PUBLIC COMMENTS ON CALIFORNIA STATE WATER RESOURCES CONTROL BOARD'S

PROPOSED APPROVAL OF AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE LOS ANGELES REGION (BASIN PLAN) TO INCORPORATE A TOTAL MAXIMUM DAILY LOAD FOR TOXIC POLLUTANTS IN DOMINGUEZ CHANNEL AND GREATER LOS ANGELES AND LONG BEACH HARBOR WATERS

Submitted by: Date: October 28, 2011

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On behalf of Montrose Chemical Corporation of California ("Montrose"), we appreciate the opportunity to submit public comments to the State Water Resources Control Board ("State Board") in response to its "Proposed Approval of an Amendment to the Water Quality Control Plan for the Los Angeles Region (Basin Plan) to Incorporate a Total Maximum Daily Load for Toxic Pollutants In Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters."[1] This proposed approval follows the California Regional Water Quality Control Board, Los Angeles Region's ("Regional Board") May 5, 2011 adoption of a Basin Plan Amendment (the "BPA") and supporting documents, including a Staff Report and Substitute Environmental Document ("SED") prepared jointly by the United States Environmental Protection Agency, Region 9 ("EPA") and the Regional Board. Collectively, the BPA, Staff Report, and supplemental information attached to those documents are referred to as the "TMDL" throughout this letter and attached materials. The TMDL adopted by the Regional Board on May 5, 2011 would establish total maximum daily loads for various compounds in the bottom sediments of the harbor waters at the Ports of Los Angeles and Long Beach and the Dominguez Channel (collectively, the "Harbor Waters").

Certain commenters have expressed concern that the TMDL mandates a massive remedial dredging program such as the one described in the TMDL, and constitutes a dredging order. The federal Clean Water Act ("CWA") and its implementing regulations, and the relevant state-law authorities, are clear that the TMDL is not a self-enforcing agency action, does not mandate any particular action by the regulated community including the commenters, and is not an order. It is important that the State Board clarify that the dredging in the TMDL is not being ordered or mandated.

As discussed in our previous comment letter submitted to the Regional Board on February 22, 2011, the TMDL is an unsound regulatory proposal that is not supported by science and likely will impose significant costs on the Southern California region, without resulting in commensurate environmental benefit. The Regional Board responses to our prior comments and those of other public stakeholders ("Regional Board Responses") do not cure these material legal and technical deficiencies, as discussed more fully in the table of responses to the Regional Board Responses, attached hereto as Exhibit A ("Montrose Responses").

Specifically, the CWA does not require or authorize a TMDL that regulates the quality of bottom sediments. Accordingly, EPA's adoption of numerical limits for bottom sediments in the Harbor Waters is without authority. While the Regional Board is permitted to regulate sediment,

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[1] This cover letter and the attached materials address inadequacies in the Regional Board Responses, and why Montrose was unable to submit other comments previously. Accordingly, we respectfully request that this cover letter, these public comments, and attached materials be included in the administrative record for the TMDL, as required by Cal. Code Regs., tit. 23, § 3779(f). We also specifically request that the State Board include those letters submitted by Montrose and its consultants after the close of the Regional Board public comment period as we engaged with the Regional Board on issues regarding the mass balance of the TMDL. Montrose has also attached hereto as Exhibit F an index of the materials it submitted to the Regional Board as part of its original February 22, 2011 comment package on the TMDL. As those materials are part of the record for the TMDL, Montrose is relying on the Regional Board to transmit those materials to the State Board.

that authority applies only to the extent that the regulations are in accordance with state law. Because the TMDL proposes a set of numeric targets and allocations for sediment that are inconsistent with the State's sediment policy and control plan, the Regional Board's amendment of its existing water quality control plan to include the TMDL is *ultra vires*.

Further, the TMDL is fraught with technical problems and unsupported analysis that leave the agencies with an inaccurate understanding of the compounds and the overall Harbor Waters system that the TMDL proposes to regulate, as well as the significant economic and environmental implications that may result from the adoption of the TMDL. The Regional Board's own peer reviewers noted that the TMDL was materially lacking in "scientific basis," in violation of the California Health and Safety Code. For these reasons, and the reasons further expressed in the Montrose Responses, the State Board should remand the TMDL to the Regional Board to address the numerous technical and scientific errors included therein, and to conform the TMDL to the CWA and the California Porter-Cologne Act.

I. OUR COMMENTS TO THE REGIONAL BOARD IDENTIFIED NUMEROUS TECHNICAL AND LEGAL ISSUES WITH THE TMDL

Our prior comments to the Regional Board demonstrated that the TMDL does not provide an adequate technical and legal foundation to make an informed decision regarding the control of sediments in the Harbor Waters. The Regional Board Responses do not properly address these critical errors, which include significant mistakes in modeling and analysis and a lack of underlying data necessary to produce a reliable understanding of sediments in the Harbor Waters. Principal concerns not adequately addressed by the Regional Board Responses include:

- *Inconsistencies with State-Wide Policies and Relevant TMDL Precedent* – The TMDL is contrary to state-wide policies, including the State Board's "California Water Quality Control Plan for Enclosed Bays and Estuaries Plan – Part 1 Sediment Quality" (the "Bays and Estuaries Plan"), and to numerous other TMDLs in California and across the nation, yet does not explain these material departures.

- *Impermissible Stringency* – The TMDL includes impermissibly low cleanup targets for the bottom sediments of the Harbor Waters that correspond to risk levels far below accepted norms.

- *Unintended Adverse Environmental Impacts* – It is well established that the extent of remedial dredging described in the TMDL has the potential to introduce compounds into the water that may otherwise remain safely sequestered in the Harbor Waters sediments, increase water column concentrations of mercury and other contaminants, and destroy the existing healthy benthic community, in addition to numerous other environmental impacts.

- *Lack of Proven Benefits to Human Health* – Despite limited evidence of significant consumption of fish from the Harbor Waters, the proposed DDT fish-tissue target is more than 200 times more stringent than the Food and Drug Administration's national tolerance level for fish that may be sold in the supermarket.

- *Lack of Material Benefit to the Ecosystem* – The TMDL offers no evidence that the current levels of the subject compounds in the sediments are placing fish or wildlife at great risk, such that the impermissibly low sediment targets set forth in the TMDL are required.

- *Adverse Economic Consequences With No Commensurate Benefit* – The only way to logically assess economic reasonableness is to discuss the benefits of the TMDL in relation to the cost of implementation. Despite potential implementation costs which could reach over $2 billion, the TMDL provides no evidence that commensurate potential benefits will be gained.

- *Adverse Consequences to Harbor Management* – The TMDL will result in significant increased costs to manage sediment in the Harbor Waters which may impact maintenance and navigational dredging projects by the ports, waterfront redevelopment, habitat restoration, and the construction of wetlands.

- *Inadequate Analysis of Alternatives and Environmental Impacts* – Feasible and less environmentally invasive alternatives, such as monitored natural recovery, were not adequately analyzed, in violation of the California Environmental Quality Act ("CEQA").

- *Absence of Proper Technical Conditions* – Serious technical errors in the TMDL's data, modeling and analysis yield results that are contrary to observed, empirical data, thereby rendering the TMDL unsupported by proper technical conditions and not technically defensible.

II. THE REGIONAL BOARD'S RESPONSES TO COMMENTS DID NOT CURE THE DEFICIENCIES IDENTIFIED IN OUR COMMENT LETTER

The Regional Board Responses do not cure the legal and technical deficiencies identified in our prior comment letter. Our specific responses to the Regional Board Responses are included in Exhibit A and the supplemental materials provided herewith. In addition to the Montrose Responses, the Regional Board Responses are insufficient for the following overarching reasons:

- *Arbitrary and Capricious Reliance on Future Agency Action* - It is arbitrary and capricious to rely on a future "re-opener" as justification for adopting a broken rule now. If adequate data are not available to establish a scientifically sound TMDL at the time of promulgation, the TMDL should not be adopted. By improperly deferring the requisite environmental analysis to establish a technically defensible TMDL, the adopted TMDL will result in illegal, flawed, and unjustified sediment allocations unless and until the agency chooses to re-open the TMDL (which it may not do at all).

- *Clean Water Act Consent Decree Does Not Excuse an Inadequate TMDL* - The deadline set forth in the Consent Decree to adopt a TMDL does not excuse promulgation of a technically infeasible and unsound TMDL. Other legally and technically defensible TMDL options, including a water column based TMDL, were available to the Regional Board.

- *Arbitrary and Capricious Reliance on other TMDLs* – It is arbitrary and capricious for the Regional Board to rely on prior TMDLs as justification for its illegal and unsupportable actions in promulgating this TMDL. Prior agency mistakes and actions that are in conflict with the agency's statutory mandates cannot justify subsequent actions that repeat those mistakes.

- *Insufficient Reliance on Best Available Data* – Use of the "best available data" does not excuse reliance on poor and unreliable data, or flawed modeling and analysis.

- *Potentially New Remediation Alternatives Must Be Fully Analyzed Under CEQA* – The Regional Board Responses indicate that maintenance dredging may reduce pollutant loads within bed sediments, thereby dramatically reducing the scope of the remedial dredging program described in the TMDL. To the extent the Regional Board is considering this as a remediation option (which we support), this alternative must be adequately analyzed under CEQA.

- *Misleading SQO-Based Compliance Option* – References to "flexibility" in the TMDL's compliance options are unclear and may be misleading. The Regional Board should clarify the role of the Bays and Estuaries Plan to explain the extent to which the TMDL may allow the regulated community to follow a Bays and Estuaries Plan-based approach to compliance rather than an ERL-based approach to compliance.

III. THE REGIONAL BOARD RESPONSES TO COMMENTS REVEAL ADDITIONAL LEGAL AND TECHNICAL ERRORS IN THE TMDL

The Regional Board Responses also indicate that there are further legal and technical deficiencies incorporated into the TMDL that were not publicly disclosed prior to the adoption of the TMDL. These include:

- *Peer Review Comments Demonstrate That the TMDL Violates Health and Safety Code Section 57004* - California Health and Safety Code section 57004 requires an external peer review of the "scientific basis" for any rulemaking that is done to protect public health or the environment. If the peer reviewers find that the rule lacks scientific basis, the Regional Board must either revise the scientific portions of the rule or state why the Regional Board determined that the scientific portions of the proposed rule are based on sound scientific knowledge, methods, and practices.[2] As more fully explained in the supplemental materials attached hereto, the TMDL peer reviewers expressly concluded that there is no "scientific basis" for the sediment quality standards, targets, and allocations established by the TMDL. Because the Regional Board did not adequately address the errors that the peer reviewers identified as being without "scientific basis," the TMDL is illegal and violates the terms of Health and Safety Code section 57004(d).

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[2] Cal. Health & Safety Code § 57004.

- *No Mass Balance Supports the TMDL* – As identified in our February 22, 2011 comment package,[3] the TMDL contains a serious mass balance calculation defect which violates generally accepted scientific principles and results in a TMDL which cannot reflect the actual assimilative capacities of the affected waterbodies. This calculation defect was the subject of several subsequent discussions between Montrose and Regional Board staff after the close of the public comment period. At the May 5, 2011 adoption hearing, the Board directed staff to continue to work with stakeholders on this key technical issue. The Regional Board Response confirms that no mass balance calculation was performed, thereby underscoring the TMDL's lack of sound technical foundation and showing that the reliability of the sediment targets or allocations of the TMDL has not been established. Since a TMDL is itself a mass balance between assimilative capacity on the one hand, and allocation and other categories on the other, the absence of mass balance also is a legal defect, and violates the CWA and implementing regulations and policy.

- *All Relevant TMDL Documentation Was Not Made Publically Available* – Several commenters and peer reviewers noted that significant portions of the information and data the Regional Board used in developing the TMDLs and the associated models was not made available for public review and comment.[4] It is arbitrary and capricious for the Regional Board to rely on materials that will only be available to the public "[o]nce the TMDL is approved,"[5] especially where these materials relate to the questionable validity of the modeling conducted for the TMDL.

- *The Regional Board Failed to Respond to All Material Public Comment* - In violation of its duties under the California Administrative Procedures Act and CEQA,[6] the Regional Board did not provide substantive responses to numerous public comments submitted prior to the adoption of the TMDL. Included within the supplemental materials attached hereto, we have provided a table listing those Montrose comments submitted to the Regional Board that remain unaddressed and/or unanswered.

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3 See "Review and Comment on Loading Estimates Related to TMDL Development for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters," Drs. Pravi Sresthra and Charles Menzie, at 3 ("Mass balance computations for sediment and contaminants were not performed as part of the model assessment, and hence there can be no reasonable confidence that contaminant concentrations derived from model predicted deposition are correct.").

4 See e.g. "Ports' Modeling Comment Summary and Responses" at M2.12 ("TMDL models are based on publically available code. *Once the TMDL is approved then EFDC and LSPC model output information will be available for additional analysis; thus commenter can explore this topic to their satisfaction*.") (emphasis added).

5 Id.

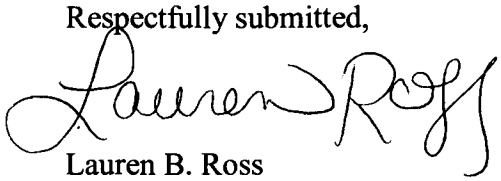
6 Cal. Gov't Code § 11346.9(a)(3) ("Every agency shall prepare and submit … a summary of each objection or recommendation made regarding the specific adoption, amendment, or repeal proposed, together with an explanation of how the proposed action has been changed to accommodate each objection or recommendation, or the reasons for making no change."); 23 Cal. Code Regs. § 3779; Cal. Pub. Res. Code § 21080.5(d)(2)(D); Gallegos v. State Bd. of Forestry, 76 Cal. App. 3d 945, 954 (1978).

IV. CONCLUSION

We respectfully request that the State Board remand the TMDL to the Regional Board to be revised on the basis of sound science which meets the legal requirements of the CWA and the Porter-Cologne Act. The Regional Board should be directed to gather additional relevant data, perform competent and adequate modeling of the Harbor Waters system, and complete the other necessary steps to ensure adoption of a reasonable and achievable TMDL that balances environmental and economic factors.

Adoption of the TMDL without the further step of remanding the TMDL would be suspect, and would impose undue economic impacts on the business community without commensurate environmental benefit, contributing to a climate unfavorable to the growth and competitiveness of the California economy and to Port-area businesses.

Respectfully submitted,



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Enclosures

STATE WATER RESOURCES CONTROL BOARD'S

PROPOSED APPROVAL OF AN AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE LOS ANGELES REGION (BASIN PLAN) TO INCORPORATE A TOTAL MAXIMUM DAILY LOAD FOR TOXIC POLLUTANTS IN DOMINGUEZ CHANNEL AND GREATER LOS ANGELES AND LONG BEACH HARBOR WATERS

EXHIBITS TO OCTOBER 28, 2011 COMMENTS SUBMITTED BY LATHAM & WATKINS LLP ON BEHALF OF MONTROSE

Exhibit	Description
A.	Montrose Responses to Regional Board's Comment Summary and Responses
B.	Montrose's Supplemental Legal Points Raised By the Regional Board's Responses
C.	Materials Prepared by Dr. John List Regarding Mass Balance
D.	Materials Sent to the Regional Board Regarding Mass Balance • Exhibit D-1 - April 8, 2011 Letter from Latham & Watkins LLP to Samuel Unger, Executive Officer of Regional Board • Exhibit D-2 - May 2, 2011 Letter from Dr. John List to Samuel Unger, Executive Officer of Regional Board • Exhibit D-3 - May 5, 2011 PowerPoint Presentation of Dr. John List
E.	Montrose Comments Not Addressed By the Regional Board
F.	Index of Materials Submitted By Montrose to the Regional Board on February 22, 2011

EXHIBIT A

EXHIBIT A

Montrose Responses to California Regional Water Quality Control Board, Los Angeles Region's Comment Summary and Responses

Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters

No.	Original Comment	Regional Board Response	Montrose Response to Response
36	Latham & Watkins for 10 organizations (Comments from cover letter and multiple contributors included.)		
36.1	**Inconsistencies with State-Wide Policies and Relevant TMDL Precedent** The draft TMDL is contrary to state-wide policy regarding regulation of contaminated sediment, as well as numerous TMDLs elsewhere in California and the nation, yet does not explain these material departures. - *State-Wide Policy*. The TMDL contradicts the, "California Water Quality Control Plan for Enclosed Bays and Estuaries Plan - Part 1 Sediment Quality," the state-wide policy set in August 2009 by the California State Water Resources Control Board for the regulation of contaminated sediment, including the bottom sediments that are a principal focus of the draft TMDL. The TMDL sets sediment targets	The proposed TMDL is entirely consistent with other adopted and effective Los Angeles Region TMDLs and appropriately incorporates the State's 2009 "California Water Quality Control Plan for Enclosed Bays and Estuaries Plan - Part 1 Sediment Quality" (SQO Part 1). The use of ERLs as the numeric targets is consistent with previously adopted TMDLs in the Los Angeles Region, including the recently adopted Colorado Lagoon toxics TMDL; and also the Calleguas Creek OC pesticides, PCBs, and Siltation TMDL and the Marina del Rey Harbor Toxic Pollutants TMDL. The Calleguas Creek OC pesticides TMDL and Marina del Rey Harbor Toxics TMDL have been approved by EPA and are in effect. This TMDL necessarily calculates the	Staff seem to agree that any amendments (such as the TMDL) to the Regional Board's water quality control plan (the "Basin Plan") must comply with the California Water Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (the "Bays and Estuaries Plan"). Cal. Water Code § 13240. Staff and commenters disagree over whether the TMDL conforms to the Bays and Estuaries Plan. The Regional Board states that the Bays and Estuaries Plan "does not provide a single number that can be used for a target and to calculate an allocation." That is true, but it also is true that the Bays and Estuaries Plan provides the state-authorized process for determination of such a number. This process was available to the Regional Board and was required to be used to the extent the Regional Board proposes to determine a "single number." Such is not required by the federal Clean Water Act ("CWA"), which does not require sediment or fish targets. (The TMDL could have complied with any and all U.S. EPA requirements had it simply used a water column target.)

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	based on screening values from the literature - an approach rejected by state-wide policy. The TMDL uses parts of the state-wide policy in isolation from the balance, when the state policy requires an integrated approach using all three of its major components. These significant inconsistencies drive the unprecedented scope and cost of the draft TMDL's proposed massive dredging program, which never would have been recommended had the TMDL followed the State Board's August 2009 sediment management strategy. - *Regional Board Precedent*. The draft TMDL is significantly more stringent than the TMDL for Upper Newport Bay, an ecological reserve of special value, set by the Santa Ana Regional Board in September 2007. The TMDL also is inconsistent with the TMDL for PCBs in San Francisco Bay set by the San Francisco Regional Board in February 2008. While the draft toxics TMDL proposes a sediment target for PCBs, the TMDL for San	numeric targets, loading capacity and allocations from the numeric ERLs, but incorporates the triad approach of the 2009 SQO Part 1 as a method for the determination of compliance. Numeric targets and allocations must be included and SQO Part 1 does not provide a single number that can be used for a target and to calculate an allocation. Staff note that the San Francisco Bay PCBs TMDL (San Francisco Board) recorded impairments of fish tissue and noted exceedances of water criteria, but did not address impairments of sediment directly. The Staff note that the Upper Newport Bay (Santa Anna Board) and San Francisco Bay TMDL (San Francisco Board) were completed before the State's 2009 SQO Part 1 and no triad approach is included in those TMDLs. Commenter does not include whether referenced TMDLs addressed impairment to sediments, directly. This TMDL does address sediments which are directly impaired.	The TMDL must comply with state law in the setting of sediment and fish targets. To "fully implement" the Bays and Estuaries Plan and comply with state law on the development of a single, numeric target for sediment, the Regional Board must go through the process outlined in the Bays and Estuaries Plan. This process involves several steps, none of which were taken by the Regional Board in the development of this TMDL, including: stressor identification, studies on the chemical linkage to impairment, identification of pollutant chemicals or classes of chemicals, identifying sources, and finally, developing the numeric Sediment Management Guideline ("SMG"). See Bays and Estuaries Plan at 17-20 and 22. Development of an SMG after completing the Bays and Estuaries Plan process yields a numeric value that indicates "the level of stressor pollutant that will meet the narrative sediment quality objective." Bays and Estuaries Plan at 19. The Regional Board Response suggests that use of the ERLs as numeric targets is acceptable because it "is consistent with previously adopted TMDLs in the Los Angeles Region." Prior agency mistakes and actions that are in conflict with the agency's statutory mandates cannot justify subsequent actions that repeat those mistakes. See Securities and Exchange Comm'n v. Sloan, 436 U.S. 103, 117-119 (1978) (the SEC had statutory authority to suspend trading in a stock for a 10-day period to protect the public interest. In Sloan, the SEC suspended trading in a stock for over a year, and the

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	Francisco Bay considered, but rejected, that approach. The proposed sediment targets, which are not required by law, and which we believe violate state and federal law, are fundamental to the TMDL's dredging proposal. - *National Precedent*. The contaminated sediments approach taken by the draft TMDL significantly departs from TMDLs in jurisdictions outside of California, including Delaware, Mississippi, Alabama, Washington and Oregon, which take a watercolumn approach to the establishment of TMDLs for the subject compounds, and do not develop numeric TMDL targets and allocations for bottom sediments. This lawful approach, available to the agencies, avoids the specter of massive, irrational sediment remediation proposals.		SEC argued that this was permissible because it had been suspending trading in stocks for periods that exceeded 10 days since 1944. Because this "long standing" agency interpretation was "inconsistent with the statutory mandate," the Supreme Court said its "clear duty in such a situation is to reject the administrative interpretation of the statute."); see also, California Ass'n of Psychology Providers v. Rank, 51 Cal.3d 1, 11-12 (1990) (When a regulation is challenged as being "inconsistent with the terms or intent of the authorizing statute . . . courts are the ultimate arbiters of the construction of the statute. . . . 'Administrative regulations that alter or amend the statute or enlarge or impair its scope are void and courts not only may, but it is their obligation to strike down such regulations.'") (citations omitted). Like the TMDL here, the other TMDLs referenced in our comments involve impaired sediments. In those other cases, however, sediments were treated as sinks for pollutants, rather than sources – an assumption that reflects the true role of sediments in the system. For instance, the Delaware River Estuary TMDL for PCBs states that "[e]stuary sediments function as a sink or loss mechanism for PCBs through burial of PCBs that settle to the bottom of the estuary." Delaware River Basin Commission, TMDL for PCBs for Zones 2-5 of the Tidal Delaware River at 15 (2003). The other TMDLs referenced similarly took a water column approach to the establishment of TMDLs, rather than treating the bottom

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			sediments as a source and assigning them allocations. The Delaware River TMDL for PCBs differs from the Harbor Waters TMDL because it properly refused to allow pollutant sources outside of its control, like the ocean and aerial deposition, to overwhelm its modeling and allocations. In the Delaware River TMDL, "[f]or purposes of calculating the TMDLs, EPA notes that the model assumes that PCB loads from the ocean, the C&D Canal, the major tributaries, and the air are at levels that ensure that the water quality standards are achieved, rather than at the actual levels, which in every case are higher." Delaware River Basin Commission, TMDL for PCBs for Zones 2-5 of the Tidal Delaware River at viii (2003). By not allowing these external sources to overwhelm the allocations, the Delaware River PCBs TMDL does not include a dredging project to account for aerial deposition that is in excess of the TMDL. These two legal approaches – recognizing that sediments are a sink rather than source, and avoiding sources like aerial deposition from overwhelming the modeling and allocations – were available to the Regional Board and would have allowed the Regional Board to develop a TMDL that accomplished the purposes of meeting water quality standards while not including an unjustified dredging project in the Harbor. The use of the ERL values as targets in the TMDL violates state law. The State Board rejected the use of ERLs as providing Sediment Quality Objectives, or even

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			serving as a basis to establish such objectives. Bays and Estuaries Plan at 7-9; see also Montrose Comment Letter of Feb. 22, 2011 at 7-9, 17. The State Board's rejection of ERLs as having relevance to setting sediment objectives is well founded, and cannot be dismissed by the Regional Board, as the TMDL implicitly does. The ERLs do not reflect an adequate margin of safety for the *reasonable* protection of the beneficial uses of water (as is required here), but instead reflect "a range intended to estimate conditions in which effects would be rarely observed." Long, E.R. et al., (1995) *Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments*, Environmental Management, 19(1): 81-97, at 84. The ERL authors caution that the statistics supporting the screening levels are "relatively weak." Id. at 95 ("for a few chemicals (especially mercury, nickel, total PCBs, total DDT, and p,p'-DDE) there were relatively weak relationships between their concentrations and the incidence of effects."). For these and other reasons reflected in the rulemaking for the Bays and Estuaries Plan, the State Board rejected the use of ERLs as a basis to set enforceable objectives, or to establish lower-bound thresholds to protect sediment quality. To the extent the TMDL might allow the regulated community to ignore the ERL targets and follow an SQO-based approach to compliance, such would be appropriate (assuming the SQOs themselves are lawful. They currently are the subject of challenge in State

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			Superior Court. CalChamber et al. v. California State Water Resources Control Board, Superior Court of California, County of Sacramento, Case No. 34-2008-00006509). But the TMDL is unclear on this point, and might be applied as if the ERLs provide the basis for implementation. Such would be unlawful.
36.2	**Impermissible Stringency** The TMDL proposes cleanup targets for the bottom sediments of the harbors that correspond to virtually no risk, while imposing excessive cost. The proposed standards are based on extremely low screening values from a 1995 paper, intended simply to rule out non-impacted sediments from further study. These screening levels are to be contrasted with dose-response studies upon which rational water quality standards can be set under the federal Clean Water Act. For a number of the compounds included in this TMDL, the authors of the 1995 paper caution that the statistics supporting the screening levels are "relatively weak."	The proposed targets include ERLs and fish tissue-associated sediment targets. For ERLs as appropriate and predictive targets, see response to **Comment 38.7a**.	See **Montrose Response** 36.1 regarding the improper use of the ERLs and 36.4 for the improper use of fish tissue targets.
36.3	**Unintended Adverse**	Commenter seems to take logical consequences (i.e. dredging) to an	Staff appears to claim that environmental damage will not result from the dredging described in the TMDL

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	Environmental Impact A problem with requiring unnecessary stringency is that the methods to achieve those levels can sometimes themselves result in adverse environmental impact; The draft TMDL is a classic case of that. Remedial dredging on this scale can re- introduce sequestered contaminants buried at the bottom of the harbor, increase water column concentrations, kill the existing benthic community, cause significant air pollution, impact local neighborhoods through which the dredged spoils may be trucked, and use valuable landfill space. Post-dredging studies in other places where dredging of these compounds has been attempted (e.g., the United Heckathorn site in the Richmond, California area, and the Hudson River in upstate New York) have shown that recontamination of the bottom is a material risk, further placing a cloud over the prudence of this invasive approach.	illogical extreme. Responsible parties may demonstrate compliance by achieving the ERLs or by demonstrating the protected condition of the sediment (Unimpacted or Likely Unimpacted) using the sediment triad of the SQO Part 1. Responsible parties may achieve the ERLs or the protective condition by a combination of many methods including by dredging. It is likely that the responsible parties will work to contain costs and dredge where dredging will be of genuine value, for instance where ERLs are exceeded and the protective condition of the sediment is not met and will be less likely to dredge where ERLs are exceeded but the protective condition of the sediment is met, since those areas would comply with the TMDL. Staff notes that the Port of Los Angeles and the Port of Long Beach routinely dredge in the Harbors safely and without unintended consequences to the environment. The Ports dredge for maintenance on a regular basis. In recent years, the Port of Los Angeles has undertaken a large dredging project, the Port of Los Angeles Channel	because a responsible party will have the choice to achieve compliance with the TMDL through either the ERLs or following an SQO-based approach. To the extent this is true (which is unclear from the terms of the TMDL), this does not negate the fact that implementation of the dredging actions described in the TMDL (which are not specific to the chosen compliance method) would create environmental problems, such as those identified in the original comment. Studies at the United Heckathorn Site and the Hudson River demonstrate that large-scale dredging often leads to recontamination and risks causing significant environmental disruption. See Letter from Paul Meyer, American Council of Engineering Companies of California, to Samuel Unger, Executive Officer, California Regional Water Quality Control Board, Proposed TMDL for Toxic Pollutants, 3 (Feb. 22, 2011). The Response claims that the Port of Los Angeles and the Port of Long Beach routinely dredge in the Harbor Waters safely and without unintended environmental consequences. Setting aside the absence of proof to this extreme assertion, these dredging projects are small compared to the dredging described in the TMDL; they are on an entirely different scale. These relatively small projects are an inadequate model for the environmental damage anticipated from implementation of the dredging described in the TMDL. The Regional Board's own model shows that levels of DDT in sediment are decreasing. Due to the exceedingly

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		Deepening Project. Since the Channel Deepening Project was authorized in 2000, as of 2009 approx 12.7 mcy (plus an additional 3 mcy authorized) of sediment material had been dredged and disposed of in an appropriate manner.	low targets for DDT in the TMDL, any dredging project likely would take a significant amount of time. Considering that natural recovery already is occurring, as demonstrated by both the RWB's own modeling and empirical data, it is arbitrary and capricious to include a costly and invasive remedy that monitored natural attenuation may achieve in a similar timeframe.
36.4	**Lack of Proven Benefits to Human Health** The TMDL is addressing theoretical risks, and is intended to protect a segment of the fishing population that probably does not even exist (e.g., hypothetical extreme anglers who eat large quantities of bottom fish loaded with DDT every week over a lifetime). For example, even if the TMDL would result in attainment of the 21 parts per billion ("ppb") DDT fish- tissue target, and even if such hypothetical anglers existed, such anglers would be able to legally buy and consume fish from markets and at restaurants that meet the federal Food and Drug Administration's national tolerance level of 5,000 ppb DDT, a value more than 200 times greater than the proposed fish-tissue target. The	The fish tissue targets were taken from the Fish Contaminant Goals (FCGs) of the "*Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in California Sport Fish: Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene*", which were developed recently, in June 2008, by the State of California's Office of Environmental Health and Hazard Assessment (OEHHA) to assist other agencies in developing fish tissue-based criteria with a goal toward pollution mitigation or elimination and to protect people from consumption of contaminated fish. Use of these fish tissue targets appropriately accounts for uncertainty in the relationship between pollutant loadings and beneficial use effects and directly addresses potential human health impacts from consumption of	Staff's reliance on prior TMDLs that incorporated Fish Contaminant Goals ("FCGs") is misplaced. Prior agency mistakes and actions in conflict with statutory mandate cannot justify subsequent actions that repeat those mistakes. See **Montrose Response 36.1** The Regional Board Response does not address the OEHHA guidance regarding why FCGs are not appropriate as a final fish tissue target in the TMDL. OEHHA specifically provides that FCGs are intended to "provide a starting point for OEHHA to assist other agencies that wish to develop fish tissue-based criteria with a goal toward pollution mitigation or elimination. . . . FCGs are based solely on public health considerations without regard to economic considerations, technical feasibility, or the counterbalancing benefits of fish consumption." OEHHA, Development of Fish Contaminant Goals and Advisory Tissue Levels For Common Contaminants In California Sport Fish: Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphone at iii (June 2008). The TMDL cannot lawfully use another agency's "starting point" as the final values for fish

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	TMDL does not take into account the health benefits of eating fish, or the fact that this large industrial port complex is not the locus of significant commercial fishing or recreational activity.	contaminated fish. Use of FCGs provides an effective method for accurately quantifying achievement of the water quality objectives/standards. See also, response to **Comment 20.3**.	tissue targets, at least not without including its own independent analysis as to why such would be appropriate. The TMDL contains no such analysis, but, rather, just grabs OEHHA's FCGs as if they were tailor-made for a TMDL. This is particularly problematic since OEHHA itself said the purpose of the FCGs is for it, *i.e.*, OEHHA, to assist other agencies – not for other agencies to use without effective consult with OEHHA, which was not done here. To take into account the health benefits of eating fish, the TMDL should have incorporated the use of Advisory Tissue Levels ("ATLs"), which OEHHA uses as "one of the criteria . . . for issuing fish consumption guidelines." Id. ATLs correspond to a level of no health risk to individuals that consume sport fish and (unlike FCGs) reflect the "unique health benefits associated with fish consumption." Id. The ATL reported by OEHHA for DDT is *100 times higher* than the FCG used in the TMDL (id. at 61). The stringency in the TMDL actually is harmful to human health because it could be used as a basis to deny to people fish that pose no health risk, denying them the benefits of eating fish. The use of the FCGs in the TMDL instead of the ATLs is not only arbitrary and capricious, it violates the agency's mandate to set health-protective standards. Because the TMDL is required to "fully implement" the Bays and Estuaries Plan, the target values for DDT in the TMDL should be based on values (if any) that pose a health risk to humans. Cal. Water Code § 13393(b)

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			("[t]he state board shall base the sediment quality objectives on a health risk assessment if there is a potential for exposure of humans to pollutants through the food chain to edible fish, shellfish, or wildlife."). Published studies have not shown a link between DDT and adverse impacts to human health. See Montrose Comment Letter of Feb. 22, 2011 at 10, n.44. Given the lack of proven link between DDT and adverse impacts to human health, any target value in the TMDL aimed at protecting against human health effects allegedly caused by DDT is inconsistent with, and violates, Water Code Section 13393(b).
36.5	**Lack of Material Benefits to the Ecosystem** The TMDL is not likely to result in material benefit to the ecosystem as current levels of the subject compounds are not placing fish or wildlife at great risk, and the TMDL implementation plan likely would make matters worse. According to peer-reviewed literature, the screening levels used in the TMDL "never should be taken, by themselves, to mean that sediment is exerting a toxic effect . . . or that there would be any benefit to decreasing its chemical content." 2	The Dominguez Channel and its estuary, the Los Angeles River estuary and the waters of the Harbors and San Pedro Bay have beneficial uses which must be supported; a designation as an "ecological reserves" is not required. Navigation and industrial service supply are beneficial uses in the Harbors as are recreational uses and wildlife and habitat uses. The Cities of Los Angeles and Long Beach and their ports have made enormous strides in recent years to improving water quality in the ports. The ports do, now, have recreational use beaches and the area is rich with fish	See **Montrose Response 36.1** for a discussion of why ERLs are not appropriate standards and why, as screening values, they do not correspond to any benefit to the ecosystem.

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	There are no designated areas of biological significance or ecological reserves in the harbors - not because of any toxic effects from the compounds that are the subject of the draft TMDL - but, rather, because other beneficial uses to which the harbors are legally designated, including navigation and industrial, are of such an intensity that they crowd out the opportunity for ecological services. Thus, the great expense of this draft TMDL may not provide material ecological benefit. Underscoring the absence of a rational connection between the draft TMDL and ecological services is the fact that this TMDL is much more stringent than the TMDL for Upper Newport Bay, where there are such ecological services and there is a designated ecological reserve.	and wildlife including eelgrass and kelp and an endangered least tern colony. The water quality goals and sediment goals of this TMDL are in keeping with the Ports' own Water Resources Action Plan. The ports' plans are "to attain full beneficial use, non- impairment and non-degradation of the harbor waters." (http://www.portoflosangeles.org/environment/water.asp) The ecological beneficial uses are in no sense "crowded out."	
36.6	**Adverse Economic Consequences** Despite costs that may exceed $2 billion, the draft TMDL makes no serious effort to examine the adverse economic consequences of the proposed implementation plan, including interfering with the	It is unclear the origin of the $2 billion figure. In addition, see response to **Comment 23.9**.	The origin of the $2 billion is clearly set forth in our original comments. See Montrose Comment Letter of Feb. 22, 2011 at 8-9 (calculating an estimated dredging cost of $2.16 billion when using the agencies cost of $60.84/cubic yard and estimated volume of 35.5 cubic yards of material to achieve ERL compliance); see also Dr. David Sunding's Comment Letter of Feb. 22, 2011.

