Appendix M

Responses to Public Comments

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I. Introduction

This appendix contains the responses to stakeholder and public comments received during the development and public hearing process of the *Total Maximum Daily Loads for Toxic Pollutants in Sediment at San Diego Bay Shorelines – Mouths of Paleta Creek, Chollas Creek, and Switzer Creek*.

The technical TMDL was originally presented to the San Diego Bay Sediment TMDLs Work Group on September 15, 2008 where both oral and written comments were received on the project and relating to CEQA scoping. These comments are presented in Sections III and IV. A publicly noticed workshop and CEQA scoping meeting was held on October 14, 2008. Section II presents responses to oral comments received on both the project and the scope of environmental issues related to the project from this meeting. Additionally, a number of written comments were received by email and letter during project development and are included in Section IV.

II. Comments Received during Public Comment Period beginning February 19, 2013

These interested parties submitted the following comments on April 8, 2013:

- California State Lands Commission
- Caltrans
- City of La Mesa
- City of San Diego
- National Steel and Shipbuilding Company (NASSCO) – Latham & Watkins
- NASSCO – Exponent
- Port of San Diego
- Port of San Diego – Brown & Winters
- Solar Turbines – DLA Piper
- U.S. Navy

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Appendix M: Toxic Pollutants in Sediment TMDLs Mouths of Paleta, Chollas, and Switzer Creeks – Response to Public Comments

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General Comments

G-1. Caltrans supports the efforts to improve the water quality in these water bodies		
	Comment: The California Department of Transportation (Caltrans) appreciates the opportunity to comment on the TMDL for Toxic Pollutants in Sediment at the Mouths of Paleta, Chollas, and Switzer Creeks in San Diego Bay. Caltrans supports the San Diego Water Board's efforts to improve the water quality in these water bodies and in San Diego Bay.	Caltrans
	Response: The San Diego Water Board thanks Caltrans for its comments.	

G-2. Appreciation for responding to Caltrans' 2008 comments		
	Comment: Caltrans previously submitted comments to the San Diego Water Board in October 2008, requesting several changes to the TMDL and would like to thank the Water Board for addressing those comments.	Caltrans
	Response: Comment noted.	

G-3. The Port of San Diego supports the objectives of the TMDL		
	Comment: The Port District is dedicated to the protection and enhancement of water quality and strongly supports the objectives of the TMDL. We welcome the opportunity to work with the San Diego Water Board in order to achieve our mutual goals.	Port of San Diego – Brown & Winters
	Response: The San Diego Water Board thanks the Port of San Diego for its comments.	

G-4. Missing reference citations		
	Comment: The San Diego Water Board should include specific references in the main content of the Draft Technical Report for the following references: USEPA 1997; OEHHA 2008; USEPA 1998a, and ASTM 2001. They are not included in the main document – the references are present in Appendix I, however.	Port of San Diego
	Response: The paragraph containing USEPA 1998a and ASTM 2001 have been deleted and the references are no longer needed. OEHHA 2008 has been added to Section 14 of the Draft Technical Report. The reference for USEPA 1997 was for the *Proposed* California Toxics Rule; which was replaced by the citation for the final rule.	

G-5. Add language to Section 5.2 of the Draft Technical Report		
	Comment: The San Diego Water Board states "wasteloads of chlordane and PCBs reflect residues accumulated from historical uses, applications, or spills that contaminated soils within the watersheds and act as ongoing sources. In spite of these compounds being banned in the U.S., residual concentrations of these legacy pollutants continue to remain elevated in bay sediments…" The Port District recommends adding the following language to the statement: "...and sediments in the watersheds, creeks, and storm drains."	Port of San Diego
	Response: The requested edit has been incorporated into the Draft Technical Report.	

G-6. Add language to Section 5.5.6 of the Draft Technical Report		
	Comment: The Port District requests revising the sentence to add the following language in Section 5.5.6 to include, "industrial uses in watershed area **AND** along the waterfront."	Port of San Diego
	Response: The requested edit has been incorporated into the Draft Technical Report.	

G-7. Clarification of naming convention for Phase I MS4 permittees		
	Comment: The San Diego Water Board makes numerous references to the municipal MS4s and parties that have TMDL responsibilities based on the MS4s. However, the terminology used when describing the MS4s and the MS4 responsible parties is not consistent. For example, responsible parties are referred to as "responsible Municipal Dischargers" (Section 5.2.1), "MS4 dischargers" (Section 5.3.2), "MS4s" (Section 8.1.1), "Phase I MS4s" (Section 9.3), and "Municipal MS4s" (Section 10.2). The MS4 facilities are alternatively labeled throughout the DTR as "MS4s", "Phase I MS4s", and "MS4 conveyance system". The inconsistent references make the DTR unclear as to what parties and what MS4 facilities are actually being referred to. The Port District recommends that the San Diego Water Board standardize the terms used to describe the municipal MS4s (as described in Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority, Order No. R9-2007-0001) and the parties that have TDML responsibilities based on these MS4 facilities. The consistent application of these terms in the DTR would provide much needed clarity for the potentially responsible parties.	Port of San Diego – Brown & Winters
	Response: The San Diego Water Board has added language to clarify the naming convention used in the document.	

Legal Comments

L-1. The San Diego Water Board has not completed its response to NASSCO's Public Records Act request		
	Comment: On January 24, 2013, our office submitted a California Public Records Act request for "all data, analyses, documents and communications" related to the Downtown Anchorage and Chollas Creek TMDL methodology. While we received partial productions from San Diego Water Board staff on March 19, 2013 and April 3, 2013, we are still awaiting the production of additional responsive records, including notes, e-mail communications, and relevant public records contained on San Diego Water Board staffs' personal computers. Since some of the records were not produced until Wednesday, April 3, more than two months after our request, there was not sufficient time for review, analysis and preparation of comments by NASSCO's experts and counsel prior to the filing deadline of Monday, April 8, at noon, less than three business days after the documents were provided to NASSCO by the San Diego Water Board staff. Finally, many of the files contained in the April 3rd production were in a proprietary format, and could not readily be accessed. We will continue to work with the San Diego Water Board to obtain the complete production in an accessible manner; however, given the timeliness of NASSCO's Public Records Act request and the delay in the San Diego Water Board's response, and given the importance of the requested information to NASSCO's ability to comment fully on the Tentative Resolution, NASSCO reserves the right to submit additional comments after it has had a meaningful opportunity to review the entirety of the San Diego Water Board's production. Please be advised that should the San Diego Water Board decline to consider comments based on public records that were not timely produced by the San Diego Water Board, the comments will nonetheless be admissible in any subsequent judicial proceedings regarding adoption of the Tentative Resolution. *See, e.g., Western States Petroleum Ass 'n v. Superior Court*, 9 Cal. 4th 559, 578 (1995).	NASSCO – Latham & Watkins
	Response: The San Diego Water Board first received a request for public records from Latham and Watkins for the Chollas Creek TMDL on March 1, 2013. In a separate TMDL proceeding, Latham and Watkins, on behalf of General Dynamics, submitted a letter dated January 24, 2013, with the subject “General Dynamics’ Preliminary Comments on Downtown Anchorage TDML Process for Toxic Pollutants in Sediment.” Latham and Watkins’ January 24, 2013, It appears that Latham and Watkins’ reference in their comment in this matter is to footnote number 4 within the General Dynamics’ Downtown Anchorage TMDL letter, which states “Please treat this letter as a request under the California Public Records Act for all data, analyses, documents and communication related to this [Downtown Anchorage] TMDL.” San Diego Water Board did not construe the footnote in General Dynamics’ letter submitted in the Downtown Anchorage TMDL proceeding as a request for public records pertaining to this Chollas Creek Mouth TMDL. With regard to the Downtown Anchorage TMDL request for records, San Diego Water Board staff answered questions on the phone with Ms. Casler-Goncalves on or about February 12, 2013, and believed that no further response to the January 24 letter’s request for records was expected until staff received a March 1, 2013, e-mail request from Latham & Watkins.	

	The March 1, 2013, e-mail request for records from Latham & Watkins applicable to the Chollas Creek Mouth TMDL stated: "[I]t is my understanding that the numeric sediment targets set forth in workshop materials for the Downtown Anchorage TMDL are based on the same methodology as the Sediment Toxicity TMDL for the Mouth of Chollas Creek; accordingly, I would like to confirm that all data, analyses, documents and communications related to the Chollas Creek TMDL will also be included in the response." Upon receiving Latham and Watkins' March 1, 2013, request specifically seeking records for the Chollas Creek TMDL in addition to Downtown Anchorage TMDL, the San Diego Water Board communicated with Latham and Watkins on March 6 to clarify the scope of the request. On March 7, the San Diego Water Board sent a confirming letter to Latham and Watkins confirming the scope of the request. On March 18, 2013, the bulk of the San Diego Water Board records responsive to both the Chollas Creek and Downtown Anchorage TMDLs request were provided electronically to Latham & Watkins. A third set of records was provided on April 3. Upon receiving an inquiry about accessibility of certain April 3 documents, San Diego Water Board staff promptly informed Latham and Watkins that the statistical program to enable access to certain of the April 3 documents was freely available on U.S. EPA's website. Finally, internal communications and draft documents potentially responsive to the request were reviewed by San Diego Water Board counsel. A small number of documents determined by counsel to be responsive and not exempt from disclosure were provided electronically on April 23, together with a letter to Ms. Casler-Goncalves explaining the bases for the determinations that certain documents would be withheld. Although the San Diego Water Board timely produced records in compliance with California Public Records Act requirements in responding the March 1, 2013, request for records for the Chollas Creek TMDL (and follow up for the Downtown Anchorage TMDL), the San Diego Water Board would not necessarily object to supplemental comments based upon the entire production of documents that could not have been submitted without reference to the documents provided pursuant to the March 1, 2013, request. To date, however, almost six weeks has passed since the completion of records production and no request to submit supplemental comments has been received. Further, Latham and Watkins will have had almost two months from the completion of the San Diego Water Board's Public Records Act response to the date of the hearing to consider adoption of the TMDL to develop oral comments based upon receipt of the records production. Accordingly, the San Diego Water Board does not believe that the narrow exception described in *Western States Petroleum Ass'n v. Superior Court,* 9 Cal. 4th 559, 578 (1995) for admission of extra-record evidence would apply.	

L-2. NASSCO incorporates by reference arguments and evidence submitted in the Shipyard CAO proceedings		
	Comment: NASSCO submitted detailed comments, evidence, and expert analyses to the San Diego Water Board in the Shipyard CAO proceedings. These materials are relevant to the Tentative Resolution insofar as both proceedings address alleged sediment contamination and remediation in an immediately adjacent location of San Diego Bay. Rather than repeating its prior comments and analyses in their entirety, NASSCO incorporates by this reference its arguments and evidence submitted in connection with the Shipyard CAO. NASSCO is including within its submission of materials in support of these comments prior briefing, expert reports, and evidence (including deposition transcripts and written discovery responses) from the Shipyard CAO proceedings, including information contained in the Shipyard CAO administrative record that is cited in this letter.	NASSCO – Latham & Watkins
	Response: Together with its April 8, 2013, comment letter, Latham & Watkins, on behalf of NASSCO, submitted three CDs containing documents from the record in the Shipyard CAO proceedings. NASSCO's letter is unclear about the scope of materials NASSCO is seeking to incorporate by reference. To the extent that it intends to incorporate by reference the materials on the CDs it submitted with its comment letter on April 8, the San Diego Water Board has no objection and these materials will be included in the record for this TMDL proceeding. To the extent NASSCO is seeking to introduce into the record other materials from the Shipyard CAO proceeding, these materials have not been specifically identified nor submitted in this proceeding and will not be included in the record for this TMDL proceeding.	

