, including Elevated Data Levels (EDLs), to determine exceedances of specific constituents that were impairing beneficial uses. These criteria are not used to set TMDL numeric targets or allocations.
4.6			6. The assumption of a linear relationship between the bioaccumulation factor and sediment concentration is	Staff has incorporated language in both the BPA and staff report, clarifying that the Regional Board

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			currently acceptable. However, please include plans for re-evaluating this assumption after future monitoring data is collected in Colorado Lagoon and other similar lakes in the Los Angeles watershed.	may revise WLAs based on additional information developed through monitoring or special studies. Please see the revised BPA.
4.7			7. Please provide details for identifying the Line N storm drain discharge as insignificant. Also, include Line N in Table 6-2 even if the waste load allocation is zero.	The discharge from Line N is subject to the concentration based WLAs. Please see the revised BPA.
4.8			8. Section 4.3.2 stated that “no information was available regarding the amount of PAHs that would be directly deposited to the Los Angeles coastal region through dry atmospheric deposition.” Please include additional justification. For instance, was direct deposition an insignificant source in comparison to indirect deposition, which includes stormwater runoff and overland flow in the allocation estimate?	Direct deposition is determined by the surface area of the impacted waterbody and its tributaries. In this TMDL, it only applies to the surface area of Colorado Lagoon. Relatively, the surface area of Colorado Lagoon occupies approximately 1% of the entire watershed. Therefore, for atmospheric deposition, indirect deposition via stormwater runoff will be the dominant pathway, while direct deposition is considered insignificant.
4.9			9. The interim waste load allocations are set at attaining only 5% of the final WLAs in the first 7 years. As much as possible, please include more detailed interim steps and shorter time frames in meeting the final WLAs in the implementation schedule.	Responsible agencies will report on the more detailed interim steps taken to achieve final allocations through the required bi-annual progress reports on the status of implementation actions.
4.10			10. In reducing pollutant loads in a watershed, it is important to evaluate the impact of one BMP solution on another area, such as transporting pollutant loads to a new location. In these TMDLs, diverting storm drains to Marine Stadium or promoting sedimentation in bioswales appears to only transfer the load instead of reducing the load in the watershed. Please consider the long-term effects of the various BMP actions in the implementation plan. Also, please discuss plans for monitoring Marine Stadium if flows are diverted from Colorado Lagoon to Marine Stadium.	See response to comment 3.1. Any remedial actions shall not cause any contamination in another waterbody.
4.11			11. Please provide a physical description of Marine Stadium.	Marine Stadium is a separate, adjacent waterbody. Marine Stadium is hydrologically connected to

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				Colorado Lagoon by a culvert. Marine Stadium is a recreation facility built in 1932 and used for boating, water skiing, and jet skiing. Marine Stadium is not covered by this TMDL.
4.12			12. Please provide the Regional Board's plan for assigning implementation responsibility amongst the various landowners.	See response to comment 2.2.
4.13			13. Expand upon the fish tissue monitoring plan with details such as species, size, and number of fish analyzed	The monitoring plan for fish tissue shall be proposed separately or jointly by responsible agencies and must be approved by the Executive Officer.
4.14			These TMDLs state NPDES permitted discharges are not a source in the watershed and have therefore set waste load allocations equal to zero. As recognized in the submittal, if sources currently assigned a load allocation are later determined to be point sources requiring NPDES permits, those load allocations will be treated as wasteload allocations for purposes of determining appropriate water quality based effluent limitations pursuant to 40 CFR 122.44(d)(1).	Comment noted.
4.15			The Colorado Lagoon OC pesticides, PCBs, sediment toxicity, PAHs, and metals TMDLs appropriately provided numeric targets for water, fish, and sediment and expressed allocations on both a mass and concentration basis, which is consistent with federal regulatory requirements. The implicit margin of safety and the 10% explicit margin of safety appropriately addressed the uncertainties inherent in the TMDLs. U.S. EPA finds the draft Colorado Lagoon OC pesticides, PCBs, sediment toxicity, PAHs, and metals TMDLs have provided reasonable technical analysis using the best available data, information and scientific tools. In addition, multiple lines of evidence were considered and provided for all proposed TMDLs.	Comment noted.