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	substantial commerce in the ports, and potential ripple effects through the domestic and global economy. Nor does the TMDL establish a case that the massive investments which it requires are proportional to any environmental or ecological benefit. While we are not calling for a formal cost/benefit litmus test, the TMDL must produce significant, if not dramatic, benefit to justify these substantial investments, and pass legal muster. The TMDL, however, is virtually silent on the benefit side of the equation, with no effort to estimate the value of any such benefit. The TMDL calls for millions of dollars to be spent on removal of toxics in stormwater, down to levels in the parts per quadrillion range. The economic and technological feasibility of these proposed requirements is without any demonstration in the TMDL. Additional huge sums would be necessary to physically remove the subject compounds through dredging, without regard to any risk reduction benefit that might accrue.		Regional Board Response 23.9 is wholly nonresponsive to our commentary on economics and the absence of any meaningful economic analysis to support the TMDL. Regional Board Response 23.9 suggests that the TMDL overestimated the cost to implement the dredging described in the TMDL. This position is contrary to the evidence in the record that the TMDL grossly underestimated the actual costs of the dredging it describes. See Dr. David Sunding's Comment Letter of Feb. 22, 2011; see also Dr. E. John List's Comment Letter of Feb. 22, 2011. Regional Board Response 23.9 focuses solely on values estimated by the Ports when using the Bays and Estuaries Plan to determine the amount of dredging. But, the TMDL used the ERLs to set numeric targets for sediment, so dredging volumes and costs also should be based on the ERLs. The Ports' dredging cost estimate is more than three times higher when based on the ERLs. See Dr. David Sunding's Comment Letter of Feb. 22, 2011 at 4-5.

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36.7	**Adverse Consequences to Harbor Management** The TMDL will make it more difficult and expensive to manage sediment in the harbors, whether that entails removing it from places where it impedes navigation and commerce, handling it as part of waterfront redevelopment, or utilizing it as a resource for habitat restoration or the construction of wetlands. The TMDL will adversely affect maintenance dredging, the ability to keep the ports open for business and the costs of, and options for, disposal of dredged material. The TMDL may also adversely affect waterfront development and redevelopment since such economic activity will encounter sediment with levels greater than the proposed targets. The TMDL may affect adversely, and increase the cost of, projects to restore or reclaim habitat, or construct wetlands, given that such projects typically rely on the availability of sediment that can be used as a resource.	The Harbors routinely manage sediment in the harbors, for navigation and commerce, as part of waterfront redevelopment, or utilizing it as a resource for habitat restoration or the construction of wetlands. The harbors are able to conduct maintenance dredging, and keep the ports open for business. In fact, it will likely be possible, given the 20 year implementation schedule, for the Ports to dovetail maintenance or other navigation-related dredging with dredging to remove contaminated hotspots. In addition, see response to **Comment 23.9**.	The Response does not acknowledge that the Ports have never implemented remedial dredging on the scale described in the TMDL. The Ports' prior experience with routine maintenance dredging does not provide evidence that this TMDL can be implemented without serious and costly environmental and economic impacts. There is no evidence in the record which demonstrates that it would be feasible for the Ports to combine maintenance or navigational dredging projects with the remedial dredging described in the TMDL, nor does the TMDL provide any evidence that such an option would be successful in meeting the excessively low sediment targets of the TMDL. See also **Montrose Responses 36.6 and 36.18.**

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36.8	**Lack of Reasonable Cost-Benefit Balance** Given the potentially huge costs of the TMDL, and the very minimal benefits associated with it, the TMDL does not reflect a reasonable balance between costs and benefits, as called for by the Board's governing statute, the Porter-Cologne Act. Adoption of the TMDL would frustrate a stated priority of the Administration to avoid excessive regulation, while also impeding economic recovery in Southern California, and violating the reasonable balance requirement.	See response to **Comments 1.5.**	Response 1.5 suggests there is no need to consider Section 13241 factors, including cost, in this TMDL because the TMDL does not establish any new water quality objectives. But the TMDL includes an implementation plan that must comply with Section 13242. It is only through an implementation plan that the Section 13241 factors can be evaluated as intended by the legislature. Where, as is the case here, implementation measures are being adopted years after Section 13241 water quality objectives are put in place, Sections 13241 and 13242 both apply, so that it can be seen whether the 13241 objectives truly are reasonably achievable, and are consistent with the other 13241 factors. In addition, because the TMDL allocations correspond to "limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water," the TMDL targets themselves are new water quality objectives. Cal. Water Code. § 13050(h). In promulgating water quality objectives in the TMDL, the TMDL was required to analyze Section 13241 factors, including economic considerations. The Regional Board Response correctly states that City of Arcadia v. State Water Resources Control Bd. holds that a Section 13241 analysis is required only when water quality objectives are more stringent than what federal law requires. City of Arcadia, (2010) 191 Cal. App. 4th 156, 178-29. The TMDL allocations imposed

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			here are by definition more stringent than federal law requirements, because the CWA does not contain general authority to regulate sediment (see **Montrose Response 36.11**). Engaging in a Section 13241 analysis here does not violate City of Arcadia. The Regional Board Response also incorrectly assumes that Cal. Water Code Section 13000 is merely a statement of policy that does not impose any duty on the TMDL to consider costs. Cal. Water Code Section 13001 requires that the Regional Board implement the declarations of Section 13000 in every action taken. See Cal. Water Code § 13001 ("The state board and regional boards in exercising any power granted in this division shall conform to and implement the polices of this chapter[.]"). Section 13000 requires that all activities and factors which may affect the quality of water be regulated "considering all demands being made and to be made those waters and the total values involved, beneficial and detrimental, *economic* and social, tangible and intangible." Cal. Water Code § 13000 (emphasis added). The Regional Board Response cites City of Arcadia for the principle that a statement of legislative intent like Section 13000 cannot give rise to a mandatory duty. However, this decision holds only that a general statement of legislative intent does not impose a duty that would be enforceable through a writ of mandate. Section 13001 transforms Section 13000 into something other than a "general statement of legislative intent"

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			because Section 13001 imposes a mandatory duty on the Regional Board to consider economics under Section 13000. See also **Montrose Response 36.47**.
36.9	**Absence of Proper Technical Conditions** The TMDL has serious errors in its data, modeling, and analysis that leave the agencies without an accurate understanding of the subject compounds in the harbors. These problems are not just sources of uncertainty that can be addressed by using "conservative" assumptions. Rather, they are inherent mistakes in the TMDL's data, modeling, and analysis that obscure a true understanding of the processes controlling the levels of the subject compounds in the harbors, yielding results that are contrary to observed, empirical data. For example, there is no uncertainty that measured DDT and PCB concentrations in mussels, the water column, and sediment have been declining, and that natural recovery at meaningful levels is	See response to **Comment 36.40** regarding biodegradation. In addition, studies of the rate of recovery can be used in implementation and compliance with the TMDL. Certainly any natural recovery in the Harbor sediment over the 20 year implementation of the TMDL will assist with compliance with the TMDL. Natural recovery may be considered in the sediment management plans. The Staff Report includes a discussion of DDT and PCBs in tissue residues of birds and seals because the beneficial uses to be protected include wildlife habitat uses and rare and endangered species. Reducing pollutant loads to attain human health targets will yield progress toward restoring these beneficial uses, also. Forster's Terns have replaced leghorn chicken in the establishment of the bird egg target. See Table 3-9 in the Staff Report and	Staff did not respond to or acknowledge that the serious errors identified by the original comment in the TMDL's data, modeling, and analysis result in a lack of "proper technical conditions" for a "technically defensible" TMDL. See **Montrose Response 36.19** for a discussion regarding the absence of proper technical conditions for this TMDL. See also **Montrose Responses 36.40 and 36.63b.**

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	occurring; but the TMDL does not account for these facts. Both U.S. EPA and the United States Geological Survey accept science proving that DDT in local bottom sediments is biodegrading, yet the TMDL assumes that biodegradation is not happening. The TMDL relies on the leghorn chicken to set a bird egg target, and terns in Texas and seals in Europe to set other targets. None of these animals are known to be relevant to the harbors; the TMDL's biological targets lack foundation.	response to **Comment 36.63b**.	
36.10	**Inadequate Analysis of Alternatives** Feasible alternatives might avoid the environmental and economic costs of the proposed TMDL. Monitored natural recovery coupled with institutional controls would protect any persons consuming harbor-caught fish from any theoretical risk to which they might be exposed, without causing the significant environmental impacts that an unprecedented dredging and stormwater treatment program would	The CEQA Guidelines require the Regional Board to consider a "range of reasonable alternatives" which would "feasibly attain most of the objectives of the project" using a "rule of reason." See Tit. 14 Cal. Code Regs. §15126.6(a). In this case, as described in the staff report, the Regional Board is obligated to prepare the TMDL to address the impairments. The feasible alternatives are those that would meet this objective. The Regional Board reasonably chose the proposed TMDL and a TMDL prepared by USEPA as the	Staff acknowledges that the SED must evaluate a "reasonable range of alternatives" to the TMDL which would still attain most of the project objectives. But the Response did not recognize that the purpose of a CEQA document's discussion of alternatives and mitigation measures is to identify ways to reduce or avoid significant environmental effects. Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal. (1988) 47 Cal. 3d 376, 403. The focus must be on alternatives that can avoid or substantially lessen a project's significant environmental effects. Cal. Pub Res Code § 21002; 14 Cal Code Regs § 15126.6(a)-(b). The alternatives discussed should be ones that offer substantial environmental advantages over the proposed

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	entail. The agencies must identify the feasible alternatives to the proposed plan and analyze these alternatives fully, so as to properly identify the superior environmental alternative. We request the agencies to seriously consider less costly, more environmentally sensitive alternatives to the proposed TMDL, such as monitored natural recovery with an education and outreach program for any subsistence fisherman.	feasible alternatives because those are the only legal alternatives. The Regional Board also evaluated various alternatives to implementing the water quality objectives that it could use in the TMDL. The TMDL also has a very detailed description of the purpose of the project and the Regional Board's legal responsibility to prepare the TMDL, including the consequences if it does not. The CEQA Guidelines also require consideration of a "no project" alternative. For projects that are a revision of an existing policy, the project would be the continuation of the existing policy. Tit. 14 Cal. Code Regs. §15126.6(c). Consistent with this regulation, the TMDL discussed the existing conditions and what would be expected to happen if the TMDL was not implemented. In a case implementing the National Environmental Policy Act (NEPA), the Ninth Circuit Court of Appeals noted that the "NEPA alternatives requirement must be interpreted less stringently when the proposed agency action had a primary and central purpose to conserve and protect the natural environment, rather than to harm it." *Kootenai Tribe*	project. Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal. 3d 553, 566. By briefly discussing only two purported alternatives (a TMDL established by the U.S. EPA and a No Project alternative), the SED ignores numerous feasible project alternatives which would meet most of the basic project objectives *and* result in less significant environmental impacts. These feasible alternatives include, but are not limited to: (1) monitored natural recovery; (2) maintenance dredging, followed by limited remedial dredging, if necessary; and (3) a water-column based TMDL. For the two alternatives discussed in the SED, the SED does not provide any meaningful detail as required by CEQA. The Regional Board Response does not cite to any authority, under either CEQA or NEPA, which would allow the SED to not evaluate *any* environmental impacts associated with any alternative. Rather, the California Supreme Court specifically has struck down alternatives analyses strikingly similar to the SED. See Montrose Comment Letter of Feb. 22, 2011 at 33-36. Staff also acknowledges that the SED must evaluate a "no-project alternative", which in this case would be the continuation of the existing policy. But the SED contains no discussion of the environmental impacts of the "continuation of the existing policy", i.e. if the TMDL is not adopted. 14 Cal. Code Regs. § 15126.6(e)(3)(A). Instead, the SED simply states that "the failure to implement a Toxic Pollutants TMDL is

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		of Idaho v. Veneman (9th Cir. 2002) 313 F.3d 1094, 1120. A narrow range of alternatives was also supported by the *California Supreme Court in Mountain Lion Foundation v. Fish & Game Commission* (1997) 16 Cal. 4th 105, 135-136, where the agency is legally constrained. In addition, it is acceptable to have less detail for plan-level CEQA documents. See e.g., *Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners* (1993) 18 Cal.App.4th 729. The TMDL's range of alternatives is consistent with the CEQA Guidelines and case law. The TMDL did not confuse the concept of project alternatives and alternative methods of compliance. The TMDL clearly sets forth alternatives to the project and provides detailed evaluation of reasonably foreseeable methods of compliance. The SED, page 5, explains that CEQA requires the Board to perform a program-level of analysis, not a project- level analysis. The Regional Board is not required to evaluate the alternatives proposed by the commenter. Staff note that "natural recovery" is essentially equivalent to the	unlawful." At a minimum, CEQA requires the SED to "analyze the impacts of the no project alternative by projecting what would reasonably be expected to occur in the foreseeable future[.]" 14 Cal. Code Regs. § 15126.6(e)(3)(C). The SED contains no such analysis or discussion. Monitored natural recovery is not "essentially equivalent" to a No Project alternative. U.S. EPA defines "monitored natural recovery" as "a remedy that typically uses known, ongoing, naturally occurring processes to contain, destroy, or otherwise reduce the bioavailability or toxicity of contaminants in sediment" and "generally includes site-specific cleanup levels and remedial action objectives, and monitoring to assess whether risk is being reduced as expected." *See* Contaminated Sediment Remediation Guidance for Hazardous Waste Sites at 4-3, EPA (2005), available at http://www.epa.gov/superfund/health/conmedia/sediment/pdfs/guidance.pdf. The no project alternative described by the SED does not contemplate any monitoring, site-specific cleanup levels or remedial action objectives. The SED should acknowledge that monitored natural recovery is especially appropriate here, where the harbors are known depositional environments, where deposition is accelerated by navigational and maintenance dredging.

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		No Project Alternative. A program to inform fishers of the risk of eating fish from the harbors already exists. The Fish Contamination Education Collaborative (FCEC) is a public outreach and education program of the USEPA to protect the most vulnerable populations from the health effects of consuming contaminated fish: http://pvfish.org. Also, see the Health Advisory and Safe Eating Guidelines for Fish from Coastal Areas of Southern California: Ventura harbor to San Mateo Point, June 2009.	
36.11	TMDL does not comply with federal law. A. EPA's promulgation of the draft TMDL is ultra vires because the Federal Clean Water Act does not provide any general authority to regulate the quality of bottom sediments. 1. EPA's authority to promulgate numeric limits for bottom sediment is limited to Great Lakes, and does not include the Harbor Waters that are subject of the draft TMDL.	Staff disagrees. The conditions under which a TMDL must be established, and the conditions under which a TMDL may be established, are addressed in CWA, sec. 303, and 40 CFR 130.7. A ban on establishing TMDLs for waters impaired due to contaminated sediment is not evident in the CWA or regulations. EPA and the Regional Board have authority under the CWA to address contaminated sediments (see, EPA's Contaminated Sediment Management Strategy, EPA-823-R-98-001 (1998);	Our original comment was not intended to suggest the Regional Board has no authority to develop numeric limits for bottom sediments; as stated previously, the Regional Board may develop numeric limits for bottom sediments by following the series of steps set forth in the Bays and Estuaries Plan (which it did not do). See **Montrose Response 36.1** for a discussion of the Bays and Estuaries Plan. However, this authority under the Bays and Estuaries Plan does not extend to U.S. EPA, and the TMDL was presented to the public as a joint Regional Board-U.S. EPA action. See Regional Board Res. No. R11-008 at 4 ("Given the scope and complexity of this TMDL, the Regional Board has been working closely and collaboratively with EPA Region 9 on the development of the TMDL."); see also Notice of

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	2. CWA provisions authorizing water quality standards and TMDLs cannot be properly extended to include sediment quality standards, targets and allocations. 3. Draft TMDL is inconsistent with Congress' careful design, distinguishing waterbodies and water column on the one hand, from the underlying sediments, on the other. 4. Failed attempts to expand the CWA to authorize sediment quality standards demonstrate that the CWA does not include such authority.	potential uses of the sediment are a subset of the designated uses for a waterbody determined by each State pursuant to CWA, sec. 303; waters may be determined to be impaired due to contaminated sediments; States can use sediment quality criteria or EPA's sediment bioassays to interpret their narrative water quality standards (id., at 52); States may use EPA's National Sediment Inventory and National Sediment Contaminant Point Source Inventory to assist in developing their impaired waters lists and TMDLs (id., at 28 and 32); States may develop water quality-based NPDES permit limits to protect sediment, and if sediment criteria are not available, a permit writer may develop pollutant-specific NPDES limits based on a State's narrative standard in order to protect against sediment toxicity and bioaccumulation (id., at 33 and 47); and, if a link is established between an unlawful discharge and contaminated sediment, judicial or administrative orders can require that illegally discharged pollutants be removed as remediation (id., at 63). EPA has also previously addressed its	Availability of Draft Documents, Public Comment Period, and Public Hearing dated December 17, 2010 ("Notice is hereby given that the [Regional Board] and [U.S. EPA] Region 9 are making the following documents available for public review . . ." The notice also bears both the seal of the State of California and the emblem of U.S. EPA.). There is no general authority under the CWA to regulate the quality of bottom sediments. This is demonstrated by (i) Congress explicitly authorizing U.S. EPA to promulgate numeric limits for bottom sediments in the Great Lakes, but not elsewhere; (ii) Congress unsuccessfully attempting to amend the CWA to include authority for U.S. EPA to set numeric limits for bottom sediments elsewhere, which would clearly be unnecessary if that authority were already in the CWA; (iii) Congress treating water and sediments as separate media throughout the CWA; and (iv) the provisions of the CWA that authorize development of water quality standards remaining silent in regards to sediments. See Montrose Comment Letter of Feb. 22, 2011 at 1-5. The Regional Board Response attempts to rebut these statutorily based points by relying on non-mandatory guidance, irrelevant case law, and law review articles and student comments. The U.S. EPA guidance referenced by the Regional Board Response is consistent with our comment that there is no general authority in the CWA to set numeric limits for bottom sediments. For instance, the Regional

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		authority to establish sediment criteria: "EPA has authority to pursue the development of sediment criteria in streams, lakes and other waters of the United States under sections 104 and 304(a)(1) and (2) of the CWA as follows: • section 104(n)(1) authorizes the Administrator to establish national programs that study the effects of pollution, including sedimentation, in estuaries on aquatic life; • section 304(a)(1) directs the Administrator to develop and publish criteria for water quality, including information on the factors affecting rates of organic and inorganic sedimentation for varying types of receiving waters; • section 304(a)(2) directs the Administrator to develop and publish information on, among other issues, 'the factors necessary for the protection and propagation of shellfish, fish, and wildlife for classes and categories of receiving waters….'" EPA, Water Quality Handbook, sec. 3.5.4, Sediment Criteria (updated July 2007). The risk of use impairment due to	Board Response improperly paraphrased the EPA's Contaminated Sediment Management Strategy guidance, which actually provides that, "States can use sediment quality criteria or EPA's sediment bioassays to interpret their narrative water quality standards." This is entirely consistent with our position that the Regional Board not only can, but must, fully implement the Bays and Estuaries Plan, as this plan is California's sediment quality criteria. The EPA's Water Quality Handbook quotations also do not support the Regional Board Response's contention that the CWA provides authority to set numeric limits on bottom sediments. Section 104(n)(1) only authorizes the Administrator to *study* the effects of pollution and sedimentation on estuaries, which clearly is not authorization to set numeric limits on the quality of estuarine bottom sediments. 33 U.S.C. § 1254(n)(1). Similarly, Section 304(a) provides for the development of "criteria for water quality," not bottom sediments, and authorizes the Administrator to "publish information on" water quality, not bottom sediments. 33 U.S.C. § 1314(a). Plainly, these statutory provisions do not authorize the setting of numeric targets for bottom sediments. General statements in the EPA's Water Quality Handbook regarding a risk of impairment due to sediment contamination do not authorize setting numeric limits for bottom sediments. The two cases cited in the Regional Board Response are irrelevant and likewise do not provide authority to set

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		sediment contamination is also acknowledged in EPA's Water Quality Handbook: "The presence of certain toxicants in excessive concentrations within bottom sediments of the water column may prevent the attainment of water uses (particularly fisheries propagation/harvesting and sea grass habitat uses) in estuary segments that satisfy water quality criteria for DO, chlorophyll-a/nutrient enrichment, and fecal coliform." Sec. 2.9.6, Estuarine Systems. "Also, the presence of toxics such as pesticides, herbicides, and heavy metals in sediments or the water column should be considered in evaluating uses. These pollutants may prevent the attainment of uses (particularly those related to fish propagation and maintenance in water bodies) that would otherwise be supported by the water quality criteria for DO and other parameters." (Sec. 2.9.7 Lake Systems) At least one court has concluded that the CWA authorized it to require the	numeric limits on bottom sediments. In United States v. Alcoa, Inc., the issue was whether "appropriate relief . . . to require compliance" with Section 309(b) of the CWA could include an injunction that requires sediment remediation. 98 F. Supp. 2d 1031 (N.D. Ind. 2000). Section 309(b) allows the Administrator to bring a civil action against an entity that violates a permit issued to it under sections 402 and 404 of the CWA. 33 U.S.C. § 1319. In Alcoa, the government alleged that the permitted entity had discharged PCBs and other contaminants in violation of its National Pollutant Discharge Elimination System ("NPDES") permit, and that this discharge caused contamination of the sediments of the receiving water. 98 F. Supp. 2d at 1032. The government sought an injunction that would force the discharger to clean up the contamination caused by its illegal discharges, and the discharger challenged whether that relief was available under the statute. Id. at 1033. The court found that the Administrator's authority to "require compliance" under Section 309(b) was "broad enough to include the mandated clean up of contaminated sediments where the sediments are contaminated as a direct result of NPDES Permit violations." Id. at 1039. The TMDL is not a Section 309(b) enforcement action to enforce unlawful discharges that violate the terms of a NPDES permit. Alcoa does not include broad authority for EPA to regulate contaminated sediments, as the TMDL proposes to do in this case.

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		cleanup of sediments contaminated due to NPDES permit violations. U.S. v. Alcoa Inc., 98 F. Supp. 2d 1031, 1039 (N.D. Ind. 2000) ("… the Court concludes that the court's authority to grant an injunction 'to require compliance' in Section 309(b) is broad enough to include the mandated cleanup of contaminated sediments where the sediments are contaminated as a direct result of NPDES Permit violations.") See also, U.S. v. Outboard Marine Corp., 549 F.Supp. 1036, 1043-44 (D.C. Ill. 1982). The applicability, appropriateness, and enforcement of the 'background levels' standard for contaminated sediment cleanup under California State Water Resources Control Board Resolution 92-49, San Diego Law Review 40:749 (2003) ("… [EPA's] interpretation of the Federal Water Pollution Control Act (commonly known as the Clean Water Act) and State Water Resources Board policy further indicates that beneficial uses are to be extensively protected from impacts from contaminated sediments." (Footnotes omitted.)); and Marcus WA, Managing contaminated	Specifically, Alcoa held that "for an injunction to issue for sediment remediation under Section 309(b), the EPA must first establish that the sediments are contaminated with a substance that was released by the Defendant in an amount in excess of its NPDES Permit. In addition, it must show that the substance is hazardous to human health and the environment; that it will not naturally break down over time; and that it will continue to be released into the 'waters of the United States' at such a level as to contaminate the water and make it unsafe for its designated uses." Id. The record confirms that these requirements are not met here. First, the body of science does not demonstrate a link between DDT and adverse human health effects. See Response 36.4. Second, it is well understood that DDT naturally attenuates over time. See Response 36.40. Finally, because the production and sale of DDT was banned in 1972, it is no longer being introduced into the environment. Thus, the TMDL does not meet the conditions precedent set forth by the court before allowing mandated clean up of contaminated sediments. United States v. Outboard Marine Corp. also involved an order to conduct a cleanup based on illegal discharges. 549 F. Supp. 1036, 1042 (N.D. Ill. 1982). Similar to Alcoa, this case is irrelevant to a TMDL which proposes to set broad policy, rules, and standards for bottom sediments. The Regional Board Response also cites a series of law review and other articles as authority for setting numeric

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		sediments in aquatic environments: identification, regulation, and remediation, Environmental Law Reporter 21:10020 (1991) (referencing sec. 304's direction that EPA develop "criteria for water quality" for "pollutants in any body of water", and stating that "EPA has interpreted these phrases to include 'river bed, lake bed and wetland substrate'" and that "The authority to inventory contamination or to develop a set of sediment criteria or evaluative methods is also directly mandated or implied by the FWPCA in § 104". EPA's conclusion that the CWA protects benthic organisms is not newly reached. See, EPA, Notice of Proposed Rule, 63 FR 36742, 36788 (July 7, 1998) ("Mixing zone guidance produced by EPA since 1972 has consistently emphasized the need to protect both nonmotile benthic and sessile organisms in the mixing zone as well as swimming and drifting organisms (Water Quality Criteria 1972)."). Establishing TMDLs to address impairments due, in part, to sediment contamination is also not novel. See,	limits for bottom sediments under the CWA. As an initial matter, articles are not mandatory authority; they are secondary sources that do not and cannot contain statutory or regulatory directives that agencies must follow. None of the cited articles suggests that there is authority under the CWA to assign numeric limits to bottom sediments. For example, the student comment by Benjamin Benumof in the San Diego Law Review states only that CWA interpretations suggest that the beneficial uses of the water bodies are to be protected from contaminated sediments. Likewise, the Federal Register entry only states that benthic organisms should be considered and protected when considering mixing zones. Finally, the scientific paper by Weston et al. and the articles by Marcus, Bibler, and Wenig provide no support for the Regional Board's argument that there is general authority in the CWA to set numeric limits for bottom sediments in harbors. These sources cited by the Response do not provide general CWA authority to set numeric limits for bottom sediments. Such authority plainly is not in the CWA, nor do these sources even suggest that such authority is contained within the CWA.

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		Bibler GA, Contaminated sediments: are there alternatives to Superfund?, Natural Resources and Environment 18:56 (Fall 2003) ("EPA also estimates that 24 percent of the Total Maximum Daily Loads (TMDLs) for the approximately 20,000 impaired waters listed in 1998 were for pollutants potentially originating, in part, from contaminated sediments."). See also, Wenig MM, How "Total" are "Total Maximum Daily Loads"?, Tulane Environmental Law Journal 12:87 (1998) (noting, at 165, circumstance where it may be appropriate to establish TMDLs for sediment after TMDLs for metals have been completed). The scientific literature also acknowledges that sediment toxicity may trigger the duty to list a water as impaired and to establish a TMDL to address the impairment. See, e.g.: Weston DP, Zhang M, Lydy MJ, Identifying the cause and source of sediment toxicity in an agriculture-influenced creek, Environmental toxicology and chemistry, 27(4):953-962 (2008).	

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36.12	Draft TMDL is inconsistent with the State's governing water quality control plan for contaminated sediments.	See response to **Comment 36.1**	See **Montrose Response 36.1**.
36.13	Draft TMDL is Arbitrary and Capricious and entirely lacking in evidentiary support. 1. Costs and economic consequences of the draft TMDL are wholly out of proportion to the tenuous benefits (if any) of the proposed action, rendering the draft TMDL arbitrary and capricious. 2. Draft TMDL proposes excessively low regulatory targets that risk a great misallocation of social and economic resources. 3. Draft TMDL focuses on dredging as a remedy, which has the potential to make matters worse, and the efficacy of which is understood to be questionable. 4. Draft TMDL does not explain why it is much more stringent than the TMDL for Upper Newport Bay, the location of an ecological reserve, and which possesses high habitat and ecological value.	1. See response to **Comment 23.9** regarding *cost* analysis. 2. See response to **Comment 36.1** regarding *targets*. 3. See response to **Comment 36.3** regarding *dredging*. 4. Commenter's statement of comparing DDT and PCBs TMDLs for Upper Newport Bay vs. nine waterbodies in Dominguez Channel Estuary and greater LA/LB Harbor waters is a mischaracterization. Several factors determine the mass-based TMDL amount per pollutant per waterbody, including but not limited to: size of waterbody, amount of sediment, depth of active sediment layer, relevant scientific studies completed to date, media-specific goals, etc. Therefore the commenter has essentially produced an 'apples to oranges' comparison that is convenient for argumentative purposes but not based on normalized comparison. For example, using just	1. We commented that the TMDL's estimates of dredging volumes are unrealistically low, if the TMDL targets are not changed. The Regional Board Response *reduced* the estimated sediment volume proposed to be dredged, but leaves the targets unchanged. The Regional Board Response claims that the dredged sediment volume likely will be lower because the Ports already will be dredging for navigation in areas where TMDL dredging may be necessary. We encourage the Regional Board to pursue an alternative that might dramatically reduce TMDL dredging volumes by allowing harbor deepening and maintenance dredging to proceed first. The Regional Board Response did not provide any basis for the $60.84 estimate per cubic yard of dredged material. The Staff Report cites one 1998 study for sediment contamination mitigation at the mouth of Ballona Creek; using a single, outdated study to predict the cost of dredging is flawed. Instead, more recent cost information from several similar sites should be used. See Dr. David Sunding's Comment Letter of Feb. 22, 2011 at 4-6 (using dredging costs at seven similar sites to arrive at an estimate of $200 per cubic yard). The Regional Board Response did not address the

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		one feature mentioned immediately above, Dominguez Channel Estuary is ~150 acres, whereas Upper Newport Bay is ~370 acres. The amount of sediment within each waterbody is different and therefore the mass-based TMDL will be different…and appropriately so. See also response to Comment 36.5.	comment that the TMDL costs are wholly out of proportion to the tenuous benefits (if any) of the proposed action. It is unclear if the TMDL will result in *any* actual environmental benefit; the agencies previously acknowledged that (i) upstream inputs may cause recontamination of the Harbor Waters; (ii) the watersheds upstream from the harbors are known to flush contaminants into the Harbor Waters at levels that exceed draft TMDL levels; and (iii) atmospheric deposition contributes to contamination in the Harbor Waters in levels in excess of the TMDL values. Any benefit that could be achieved by the billions of dollars of remedial efforts identified in the TMDL likely will be offset, perhaps wholly, by such recontamination. Because the TMDL did not include studies which analyzed these potential recontamination sources, the TMDL is arbitrary and capricious. See also **Montrose Response 36.6.** 2. See **Montrose Responses 36.1.** 3. The Regional Board Response does not adequately respond to concerns that the TMDL describes dredging that may be subject to documented, systematic problems including the inability of dredging to achieve remedial objectives and the likelihood that dredging will cause significant environmental damage. The TMDL does not acknowledge the presence of viable alternatives to remedial dredging. The Regional Board Response does not provide any assurance that the effectiveness or environmental impacts of dredging were considered

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			before promulgation of the TMDL. See also **Montrose Response 36.3**. 4. The Regional Board Response claims that the comparison to the Newport Bay TMDL is "apples to oranges" because "several factors determine the mass-based TMDL amount per pollutant per water body." But this response offers no explanation why the TMDL for the Harbor Waters, an industrial area that contains one of the largest and busiest port complexes in the world, establishes more stringent regulation of DDT and PCBs than the TMDL for Newport Bay, which includes an ecological reserve and significant recreational uses. While it is true that a mass-based TMDL is based on a variety of factors, simply providing such a list does not provide evidence supporting the choice made by the Regional Board. The Response also notes that the Dominguez Channel Estuary is 150 acres, whereas the Upper Newport Bay is 370 acres. This explanation does not demonstrate a rational connection between the size of the waterbodies and the target levels, however. For example, the Regional Board Response does not explain why the TMDL for total DDT in the Dominguez Channel Estuary is *41 times more stringent* than the DDT TMDL for Upper Newport Bay, when that water body is only 2.5 times larger than the Dominguez Channel Estuary,.
36.14	The draft TMDL departs from the Bays and Estuaries Plan for	TMDL has been modified and now clearly states that the sediment targets	**See Montrose Response 36.1**

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	establishing sediment cleanup levels – without explanation or rational basis.	are not necessarily 'clean-up standards' for dredging or capping activities; rather they are long-term sediment concentrations that should be attained after reduction of external loads, targeted actions addressing internal reservoirs of contaminants, and environmental decay of contaminants in sediment. TMDLs set forth a plan to attain applicable WQSs and include a California Implementation Plan to provide some means of addressing pollutant load reductions.	
36.15	The draft TMDL erroneously assumes that residual compounds are bioavailable and will not degrade.	Residual compounds may be bioavailable and we do not have clear toxicological information for these compounds. Thus we have made another conservative assumption that residual compounds have equivalent potential to harm aquatic and sediment organism, as well as bioaccumulate.	See **Montrose Response 36.65**.
36.16	The draft TMDL relies on inaccurate assumptions regarding contaminant inputs to the Harbor Waters.	See response to **Comment 22.1** regarding recent contaminant inputs.	By improperly characterizing the *heading* of a portion of our comment letter as our entire comment, the Response mischaracterizes our comment and does not respond to numerous specific comments incorporated under this heading. Specifically, Regional Board Response 22.1 does not address or respond to the comment that the TMDL improperly treats contaminated sediments as a

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			source, instead of a sink like other TMDLs and sediment management strategies. See Montrose Comment Letter of Feb. 22, 2011 at 19. (Instead, Response 22.1 addresses a comment regarding what recent monitoring results are incorporated into the TMDL.) The TMDL is not supported by any explanation or evidence as to why the TMDL is inconsistent with this generally accepted approach. The Response also does not respond to the comment that the TMDL improperly makes assumptions regarding the replenishment of bottom sediments via atmospheric deposition. See **Montrose Response 36.52**.
36.17	The draft TMDL relies on studies that are biologically irrelevant to the Harbor Waters.	See response to **Comment 36.9**.	See **Montrose Response 36.63b.**
36.18	There are no known or available human means to implement and achieve the draft TMDL, rendering it a paper exercise that is not rationally connected to the real world.	Staff disagrees. The scientific approach in these TMDLs relies on reducing pollutant loadings from watershed sources and remediating contaminated sediments to minimize levels of pollutants in exposure pathways to aquatic or benthic organisms as well as human health and higher marine life forms (e.g., piscivorous birds and pinnepeds). The Implementation Plan provides reasonable means/measures to	The Response claims that the Implementation Plan provides "reasonable means/measures . . . to reduce pollutant loadings and address existing internal sources." But the Response mischaracterizes the legal standard which the Implementation Plan must meet; California Water Code section 13242 requires the Implementation Plan to include "a description of the nature of actions which are necessary to achieve the objectives" of the TMDL. The Implementation Plan does not meet this standard. The Implementation Plan does not explain how a

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		consider, without dictating means of compliance, to reduce pollutant loadings to each waterbody and address existing internal sources (i.e. contaminated bed sediments).	responsible party is expected to comply with the allocations set forth in the TMDL which are grams per year for certain constituents. To meet these excessively low targets, a responsible party must locate, test and remediate these miniscule amounts, in one of the world's most active harbors, subject to natural and commercial forces. The Implementation Plan provides no means for undertaking such a physically and scientifically impossible task. Additionally, neither the Response nor the Implementation Plan explain how a responsible party plausibly can meet these allocations when the TMDL itself provides that atmospheric deposition inputs are large enough to result in chronic non-compliance with the TMDL. The absence of this information violates California Water Code section 13242.
36.19	Technical Conditions to support the draft TMDL are not present. See items immediately below: -unreliable modeling -atmospheric sources are unknown, poorly characterized, erroneously assumed constant -bioavailability is not considered -no rationale that implementation will lead to attainment	See the detailed responses to comments, below.	By inadequately summarizing our comment, the Response does not address the lack of "proper technical conditions" identified in our comment. Pollutants are suitable for calculation of a TMDL only if proper technical conditions are met. 33 U.S.C. § 1313(d)(1)(C) ("Each state shall establish . . . the total maximum daily load, for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation."); Total Maximum Daily Loads Under the CWA, 43 Fed. Reg. 60,662 (Dec. 28, 1978) ("[a]ll pollutants, <u>under the proper technical conditions</u>, are suitable for the calculation of total maximum daily loads")(emphasis added). "'[P]roper technical