Authority to Require Remediation Comments

CAO-1. Requiring sediment remediation is outside the scope of the Water Board's TMDL authority		
	Comment: Sediment remediation is outside the scope of the Water Board's TMDL authority and should not be included in the TMDL Implementation Plan.	City of San Diego Port of San Diego Port of San Diego – Brown & Winters NASSCO – Latham & Watkins
	Response: The Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options (State Water Board Resolution No. 2005-0050) provides a number of principles that apply to the process of resolving impairments in surface waters not attaining standards. The principle that applies in the case of this TMDL Project is that impaired waters will be corrected, and implementation plans crafted, using existing regulatory tools and where the solution to the impairment will require multiple actions of the Water Board that affect multiple persons, the solution must be implemented through a Basin Plan Amendment. The existing regulatory tools may include one or more of the following: individual or general waste discharge requirements (be they under Chapter 4 or under Chapter 5.5 (NPDES permits) of the Porter-Cologne Water Quality Control Act), individual or general waivers of waste discharge requirements, enforcement actions, interagency agreements, regulations, other basin plan amendments, or other policies for water quality control. In this case, multiple permits will be modified to incorporate TMDLs and requirements to control ongoing discharges and prevent future impairment, and enforcement orders will be issued to correct existing impairments. Because these multiple actions by the Water Board will affect multiple parties, the Implementation Plan itself must be adopted, in accordance with California law, as a separate action to enable interested persons to comment upon the assumptions of the plan, before they are imposed. Water Code sections 13050(j)(3) and 13242 provide authority to include enforcement actions under state law. In addition, the TMDL Policy also provides "When an implementation plan can be adopted in a single regulatory action, such as a permit, a waiver, or an enforcement order, there is no legal requirements to first adopt the plan through a basin plan amendment." If a Cleanup and Abatement Order can serve the entire implementation plan clearly a CAO may be a component of a larger implementation plan. See, e.g., Los Angeles Water Board CAO No. R4-2012-0003, *Requiring the City of Long Beach to take remedial action to reduce copper loading to El Dorado Park Lakes pursuant to California Water Code Section 13304 in order to implement a Total Maximum Daily Load for copper*, approved for the Los Angeles Water Board by USEPA on March 20, 2012. See also, as an example, Los Angeles Water Board Cease and Desist Order No. R4-2012-0077, for the City of Avalon establishing a TMDL and requiring, through an enforcement action, the City of Avalon to implement the TMDL for bacteria at Avalon Beach. Finally, see *Pronsolino v. Nastri*, ((9th Cir. 2002) 291 F.3d 1123, 1128-1129) which provides clear authority for using non-Clean Water Act regulatory tools to implement a TMDL. "The upshot of this intricate scheme is that the CWA leaves to states the responsibility of developing plans to achieve water quality standards if the statutorily-mandated point source controls will not alone suffice, while providing federal funding to aid in the implementation of the state plans. [Citations.] As such, TMDLs serve as a link in an implementation chain that includes federally–regulated point source controls, state or local plans for point and nonpoint source pollution reduction, and assessment of the impact of such measures on water quality, all to the end of attaining water quality goals for the nation's waters."	

CAO-2. The NPDES permittees' compliance with the TMDLs should not be dependent on the status or success of the sediment cleanup		
	Comment: Cleanup of legacy sediment contamination is outside the scope of San Diego Water Board's TMDL authority and should not be included in the TMDL Implementation Plan. The Water Board's authority to establish TMDLs comes from Clean Water Act section 303(d)(1)(C), which sets forth that a TMDL is the maximum amount of a pollutant that may be added to a listed water body daily from all sources. TMDLs are implemented through pollutant source control via wasteload allocations from point sources and load allocations from non-point sources. 40 C.F.R. § 130.2(i). Thus, TMDL authority does not include addressing remediation of legacy sediment contamination. The San Diego Water Board must undertake the sediment cleanup effort through some other regulatory authority besides this TMDL, such as a Cleanup and Abatement Order (CAO). This distinction is important because the responsible parties for the TMDL, who are the public agencies and other NPDES permittees that discharge storm water into the San Diego Bay, likely are not the same responsible parties for the legacy sediment contamination cleanup. The NPDES permittees' compliance with the TMDL should not be dependent on the status or ultimate success of the sediment cleanup, which may be beyond their control. Through the CAO process, the San Diego Water Board will determine the parties responsible for remediation as well as the appropriate cleanup levels, which may or may not be equivalent to the TMDL sediment numeric target, as acknowledged on page 119 of the Draft Technical Report. Elsewhere in the Draft Technical Report, however, it is clear that the TMDL compliance points are based on a modeling assumption that sediment will be cleaned up to the TMDL numeric target (pages 84-85). The City requests deletion of any references to sediment remediation as an implementation action in the draft Tentative Resolution and Basin Plan Amendment. Keeping the TMDL and sediment cleanup separate would be consistent with similar efforts elsewhere in California, including the San Francisco Bay PCB TMDL and the Santa Monica Bay DDT and PCB TMDL, which were approved by the U.S. Environmental Protection Agency in 2010 and 2012, respectively. To the extent that the water column and sediment numeric targets are dependent on future remediation action to a certain cleanup level, the TMDL should include a reopener provision to allow for adjustment of the compliance schedule and targets if remediation is delayed or if cleanup levels are set above the TMDL sediment numeric target.	City of San Diego
	Response: Sediment remediation is clearly within the scope Water Board authority to address impaired waters. The TMDL Implementation Plan informs the public, regulated entities, and others of actions the San Diego Water Board intends to take to correct the impairment. Sediment remediation is included in the Implementation Plan because it is one of several necessary steps to ensure that areas will support beneficial uses. Please see the response provided in CAO-1. The Implementation Plan must address both ongoing discharges and removal of legacy sediment contamination in order to restore beneficial uses – the end goal. Therefore, the timelines for achieving both actions are interdependent and need to be included in one plan. With this in mind, the timeline has been designed to allow for some overlap between the two actions. For instance:	Reference: CAO-1, IP-17

	• Compliance with the concentration-based TMDLs is delayed until after sediment remediation is completed to demonstrate that sediment and water column targets are maintained into the future; and • Monitoring for Aquatic Life Sediment Quality Objective is delayed by two years after the sediment remediation to allow for benthic community recolonization. The San Diego Water Board intends to work with the permittees and the parties involved with sediment remediation in coordinating these actions. It is important for both the watershed controls and the sediment remediation to be included in the Implementation Plan and the sediment remediation will not be deleted. A level of consistency throughout the State is achieved by conforming to statewide policy and plans, such as the State Water Board Resolution 2005-0050 for addressing impaired waters and Resolution 92-49 regarding Cleanup and Abatement Orders. Implementation plans vary as each situation requires depending on the impairments being addressed and the site specific context. A reopener provision is provided in the event that new information or data indicates that a re-evaluation of the TMDLs, WLAs, or LAs is needed for the purpose of restoring beneficial uses. Re-evaluation of TMDLs implicitly includes the numeric targets and implementation schedule.	

CAO-3. TMDLs are not effective in imposing liability on parties whose past operations contributed to the current impairment		
	Comment: A sediment remediation effort should be separate from the TMDLs and not a part of TMDL implementation. The Port District recommends an approach that is more flexible, yet is still protective of the environment. As such, the Port District recommends that the San Diego Water Board consider a two-part remediation approach, as detailed below, for this and other sites impacted by both legacy contaminants and ongoing sources. TMDLs should be solely for the purpose of controlling ongoing pollution sources. A TMDL's primary objective is to limit the ongoing loading of various constituents into an impaired waterway. Apart from being primarily forward looking in its approach, TMDLs will likely not be as effective in addressing the current environmental conditions at the creek mouths. In particular, TMDLs focus on parties whose current operations are in some fashion contributing to contaminant loading. For this reason, TMDLs are not as effective in imposing liability on parties whose past operations contributed to historic and current impairment. Compliance with the TMDLs should also not be dependent on the status or ultimate success of the sediment remediation. The mouths of Chollas, Paleta, and Switzer Creeks are largely impaired due to historic contamination, particularly for chlordane and PCBs. These pollutants require little to no source reduction. An alternative mechanism such as a Cleanup and Abatement Order seems more appropriate for remediation of chlordane and PCBs given that their liability rests with those that had historic discharges of these contaminants.	Port of San Diego
	Response: As previously stated, sediment remediation is an important step to ensuring beneficial uses will be supported and is therefore appropriately included in the TMDL Implementation Plan. Please see the response provided in CAO-1. The TMDLs, as proposed, are calculations solely for the purpose of controlling ongoing pollutant sources through permitted waste load allocations. The San Diego Water Board will exercise its enforcement authority to compel the sediment remediation for those parties whose past operations contributed to historic loading and the current impairment. Please see the response provided in comment CAO-2: *NPDES permittees' permit compliance should not be dependent on the status or success of the sediment cleanup*.	Reference: CAO-1, CAO-2

CAO-4. CWA section 303(d) does not require implementation; therefore, sediment remediation provisions should be removed from the DTR		
	Comment: The DTR includes provisions that address the remediation of sediment within the three watersheds. (See, e.g., Sections 10.1, 10.5). However, pursuant to the Clean Water Act, TMDLs are designed to gather information in advance of an implementation or remediation plan. It is not meant to be an implementation plan itself. (See U.S.C. § 1313(d); 40 CFR § 130.7; *Pronsolino v. Nastri*, 291 F.3d 1123, 1140 (9th Cir. 2002) ("[T]here is no pertinent statutory provision otherwise requiring implementation of § 303 plans or providing for their enforcement. "); *City of Arcadia v. US EPA*, 411 F.3d 1103, 1105 (9th Cir. 2005) ("[A] TMDL is not self-enforcing, but serves as an informational tool or goal for the establishment of further pollution controls.")). TMDLs do not create an enforceable implementation scheme for remediation of polluted water bodies, nor are they designed for this purpose. Rather, sediment remediation must be conducted pursuant to the requirements of separate cleanup and abatement orders. (See CWC §13304). As such, the DTR's sediment remediation provisions should not be included as part of the TMDL. Further, the inclusion of sediment remediation provisions in the DTR is particularly inappropriate without NASSCO being a named party with TMDL responsibility for Chollas Creek. NASSCO is required to remediate contaminated bay sediments within the NASSCO Shipyard Sediment Site. (See Cleanup and Abatement Order No. R9-2012-0024 (CAO)) However, the polygon (NA22) within the Chollas Creek TMDL project area and the NASSCO Shipyard Sediment Site was specifically excluded from the CAO, and from NASSCO's remediation responsibilities, so that it could be included in a cleanup and abatement order issued for the mouth of Chollas Creek as part of the implementation plan for the Chollas Creek TMDL. NASSCO must be included in the DTR so that any requirements imposed by the implementation plan also apply to NASSCO. Without NASSCO's inclusion, the TMDL implementation plan is contrary to the intended purpose of excluding NA22 from the CAO. In addition to NASSCO, there may be additional parties responsible for the contamination and should be involved in the remediation that is not part of the TMDL process. It would be inappropriate to expect TMDL parties to develop an implementation plan for the remediation of sediments which may be the responsibility of other parties. Because the primary objective of a TMDL is to limit the future, ongoing loading into an impaired waterway, TMDL compliance should not be dependent on the status or success of the cleanup of historically contaminated sediments. As a TMDL is not the appropriate regulatory means, the Port District requests that the sediment remediation provisions of the TMDL implementation plan be removed from the DTR. Instead, the Port District requests that the sediment cleanup requirements are met through the appropriate regulatory tool, such as a cleanup and abatement order.	Port of San Diego – Brown & Winters
	Response: The San Diego Water Board agrees that CWA § 303(d) does not provide a specific requirement for providing an implementation plan; however, it does require that TMDLs be incorporated into the State's water quality management plan (i.e., Basin Plan) under its continuing planning process (CWA § 303(e)). California's Continuing Planning Process includes adoption, review, and amendment of its state-wide and basin water quality control plans	Reference: CAO-1, CAO-2, RP-4, RP-6