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5.1	09/08/2009	Caltrans	Atmospheric Deposition Section 4.3.2 of the Staff Report states that the "metal loadings from dry atmospheric deposition to the land surface of the Colorado Lagoon Watershed were greater than the estimated metal loadings from urban runoff to the watershed". These values were estimated from a study by Sabin et al. (2006). The authors also found that loadings of metals from atmospheric deposition could potentially account for 57-100% of the metals discharged in storm water runoff from impervious areas. The loads estimated to come from atmospheric deposition are 51 lbs/yr for lead and 413 lbs/yr for zinc. In comparison, the allocations for the storm water permittees are 5.4 lbs/yr for lead and 17.3 lbs/yr for zinc. The loads of lead and zinc from atmospheric deposition exceed the allocations for the stormwater permittees. The Staff Report does not lay out a plan to deal with sources of atmospheric deposition and places the responsibility of reducing the loads from these sources on the landowners. These are significant sources of metals that would be best addressed directly at the source rather than after deposition onto land and washoff occur.	Pollutant loads resulting from indirect atmospheric deposition to the watershed may be carried by stormwater or urban runoff into the MS4. The quoted language in the Staff Report will be replaced by the following: "Metal loadings from indirect atmospheric deposition to the land surface of the Colorado Lagoon Watershed were greater than the estimated direct atmospheric deposition to the lagoon." When Congress adopted section 402(p) of the Clean Water Act, Congress determined that the operators of MS4s shall be responsible for the quality of the water discharged from their systems, and thus waste load allocations are to be assigned to them for the portion of the total load contributed from their systems. This is analogous to wastewater treatment plants whose discharge is primarily composed of pollution that the operators did not generate but rather passed through their systems. Regional Board staff agrees that source control may be an effective and appropriate means of addressing the contributions from air deposition that are washed into the MS4s, and encourages municipalities to work with the air dischargers in their jurisdictions to address such discharges. Such efforts would not just ease compliance efforts for this TMDL but benefit all of their residents by aiding in control and remediation of other metals and toxics water quality impairments (and even air quality impairments in their jurisdictions). To the extent the MS4 operators desire to proceed with source control as a means of addressing this or other TMDLs, and believe the Regional Board can

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				be of assistance in such multi-media coordination, the MS4 operators are encouraged to enlist the support of the Regional Board.
5.2			Mass-based WLAs The Basin Plan Amendment states that the compliance with the mass-based Waste Load Allocations (WLAs) will be determined by the "pollutant concentrations in the sediment at the storm drain outfalls to the lagoon". Although the concentrations of the sediment can be determined using this strategy, it does not account for the total amount of sediment discharged and thus the method should not be used to determine compliance with the WLAs.	Comment noted. Please see the revised BPA.
5.3			Special studies The Basin Plan Amendment should allow for the TMDL to be re-evaluated following any special studies that the stakeholders conduct that increase the understanding of the toxicity problems in the Colorado Lagoon. There are currently many issues that are not well understood about the toxicity problem in the Lagoon and the best strategies for approaching it. Page 10 states that "the Regional Board may revise these WLAs based on additional information developed through monitoring". We request that a phrase be added to the end of this sentence that states "or special studies". In addition, the TMDL should include a formal process to allow stakeholders to initiate a review of the TMDL pending critical new data obtained after the TMDL is adopted.	See response to comment 4.6.
5.4			Responsibility for TMDL Required Actions The Basin Plan Amendment states that Caltrans will be "jointly responsible" for implementing the required actions of the TMDL. However, Caltrans' roadways and facilities account for only 1.1% of the total watershed area. While Caltrans intends to work with other stakeholders as	Comment noted. Please see the response to comment 2.2.