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			conditions' refers to the availability of the analytical methods, modeling techniques and data base necessary to develop a technically defensible TMDL. These elements will vary in their level of sophistication depending on the nature of the pollutant and characteristics of the segment in question." Id. (emphasis added). Our comments to the Regional Board, and the technical comments developed by experts who reviewed the TMDL, outline the many inadequacies that make the TMDL not technically defensible. See Montrose Comment Letter of Feb. 22, 2011 at 20-23; see also Technical Comments Attached to Montrose Comment Letter of Feb. 22, 2011. For example, several commenters noted that the Regional Board's modeling lacked proper calibration and validation and was not based upon a proper mass balance. The Response admits that neither validation nor mass balance calculations were done. See Regional Board Response to Comment 36.70 ("[d]ue to data limitations, model validation using an independent set of data could not be performed in addition to the calibration."); and Regional Board Response 36.54 ("a mass-balance computation was not performed."). The Regional Board's own neutral peer reviewer stated he had "difficulty understanding the scientific basis for some numeric targets and TMDLs"; the calibration of the models was "poor to mediocre"; and that "although an attempt was made at model validation for some of the

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			contaminants, it was not successful." Comments of Dr. Brezonik at 1; see also Comments of Dr. Keller at 11 ("The presentation of results is seriously lacking, with diminished scientific integrity. Overall, the calibration of the EFDC model is not adequate, since it has a clear bias towards over predicting concentrations of toxic pollutants in the harbor. While this may result in a more protective TMDL, a model should not have a bias. . . . Scientific integrity requires one to report and discuss the problems with the calibration, but this is not done."). Here, the record is replete with evidence, from both stakeholders and neutral peer reviewers, that the "proper technical conditions" have not been met and the TMDL is not technically defensible.
36.20	The Draft TMDLs contain proposed annual loads that are inconsistent with the Federal CWA, which requires loads be specified on daily basis.	EPA guidance on the issue of 'daily loads' explains that while daily loads are preferred, States may choose to present loads in other timeframes based on sufficient rationale and/or pollutant specific considerations.	The TMDL includes annual – not *daily* – loads. This is contrary to the plain language of the CWA ("total maximum *daily* loads"). Friends of the Earth, Inc. v. United States EPA, 446 F.3d 140, 142 (D.C. Cir. 2006). "Daily means daily, nothing else." Id. In stating that daily loads are not required when there is a "sufficient rationale and/or pollutant specific considerations", the Response mischaracterizes U.S. EPA guidance issued after Friends of the Earth. Specifically, that guidance clearly provides "that all future TMDLs and associated load allocations and wasteload allocations be expressed in terms of daily time increments." Memorandum from Benjamin H. Grumbles, Assistant EPA Administrator to Regional

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			EPA TMDL Officers, "Establishing TMDL 'Daily' Loads in Light of the Decision by the U.S. Court of Appeals for the D.C. Circuit in Friends of the Earth, Inc. v. EPA, et al., No. 05-5015 (April 25, 2006) and Implications for NPDES Permits" (Nov. 15, 2006). While expressing TMDLs in daily terms is mandatory, EPA also authorized TMDLs to include "alternative non-daily pollutant load expressions in order to facilitate implementation of the applicable water quality standards." Id. Contrary to the Regional Board Response, the U.S. EPA guidance does not authorize TMDLs to present loads in other timeframes, without also expressing *daily* load and wasteload allocations. While the statute requires, and U.S. EPA guidance directs, that loads be expressed in terms of daily loads in TMDLs, courts have suggested that for some pollutants, effective regulation may require "some other periodic measure than a diurnal one" to avoid absurd results. Natural Resources Defense Council, Inc. v. Muszynski, 268 F.3d 91, 98-99 (2d Cir. 2001). When courts have allowed expression of a TMDL in terms other than daily loads, the courts also require a showing that the alternative expression of the load is needed to "best serve[ ] the purpose of effective regulation of pollutant levels in water bodies." Id.; see also San Joaquin River Exchange Contractors Water Authority v. State Water Resources Control Board, 183 Cal. App. 4th 1110, 1124 (2010) (discussing Friends of the Earth and Muszynski and finding that the pollutant at issue, salt/boron, was

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			suited for a TMDL expressed as a monthly load because the TMDL modeling was done at the monthly scale and those subject to the TMDL did not have the ability to monitor daily). Here, the Regional Board Response does not provide any discussion of why the TMDL is properly expressed as annual loads rather than daily loads. Unlike in San Joaquin River Exchange, the modeling here was done at the daily, and sometimes hourly, scale. See Basin Plan Amendment at 8 ("Ultimately the EFDC model was integrated with LSPC output – hourly for three watersheds, daily for nearshore watersheds – to model metals, PAHs, PCBs, and DDT (total) sediment concentrations in the receiving waters."). That the TMDL is expressed in annual loads rather than daily loads is an implicit acknowledgement that the proper technical conditions for TMDL development are not present – the tiny milligram to sub-milligram loads that would result from expressing the annual loads as daily loads would demonstrate that the TMDL does not reflect the true assimilative capacity of the subject water bodies. Both U.S. EPA and Regional Board Staff were aware of this issue and did not address it; EPA even called the miniscule *annual* loads "laughable." See Montrose Comment Letter of Feb. 22, 2011 at 12. The unreasonableness of these "tiny values" also was acknowledged by the Regional Board's own peer review commenter, Dr. Patrick Brezonik, Professor Emeritus, University of Minnesota. Comments of Dr. Brezonik at

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			4. ("I wonder whether the tiny values listed in Table 6-12 for DDT and PCB WLAs are meaningful. Could one actually make measurements to show that a discharge was in compliance with a WLA of 0.35 g/yr? In general, the numbers in the table seem unreasonably low.").
36.21	Neither Governing statutes, nor underlying WQS provide notice that they might be applied in the TMDL, violating Due Process.	Staff disagrees. The commenter states that, "persons of common intelligence could not read the federal [Clean Water Act], the Porter-Cologne Act, or RWQCB's narrative toxicity standard, and anticipate that they would be implemented as is being proposed in this case." First, this is not the forum to challenge the Clean Water Act or the Porter-Cologne Act. The text of such statutes is determined by Congress and the Legislature, respectively. Second, these statutes provide adequate notice to the public. Clean Water Act section 303(d)(1) requires each state to identify the waters within its boundaries that do not meet water quality standards. Those waters are placed on the state's "303(d) List" or "Impaired Waters List." Before a waterbody is even listed on the 303(d) list, the public is provided an opportunity to comment on this list. Here, the waters of the Dominguez Channel and the Greater Los Angeles	Montrose is not challenging the text of the CWA or the Porter-Cologne Act. Rather, Montrose is challenging the TMDL's *interpretation and implementation of the Acts* in this case. Agency interpretations of the Porter-Cologne Act and the CWA are subject to judicial review to determine whether agencies have met their statutory duties. Cal. Wat. Code § 13330; Northwest Envtl. Advocates v. EPA, 537 F.3d 1006, 1014 (9th Cir. 2007). Section 303(d) of the CWA requires that states establish, *for waters within its boundaries*, TMDLs for pollutants impairing those waters. Section 303(d) does not suggest to persons of common intelligence that implementing agencies will establish TMDL's for *the sediments* underlying those waters. The regulatory definition of "Waters of the United States" included in 40 C.F.R. section 230.3 is limited to the traditional notion of "water" and does not include any indication that sediments are subject to regulation under the CWA. The CWA does not include adequate notice that the Regional Board could or would adopt TMDLs for sediments. CWA Section 303(d) authorizes a TMDL to be established at only a level necessary to implement the applicable water quality standards and a margin of safety.

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		and Long Beach Harbor area are listed on the 303(d) list as impaired for one or more of the following pollutants: cadmium, chromium, copper, mercury, lead, zinc, chlordane, dieldrin, toxaphene, DDT, PCBs, certain PAH compounds, benthic community effects and toxicity. These impairments exist in one or more environmental media – water, sediment, or tissue. For each listed water, the state is required to establish the TMDL of each pollutant impairing the water quality standards in that waterbody. Consequently, the commenter had sufficient notice that a TMDL would be adopted for such waters and impairing constituents. The public has had a full and fair opportunity to participate in the review of the amendment to the Basin Plan. A draft of the TMDL was released for public comment on December 17, 2010, along with a Notice of Hearing and Notice of Filing that were published and circulated at least 45 days preceding Board action. The draft of the TMDL was made available on both the Regional Board and EPA Region 9 websites. Regional Board staff	The Porter-Cologne Act allows for the regulation of bottom sediments for the "reasonable protection" of beneficial uses in particular "hot spot" areas. This language cannot be read to require that every milligram of DDT be removed from the entire Harbor Waters sediment. The Response suggests that due process has not been violated because the Regional Board provided notice of the TMDL rulemaking and allowed for public comment and a hearing. Due process requires more than just notice of rulemaking and a comment period. A member of the public reading the CWA and the Porter-Cologne Act would not understand that the directives would be translated into regulations of *sediments* that require tracking less than a milligram of a pollutant in the largest and busiest port complex in the country. See Montrose Comment Letter of Feb. 22, 2011 at 25-26 and cases cited therein. Even the Regional Board's notice was inadequate here. The Regional Board made substantive changes to the TMDL at the 11th hour before the May 5, 2011 hearing and even during the course of the hearing. The public received no prior notice of these changes and was not able to adequately provide comments.

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		responded to written comments received from the public, the Regional Board will hold a public hearing on May 5, 2011 to consider adoption of the TMDL, and the public has an opportunity to address the Regional Board and make oral comments. Therefore, the Regional Board has provided due process.	
36.22	Narrative toxicity standard is void for vagueness and violates due process, as applied in the TMDL.	The tentative BPA does not include a narrative toxicity water quality standard. It includes a specific numeric freshwater toxicity target of 1.0 TUc, and an interim allocation of 2 TUc applicable to each source. The draft Staff Report (Section 2.4.4) also discusses the analysis of fish and shellfish tissue for chemical contaminants. Staff Report Section 3.3 explains that, "Use of fish tissue targets is appropriate to account for uncertainty in the relationship between pollutant loadings and beneficial use effects and directly addresses potential human health impacts from consumption of contaminated fish or other aquatic organisms. Use of fish tissue targets also allows the TMDL analysis to more completely use site-specific data where limited water column data are available,	Our original comment did not state that the TMDL included a narrative toxicity standard. Rather, the comment explained that the TMDL's *application* of the Basin Plan's narrative water quality standard to the subject compounds of the TMDL yielded numerical representations of that qualitative standard. For example, for DDT, the TMDL provides that a fish tissue target for DDT of 21 ppb and various other quantitative sediment limits of DDT are "necessary for the protection of human health." See Staff Report Section 3.3. As applied by the TMDL, the narrative toxicity standard is vague and violates due process. The Response also suggests that the narrative toxicity standard is not vague because the TMDL includes specific numeric toxicity and fish-tissue targets. But, as noted above, the narrative water quality standards do not explain or provide requisite notice regarding how those standards could be translated to create excessively low numerical DDT targets that are proxies for the standard itself. See **Montrose Response 36.21**.

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		consistent with the provisions of 40 CFR 130.7(c)(1)(i)." As such, the target and interim TUc allocations are not vague and do not violate due process; the Board has complied with applicable public participation requirements. See Response to Comment No. 36.21	
36.23	Draft TMDL includes invalid water quality objectives.	This TMDL does not establish any new water quality objectives. TMDLs and waste load allocations are a means of implementing or achieving water quality standards, including water quality objectives that have *previously* been established. (See *City of Arcadia v. State Water Resources Control Bd*. (2010) 191 Cal.App.4th 156, 175-79.) See also Response to **Comment No. 1.5**.	The targets contained in the TMDL are water quality objectives because they are "limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water." Cal. Water Code § 13241. The TMDL allocations must be reviewed under the factors that apply to water quality objectives. Cal. Water Code § 13241. Reliance on City of Arcadia v. State Water Resources Control Bd. for the principle that compliance with California Water Code Section 13241 is not required for TMDLs is misguided. The City of Arcadia court merely held that a regional board need not consider Section 13241 factors when conducting a periodic review of a basin plan because such a review does not constitute "establishing water quality objectives." See City of Arcadia, (2010) 191 Cal. App. 4th at 177-78. This holding is limited to a regional board's periodic review of a basin plan, however, and the court's reasoning does not extend to TMDLs. Analysis of Section 13241 factors is required when establishing "limits or levels of water

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			quality constituents or characteristics which are established for beneficial uses of water." Cal. Water Code § 13241. TMDL allocations correspond to those limits or levels of water quality. The City of Arcadia court was careful to note that defendants *did* comply with Section 13241 when issuing permits to plaintiffs and establishing the TMDLs for those permits. Id. at 178 ("defendants did comply with section 13241 in issuing the MS4 permits to plaintiffs and in establishing the TMDL's for those permits.") Further, the Regional Board acknowledges that Section 13242 applies to the TMDL and its implementation plan. Section 13241 and Section 13242 must be read together; Section 13241 factors have no meaning if they are not applied to a specific implementation plan. One cannot judge the economics of a water quality objective, one of the Section 13241 factors, until there is a specific plan to implement that objective. A determination of whether the program of implementation reasonably achieves water quality standards (including designated beneficial uses, narrative water quality objectives, and anti-degradation policies) cannot be made without consideration of Section 13241 factors. City of Burbank v. State Water Resources Control Bd. (2005) 35 Cal. 4th 613 supports the application of Section 13241 factors to TMDL development. There, the California Supreme Court held that the Los

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			Angeles Regional Board should have complied with Section 13241 when prescribing the California equivalent of NPDES permits under section 13263. Id. at 627. If the Court requires consideration of Section 13241 factors in prescribing a permit that incorporates the limits set in a TMDL, consideration of Section 13241 factors is logically required for implementation of the underlying TMDL. Because the TMDL includes water quality objectives, it also must be consistent with the Porter-Cologne Act. The Porter-Cologne Act requires that Regional Board policy in establishing water quality objectives be "reasonable" and balance "all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible" in order to "attain the highest water quality which is reasonable." Cal. Water Code §§ 13000, 13140, 13001. The TMDL violates the Porter-Cologne Act because it is unreasonable and does not implement the balance required. The TMDL adopts a precautionary approach and sets exceedingly low sediment targets without balancing economic considerations. See Montrose Comment Letter of Feb. 22, 2011 at 27. Because the Regional Board did not consider Section 13241 factors in the TMDL allocations and because the TMDL allocations are inconsistent with the Porter-Cologne Act, the TMDL is illegal both procedurally and substantively.

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36.25	The TMDL is impossible to meet, therefore it is unlawful.	Staff disagrees. The TMDL is not impossible to meet. It includes appropriate targets, flexible compliance methods, and a 20-year implementation plan. The commenter has not provided any evidence indicating that it will not be able to meet the requirements of the TMDL. Moreover, if the U.S. EPA were to adopt the TMDL, it is very likely that the implementation plan would be much shorter than 20 years. This TMDL provides for a 20-year implementation plan, which gives responsible parties more than enough time to comply with the TMDL's requirements.	See **Montrose Response 36.18.** The length of the Implementation Plan is immaterial if, as here, the steps necessary to comply with the TMDL allocations are physically and scientifically impossible to achieve. A longer Implementation Plan time period would be relevant only if, during that time period, the allocation levels set by the TMDL were amended substantially by further studies and information. The TMDL lacks supporting evidence to demonstrate that such subsequent studies and information will materially amend the allocations set forth under the current version of the TMDL.
36.26	LA RWQCB must reform the TMDL, as contained in Chapter 5.5 of Porter-Cologne.	Staff disagrees. The adoption of the TMDL is an action that amends the Water Quality Control Plan for the Los Angeles Region, which is authorized pursuant to Water Code sections 13240 and 13242.	Staff acknowledge that the adoption of the TMDL is an action that amends the Basin Plan pursuant to Cal. Water Code §§ 13240 and 13242. However, the Response does not recognize that the authority for *promulgation* of the TMDL is uniquely found in the federal CWA. 33 U.S.C. § 1313(d) ("Each state shall establish for [designated waters] . . . the total maximum daily load, for those pollutants which the Administrator identifies under section 304(a)(2) as suitable for such calculation."). Chapter 5.5 of the Porter-Cologne Act applies "to actions required under the Federal Water Pollution Control Act," i.e. the CWA. Cal. Water Code

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			§ 13372(a). Thus, even though the Implementation Plan and SED may be state-law requirements, the TMDL is a CWA action, and the TMDL must be reformed to recognize this fact.
36.28	Recognizing that the CWA does not authorize the development of numeric TMDL targets for the bottom sediments, numerous TMDLs in other states, including Delaware, Mississippi, Alabama, Washington and Oregon, distinguish between surface water quality goals, on the one hand, and sediment contamination, on the other, properly confining their targets and allocations to the water column, and not extending these regulatory tools to the bottom sediment.	The commenters assumption that the CWA does not authorize TMDL targets for bottom sediments is inaccurate. TMDLs address pollutant sources and given that sediment often contain pollutant levels several magnitudes higher than the water column and that flux studies demonstrate the pollutant gradient is dominantly from sediments into water, then it is appropriate to set both targets and allocations to contaminated sediments. In addition, see response **to Comment 36.1.**	See **Montrose Response 36.1**
36.29	CEQA: SED does not comply with CEQA; instead, the draft SED is a product of the technical and legal defects of the draft TMDL described above, as it provides an incomplete baseline environmental analysis, an inadequate and legally unsound	The Regional Board has not limited its CEQA review but fully complied with CEQA as a certified regulatory program developing a program level CEQA review.	The Regional Board has impermissibly limited its CEQA review by preparing a SED that provides an incomplete and inaccurate baseline analysis, an inadequate analysis of all project impacts and an illegally narrow range of alternatives. Because environmental review under a certified regulatory program serves as the "functional equivalent of an EIR", the SED must provide detailed

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	impacts analysis, and an impermissibly limited evaluation of alternatives. RB cannot limit its CEQA review because it propose to adopt the TMDL under a certified regulatory program.		information on the all of TMDL's potential significant effects on the environment and describe feasible mitigation measures and alternatives that could reduce the TMDL's significant environmental impacts. Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection (2008) 43 Cal. 4th 936, 943; Katzeff v. Department of Forestry & Fire Protection (2010) 181 Cal. App. 4th 601, 608. The SED does not accurately identify or analyze the significant environmental impacts that would result from implementation of the TMDL. Further, it does not provide sufficient mitigation for impacts that it does identify, and does not consider alternatives that would effectively protect the environment, while causing less environmental impact and being cheaper to implement. CEQA's broad policy goals also apply to the SED; the SED violates CEQA by not "inform[ing] the public and its responsible officials of the environmental consequences of their decisions before they are made." Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal. 3d 553, 563; see also Envtl. Prot. Info. Ctr. v. Johnson (1985) 170 Cal. App. 3d 604, 618 ("Nothing in section 21080.5 supplies a basis for concluding that the Legislature intended the section to stand as a blanket exemption from CEQA's thorough statutory scheme and its salutary substantive goals."). The SED does not provide the necessary information and analysis to enable decision makers, other regulatory agencies, and the public to understand the significant environmental

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			impacts that may be associated with implementation of the TMDL.
36.30	A. Draft SED provides and incomplete baseline analysis. RB must analyze the following environmental resources, which draft TMDL is likely to significantly impact: • Quantify current air quality conditions, including an assessment of criteria pollutant for which the Los Angeles air basin is in non-attainment. • Quantify current greenhouse gas emission to the Harbor waters area from the Los Angeles region and the globe, including an assessment of the environmental impact that global climate change is currently having on Harbor Waters, the Los Angeles region and California. • Describe the biological resources in the Harbor Waters and in the vicinity of the Harbor Waters that could be impacted by dredging and other implementation activities. Wetlands, eelgrass bed, benthic communities, and other important	State and Federal regulations for TMDL development do not require air quality conditions with respect to assessment of criteria pollutants for air basin non-attainment. Rather an evaluation of available air monitoring data as a source of contributing pollutants to ambient water is appropriate for inclusion within a TMDL. In addition, the CEQA checklist now includes Air.c. (Will the proposal result in alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?) as a potentially significant impact. Biological resources are described Section 2-1 and in numerous data sets identified in Table 2-8 of the TMDL staff report including: PORTs biological baseline studies (2000 and 2008); benthic community studies within Bight 98, 03; WEMAP 99, 05; as well as fish studies by LA Harbor 04, 06, 08 and OEHHA 99, 07 to present ambient and past conditions. Thus current habitat conditions are already described and	Our original comment stated that the SED must include current air quality conditions as a requirement of *CEQA*, not under either state or federal regulations for TMDL development. CEQA requires a description of existing physical environmental conditions to be used as the baseline for determining whether project impacts are significant. 14 Cal. Code Regs. § 15126.2(a); County of Amador v. El Dorado County Water Agency (1999) 76 Cal. App. 4th 931, 952 ("Before the impacts of a project can be assessed and mitigation measures considered, an EIR must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined."). Substantial evidence does not support the use of "an evaluation of available air monitoring data as a source of contributing pollutants to ambient water" as a proper baseline; such evaluation does not provide the necessary information to compare the impacts of the TMDL to the existing physical conditions of the Harbor Waters. The SED fails its function of providing information and analysis of the environmental impacts of the TMDL. Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors (2001) 87 Cal. App. 4th 99, 123-24. By not identifying the likely disposal sites for dredged materials, the SED impermissibly piecemeals the project into multiple, smaller projects. Under CEQA's definition of a project, although a project may go through several

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	habitats should be identified and characterized. In order to enable the public to assess the merits of project alternatives, any observable, toxic effects on wildlife and habitat caused by current contamination levels must be described. • Identify the likely disposal sites for dredged materials and their capacity to accommodate the dredge volumes contemplated by draft TMDL.	fulfill SED obligations. The identification of sediment disposal sites is best included with other Regional Board regulatory programs and associated documents; e.g., EO issued Cleanup and Abatement Orders or CWA Section 401 certification actions for dredge removal actions. Such concepts may also be included in the Ports' WRAP and Army Corps and/or CSTF reports. Such documents, other than TMDLs, are most appropriate procedures.	approval stages, the environmental review accompanying the first discretionary approval must evaluate the impacts of the ultimate development authorized by that approval. This prevents agencies from chopping a large project into little ones, each with a minimal impact on the environment, to avoid full environmental disclosure. See 14 Cal. Code Regs. § 15003(h); Bozung v. LAFCO (1975) 13 Cal. 3d 263, 283; see also California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist. (2009) 178 Cal. App. 4th 1225, 1249. Piecemeal environmental review that ignores the environmental impacts of the entire TMDL, including those reasonably foreseeable dredging projects described in the TMDL, is not permitted. See Christward Ministry v. Superior Court (1986) 184 Cal. App. 3d 180, 193; City of Carmel-by-the-Sea v. Board of Supervisors (1986) 183 Cal. App. 3d 229, 251; Citizens Ass'n for Sensible Dev. v. County of Inyo (1985) 172 Cal. App. 3d 151, 167.
36.31	B. Draft SED inadequately describes and analyzes the major impacts associated with the TMDL's remediation requirements. Draft SED spots several impacts [associated with the] preferred remedy of dredging to remediate Harbor Waters sediments….Negative impacts from dredging are either not discussed or summarily	The draft SED adequately describes and analyzes, for a programmatic-level CEQA analysis, the potential impacts, without speculation. See also responses to **Comments 20.8-20.14**.	The Response provides no justification for the SED's failure to discuss or analyze the many negative environmental impacts that are associated with the large-scale dredging program described in the TMDL, including those impacts which were specifically identified by the commenter. For those resource areas that the SED did address (albeit in a cursory and inadequate manner), the SED grossly underestimates the dredging that corresponds to the TMDL targets, thereby improperly narrowing the scope of the environmental impacts associated with this remedy.

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	dismissed…but not limited to: • Destruction of benthic community. • Resuspension of contaminants now safely bound to bottom sediments. • Exposure of contaminated sediment, if any, below those dredged. • Creation of preferential depositional area in those areas which are dredged. • Significant greenhouse gas emission associated with dredge equipment and high volume of truck traffic needed to haul dredge spoils to permanent disposal site. • Noise associated with dredging pumps and vessels. • Risk of injury or death to workers conducting dredging. • Significant barriers to ship navigation at the nation's busiest port in areas that are dredged due to dredging vessels and barges.		The SED's lack of proper CEQA analysis is not excused by the fact that this may be programmatic action. Because the remedial dredging program described in the TMDL is a reasonably foreseeable impact, the SED violates CEQA by improperly deferring analysis of those impacts to later project-specific EIRs. 14 Cal. Code Regs. § 15152(b) ("Tiering does not excuse the lead agency from adequately analyzing reasonably foreseeable significant environmental impacts of the project and does not justify deferring such analysis to a later tier EIR or negative declaration."). The SED cannot ignore the environmental impacts associated with the TMDL's reasonably foreseeable remediation requirements. Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova (2007) 40 Cal. 4th 412, 431; Stanislaus Natural Heritage Project v. County of Stanislaus (1996) 48 Cal. App. 4th 182, 199.

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	• Environmental justice and socioeconomic factors associated with the dredging project, including increased truck trips to and from the Ports and increased heavy equipment use near residential areas. • Creation of more surface water capacity, which in turn will lead to more surface water which is available to accumulate pollutants from aerial deposition. • Cumulative impacts of remedial dredging and the ports dredging efforts to deepen the ports to accommodate larger ships.		
36.32	C. Alternatives Analysis in draft SED ignores obvious and important options…At a minimum, RB must analyze the alternatives described below, which is meant only as illustrative: • Monitored natural recovery….should receive detailed consideration where the site conditions are present (as	See response to **Comment 36.10**.	See **Montrose Response 36.10**.

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	described in EPA Superfund document (2005): Contaminated Sediment Remediation Guidance for Hazardous Waste Sites see Highlight 4-2); e.g., contaminants that will biodegrade or transform into lower toxicity forms, a low risk of human exposure ore a risk that can be controlled for, and anticipated land uses that are compatible with natural recovery. • Maintenance dredging, followed by limited remedial dredging, if necessary. • Water column-based TMDL – as was done in Delaware, Mississippi, Alabama, Washington and Oregon.		
36.33 B	**Basis for TMDL is flawed:** --The results obtained from the modeling are highly questionable because several of the major underlying assumptions are flawed, available data used in the modeling are too limited, and the model	The TMDL modeling incorporated the best available data and information at the time the modeling was conducted, which is consistent with TMDL requirements. The watershed modeling utilized a regional modeling approach that has been developed as a cost-effective strategy to complete TMDLs in	**From Dr. E. John List:** The Regional Board Response claims that it incorporates the "best available data and information at the time the modeling was conducted"; however, these data do not provide the critical foundational science that must support the TMDL. No reasonable scientist would rely on the values included in the TMDL, as these values

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	performance was not sufficiently evaluated. Consequently, load estimates based on these flawed modeling results do not appear in agreement with observations and they are not supported by science. Since the manufacture and use of DDT have been banned since 1972, and there are no known current point sources into the Harbor, the underlying cause of this problem is that the methodologies used to calculate the sediment target and sediment load allocations lack a credible scientific basis. --The sediment contaminant concentrations were then used to derive putative existing watershed loadings to the Harbor area (see Table 5-1 at p. 70 of the Staff Report), despite the fact that measurements of flows into the Harbor consistently fail to detect DDT. Indeed, it is likely that the current watershed loadings of certain contaminants are negligible. For example, measurements by Los Angeles County in the Dominguez Channel showed non-detect levels	similar geographical areas with limited data. Based on the available data, the existing calibration and validation are sufficient for TMDL calculations. In addition, the simulated values used for TMDL or existing loading rate calculations were annual averages. Given that the model is in the range of observed values and averages are likely similar, the model is being appropriately used to determine loading estimates. DDT loading is incorporated in the model based on its association with sediment. New loading of DDT may not be occurring in the watershed; however, the sediment does contain historic loads of DDT that are being washed into the MS4, rivers, and receiving waters during rain events. DDT loads associated with these events are quantified in the TMDL. While certain pollutants may be non-detectable in water, detectable concentrations are observed in sediment. The TMDL incorporates the sediment-associated loads of the DDT and PCBs based on the best available data. --The possibility of upward transport of contaminants is acknowledged in the	appear to have no scientific basis and are subject to numerous methodological flaws and errors. For example, the Response did not provide a scientific basis that the calibration and validations that were conducted only for the wet weather are sufficient for both dry and wet weather (i.e., an annual application), even though wet-weather accounts for the majority of loading in Southern California. The model predictions (i.e., modeled values) are valid only when the model itself is correctly calibrated and validated using observed values. Annual averages cannot legitimately be used to calculate existing loading rates, and no reasonable scientist would do so. Using average sediment loading rates and average sediment concentrations (Appendix III,page III-4) to generate a loading rate is wrong, does not provide a reasonable approximation of loading rate, and would not be relied upon by any reasonable scientist. As noted in "The Fallacy of Averages" Welsh et al writing in the *American Naturalist* [Vol 132 (2):1988], "he fallacy of averages is perhaps the most widespread statistical error in biology." The assertion that "the model is in the range of observed values and averages are likely similar" is not true and contradicts the results presented in Figure 24 of Appendix II to the Staff Report. In the figure, the modeled DDT concentrations used in the LSPC model appear to be many times larger than the detection limits for DDT in water. If these modeled concentrations actually occurred, they would have been detected in

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	for organo-chlorine compounds in water (see Table 2-18 at p. 42 of the Staff Report). Available data show few DDT levels above detection levels. --It also presumes that there is no transport of legacy pollutants up from below and into the top five centimeters of the Harbor sediments. Research work on the Palos Verdes Shelf (Paulsen et al. 1999; SAIC 2005; Van Cappellen and Santschi 1999; Wheatcroft and Martin 1996) has shown the possibility for transport of deeper buried contaminants to contribute to the sediment concentration in the top 5 cm through pore water diffusion, consolidation driven pore water extrusion and bioturbation by organisms living deep in the sediments. However, such contributions from any deeply buried DDT are likely to be very small because of the natural attenuation of the DDT by biodegradation processes (see discussion below).	discussion of the active sediment layer. Commenter cites research that describes deeper buried sediments as source of contaminants; this is consistent with our assumption that contaminants are diffusively fluxing out of sediments, thus it is critical to give load allocations to bed sediments.	routine sampling events. However, as noted in Appendix II to the Staff Report, "few detectable levels of DDT have been observed at mass emissions stations in the Los Angeles Region." Appendix II at 40. In other words, the model does not reliably predict DDT concentrations and grossly overestimates them. No reasonable scientist would rely on such unreliable modeling results to develop the allocations of the TMDLs. As the Staff points out in the Response, "new loading of DDT may not be occurring in the watershed", "certain pollutants [e.g., DDTs] may be non-detectable in water", and "few detectable levels of DDT have been observed at mass emissions stations in the Los Angeles Region." Appendix II at 40. Contrary to this empirical evidence, the Response asserts that "[DDTs] are being washed into the MS4, rivers, and receiving waters during rain events." The TMDL calculated DDT loads from the upstream watersheds under the wrong presumption that DDT concentrations on sediments within the Harbor represent DDT concentrations in the sediment carried from the upstream watersheds. On this presumption, DDT in Harbor sediments is not a result of prior historical discharges but is due to the ongoing current discharges from upstream watersheds. If this were the case, DDT would have been detected in stormwater samples from the Los Angeles Region; it was not. Furthermore, given that the modeling that forms the basis for the TMDL concluded that upland sources of

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			organic contaminants have essentially no impact on Harbor sediments (Appendix III at II-74), the conclusion that a Waste Load Allocation should be made to upland sources is contradictory. The Response claims that the TMDL acknowledged the possibility of upward transport of contaminants "in the discussion of the active sediment layer" but the EFCD modeling has not been revised to account for the redistribution of DDT within the sediment column. The diffusive flux that is alluded to in the Response is omitted from the TMDL. As noted elsewhere, giving a load allocation to the bed sediments can be appropriate only in the context of a water body TMDL analysis, which this is not. See also **Montrose Response 36.39**. Because of these flaws in the TMDL's methodology and assumptions, no reasonable scientist would rely on the TMDL as having a proper scientific basis, and as such, there should be no confidence placed in the TMDL as a vehicle for making regulatory management decisions.
36.34	…the watershed model results based on the sediment concentration assumption show the Dominguez Channel as the source of 9.2% of wet weather DDT loads, and 7.7% of dry weather DDT loads, from the watershed to the Harbor (see, e.g., summary of LSPC model output in Table 23 of Appendix I to the Staff	There is scientific evidence that DDT contaminated sediment associated with watershed sources is depositing within Harbor waters. In 2002, EPA Superfund and POLA collaborated on sediment core studies within Torrance Lateral, Dominguez Channel Estuary and Consolidated Slip (upstream of LA Inner Harbor) and results demonstrate	**From Dr. E. John List:** The EPA/POLA (2002) study cited here is not available to the public and has not been published, but from the context provided by Staff, the study does not appear to provide a scientific basis for the assumption that there are new influxes of DDT to the Harbor still occurring. The detection of DDT in the sediment of these water bodies does not automatically imply that the sources of the DDT in the sediment are upstream; this could be

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	Report). Furthermore, simulation results appear to show that the Los Angeles River is the source of 89.5% of wet weather DDT loads (83.0% of dry weather loads) (ibid.), despite the fact that there are no known point sources of DDT in the Los Angeles River watershed. The presumption that sediment transported from the Los Angeles River to the Harbor contains DDT at the same average concentration of the top 5 cm in the Harbor has no basis in fact. Given that it is well known that DDT has a strong affinity for organic carbon (e.g., De Bruijn et al. 1989) and most of the organic carbon in the sediments is associated with the extremely small-sized organic carbon particles (e.g., humic and fulvic acids) (e.g., Bradford and Horowitz 1982), it is unlikely deposition of these particles occurs within the Harbor area.	significant levels of DDT within sediment strata. Consolidated Slip was designed as sediment retention basin to capture sediments from upstream sources prior to entering the LA Harbor. These sediment core results show DDT levels ranging from 33-1922 ug/kg dw in the top 0 to 6 ft depths; whereas DDT levels decline at lower depths. The commenter makes an inaccurate statement of 'no known point sources of DDT in the Los Angeles River watershed' since the LA County MS4 permit is considered a point source within the regulatory framework. The commenter refers to DDT affinity for organic carbon and acknowledges these are associated with small-sized organic particles (e.g., humic and fulvic acids); however the commenter neglects to include factual information that scientific studies show these fulvic and humic acids (from freshwater sources), when mixed with saline waters, will precipitate and solidify in marine systems and therefore deposit within waters such as greater Harbor waters.	due to the historical discharge and/or redistribution of sediment from the Harbor due to tidal movement, especially as the data from the mass emission stations in Los Angeles region show few DDT levels above the detection limits. It does not appear that the Staff used these DDT data from EPA/POLA study for the modeling. No explanation has been provided as to why these critical foundational data were excluded in the TMDL development and documentation. A reasonable scientist would have used these data. The commenter was not making a legal argument as the Response incorrectly presumes. Rather, the comment was meant to indicate that there are no known point sources of DDT, as very little DDT was observed in in-stream water samples above the detection levels (i.e., the data from the mass emission stations). Appendix II at 45. There are no data with which to either calibrate or validate the model for DDT transport, making the model unreliable. This large data gap results in significant uncertainty in the values derived by the TMDL. We are not aware of any study that demonstrates that 100% of small size organic particles would deposit within the Harbors and 0% of these particles would flow out of the Harbors as assumed in the modeling. Neither the TMDL nor the Response cite to scientific authority to support these modeling assumptions. The TMDL and the Response do not explain how any such authority shows that the model assumptions are a

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			reasonable approximation of, and provide a reliable fit to, conditions in the subject waters.
36.35	This assumption also presumes that there are no other sources of DDT to the Harbor sediments, which is inconsistent with the postulated atmospheric fallout of 676 gm/yr. As shown below, this fallout, if it really occurs, would add on average 14 ppb to the sediment DDT concentration.	The TMDL allocations include atmospheric DDT deposition. See also, response to **Comment 2.38** regarding atmospheric deposition of DDT.	**From Dr. E. John List:** On one hand, the TMDLs assigns the atmospheric allocation of DDT and assumes all of the atmospheric deposition of DDT onto each zone settles in Harbor sediment in that zone. On the other hand, the TMDLs assume there are no sources of DDT other than the upstream watersheds and assigns current loading from the upstream watershed based on DDT concentrations in Harbor sediment. Such inconsistency in the assumptions underlying the TMDL renders the targets or values set by the TMDL uncertain and unreliable. We are unable to provide a further response because the Response refers the commenter to Regional Board Response 2.38, but there is no such response in the Regional Board's Response to Comments document.
36.36	There are several more concerns regarding the modeling exercise. In the watershed modeling, representative receiving waterbodies were identified for the watershed areas draining to the Harbor, and a single representative value of bed sediment concentration was calculated for each waterbody by averaging the available Bight '03	The watershed pollutant loading estimates were based on the best available data. These values could be refined in the future if new data become available to better characterize watershed loadings. As the commenter notes, the representative value for a receiving water was based on an average of available Bight '03 data. While these average values may not be	**From Dr. E. John List:** The available data are extremely limited for the bed sediment in the Harbor. The use of extremely limited data sets to draw conclusions about a system is inadequate under any circumstances and contrary to accepted scientific methods, especially when bed sediment concentrations of DDT vary by several orders of magnitude within individual zones of the Harbor (see Figure 20 at p. 41 of Appendix II of the Staff Report). The use of average DDT concentrations in Harbor

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	sampling data within the receiving waterbody. These average values are not representative at all of bed sediments, let alone sediments carried by watershed runoff, when the observed bed sediment concentrations of DDT vary by several orders of magnitude within individual zones of the Harbor (see Figure 20 at p. 41 of Appendix II of the Staff Report).	representative of all bed sediments, they are the best available representation of the overall conditions in the receiving water as a whole.	sediment as DDT concentrations in sediment deposited from runoff from the upstream watersheds is unsupported by all available science, as the upstream samples show few DDT levels above the detection limit.
36.37	The Harbor modeling assumed incorrectly that DDT concentrations are uniform with depth within the sediment column. As noted previously, this assumption is not supported by science and available data and has serious negative implications; for instance, the impact of higher DDT concentrations within the sediment bed cannot be modeled accurately if those higher concentrations are not included within the model. Perhaps more importantly, any future remedial activity such as dredging could expose higher sediment pollutant concentrations and result in the redistribution and enhanced	The best available data were used during the modeling efforts. Detailed data throughout the harbors were not available to incorporate depth-varying initial DDT concentrations. The modeled sediment concentrations do vary with depth over the course of the simulation period as new watershed loadings are incorporated along with the influences of other hydrodynamic processes. Before dredging activities are conducted, monitoring should be performed to confirm the depth of dredging required as well as the specific area (existing loads in the TMDL are average conditions throughout the receiving water and specific areas with the highest concentrations should be	**From Dr. E. John List:** As noted on p.29 of Appendix I to the Staff Report, "[within the EFDC model] . . . contaminant concentrations are assumed uniform over the depth of the sediment bed at each horizontal location." According to the Staff Report, the simulation was conducted for wet and dry weather conditions and with and without upland sources. The result of these studies showed that upland sources had essentially no impact on the concentrations of organic contaminants (Appendix III); based on this study, assigning a load allocation to these sources is irrelevant.