	and policies, i.e., the Basin Plan Amendment Process (see CWC § 13240-13247). CWC requires that a program of implementation be included for achieving water quality objectives in its regional basin plans. Please refer back to the response provided in CAO-1. Additionally, it is correct that TMDLs in themselves are not self-enforcing. As previously mentioned in the response to CAO-1, the CWA requires NPDES permits to be consistent with the assumptions and requirements of TMDLs and available WLAs. In essence, TMDLs are implemented, or become effective, once they are incorporated into NPDES permits. And, as the commenter points out, TMDLs are an informational tool or goal for the establishment of further pollution controls *(City of Arcadia v. US EPA*, 411 F.3d 1103, 1105 (9th Cir. 2005)). In California, the establishment of further pollution controls is accomplished by incorporating TMDLs into a regulatory tool, such as, an NPDES permit or enforcement action. CWA also requires that TMDLs are established at a level necessary to implement the applicable water quality standards (see USC §1313(d)(1)(C); 40 CFR § 130.3; *Anacostia v. Jackson*, 2011 WL 3019922 (D.D.C.), ("Clean Water Act (CWA) requires total maximum daily load (TMDL) that sets load limits on pollutant sufficient to reduce contamination to levels necessary to satisfy narrative and numeric water quality criteria and protect all designated uses applicable to water body"). However, implementation of TMDLs alone will not be sufficient to reduce contamination to levels necessary to satisfy narrative and numeric water quality criteria and protect all designated uses applicable to the three creek mouth areas, without the removal of legacy sediment contamination. Therefore, the Implementation Plan includes a commitment by the San Diego Water Board to issue a Cleanup and Abatement Order to compel sediment remediation. Please see the responses provided in RP-4 and RP-6 regarding the naming of NASSCO as a Responsible Party. Please see comment CAO-2: *NPDES permittees' compliance with the TMDL should not be dependent on the status or success of the sediment cleanup*.	

CAO-5. Implementation of TMDL load reductions and sediment cleanup should be addressed by separate actions		
	Comment: The Water Board's authority to adopt TMDLs is supplied by CWA § 303(d)(l)(C), which provides for TMDLs to establish the maximum amount of a pollutant that may be added to a listed water body, daily, from all sources: > Each State shall establish for the waters identified in paragraph (l)(A) of this subsection, and in accordance with the priority ranking, **the total maximum daily load**, for those pollutants which the Administrator identifies ... as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. 33 U.S.C. § 13l3(d)(l)(C) (emphasis added). TMDLs are implemented through wasteload allocations for point sources and load allocations for non-point sources. 40 CFR § 130.2(i). These allocations are imposed to limit "existing or future" sources of pollution to the applicable receiving water; they do not actively remediate past pollution. 40 CFR §§ 130.2(g) and (h). Accordingly, there is no basis to impose dredging or other remediation as part of a TMDL. The Tentative Resolution implicitly recognizes this, indicating that remediation will be conducted under subsequent cleanup and abatement order(s) issued by the Water Board. Tentative Resolution, at B-31. But since the Water Board lacks authority to impose remediation under the TMDL, there is no basis to include proposed remediation requirements or associated obligations in the TMDL. Further, because the implementation of load reductions in the TMDL is separate and distinct from remediation required under a cleanup and abatement order, the success of each should be separately determined. Different standards also govern each, as, by way of example, the cleanup levels in a cleanup and abatement order are subject to State Water Resources Control Board Resolution 92-49. NASSCO asserts that the proper procedure would be to first implement the TMDL's load reductions. After source control is achieved, monitoring should be done to determine the extent to which sediment remediation may be necessary. Finally, separating the TMDL from the sediment cleanup would be consistent with similar water quality control efforts conducted elsewhere in California, including the San Francisco Bay PCB TMDL and the Santa Monica Bay DDT and PCB TMDL, which were approved by EPA in 2010 and 2012, respectively.	NASSCO – Latham & Watkins
	Response: The San Diego Water Board has authority to require sediment remediation as part of the TMDL Implementation Plan. Please see the response provided in CAO-1. Again, the Implementation Plan included in this Basin Plan Amendment identifies that TMDL requirements be incorporated into permits to control ongoing discharges and prevent future impairment, and identifies the need for sediment remediation through the issuance of enforcement orders to correct existing impairments. Specific sediment remediation levels *will be* separately determined when the San Diego Water Board issues a Cleanup and Abatement Order in accordance with the requirements of Resolution No. 92-49. Regarding the last point on consistency, please refer back to the response provided in CAO-2.	Reference: CAO-1, CAO-2

PCB TMDL Issue Comments

PCB-1. The PCB sediment numeric target is not risk-based or an effect threshold and cannot be reliably linked to the presence or absence of ecological effects		
	Comment: The numeric target listed in Table 4-1 of the Draft TMDL report for PCBs in Chollas Creek mouth sediments, 168 µg/kg, is derived from a flawed and inappropriate use of the California SQO assessment methodology (see comments 3(NT-33), 4(NT-3), and 5(NT-24, NT-25) below). This value is not risk-based, and has no relevance or relationship to sediment toxicity, bioaccumulation, or impairment in the mouth of Chollas Creek. It does not represent the upper range of PCBs in unimpacted sediments, is not an effect threshold, and cannot be reliably linked to the presence or absence of ecological effects. Even if this inappropriate target value is accepted for purposes of discussion, the available data indicate that no action is required in the mouth of Chollas Creek to attain the target. The Chollas Creek sediment TIE (SCCWRP 2011), analyzed surface sediments (0 – 2.5 cm) at three stations in the mouth of Chollas Creek for sediment toxicity in three separate surveys. The concentrations measured at stations C10 and C14 in 2001 (189.49 µg/kg and 211.57 µg/kg, respectively) exceeded the numeric target of 168 µg/kg. The concentrations of PCBs measured in 2002 at the same stations were less than the numeric target at 112.94 µg/kg at C10 and 54.58 µg/kg at C14. PCBs were not detected in 2004 at station C13. All congeners were below the detection limit of 1 µg/kg. While the number of samples was limited, it clearly suggests a decreasing trend in the concentration of PCBs in the surface sediment of the Chollas Creek mouth and compliance with the numeric target. As noted above, the TIE study concluded that PCBs levels were far too low to cause sediment toxicity. Additional sediment PCB concentrations were reported by Brown and Bay (2011) for stations C10 and C14. These samples were collected in July and November of 2001 and February, June, and October 2002. The July 2001 and October 2002 results are the same data reported by SCCWRP (2011). The PCB concentrations in the top 2 cm of sediment at station C10 ranged from 109 – 202 µg/kg with a mean of 138 µg/kg. The concentrations reported for station C14 ranged from 77 – 212 µg/kg with a mean of 136 µg/kg. In both cases the mean values were less than the TMDL target sediment concentration. The numeric target for PCBs in water at the Chollas Creek mouth is 0.00017 µg/L (0.17 ng/L or parts per trillion). Two wet-weather sampling events were conducted by Tetra Tech/Mactec (2010) in the Chollas Creek drainage basin. In the first event, no PCB congeners or Aroclors were detected. In the second event, seven congeners[2] were detected at temporary wet weather station MAC15 at concentrations ranging from approximately 4.0 to 9.5 ng/L (Figure 6-41; Exponent Letter dated April 8, 2013). None of the detected PCB congeners are considered to exhibit dioxin-like toxicity (Van Den Berg, et al. 2006; Exponent Letter dated April 8, 2013). As seen in Figure 1, Station MAC15 is located well upstream in the drainage basin and upstream of the Chollas Creek mouth. No PCBs were reported at the stations (MAC11 and MAC17) nearest the mouth of Chollas Creek. Taken together, the results of the two stormwater sampling events indicate that the Chollas Creek drainage basin is currently an insignificant source of PCBs to the mouth of Chollas Creek and to San Diego Bay. [2] PCB congeners 031, 044, 049, 052, 066, 095, and 101	NASSCO – Exponent

	Response: This comment is composed of three sub-comments including: 1) the method used to develop the PCB numeric target is an inappropriate use of the SQO and is not risk-based, and has no relevance or relationship to sediment toxicity, bioaccumulation, or impairment; 2) data suggests a decreasing trend in PCB concentrations that are less than the TMDL target sediment concentration indicating that that no action is required in the Chollas Creek mouth to attain the target; 3) none of the detected PCB congeners are considered to exhibit dioxin-like toxicity; and 4) watershed data indicate that the Chollas Creek drainage basin is currently an insignificant source of PCBs to the mouth. The San Diego Water Board responses to each sub-comment are provided below: 1) In accordance with CWA section 303(d) TMDLs must be established at a level necessary to implement the applicable water quality standards. In developing numeric targets that meet the Aquatic Life SQO, the San Diego Water Board used the MLOE Approach, included in the Implementation Plan of the Enclosed Bays and Estuaries Plan – Part 1, to analyze the sediment triad data collected in the Phase I characterization studies. The MLOE Approach integrates sediment chemistry, sediment toxicity, and benthic community health indicators to interpret the narrative objective. This analysis categorized the station data into one of five impairment categories. Once categorized, a subset of the data representing the two unimpacted categories was identified for further analysis for the purpose of translating the SQO into numerical targets. The numerical targets represent meeting the Aquatic Life SQO. Using the MLOE Approach in developing TMDLs is appropriate. In fact the Enclosed Bays and Estuaries Plan – Part 1, Section VII.B states the following: "Nothing in this section shall limit a Water Board's authority to develop and implement waste load allocations for Total Maximum Daily Loads. However, it is recommended that the Water Boards develop TMDL allocations using the methodology described herein, wherever possible." This numeric target does not represent a cleanup level in the bottom sediments at the creek mouth areas. Sediment cleanup levels for PCBs in the creek mouth area will be established pursuant to State Water Board Resolution No. 92-49. Investigation and analysis will be conducted in developing cleanup and abatement orders and will provide current information that will aid in determining attainment of the Human Health SQO and necessary cleanup levels as required, which must consider all beneficial uses and not pose a substantial present or potential hazard to human health or the environment. The sediment numeric targets do not represent human health protection. 2) It is a good indication that sediment PCB concentrations appear to be on a decreasing trend in these select stations over the three years that the monitoring studies represented. Assuming the trend could be representative of all creek mouth stations, the U.S. Navy is expected to be conducting maintenance dredging in both the Chollas and Paleta Creek mouth areas within the next year. It is certain that the existing data would not	Reference: PCB-4, NT-2, NT-3, NT-24, NT-25, NT-33, NT-35, IP-4

represent the new surface created by these actions.

The purpose of this Basin Plan Amendment is to establish the mechanisms that will allow the San Diego Water Board to coordinate the actions needed to restore beneficial uses. Limits are proposed to control watershed discharges, which will serve to ensure that the impairment condition will not reappear from these pollutants, and will be maintained through demonstration of periodic monitoring over time. Proposed remediation of existing polluted sediment will remove the existing impairment. Investigation and analysis conducted in developing cleanup and abatement orders will provide current information that will aid in determining attainment of the Human Health SQO and necessary cleanup levels as required, which must consider all uses and not pose a substantial present or potential hazard to human health or the environment.