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			necessary, Caltrans believes it is inequitable to require a stakeholder that makes up such a small portion of the watershed to take joint responsibility for compliance. Caltrans requests that the TMDL allow Caltrans the option to decide whether to comply with the TMDL jointly or individually.	
5.5			Detection Limits of Monitoring On Page 8, the Basin Plan Amendment requires that water quality samples for various constituents be analyzed using procedures that have "detection limits that are at or below the minimum [target] levels". The TMDL should only require the use of U.S. EPA-approved laboratory analysis methods to analyze the collected samples. When a U.S. EPA-approved method provides detection limits at or below the minimum levels, the method should be used.	Staff disagrees. As analytical methods with lower detection limits become commercially available, responsible agencies should use these methods. The sample results are valid so long as sufficient and required QA/QC procedures are in place.
5.6			Monitoring Plan The Basin Plan Amendment states that the compliance with the mass-based WLAs will be determined by the "pollutant concentrations in the sediment at the storm drain outfalls to the lagoon". Although the concentrations of the sediment can be determined using this strategy, it does not account for the total amount of sediment discharged. BMPs may be implemented that would reduce the total amount of sediment discharged and, in the process, the total load of sediment associated pollutants. The method suggested in the Basin Plan Amendment should not be mandated to determine compliance with the WLAs. We suggest that the strategy for monitoring the loads be deferred to the stakeholders as an element of the monitoring plan.	Please see response to comment 5.2, and the revised BPA.
5.7			Dry Weather Conditions It is Caltrans' contention that its facilities are not a significant source of metals during dry weather, because Caltrans facilities have negligible discharge during these conditions. The only potential source of discharge	Comment noted. The TMDL covers pollutant loading under both wet and dry weather conditions.

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			originating from Caltrans activities would be runoff from irrigation; however, within the Colorado Lagoon watershed, Caltrans does not have any irrigation or landscape and therefore there is no source of dry weather flows. In addition, Section 4.2.4 of the Staff Report states that "studies have also shown that dry-weather pollutant loads are not significant".	
6.1	City of Signal Hill	09/08/2009	The City of Signal Hill offers these comments on the Proposed Colorado Lagoon Total Maximum Daily Loads ("TMDLs"). Signal Hill's principal issue concerns the breadth of the application of the TMDL, and specifically whether the TMDL is intended to apply to Signal Hill and to discharges that may emanate from the City and <i>potentially</i> flow over surface areas through Long Beach into the Colorado Lagoon (but not known to flow into any of the Sub-Basin concrete pipes referenced in the Proposed TMDL as Sub-Basins A - E). Because Signal Hill does not appear to drain into any of the Sub-Basins (A - E) referenced in the TMDL, and since none of the waste load allocations ("WLAs") referenced in the TMDL are stated to apply to Signal Hill, along with the fact that no part of the California Environmental Quality Act ("CEQA") analysis for the TMDL includes an analysis of any potentially significant adverse impacts resulting from its implementation within Signal Hill, it is Signal Hill's understanding that the subject TMDL is not intended to apply to the City. With this comment letter, however, the City is seeking confirmation/clarification of this issue from Board Staff. Signal Hill's confusion is largely created by the use of some general language in the Notice of Hearing, the Draft Staff Report and the Proposed Amendment. For example, the Notice of Hearing provides that "TMDL implementation will be carried out by responsible jurisdictions <i>including, but not limited to</i>, the City of Long Beach, Los Angeles	Without responding to the arguments presented by the commenter, based on the source assessment, the City of Signal Hill is not a responsible agency for the water and sediment quality of Colorado Lagoon nor responsible for any implementation plan to remediate the contamination described in this TMDL.