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	bioavailability of pollutants that were buried long ago.	identified [that may be extremely influential on the average receiving water concentration]).	
36.38	Specifically, the Draft TMDL ignored the outcome of the modeling results, which was the fact that the majority of the DDT postulated to enter the Harbor would not in fact deposit in the Harbor. Consequently, the load allocations, even if the DDT fluxes in watershed inflows were correct and there is no reason to believe they are, were incorrectly calculated and are far too low. Estimated DDT loads entering the Harbor in the modeling are as high as 22,549 g/year in 1995, as low as 2,210 g/year in 1999 and other years in between (see Tables B-1 through B-8 of Appendix B to Appendix II of the Staff Report). Using average daily loads for DDT, presented at p.7 of Attachment A to Resolution, with the assumption of 10% of wet-weather days per year, an estimated average DDT load entering the Harbor is 3,770 g/year. And yet the model estimated DDT load deposited in the Harbor is 595 g/year, which	The Draft TMDL does not ignore the outcome of the modeling results. The commenter is referring to watershed model loads to the receiving waters. The receiving water model considers these watershed loadings along with other processes (tidal influences, currents, wind, etc.). Some of the watershed load does pass through without depositing in the Harbor waters. The existing load estimates from the model take these processes into account.	**From Dr. E. John List:** The Response that the TMDL does not ignore the modeling results appears to have no basis; if the modeling results were considered, a net flux out of the system would have been identified. The allocations of the TMDL were derived using a combination of watershed modeling (using the LSPC model) and hydrodynamic modeling of the Harbor (using the EFDC model). The receiving water model that Staff refer to in the Response appears to be the EFDC model. As Staff point out, the EFDC model (i.e., the receiving water model) does consider tidal influences, wind, etc. and the modeled results demonstrate that the majority of "sediment" that enters the Harbor would not deposit in the Harbor. However, critical errors occurred when the outcome of the modeling results were used to calculate the allocations for pollutants (e.g., DDT). Specifically, the allocation calculations did not consider the transport of sediment and associated pollutants out of the sediments and out of the Harbor, and the TMDL requires the loads of sediment and associated pollutants out of the Harbor to be reduced to zero. The EFDC modeling in fact showed that for organic contaminants the net flux of contaminant is out of the sediments (e.g., see Figures 8 and 9, Appendix III). Had the TMDL considered these modeling results, there would have

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	was calculated using the averaged current sediment load (48 million kg/year) multiplied by the averaged DDT concentration in sediment (mg/kg), (p. III-4 of Appendix III of the Staff Report). This implies that a majority of DDT loading (i.e., 3,175 g/year; 84%) passes through the Harbor without depositing to the Harbor sediment.		been no need for an allocation that effectively stops all sediment transport into the Harbor because the net flux for organic contaminants is out of the sediments, and therefore out of the Harbor. The failure to consider the observed flux of contaminants out of the Harbor is not scientifically acceptable.
36.39	**These erroneously low allocations for DDT are due to several incorrect assumptions:** 1) a load allocation is assigned to bed sediment, which is already present in the Harbor and cannot be regarded as a load to the Harbor; 2) it is assumed that 100% of the atmospheric load will be deposited to the bed sediments of the Harbor, which is unlikely, given the very fine particle sizes of most atmospheric deposition; and 3) allocation calculations failed to consider the transport of sediment and associated DDT out of the	1) Sediment is a source of DDT exposure to benthic organisms as well as a diffusive source of aqueous DDT to aquatic life in the water column. Allocations are assigned to pollutant sources, therefore, it is appropriate to assign allocation to bed sediments. 2) Staff has made the conservative assumption that 100% of atmospheric load will deposit to the attributable waterbody. Optional studies, mentioned in the Implementation Plan, will improve characterization of air deposition loading and perhaps evaluate air load deposition rates and residence time in the waterbody. 3) The existing load and TMDL calculations did consider transport of	**From Dr. E. John List:** 1) DDT in the bed sediments is already present in the Harbor and cannot be regarded as a load to the Harbor sediments. The response would be appropriate if a TMDL were being developed for the water column, but it is not. It is a sediment TMDL and generally accepted scientific principles mandate that the sediment cannot be a load to itself. 2) Staff's "conservative assumption" results in a DDT load allocation under which atmospheric deposition alone exceeds the loading capacities calculated for DDT in all but one of the water bodies regulated by the TMDL. Under this unsupported assumption, even if all other inputs are reduced to near zero, the TMDL sediment targets would continue to be exceeded and perpetual sediment management may be required to comply with the TMDL. 3) The EFDC model does account for the transport out

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	Harbor and the DDT flux out of the Harbor is required to be reduced to zero.	sediment and DDT out of the Harbor. This has been clarified in the TMDL Staff Report.	of the Harbor but errors occurred when the EFDC modeled results were used to calculate the allocations for DDT. The allocation calculations did not consider the transport of organic contaminants out of the sediments and out of the Harbor. The TMDL load and waste load allocations should be revised to account for the fact that the majority of the pollutant load to the Harbor passes through the Harbor and does not deposit in Harbor sediment as shown in the EFDC modeled results. See also **Montrose Response 36.38**. The EFDC modeling shows decaying concentrations of organic contaminants in the Harbor sediments (e.g., Figure 8, Appendix III). General acceptable principles of science do not allow a load allocation to be assigned to the bed sediments when the TMDL is directed at the sediment itself and not the water column.
36.40	**DDT (and DDE) Biodegradation and natural attenuation:** • Sediment data collected by the Los Angeles County Sanitation District (LACSD) on the Palos Verdes clearly showed the [reductive dechlorination of DDT] process at work on the Palos Verdes Shelf, and an analysis of the rate processes showed an estimate that the half life of the process is approximately 22.5 years (List and	--EPA Superfund program has produced an INTERIM action for Palo Verdes Shelf (Sept. 2009). This interim ROD describes the selected remedy that allows an iterative approach to remediation. "After assessing the implementability and effectiveness of the interim remedy, additional actions may be planned in a final Record of Decision." The selected remedy for this interim	**From Dr. E. John List:** The Regional Board response does not respond to or address the original comment regarding the impact of biodegradation of DDT not being addressed in the TMDL. No reasonable scientist would not consider these generally accepted scientific studies referenced in the original comment which demonstrate that natural attenuation of DDT in the Harbor Waters is a reasonable remediation option. DDNU and DDMU are not regulated as toxic or hazardous substances.

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	Paulsen 1998). • USGS scientists (Eganhouse and Pontolillo , 2008) has confirmed that reductive dechlorination of DDT is occurring in the Palos Verdes Shelf sediments and these more recent analyses of the data have shown: • "[T]he inventory of p,p'-DDE decreased by 43%, whereas that of p,p'-DDMU, the putative reductive dechlorination product, increased by 34% The first-order transformation rate for p,p'DDE at the study site is 0.051±0.006 yr^{-1} [equivalent to a half-life of 13.6 years]. A multistep reaction model suggests that inventories of p,p'-DDE and p,p'-DDMU will continue to decline, whereas that of p,p'- DDNU will reach a maximum around 2014." • EPA has now adopted biodegradation and natural attenuation of the in-place DDT, coupled with limited capping to enhance the attenuation, as the foundation for the remediation of the Palos Verdes Shelf (U.S. EPA	action includes: -Placement of an in situ isolation cap over the erosive edge of the deposit that also contains the most highly contaminated sediments; -Continuing and strengthening the existing Institutional Controls program and; -Monitoring natural recovery to achieve specific Remedial Action Objectives. The chemical degradation of parent compound into residual products does not necessarily translate there will be less harm caused in presence of residual compounds. The toxicological activity and effects pertaining to residual products such as DDNU has not been thoroughly researched, nor have corresponding regulatory decisions been completed.	

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	2009a; b; c).		
36.41	**Harm will be caused by invasive remedies such as dredging and capping.** • In fact the idea of dredging is contrary to the SWRCB's own Consolidated Toxic Hot Spot Cleanup Plan (2003), which states (p.211): "While sediment removal (i.e., dredging) is technically feasible, it could possibly result in the dispersal of contaminated sediment, thereby increasing short-term risks. Once dredged, the sediment would require disposal, possibly preceded by treatment, which could be both expensive and very difficult to implement. Upland disposal facilities are very limited, and disposal options along the coastline or in the open ocean would likely violate Federal and State environmental laws. For these reasons, EPA has decided not to consider dredging and treatment or disposal options further in the EE/CA [Engineering	Commenter's statement that 'harm will be caused by invasive remedies' is speculation. Nor does commenter provide definitive evidence that harm will result from dredging and capping. The State's Toxic Hot Spot Cleanup Plan does not rule out the option of sediment removal, rather it appropriately describes the numerous, often site-specific conditions to be considered during dredging of toxic sediments. Capping without dredging may be problematic to navigation uses and therefore may be only feasible in certain portions of specific waterbodies within the greater Harbor waters.	See **Montrose Response 36.3** for a discussion of those environmental impacts that may result from implementation of the remedial dredging described in the TMDL. **From Dr. E. John List:** Our comment that harm will be caused by invasive remedies is not speculation but rather is based on recent EPA remediation projects where dredging led to increased concentrations of contaminants in downstream sites. See Environmental Defense Sciences Comment Letter of Feb. 22, 2011 at 8. As shown in Figure 2 of the comment letter by Environmental Defense Science (p. 9), sediment concentrations of DDT in the Harbor exceed the TMDL target of 1.58 ug/kg dry weight over almost the entire area of the Harbor. This implies that all of the Harbor would require continuous rounds of remediation to meet stated TMDL targets for DDT in bedded sediment. It is also unclear how the TMDL allocations can be successfully implemented as deposition of DDT alone, as stated in the TMDL, will cause continuous or repeated exceedances.

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	Evaluation/Cost Analysis]." • Capping the sediments is subject to the exact same problem-the atmospheric fallout will continue and, if it indeed reaches the sediments of the Greater Harbor area, the target sediment concentrations of DDT will not be maintained.		
36.42	**Use of [DDT] ERL is inappropriate and directly contradicts SQO Policy.** --Under the SQO Policy, information from three lines of evidence (i.e., sediment chemistry, sediment toxicity, and benthic community) is required to be integrated and used to evaluate sediment quality (i.e., to assess whether sediment quality exceeds the sediment quality objective). --The use of the ERL in the Draft TMDL has resulted in an artificially	--See response to **Comment 38.7a** regarding ERLs as predictive sediment targets. --Staff notes that Figure 3 of commenter's letter presents SOQ assessment based on Bight 03 study only, therefore, it is an incomplete evaluation of available sediment quality data. See response to **Comment 20.1** for more complete SQO-Part I assessment. This SQO direct effects assessment information is compiled in Appendix III and summarized in the revised Staff Report.	**From Dr. E. John List:** --As stated by Long and Morgan (1990)[1], "these guidelines [i.e., ERLs and ERMs] were not intended for use in regulatory decisions or any other similar applications." Instead, as specified by Long et al. (1995)[2], ERL was designed to be informal, screening-level tools that could be used to evaluate areas that might need further investigation. --As stated by Staff in Regional Board Response 20.1, the reason the Bight 08 study data were not used in developing the TMDL, is that the Bight 08 study data have not been finalized for all three lines of evidence yet.

[1] Long, ER, and Morgan, LG. 1990,The potential for biological effects of sediment-sorbed contaminants tested in the national status and trends program. NOAA Technical Memorandum NOS OMA 52, Seattle, WA, NOAA.
[2] Long, E. R., Macdonald, D. D., Smith, S. L. and Calder, F. D. (1995). "Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments " Environmental Management 19(1): 81-97.

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	low DDT target, which is highly unlikely to be correlated with either the impairment of the sediment or aquatic organisms that may be impacted by the sediment. --Figure 3 [of this letter], which summarizes the results of SCCWRP's SQO assessment, shows that only 13 stations (17% of all stations) are classified as "likely impacted" (orange) or "clearly impacted" (red). This discrepancy indicates that the adoption of the proposed DDT target will lead to dredging of unimpaired sediment from the Harbor.	California's 303(d) Listing Policy requires only 2 exceedances of 28 samples/stations to conclude a waterbody is impaired. This appropriate DDT target is unlikely to lead to unnecessary dredging; see response to **Comment 36.3**.	--By citing the 303(d) Listing Policy, the Staff appears to consider 7% (2 of 28) of samples/stations from the Harbor sufficient to determine the entire area of the Harbor as exceeding the TMDLs. This reinforces our worry that no matter how little of the Harbor area is assessed as exceeding the TMDLs, the entire Harbor area will be deemed to be impaired. Use of the ERL for DDT as a target is not appropriate; as stated by Long and Morgan (1990), "these guidelines [i.e., ERLs and ERMs] were not intended for use in regulatory decisions or any other similar applications." Instead, as specified by Long et al. (1995), ERLs were designed to be informal, screening-level tools that could be used to evaluate areas that might need further investigation. According to Regional Board Response 36.3, Staff appear to prefer the SQO Policy to the ERLs. This again supports that the ERLs are not appropriate and should be excluded in the TMDLs.
36.43	Draft TMDL allows an option of demonstrating compliance by applying the SQO Policy using the three lines of evidence. However, **the SQO Policy only applies to enclosed bays and harbors, NOT to estuaries (see excerpt below).** p. 7 of the SQO Policy: "1. The tools described in the Sections V.D. through V.1. are	Staff disagrees. The SQO Policy does clearly apply to estuaries, including (but not limited to) Dominguez Estuary and Los Angeles River Estuary. Permittees who discharge into estuaries, do, in fact, have the option of implementing the SQO Policy and demonstrating compliance, thereby. Should the parties find that the salinity at a sampling site is below 25 ppt (and,	It would be appropriate if the TMDL allows a responsible party to demonstrate compliance with the TMDL through implementation of the SQO Policy. The TMDL should be amended to clearly state as such, and confirm that achievement of the ERLs is not the compliance method.

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	applicable to Euhaline* Bays and Coastal Lagoons* south of Point Conception and Polyhaline* San Francisco Bay that includes the Central and South Bay Areas defined in general by waters south and west of the San Rafael Bridge and north of the Dumbarton Bridge. 2. For all other bays and estuaries where LOE measurement tools are unavailable, station assessment will follow the procedure described in Section V.J." Thus, permittees who discharge into Dominguez Channel Estuary or into the Los Angeles River Estuary have no option to implement the SQO Policy to conduct the sediment assessment or derive alternative TMDL targets.	therefore, the site is not "Euhaline" and the specific LOE measurement tools of Sections V.D. through V.I may not be applicable) then, instead, the parties can assess the site using Section V.J. of the SQO Policy to determine if the site is "Unimpacted" or "Impacted." An assessment of "Unimpacted" using Section V.J. demonstrates compliance just as an assessment of "Unimpacted" (or "Likely Unimpacted") using Sections V.D.-V.I. demonstrates compliance.	
36.44	**Economic impact of Draft TMDL is grossly underestimated.** -The total cost is estimated $680 million dollars in order to dredge roughly 11 million cubic yards of material from seven areas within the Harbor complex (p. 125 of the Staff Report). This estimate of 11 million	While the target and allocations for DDT are based on the numeric ERL, responsible parties have the option of demonstrating compliance with the TMDL by demonstrating the sediment protective condition of Unimpacted or Likely Unimpacted per the SQO Policy, hence the estimate of 11 mcy based on	**From Dr. E. John List:** If a responsible party has the option to demonstrate compliance with the TMDL through either the ERLs or the SQO Policy (as asserted by Staff), the cost estimates under the TMDL should have been conducted based on both the ERL targets as well as on the SQO Policy. The attempt to address the presumed DDT issue in

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	cubic yard was based on a study conducted by SCCWRP using the SQO Policy rather than the proposed TMDL target of 1.58 J.lg/kg for DDT (ibid.). As presented in Figure 2 and Table 1 of this letter, if the TMDL target is applied even with the zero input from the upland source, almost all areas in the Harbors will exceed this target and will require dredging. Thus the total cost for dredging will increase by several factors. -In addition, the cost of the dredging would increase greatly if the intent of the TMDL is not only that Harbor sediments would be dredged, but also that dredged areas would subsequently be capped with significant quantities of clean sediment. Post-dredge capping does not seem to have been accounted for in the TMDL cost estimate.	the SCCWRP study is appropriate to use to estimate cost. Staff anticipates that responsible parties will appropriately contain costs. See response to Comment 23.9 regarding *cost* analysis.	Harbor sediment via the TMDLs resulted in multiple missteps. DDT has no significant ongoing contribution from upstream watersheds, which has been demonstrated by routine monitoring data from the mass emission stations which show few DDT levels above the detection limit. Appendix II at 40. This implies there is no significant ongoing discharge of DDT from the upstream watersheds. The fundamental basis of a sediment TMDL is the control of the ongoing loading to the sediment. With no ongoing loading of DDT to a sediment, no reasonable scientist would develop load allocations for DDT. In addition, if the net flux is out of the sediments (as the TMDL modeling has shown is the case for organic contaminants), then the whole concept of a sediment TMDL is inapposite and not scientifically supported. This finding, in fact, demonstrates that the sediment TMDL is not a suitable regulatory mechanism for addressing the supposed impairment of the Harbor sediments by organic pollutants, for the which current inputs are *de minimus*.
36.45 C	TMDL contains several major errors in approach and interpretation which lead to unsupportable TMDLs and consequently unrealistic allocations for DDT in nine designated waterbodies:	See response to **Comment 38.7a** regarding use of numeric sediment quality values as interpretation of narrative water quality objective and **Comment 20.1** on ERLs.	See **Montrose Responses 36.56 and 36.1** for discussions of sediment standards and the ERLs**.** See **Montrose Response 36.65** for a discussion of bioavailability. See **Montrose Responses 36.39, 36.52, 36.64, and 36.73**

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	-no scientifically defensible sediment standards exist -ERL is used as de facto numeric sediment quality standard -DDT ERL is inappropriately used since it does not address the bioaccumulation pathway to protect human health via fish consumption -based on applying more appropriate DDT sediment quality standards, TMDLs for DDT are not needed for five waterbodies and it is too low for four other waterbodies, -bioavailability of DDT in sediments is not addressed -designating dredging of bed sediments as principal means of compliance with TMDLs does not make sense, because the biologically active portion of the bed sediment is from air deposition and point source discharges; e.g., the DDT allocation to POTW in Outer Harbor is more than 3 times the proposed DDT TMDL -TMDL implies continuous dredging to comply with DDT sediment quality standard.\	See response to **Comment 20.3** and **20.4** for TMDL consideration of both bioaccumulation pathway and direct effects on benthic organisms. See response to **Comment 36.65** for bioavailability of DDT in sediments. See response to **Comment 23.8** for air deposition and continuous dredging issues.	for discussions of sediment management and the likelihood of the TMDL requiring perpetual sediment management.

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36.46 D	-DDT TMDL assumes the bioavailable concentration of DDT is conservative and does not change over time. -Existing fish tissue data (18 yr. record) of white croaker and mussel results indicate these levels have been decreasing and this trend is likely to continue. Author analyzed fish tissue data collected by City of Los Angeles at LA Harbor HT7 site (in Outer Harbor near Terminal Island POTW discharge outfall) and Palos Verde Shelf Zone 1, 2, 3 [corresponding to MSRP segments 9, 11, 13]. -Use of lipid-normalized data for lipophilic compounds such as DDT is accepted scientific approach; using this approach temporal trends at four sampling locations/segments show declining DDT concentrations in white croaker. -Author states it is 'likely that similar trends are occurring in all of the waterbodies considered in the TMDLs.'	Staff acknowledges that fish tissue concentrations are generally declining over time; this appears to be true for white croaker. However, staff finds two relevant factors that contribute to continued exposure to elevated DDT (and PCB) levels via fish consumption. A. DDT levels in white croaker collected by City at LA Harbor site HT7 range from 22 to 6514 ug/kg wet wt. while the OEHHA fish consumption goal value (FCG) is 21 ug/kg. Thus 100% of fish caught are above the OEHHA goal value. B. OEHHA fish advisory states Do Not Eat the following fish species within areas, including greater LA/LB Harbor waters: Pacific barracuda, black croaker, white croaker, barred sandbass and topsmelt. Fish angler surveys show that humans are indeed catching these fish and presumably consuming them. See additional information in response to **Comment 36.51** below. Commenter's use of lipid-normalized data is appropriate for trend analyses.	See **Montrose Response 36.4** for a discussion of why reliance on the OEHHA FCGs is misplaced. **From Dr. Charles E. Menzie et al.:** The Response acknowledges that fish concentrations for DDT will track with the overall decline of DDT in the watershed. This will include air concentrations, inputs from runoff, and presence in surficial sediments. The evidence clearly shows that this decline continues. Although the Response acknowledges that this decline is occurring, the TMDL does not factor this ongoing process into the evaluation of loadings; such failure is not scientifically defensible. The presumption made in the TMDL – that future conditions will be the same as present and past conditions - is not supported by science. Based on this unsupported presumption of "constancy", the TMDL assumes that human intervention is necessary to reduce concentrations. This assumption is not scientifically appropriate for two reasons: 1) natural processes are reducing the loads, as the Response clearly acknowledges; and 2) there are technical errors in the TMDL in the representation of the linkages between sourcemiss of DDT and other contaminants and the tissue levels of these chemicals. No reasonable scientist would make these assumptions. The Response concerning lipid-normalized values is

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	-Exposure to DDT is over-estimated, resulting in TMDLs that are too low.	However, we find it inappropriate to perform such data manipulation when considering what DDT or PCB concentrations are in fish caught and consumed by anglers.	inconsistent with the generally accepted value of these transformations. Use of lipid normalized data is a key approach that is used throughout the nation for both TMDL and Superfund-type assessments and remedies. Lipid-normalized values can easily be transformed back into tissue levels. The TMDL should also reflect that the models that are used to predict body burdens depend on the use of lipid-normalized values. If the TMDL applied the appropriate food web models to the Harbor, it would appropriately be using lipid-normalized values, which would comply with accepted scientific practice. The TMDL does not provide a rational basis for its departure from generally accepted practice.
36.47 E	TMDLs have not met burden under Porter-Cologne Act and EPA Guidance to consider economics; i.e., "the TMDL does not consider or even calculate the benefits of the action relative to current water quality levels." • Implementation plan proposes does not include enough detail to permit an adequate calculation of costs. TMDL "makes no mention of who will bear the costs of complying with the regulation, or of the regional economic implications of the action."	The statutes do not require a "cost benefit analysis." Staff has set forth the problem and evidence supporting the necessity for the TMDL and thus has shown a reasonable relationship between the burden and the benefits to be obtained from compliance with the TMDL. Commenter may also want to see response to **Comment 23.9**.	The Response suggests that the benefits, if any, that would come from implementation of the TMDL have been identified in the TMDL, but this is not the case. Both the Porter-Cologne Act and the CWA require a substantive consideration of economic factors. Such an analysis necessarily requires a determination of the costs of the TMDL as compared to the limited, if any, benefits derived from the TMDL. That a Regional Board must consider and balance economics is a notion that permeates the Porter-Cologne Act and its legislative history. See Montrose Comment Letter of Feb. 22, 2011 at 27-29; see also **Montrose Response 36.8**. EPA's own guidance documents suggest that economic considerations are important in TMDL

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	• TMDL does not mention: • # of people participating in recreational fishing activities in these waterbodies; • # of people doing any other type of recreational use (sailing, hiking, bird watching); • How any of these uses would be improved by the proposed action, if they would be affected at all; • Value to residents of LA County, or any other area of California or the wildlife benefits.		development. See EPA, "Guidance for Developing TMDLs in California," Jan. 7, 2000 ("Allocations may be based on a variety of technical, economic, and political factors."). These Acts require an actual substantive consideration of the economic costs relative to the benefits of the TMDL standards, yet the TMDL did not to include any substantive economic review Specifically: 1) the TMDL does not consider or even calculate the benefits of the proposed action; 2) the TMDL does not describe the Implementation Plan in enough detail to permit an adequate calculation of costs, did not use best available information to calculate expected costs, and contains calculation errors; 3) the TMDL does not to consider alternatives that would be more cost effective; and 4) the TMDL does not discuss the benefits of the TMDL in relation to the costs of implementation, which is the generally accepted way to assess economic reasonableness. See also Montrose Comment Letter of Feb. 22, 2011 at 8-12. The absence of these factors in the TMDL demonstrates that it did not use economic considerations to arrive at a reasonable and balanced draft TMDL and further demonstrates why the TMDL is arbitrary and capricious. **From Dr. David L. Sunding:** The Response mischaracterizes the comment. The comment does not assert that the TMDL is required to include a cost-benefit analysis, nor that the Regional

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			Board is bound to adopt actions that pass a cost-benefit test. Rather, the comment asserted that actions that produce benefits that are orders of magnitude below costs are inherently unreasonable. The Response does not measure, or even analyze, the incremental benefits of the TMDL, that is, the level of economic welfare that would be achieved by implementing the TMDL as compared to the level of welfare assuming no action. Rather, the analysis underpinning the TMDL assumes that hypothetical, extreme behaviors must be protected, without any evidence that anyone actually engages in these behaviors. This approach fails to produce a result in which benefits are in reasonable relation to the costs of implementation.
36.48	TMDL report fails to demonstrate that Regional Board considered alternatives to proposed TMDLs that would be less burdensome, or that it considered the relative cost effectiveness of alternative standards. CEQA requires Regional Boards to consider economic impacts when establishing a performance standard. CEQA also requires Regional Board should detail the likely methods and costs of compliance with proposed TMDL.	The Substitute Environmental Document (SED) includes the alternatives considered and environmental analysis. The Regional Board also considered likely methods of compliance and associated costs, as required. The TMDL is not a performance standard, see response to **Comment 1.5**.	See **Montrose Response 36.10**.

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36.49	Lack of economic alternatives analysis is inconsistent with federal guidelines promulgated by US EPA and US Office of Management and Budget. Executive Order 12,291 "established a set of principles for agencies to follow to the extent permissible by law, including a commitment to cost-benefit analysis. Executive Order 12,866, reaffirmed the basic commitments to economic analysis…..introduced some reforms…including procedures for conflict resolution and inclusion of equity considerations.	EPA will address the comment in the event EPA determines to establish the TMDLs pursuant to CWA sec. 303(d)(2).	See **Montrose Response 36.11** for a discussion of how this action was presented as a joint Regional Board/EPA action, making these Executive Orders applicable.
36.50	Regional Board staff estimate of dredging costs ($60.84 per cubic yd) is far lower than the actual cost of similar remediation projects. Author surveyed several similar soil removal sites in California to demonstrate the cost of dredging ranges from $120-1,320 per cubic yd. Commenter included an itemized cost estimate for San Diego Shipyard. The	Based on a feasibility study conducted in 1998 for sediment contamination mitigation at the mouth of Ballona Creek and Marina del Rey, the dredging cost ranges from $10.95 per cubic yard ($yd^3$) to $74.4 per cubic yard (Moffatt & Nichol Engineers, 1998). See also response to **Comment 23.9**.	**From Dr. David L. Sunding:** The Response is nonresponsive to the comment, but instead merely affirmed the TMDL's reliance on a single hypothetical assessment of dredging costs at one site in Southern California. There is by now a lengthy record of actual dredging costs associated with cleanup projects at similar sites around the United States. The record cited in the original comment clearly shows that dredging costs are well above the levels cited in the 13-year old Moffat & Michols feasibility study of Ballona Creek and

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	total estimate is $58M, with approximately $325 per cubic yard dredged.		Marina del Rey.
36.51	Commenter cited study by Pacific Recreational Fishers Information Network (2011) of observed fish species caught in LA Harbor site, as well as LA County as a whole. For the LA Harbor site, commenter stated, "only a handful of species of fish are caught in any significant numbers from the LA Harbor… including: **barred sandbass, California scorpion fish**, halfmoon, **kelp bass**, ocean whitefish, Pacific bonito, Pacific sand dab, and vermillion **rockfish**. Of the fish species most commonly mentioned in the [TMDL] Staff Report's survey of the limited fish tissue data available, there were only four reported instances of white croaker being caught in the Los Angeles Harbor in 2008, none for queen fish, none for spotted turbot, and none for halibut. Based on the best available survey data for recreational anglers, it is highly unlikely that there will be significant human health benefits relating to fish consumption	Staff have reviewed information at the website link (http://data.recfin.org/wiki/index.php/California_Recreational_Fisheries_Survey) provided by commenter as well as fish species contained within OEHHA Southern California fish advisory (2009). The OEHHA advisory has grouped information pertaining to three geographical areas and the "red zone" is defined as coastal fishing, either off piers or boats, between Ventura Harbor and San Mateo Point. Los Angeles and Long Beach Harbors are contained in the red zone, the most restrictive fish consumption applies in these areas; e.g., Do Not Eat applies to 3-5 fish species within this zone. Commenter cites data that only a handful of species are caught in any significant numbers (apparently based on greater than 100 caught fish). Staff has carefully examined the fish species cited by commenter and cross-referenced with the OEHHA fish advisory; we found four of eight fish species are categorized in the advisory	**From Dr. David L. Sunding:** The RecFin data cited in the original comment support the conclusion that the incremental benefits of the TMDL are likely to be small. The RecFin data do indeed show evidence of four fish species listed on the OEHHA fish consumption advisory being caught and presumably consumed at sites within the LA Harbor. However, these fish species are not the primary targets of anglers at these locations, and collectively account for a relatively small fraction of total catch at LA Harbor sites. The available data do not support the high levels of exposure assumed in the TMDL analysis. There is no evidence that the TMDL will result in significant benefits that justify potentially large expenditures of resources to implement the TMDL.

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	as a result of implementing the TMDL."	as either Do Not Eat or limited consumption of 1 serving per week. Therefore the commenter's cited data shows that anglers are indeed catching and presumably eating the very fish that OEHHA has deemed heavily contaminated and inappropriate for human consumption. Furthermore we examined the RecFIN website more closely to review angler results for several fishing locations in the greater Los Angeles and Long Beach Harbor waters. Here are four sites, by name and ID number and the (top) percent fish species caught at each site (per 2009 records): Cabrillo Beach (#110)-Launch Ramp Chub mackerel = 18% fish caught **Kelp Bass** = 9% **White Croaker** = 8% **Barred Sandbass** = 5.6% Pier J (#210) – near Port of Long Beach Sand dab = 21% fish caught **Barred Sandbass** = 13%	

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		yellowfin Croaker = 11% **Barracuda** = 6% Shoreline Village (#216) – East Jetty, near City LB White Croaker = 29 % fish caught Jacksmelt = 21% Seaperch = 14% **Barred Sandbass** = 7% (**BOLD** refers to fish species contained within OEHHA fish consumption advisory, and specifically within the red zone categorized as either Do Not Eat or limited consumption of 1 serving per week for all human consumers.)	
36.52 F	Measurements of DDT from atmospheric deposition is greater than DDT TMDL per waterbody. (This relies on a single measurement of DDT air deposition.) This implies bed sediments will always need remediation.	Atmospheric deposition measurements of DDT were performed by SCCWRP as part of multi-media flux study examining movement of organic compounds across water/air and water/sediment interfaces. Three separate air deposition measurements were collected between Sept. 19 – Oct. 26, 2006. While these	**From Dr. Charles Menzie et al.:** The Response acknowledges the key fallacy regarding air deposition in the TMDL – that the inputs from aerial deposition exceed the TMDLs for all but one water body. But the Response does not recognize the problem this causes as the TMDL is implemented. Without a reduction in the aerial deposition, there will be no way to comply with the TMDL because the aerial deposition will always lead to exceedances.