3) According to Van Den Berg et al. (2006), there are twelve dioxin-like PCB congeners. Concentrations of all but two of the dioxin-like PCB congeners were reported at almost every station in the Chollas Creek mouth from the Phase I Study sample collection. PCB congeners 77, 81, 126, and 169 appear to be the most toxic PCBs according to the Van Den Berg report. PCB congeners 77 and 81 are at higher concentrations in Chollas and Paleta Creek mouths than 126 and 169 according to the Phase I Study.

The findings of the modeling determined that the current discharge of PCBs during the modeled high flow year was sufficient to maintain the numeric targets in the creek mouth sediment. This means that as long as current concentrations of effluent can be maintained at these levels, then there is assurance that into the future the water quality standards will not become impaired due to storm water discharges from the watershed. The fact that no reduction was found to be needed, as a result of the available data used in the modeling, does not provide sufficient justification to not establish a TMDL for PCBs. The assumption that existing loading levels from the watershed will not change is speculative. TMDLs are established when they are incorporated into the Basin Plan and then regulated through appropriate permits to ensure that discharges are in fact maintained at or below these levels. Long-term monitoring of receiving water conditions will provide the final determination as to whether the water quality standards are in fact achieved. There is a continued need to ensure any historic sources are not mobilized and discharged into receiving waters tributary to the site. Lastly, should any future sediment remediation in the receiving waters be unsuccessful due to recontamination, the monitoring of loads and receiving waters is needed to ensure that specific NPDES/MS4 discharges were not a source.

The survey for the Chollas Creek watershed and the other four watersheds that were sampled for San Diego Bay were sampled above the tidal prism, where PCBs were reported at non-detect levels, except in isolated cases. Sources of PCBs could exist within the tidally-influenced portions of the creek mouths. Samples have not been collected there. Possible sources of PCBs would be legacy sources, where PCBs were running offsite during storm events, such as from storm drains where PCBs had collected over time from other locations, or sites where PCBs were stored or used in the past. The Chollas Creek channel was dredged for maintenance in 1997 (not for environmental purposes). Despite dredging, PCBs were found in the channel at concentrations with values of 212 µg/kg at C14 and 255 µg/kg at C13 in the channel during the Phase I Study collection at depths that would indicate the pollutants were deposited from deposition and not from exposure due to the recent dredging. Beyond the channel, but within piers in the Chollas Creek mouth TMDL area, values were as

	high as 422 µg/kg at C02, 320 µg/kg at C03, and 233 µg/kg at C05 were reported. All values are above the numeric target of 168 µg/kg. Eight of fourteen PCB value collected during the 2001 survey exceeded the target and one value was essentially the same as the target. The numeric target is similar to the target value used for the recent "Shipyards" CAO, which is 192 µg/kg. The numeric target that was determined for the current TMDL study using *Macoma* was much lower when subsistence anglers were considered. See Appendix I.	

PCB-2. It is inappropriate to include a PCB TMDL since PCBs are a bay-wide issue		
	Comment: In general, it is inappropriate for PCBs to be included in the TMDL. PCBs are a bay-wide issue. The levels of PCBs at these sites are not high enough to warrant site-specific TMDL actions. Available data demonstrates that sediment and water column PCBs are not a source of impairment in the mouth of Chollas Creek, and that PCBs are not causing sediment toxicity or benthic community disturbance. Even the toxicity identification evaluation (TIE) prepared by the Southern California Coastal Water Research Project (SCCWRP) concluded that PCBs are not a source of toxicity. There is little evidence of ongoing sources of PCBs in these areas. It would be far more appropriate for actions related to PCBs to be taken in the context of the bay-wide issue so that all bay parties can develop a comprehensive strategy.	U.S. Navy NASSCO – Latham & Watkins
	Response: The San Diego Water Board agrees that PCBs are a bay-wide issue, as the Bay was listed of the 303(d) List in 2008 for PCBs in tissues. This bay-wide listing in no way precludes the San Diego Water Board from implementing actions to address PCBs now, including in pending TMDLs for portions of San Diego Bay where they are determined to already be a pollutant of concern. In fact, since the receiving waters are a part of San Diego Bay, and have been shown to bioaccumulate PCBs to levels of impairment, omitting PCBs from the TMDL would be inappropriate. Should future bay-wide work on PCBs find that additional or different waste load allocations to address PCBs are necessary, the TMDL may be re-opened to address said actions. However, delaying inclusion in a TMDL due to speculative future findings regarding bay-wide actions is inappropriate as the Bay continues to be impaired and current actions can be taken based on the available information. Lastly, the Intertidal Segments Study included in the Implementation Plan is meant to investigate unknown and/or undetermined sources of PCBs to these portions of San Diego Bay.	

PCB-3. PCBs are not a cause of impairment at Chollas Creek Mouth		
	Comment: There is no basis for identifying PCBs as a contaminant of concern in the Tentative Resolution. To the contrary, the available data demonstrates that sediment and water column PCBs are not a source of impairment in the mouth of Chollas Creek, and that PCBs in the sediments at the mouth of Chollas Creek are not causing sediment toxicity or benthic community disturbance. Notably, the TIE (Greenstein 2011) prepared by SCCWRP and relied upon in the Draft Technical Report **concluded that PCBs were not causing sediment toxicity in the mouth of Chollas Creek**. Technical Report, at 8; Appendix F at F-58 ("PCBs are unlikely to be a probable cause of direct sediment toxicity at the Chollas and Paleta sites"). According to the TIE: "measured concentrations of DDTs and PCBs at the study sites **are several orders of magnitude lower that (sic) the levels associated with direct toxicity from sediment exposure**." As such, the San Diego Water Board has not provided any adequate justification for identifying PCBs as a contaminant of concern, or for naming NASSCO as a responsible party, based solely on alleged historical PCB discharges. The sole justification offered in the Technical Report-a qualitative finding that sediment PCBs bioaccumulate in clam tissue in laboratory bioassays, is insufficient for the reasons detailed below. The only allegation that PCBs in Chollas Creek are linked to impairment, as stated on page 8 of the Draft Technical Report, is that PCBs were found to bioaccumulate in clam tissue during laboratory tests of field collected sediments (data from Anderson et al. 2005), and are a "potential source contributing to elevated fish tissue concentrations found in San Diego Bay." This qualitative allegation falls well short of demonstration of any causal or quantitative link between Chollas Creek sediment chemicals and impairment. Also, laboratory bioaccumulation results are not relevant to impairment of the three beneficial uses of Chollas Creek that are listed in Table 2–4 of the TMDL report; non-contact water recreation, warm freshwater habitat, and wildlife habitat. Furthermore, the laboratory bioassay used, which measures accumulation of sediment contaminants in the filter-feeding clam *Macoma nasuta*, is an inappropriate surrogate for fish bioaccumulation. *Macoma* clams directly ingest sediment particles and carry large gutloads of sediment. The *Macoma* test, which involves incubation of clams over sediment samples in the laboratory, is therefore a highly conservative indicator of bioaccumulation potential. Such a test does not incorporate any of the complex trophic, behavioral, and spatial factors that determine bioaccumulation of sediment chemicals in fish, which typically move and integrate their exposure over large areas. Use of measured tissue concentrations from the *Macoma* test for exposure modeling or any quantitative purpose would be inappropriate and excessively conservative. The Board has not demonstrated causality between Chollas Creek mouth PCBs and impairment, and has not quantitatively linked bioaccumulation potential of Chollas Creek mouth PCBs to human health or wildlife food-web exposure elsewhere in the Bay. The sole evidence relied upon (*Macoma* bioaccumulation data) does not constitute a causal linkage between PCBs in sediments and impairment of human health or wildlife beneficial uses.	NASSCO – Latham & Watkins NASSCO – Exponent U.S. Navy

	Response: The commenter is correct that the TIE does not identify PCBs as the **sole cause of direct** (emphasis added) sediment toxicity to organisms, although it was identified in the study as a potential contributor to toxicity, which classifies it as a pollutant of concern for the receiving water. The sediment quality objective for aquatic life states: *Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California.* In addition, while PCBs alone were not found to be responsible for direct observed toxicity, the data from the *Macoma* bioassays found that PCBs from the site bioaccumulated during a short time period in the lab using sediments found on-site. The San Diego Water Board considers this a bioassay using a genus native to San Diego Bay that is both representative of the benthic community and utilized for human consumption. Site studies (SCCWRP and SPAWAR 2005) classified sites as possibly impaired for potential human health effects related to the consumption of PCBs in fish and shellfish. Together these provide a clear basis for including PCBs as a contaminant of concern. As previously mentioned, San Diego Bay is listed for PCBs in fish tissue and while this TMDL project is not addressing the Bay as a whole, it is appropriate to take some action that will move the Bay towards reducing this impairment. Some additional clarification is provided as follows, the impaired water body is in San Diego Bay, which is designated for human health beneficial uses: commercial and sport fishing (COMM) and shellfish harvesting (SHELL). The sediment quality for human health states: *Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health.* See responses provided in RP-4 and RP-6 regarding naming NASSCO as a Responsible Party.	Reference: RP-4, RP-6

PCB-4. PCBs should not be included in the TMDL because load reductions are not required to achieve water quality standards		
	Comment: The TMDL does not include any load reductions for PCBs. Rather, the total maximum allowable load on a daily basis for PCBs is set at 0.00331 g/d, which is equal to the existing calculated load in a high flow year. The Technical Report explains: "*[f]or PCBs, watershed reductions are not required as the existing load produced in the modeled high flow year is within the assimilative capacity of the receiving water* …" Technical Report, at 88 (emphasis added). As noted, the purpose of a TMDL is to limit existing or future discharges into a water body at a level necessary to implement water quality standards. 33 U .S.C. § 1313(d)(1)(C); 40 C.F.R. §§ 130.2(g) and (h). Here, the San Diego Water Board has acknowledged that no reductions for PCBs are required. Thus, there is no justification to include PCBs in the TMDL. Any remediation of PCBs in the mouth of Chollas Creek would be subject to a separate regulatory process-a cleanup and abatement order-and does not warrant including PCBs in the Tentative Resolution.	NASSCO – Latham & Watkins NASSCO – Exponent
	Response: The findings of the modeling determined that the current discharge of PCBs during the modeled high flow year was sufficient to maintain the numeric targets in the creek mouth sediment. This means that as long as current concentrations of effluent can be maintained at these levels, then there is assurance that the water quality standards will be met into the future. The fact that no reduction was found to be needed, as a result of the available data used in the modeling, does not provide sufficient justification to not establish a TMDL for PCBs. The assumption that existing loading levels from the watershed will not change is speculative. TMDLs are established when they are incorporated into the Basin Plan and then regulated through appropriate permits to ensure that discharges are in fact maintained at or below these levels. Long-term monitoring of receiving water conditions will provide the final determination as to whether the water quality standards are in fact restored. While the San Diego Water Board is hopeful that PCBs, as historic sources, have been addressed in the watershed, there is a continued need to ensure any historic sources are not mobilized and discharged into receiving waters tributary to the site. Lastly, should any future sediment remediation in the receiving waters be unsuccessful due to recontamination, the monitoring of loads and receiving waters is needed to ensure that specific discharges were not a source.	