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			County Flood Control District, and Caltrans to control water and sediment loadings." (Notice of Hearing, p. 2.) Similarly, the Proposed Amendment provides that: "Mass-based waste load allocations for MS4 permittees, <i>including</i> the City of Long Beach, Los Angeles County Flood Control District, and Caltrans are allocated to the five major storm drain outfalls that currently discharge into the Lagoon." (Proposed Amendment, p. 5.) The Draft Report contains a near identical reference. (Draft Report, p. 67 ["Concentration-based WLAs for sediment are assigned to MS4 permittees including the Los Angeles County Flood Control District and the City of Long Beach, and Caltrans."].) A more thorough review of these documents, however, shows that they do not apply the WLAs or any other aspect of the TMDLs to Signal Hill, and nor is there any attempt to analyze any potential environmental impacts within Signal Hill from the implementation of the TMDL, as would be required by CEQA, including analyzing the economic impacts from requiring Signal Hill to comply with the implementation measures if the TMDL were to apply to it. Thus, as further discussed below, the only dischargers that appear to be required to comply with the Colorado Lagoon TMDLs are the City of Long Beach, the County Flood Control District and Caltrans. Moreover, because the Proposed Amendment is a regulation, if the proposed TMDL were intended to be applied to Signal Hill, it is my understanding that by law, the Proposed Amendment is required to clearly provide for such an intended application (see Gov. Code §11349 and 11349.1) and thus would first need to be revised and re-circulated for further review and comment before it could be applied to Signal Hill.	
6.2	City of Signal Hill		The Draft Staff Report describes the Colorado Lagoon Watershed as being 1,172 acres divided into five sub-regions that discharge stormwater, including urban dry weather	Please see response to comment 6.1. The impact to Colorado Lagoon caused by many

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			runoff to the Lagoon. Each Sub-Basin discharge to the Lagoon is conveyed through large reinforced <i>concrete</i> pipes, i.e., <i>a 63-inch reinforced concrete pipe owned and operated by the Los Angeles County Flood Control District (Project 452 Drain) for Sub-Basin A; a 54-inch reinforced concrete pipe (Line 1 Storm Drain) discharging into the north part of the north arm for Sub-Basin B; a 48-inch reinforced concrete pipe (Line K Storm Drain) discharging into the mid-point of the north arm, for Sub-Basin C; a 24-inch reinforced concrete pipe (Line M Storm Drain) discharging into the south part of the west arm, for Sub-Basin D; and a 48-inch reinforced concrete pipe (Termino Avenue Drain) discharging into the west arm, for Sub-Basin E. The Draft Report then provides that "[s]everal other smaller drains serve the areas immediately adjacent to the lagoon," describing these smaller stormdrains as contributing "small amounts of contaminants and cause minor impacts to sediment quality" of the Lagoon. (Draft Report, p. 11.) No other description of stormwater/urban runoff impacting the Lagoon is discussed, including any potential runoff from Signal Hill. The Proposed Amendment to the Basin Plan, referenced as "Attachment A" to the Tentative Resolution ("Proposed Amendment"), describes the Colorado Lagoon and the discharge points in identical fashion, and similarly does so, without any attempted inclusion of possible runoff potentially being conveyed to the Lagoon from the Municipal Separate Storm Sewer System ("MS4") controlled by the City of Signal Hill. (Proposed Amendment, p. 4.)</i>	small stormwater drains is collectively similar to that of other stormwater drains described in the source assessment, but at a different scale.
6.3	City of Signal Hill		Importantly, in the various TMDL documents assign neither a mass-based waste load allocation nor a concentration-based waste load allocation to Signal Hill. With respect to the mass-based WLAs, both the Draft Staff Report and the Proposed Amendment provide that the WLAs are assigned to the City of	Please see response to comment 6.1. The City of Long Beach, Los Angeles County Flood Control District, and Caltrans are only responsible for the areas under their management or jurisdiction.