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		results are preliminary, sampling site location was within the Los Angeles and Long Beach Harbors watershed, close to Dominguez Channel Estuary; therefore these results are most appropriate for characterizing local conditions. (Site location was based on several criteria, including location that obtained ancillary parameters; e.g. mean wind speed and direction.) Staff acknowledges the DDT TMDL is smaller than the air deposition load for certain waterbodies; however, staff does not find that this will require constant remediation of bed sediments. Rather a more extensive DDT flux study within these waters will help clarify these results and perhaps provide more accurate characterization. The Implementation Plan includes recommendation for such a study within first five years of implementation.	Staff indicates that there is likely a problem due to improper DDT flux estimates. We agree. If it were really true that the air deposition rate was larger than the proposed DDT TMDL, then water column and sediment concentrations would increase over time, since if degradation is neglected, the situation would be all "input" and no "output." We commend Staff for its willingness to undertake a DDT flux study. However, because this study is critical to understanding the system and allocations, no TMDL implementation should occur for DDT until scientifically sound studies are completed and there is a proper scientific underpinning for any management decisions.
36.53 G	References are made LSPC models developed for LA River, San Gabriel River and Dominguez Channel watersheds however model simulation specific information was not provided in the report nor appendices. Sensitivity and/or uncertainty analyses	Model-specific information for the Los Angeles River, San Gabriel River, and Dominguez Channel are available in the references to which the commenter refers. These documents, which include calibration and validation results, are available through the Regional Board	**From Dr. Charles Menzie et al.:** Based on the information provided in Appendix II of the Staff Report (describing the LSPC Watershed Model Development), no reasonable scientist would rely on the values calculated through this modeling effort. It is unclear how the values were arrived because critical

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	of inflow and solids loading were not performed; sensitivity analysis of the DDT loading data was performed using the lower and upper range of DDT concentration to the sediment. Given the inadequacy of the LSPC model calibration, sediment and contaminant loadings derived from this model and input to the EFDC model are unreliable.	website and SCCWRP. Sensitivity analyses for sediment parameters were performed during the San Gabriel River modeling. These analyses are applicable to this watershed modeling effort as the methods and parameterization are all consistent with the regional modeling approach. Model calibration and validation requires a balance and in the case of the near shore watersheds, very limited data were available to achieve this balance. Overall, there were not enough data to justify refinement of the calibrated and validated parameter values associated with the regional modeling approach. TMDLs are required to be based on the best available data and these modeling efforts (and resulting load estimates) met this requirement. If additional data become available in the future, they could be incorporated into the analyses during a reconsideration of the TMDL.	foundational information was not made available that would allow a proper assessment of the modeling effort. Specifically, Appendix II of the Staff Report referenced models developed for Los Angeles River ("LAR") (Tetra Tech, Inc., 2004) and San Gabriel River ("SGR") (Tetra Tech, Inc. 2005a), and stated that these models were used to calculate TMDLs (cited in references LARWQCB, 2005a, 2005c, and 2006; USEPA, 2007). Appendix II also refers to pollutant loadings from the DC Los Angeles Harbor being estimated in a separate study performed by SCCWRP (SCCWRP, unpublished results). But Appendix II did not provide any specifics on how these models were developed, calibrated and validated; instead only a statement referring to "previously calibrated LSPC models of the LAR and SGR watersheds" was included. The lack of sufficient information regarding these supporting studies represents a significant data gap which results in material uncertainty in the modeling underlying the TMDL. No reasonable scientist would rely on these modeling results in the absence of specific information regarding how the model was developed, calibrated, and validated, which is lacking here. For example, the report indicates that the LAR and SGR LSPC models were extended to cover the entire modeling period at issue here, but no specifics were provided with respect to the history of inflows and corresponding loadings or assessment of model performance.

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			Likewise, development of the LSPC model for the nearshore watersheds was based on initial assignment of the hydrological parameters from the LAR watershed model. The report indicates that these parameters were refined as part of the model calibration, but there was no mention of which parameters were refined. For wet weather conditions, model calibration and validation plots were presented at three locations (one location for calibration and two for validation). Several inadequacies were observed: (i) for hydrology, the peaks and timing of the inflows did not correspond to the measured values; (ii) the simulated suspended sediment concentrations were higher than measured concentrations at two locations and lower at one location (with differences of up to an order of magnitude); (iii) the simulated total copper, lead, and zinc concentrations did not correspond to measured values (with differences of up to an order of magnitude at the Maritime Museum Station); and (iv) DDT loadings were not modeled *per se*, but were based on Bight 03 sediment-associated DDT concentration data and sediment loadings estimated from the LSPC model. Given the inadequate calibration of the LSPC model for the nearshore areas, the reliability of the loadings to the EFDC model has not been demonstrated. See also **Montrose Response 36.19** for a discussion of how TMDLs require the "proper technical conditions" and how those conditions are lacking in this TMDL. Adequate modeling is one of the factors specifically

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			required by EPA in establishing "proper technical conditions."
36.54	Mass balance computations for sediment and contaminants were not performed as part of model assessment, and hence there can be no reasonable confidence that contaminant concentrations derived from model predicted deposition are correct.	Limited data were available for model calibration and validation; however, the best available information was used. While a mass-balance computation was not performed, model results were provided in graphical and/or tabular format to demonstrate model fit. The simulated values used for TMDL or existing loading rate calculations were annual averages. Overall, given that the model is in the range of observed values and averages are likely similar, the model is being appropriately used to determine loading estimates.	A TMDL is a regulatory construct that is based on mass balance principles. The assimilative capacity, on the one hand, is distributed on the other among various allocations and other categories. It is unlawful to allocate more capacity than the subject water body can assimilate. There must be equivalency between assimilative capacity and the sum of the allocations and other categories. This equivalency, required by law, is a mass balance concept. Thus, the absence of a valid mass balance upon which to base a TMDL renders the TMDL invalid. The result is not a TMDL at all because a TMDL is the equivalency. Staff confirms that a mass balance calculation was not performed for the TMDL. **From Dr. Charles Menzie et al.:** A mass balance of the sediment and contaminants in the system for a specific simulation period is a critical foundational component of any TMDL and would have provided a proper assessment of model performance. In the absence of a mass balance computation, the Response alludes to the comparison between model results and data to demonstrate model fit. However, the calibration results do not substantiate that model calibration was successful (e.g., comparisons of bottom salinity, suspended sediment concentrations, total copper, total lead, total zinc, total DDT, and total PAH). Differences between model results and data vary by up

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			to a factor of four for all variables with the model generally over predicting. The sediment deposition and concentrations derived from the model are unreliable and not supported by sound science. See also **Montrose Response 36.19** for a discussion regarding how the "proper technical conditions" are lacking in this TMDL. Mass balance is a key component of any adequate modeling.
36.55	Modeling report does not present specifics on areas of erosion and deposition, but incorporates the two mechanisms into cumulative deposition values over 11 TMDL zones. Thus some areas may be included for dredging that are in fact erosional. As a result, the allocation scenario shows remediation of bed sediments for each zone, which may not reflect actual conditions where there may be areas of erosion or deposition. This is another instance in which the modeling does not correspond with known conditions on the ground. It is particularly contrary to real-world conditions to model an area as depositional when it is in fact erosional, or vice versa.	The conditions presented in the TMDL and associated modeling reports are averages and are not intended to explicitly characterize site-specific conditions. Before dredging or capping activities are performed, additional study and data collection are recommended to identify appropriate remediation activities for specific areas.	**From Dr. Charles Menzie et al.:** Staff appear to admit that there are key limitations with the modeling as applied to site-specific conditions. In light of these recognized deficiencies, the TMDL should be qualified with the limitations of the approach as indicated in the Response. A map of the bed elevation changes at the end of simulation would have been useful to assess potential areas of high deposition.

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36.56 H	These TMDLs inappropriately use Effects Range Low sediment quality screening levels; instead of the SQO-Direct Effects.	See response to **Comment 36.1**.	**From Dr. Charles Menzie et al.:** The Response regarding using ERL screening levels as management objectives for sediments rests on the argument that because these values were used in the past, they should use be used now. This does not address the technical reasons why the TMDL should not use ERLs for management decisions. There is no discussion of the known uncertainties inherent in these screening values. Those recognized uncertainties are the reason why the State Board proceeded to develop a technical approach for evaluating SQOs for the assessment of benthic organisms. The SQO methodology was published in 2009 in the Bays and Estuaries Plan. Staff indicates that while the work necessary to develop SQOs will be performed at some future date, it is appropriate to currently use the screening levels to make the major management decisions set forth in the TMDL and to use the SQOs to judge compliance. No reasonable scientist would rely on a highly uncertain method – impermissibly low screening levels – to support critical management decisions, while relegating the more certain method – the 2009 SQO methodology – to compliance monitoring. Because the State has recognized the need for a method to replace screening levels, it should be evident that, if ERLs are not reliable for assessment, they are not reliable for management. Management decisions that are based on uncertain methods such as the use of ERLs will yield highly uncertain outcomes that lack

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			scientific basis. The Response included an observation that the Upper Newport Bay (Santa Ana Board) and San Francisco Bay TMDL (San Francisco Board) were completed before the State's 2009 SQO Part 1 and no triad approach is included in those TMDLs. The TMDL for Upper Newport Bay underwent review by an independent scientific panel, and that panel pointed out the same problems with the process that we and others have pointed out for this TMDL process for LA Harbor. The Response argues that TMDLs require numeric values and that the SQOs do not deliver those numeric values. However, the ERLs are based on the same types of information used to develop site-specific SQOs so this presumed limitation is not correct. The Bays and Estuaries Plan sets forth the process that is to be used to develop numeric values, the Sediment Management Guides, and this process was not followed here. As indicated by many commenters, there are alternative sediment values developed for DDT in Southern California that have been ignored. The TMDL should include a sensitivity analysis using other sediment values as a means of addressing the uncertainty in the TMDL process. Instead of ignoring available knowledge, engaging in a sensitivity analysis would reflect a standard of care related to considering uncertainties that is appropriate for supporting a management decision such as the TMDL . By failing to consider available data and choosing instead to adopt ERLs, the TMDL does not

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			demonstrate how conservative the chosen value is. The negative ramifications of basing a decision on a value that appears "protective" in one instance is that it can result in unneeded ecological, socioeconomic, and economic costs for other parts of the system. The TMDL did not consider any of these costs as part of the management decision. The selection of an ERL as a clean-up value is also contrary to the stated purpose of screening levels. The scientists that developed these values have cautioned against their use as clean-up numbers. U.S. EPA is on record cautioning against the use of these values. Therefore, the TMDL is counter to the cautions of the scientists and national environmental policies. See **Montrose Response 36.1** for a discussion of how the TMDL did not "fully implement" the Bays and Estuaries Plan as required. The ERLs are not part of the Bays and Estuaries Plan.
	The State's SQOs include Possibly Impacted as meeting the protective condition if the studies demonstrate that the combination of effects and exposure measures are not responding to toxic pollutants in sediments and that other factors are causing the responses within a specific segment or waterbody. This indicates there is uncertainty regarding the classification	The SQO – Part I policy does include "Possibly Impacted" as perhaps meeting the protective condition, albeit contingent on additional studies and results described therein. Staff note the commenter did not provide existing evidence of such required studies for these impaired waters, nor do staff know of any such studies, therefore we conclude that Possibly Impacted is not	**From Dr. Charles Menzie et al.:** Staff agree that "Possibly Impacted" can meet the protective condition if additional studies are carried out. It therefore seems prudent to wait until those additional studies are carried out before adopting an approach that may not be correct. These additional studies can be done for a tiny fraction of the costs of the TMDL's recommended management, and not doing these studies before implementing the TMDL may require that

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	of contaminant-related effects on sediment dwelling organisms.	appropriate protective condition for these waters at this time.	unnecessary actions be taken.
36.58	There are two factors of uncertainty associated with indirect effects TMDLs: a. Causation of DDT fish tissue levels as proportional to DDT sediment levels. A draft scientific report (SFEI 2007) implies there is not a one-to-one relationship between sediment and fish tissue concentrations b. The TMDLs have selected a single [sediment] values to represent protective levels for human health.	The SFEI draft report states: "Although it is likely that a large portion of the water column concentrations were linked to direct sediment resuspension, direct loading from the watershed and upstream rivers should also be considered..." In addition, see response to **Comment 20.2** and **30.7**.	**From Dr. Charles Menzie et al.:** We agree with the statement by the SFEI quoted in the Response and it is the reason why the TMDL's calculations are erroneous – these areas of uncertainty were not considered. No reasonable scientist would claim the types of relationships between sediments and the water column and fish that the TMDL assumes without having considered all of the information and potential uncertainty. In this regard, the TMDL is incorrect and not supported by the science.
36.59	Uncertainties in deriving target levels and TMDLs have not been considered.	TMDL includes discussion of sediment quality value uncertainty. See TMDL Staff Report pg. 50 for discussion of why TEC and ERL values were selected instead of ERM and PEL values.	**From Dr. Charles Menzie et al.:** It appears that our comment on addressing uncertainty was misunderstood. The Response indicates that because there is a lot of uncertainty, "conservative" values were selected. That is not the scientifically accepted method for addressing uncertainty. EPA has considerable guidance on how to consider and evaluate uncertainty from a mathematical standpoint that reflects the best practices and the

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			standard of care of the engineering community. For example, a common method for engineering, including wastewater management, is to perform appropriate sensitivity analyses. There are no such analyses in the TMDL. Reasonable scientists would select a sensitivity analysis as the generally accepted method to address the uncertainty reflected in the TMDL's modeling. The TMDL also ignores available knowledge regarding alternative target levels. By ignoring such information, the only consideration that the TMDL gives to uncertainty is to ignore it and to attempt to select bounding target values that are at the extreme ranges. The TMDL should include sensitivity analyses with other legitimate and possibly more appropriate target values to understand the implications of selecting alternative values. This would allow the degree of uncertainties in the TMDL analyses to be understood and would enable an assessment of tradeoffs among presumed environmental benefits and other ecological and socioeconomic costs. Such an analysis is feasible and would help identify areas where alternative management decisions could make sense and where data are needed before management decisions can be reached.
36.60	"Risk Zones" for sediment provide a means of incorporating uncertainty.	Commenter's suggestion of evaluating 'risk zones' for sediment is noted. In	**From Dr. Charles Menzie et al.:** The Response seems to indicate that other parties are

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		the Implementation Plan, staff has acknowledged the potential sediment remediation activities the Ports may pursue in the future. These are also described within the Ports' Water Resources Action Plan, which has proposed a decision process to follow and incorporates a prioritized system for sediment actions; this is similar to Risk Zones.	proposing to incorporate a prioritized system for sediment actions in the future, as a consideration of the degree of risk associated with sediments. But that presumption is not reflected in any of the technical work carried out for the TMDL. As noted above, the TMDL appears to favor sediment remediation as a solution for waste load management. The TMDL is silent on the matter of what will happen to sediments in the future, what SQOs may indicate when that work is finally performed, and how alternative strategies might be implemented. Alternative strategies involving Monitored Natural Recovery that have been adopted as part of the TMDL approach for San Francisco Bay and the Delaware River are not even mentioned in the TMDL. Such approaches would be appropriate for risk zones where risks are low, but there is no allowance for such consideration in the TMDL document.
36.61 I	Implementation Plan of TMDL does not consider appropriate guidance on sediment remedies. Maintenance dredging is not discussed in the TMDL. TMDL may adversely affect maintenance dredging and the ability to keep the region's ports open for business. TMDL does not include discussion regarding potential disposal options or capacities for handling	Maintenance dredging may reduce pollutant loads within bed sediments as well as significantly decrease pollutant fluxes out of sediment. Removal of contaminated sediment is discussed in the TMDL in the Implementation and Costs Sections. Dredging and capping are also discussed in the CEQA Checklist and Substitute Environmental Document. See, also, response to	**From Dr. Charles Menzie et al.:** Staff appears to concur with our comment regarding maintenance dredging, but that concurrence is not reflected in the TMDL. If indeed there is a mass load decrease associated with maintenance dredging, the TMDL should take that into account as part of the loadings analysis. This necessary work has not been performed despite the recognition that this would be an important aspect of the evaluation.

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	contaminated sediments. Estimated cost of dredging are out of date and do not reflect current costs. TMDL does not cite any alternatives to dredging; e.g., replacement, capping, or restoration following dredging.	**Comment 36.3** and **36.7**. In addition, for costs, see response to Comment **23.9**.	
36.62	Uncertainties and potential misuse of tissue target levels for birds and mammals included in the TMDLs. No explanation is included in the presentation of these target levels for birds and harbor seals. Animal species can differ greatly in their sensitivity to contaminants and these differences can be important when selecting studies to represent groups of animals. For example, TMDL relies on data for leghorn chickens to represent the sensitivity of [marine] bird species to PCBs. Water-dependent species such as terns and cormorants are less sensitive [than chickens].	TMDL has cited relevant and available information of harbor seals using the best available information to protect these marine mammals in the subject waters. See response to **Comment 36.9**. Staff finds it also noteworthy that DDT tissue levels in marine mammals feeding on fish in southern California may continue to be contributing to California Condors reproductive difficulties associated with egg-shell thinning. See N.Y. Times article, *New Hurdle for California Condors May be DDT from Years Ago*, Nov. 15 2010. See response to **Comment 36.63b** for birds.	**From Dr. Charles Menzie et al.:** The issue of biological targets is irrelevant to the TMDL process. The information and associated analysis on biological targets in the TMDL are incomplete, do not consider the available observations on relevant populations, and should be removed from the TMDL document as they are not being used to inform TMDL-related management decisions.

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36.63aJ	TMDL should consider use of EPA guidance (2003) for developing ecological soil screening values associated with wildlife TRVs.	Commenter cites guidance developed for EPA's Office of Solid Waste and Emergency Response; this program has different priorities and decision limits than those utilized by EPA's Office of Water program. The wildlife tissue residue values (TRV) are not developed for benthic community organisms and therefore they do not take into account the direct effects of pollutants on aquatic and sediment dwelling organisms. Furthermore, these TMDLs are based on the more protective sediment quality values between benthic organisms (ERLs) or human health (bioaccumulation pathway) and therefore the sediment target values are considered adequately protective of wildlife.	**From Dr. Charles Menzie et al.:** It appears that our comment on considerations in developing wildlife tissue values was misunderstood. Our comment concerns the use of a deliberate process for deriving tissue residue values ("TRVs") as well as other toxicity benchmarks. EPA has developed Quality Assurance procedures that consider the relevancy of the studies and the reliability of the studies. These are aspects of selecting and using studies that apply to any effort to develop ecological target levels, not just the development of ecological soil screening levels. Our comment was that the TMDL did not consider relevancy or reliability in its efforts to identify and present values for wildlife tissues. No reasonable scientists would fail to consider the relevance and reliability of studies before using them to represent a system.
36.63b	Commenters question TMDL targets included for 'birds and harbor seals'….noting the TMDL targets are from studies in Texas and Europe. More specifically, commenters write to clarify that some TMDL tissue levels 'do not accurately reflect some of the statements from the cited	Staff agree the targets for birds and harbor seals are NOT used for TMDL development of DDT or PCBs. Staff included these tissue targets for Forster's terns and harbor seals based on review of relevant scientific studies via literature search. Staff have carefully reviewed provided information specific	**From Dr. Charles Menzie et al.:** The Response appears to agree that these values should not be used to make management decisions, but does not address why the values are necessary to include in the TMDL, especially where their relevancy and reliability is questionable in the Harbor system. Reasonable scientists would consider whether studies based on other systems were relevant to the system they were characterizing

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	papers.' Commenter also state "the TMDL document does not use this information [for birds and harbor seals] to develop TMDLs, but presumably it could be used in the future manner similar to the TMDL sediment targets."	to Least/Forster's Tern and have modified the PCBs level for bird eggs (2.2. µg/g wet wt.) and corrected the PCBs level for harbor seals (5.2 µg/g lipid). Also, staff have removed DDT target for Forster's terns.	before incorporating those studies into a TMDL, but that was not done here. Likewise, the Response does not provide an explanation of why studies of birds from Texas and harbor seals from Europe are relevant to the Harbor or TMDL.
36.64 K	• TMDL presents air deposition loading estimates that do not make sense relative to current total loadings. • TMDL presumes air deposition remains constant over time. • TMDL process does not consider uncertainties with estimating air dep loads. • DDT air dep loading are overestimated since they neglect resuspension and vapor transport from sea back to atmosphere. • DDT air dep loadings are uncertain, based on a single land-based location, downwind of land and dust whereas the prevailing winds	Air deposition study was performed by SCCWRP, in cooperation with Ports of Los Angeles and Long Beach, as part of a multi-media flux study to determine the rate of exchange between air and water as well as water and sediment. The flux study results show sediments diffusive flux to water is dominant mode of DDT into water column. The air deposition portion of this DDT flux study concluded there is more absorption (from air to water) than volatilization (from air to water). Resuspension would make DDT bioavailability greater than if it remained buried deep in sediments. DDT air deposition loadings are based on dry deposition measurements at one	**From Dr. Charles Menzie et al.:** The Response references a "multi-media flux study," but that study does not appear to be a part of the TMDL materials. The only reference to a flux study in the submitted materials occurs in Appendix III of the Tetra Tech report, a presentation given by K. Schiff on 9/17/09 to Harbor Toxics TMDLs Technical Advisory Group. The 9/17/09 presentation includes the statement that a SCCWRP technical report is being drafted for organics. However, no such report or other document can be found at the SCCWRP website or in the TMDL backup materials. Without the calculation basis of the flux study, we cannot evaluate estimates of the flux from sediments to the water column or the water→ air flux for DDT. In the 9/17/09 presentation the flux at Los Angeles Harbor (LAH) is given as what appears to be 29 mg/m2/day, the Wilmington site dry deposition rate. Therefore, this flux estimate either does not include

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	are offshore.	site over several weeks in Fall 2006. Given the DDT air dep loading is based on dry deposition only, it does not include wet deposition which is 100% from air into water, then it is conservative estimate. Air deposition monitoring site IS relevant since it is inland where contaminated dry soils could be picked up and carried via prevailing off-shore winds into estuarine and marine waters. Commenter does not provide any alternative air deposition monitoring results collected within the greater Los Angeles and Long Beach Harbor watershed; thus it is reasonable for Regional Board and EPA to rely on these recent and most site-specific air deposition results and multi-media flux for these waters.	volatilization, the water →air component, or volatilization is insignificant compared to deposition. If the former is the case, there is no scientific basis in the submitted materials for the response: "The air deposition portion of this DDT study concluded there is more absorption (from air to water) than volatilization (from air to water) (sic)." If the latter is the case, we would like to see the calculation basis so that we can determine if it is scientifically based. In our comments, "resuspension" referred to resuspension from the air collecting apparatus not resuspension of bottom sediments as the response assumed. The air collecting apparatus had a sticky surface unlike real surfaces where resuspension into the air is an issue. This feature of the measurement overestimates deposition. During wet deposition DDT on air-borne particulates would be washed out but new particulates would not be suspended from wet surface soils during and for some time after precipitation. Thus the response that neglecting periods of rainfall makes the estimate conservative is likely untrue and unreliable. The only way to determine how representative the Wilmington site is for DDT deposition would be to collect data elsewhere as well. Reasonable scientists would not rely on only one monitoring point of questionable relevancy to the system they were studying to make conclusions about that system. Meteorological convention is to cite the direction the wind is blowing from. The predominant annual wind direction at Los

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			Angeles is from the offshore area to onshore. http://www.epa.gov/ttn/naaqs/ozone/areas/wind.htm). This means the wind blows from the Pacific toward the shore. Rather than three miles inland, like the Wilmington location, more representative locations for TMDL purposes would be adjacent to the water bodies of principal interest. Note that for metals, six coastal locations were used to characterize deposition at the Inner Harbor, Outer Harbor, Fish Harbor, Cabrillo Marina, Inner Cabrillo Beach, and San Pedro Bay. Our comment that the TMDL presumes that air deposition remains constant in time was not responded to. This is a critical issue because natural degradation is occurring, as observed in the actual data collected from the Harbor. With the timeframe for implementation of the TMDL, this natural degradation will be given time to occur.
36.65 L	TMDL does not consider bioavailability of contaminants for understanding exposures and risks. Proposed numeric target [for DDT] is typically used for screening and is three orders of magnitude lower than two Southern California Bight studies (Chapman 1996; Fuchsman, et al. 2010)	Commenter is focusing on DDT sediment quality value for direct effects which uses the ERL target value to protect benthic organisms. However, the comment is inaccurate since the TMDL states that DDT targets for both direct effects as well as bioaccumulative pathway were considered (not just the direct effects target), and staff recommend the lower value thus equally protective of both exposure pathways.	**From Dr. Charles Menzie et al.:** Rather than address the technical comment and the available knowledge that has been presented in our comment, the Response only refers to the protective nature of the screening levels. The TMDL should include a sensitivity analysis that considers the relevant knowledge, rather than adopting a position of ignoring available information and presuming that knowledge does not exist. See **Montrose Response 36.59.** Generally accepted scientific principles requires that the sensitivity analysis should be done now, not six years

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		The direct effects target (total DDT = 1.58 ug/kg. dw) is slightly lower than the bioaccumulative target (total DDT = 1.9 ug/kg dw). The implementation schedule clearly states the numeric targets included in these TMDLs will be revisited as appropriate data is developed, within 6 years of effective date. See Staff Report pg. 122; Table 7-2.	from now as suggested in the Response. If it is performed correctly, this analysis would shed light on the value of alternative management strategies and may reduce the uncertainties associated with the values that the TMDL incorporates. The argument that these values have been used in the past does not improve upon the reliability of values that may be wrong and that are highly uncertain. It is the unreliability of these values that led to the development of SQOs for benthic invertebrates and that are the basis for developing SQOs for protection of human health. See **Montrose Response 36.1** for a discussion of past errors and mistakes and regulations that repeat those same errors.
36.66 M	Assumptions for these TMDLs are different from those made for other TMDLs in California and in other states. Selected values [targets] lead to very low TMDLs that give false sense of precision.	Staff disagrees for several reasons: a. TMDL targets selected for these toxic pollutants are similar to other TMDLs in Los Angeles Region, including but not limited to: -Colorado Lagoon toxics TMDLs (adopted, not yet effective) -Ballona Estuary toxics TMDLs -Calleguas Creek organochlorine and metals TMDLs b. These TMDLs make assumption that contaminated sediments are one source of DDT to be considered amongst all DDT sources. This	**From Dr. Charles Menzie et al.:** The Response references prior TMDLs in the Los Angeles region as justification for the excessively low TMDL targets established herein. As we have discussed, these TMDLs all reflect a flawed process that has been repeated in the present case. No reasonable scientist would repeat errors in the future in order to be consistent with errors made in the past, as this is not sound science or environmental policy. We have pointed out that an independent scientific panel was convened to evaluate this process for the Newport Harbor TMDL and reported several serious criticisms of the process that have been repeated in this TMDL.

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		approach is consistent with Newport Bay DDT TMDLs in Orange County. c. Sediment quality targets selected for these TMDLs are very similar to those used for other California TMDLs. Here the selected DDT sediment quality target (1.59 ug/kg dry wt.) is comparable to marine sediment quality DDT target (3.89 ug/kg dw) for Newport Bay Toxics TMDLs. And the PCBs sediment target selected here (3.2 ug/kg dw) is comparable to the sediment goal (1 ug/kg dw) in the San Francisco Bay PCBs TMDLs. Finally staff does not find these TMDLs give a false sense of precision, rather staff have opted to make conservative determinations for several technical decisions and this has resulted in low and protective TMDLs.	The Response makes reference to the PCB value developed for San Francisco Bay but that value was developed using an appropriate model, specific to the Bay. A similar approach has not been used here. In addition, the Response does not point out that the TMDL for San Francisco Bay does not contemplate relying on dredging as a waste load management tool. Instead, the San Francisco Bay TMDL approach, like others in the nation, relies on the control of inputs – not the removal of in-place sediments. The in-place sediments are presumed to recover via MNR, a process that the TMDL does not even consider simply because it is assumed that it will not work. The TMDL lacks any calculations or analyses to support that assumption. Our comment on the false precision in the TMDL was misunderstood. False precision occurs when a value is given to more significant digits than is warranted given the uncertainties in the evaluation. For example, a value such as 1.59 ug/kg dry weight implies knowledge that the target can be known to these three significant digits, and thus is very precise. But, this is not the case in the TMDL, and the presentation of this value creates a false sense of precision for the readers. It implies that uncertainties have been dealt with, when in reality, the actual values could be orders of magnitude different than those presented in the TMDL document. By using this false precision, the TMDL essentially masks uncertainties by using values that appear to be calculated through some precise formula without identifying the uncertainties in

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			those values.
36.67	The overall TMDL process is highly uncertain; it makes sense to consider uncertainty explicitly, including selecting a range of possible values to inform risk managers. In fact, CA SQOs – Part I document presents a range of sediment values for three different levels of potential effects.	Uncertainty is considered explicitly since staff has included interim allocation values (very close to current levels), several optional studies to potentially influence future revisions to these TMDLs and 20 yr. implementation schedule. The CA SQOs presents a range of sediment values for three different levels of potential effects which are then combined with information from other LOEs to make a station assessment.	See **Montrose Response 36.68.**
36.68 N	Monitored Natural Recovery (MNR) is an alternative for managing water quality in Dominguez Channel and greater LA/LB Harbor waters. The National Research Council (2007) has concluded that "*dredging ….should be considered, but only with other options, to manage the risks that the contaminated sediments pose.*" (italics are quotes from NRC 2007 committee on dredging)	The TMDL does not address monitored natural recovery in isolation from other implementation methods; nor does it state that dredging must be the only remediation to address contaminated sediments and the corresponding adverse effects. While there may be some advantages to monitored natural recovery, and there are site-specific conditions for dredging considerations; staff want to remind stakeholders that EPA's Superfund	**From Dr. Charles Menzie et al.:** The Response suggests that a variety of alternatives may be implemented, but that is not reflected in the TMDL document or Responses as demonstrated by Response 36.68 that natural recovery is allegedly not resolving fish tissue concerns on the PV Shelf. LA Harbor is not the PV Shelf and no analysis of whether MNR could have a role in LA Harbor has been performed. Instead, the TMDL document calls out sediment remediation without considering the appropriate upstream or in-harbor alternatives. In order for the TMDL document to adopt a balanced

No.	Original Comment	Regional Board Response	Montrose Response to Response
	Site assessments also indicate that contaminants can be released into the water during dredging and can have short- term adverse effect on the aquatic biota. *Some site conditions and dredging practices can limit the amount of residual contamination remaining after dredging and can limit contaminants released into the water column. Those site conditions should be given major consideration when evaluating the potential effectiveness of dredging.*	program has determined that it can no longer wait for MNR to occur on PV shelf. This suggests that more than 15 years after the discovery of DDT loading offshore to PV Shelf, that there is not sufficient natural recovery to resolve the problem of elevated fish tissue levels and continued threat to human health and wildlife via fish consumption. In addition, Staff Report refers to the potential for inclusion of some areas of monitored natural recovery during implementation. See Figure 7-1 ("attenuation will result in necessary improvement"). For dredging see response to **Comment 36.3**.	approach for considering alternatives to environmental dredging, it should consider and analyze alternative methods of compliance. By analyzing alternative methods of compliance, this TMDL document would be in line with other TMDL approaches being adopted throughout the nation. The work needed to make these assessments should be completed and the TMDL should be revised to reflect that work. Simply stating that things may be considered at a future unspecified date is not an adequate level of analysis given the import and potential ecological, socioeconomic, and economic impacts of the implied management decisions.
36.69	DDT contaminant concentrations will decline over time, making MNR a viable alternative. NOAA Mussel watch data at three stations [within greater LA/LB Harbor waters] reveal that exposures to DDT have been declining for the period of record.	See response to **Comment 36.68**.	**From Dr. Charles Menzie et al.:** The Response appears to dismiss the available data. Further, the Response seems to suggest that LA Harbor and the processes within it (e.g., deposition) are the same as the processes on the PV Shelf. These are different systems from an oceanographic and geological standpoint, and a reasonable scientist would not treat

No.	Original Comment	Regional Board Response	Montrose Response to Response
			them the same without scientific support.
36.70 O	There are insufficient data to calibrate and validate the EFDC model. Without these two essential elements, the model is untrustworthy.	Limited (but not insufficient) data were available for model calibration; however, the best available information was used, which is a requirement of TMDL development. Due to data limitations, model validation using an independent set of data could not be performed in addition to calibration. The simulated values used for TMDL or existing loading rate calculations were annual averages. Overall, given that the model is in the range of observed values and averages are likely similar, the model is being appropriately used to determine loading estimates.	**From Dr. Charles Menzie et al.:** Reasonable scientists rely upon modeling results only if there is good fit between the model results and data during the calibration step and subsequent validation of the calibrated model. Here, the Response admits that proper calibration and validation were not done. Model validation could have been performed by simulating the 2006-2007 periods. Based on the information presented in the report, the model is not adequately calibrated with respect to bottom salinity, suspended sediment concentrations, or contaminants, as described below. <u>Bottom Salinity:</u> The model over predicts the bottom salinity at most of the 20 stations used in the comparison. Also, it is unclear why the salinity data from the other stations were not used. These concerns make these results unreliable. <u>Suspended Sediment Concentration:</u> A comparison plot shows the time history of model-predicted suspended sediment concentrations and a single observed suspended sediment concentration. The temporal variation of the modeled suspended sediment concentrations during the dry period (May-October 2005) is not reflected in the one observed value. Subsequently, comparing the model-computed average values with observed values does not provide an adequate assessment of model performance for calibration purposes and is not

No.	Original Comment	Regional Board Response	Montrose Response to Response
			reliable. The report indicates that dry season concentrations should be similar and as such modeled results of dry-period averages for 2005 were compared with 2006 and 2007 data. Differences between model results and data vary by up to a factor of four with the model generally over predicting, demonstrating that these model results are not reliable. Contaminants: Comparisons were made between model results and observed data of total copper, total lead, total zinc, total DDT, and total PAH. Here again, the dry period (May-October 2005) averaged concentrations were compared with data collected in 2005 and 2006. As noted, differences between model results and data vary by up to a factor of four**.**
36.71	Comparisons between EFDC model predictions and observations do not agree.	Limited data were available for model calibration. As indicated in Appendix I, the model predicted levels are generally within the range of observations. In addition, the simulated values used for TMDL or existing loading rate calculations were annual averages. Given that the model is in the range of observed values and averages are likely similar, the model is being appropriately used to determine loading estimates.	**From Dr. Charles Menzie et al.:** See **Montrose Response 36.70**. The Response claims that "model predicted levels are generally within the range of observations." Given that the difference in model results and data vary by up to a factor or four, the reliability of the model predictions has not been established, and no reasonable scientist would rely on them.
36.72	TMDL acknowledges that fresh water	Comment noted. The TMDL models	**From Dr. Charles Menzie et al.:**

No.	Original Comment	Regional Board Response	Montrose Response to Response
	loading to saline waters is poorly known, and recommends later study of this topic.	are currently based on the best available data and if additional data become available in the future, model revisions may be possible during TMDL reconsiderations.	The LSPC and EFDC models do not realistically simulate prototype conditions given the inadequate calibration and lack of validation. Reasonable scientists would not rely on models that do not realistically simulate the conditions meant to be modeled.
36.73	TMDL acknowledges that atmospheric deposition is significant source of contaminants but does not address control [of DDT].	See response to **Comment 20.4**.	**From Dr. Charles Menzie et al.:** Response 20.4 does not address this comment. The concern is that air deposition for DDT is greater than the TMDL target for eight of the nine water bodies (e.g., in the Dominguez Channel Estuary, the TMDL target for DDT is 3.9 g/yr, whereas air deposition is 6.01 g/yr). This implies that bed sediments in this water body will always need to be remediated to meet TMDL targets. The air deposition values for DDT are based on data collected at only one station (SCAQMD Wilmington Station in 2006). Reasonable scientists would not rely on this single measurement of DDT.
36.74	TMDL uses a poorly known and tested model linking fish tissue concentrations and sediment concentrations. A different TMDL, S.F. Bay PCBs, uses only fish tissue target.	The EFDC model is well known and has a high reputation for integrating hydrology and water/sediment quality conditions. EFDC model is public domain, which makes it transferable to any interested party. EFDC model does not make linkage between sediment and fish tissue concentrations. Rather staff used a food web model and results used in SF PCBs TMDL to link fish to sediment, then staff used that sediment	**From Dr. Charles Menzie et al.:** Our comment is not in reference to the EFDC model, but relates to the predictive tool Biota to Sediment Accumulation Factor (BSAF). The BSAF was incorrectly used to establish a one-to-one correspondence and presumed causal relationship between tissue levels in fish and contaminants in sediments. The uncertainty associated with the BSAF approach is also not mentioned. The TMDL **does not** use a food web model as claimed.