PCB-5. Clarify how PCB values higher than the detection limit were handled		
	Comment: The linkage of contaminant sources to the water column and sediments in the mouth of Chollas Creek is based on modeling contaminant loading by storm water runoff from the Chollas Creek drainage basin. The fate of the contaminant loading to the mouth of Chollas Creek and San Diego Bay is based on a separate circulation and sediment transport model. The results of the modeling analysis are stated in section 7.6.2, which states "Model results suggest that under existing loading, total PCBs meet the numeric target; therefore, no additional reduction of total PCBs is needed from the watershed." It should be noted that the analysis is additionally conservative because the numerous non-detected results were replaced by one-half the detection limit (0.05 ng/L) instead of zero. The detection limits of all PCB data used in the analysis are not stated in the TMDL report. So it is not clear if values greater than 0.05 ng/L were substituted for zero for non-detected values at higher detection limits.	NASSCO – Exponent
	Response: The commenter is correct that replacing non-detected results with one-half the detection limits makes the analysis additionally conservative. Information regarding the modeling and detection limits is found in Appendix C-1.	

Responsible Party Issues Comments

RP-1. The Port of San Diego should not be a Responsible Party for Chollas Creek		
	Comment: Port of San Diego The Port District's discharges to Chollas Creek are "negligible," or are already being addressed as part of another named party's responsibilities, and thus the District should be removed as a responsible MS4 Phase I party for Chollas Creek. San Diego Water Board named the District as a responsible party for point sources of pollutants to Chollas Creek as a NPDES Phase I Municipal Separate Storm Sewer System (MS4) Permit holder (Section 5.2.1.1). The watershed model used to calculate WLAs assumed that all land within the District's parcels are 1) ongoing point sources of discharges, and 2) that all of the land within the tidelands boundary is under the District's authority. The Port District believes that the historic record analysis will show that the entirety of the MS4 portions within the District's jurisdictional boundary either 1) are within the NASSCO leasehold or 2) are under the authority of the City of San Diego (dedicated streets and storm drains). Brown & Winters The San Diego Water Board names the Port District as a "responsible Municipal Discharger" for the Chollas Creek watershed, based on the San Diego County Phase I Municipal Separate Storm Sewer Systems (MS4s) permit. However, the Port District believes that it is not responsible for the discharges identified by the Draft Technical Report (DTR) into the Chollas Creek, either from direct runoff from land within its jurisdiction or discharges from MS4s that may be located within its jurisdictional boundaries and drain into the Chollas Creek. a. Discharges from the Port District's Jurisdiction The DTR appears to allocate WLAs to the Port District for Chollas Creek based on the percentage of land area under the Port District's jurisdiction within the Chollas Creek watershed. (Section 8.l.l). The DTR identified a small portion of the tidelands outside the NASSCO major leasehold as under the Port District's jurisdiction that may contribute pollutants to the Chollas Creek watershed. NASSCO operates and maintains an employee parking lot on this property. NASSCO is regulated under waste discharge requirements (WDRs) issued as Order No. R9- 2009-0099, which does not allow for storm water discharge into Chollas Creek. As such, the employee parking lot should be NASSCO's responsibility, not the Port District's, for purposes of allocating TMDL responsibility. As the DTR acknowledges, the storm water runoff from the employee parking lot that discharges into Chollas Creek is considered "negligible" for TMDL allocation. (Section 8.1.1). Further, if the storm water runoff from the employee parking lot was not considered negligible, it would likely be in the form of sheet flow directly into Chollas Creek, which would constitute a non-point source. Rather than a WLA, a non-point source should receive load allocations. (See 40 CFR § 130.2(g)). These discharges would not be included in WLAs.	Port of San Diego Port of San Diego – Brown & Winters

	As this parking lot is the only land identified in the DTR under the Port District's jurisdiction that is within the Chollas Creek watershed and the storm water runoff is negligible for TMDL purposes, it is inappropriate to name the Port District as a responsible Municipal Discharger for TMDL allocation. Assigning the Port District with a WLA for a source that contributes negligible loads to Chollas Creek would subject the Port District to potential liability for discharges that do not contribute to the TMDL calculation and cannot effectively be controlled or reduced. The Port District would be unable to meet its WLA as there is no measurable pollutant load to reduce. Accordingly, the Port District requests that the San Diego Water Board remove the Port District from the TMDL requirements for Chollas Creek. b. Discharges from the MS4 It would also be inappropriate to name the Port District as a responsible Municipal Discharger and assign WLAs based on discharges from any MS4 outfalls within the Chollas Creek watershed. An MS4 outfall has been identified within the NASSCO leasehold that may have historically discharged into Chollas Creek. However, regardless of whether this MS4 is currently discharging into the watershed, the DTR has not identified any MS4 outfalls that are owned or operated by the Port District. The District was established in 1962 by the state of California to effectively develop the harbors and port facilities for multiple purpose use for the benefit of the people. Through the Port Act, the Port District was provided the authority to manage the lands that overlay the city boundaries of the Cities of Chula Vista, Coronado, Imperial Beach, National City and San Diego. However, during the course of establishing the Port District, several parcels and/or utilities remained under the authority of the respective underlying city through grants by the Port District to the respective cities. These grants enabled the cities to maintain ownership of such areas and indemnified the Port District for claims or damages arising from their use. These grants have been documented in historic records shown as easements, dedicated streets, and other deeded rights. As such, it can be the case that some of the streets and storm drains shown to be within the Port District's jurisdictional boundary are actually owned, operated, and maintained by another agency. To assist the San Diego Water Board in better understanding how this correlates with the proposed TMDLs, the Port District is performing a more detailed analysis of the Port District's jurisdictional authority within the boundary of Port District tidelands, and reserves the right to provide further information to the San Diego Water Board at a future date. The MS4 outfall (SW9) that may have historically discharged into Chollas Creek is owned and operated by the City of San Diego. The City of San Diego and the San Diego Water Board have both acknowledged this fact. (See Exhibit 1, attached to Letter). Under the Clean Water Act, a "copermittee" on an MS4 permit is defined as "a permittee to an NPDES permit that is only responsible for permit conditions relating to the discharge *for which it is operator*." (40 C.F.R. § 122.26(b)(1) [emphasis added].) The San Diego Water Board has not specifically identified *any* MS4 outfalls as a source of pollutants in Chollas Creek or even identified any MS4 outfalls that are allegedly owned or operated by the Port District. As discussed, the only known MS4 outfall that may discharge into Chollas Creek (SW9) is owned and operated by the City, and the Port District is not aware of any MS4 outfalls in the Chollas Creek watershed that are owned or operated by the Port District. Should it become necessary, the Port District is prepared to present sufficient evidence showing that the Port District does not own or operate SW9 or any other MS4 outfall that discharges into Chollas Creek.	

	Because the Port District does not own or operate the SW9 and the San Diego Water Board has not identified any Port District MS4 outfalls that discharge into Chollas Creek, the Port District should not be named as a responsible party on this basis. This position is consistent with the decision in *NRDC, Inc. v. County of Los Angeles* (9th Cir. 2012) 673 F.3d 880, which held that, in order to establish a NPDES violation, the source of the pollutant resulting in an exceedance must be specified. (Id at 901.) The TMDL may be in violation of the Clean Water Act, 33 U.S.C. § 1313(d)(1)(c). Recently, in *Virginia Department of Transportation v. U.S. Environmental Protection Agency, et al.*, No. 1:12-CV-775 (E.D. Va. Jan. 3, 2013), the court held that the EPA could not issue a TMDL for storm water flow, a non-pollutant, as a surrogate for sediment, which is a "pollutant." Here, by using estimated storm water runoff and land use models to assign WLAs, the San Diego Water Board is essentially treating storm water as a surrogate for the identified pollutants and develops WLAs only on assumptions regarding the volume and pollutant loads of the storm water, rather than actual pollutants discharged into Chollas Creek. As the TMDL is currently drafted, the Port District would be potentially liable for a violation by assumption without identifying the source of the pollutants that cause an exceedance, which is not permitted by the applicable regulations or court decisions. Therefore, the Port District cannot be named as a responsible party for TMDL requirements based on discharges from MS4s in the Chollas Creek watershed.	
	Response: Modeling and waste load allocations in the Chollas Creek TMDLs were based on the overall Port District area of jurisdiction that ultimately drains to the Chollas Creek mouth area. Recommended Implementation Plan language provides flexibility for meeting the WLAs that take into account the context of Port District lands. The San Diego Water Board understands that many lands in the Port District's jurisdiction are operated by lease holders, like NASSCO, and also that the Port District has granted easements to other parties, like the City of San Diego, for purposes of conveying storm water that may originate outside the Port District's jurisdiction. It is, however, appropriate for the San Diego Water Board to assign WLAs to the Port District based on its jurisdictional area of responsibility. The San Diego Water Board disagrees that the Port District has no opportunity, capacity, or responsibility to effectively control the discharges of pollutants from land it leases to entities such as NASSCO. We note that the NPDES regulations envision a dual responsibility for oversight of industrial sites by the San Diego Water Board and the local municipal jurisdiction. The San Diego Water Board expects the Port District to implement actions to ensure that discharges of pollutants from leaseholds and easements do not cause or contribute to water quality impairments. For instance, we note that the easement language provided by Brown & Winters on behalf of the Port District calls for conformance by the grantee to all applicable laws and regulations. We expect that similar language is included in lease agreements. Such language implies the Port District stands ready to take appropriate action against grantees and lease holders should Clean Water Act, NPDES, or other types of water quality violations be identified. In addition, the Port District is expected to enforce its "Stormwater Management and Discharge Control Ordinance," which is the primary enforcement document for the management and discharge control of storm water and urban runoff within Port District jurisdiction.[1] Therefore, it is a reasonable expectation that the Port District would not and does not intend to stand idly by if discharges from its leaseholds or easements create pollution, contamination, or nuisance in San	

[1] Port Code Article 10, Section 10
[2] The San Diego Convention Center Phase III Expansion and Expansion Hotel Project & Port Master Plan Amendment Draft Environmental Impact Report,

	Diego Bay or its tributary areas. The San Diego Water Board has discretion as the NPDES permitting authority to consider such preventive and corrective actions to be best management practices that could be used to achieve WQBELs that implement the WLAs. The recommended Implementation Plan language for the MS4 Permit does provide for that type of flexibility for the Port District to demonstrate compliance with the WLAs. The Port District's MS4 Permit must, however, also specify monitoring requirements necessary to determine compliance with the effluent limitations. Where the WQBELs are expressed as BMPs, the MS4 Permit must require adequate monitoring to determine if the BMPS are performing as necessary. Therefore, these TMDLs cannot relieve the Port District of MS4 NPDES monitoring requirements. Finally, the San Diego Water Board does not consider sheetflow to be uncontrollable. As noted in section 10.3.2.5 of the draft Technical Report, the San Diego Water Board plans to reissue and revise NASSCO's WDRs and NPDES permit requirements to specifically address pollutants generated from the parking lots.	