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			Long Beach, with limited responsibility also being assigned to Caltrans and the County Flood Control District. (Proposed Amendment, p. 5, Draft Staff Report, p. 67.) Moreover, no TMDL document makes any reference to the assignment of any responsibility for complying with the WLAs to Signal Hill. For example, the Proposed Amendment provides as follows: Because Colorado Lagoon is located completely within the jurisdictional boundaries of the City of Long Beach and land areas serviced by storm drains that currently discharge to the lagoon are under the jurisdiction of the City of Long Beach, the WLAs are assigned to the City of Long Beach. Caltrans shall be jointly responsible for achieving the WLAs assigned to the Line 1 Storm Drain as it conveys stormwater from both Caltrans' facilities and the City of Long Beach. The Los Angeles County Flood Control District ("District") owns and operates the Project 452 Storm Drain; therefore, the District shall be jointly responsible for achieving the WLAs assigned to the Project 452 Storm Drain. (Proposed Amendment, p. 5; also see Staff Report, p. 67.)	
6.4	City of Signal Hill		Similarly, the Draft Report provides that: "The mass-based WLAs are assigned to NPDES permits for (1) the County of Los Angeles, Order No. 01-182, NPDES No. CAS 004001, (2) the City of Long Beach, Regional Board Order No. 99-060, NPDES No. CAS 004003, and (3) NPDES permit for Stormwater discharges from the Caltrans properties, facilities and activities, Order No. 99-06-DWQ." (Draft Report, p. 68.).	Please see response to comment 6.1.

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			Nor does the language in the TMDL documentation addressing the application of the concentration-based WLAs mention Signal Hill. Instead, the TMDL documentation contains both general language and specific references to the particular responsible parties, but without any mention of Signal Hill. For example, the Proposed Amendment provides that the concentration-based WLAs "for sediment are assigned to MS4 permittees including the City of Long Beach, Los Angeles County Flood Control District, and Caltrans." (Proposed Amendment, p. 5; also see Staff Report, p. 67.) No concentration based WLA is referenced as being applicable to Signal Hill. Similar language involving the Implementation Plan for the TMDL is included with the Proposed Amendment and Draft Report, but with both documents making it clear that the Implementation Plan is the joint responsibility of the City of Long Beach, the County Flood Control District and Caltrans. Such documents, for example, provide that: "The WLAs will apply to all NPDES dischargers in the Colorado Lagoon watershed. The regulatory mechanisms used to implement the TMDL include the Los Angeles County MS4 Permit, the City of Long Beach MS4 Permit, the Caltrans Stormwater Permit...." (Proposed Amendment, p. 9; Draft Report, p. 70), and that; "The City of Long Beach, Los Angeles County Flood Control District, and California Department of Transportation (Caltrans) are jointly responsible for meeting the waste load allocations." (Proposed Amendment, p. 9; also see Draft Report, p. 69 ["The Los Angeles County Flood Control District, City of Long Beach, and Caltrans are jointly responsible for meeting the waste load allocations."].)	

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			In addition, both Table 7-30.2 of the Proposed Amendment and Table 10.1 of the Draft Report, identify an implementation schedule which describes six implementation actions to be undertaken to implement the TMDL, and specifically identifying the particular responsible parties assigned to each implementation action, along with the proposed dates for implementation. Yet, the only responsible parties identified in Tables 7-30.2 and 10.1 are "the City of Long Beach, Los Angeles County Flood Control District, and Caltrans." (Proposed Amendment, p. 13; Draft Staff Report, p. 97.) Accordingly, although the TMDL documentation contains certain general language regarding the application of the TMDLs to municipal permittees, i.e., the implementation of the TMDL is to "include" Long Beach, the Flood Control District and Caltrans, the more specific language in these documents makes clear that the only parties responsible for complying with the TMDL are the City of Long Beach, the County Flood Control District and Caltrans. (Also see Draft Report, p. 66 ["Sediment mass-based waste load allocations were developed for stormwater permittees (Los Angeles County and City of Long Beach MS4, and Caltrans) by subtracting the mass-based load allocation from the total loading capacity according to the following equation:...."]; p. 68 ["The mass-based WLAs are assigned to NPDES permits for (1) the County of Los Angeles, Order No. 01-182, NPDES No. CAS 004001, (2) the City of Long Beach, Regional Board Order No. 99-060, NPDES No. CAS 004003, and (3) NPDES permit for Stormwater discharges from the Caltrans properties, facilities and activities, Order No. 99-06-DWQ. The mass-based and concentration-based WLAs will be assigned to	