No.	Original Comment	Regional Board Response	Montrose Response to Response
		target to define sediment concentrations in these greater Los Angeles and Long Beach Harbor TMDLs.	Instead the TMDL adopts a non-site-specific bioaccumulation factor (BAF) which is an incorrect representation of how to relate fish concentrations to sediment concentrations. Specifically, the concept that fish concentrations are 100% due to sediment concentrations is wrong and without scientific basis. Extending this error to calculations of waste load allocations is also wrong because it relies upon a concept that is incorrect – 100% of the fish tissue concentration is not due to sediment concentrations. The TMDL is not supported by any analysis on this point and therefore lacks requisite foundation and validity.
36.75 P	Use of ERLs to set sediment targets for these TMDL is inappropriate because data used to develop the ERLs was not made available by the ERL authors, so it is presumed that the Regional Board does not possess those data and has reviewed them. The ERLs are not intended or designed for use which the TMDL intends. An independent statistical evaluation of other sediment screening values prepared by McDonald, one of the authors of ERLs, has demonstrated a very weak, and almost random, relationship between DDT on the one hand, and impacts to the benthic	For a discussion of ERLs see response to **Comment 20.1**. In addition, one reason why staff selected ERLs over ERMs is these waters contain sediments that are contaminated with numerous pollutants, including (3 or more) heavy metals, (4 or more) polycyclic aromatic hydrocarbons and organochlorine compounds. Staff find this mixture of numerous toxic pollutants to be multiple threats to aquatic organisms, instead of just one pollutant and one line of evidence for sediment toxicity or	See **Montrose Response 36.1** for a discussion of how the TMDL did not "fully implement" the Bays and Estuaries Plan as required. The ERLs are not part of the Bays and Estuaries Plan.

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	ecosystem, on the other. What is known about the ERLs is that they ascribe toxicity to DDT and other compound based on pulling data from published studies where the authors of those underlying studies do not ascribe the reported toxicity to DDT or these other compounds. Even exceeding the high ERM value, which the Regional Board does not use, does not meet this accuracy criteria. Sediments in these two areas likely contain a mixture of toxic constituents that are not listed in the SQG tables and therefore, cannot be understood toxicologically.	adverse effects. Thus, staff chose the more protective sediment quality values (ERLs) to acknowledge the implicit synergistic effects of multiple pollutants within water and sediment.	

EXHIBIT B

EXHIBIT B

MONTROSE'S SUPPLEMENT LEGAL POINTS RAISED BY REGIONAL BOARD RESPONSES

I. THE PEER REVIEW ANALYSIS VIOLATES THE CALIFORNIA HEALTH AND SAFETY CODE

A. Peer Review Requirements

California Health and Safety Code Section 57004(d) requires an external peer review of the "scientific basis" for any rulemaking that is done to protect public health or the environment. If the peer reviewers find that a rule lacks scientific basis, the Regional Board must either revise the scientific portions of the rule or state why the Regional Board determined that the scientific portions of the proposed rule are based on sound scientific knowledge, methods, and practices.[1]

Scientific basis is defined to mean "those foundations of a rule that are premised upon, or derived from, empirical data or other scientific findings, conclusions, or assumptions establishing a regulatory level, standard, or other requirement for the protection of public health or the environment."[2] The statute also requires that the peer reviewers be separated from the process of developing the rule, assuring their independence and unbiased review.[3]

B. The Peer Reviewers Found There Is No Scientific Basis For The TMDL

As recognized by the Regional Board, a TMDL is a rule that requires peer review under California Health and Safety Code Section 57004(d) because it is adopted ostensibly to protect public health or the environment. Accordingly, the Regional Board was required to comply with the requirements of section 57004(d) of the California Health and Safety Code.

The Regional Board procured the services of Dr. Patrick L. Brezonik, Professor Emeritus of the University of Minnesota, and Dr. Arturo J. Keller of the University of California, Santa Barbara to review the "scientific basis" of the TMDL.[4] The peer reviewers provided written reports to the Regional Board that contained their analysis of the TMDL. Similar to other qualified experts who looked at the TMDL, the peer reviewers found the TMDL to be materially lacking in "scientific basis."

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1 Cal. Health & Safety Code § 57004(d).

2 Cal. Health & Safety Code § 57004(a)(2).

3 Cal. Health & Safety Code § 57004(c).

4 The peer review reports were not available before the close of the Regional Board's public comment period on February 22, 2011. Therefore, this is the public's first opportunity to comment on these reports.

1. Report of Dr. Brezonik[5]

After reviewing those materials provided to him by the Regional Board, Dr. Brezonik concluded that he generally "lack[ed] confidence" in the modeling and numerous other technical details of the TMDL. Dr. Brezonik supports this conclusion by pointing to "critical" issues with the models, stating that "although an attempt was made at model validation for some of the contaminants, it was not successful."[6] "Just because one conducts a validation exercise does not mean that a model has been validated."[7] Dr. Brezonik identified that the calibration and validation of the modeling failed because of a "paucity of data" and because the model was not "sufficiently defined and refined to simulate the behavior of the pollutants in this system."[8]

Dr. Brezonik also stated that the TMDL report was so poorly written and "difficult to follow and understand" that he was "not able to provide a firm conclusion about the validity of the final results."[9] (In this regard, and as we have commented elsewhere, the TMDL violates due process and CEQA.) Dr. Brezonik also identified the large uncertainties involved with the loading capacity and TMDL allocations and noted that these uncertainties were not properly considered.[10] Dr. Brezonik asked whether the "tiny values" in the TMDL for DDT and PCBs were even "meaningful":[11]

> Could one actually make measurements to show that a discharge was in compliance with a WLA of 0.35 g/yr? In general, the numbers in the table seem unreasonably low.[12]

Dr. Brezonik additionally commented on the high costs necessary to implement the TMDL and stated that considering these high costs, the "science behind the analyses leading to the TMDLs (and thus the necessity for implementing BMPs and sediment remediation) needs to be sound and the results need to be reliable. I conclude that unfortunately the TMDL document does not meet this standard."[13] Dr. Brezonik also pointed to the "uncertainty and vagueness" in the implementation plan for the TMDL.[14]

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5 Report of Dr. Patrick L. Brezonik's Peer Review of the Proposed Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL ("Brezonik Report") at 1.

6 Id. at 1.

7 Id. at 3.

8 Id.

9 Id.

10 Id. at 4.

11 Id.

12 Id.

13 Id. at 1-2.

14 Id. at 5.

Dr. Brezonik was asked to respond to the following question: "Taken as a whole, is the scientific portion of the proposed rule based on sound scientific knowledge, methods and practices?"[15] After acknowledging that the Regional Board had at least some knowledge about the system and that the models used in the study are generally accepted, Dr. Brezonik stated:

> The application of sound scientific practices was not always followed, however. Examples of instances where there was a lapse of sound scientific practices range from small statistical issues, such as using regression analysis when the basic assumptions inherent in the method were not present in the data . . . to much larger issues like the continued use of the EFDC model to determine transport and fate of pollutants in the system in spite of the fact that the calibrations and validations showed that the model did not come close to matching the observed values.[16]

In light of these technical deficiencies, Dr. Brezonik concluded "**that the TMDL report does not provide a sufficient scientific basis for the proposed plan and allocations**."[17]

2. Report of Dr. Keller

Like Dr. Brezonik, Dr. Keller also had serious concerns about the lack of "scientific basis" for the TMDL. Dr. Keller took specific issue with the calculation of initial concentrations for the modeling, stating:

> How can one use data from 2006, past the simulation period, to determine the initial concentrations in 2002? There is no scientific basis for doing this, since the only method for back calculating the concentrations from 2006 to 2002 is the model that is being calibrated. The authors have a serious problem with circular logic.[18]

Dr. Keller states that the presentation of the modeling results is "seriously lacking, with diminished scientific integrity" and suggests that the models have a "clear bias towards over-predicting concentrations of toxic pollutants in the harbor."[19] "Clearly, the EFDC model as implemented does not adequately simulate the concentration of these pollutants."[20] Noting that the TMDL reports make no reference to the issues the Regional Board encountered when

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15 Id. at 6.

16 Id.

17 Id. at 5 (emphasis added).

18 Report of Dr. Artuor Keller's Peer Review of the Proposed Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL ("Keller Report") at 28; see also id. at 8-12 for Dr. Keller's discussion of the inadequacies of the modeling.

19 Id. at 11.

20 Id.

calibrating the model, Dr. Keller states, "Scientific integrity requires one to report and discuss the problems with the calibration, but this is not done."[21]

Dr. Keller also disagrees with the level of precision reported in the TMDL. Dr. Keller stated that there is no scientific basis for the level of precision used and suggested that "the authors could take a look at a few lab reports to understand the actual precision of such data."[22]

Further, Dr. Keller identified a lack of transparency in describing how the allocations were set, calling the description "quite vague," and stating that the "lack of transparency is not appropriate for building credibility."[23] Given Dr. Keller's uncertainties about the modeling, he stated that "these sediment concentrations may not reflect the actual values."[24]

Dr. Keller also identified the same critical concern that our expert, Dr. John List, recognized regarding allocations for the bed sediments and mass balance. Regarding bed sediments and the allocations assigned to them, Dr. Keller states:

> There is no explanation of how the Load Allocation for "Bed Sediments" was done. Are these based on the total sediment deposition rates presented in Appendix III, multiplied by the pollutant concentration calculated in the EFDC? Or the pollutant concentration calculated by the corresponding LSPC models? Give this lack of information, the scientific validity of these estimates cannot be determined. In any case, the total sediment deposition rates in Appendix III have considerable uncertainty and may be in error, based on the relatively poor calibration results; they are certainly not known to 5, 6, or 7 significant digits as presented in the table in the appendix. There is also considerable uncertainty in either of the models with respect to pollutant concentrations, so again the estimated LA for these bed sediments has considerable uncertainty.[25]

Dr. Keller concludes that "**Given the large uncertainties in the source terms and modeling results, … a full revision of the TMDL and allocation calculations should be done before beginning Phase II**."[26] Phase II is the implementation of site-specific cleanup actions required under the TMDL's Implementation Plan.

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21 Id.

22 Id. at 28.

23 Id. at 14.

24 Id. at 15.

25 Id. at 15.

26 Id. at 18 (emphasis added).

C. The Adoption Of The TMDL Violated Health And Safety Code Section 57004(d)

In light of both Dr. Keller's and Dr. Brezonik's concerns regarding the lack of "scientific basis" for the TMDL, adoption of the TMDL required satisfaction of the conditions of California Health and Safety Code Section 57004(d). Because the Regional Board did not meet these conditions, its adoption of the TMDL violated Health and Safety Code Section 57004(d).

1. TMDL Materials Were Not "Submitted" To The Reviewers As Required By The Health And Safety Code

The statute requires the Regional Board to "submit[ ] the scientific portions of the proposed rule" and supporting materials "to the external scientific peer review entity for its evaluation."[27] Both Drs. Brezonik and Keller noted significant issues with the materials the Regional Board gave them to review, calling into question whether the required materials were actually "submitted" to the peer reviewers as required by statute.

Dr. Keller indicated that "a number of important documents were not made available for the review," thereby complicating his review.[28] These "large data gaps . . . result[ed] in significant uncertainty in the determination of the TMDLs."[29] The Regional Board did not respond to Dr. Keller's concerns.[30] Dr. Keller also identified that no data was presented in the TMDL.[31] The Regional Board's reference to materials being available on its website does not satisfy the requirement that these materials be "submitted" to the peer reviewer.[32]

Drs. Brezonik and Keller also both noted that the materials they reviewed were unreadable or incomplete. Because this hindered the reviewers' ability to analyze the scientific basis for the TMDL, these submissions did not satisfy the submission requirements under section 57004(d). As such, the Regional Board's subsequent adoption of the TMDL is invalid.

2. The Regional Board Responses Did Not Adequately Address The Areas The Peer Reviewers Identified As Being Without "Scientific Basis"

California Health and Safety Code Section 57004(d) requires the Regional Board to revise the TMDL to address areas where the peer reviewers identified a lack of "scientific basis," or to provide a response as to why, contrary to the peer reviewer's opinion, the TMDL contains a proper "scientific basis." Here, Drs. Brezonik and Keller both identified several areas of the

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27 Id. at § 57004(d)(1).

28 Keller Report at 2.

29 Keller Report at 1.

30 See Responses to Peer Reviewers at 1.2-1.3 (skipping from the last paragraph on page 1 of Dr. Keller's comments to heading #1 on page 2 of Dr. Keller's comments without addressing the paragraph in between that identified documents not made available to Dr. Keller).

31 Keller Report at 2.

32 Responses to Peer Reviewers at 1.3.

TMDL that lacked "scientific basis"; yet, the Regional Board Responses did not meet either condition of California Health and Safety Code Section 57004(d).

Illustrative examples of where the Regional Board Responses did not revise the TMDL or adequately respond to the peer reviewer's comments include:

- Comment 2.17 from page 4 of Dr. Brezonik's peer review report relates to the "tiny values" in the TMDL for DDT and PCBs and whether these values were actually measurable. The Response to these serious concerns about the lack of scientific basis for the "tiny values" stated only that "[a] TMDL is required to calculate the appropriate allocation."[33] This does not constitute a statement of disagreement or provide the necessary scientific basis for these values.

- Dr. Keller's comment labeled 1.24 from page 7 of his peer review report states that the "lack of transparency in the TMDL document with regards to the relatively poor calibration of the model is not acceptable scientific practice." The Regional Board responded to Dr. Keller's comment by simply restating the language in the TMDL that Dr. Keller identified as lacking a scientific basis.[34] (The Regional Board makes similar restatements throughout its Responses.) Restatement of the facts and processes the peer reviewer previously reviewed does not satisfy the statutory requirement that the Regional Board explain the scientific basis of its actions.

- The Responses do not directly respond to Dr. Brezonik's statement on page 5 of his report that he "must conclude that the TMDL report does not provide a sufficient scientific basis for the proposed plan and allocations."[35] Instead, the Regional Board referred back to an earlier response to one of Dr. Keller's comments, comment 1.37.[36] This Response merely restates what actions the Regional Board took in developing the TMDL; the Response does not fulfill the statutory requirements by explaining the *scientific basis* of the TMDL. The Response does state that "a factor of 2 difference [sic] between predictions and observations is considered good and has been accepted in a number of major contaminated sediment modeling studies."[37] However, the Response also acknowledges that "[m]ost of these studies have not been published due to the proprietary nature and/or ongoing litigation."[38] By referencing material that cannot be part of the record and was not provided to the peer reviewers or the public for their review, the Response does not explain the scientific basis of the TMDL.

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33 Responses to Peer Reviewers at 2.17.

34 Id. at 1.24.

35 Id. at 2.22.

36 Id.

37 Id. at 1.37.

38 Id.

Because the Regional Board Responses did not address those areas identified by the peer reviewers as lacking "scientific basis" or alternatively respond substantively to those concerns, the adoption of the TMDL by the Regional Board violated the California Health and Safety Code.

II. MONTROSE HAS CONTINUED TO WORK WITH THE REGIONAL BOARD ON MASS BALANCE ISSUES SINCE THE ADOPTION OF THE TMDL

In our February 22, 2011 comment package, we identified a serious mass balance calculation defect in the TMDL which the Responses now admit exists.[39] This is a critical error in a TMDL because a TMDL is itself a mass balance between assimilative capacity on the one hand, and allocation and other categories on the other. Without a proper mass balance, the TMDL and the assigned allocations cannot reflect the actual assimilative capacity of the water bodies at issue.

Because of the critical nature of the mass balance issue to TMDL development, the Regional Board received staff's commitment to work with interested stakeholders after adoption on this issue. At the May 5, 2011 hearing, Board Member Charles Stringer requested assurance from staff that the mass balance (among other technical issues) would continue to be worked on:

> On the mass balancing issue and I think the other technical issues that came up today, I'm not even going to pretend that I can weigh in on that in any meaningful way on that sort of thing, but I want to be assured that those conversations are going to continue with the technical experts who have spent time making comments today? To the extent that there's – I mean, the disagreements may last in perpetuity, but to the extent that further clarifications can be added and further edification from these conversations, I would hope that those conversations will continue.[40]

Montrose actually communicated with Regional Board Staff after the close of the formal comment period and before the May 5 hearing to address this issue, and then also after the adoption hearing. Below is a summary of the discussions on this issue:[41]

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39 See "Review and Comment on Loading Estimates Related to TMDL Development for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters," Drs. Pravi Sresthra and Charles Menzie, at 3 ("Mass balance computations for sediment and contaminants were not performed as part of the model assessment, and hence there can be no reasonable confidence that contaminant concentrations derived from model predicted deposition are correct."); Regional Board Response 36.54 ("While a mass-balance computation was not performed, model results were provided in graphical and/or tabular format to demonstrate model fit.") (emphasis added).

40 Transcript of May 5, 2011 Hearing of Regional Board at 225-226.

41 Copies of the materials referenced in this summary are attached hereto, and we respectfully request that those materials be included in the administrative record for the TMDL, pursuant to Cal. Code Regs., tit. 23, § 3779(f).

- On April 8, 2011, Latham & Watkins, LLP ("Latham"), on behalf of Montrose, sent a letter addressed to Samuel Unger, Executive Officer of the Los Angeles Regional Board, following up on a meeting between Latham and Regional Board Staff on March 16, 2011. In this letter, Latham expanded upon the original comment by Dr. Charles Menzie (now labeled Comment 36.54 in the Responses), that a mass balance calculation had not been performed for the TMDL. A copy of this letter is attached hereto as Exhibit D-1.

    - In the April 8, 2011 letter, Latham provided a summary of calculations performed by Dr. John List that demonstrated the serious nature of the mass balance issue. Staff identified an error in Latham's presentation of Dr. List's calculations. In the text and footnotes, Latham reported concentrations in "milligrams per kilogram (mg/kg)," when the appropriate units were "micrograms per kilogram (ug/kg or µg/kg)."

    - Notwithstanding the typo, the calculations included in the Latham letter demonstrated the mass balance defect using TMDL data for two adjacent water bodies, the Dominguez Channel Estuary and Consolidated Slip. These calculations showed that sediment from the same source, the Dominguez Channel Watershed, allegedly has a DDT concentration of 19.34 ug/kg when deposited sediment in the Dominguez Channel Estuary but then increases to 133.33 ug/kg when deposited in the Consolidated Slip. This violates mass balance principles.

- On April 15, 2011, Dr. List spoke with Executive Officer Unger on the phone to discuss the typo in the April 8, 2011 letter discussed above.

- On May 2, 2011, Dr. List wrote Executive Officer Unger a letter correcting the typo in the April 8, 2011 letter and providing additional reasons why the TMDL did not comply with mass balance principles. A copy of this letter is attached hereto as Exhibit D-2.

- On May 5, 2011, Dr. List presented slides on the mass balance point to the Regional Board at the adoption hearing. A copy of these slides is attached hereto as Exhibit D-3.

- Pursuant to assurances from staff provided at the hearing to Board Member Stringer, Dr. List and his colleague, Dr. Susan Paulsen, met with Executive Officer Unger and Thanloan Nguyen on June 13, 2011 to further discuss the mass balance issues.

The critical mass balance errors identified by Drs. Menzie and List have not been addressed in the TMDL and thus remain a part of the TMDL the State Board is considering in this proceeding. Submitted herewith as Exhibit C is an additional explanatory document from Dr. List which demonstrates the crucial issues that must be addressed in the TMDL a result of the mass balance defect.

III. THE RESPONSES DO NOT PROVIDE A VALID EXCUSE FOR ADOPTING A BROKEN TMDL

A. Reliance On A "Re-Opener" Does Not Justify Adoption Of A Broken Rule

The Regional Board Responses state repeatedly that the TMDL will be reexamined after a re-opener, suggesting that the TMDL was envisioned as an "adaptive TMDL." An adaptive TMDL is a TMDL that utilizes a post-development implementation concept to revise numerical standards when more advanced data is available in the future.[42] Adaptive TMDLs must, however, meet the basic requirements for TMDLs at the time of adoption.[43]

Although adaptive TMDLs can be revised in the future, this fact does not remove the responsibility to adopt a feasible TMDL that is based on sound data and complies with the legal requirements of the CWA and the Porter-Cologne Act. As explained in NRDC v. Fox, the CWA "does not allow for incremental achievement of water quality standards through successive approval of TMDLs that fall short of the required standard."[44] In Fox, EPA attempted to justify approval of a TMDL that did not meet CWA requirements by contending that the state simply had not yet developed the criteria for establishing a TMDL that complied with the requirements in the CWA. The court dismissed this approach as only a "token effort" to comply with CWA Section 303(d).[45] Similar to this "token effort" referenced in Fox , the TMDL's reliance on an adaptive approach does not excuse the TMDL from complying with the legal requirements of the CWA and the Porter-Cologne Act.

B. The Deadline Imposed By The Heal The Bay Consent Decree Does Not Excuse Adoption Of A Broken Rule When Other Legal TMDL Options Were Available

The Responses repeatedly reference the consent decree entered into in Heal the Bay, Inc. v. Browner[46] (the "Heal the Bay Consent Decree"), and the March 24, 2012 deadline established thereunder for development of the TMDL. The Responses rely on the Heal the Bay Consent Decree as the basis for why the TMDL did not take certain necessary steps which would have resulted in a technically defensible TMDL.[47] But a judicial deadline does not provide justification for a TMDL that does not comply with statutory mandates.

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42 See EPA Memorandum from Benita Best-Wong, Director, Watershed Assessment and Protection Division to Water Division Directors, Regions I-X, "Clarification regarding 'Phased' Total Maximum Daily Loads" (Aug. 2, 2006).

43 Id. (explaining that phased TMDLs, which are an example of the adaptive implementation approach and share many features with adaptive TMDLs, must be established at a level necessary to meet water quality standards, just like all other TMDLs).

44 NRDC v. Fox, 30 F. Supp. 2d 369, 381 (S.D.N.Y. 1998).

45 Id. at 374.

46 Case No. C98-4825 SBA (N.D. Cal. 1999).

47 See Responses to Modeling Comments at M1.3 ("A limited number of scenarios were completed to determine allocations. This is a reasonable decision based on limited budget and requirement [sic] to complete TMDLs within the consent decree deadline."); see also id. at M1.6, M2.12,

Consent decrees must be consistent with state and federal statutes or else they are void as against public policy.[48] While the Heal the Bay Consent Decree requires TMDL adoption by a specific date, it cannot allow for the adoption of TMDLs that are inconsistent with state and federal statutes and therefore against public policy. The Responses that claim that certain decisions were appropriate given the time pressures of the Heal the Bay Consent Decree deadline do not excuse the TMDL from meeting the requirements of the CWA and the Porter-Cologne Act, especially when alternative TMDLs that comply with those state and federal statutory mandates were available to the Regional Board and could have otherwise been adopted.

C. Use Of The "Best Available Data" Does Not Remedy Errors Made During Development Of The TMDL

The Responses claim frequently that the "best available data" were used to develop the TMDL.[49] But even the best available data cannot save models and methods that contain fundamental flaws and errors, as identified here by both peer reviewers and other experts.

While no court has interpreted what the "best available data" entails in the TMDL context, an analogous standard was discussed by the U.S. Supreme Court in Bennett v. Spear.[50] There, the Court was interpreting the Endangered Species Act's ("ESA") requirement that agencies use the "best scientific and commercial data available" when undergoing a consultation to determine if an agency action is likely to jeopardize an endangered species.[51] The Court held:

M2.17, M2.27, M2.33, M4.1, and M4.3 (making similar statements and referencing the "consent decree deadline").

48 In Re Smith, 926 F.2d 1027, 1029 (11th Cir. 1991); see also Atlantic Co. v. Broughton, 146 F.2d 480, 482 (5th Cir. 1944) (stating that while settlements are favored, "they may not be sanctioned and enforced when they contravene and tend to nullify the letter and spirit of an Act of Congress.").

49 See e.g. Response to Comment 36.33B ("The TMDL modeling incorporated the best available data and information and the time the modeling was conducted, which is consistent with TMDL requirements.").

But the TMDL did not necessarily rely on the "best available data," as an arbitrary "cut-off" of 2006 was used, meaning data collected after 2006 was not considered in development of the TMDL. See Responses to the Ports' Modeling Comments at 1 (stating model development was bounded by a 2006 "data cut-off date.").

Data collected after 2006 was available for use in the TMDL. See Comment and Response to Comment M2.17 (referencing data collected in other locations than those considered by the TMDL collected by the Ports between December 2009 and April 2010, and stating that a "'data cut-off' was established as well as 'no further' model revisions date."). Because this data was more recent than that used in the TMDL, because it covered areas affected by the TMDL for which data was not apparently used in TMDL development, and because it was "available," this newer data is part of the "best available data."

50 520 U.S. 154, 176-177 (1997).

51 16 U.S.C. § 1536(a)(2).

> The obvious purpose of the requirement that each agency 'use the best scientific and commercial data available' is to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise. While this no doubt serves to advance the ESA's overall goal of species preservation, we think it readily apparent that another objective (if not indeed the primary one) is to avoid needless economic dislocation produced by agency officials zealously but unintelligently pursuing their environmental objectives.[52]

Similar to the ESA provision in Bennett, TMDLs and other scientific rules also need to make use of the "best available data" to avoid being "implemented haphazardly, on the basis of speculation or surmise," and therefore avoid "needless economic dislocation" between the rule and the benefits achieved by the rule. Here, as identified by numerous expert and peer review comments, the TMDL is based in part on unfounded and unreliable data analyses and modeling, which may lead to economic inequalities between the TMDL and the benefits achieved by it, if any.

For example, the Responses admit that no mass balance calculations were performed and the models used were not properly validated or calibrated.[53] Given these technical deficiencies, expert and peer reviewers have called the model unreliable and without scientific basis. The allocations and targets derived under this unreliable modeling have in turn led to the TMDL describing unnecessary and expensive remedial actions without demonstrating the benefit that would come from these actions. The Responses' reliance on the use of the "best available data" cannot remedy the problems that have been identified with the TMDL.

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52 Id.

53 Response to Comment 36.54 ("Limited data were available for model calibration and validation; however, the best available information was used. While a mass-balance computation was not performed, model results were provided in graphical and/or tabular format to demonstrate model fit.").

EXHIBIT C

SUMMARY OF TMDL MASS BALANCE ISSUES

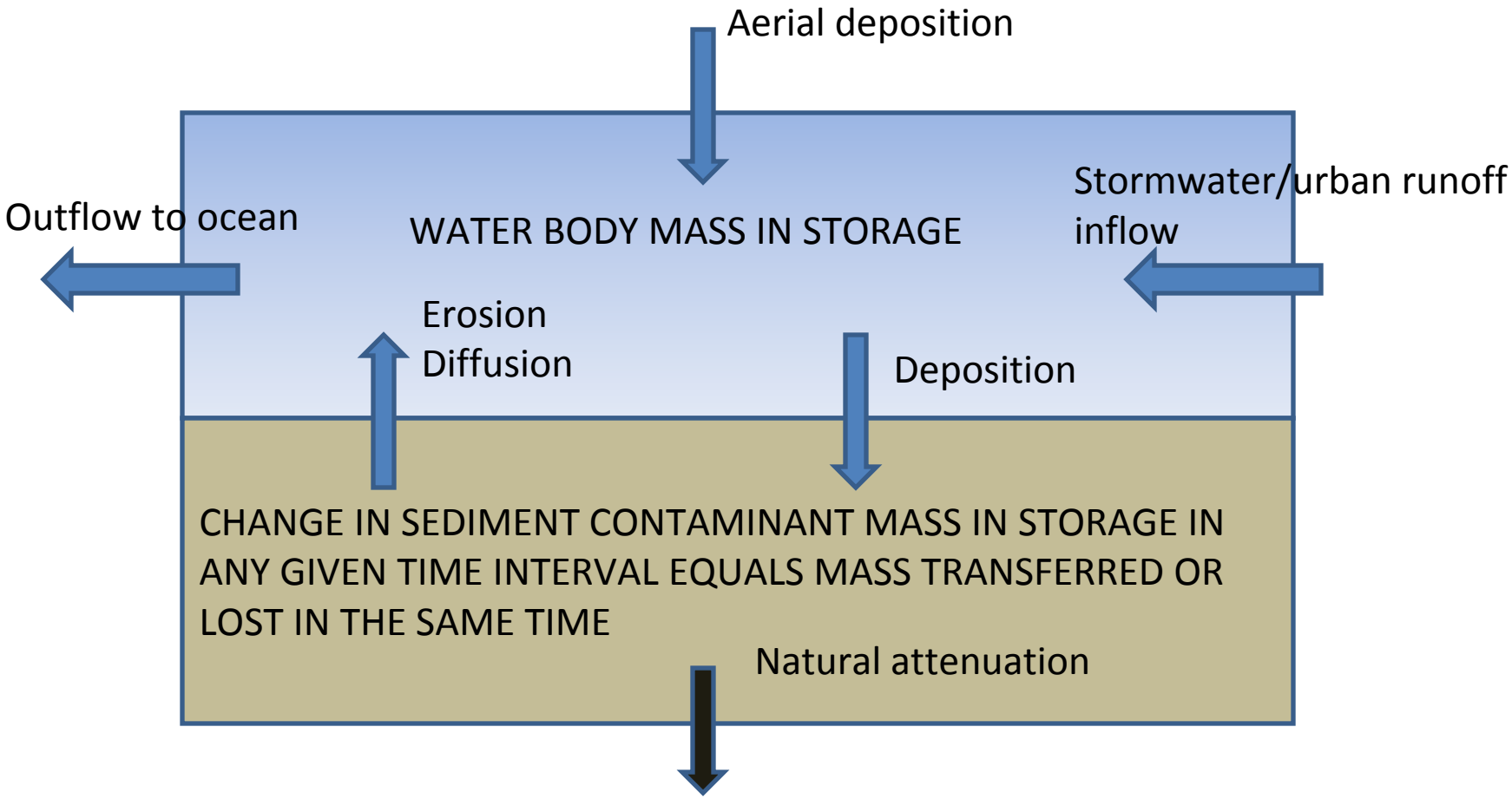
Prepared by

E. John List, Ph.D., P.E.
Principal Consultant
Environmental Defense Sciences
Pasadena, CA 91101

TMDL MASS BALANCE IS FLAWED

- Ignores the net mass flux out of sediment identified in the modeling.
- Calculates sediment loadings incorrectly.
- Arbitrarily assigns sediment concentrations.
- Incorrectly assigns atmospheric deposition.
- Ignores natural attenuation.
- Illogically assigns load allocations.

SCHEMATIC OF A PROPER POLLUTANT MASS BALANCE PROCESS (pollutant in water and sediment compartments)



TMDL MODELED FOUR YEARS OF RUNOFF

- Two Model Scenarios:
  - *Base scenario* had contaminant inflows from upland sources.
  - *No load scenario* excluded upland contaminant sources.

- Bed sediment concentrations for both scenarios for organic contaminants were close to identical in most of Harbor.

- Both model scenarios showed a net flux of organic contaminants out of the bed sediments.

- Typical example shown by PAHs.

The TMDL model acknowledges that the concentrations of organic contaminants in the Harbor sediments are declining because of a net flux of material from the sediments to the water column:

Sediment bed contaminant concentration for both DDT and PAH show a continual decrease for all stations and both scenarios consistent with a net flux into the water column. Since the copper and zinc bed concentrations do not show a continuous decrease, the flux of DDT and PAH is attributed to pore water diffusion from the top layer of the sediment bed into the water column. This is also supported by the observation that during dry or low inflow periods, water column DDT and PAH concentrations behave in a similar manner. The flattening of the bed concentration curves over the four year period indicates that pore water and water column concentrations are coming into equilibrium and that the bed source of water column DDT and PAH diminishes with time.