RP-2. The Port of San Diego should not be named as a responsible party for MS4 discharges to Switzer Creek		
	Comment: <u>Port of San Diego</u> The District should be identified in TMDL requirements for Switzer Creek as an Industrial Permit holder. The Port District requests a revision of the TMDL to more accurately assign WLAs with consideration of the Port District's role as an Industrial Permit holder at Switzer Creek, thus continuing to regulate TAMT and the implementation of this plan through the General Industrial Permit. Furthermore, the District requests the San Diego Water Board include language in the TMDL that allows consideration of information from special studies and/or assessments of drainage and jurisdictional authority in the area to comply with the TMDLs. <u>Brown & Winters</u> The Port District requests that the San Diego Water Board revise the DTR to clarify that the Port District is not named as a responsible party based on the MS4. The Port District should only be identified in the TMDL requirements for Switzer Creek, if at all, as an Industrial Permit holder for the Tenth Avenue Marine Terminal. There are no other sources of contributing pollutants from land under the Port District's jurisdiction. The DTR is inconsistent as to the basis for the Port District being named in the TMDL. In the Phase I Municipal Separate Storm Sewer Systems (MS4s) section, the Port District is not identified as a "responsible Municipal Discharger" for Switzer Creek. (Section 5.2.1.1) However, the DTR later states that the MS4 owned by the Port District is a known source of organic pollutants in the Switzer Creek watershed. (Section 5.5.2). It also identifies the Port District as a Phase I MS4 responsible party for point source discharges in Switzer Creek. (Section 9.3)	Port of San Diego Port of San Diego – Brown & Winters

	However, the only discharges to Switzer Creek from the Port District's jurisdiction are from the Tenth Avenue Marine Terminal (TAMT). The only MS4 outfalls that may discharge into Switzer Creek from TAMT are regulated under the Port District's Industrial Storm Water General Permit (Order No. 97"03-DWQ). (Section 5.5.3) The Port District requests that the DTR be revised to remove reference to TMDL responsibility for the Port District based on the Phase I MS4 and to clarify that the District is only named in Switzer Creek as a result of TAMT.	
	Response: Modeling and waste load allocations in the Switzer Creek mouth TMDLs were based on the overall Port District area of jurisdiction that ultimately drains to the Switzer Creek mouth area. This includes land within the Port District's Planning Districts No. 3 and No. 4. The area within Planning District No. 4 includes a portion of the Tenth Avenue Marine Terminal (TAMT). The area within Planning District No. 3 includes a portion of the Convention Way Basin Planning Subarea, including acreage within the Convention Center Phase III Expansion and Expansion Hotel Project.[2] The San Diego Water Board has the discretion to include WQBELs for the TAMT area in either the Municipal or Industrial NPDES permit requirements issued to the Port District. In this case, the San Diego Water Board is choosing to use the MS4 NPDES Permit. The San Diego Water Board considers that approximately 30 percent of the facility drains to the TMDL water body, while the majority of the facility drains to other portions of San Diego Bay (see Figure 5.4 of the draft Technical Report). We acknowledge that aggregating the TAMT waste load with the MS4 WLAs could result in more difficult establishment of clear and enforceable NPDES permit limitations. However, we also consider the complexity of enforcing the General Industrial Permit (currently State Board Order No. 97-03-DWQ) if WLAs are assigned to a portion of the facility. The recommended MS4 Implementation Plan language provides reasonable options for enforceable WQBEL requirements.	

[2] The San Diego Convention Center Phase III Expansion and Expansion Hotel Project & Port Master Plan Amendment Draft Environmental Impact Report, May 2012, identifies 5.5 affected acres draining to the Switzer Creek TMDL area (table 4.8-2).

RP-3. Provide clarity on basis of MS4-related TMDL responsibility for the Port of San Diego		
	Comment: The DTR does not appear to allocate TMDL responsibility based on whether a party owns or operates a facility within the MS4 or the amount of storm water or pollutants that are actually contributed by or within each party's MS4 jurisdiction. The DTR assigns TMDL responsibility based on the nonpoint source contributions into the MS4 that are ultimately discharged into each watershed from the "end of the pipe", as calculated by percentage of each party's jurisdiction or right-of-way. (Section 8.1.1) This method of allocation is particularly confusing as the federal regulations require that TMDLs identify and enumerate the individual sources for each load allocation (LA) and WLA. (See section 8; 40 C.F.R. § 130.7) The DTR does not appear to identify or enumerate each individual source for the LAs or WLAs. This would also result in potential enforcement situations in conflict with the ruling in NRDC, Inc. v. County of Los Angeles, as discussed above. Accordingly, the Port District requests that the San Diego Water Board revise the DTR to make clear that the Port District does not have MS4-related TMDL responsibility.	Port of San Diego – Brown & Winters
	Response: As with the Chollas Creek metals TMDL (2007), the San Diego Water Board concludes that the Port District owns and/or operates MS4s within the contributing watershed area that are subject to regulation under the MS4 NPDES permit. Therefore, the Port District does have a responsibility to ensure discharges from those MS4s are in compliance with the waste load allocations. The TMDL estimates loadings and WLAs based on jurisdiction and land uses as representative sources. The U.S. EPA supports that approach. The San Diego Water Board does not expect "potential enforcement situations in conflict with the ruling in NRDC, Inc. v. County of Los Angeles" because a clear message in that case was that MS4 owners can be held liable for pollution from pollutants that are demonstrated via monitoring data to be discharged from their respective systems. Conversely, a lack of pollutants in monitoring data can therefore be used to exonerate an MS4 permittee. Under the TMDL Implementation Plan, effluent monitoring data from MS4s owned or operated by the Port District could be used to demonstrate the Port District's compliance with the WLAs and would be used by the San Diego Water Board when determining responsible parties for future enforcement action, if necessary.	

RP-4. NASSCO should be named as a responsible party for the TMDL requirements		
	Comment: The Draft Technical Report identifies NASSCO as a historical and current source of pollutants discharged into Chollas Creek. (Section 5.4.4) The San Diego Water Board also acknowledges that NASSCO is a responsible party for sediment remediation of Chollas Creek mouth sediment and contemplates issuing an investigative order requiring NASSCO to conduct certain monitoring studies. (Section 9.3 fn. 21, Section 10.4) However, NASSCO is not named as a responsible party for the TMDL requirements or assigned a WLA, even though NASSCO is identified as a source of point source discharges and will be required to remediate the Chollas Creek sediment. (Section 9.3) If the San Diego Water Board determines that discharges from the NASSCO leasehold, including but not limited to discharges from the employee parking lot, contribute a significant load of pollutants to Chollas Creek, NASSCO should be named as a responsible party for purposes of the TMDL load reduction requirements and should be assigned a WLA.	Port of San Diego – Brown & Winters
	Response: NASSCO is on the list of parties responsible for point source discharges in Section 9.3, where NASSCO is listed, and is thereby named as a Responsible Party in the Chollas Creek Watershed. As stated in Section 9.3, fn. 21, NASSCO's NPDES permit does not allow the facility to discharge industrial storm water to receiving waters. In fact, as stated in Section 5.2.1.5, NASSCO has been capturing first-flush storm water from high-risk and additional areas of the facility and diverting it to the City of San Diego's sewer system since 1997. Therefore, it is not appropriate to allocate a WLA to the facility. This means that the facility has a 0 WLA and is not to contribute to on-going and future discharges of pollutants to the receiving water. However, the employee parking lot, which has been identified as a potential source of PAHs in Section 5.2.1.5, is likely discharging storm water to the MS4 and/or Chollas Creek. Therefore, the Implementation Plan included in this Basin Plan Amendment, once adopted, the San Diego Water Board will revise and reissue the facility's individual permit to include TMDL requirements. The proposed requirements are presented in Section 10.3.2.5 and, once incorporated into the permit, would require the facility to implement BMPs capable of reducing organic pollutant loading, sediment, and erosion to a level which maintains the water quality standards for any storm water discharges not captured and diverted to the sewer system, including from the facility's employee parking lot.	

RP-5. Clarify NASSCO's role and identify it as a responsible party for Chollas Creek Only		
	Comment: The San Diego Water Board stated "the primary sources of toxic pollutants to the mouth of Chollas Creek include the Chollas Creek watershed, Naval Base San Diego, NASSCO, and atmospheric deposition" and identified NASSCO as a primary source of toxic pollutants at mouth of Chollas Creek due to historical operations only. Therefore, NASSCO should be named for remediation requirements, not the Port District. In addition, Page 116 of the Draft Technical Report states that NASSCO must implement monitoring, assessment, and reporting requirements for the creek mouth areas of Switzer, Paleta, and Chollas. Please clarify NASSCO's role in the TMDL for the three creeks. The San Diego Water Board should clarify NASSCO's role and identify it as a responsible party for Chollas Creek only.	Port of San Diego
	Response: Please see the response provided in RP-4 and RP-6 regarding the naming of NASSCO as a Responsible Party. The discrepancy noted on page 116 is in fact an error and the language has been corrected to reflect NASSCO's role in Chollas Creek only.	Reference: RP-1, RP-4, RP-6

RP-6. The San Diego Water Board lacks authority to name NASSCO as a Responsible Party		
	Comment: Since the San Diego Water Board lacks authority to impose remediation under the TMDL, there is no basis to include proposed remediation requirements or associated obligations in the TMDL. Likewise, there is no basis to name a "responsible party" in the TMDL solely due to alleged responsibility for remediation under a future order. This distinction is particularly significant as to NASSCO. NASSCO is named in the Tentative Resolution even though it does not have ongoing discharges affecting the mouth of Chollas Creek, and even though it is not assigned any wasteload or load allocations. Because the San Diego Water Board's authority to implement a TMDL is limited to the imposition of such load reductions, the Tentative Resolution should be revised to remove any requirements related to sediment remediation and to delete NASSCO as a responsible party.	NASSCO – Latham & Watkins
	Response: The San Diego Water Board has the authority to require sediment remediation as part of the TMDL Implementation Plan. Please see the response provided in CAO-1. Documentation in Section 5.2.1.5 and paragraph 4 of Section 5.4.1 of the Draft Technical Report, and Sections F1.2 and F1.3 of Appendix F identifies the NASSCO leasehold as an historic source to Chollas Creek mouth. As such,	Reference: CAO-1, CAO-5

	NASSCO is specifically named as a source in Finding 10 and Attachment A (Basin Plan Amendment) of tentative Resolution No. R9-2013-0003. In considering NASSCO's role as a current or future source to the impairment, it was determined that since the permit (Order No. R9-2009-0099) did not allow for the facility to discharge any amount of discharge laden with any of the pollutants of concern, it was not eligible to receive a WLA, and therefore, received no allocation. However, the legacy sediment contamination is a matter of past discharges and given the past operations documented in the Source Assessment, NASSCO will be considered but has not been "named" for inclusion in a Cleanup and Abatement Order as described in Section 10.5 Sediment Remediation of the Draft Technical Report. The San Diego Water Board will conduct a proceeding to issue a Cleanup and Abatement Order in accordance with the requirements of State Board Resolution No. 92-49, and in doing so will present findings, as appropriate, to name responsible parties for sediment remediation.	

RP-7. Any elevated chemistry observed in Chollas Creek is not attributable to NASSCO's operations		
	Comment: <u>NASSCO Has Been a "Zero-Discharge" Facility For Stormwater Since 1997</u> The Technical Report acknowledges that NASSCO maintains a Storm Water Diversion System designed to capture all storm water runoff from industrial areas in the Shipyard, for discharge to the San Diego Metropolitan Sewer System, so that industrial storm water is not discharged to San Diego Bay. Technical Report, at 63. The Technical Report indicates that NASSCO initiated the capture of first-flush storm water from its dry dock, graving dock, paint and blasting areas in 1990, and that this protection was extended to additional areas of the facility in 1997. Technical Report, at 47. The only potential storm water source to Chollas Creek from NASSCO–runoff from a portion of the facility's employee parking lots–was determined to be "negligible." Technical Report, at 91. The Storm Water Diversion System is supplementary to other pollution prevention controls incorporated at the Shipyard to eliminate contaminant releases. These include onsite treatment of bilge and ballast water, implementation of state of the art best management practices, and ongoing training of all personnel in pollution prevention practices. Technical Report, at 63. As a result, and as recognized in the Tentative Resolution, NASSCO is not responsible for any recent, current or ongoing discharges affecting the sediments at the mouth of Chollas Creek. <u>Legacy NASSCO Discharges, If Any, Are Not Impacting Beneficial Uses In The Mouth of Chollas Creek</u> Despite the absence of recent or ongoing discharges affecting Chollas Creek, NASSCO is named in the Tentative Resolution due to alleged "historical" or "legacy" contributions of PCBs. For the reasons explained below, any past NASSCO discharges are not affecting beneficial uses in the mouth of Chollas Creek.[7] *1. There Is No Evidence That NASSCO Has Used PCBs In Its Operations* As a threshold matter, there is no evidence that NASSCO has ever used or released PCBs as part of its Shipyard operations. The Technical Report references activities relating to paint discharges as an alleged source of PCBs	NASSCO – Latham & Watkins

from NASSCO. But there is no evidence that NASSCO has used PCB-containing paints in its operations. The evidence is to the contrary. See Letter from John Kelly Ph.D., Technical Director of Marine Coatings, to Judie Blakey, NASSCO regarding PCBs in Marine Coatings, dated October 14, 2008 (paint supplier confirming that raw materials containing PCBs were never used in its marine paint formulations, including marine paint formulations during the mid-1900s).