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			MS4 and Caltrans' stormwater permits as specified in Table 6-2 and 63."; and p. 96 ["The Los Angeles County, the City of Long Beach, and Caltrans are encouraged to work together to meet the waste load allocations."].)	
6.5	City of Signal Hill		In addition, the Tentative Resolution contains CEQA findings, including a discussion of the requirements of Public Resources Code section 21159 and the California Code of Regulations. Such Resolution specifically references certain Environmental Impact Reports ("EIRs") prepared by the County of Los Angeles and the City of Long Beach, along with the "extensive environmental review" conducted therein, as support for the proposed CEQA findings in the Tentative Resolution. (Tentative Resolution, p. 7, ¶ 21.) Yet, there is no discussion of any potentially significant adverse impacts, or any other impacts, from the implementation of the TMDL within the City of Signal Hill. In fact, no CEQA analysis exists in any of the referenced Substitute Environmental Documents (the Draft Report, the Proposed Amendment or the Tentative Resolution) concerning Signal Hill, and nor are there any findings in the Tentative Resolution even referencing an analysis of the potential impacts within the City of Signal Hill.	Please see response to comment 6.1.
6.6	City of Signal Hill		Finally, the economic considerations analysis set forth in the Draft Report (Draft Report, p. 97-98) contains no discussion of any potential economic impacts resulting from any implementation measures to be conducted within Signal Hill, and nor are there any proposed findings in the Tentative Resolution suggesting that any economic considerations were considered with respect to the potential application of the TMDL to Signal Hill.	Please see response to comment 6.1. The economic consideration analysis was prepared according to the specific responsible agencies listed in this TMDL. It is not necessary to analyze the economic factor for those cities which are not impacted by the establishment of this TMDL.

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6.7	City of Signal Hill		In sum, although there are general sporadic references in the Proposed Amendment and Draft Report implying that potentially, other municipal permittees, beyond the City of Long Beach and the County Flood Control District, may be expected to comply with some aspect of the TMDLs, a close review of the specific requirements within the various TMDL documents shows that the only MS4 permittees that are being required to comply with the TMDLs are the City of Long Beach and the County Flood Control District. This conclusion is supported by the lack of any discussion of potential environmental or economic impacts within any other municipal jurisdiction such as Signal Hill. Signal Hill, therefore, respectfully requests confirmation that the Proposed TMDL for the Colorado Lagoon is not intended to be applied to the City of Signal Hill, and that there are no proposed waste load allocations or any other requirements in the TMDL that would apply to Signal Hill. To the extent that Signal Hill is in some fashion intended to be covered by the TMDL, the City would alternatively request that the TMDL be revised accordingly to clearly describe how the TMDL is intended to regulate discharges from within Signal Hill, that the Substitute Environmental Documentation, including the CEQA checklist and the Draft Report, be revised to address any potential impacts on the environment from such an application to Signal Hill, and that an economic analysis under CEQA, as well as the other analyses required under Water Code Sections 13241 and 13000, be completed.	Please see response to comment 6.1.
6.8	City of Signal Hill		The revised TMDL documentation, including all of the proposed Substitute Environmental Documents, would then need to be re-circulated and the TMDL re-noticed, in order to provide Signal Hill and the public with a full and fair opportunity to review and comment upon the TMDL's	Please see response to comment 6.1.

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			application to Signal Hill. Barring such a revised and re-circulated TMDL, given the particular language of the TMDL showing that compliance is to be the joint responsibility of the City of Long Beach, the County Flood Control District, and Caltrans, but not of Signal Hill, Signal Hill will presume that the TMDL is not intended to be applied to it. In sum, the City of Signal Hill would appreciate whatever clarification and confirmation the Regional Board may provide with respect to the intended application of the TMDL for any discharges originating within Signal Hill. (See, e.g. Gov. Code §§ 11349(c) and 11349.1 [requiring regulations to be "written or displayed so that the meaning of regulations will be easily understood by those persons directly affected by them."].)	