Source: TMDL Page D-17 Appendix D to Appendix I

TMDL modeling shows that the average concentration of PAH in Harbor sediments is declining irrespective of upland loading:

Appendix III – Supplemental Technical Information

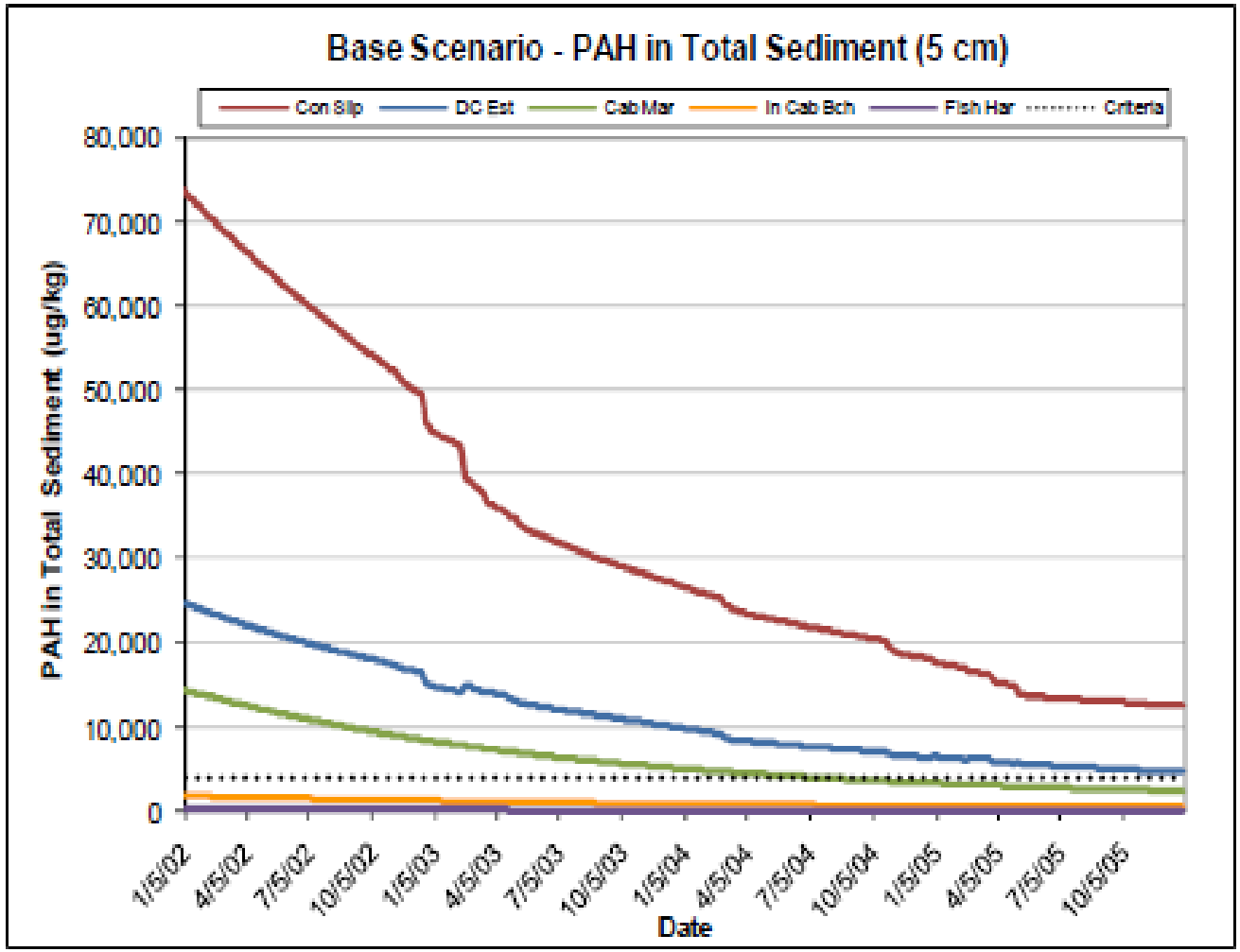


Figure 8. Sediment PAH concentrations for the base scenario (Consolidated Slip, Dominguez Channel Estuary, Inner Cabrillo Beach Area, Cabrillo Marina, and Fish Harbor)

TMDL modeling shows that the concentrations of PAH in Harbor sediments are also declining with no upland loading:

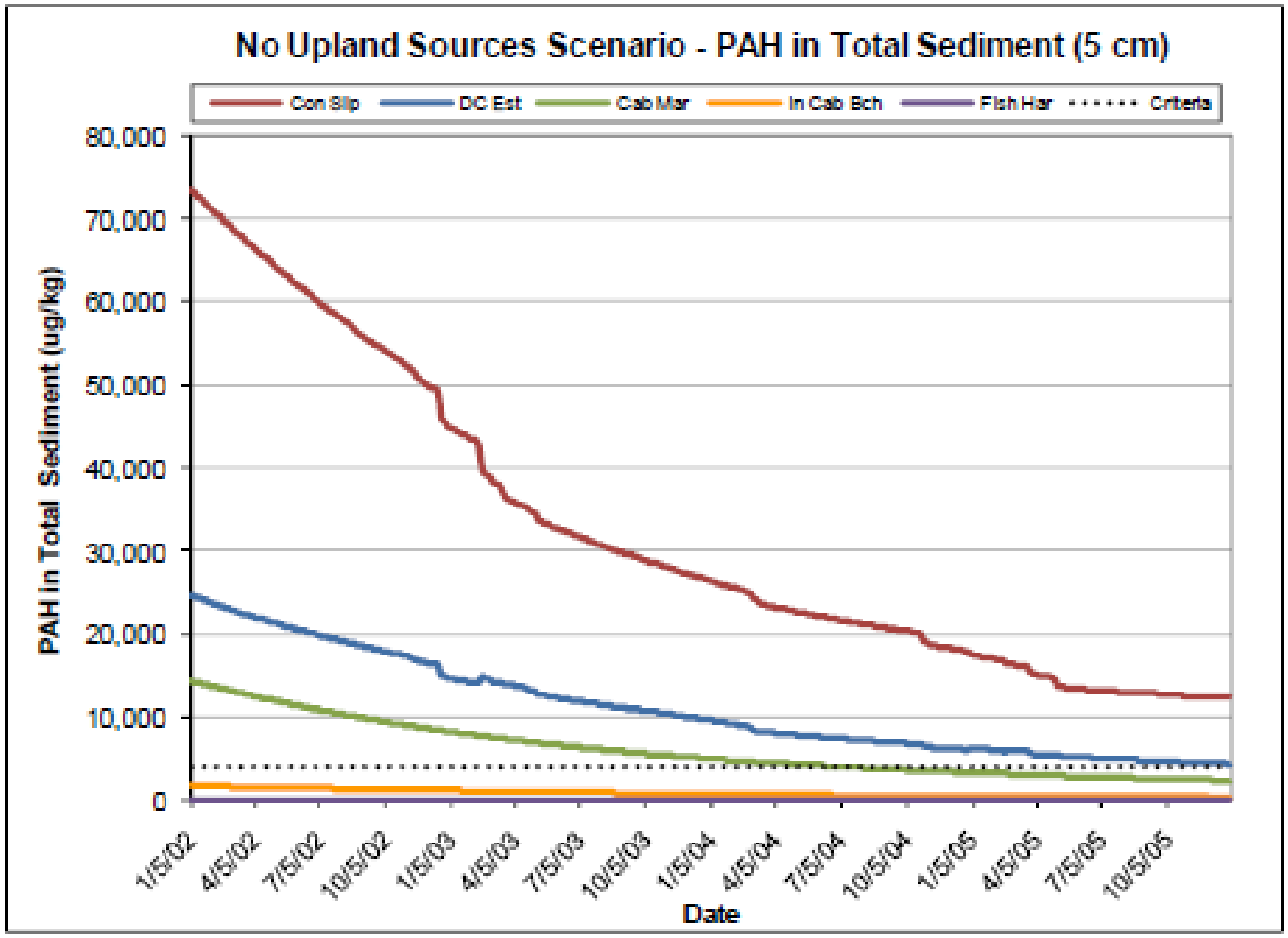


Figure 9. Sediment PAH concentrations for the no upland sources scenario (Consolidated Slip, Dominguez Channel Estuary, Inner Cabrillo Beach Area, Cabrillo Marina, and Fish Harbor)

Source : TMDL Appendix III Supplemental Technical Information (Page III-71)

Average Sediment Concentrations Show Very Little Change With Removal of Upland Load

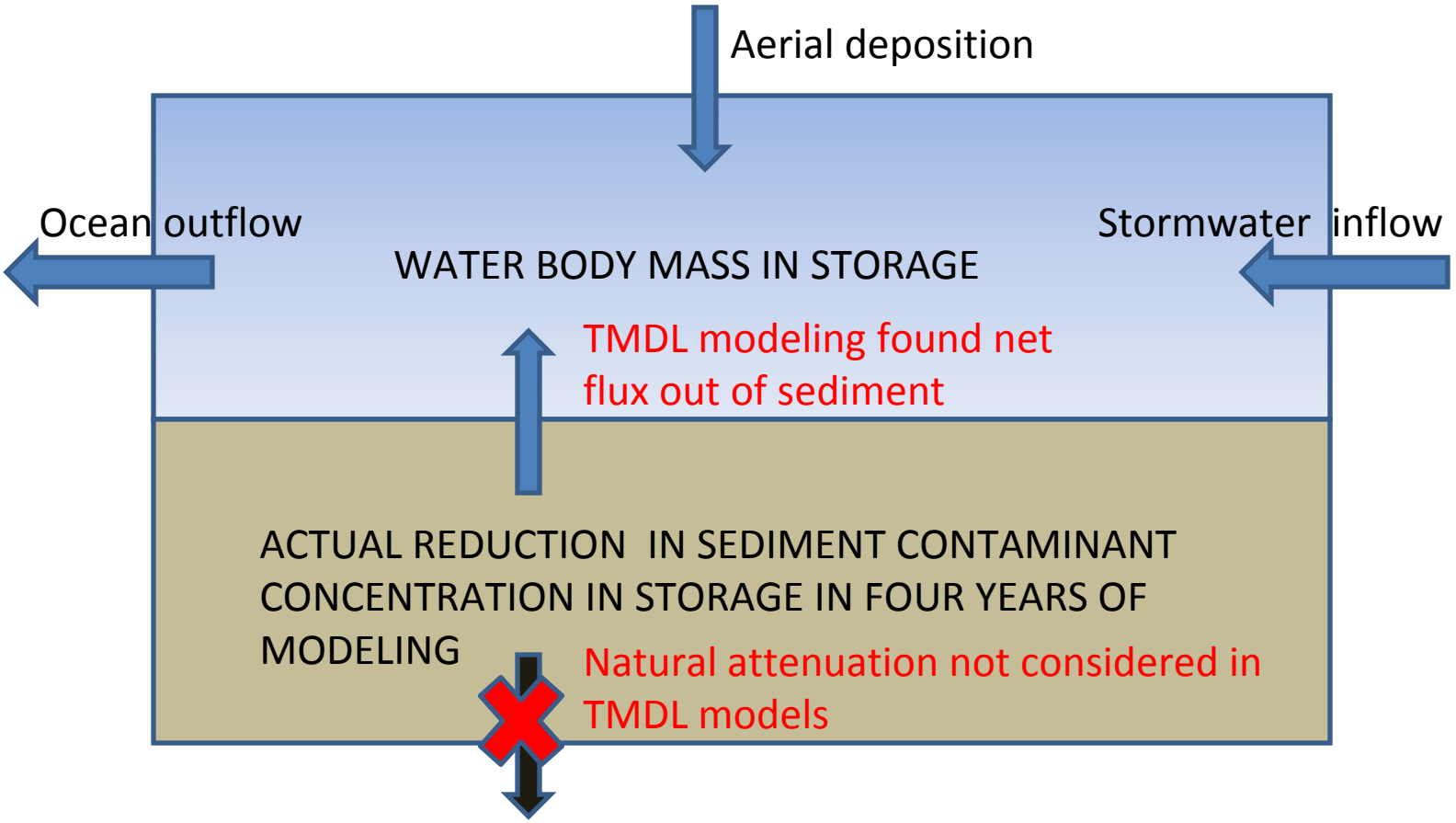
Table 5. Sediment PAHs concentrations for the base and no upland sources scenarios

Zone	Waterbody Name	PAHs (total) in top 5 cm of sediment (ug/kg)					
		Criteria: 4,022 ug/kg					
		Base Scenario Avg	Base Scenario Max	No Upland Sources Scenario Avg	No Upland Sources Scenario Max	% Diff Avg	% Diff Max
01	Dominguez Channel Estuary	11,368.33	24,688.59	11,208.22	24,688.43	1.41	0.00
02	Consolidated Slip	32,372.88	73,510.71	32,240.56	73,510.71	0.41	0.00
03	Inner Harbor – POLA	1,939.55	3,869.77	1,915.24	3,869.77	1.25	0.00
04	Fish Harbor	113.09	168.61	107.05	168.61	5.35	0.00
05	Cabrillo Marina	6,083.00	14,345.76	6,089.34	14,345.76	-0.10	0.00
06	Inner Cabrillo Beach Area	889.18	1,771.06	891.98	1,771.06	-0.32	0.00
07	Outer Harbor – POLA	586.29	1,180.22	583.60	1,180.22	0.46	0.00
08	Inner Harbor – POLB	678.75	1,246.81	670.25	1,246.81	1.25	0.00
09	Outer Harbor – POLB	159.08	265.25	153.93	265.25	3.24	0.00
10	Los Angeles River Estuary	403.60	682.03	277.28	681.38	31.30	0.10
11	San Pedro Bay	190.72	294.32	154.20	294.32	19.15	0.00

Orange color indicates average zone concentration exceeds contaminant sediment criteria

Source: TMDL (Table 5 – Appendix III Page II-70)

SCHEMATIC OF THE TMDL MODELING OF THE HYDROLOGY AND HYDRODYNAMICS OF A TYPICAL WATER BODY AND SEDIMENT
Organic contaminants: DDT, PCB, PAH



EXAMPLE OF MODELED MASS LOSS:
PAH NET MASS LOSS -- CONSOLIDATED SLIP
(top 5 cm of sediment, see Slides 6 and 7)

INITIAL PAH CONCENTRATION	= 74,000 micrograms/kg (Figure 8, App. III)
FINAL PAH CONCENTRATION	= 12,000 micrograms/kg (Figure 8, App. III)
AREA OF CONSOLIDATED SLIP	= 147,103 square meters (Table III.1-1, App. III)
VOLUME OF SEDIMENT	= 0.05 x 147103 = 7,355 cubic meters
SEDIMENT DENSITY (approx)	= 800 kg/cubic meter[(a)] (Table III.3-1, App.III)
MASS OF PAH LOST (approx)	= 800 x 7355 x (74000-12000) micrograms
PAH MASS LOST IN 4 YEARS	= 365 kg
AVERAGE LOSS RATE	= 91 kg/yr

Footnote: (a) Based on average sediment porosity of 0.67

THERE IS A FUNDAMENTAL PROBLEM

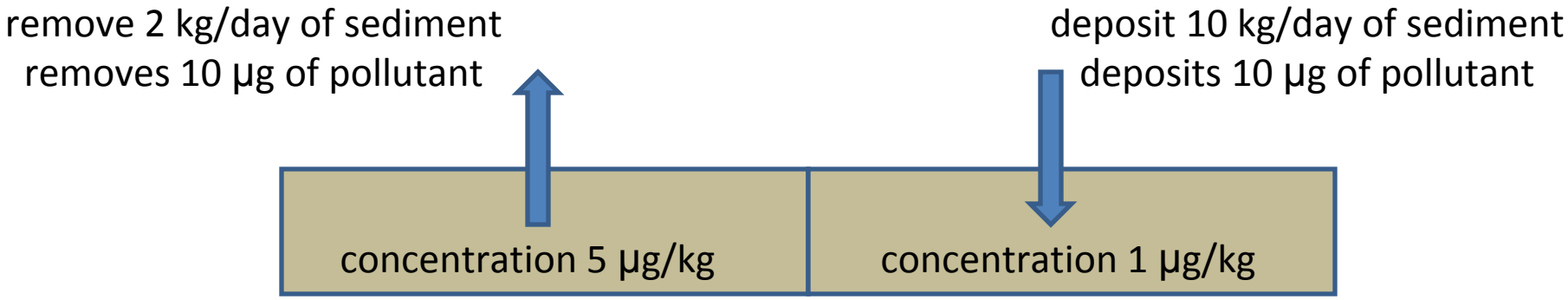
- Defining a Total Maximum Daily Load (TMDL) of contaminant to a sediment bed has no significance if there is a net negative loading to the sediment.
- The TMDL modeling found the sediment organic contaminant load is negative and therefore bed sediments are technically in compliance with any postulated TMDL.

HOW TMDL ATTEMPTED TO RESOLVE DILEMMA

- Ignored the erosion and diffusion loss.
- Invented a sediment loading by arbitrarily defining a “current” load.
- “Current” load defined as average sediment deposition rate multiplied by the average bed sediment concentration (Appendix III, page III-4).
- This definition is meaningless for two reasons:
  - It is an incorrect definition for mass flux – commits “Fallacy of Averages” (demonstrated on next slide).
  - The contaminant concentration in the sediment being deposited was arbitrarily set equal to the average bed sediment concentration.
    - There is no scientific basis for this arbitrary selection.

EXAMPLE OF HOW THE "CURRENT" LOAD COMPUTATION USED IN THE TMDL IS INCORRECT

Consider two different parts of a bed sediment body that overall has no net combined pollutant mass loss or gain



Calculating bed sediment "current" load as done in the TMDL demonstrates the problem:

AVERAGE CONCENTRATION = (5 +1)/2 = 3 µg/kg

AVERAGE DEPOSITION RATE = (10 -2)/2 = 4 kg/day

COMPUTED "CURRENT" LOAD = (AVG. CONC.) x (AVG. DEPOSITION RATE)

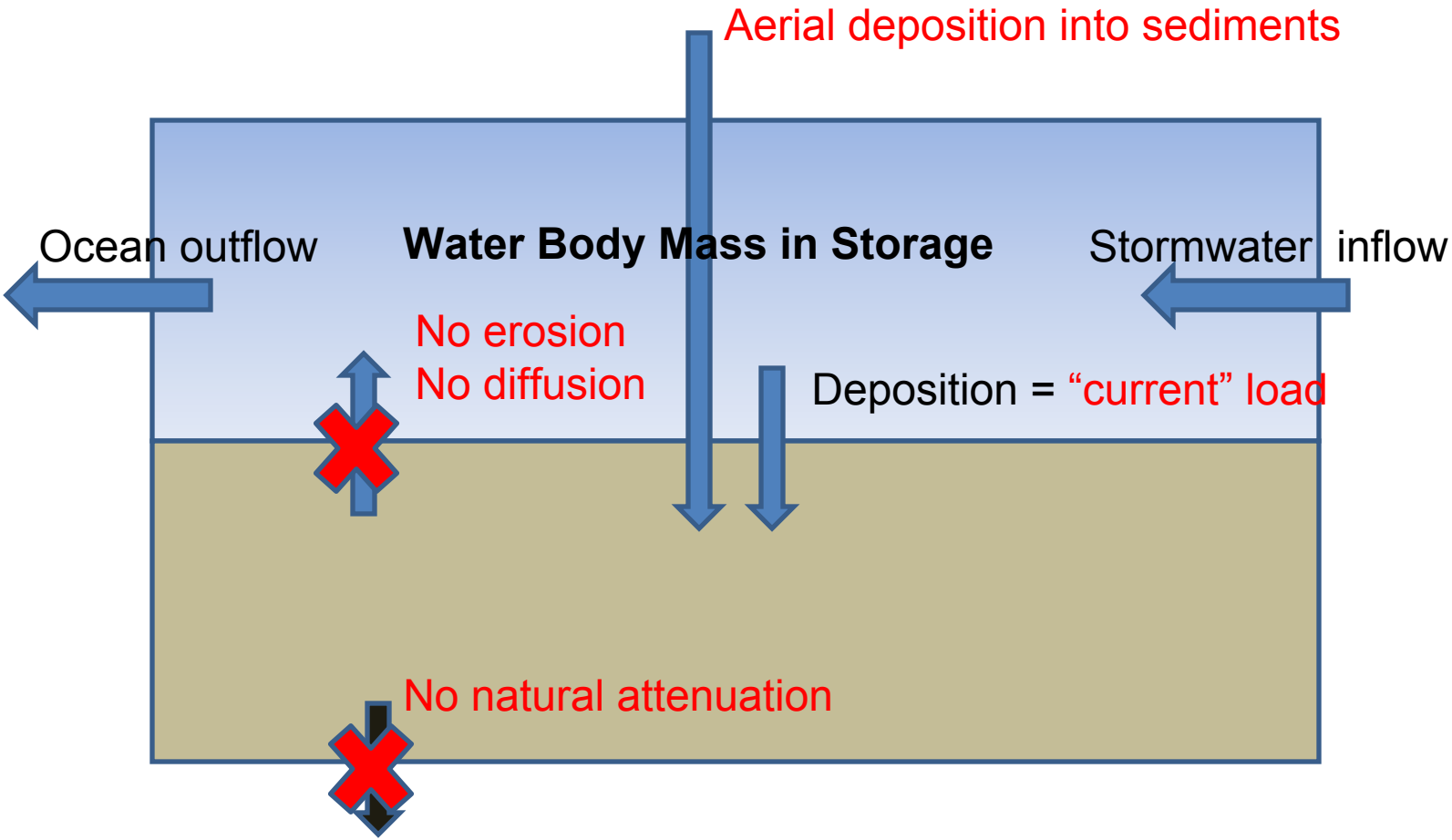
= **12 µg/day** pollutant calculated going into the bed.

As described above, there is no actual mass loss or gain, but in this case when the "current" load is calculated as in the TMDL, it appears that there is a mass gain by the sediments.

OTHER REASONS WHY THE TMDL'S ORGANIC CONTAMINANT MASS BALANCE IS FLAWED

- Takes air deposition load directly into sediments
- Omits erosion and diffusion loss to water column
- Ignores natural attenuation within sediments
- Applies an incorrect deposition loading

SCHEMATIC OF THE TMDL'S FLAWED MASS BALANCE

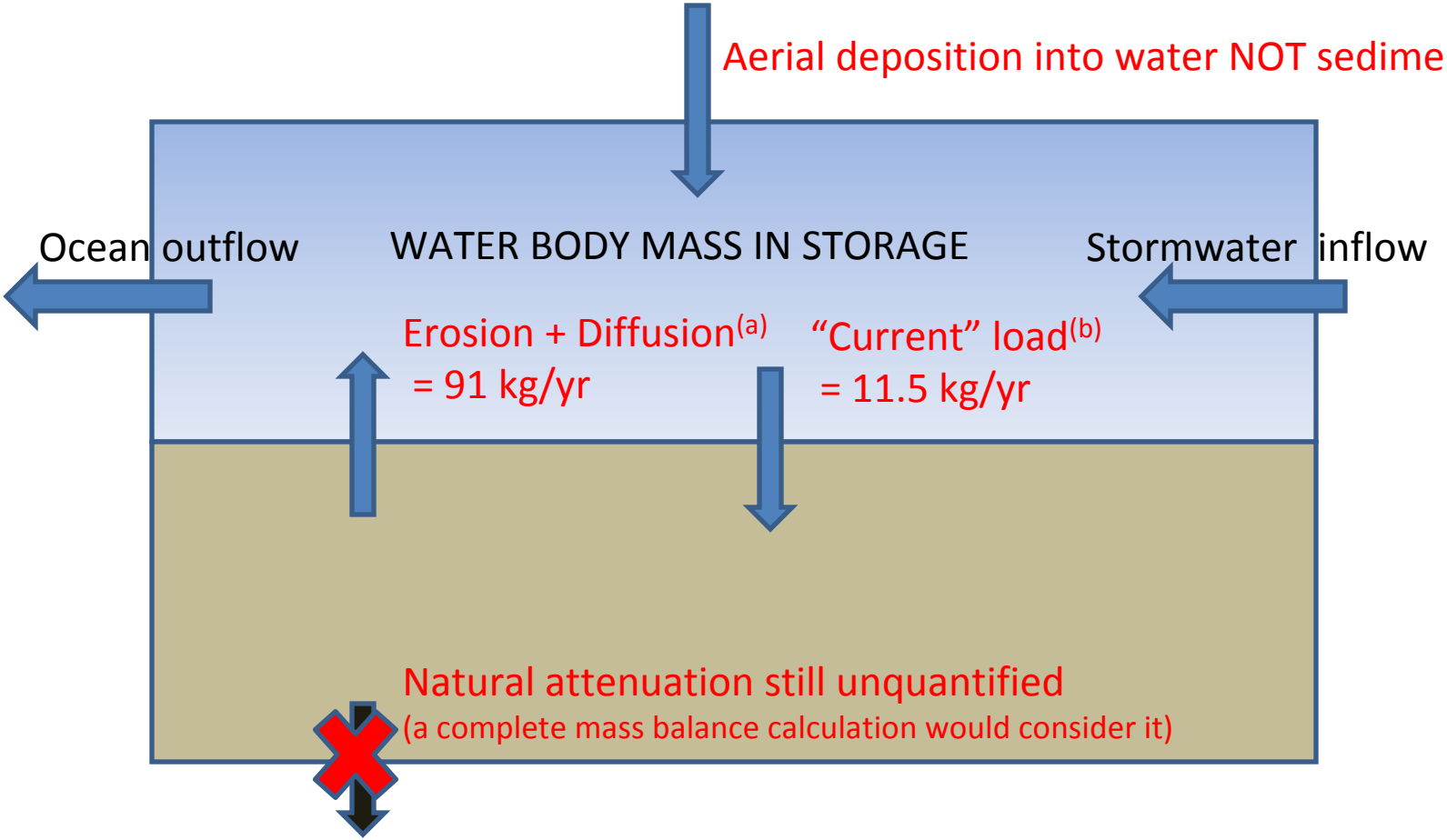


…

SCHEMATIC OF WHAT A (PARTIALLY) CORRECTED TMDL MASS BALANCE WOULD LOOK LIKE

Example: PAHs in Consolidated Slip where TMDL = 1.43 Kg/Yr

When erosion and diffusion are considered, the system is TMDL-compliant.



Footnotes: (a)– Computed from Figure 8 Appendix III; (b) – Amendment to Water Quality Plan, page 15.

DESCRIPTION OF HOW SCHEMATIC OF (PARTIALLY) CORRECTED TMDL MASS BALANCE DEMONSTRATES TMDL COMPLIANCE

- When erosion and diffusion are considered, the TMDL is met, even accepting the TMDL's "current" load:

TMDL "current" load		11.5 kg/yr[(b)]
Calculated negative load (loss) due to erosion and diffusion	+	-91 kg/yr[(a)]
"Current" load + loss due to erosion and diffusion	=	-79.5 kg/yr

- This total load of -79.5 kg/yr represents a net loss from the system of 79.5 kg/yr, demonstrating TMDL compliance.

- There is likely to be an even greater effect when natural attenuation is calculated and considered, which has not been done in this calculation.

Footnotes: (a)– Computed from Figure 8 Appendix III; (b) – Amendment to Water Quality Plan, page 15.

TMDL LOAD ALLOCATION IS ILLOGICAL

- A Waste Load Allocation is assigned to upland sources despite model results showing little or no impact of these sources on organic contaminants in sediments.
  - The modeling results were ignored.
- Sediment TMDL assigns a load allocation to the sediment itself.
  - Because no mass balance calculation was done, this does not represent the system.
- Allocation computations have the effect of creating a mass of pollutants that is likely not in the system, violating mass balance principles.

EXHIBIT D

EXHIBIT D - 1

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LATHAM & WATKINS LLP

April 8, 2011

Mr. Samuel Unger
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL

Dear Mr. Unger:

We would like to thank you and your staff for meeting with us on March 16, 2011 to discuss the draft Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL ("the draft TMDL"). As we discussed at that meeting, we are submitting herewith an edited version of the proposed Basin Plan Amendment ("BPA") for your consideration.[1] We appreciated your indication at our meeting that you were receptive to receiving such proposed revisions. In addition, this letter also addresses two other issues. First, we are providing more information regarding the breakdown of DDT in the subject waters, which you asked about at our meeting. Second, we wanted to bring to your attention a significant mass balance calculation defect with the draft TMDL which we have discovered since our meeting. It is important that this mass balance calculation defect be corrected so that the TMDL which is adopted accurately reflects the actual assimilative capacity of the affected waterbodies.

1. Breakdown of DDT

You asked about the carbonization of DDT, a topic of great importance since it provides a mechanism to breakdown DDT via *in situ* processes, rather than invasive and environmentally harmful approaches like dredging. The breakdown of DDT was an important aspect of our comments submitted on February 22, 2011. During our March 16 meeting, Dr. John List discussed some of the important information about this breakdown. For ease of your reference,

---

[1] We respectfully request that this cover letter and its attachments submitted herewith be given appropriate consideration, be placed in the administrative record for the draft TMDL, draft BPA, and draft Substitute Environmental Document, and be maintained in the agency's records.

we briefly summarize herein some of the key information contained in our February 22 submittal regarding the breakdown of DDT.

Enclosed is a study by Quensen et al. (1998) and published in the journal Science regarding the discovery that DDT and its isomers are subject to degradation via anaerobic reductive dechlorination. As reported by Quensen et al., DDT is reduced to DDMU, which is then further degraded. Quensen et al. conducted their research using sediment collected on the Palos Verdes Shelf, an area very proximate to the water bodies that are the subject of the draft TMDL.

More recent work by scientists with the United States Geological Survey ("USGS"), Eganhouse and Pontolillo (2008), confirmed and expanded upon Quensen et al.'s findings. In the enclosed study, Eganhouse and Pontolillo confirmed that DDT breaks down in the environment, and DDT concentrations are expected to continue to decrease significantly over time. Eganhouse and Pontolillo concluded that, referring to DDT on the Palos Verdes Shelf, "*in situ* degradation is expected to be one of the most important, if not the dominant, removal processes for the foreseeable future." In their work, Eganhouse and Pontolillo first described how USGS data from the 1990s suggested that DDMU was "a potential reductive dechlorination product of *p,p'*-DDE," and relied upon Quensen et al. to explain that "experiments conducted with sediments from the Palos Verdes Shelf in the late 1990s demonstrated unequivocally that *p,p'*-DDE could be reductively dechlorinated by native microorganisms[.]" Importantly, Eganhouse and Pontolillo found that this continual breakdown of DDT in the environment caused the amount of DDE in the Palos Verdes Shelf to decline 43% between 1992 and 2003.

Eganhouse and Pontolillo used a model based on their observed data to demonstrate that DDE will continue to decline in the future due to natural processes. Their model also demonstrates that concentrations of the breakdown product DDMU peaked around the year 2002 and continue to steadily decline, and concentrations of the further breakdown product DDNU will peak around the year 2014, after which time the DDNU concentrations will also continually decline. As Eganhouse and Pontolillo's Figure 4 demonstrates, the concentrations of these DDT breakdown products, and by inference DDT, will be dramatically lower in 20 years, the period selected for implementation of the draft TMDL, due to the natural breakdown of DDT and its daughter compounds in the environment.

2. Mass Balance Issue

Since our meeting, Dr. List reported that the draft TMDL is not based on a proper mass balance. Dr. List's recent findings build upon and reiterate comments contained in our February 22 package by Drs. Pravi Sresthra and Charles Menzie, which stated that "[m]ass balance computations for sediment and contaminants were not performed as part of the model assessment, and hence there can be no reasonable confidence that contaminant concentrations derived from model predicted deposition are correct." *See* "Review and Comment on Loadings Estimates Related to TMDL Development for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters" at 3 (submitted herewith for your convenience). That report concluded that "[g]iven the uncertainty in the LSPC model results, there can be no reasonable

confidence that the sediment and contaminant loadings to the System used in the EFDC model result in deposition rates that fit actual conditions." *Id.*

As Dr. List reports, a proper mass balance of a TMDL considers the mass of contaminant present in the sediments at the start of the study, the mass present at the end, and the mass added or lost in the interim. The draft TMDL, however, presumes that a constant mass of contaminants are added to the sediments each year. Specifically, the draft TMDL assumes that the current average DDT concentration in the sediments of each water body multiplied by the sediment deposition rate is the current average yearly load. This assumption leads to the conclusion that the concentration of DDT in the sediments deposited remains constant from year to year and that the same mass of DDT is added to the system each year. This assumption is not reasonably justified and causes the draft TMDL to violate the mass balance principle. Without correction of this calculation defect in the draft TMDL, the TMDL cannot reflect real world conditions and the actual assimilative capacities of the affected waterbodies.

Dr. List performed the following calculations to demonstrate this mass balance problem using the data presented in the tables included in the proposed BPA for the draft TMDL. According to the table on page eight of the proposed BPA (entitled "Annual (clean) Sediment Deposition Rates per (salt) Waterbody"), the sediment deposition in Dominguez Channel Estuary is 2.47 million kg/yr, and sediment deposition in the Consolidated Slip is 0.356 million kg/yr. According to the table on page 17 of the proposed BPA (entitled "Final mass-based TMDLs and Allocations for total DDT and total PCBs (g/yr)"), the current load of DDT to the Dominguez Channel Estuary is 54 g/yr. Assuming that 6 g/yr of DDT is derived from aerial deposition, as allocated in the proposed BPA, the sediments loaded to the Dominguez Channel Estuary must have a DDT concentration of 19.43 mg/kg.[2] Performing the same calculation for the sediments loaded to the Consolidated Slip yields a DDT concentration of 133.3 mg/kg in those sediments.[3] Thus, according to the TMDL, sediment from the same source, the Dominguez Channel Watershed, which is allegedly responsible for these DDT loadings has a DDT concentration of 19.43 mg/kg when it deposits in the Dominguez Channel Estuary, but then increases to 133.3 mg/kg when it deposits in the Consolidated Slip. It is unclear how this could be physically possible; we are aware of no plausible physical explanation and believe there is none. In any event, it violates mass balance principles.

---

[2] ((54 g/yr total current DDT load) – (6 g/yr aerial DDT load)) / 2.47 million kg/yr sediment loading = 19.43 mg/kg DDT concentration.

The current total and aerial DDT loads are from page 17 of the proposed BPA. The total sediment loading is from page 8 of the proposed BPA. This calculation was done by Dr. List.

[3] (49 g/yr total current DDT load) – (1.56 g/yr aerial DDT load) / 0.356 million kg/yr sediment loading = 133.3 mg/kg DDT concentration.

The current total and aerial DDT loads are from page 17 of the proposed BPA. The total sediment loading is from page 8 of the proposed BPA. This calculation was done by Dr. List.

The enclosed edited version of the BPA does not correct for the TMDL's mass balance issues. (For that matter, nor does it correct for a number of the other problems identified in our February 22 comments.) We continue to believe these problems should be corrected. Our suggested BPA revisions, however, would take some important steps to help mitigate certain issues with the draft TMDL and prevent unnecessary regulatory action that could potentially cause significant environmental degradation, while imposing potentially massive costs.

While we understand that the agency chose to close the public comment period on February 22, Dr. List's recent discovery of the draft TMDL's mass balance issues demonstrates that the opportunity to present further public comments is necessary to develop a technically-accurate TMDL which can be successfully implemented. We urge the Regional Board to reopen the public comment period to give itself time to further review the draft TMDL and revise it in accordance with these comments and our proposed revisions. We certainly stand willing to work with the agency if it undertakes such a process, which is completely appropriate under these circumstances.

Please do not hesitate to contact me if you have any questions regarding our proposed revisions, or on the other issues raised herein or in our comments of February 22.

Kind regards,

Paul N. Singarella
of LATHAM & WATKINS LLP

Enclosures

cc: Deborah Smith, California Regional Water Quality Control Board, Los Angeles Region
Dr. L.B. Nye, California Regional Water Quality Control Board, Los Angeles Region
Renee Purdy, California Regional Water Quality Control Board, Los Angeles Region

EXHIBIT D-2

Environmental Defense Sciences

723 East Green Street, Pasadena, CA 91101 Tel: 626-744-1766 Fax: 626-744-1734

May 2, 2011

Mr. Samuel Unger, P.E.
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL

Dear Mr. Unger:

This letter follows up on our recent (April 15) telephone conversation regarding the concentration of DDT in sediments deposited in the Dominguez Channel Estuary and Consolidated Slip. In that conversation you called our attention to a typo in the April 6 letter written to you by Paul Singarella, in which the concentrations of DDT in sediments were given as mg/kg (milligrams/kilogram) instead of µg/kg (micrograms/kilogram). The purpose of this letter is to acknowledge this correction and set the record straight in this regard. In addition, I would like to reiterate the main point of our prior discussion, specifically that the proposed Total Maximum Daily Load for Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters (TMDL) contains a significant mass balance defect, which remains still relevant regardless of the typo.

As discussed in Mr. Singarella's prior letter, according to the table on page 17 of the proposed Basin Plan Amendment (BPA) (entitled "Final mass-based TMDLs and Allocations for total DDT and total PCBs (g/yr)"), the current load of DDT to the Dominguez Channel Estuary is 54 g/yr and the current load to the Consolidated Slip is 49 g/yr. The direct implication of this table is that there is a significant annual load of DDT to the sediments into these two water bodies. The determination of these loadings can only be accomplished in two ways: (1) The mass of DDT stored in the sediments is measured at two different time periods and the difference in mass divided by the time period is the loading; or (2) The integrated mass flux of DDT carried into and out of the water body is measured over a period and the difference divided by the time period is the loading.

However, it appears that the proposed TMDL did not employ either of these two methods to determine the loadings in the table on page 17. Rather. the calculated mass of sediment deposited in a year was determined for each water body and an ***assumed*** concentration of DDT was ***allocated*** to that sediment. In other words, no mass balance was performed in the proposed TMDL and the current "loadings" in the table on page 17 have no apparent scientific basis.

This approach could perhaps have been defensible if a representative concentration of DDT in the sediments carried into the water bodies had been used. However, as pointed out in Mr. Singarella's

letter, the proposed TMDL's computed concentration of DDT in the sediments deposited in the Dominguez Channel Estuary is 19.43 µg/kg[1], while that for the Consolidated Slip was 133.3 µg/kg[2]. Thus, as a result of this assumption, the concentration of DDT falling into the sediments in the Dominguez Channel Estuary as set forth in the proposed TMDL is different from the sediments in the Consolidated Slip, despite the fact that the DDT is from the exact same putative source, namely the Dominguez Channel watershed.

In addition, I also wanted to note that the table on page 8 of the proposed BPA gives the area of the Dominguez Channel Estuary as 567,900 square meters (sq.m) and the area for the Consolidated Slip as 147,100 sq.m. Based upon the mass of sediment deposited meters in each location which is provided in the same table, we see that the deposition rate is 4.45 kg/sq.m/yr in the Dominguez Channel Estuary and 2.42 kg/sq.m/yr in the Consolidated Slip. Therefore, despite almost twice the load of sediment per unit area being deposited in the Dominguez Channel Estuary relative to the Consolidated Slip, the mass of DDT per unit area that is deposited in the Dominguez Channel Estuary is almost an order of magnitude less than that in the Consolidated Slip.

The fact is that there is no substantive evidence that there is currently ***any*** annual load of DDT to the sediments of either the Dominguez Channel Estuary or the Consolidated Slip. Moreover, if the biodegradation of the DDT were factored into the mass balance, there would likely be a negative current load of about 4 percent of the extant mass of DDT per year, as determined by the Eganhouse and Pontolillo study referenced in Mr. Singarella's letter.

We appreciate you drawing our attention to the typo in Mr. Singarella's letter and hope that we can continue a productive dialogue as the TMDL process progresses.

Sincerely,

E. John List, Ph.D., P.E.
Principal Consultant

cc: Paul Singarella, Latham & Watkins LLP

[1] ((54 g/yr total current DDT load) – (6 g/yr aerial DDT load)) / 2.47 million kg/yr sediment loading = 19.43 µg/kg DDT concentration.

The current total and aerial DDT loads are from page 17 of the proposed BPA. The total sediment loading is from page 8 of the proposed BPA.

[2] (49 g/yr total current DDT load) – (1.56 g/yr aerial DDT load) / 0.356 million kg/yr sediment loading = 133.3 µg/kg DDT concentration.

The current total and aerial DDT loads are from page 17 of the proposed BPA. The total sediment loading is from page 8 of the proposed BPA.

EXHIBIT D-3

TMDL DDT Violates Mass Balance

- The same sediments from the Dominguez Watershed are assumed to contain different DDT concentrations depending on where in the LA Harbor they deposit.
- This artificially creates or destroys DDT mass depending on harbor location.
- There is ***no*** scientific basis for this creation or destruction of DDT.
- This is a material defect.