2. Legacy NASSCO Discharges, If Any, Would Not Affect Surface-Level Sediments At The Mouth Of Chollas Creek

Sediments buried below approximately 10 cm generally do not impact the water or marine environment because they are below the biologically active zone, and are not biologically available. Deposition of David Gibson, ("Gibson Depo."), at 156:3-157:12. It follows that alleged beneficial use impairments from sediment contamination occur from surface level contamination. Because the Tentative Resolution is intended to address aquatic life and human health beneficial uses, surface level sediment contamination necessarily must be its focus.

NASSCO is not responsible for any surface level sediment contamination at the mouth of Chollas Creek, because it has not had a material discharge to this area since at least 1997 (and never discharged PCBs). Any contaminants of concern contained in historical discharges from NASSCO have by now been covered by new sediment deposits and are not biologically available. By way of example, the San Diego Water Board determined a sedimentation rate of approximately 1-2 cm/year at the adjacent Shipyard Sediment Site, (Shipyard Technical Report, at 30-3), suggesting that new sediment will quickly bury any residual contamination. Given the passage of at least 16 years since a material NASSCO discharge, any contaminants contained in historical NASSCO discharges are well below the biologically active zone. For these reasons, the Tentative Resolution should be revised to reflect that NASSCO is not responsible for any contributions to surface level sediment contamination at the mouth of Chollas Creek, and therefore is not responsible for any impairment to beneficial uses resulting from elevated sediment chemistry found at the mouth of Chollas Creek, even assuming such impairment could be shown.

Moreover, the Technical Report notes that the Navy conducted "significant" dredging at the mouth of Chollas Creek in 1997. Technical Report, at 58. We understand that approximately 100,000 cubic yards of sediment was removed during the 1997 dredging episode.[8] This dredging coincided with NASSCO's expansion of its Storm Water Diversion System to cover all industrial areas of the Shipyard in 1997. Because any legacy industrial NASSCO discharges occurred before 1997, they may well have been removed by the Navy's dredging.

<u>Uncontrolled Sources of Pollution Unrelated To NASSCO Are Impacting Sediments At The Mouth Of Chollas Creek</u>

The Tentative Resolution and Technical Report are clear that uncontrolled sources of pollution unrelated to NASSCO are affecting sediments at the mouth of Chollas Creek. "Essentially all sources (point and nonpoint) in the watersheds enter Paleta, Chollas, and Switzer Creek mouths through the storm water conveyance systems that are regulated through NPDES permits" inapplicable to NASSCO. Technical Report, at 35. Accordingly, NASSCO is not assigned any load reductions in the proposed TMDL. *Id.* at 91 and 93. Because any legacy NASSCO discharges are not impacting beneficial uses as described above, and because any contaminants of concern reaching the sediments in the mouth of Chollas Creek are from discharges unrelated to NASSCO, any observed elevated chemistry in the mouth of Chollas Creek is not attributable to NASSCO's operations. The TMDL should be revised

	accordingly. [7] As noted already, the San Diego Water Board has failed to justify including PCBs as a contaminant of concern or shown that PCBs are causing toxicity in the sediments at the mouth of Chollas Creek or any impairment to benthic communities. [8] See October 6, 2008 email from Len Sinfield to Cynthia Gorham, et al.	
	Response: The San Diego Water Board will consider this information, together with any additional relevant information, when drafting the investigative order for the bioaccumulation monitoring study and the CAO for the sediment remediation at the mouth of Chollas Creek.	

RP-8.	**Include the Air Resources Board as a responsible stakeholder and clarify how responsible parties should address aerial deposition**	
	Comment: a). Page 91 of the TMDL Technical Report states that "...an allocation was not given to bay sources because the bay source would be impractical to manage and concentrations within the open bay are much lower than that at the TMDL sites." Likewise, aerial deposition is also impractical to manage, but chlordane is included in WLAs. Based on this, please clarify the reasoning for inclusion of air deposition of chlordane in the LAs and how this affects the ability to TMDL goals given that this is an uncontrollable source. Furthermore, can site-specific special studies be performed to refine aerial deposition estimates? b). Although prior studies have found PAHs and PCBs to have a net flux from the bay waters to the air, this relationship does not apply to the much larger land area within the watersheds. Therefore, it seems that LAs for aerial deposition of PAHs and PCBs is appropriate and missing in the TMDL. Please explain why the net flux onto land for these constituents is not considered as an uncontrollable non-point source LA. c). From previous draft comments, Caltrans stated "aerial deposition should be considered as a non-controllable, non-point source in the TMDL." The San Diego Water Board response indicates that deposition directly to the water is accounted in LAs (background levels), and it specifically points out that aerial deposition is an uncontrollable non-point source. The Port District supports the San Diego Water Board's assertion that aerial deposition is a non-point source. In addition, if aerial deposition was to be quantified, it should subsequently not be part of a MS4 responsibility. The Port District believes the Air Resources Board needs to be involved as a responsible stakeholder. The Port District is concerned that a letter alone will not be sufficient to bring the Air Resources Board to the table regarding water quality impacts from the atmosphere. Please describe further anticipated roles and responsibilities of the Air Resources Board and methods envisioned to foster their participation.	Port of San Diego
	Response: Although municipalities may not have direct control over indirect atmospheric deposition, they do have control over infrastructures that facilitate pollutant washoff and discharge to the storm drain system and other surface waters. Therefore, the airborn flux onto land is not considered as an uncontrollable nonpoint source. Rather, air deposition that enters the water body by way of NPDES-regulated storm water discharges is included in	Reference: SA-4

	the allocations for storm water in accordance with USEPA guidance[3,4] and practice.[5] Air deposition of Chlordane is included in the nonpoint source load allocations for the Chollas Creek mouth because SCCWRP research (Schiff 2011) found that there was a net gain from dry particle deposition to the water body (see section 5.4.5 of the draft Technical Report.) In this case, direct aerial deposition to the water body does not preclude the goals of the TMDL because sediment remediation and a 15 percent watershed reduction for Chlordane are expected to eliminate the impairment attributed to Chlordane. Neither the TMDL, nor the subsequent implementing provisions prohibit or prevent any party from conducting a special study to refine the aerial deposition estimates used to calculate the TMDL. The San Diego Water Board supports and encourages efforts to work with the Air Resources Board, the Air Quality Management District, and local businesses to encourage reductions in air deposition of water pollutants. As noted in the TMDL documents, the San Diego Water Board intends to engage the Air Resources Board regarding the issue and encourages all interested parties to participate in the resulting dialogue.	

RP-9. All Responsible Parties should be named in the investigative order for the *Macoma* Tissue Monitoring Study		
	Comment: In paragraph 1 on page 119, the Draft Technical Report states that "The San Diego Water Board will consider issuing this Investigative Order to the U.S. Navy and NASSCO, who are dischargers in the tidal portion of the Chollas Creek watershed, and the U.S. Navy for Paleta Creek watershed." However, PCBs have clearly entered the site via releases from the watershed, and all responsible parties should be included.	U.S. Navy
	Response: As stated in the first sentence of the referenced paragraph, the intent of the San Diego Water Board is to name "Those Parties who are responsible for discharging or having discharged PCB pollutants to the sediment in the three creek mouth areas." The investigative orders identified in this Implementation Plan will be developed at a later date; therefore, the determination of the Responsible Parties will be assessed at that time. Also, please note the clarification to language in the Basin Plan Amendment in Section C.2. (paragraph 2) of the TMDL Implementation Plan, which now states that Phase I MS4 Responsible Parties may be named based on the findings of the Intertidal Segments Study(ies) or other information.	

[3] USEPA's Nov. 22, 2002 memorandum, "*Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NDPES Permit Requirements Based on Those WLAs*." Available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/final-wwtmdl.pdf
[4] USEPA November 12, 2010 memorandum, "*Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NDPES Permit Requirements Based on Those WLAs.'*"
[5] For example of USEPA's expectations, see "Response to Comments on the Total Maximum Daily Loads for Metals and Selenium in San Gabriel River and Impaired Tributaries (March 26, 2007)" at http://www.epa.gov/region9/water/tmdl/san-gabriel/response-comments-3-27-07.pdf

RP-10. Include flexible language that would allow compliance requirements to adapt to new information from special studies		
	Comment: The San Diego Water Board should include language in the TMDL to provide flexibility for the Port District to perform monitoring or special studies and remove the Port District from the monitoring requirements of Phase I MS4s. The Port District's boundary is unique in that nearly all of the tidelands area is below the tidal prism and as such, cannot be accurately accounted for in the upstream watershed monitoring efforts. Furthermore, as discussed earlier, much of the Port District's input to these TMDL locations is currently regulated under industrial permits. The Port District is requesting that the Draft Technical Report include language that 1) acknowledges that the Port District's boundary is below the tidal prism, 2) indicates the relatively small proportion of land associated with Port District tidelands, and 3) provides the flexibility for the Port District to develop its own monitoring programs and/or load reduction plans as an alternative to the required MS4 Phase I requirements.	Port of San Diego
	Response: The TMDLs and Implementation Plan reflect that the Port District's jurisdiction includes both tidal lands and watershed surfaces that have been developed adjacent to San Diego Bay. The relatively small extent of Port District's land ownership is reflected in the relative waste load allocations assigned to it. The Port District's interest in tidal areas is reflected in the Implementation Plan's special study on intertidal segments. The Port District's monitoring requirements are consistent with the other Responsible Parties to ensure effective and efficient analyses. The Port District is not restricted from conducting additional monitoring or special studies to further its own goals, and the San Diego Water Board will review all appropriate monitoring reports in order to evaluate subsequent courses of action to best address the impairments and protect beneficial uses. The Implementation Plan recognizes that the MS4 permittees, including the Port District, will use the framework of Water Quality Improvement Plans per requirements of the recently adopted Regional MS4 Permit, Order No. R9-2013-0001. Those plans provide appropriate flexibility in selecting BMPs and monitoring their effectiveness.	