Computed Sediment Loads

	Area (sq. m)	Computed Annual Sediment Load (kg/yr)	Computed Sediment Deposition Rate (kg/sq.m/yr)
Dominguez Channel Estuary	567,900	2,470,000	4.45
Consolidated Slip	147,100	356,000	2.42

Implied DDT Deposition Rates

	Postulated Current DDT Load (less aerial deposition) (g/yr)	Implied Sediment DDT Concentration (µg/kg)	Implied DDT Deposition Rate (µg/sq.m/yr)
Dominguez Channel Estuary	45.0	19.4	86.33
Consolidated Slip	47.4	133.3	322.6

EXHIBIT E

EXHIBIT E

MONTROSE COMMENTS NOT ADDRESSED BY THE REGIONAL BOARD RESPONSES

The Regional Board did not respond to many public comments submitted by Montrose regarding the TMDL. For convenience, those comments to which the Regional Board did not respond that were included as part of the submission by Montrose are indicated in the table below:

No.	Location of Comment[1]	Comment
1.	Exhibit A	Technical Conditions to support the draft TMDL are not present. See items immediately below: • *ERL Values As Cleanup Standards* • *Degradation Not Considered* • *Inflated Bioaccumulation from Sediment to Fish*
2.	Exhibit A	The narrative standard does not provide notice that it corresponds to various numerical proxies for DDT, such as the proposed fish-tissue target of 21 ppb.
3.	Exhibit A	The narrative standard provides no notice that it will be adjudged to be violated on the basis of highly theoretical assumptions as to fish consumption and DDT exposure.
4.	Exhibit B	The methodologies used to calculate the sediment target and sediment load allocations lack a credible scientific basis.
5.	Exhibit B	The approach taken for the sediment target directly contradicts California's Sediment Quality Objectives Policy (SQO Policy), which has been approved by USEPA.
6.	Exhibit B	The Draft TMDL assumes that the atmospheric fallout of DDT to the Harbor does reach the sediments, but offers no evidence for this assumption.
7.	Exhibit B	Evaluating sediment impairment based on a single line of evidence is not appropriate.
8.	Exhibit B	If the TMDL target is applied even with the zero input from the upland source, almost all areas in the Harbors will exceed this target and will require dredging. Thus the total cost for dredging will increase by several factors. In addition, the cost of the dredging would increase greatly if the intent of the TMDL is not only that Harbor sediments would be dredged, but also that dredged areas would subsequently be capped with significant quantities of clean sediment. Post-dredge capping does not seem to have been accounted for in the TMDL cost estimate.

[1] Referring to the location of the comment in the Montrose comment package submitted to Regional Board on February 22, 2011

No.	Location of Comment[1]	Comment
9.	Exhibit C	A sediment guideline (i.e., the ERL) is used as a *de facto* numerical sediment quality standard, when even the authors of this guideline warn against using it for such purposes. According to Long et al. (1995), the ERL is a guideline and is not intended to be used as a sediment quality standard. The authors clearly state that ERL and ERM values should not be used as sediment quality criteria or standards. These guidelines are just one piece of information to be used in determining the potential of sediments to contain harmful levels of a toxic chemical. The guidelines fail to address the bioavailability of the chemical-of-concern and the coavailability of other toxic substances. This leads to many false positives for sediments that exceed these guidelines.
10.	Exhibit C	ERL is akin to an no-observable-adverse-effects-concentration (NOAEC) and, therefore, produces overly-protective TMDLs.
11.	Exhibit C	ERL is inaccurate because it is not experimentally-derived. When used as a sediment quality standard, the ERL is not accurate because it is not based on cause-and effect experimental data and fails to consider bioavailability. The USEPA calculates water quality criteria based on the results of controlled laboratory tests (USEPA 1985), not on an analysis of uncontrolled field observations, as is the case for the ERL. A similar level of rigor should be applied to setting sediment quality standards as is used in setting water quality criteria. Therefore, an accurate sediment quality standard for DDT should be based on the results of controlled experiments which identify the minimum concentration of biologically-available DDT in sediments that causes adverse impacts to aquatic organisms. In addition, there must be an accepted procedure for quantifying the concentration of DDT in a sediment sample that is biologically available. The ERL considers neither; it is not based on cause-and-effect experimental data and it does not account for, or provide a procedure for quantifying bioavailability.
12.	Exhibit C	Using the same sediment quality standard for both effect endpoints is incorrect.
13.	Exhibit C	The Sediment Quality Standard proposed by the Agencies for the protection of human consumers from eating DDT-contaminated fish tissue is inappropriate. The Agencies used the wrong "maximum safe" tissue concentration. OEHHA concludes that the proper "maximum safe concentration" for DDT in fish tissue is 100x higher or 2100 ug DDT/kg fish tissue (assuming one meal of 8 oz offish, once at week - i.e., the same regime as used in calculating the FCG). The ERL is not an appropriate *de facto* sediment quality standard for those waterbodies that have been designated as impaired solely due to elevated fish tissue concentrations of DDT. An appropriate

No.	Location of Comment[1]	Comment
		standard for this endpoint would be based on the identification of a maximum safe tissue concentration considering potential impacts and benefits to human consumers and then converting this to a maximum safe sediment concentration of DDT considering food-chain uptake from sediment to fish tissue (i.e., the BSAF).
14.	Exhibit C	Bioavailability of DDT in sediments is not addressed - The major reason that numerical sediment quality standards have not been promulgated by USEPA, or any other regulatory agency, for DDT and other organic chemicals is the heterogeneity of sediments with regard to how contaminants are bound and what proportion is bioavailable. In this TMDL process, the Agencies have selected a *de facto* numerical sediment quality standard that does not consider the bioavailability of DDT in the sediments present in the waterbodies of concern. Since, as discussed above, the bioavailability of DDT in sediments can vary greatly, the proposed TMDLs are certainly inaccurate.
15.	Exhibit D	This decreasing trend in the bioavailable concentrations of DDT in the sediments was not considered by the Agencies in the development of the TMDLs for DDT in the nine waterbodies of concern.
16.	Exhibit E	The report does not acknowledge the potential employment impacts of the proposed TMDL, or the effect of the cleanup plan on competitiveness of California businesses.
17.	Exhibit E	The report also mischaracterizes the actual costs of impounding and treating stormwater to the levels required by the TMDL.
18.	Exhibit E	The Regional Board failed to consideration the "economic considerations" of the TMDL as required by Water Code Section 13241.
19.	Exhibit E	U.S. EPA has published guidelines for the preparation of TMDLs in California In particular, the EPA states that the State may consider a mix of allocation criteria (see Technical Support Document for Water Quality Based Permit Decisions (EPA, 1991) for more information). These criteria include technical and engineering feasibility, cost or relative cost, economic impacts/benefits, cost effectiveness and fairness/equity. Based on the Staff Report, there is no evidence that staff considered any of these factors in developing the TMDL.
20.	Exhibit E	The analysis of pollutant loadings contained in the report shows that staff has concluded that air deposition of pollutants is a major contributor to water quality degradation. This observation calls into question the wisdom of a policy to require dredging since DDT and other contaminants removed by dredging will simply be redeposited by air. Similarly, the Staff Report does not treat pollutant loading

No.	Location of Comment[1]	Comment
		from the San Gabriel and Los Angeles Rivers, but rather calls for a series of "special studies" to analyze the impact of these inflows. As with air deposition, the likely influx of pollutants from an external source raises the potential that the area may be recontaminated after dredging has been completed. Such an outcome would be inefficient in the sense that tremendous resources would have been expended on dredging and other remediation activities as a result of the TMDL, but ongoing deposition would prevent its water quality targets from being attained.
21.	Exhibit F	Estimation of the waterbody assimilative capacity and the pollution from all sources to the waterbody are weak.
22.	Exhibit F	USEPA guidance, and the California plan for how to evaluate the direct effects of contaminants in sediments and developing an approach for assessing indirect effects of those contaminants on food webs were ignored in the TMDL process.
23.	Exhibit F	Virtually all ecological impairments of The System are based on chemical measurements and an implicit assumption that these measurements are linked directly with harms to the environment or human health. The TMDL document considers none of the available information on biotic conditions in The System or adjacent areas. These have been intensely studied and could provide insights into the existence of or degree of impairment. But virtually all biological and ecological information is left out of the TMDL process. For example, the effects of DDT on wildlife species have been studied for decades. And, the recovery of species has been documented as exposures declined. But none of this technical information is considered in the TMDL process. As a result, the process is technically incomplete and simplistic. By avoiding the consideration of hard information and facts about biological conditions and actual dynamics of The System, the process is reduced to algebra with chemical measurements, without reference to what is happening in The System.
24.	Exhibit F	With the exception of very limited discussion of deposition, the TMDL document does not conduct any technical analysis of assimilative capacity.
25.	Exhibit F	Because chemical behavior in The System is premised on erroneous representations about the behavior of contaminants in sediments, the inevitable conclusion reached within the TMDL document is that rather than the sediments providing long-term sinks for contaminants they instead are sources requiring remediation.
26.	Exhibit F	Water concentrations of many contaminants are already below target levels, fish tissues are approaching or are already within target levels, and there is evidence for long-term declines in chemicals

No.	Location of Comment[1]	Comment
		such as DDT. These dynamic processes relate to assimilative capacity and are not dealt with within the TMDL document. The document instead conveys a perspective that contaminants cannot be assimilated. Therefore, this important technical consideration is absent from the TMDL document.
27.	Exhibit F	The TMDL document erroneously establishes a one-to-one correspondence and presumed causal relationship between tissue levels for fish and contaminants in sediments. However, the predictive tool used - a Biota to Sediment Accumulation Factor (BAF) - is merely a ratio between concentrations in two compartments of a complex marine system. However, the TMDL document presumes this ratio reflects a cause and effect relationship. This erroneous perception is opposite of what Part 2 of the California Sediment Quality Objective plan (SQOs for indirect effects) is attempting to address. Instead, there is recognition in the Part 2 SQO process that fish can accumulate contaminants from water and from other locations. The old and potentially wrong way of assessing linkage between sediments and fish is exactly what has been done for the TMDL process. The uncertainty associated with the BAF approach is not mentioned. However, the work for Newport Bay on which the TMDL process relies shows that water is perhaps the greatest source of bioaccumulative compounds. This observation should at the very least have informed the TMDL process that there is not a proportional causal relationship between sediments and fish tissues.
28.	Exhibit F	The load calculated for The System and used as a basis for allocation is actually much lower than the actual solids/sediment load entering The System. By artificially constraining the actual load to The System, the TMDL process has also set an artificially low TMDL for contaminants entering The System.
29.	Exhibit G	Some of the data used for the calibration is data from 2006, which is outside the period of simulation (2002-2005). Differences between model and data vary by up to a factor of four. Model validation of sediment and contaminants was not carried out to assess model performance. Appendix B of Appendix I described model performance measures, however, for the sediment and contaminant transport calibration effort, these quantitative measures were not utilized. Given the deficiency in model calibration, the results of the sediment and contaminant transport models need closer scrutiny.
30.	Exhibit H	A large and operational urban port is a very different type of environment for benthic invertebrates than is an undisturbed coastal embayment. This difference is a factor that should be considered for assessment and risk management. In light of this difference, the

No.	Location of Comment[1]	Comment
		TMDL report is very restrictive with respect to evidence for judging effects on benthic invertebrates. This is reflected in the target individual lines of evidence station scores specified for the biological Lines of Evidence (LOEs). The report identifies that the benthic community should resemble either "reference" or "low disturbance" (p. 47). These are the lowest two of four possible benthic LOE categories. The target toxicity LOE score is "nontoxic" (p. 49). This is the lowest of four possible toxicity LOE categories. Considering the uncertainty associated with factors influencing benthic invertebrates in a large operating urban harbor, it may be more appropriate to consider a range of biological states and/or degrees of toxicity. This would allow for a valid consideration of a range of goals and associated range of interventions.
31.	Exhibit I	The TMDL document is silent on the anticipated efficacy and the limitations of dredging. For example, the 2007 NRC report on this matter states that dredging has encountered systematic difficulties in achieving specified cleanup levels and that this phenomenon is associated with residual contamination due either to dredge operations or to exposure of contaminated sediments deeper in the sediment column. This is a critically important concern for management in Port of Los Angeles and Port of Long Beach sediments. The natural recovery processes, e.g., covering of contaminated sediments with cleaner sediments over time, tends to reduce surface sediment concentrations of contaminants. Concentration reduction (unlike mass reduction) means lower risk levels. Applying dredge technologies to such sediments without accounting for the natural recovery processes already operating might well exacerbate, rather than reduce, risks. The 2007 NRC report also concludes that contaminant re-suspension during dredge operations is inevitable and should be considered in the risk assessment process on which technology selection is based.
32.	Exhibit I	Habitat modification and turbidity caused by the dredging may impact sensitive species, including juvenile fish. Land uses would be impacted because stormwater treatment and staging areas for dredging will occupy significant land. And, the designation of dredged material as "waste" will impede the beneficial re-use o fthat material in habitat restoration and redevelopment projects.
33.	Exhibit J	Many marine birds and mammals live in the coastal region of Southern California, and the effects of contaminants such as DDT have been examined for decades. It is surprising, therefore, that Table 3-9 is introduced into the TMDL process, inasmuch as it does not include any information for California. There is no discussion in

No.	Location of Comment[1]	Comment
		the document concerning impairments to marine birds and mammals in the area that would warrant specific consideration of a TMDL. Table 3-9 provides single values, with no discussion of ranges of sensitivities among species or relevance to the Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters.
34.	Exhibit M	The TMDL development approach for The System adopts a philosophy that is almost opposite of that used elsewhere in the Unites States. For The System, the Los Angeles Water Board presumes that the sediment is a source that should be managed under the TMDL program rather than serving as a sink that provides the system with long-term assimilative capacity. Sediments are typically viewed as a sink rather than the source of the load.
35.	Exhibit M	A number of TMDLs elsewhere in the United States distinguish between surface water quality goals and sediment contamination. For these cases, target levels and associated TMDLs are water concentrations - not sediment concentrations - although both water and sediments may contribute; however sediments are generally assumed to be a sink.
36.	Exhibit N	The TMDL report relies on a set of screening values to establish sediment targets for contaminants. Uncertainty is dealt with by selecting lower-bound values in most cases. In other words, there is very high confidence that exposures to lower target concentrations will not pose a risk. However, the report provides no information on the levels at which effects might occur.
37.	Exhibit P	The relationship between concentrations of nickel, mercury, total PCBs, and total DDT and adverse effects is at most, weak and therefore, the Regional Board's use of the ERL will not result in expected gains in sediment quality.
38.	Exhibit P	The presence of unmeasured or unknown contaminants will lead to large uncertainties in sediment toxicity, thereby substantially limiting the usefulness of the ERL as a sediment target.

EXHIBIT F

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD AND U.S. EPA REGION 9'S PROPOSED AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE LOS ANGELES REGION (BASIN PLAN):

Establishing total maximum daily loads (TMDL) for TOXIC POLLUTANTS IN THE DOMINGUEZ CHANNEL AND GREATER LOS ANGELES AND LONG BEACH HARBOR WATERS, and an implementation plan to achieve the TMDL

INDEX RE LEGAL AND EXPERT COMMENTS SUBMITTED FEBRUARY 22, 2011 BY LATHAM & WATKINS LLP

Exhibit	Date	Description
A.	02/22/11	Latham & Watkins LLP Comments
B.	02/22/11	Letter from E. John List, Ph.D., P.E., Environmental Defense Sciences to California Regional Water Quality Control Board, Los Angeles Region; United States Environmental Protection Agency, Region 9 re Comment Letter – Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Draft Total Maximum Daily Loads
C.	02/09/11	Letter from Stephen Hansen, S.R. Hansen & Associates to California Regional Water Quality Control Board, Los Angeles Region; United States Environmental Protection Agency, Region 9 re Comments to the Agencies draft document "Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Loads (dated December 2010)"
D.	02/22/11	Letter from Stephen Hansen, S.R. Hansen & Associates to California Regional Water Quality Control Board, Los Angeles Region; United States Environmental Protection Agency, Region 9 re Additional Comments to the Agencies draft document "Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Loads (dated December 2010)"
E.	02/17/11	Letter from David Sunding, The Battle Group to California Regional Water Quality Control Board, Los Angeles Region; United States Environmental Protection Agency, Region 9 Comments on the cost consideration of, "Dominguez Channel and Greater Los Angeles and Long Beach Harbor Water Toxic Pollutants Total Maximum Daily Loads Draft"
F.	02/18/11	Memorandum from Charles Menzie, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Technical Considerations and the TMDL Process for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
G.	02/18/11	Memorandum from Pravi Shresta, Ph.D. and Charles Menzie, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Review and Comment on Loadings Estimates Related to TMDL Development for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
H.	02/18/11	Memorandum from D. Frederick Bodishbaugh, Ph.D. and Charles Menzie, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Potential for Misuse of California Sediment Quality Objectives in the TMDL Process for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
I.	02/17/11	Memorandum from Mark Johns, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Sediment Remediation Issues Related to the TMDLs for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters

Exhibit	Date	Description
J.	02/18/11	Memorandum from Thomas Deardorff, Ph.D. and Charles Menzie, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Uncertainties and Potential Misuse of Tissue Target Levels for Birds and Mammals in the TMDL Process for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
K.	02/05/11	Memorandum from Brian Murphy, Ph.D. and Charles Menzie, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Uncertainties and Potential Misuse of Measurements of Atmospheric Contamination Deposition in the TMDL Process for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
L.	02/17/11	Memorandum from Susan Kane-Driscoll, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Site-Specific Bioavailability Has Not Been Considered in the TMDL Process for Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
M.	02/18/11	Memorandum from Charles Menzie, Ph.D. and Pravi Shrestha, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Variable approaches have been used to derive TMDLs
N.	02/18/11	Memorandum from Charles Menzie, Ph.D., Exponent to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Monitored Natural Recovery (MNR) is an Alternative for Managing Water Quality in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters
O.	02/19/11	Memorandum from Daniel Tormey, Ph.D., P.G., Cardno Entrix to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re Numerical Modeling Comments: Draft Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDLs
P.	02/18/11	Memorandum from John Slocomb, Ph.D. and Paul Mehrle, Ph.D., Cardno Entrix to California Regional Water Quality Control Board, Los Angeles Region; U.S. Environmental Protection Agency, Region 9 re The Effects Range Low (ERL) Value For Numeric Target of Water Body-Pollutant Combinations in Marine Sediments of the Dominguez Channel Estuary and Greater Los Angeles and Long Beach Waters

APPENDIX A

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD AND U.S. EPA REGION 9'S PROPOSED AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE LOS ANGELES REGION (BASIN PLAN):

Establishing total maximum daily loads (TMDL) for TOXIC POLLUTANTS IN THE DOMINGUEZ CHANNEL AND GREATER LOS ANGELES AND LONG BEACH HARBOR WATERS, and an implementation plan to achieve the TMDL

EXHIBITS TO LEGAL AND EXPERT COMMENT LETTERS

Exhibit	Volume	Date	Reference	Description
1.	1	04/25/91	Latham & Watkins comment letter	S. 1081, 102nd Cong.
2.	1	04/23/91	Latham & Watkins comment letter	H.R. 2029, 102nd Cong.
3.	1	05/10/94	Latham & Watkins comment letter	S. Rep. 103-257, 103rd Cong.
4.	1	00/00/94	Latham & Watkins comment letter	S. 2093, 103rd Cong. (1994), available at: http://www.gpo.gov/fdsys/pkg/BILLS-103s2093pcs/pdf/BILLS-103s2093pcs.pdf
5.	1	00/00/93	Latham & Watkins comment letter	Reauthorization of the Clean Water Act: Hearing on S. 1114 and S. 1302 Before the Subcomm. on Clean Water, Fisheries, and Wildlife of the Comm. on Environmental and Public Works, 103rd Cong. 936 (1993), available at: http://www.archive.org/details/reauthorizationo00unit
6.	1-2	10/11/10	Latham & Watkins comment letter	Digest and Transcript of Chris Beegan Deposition - In Re Tentative Cleanup and Abatement Order No. R9-2011-0001, Cal. Reg. Water Quality Control Bd., San Diego Region
7.	2	02/00/90	Latham & Watkins comment letter	Huh, C-A., S. Niemnil, L. Small, B. Finney, B. Hickey, N. Kachel, D. Gorsline and P. Williams (1990), Sedimentation dynamics in the Santa Monica-San Pedro basin off Los Angeles: radiochemical, sediment trap and transmissometer studies. Continental Shelf Research 10(2): 137-164
8.	2	00/00/92	Latham & Watkins comment letter	Hickey (1992), Circulation over the Santa Monica-San Pedro Basin and Shelf. Prog. Oceanog. 30: 37-115
9.	2	00/00/94	Latham & Watkins comment letter	Dailey et al. (1994) Ecology of the Southern California Bight. Chapter 2: Physical Oceanography
10.	2	09/30/09	Latham & Watkins comment letter	Expert Report of Donald Roberts, Ph.D. from Garza v. Allied Chemi. Corp., Case No. C-4885-99-F(10), 332d Judicial Dist., Hidalgo Co., Texas
11.	2	09/00/09	Latham & Watkins comment letter	Expert Report of Amir Attaran, Ph.D., LL.B from Garza v. Allied Chemi. Corp., Case No. C-4885-99-F(10), 332d Judicial Dist., Hidalgo Co., Texas

Exhibit	Volume	Date	Reference	Description
12.	2	10/00/09	Latham & Watkins comment letter	Expert Report of Seymore Grufferman, M.D., Dr. P.H. from Garza v. Allied Chemi. Corp., Case No. C-4885-99-F(10), 332d Judicial Dist., Hidalgo Co., Texas
13.	2	n/a	Latham & Watkins comment letter	Expert Report of Marion J. Fedoruk from Garza v. Allied Chemi. Corp., Case No. C-4885-99-F(10), 332d Judicial Dist., Hidalgo Co., Texas
14.	2	00/00/03	Latham & Watkins comment letter	Food and Agriculture Organization of the United Nations (2003), Fish Stock Assessment Manual, available at: ftp://ftp.fao.org/docrep/fao/006/x8498e/x8498e01.pdf
15.	2	00/00/92	Latham & Watkins comment letter	United Nations Environment Programme (1992), Rio Declaration on Environment and Development, Principle 15, available at: http://www.unep.org/Documents.Multilingual/Default.Print.asp?documentid=78&articleid=1163
16.	2	10/06/10	Latham & Watkins comment letter	Email from Peter Kozelka, EPA Region 9 to LB Nye, LARWQCB (Oct. 6, 2010, 12:44 PM PST)
17.	2	n/a	Latham & Watkins comment letter	Emails from Peter Kozelka, EPA Region 9 to Thanhloan Nguyen, LARWQCB (Dec. 13, 2010 5:43 AM PST and November 9, 2010 3:14 PM PST)
18.	2	n/a	Latham & Watkins comment letter	Relevant agency e-mails and related documents obtained through Public Records Act request
19.	3	00/00/07	Latham & Watkins comment letter; Exponent, Exhibits D, K, N	National Research Council (2007), Sediment Dredging at Superfund Megasites: Assessing the Effectiveness
20.	3	12/00/05	Latham & Watkins comment letter; Exponent, Exhibits C, D, K, N	U.S. EPA (2005), Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, EPA-540-R-05-012
21.	3	00/00/09	Latham & Watkins comment letter	Ytsma, R., Lukszo, A. and Maliepaard, R. (2009), Sustainable Reduction of Dredging Fleet Emissions. Computer Aided Chemical Engineering 26: 1165-1169
22.	3	00/00/11	Latham & Watkins comment letter; Exponent Exhibit I	United States Geological Survey (2011), The Effects of Sediment and Mercury Mobilization in the South Yuba River and Humbug Creek Confluence Area, Nevada County, California: Concentrations, Speciation, and Environmental Fate , Part 1: Field Characterization. Open-File Report 2010-1325A
23.	3	n/a	Latham & Watkins comment letter	City of Newport Beach, Upper Bay Ecosystem Restoration Project page, available at: http://www.newportbeachca.gov/index.aspx?page=115
24.	3	00/00/06	Latham & Watkins comment letter	Hennessey, A. (2006), Upper Newport Bay Ecological Reserve: A Jewel in an Urban Environment. California Department of Fish and Game, available at: http://www.dfg.ca.gov/lands/articles/docs/uppernewport06.pdf
25.	3	00/00/07	Latham & Watkins comment letter	SCCWRP Technical Report 524 (2007), Evaluation of Five Indicators of Benthic Community Condition in Two California Bay and Estuary Habitats, available at: http://www.swrcb.ca.gov/water_issues/programs/bptcp/docs/524_eval_benthic_community_indicators3.pdf

Exhibit	Volume	Date	Reference	Description
26.	3	00/00/96	Latham & Watkins comment letter; Exponent, Exhibit M	Chapman, P. M. (1996), A Test of sediment effects concentrations: DDT and PCB in the southern california bight. Environmental Toxicology and Chemistry, 15: 1197–1198
27.	3	05/01/98	Latham & Watkins comment letter; List, Exhibit B	Quensen, J.F., Mueller, S.A., Jain, M.K. and Tiedje, J.M. (1998), Reductive Dechlorination of DDE to DDMU in Marine Sediment Microcosms. Science 280(5364): 722-724
28.	3	03/00/69	Latham & Watkins comment letter	Study Panel, California State Water Resources Control Board (1969), Recommended Changes in Water Quality Control: Final Report of the Study Panel to the California State Water Resources Control Board
29.	3	01/07/00	Latham & Watkins comment letter; Sunding, Exhibit E	U.S. EPA, Region 9 (2000), Guidance for Developing TMDLs in California
30.	3	12/00/03	Latham & Watkins comment letter; Exponent, Exhibits M, N	Delaware River Basin Commission (2003), Total Maximum Daily Loads for Polychiorinated Biphenyls (PCBs) for Zones 2-5 of the tidal Delaware River, DRBC, Trenton NJ
31.	4	07/26/02	Latham & Watkins comment letter; Exponent, Exhibit M	Mississippi Department of Environmental Quality Office of Pollution Control (2002), TMDL/WLA Section/Water Quality Assessment Branch, Phase One PCB TMDL For Old Little Tallahatchie River, Yazoo Basin, Panola County, Mississippi
32.	4	10/00/04	Latham & Watkins comment letter; Exponent, Exhibit M	U.S. EPA, Region 4 (2004), TMDL for priority organics (Polychlorinated Biphenyls [PCBs]) in Weiss Lake Coosa River Basin (HUC 03150105) Cherokee County, Alabama
33.	4	07/00/07	Latham & Watkins comment letter; Exponent, Exhibit M	Washington Department of Ecology (2007), Mission Creek Watershed DDT Total Maximum Daily Load Water Quality Improvement Report, Publication Number 07-10-046
34.	4	12/00/08	Latham & Watkins comment letter	Oregon Department of Environmental Quality (2008), Molalla-Pudding Subbasin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP)
35.	4	08/25/09	Latham & Watkins comment letter	State Water Resources Control Board (2009), Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality
36.	4	06/00/09	Latham & Watkins comment letter; List, Exhibit B	U.S. EPA, Region 9 (2009), EPA Announces Proposed Plan" regarding the Palos Verdes Shelf Superfund Site
37.	4	09/07/07	Latham & Watkins comment letter	Santa Ana Regional Water Quality Control Board (2007), Organochlorine Compounds TMDL for San Diego Creek, Upper and Lower Newport Bay, Res. No. R8-2007-0024
38.	4	12/28/78	Latham & Watkins comment letter; Exponent, Exhibit F	43 Fed. Reg. 60, 662

Exhibit	Volume	Date	Reference	Description
39.	4	02/13/08	Latham & Watkins comment letter	San Francisco Regional Water Quality Control Board (2008), Total Maximum Daily Load for PCBs in San Francisco Bay Final Staff Report for Proposed Basin Plan Amendment
40.	4	10/26/94	Latham & Watkins comment letter	U.S. EPA (1994), United Heckathorn Site, Richmond, CA: Record of Decision. EPA/ROD/R09-95/121
41.	4	00/00/98	Latham & Watkins comment letter; Entrix, Exhibit P	Connor, T. P. O., Daskalakis, K. D., Hyland, J. L., Paul, J. F. and Summers, J. K. (1998), Comparisons of sediment toxicity with predictions based on chemical guidelines. Environmental Toxicology and Chemistry, 17: 468–471
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46.	4	06/12/09	List, Exhibit B	Gottlieb, J. (2009), EPA Seeks to Clean up DDT-Tainted Site off Palos Verdes Peninsula. Los Angeles Times
47.	4	00/00/02	List, Exhibit B	Hampton, M.A., Karl, H.A. and Murray, C.J. (2002), Acoustic Profiles and images of the Palos Verdes margin: implications concerning deposition from the White’s Point Outfall. Continental Shelf Research 22: 841-857
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49.	4	08/25/98	List, Exhibit B	List, E.J. and Paulsen, S.C. (1998), In Situ Biodegradation Rates of p,p’-DDE in the Sediments of the Palos Verdes Shelf, Southern California: An Analysis of Field Evidence. Unpublished Manuscript
50.	4	08/11/09	List, Exhibit B	Navarro, M. (2009), PCB Shift Forces GE to Suspend Hudson River Dredging. New York Times
51.	4	00/00/99	List, Exhibit B	Paulsen, S.C., List, E.J. and Santschi, P. (1999), Modeling Variability in 210Pb and Sediment Fluxes Near the Whites Point Outfalls, Palos Verdes Shelf, California. Environ. Sci. Technol., 33(18): 3077-3085
52.	4	07/00/05	List, Exhibit B	Science Applications International Corporation (2005), Study Report for the Summer 2004 Bioturbation Measurement Program Conducted on the Palos Verdes Shelf. Prepared for U.S. Army Corps of Engineers and U.S. EPA, Region 9
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60.	5	00/00/00	Hansen, Exhibit C	Alexander, M. (2000). Aging, Bioavailability, and Overestimation of Risk from Environmental Pollutants. Environ. Sci. Technol., 34(20): 4259-4265
61.	5	00/00/91	Hansen, Exhibits C, D	Di Toro, D.M., Zarba, C.S., Hansen, D.J., Berry, W.J., Swartz, R.C., Cowan, C.E., Pavlou, S.P., Allen, H.E., Thomas, N.A. and Pacquin, P.R. (1991), Technical Basis for Establishing Sediment Quality Criteria for Nonionic Organic Chemicals Using Equilibrium Partitioning. Environmental Toxicololgy & Chemistry 10: 1541-1583
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65.	5	00/00/00	Hansen, Exhibits C, D; Exponent, Exhibit L	Morrison, D.E., Robertson, B.K., and Alexander, M. (2000), Bioavailability to Earthworms of Aged DDT, DDE, DDD, and Dieldrin in Soil. Environ. Sci. Technol., 34: 709-713
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77.	5	03/00/95	Hansen, Exhibit D	State Water Resources Control Board (1995), State Mussel Watch Program 1987-1993 Data Report
78.	5	n/a	Sunding, Exhibit E	Applied Environmental Management, Site Status Summary – United Heckathorn Superfund Site (Richmond, CA)
79.	5	07/22/05	Sunding, Exhibit E	Prepared by Battelle for Base Realignment and Closure Program Management Office West (2005), Final Feasibility Study Report, Seaplane Lagoon, Alameda Point, California
80.	5	10/30/06	Sunding, Exhibit E	U.S. EPA (2006), Alameda Naval Air Station, OU 09: Record of Decision. EPA/ROD/R2007090001466 (Site 17 Seaplane Lagoon)
81.	5	06/21/05	Sunding, Exhibit E	SulTech and Tetra Tech EM, Inc. for Base Realignment and Closure Program Management Office West (2005), Draft Addendum to the Revised Final Station-Wide Feasibility Study Site

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83.	5	07/25/07	Sunding, Exhibit E	Correspondence with Randy Lee SFRWQCB. (July 25, 2007)
84.	5	n/a	Exponent, Exhibit F	U.S. EPA guidance on TMDL development, available at: (http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/dec3.cfm)
85.	6	12/15/08	Exponent, Exhibit F	U.S. EPA (2008), Handbook for Developing Watershed TMDLs
86.	6	00/00/94	Exponent, Exhibit I	National Research Council (1994), Science and Judgment in Risk Assessment. National Academy Press, Washington, D.C.
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89.	6	07/25/10	Exponent, Exhibit I	DredgingToday.com (2010), USA: Dredging on Main Channel at Port of Los Angeles Continues
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92.	6	06/08/10	Exponent, Exhibit I	Port of Long Beach (2010), Port, Army Corps Launch Deepening Project, Dredging improves safety for largest oil tankers, creates jobs
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98.	6	00/00/96	Exponent, Exhibit J	de Swart, R.L., Ross, P.S., Vos, J.G. and Osterhaus, A.D.M.E. (1996), Impaired Immunity in Harbour Seals (Phoca vitulina) Exposed to Bioaccumulated Environmental Contaminants: Review of a Long-Term Feeding Study. Environ Health Perspectives 104: 823–828
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117.	6	00/00/01	Exponent, Exhibit L	Bucheli, T.D. and Gustafsson, O. (2001), Ubiquitous Observations of Enhanced Solid Affinities for Aromatic Organochlorines in Field Situations: Are in Situ Dissolved Exposures Overestimated by Existing Partitioning Models? Environmental Toxicology & Chemistry 20: 1450-1456
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121.	7	06/19/06	Exponent, Exhibit M	Washington Department of Ecology (2006), Spokane River PCBs Total Maximum Daily Load: Water Quality Improvement Report
122.	7	07/00/97	Exponent, Exhibit M	Washington Department of Ecology (1997), A Suspended Sediment and DDT TMDL Evaluation Report for the Yakima River. Publication No. 97-321
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124.	7	n/a	Exponent, Exhibit N	Greenfield, B. Evaluating DDTs in Sediment and Tissue From Newport Bay (Powerpoint Presentation). San Francisco Estuary Institute
125.	7	11/17/06	Exponent, Exhibit N	Total Maximum Daily Loads for Organochlorine Compounds – San Diego Creek: Total DDT and Toxaphene; Upper and Lower Newport Bay: Total DDT, Chlordane, Total PCBs. Santa Ana Regional Water Quality Control Board Staff Report
126.	7	08/00/09	Cardno Entrix, Exhibit O	Port of Los Angeles/Port of Long Beach (2009), Water Resources Action Plan Final Report
127.	7	05/09/06	Cardno Entrix, Exhibit O	Tetra Tech (2006), Los Angeles and Long Beach Harbors and San Pedro Bay Modeling (Powerpoint Presentation), May 9
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135.	7-8	04/97	Cardno Entrix, Exhibit P	MacDonald, D. (1997), Sediment Injury in the Southern California Bight: Review of the Toxic Effects of DDTs and PCBs in Sediments. Prepared for National Oceanic and Atmospheric Administration
136.	8	09/23/97	Latham & Watkins comment letter	Transcript of Donald D. MacDonald Deposition, Vol. 1 – U.S. v. Montrose Chemical Corp. of California, U.S.D.C., C.D. Cal. Case No. 90 CV 3122
137.	8	09/24/97	Latham & Watkins comment letter	Transcript of Donald D. MacDonald Deposition, Vol. 2 - U.S. v. Montrose Chemical Corp. of California, U.S.D.C., C.D. Cal. Case No. 90 CV 3122
138.	8	09/25/97	Latham & Watkins comment letter	Transcript of Donald D. MacDonald Deposition, Vol. 3 - U.S. v. Montrose Chemical Corp. of California, U.S.D.C., C.D. Cal. Case No. 90 CV 3122
139.	8	09/26/97	Latham & Watkins comment letter	Transcript of Donald D. MacDonald Deposition, Vol. 4 - U.S. v. Montrose Chemical Corp. of California, U.S.D.C., C.D. Cal. Case No. 90 CV 3122
140.	8	04/25/06	Latham & Watkins comment letter	Reply in Supp. of Dem., Cities of Arcadia, et al. v. State Water Resources Control Board, Orange County Superior Court Case No. 06CC02974
141.	8	07/98	Latham & Watkins comment letter	U.S. EPA (1998), Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program. EPA 100-R-98-006