RP-11. Update documents to reflect newly adopted Small MS4 General Permit		
	Comment: The Draft Technical Report references the 2003 Small MS4 Permit at pages 35 and 38, although it was recently superseded by the new permit adopted by the State Board on February 5, 2013. The 2013 Small MS4 Permit includes a list of non-traditional permittees in Attachment B that should be referenced in this TMDL. Specifically, the City is aware that Metropolitan Transit District, which is listed in Attachment B, operates within the Switzer Creek watershed. On the other hand, the school districts listed on page 38 are not enrolled in the 2013 Small MS4 Permit although the Draft Technical Report recognizes that they are a potential source of pollutants. The City requests that the Tentative Resolution and Basin Plan Amendment be revised to include the listed school districts as responsible parties to the TMDLs, since they will no longer be responsible parties by reason of their enrollment in the Small MS4 Permit.	City of San Diego
	Response: The Draft Technical Report has been updated to reflect the new order number and updated descriptions of the new permit requirements. The Basin Plan Amendment continues to identify Regulated Small MS4s as responsible parties. It appears that Metropolitan Transit System has been designated by the San Diego Water Board as a non-traditional small MS4 in Order No. 2013-0001-DWQ. This Basin Plan Amendment still recommends that the Small MS4 General Permit be revised to incorporate TMDL requirements as specified in the Implementation Plan of the Draft Technical Report. Order No. 2013-0001-DWQ excepts K-12 school districts and community college campuses from mandatory coverage under the permit. We agree with the commenter's implied assertion that school districts should implement management measures to control the potential for discharging pollutants in the watersheds. Therefore, the San Diego Water Board will consider designating school districts under the applicable provisions of Order No. 2013-0001-DWQ. At this time, we do not have a schedule for enrolling school districts within the region. However, we do intend to consider the potential for causing water quality impacts and potential for affecting attainment of TMDL-derived numeric targets as some of the criteria for prioritizing districts for enrollment. Alternatively, please note that the State Water Board may designate a Small MS4 as a Regulated Small MS4 in response to a petition received under 40 CFR § 122.26(f). Any person may petition the State Water Board to require an NPDES permit for a discharge composed entirely of storm water that contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States. (*Id.*). The State Water Board must make a final determination on any petition within 180 days after receiving the petition. (40 CFR §123.35(c).)	

CEQA Issue Comments

C-1. Future remediation must use the latest technology and feasible BMPs to assure that spread of contaminants are controlled		
	Comment: Staff notes that in Appendix H of the Draft Technical Report (Environmental Analysis and Checklist), under section H2.4.2, California State Regulatory Agencies (p. H-21), it states: *"CSLC's jurisdiction within San Diego Bay includes the main shipping channel, extending to a line along the pierhead/bulkhead line (US Navy and Port of San Diego 2011, Map 3-3). While the three creek mouth areas within San Diego Bay are not within the CSLC's jurisdiction, potential sediment dredging and capping activities associated with this Basin Plan amendment may affect the "sovereign lands." CSLC will be notified and given an opportunity to comment on this project."* CSLC staff concurs with the San Diego Water Board's jurisdictional determination, but is concerned that activities resulting from the proposed Project may further spread contaminants onto sovereign lands under CSLC jurisdiction. Legacy contaminants that have been discharged into onshore and offshore waters and that settle into bottom sediments have become an increasing concern for the CSLC, which is entrusted with the management of sovereign lands, on behalf of the State, consistent with the Public Trust. Any future remediation activities on granted lands must be thoroughly analyzed, and the latest technology (e.g., vacuum dredges, etc.) and feasible best management practices must be implemented to assure that the suspension and spread of contaminants are controlled to the maximum extent possible. Thank you for the opportunity to initiate consultation on the subject TMDLs. Please send additional information related to this issue to the CSLC as the TMDLs become finalized.	California State Lands Commission
	Response: The possible adverse impact of contaminant spread in water as a result of sediment re-suspension during the potential dredging and capping project has already been evaluated in the CEQA analysis [Appendix H, Sections 3.2.VIII (Hazardous and Hazardous Materials), 3.2.XVIII (Mandatory Findings of Significance), and H6 (Findings and Statement of Overriding Considerations)]. The appropriate mitigation measures necessary to reduce this adverse impact as well as the available oversight mechanisms to implement those mitigation measures were also discussed in the CEQA analysis. As stated on pages H-53 to H-54, H-73 to H-74, and H-94 of Appendix H, the potential negative impact from re-suspended sediment during dredging and capping would be temporary, and could be mitigated through appropriate mitigation measures, such as the use of small cutterhead dredges designed for minimizing sediment disturbance, the deployment of silt curtain, as well as the proper training of personnel responsible for curtain deployment, etc. Through its permitting authority (e.g., 401 certificates and Waste Discharge Requirement permits) and CEQA responsibility, the San Diego Water Board will require that appropriate prevention and mitigation measures be included in proposed dredging projects to avoid or substantially lessen the potential of water quality impacts from contaminated sediment re-suspension. The San Diego Water Board will continue to notify the CSLC in the future as the remedial actions for this project are developed.	

C-2. Economic analysis substantially underestimates the cost of compliance		
	Comment: Section 21159(c) of the California Environmental Quality Act (CEQA) requires that the San Diego Water Board consider a reasonable range of economic factors when adopting a Basin Plan Amendment. The analysis in Appendix H, Section H3.3, is not adequate because it substantially underestimates the cost of compliance. The first problem is that Appendix H assumes vegetated swales may be a primary method of compliance with the TMDL. The City doubts whether this is an accurate assumption given that BMPs with higher pollutant removal potential likely will be necessary to achieve compliance. A cost estimate for the Bannock Avenue Streetscape Enhancement, which treats runoff from about 19.5 acres in the Tecolote watershed, is attached as Exhibit 1. This project is estimated to cost over $1. 7 million, for a cost of $88,249 per acre treated. Second, the cost estimates for vegetated swales and bioretention systems are far too low. Appendix H estimates that a half-acre vegetated swale could be constructed for $15,000, and a 1,250 square foot bioretention basin could be constructed for $19,000. In the City's recent experience, these estimates would not even be sufficient to cover design and permitting costs. Applying the typical costs in the City's Low Impact Development Design Manual, construction of a half-acre swale would cost $2.80 per square foot, for a total of$61,118 (Exhibit 2). When costs for planning, design, and project management are included, the total cost rises to $110,025. Regarding bioretention costs, the City recently built a 4,800 square foot bioretention basin at 43rd Street and Logan Avenue, which treats runoff from a 0.83-acre area. The total cost was $338,074 (Exhibit 3). This project is representative of a typical cost for a bioretention facility. Third, the estimates in Appendix H do not include land acquisition costs that are reasonably likely to be incurred based on the San Diego Water Board's estimate of the land area needed to construct treatment control BMPs sufficient to achieve compliance with the TMDLs. Appendix H estimates that 3,956 half-acre vegetated swales, or 14,030 1,250-square-foot bioretention units would be required to treat the 19,780 acres of impervious surfaces in the three watersheds. This would result in 1,978 acres dedicated to swales or 402 acres dedicated to bioretention basins. In 2009, the City conducted a parcel evaluation for BMP implementation in the Chollas Creek watershed. This study identified only twenty-two City-owned sites suitable for BMPs in the entire watershed (Exhibit 4). The City and other responsible parties may have to purchase significant acreage to construct the anticipated treatment control BMPs, and the San Diego Water Board should include land acquisition costs in its economic analysis. Based on the City's recent experience designing and constructing treatment control BMPs, the cost of compliance in Appendix H appears to be off by an order of magnitude even when land acquisition costs are excluded. The City expects that the cost of compliance will be in the billions of dollars, not millions. The City recommends revising Appendix H to comply with CEQA section 21159(c) and provide accurate disclosure of the economic impact of this TMDL to the decision makers and the public.	

Response: This comment is composed of three sub-comments including: 1) vegetated swale might not be effective to achieve compliance; 2) the cost estimates for vegetated swales and bioretention systems are too low; and 3) potential land acquisition cost should also be included in the economic analysis. The San Diego Water Board's responses to each sub-comment are provided below:

1) The COC groups addressed by the subject TMDL project have high tendency to partition on and travel with sediments. Table 8-1 of the Technical Report shows that the needed load reductions for the three COC groups range between 0% and 61%. Vegetated swales have been reported as having "medium" removal effectiveness for sediment and organics (CASQA, 2003a). According to Caltrans's 2002 study (reported in CASQA 2003a), the removal efficiency of grass swale to TSS is 77%, which is greater than the maximum pollutant load reduction of 61% identified by this TMDL. Therefore, vegetated swale has been included as a potential treatment BMPs in the economic analysis.

2) The unit construction cost ($0.69 per square foot) for vegetated swale that the San Diego Water Board used in the economic analysis was from the most updated report of CASQA (2003), and is believed to be representative of typical construction cost of vegetated swales in California. However, in order to be more comprehensive of the potential cost range, a new unit cost of $4.32 per square foot (City of San Diego, 2011) was also included in the analysis. Additionally, instead of one fixed number, a range of potential costs (i.e., a range from $0.63 to $4.32 per square foot) for the construction of vegetated swales were updated in the cost analysis (Appendix H).

   The construction cost of $19,000 for a typical bioretention basin of 1250 ft2 was calculated based on the treatment-volume normalized unit cost of $6.2 per cubic foot (Weiss, 2005). When normalized onto surface area, this construction cost ($15.2 per square foot) is consistent with CASQA (2003)'s estimation of $12.7 to $50.6 per square foot (2013 dollar) for the construction of bioretention systems at commercial, industrial and institutional sites, and hence is believed to be representative of the construction costs of this type of BMPs in California. To be more comprehensive of the potential cost range, an average unit cost ($73.1 dollars per square foot) provided by the City of San Diego (2011) has been included in the cost estimation. The new ranges of unit cost ($12.7 to $73.1 per square foot) and its associated total cost for the construction of bioretention basins have been updated in the economic analysis.

3) CEQA requires the San Diego Water Board to perform a program-level of analysis, not a project-level analysis (Page H-5 of Appendix H). The land acquisition cost is project specific and will not be available until the project design level, therefore will not be included in the economic analysis. However, one statement has been added to the economic analysis (Page H-77) to emphasize the potential high costs due to the need for land acquisition. The revised paragraph with the new addition underlined and in red is provided below for quick reference:

   > "Approximate costs associated with typical structural BMPs that might be implemented as reasonably foreseeable methods of compliance are provided below. Cost estimates for structural BMPs cited from "*Stormwater Best Management Practice Handbook* –

	New Development and Redevelopment," and "*Stormwater Best Management Practice Handbook – Construction*" are for new construction costs only (CASQA 2003a and b). These estimates generally do not take into account retrofit of existing structures or the potential purchase on land needed for the BMP. **Detailed information such as the spatial extent and dollar amount needed for retrofit or land acquisition will not be available until the specific project level, and so is not included in this cost analysis. However, it should be pointed out that the likelihood of retrofitting and land acquisition is considered high in this TMDL project due to the "highly-developed" characteristics of the three watersheds, which will likely further drive up the implementation costs.** Cost estimates for sediment dredging and capping are also provided in this section."	

C-3. An alternative combining monitored natural attenuation with the TMDL's load reductions should be evaluated		
	Comment: Substitute environmental documentation must include "[a]n analysis of reasonably foreseeable alternative methods of compliance that would have less significant adverse environmental impacts." 23 Cal. Code Regs. § 3777(b)(4)(B); *see also* CEQA Guidelines § 15252(a)(2)(A). Because the substitute documentation serves as the "functional equivalent" of an EIR, it must "provide public and governmental decisionmakers with detailed information on the project's likely effect on the environment, describe ways of minimizing any significant impacts, point out mitigation measures, *and identify any alternatives that are less environmentally destructive*." *Ebbetts Pass Forest Watch v. Cal. Dept. of Forestry & Fire Protection*, 43 Cal. 4th 936, 943 (2008) (emphasis added). Substitute environmental documentation "is subject to the broad policy goals and substantive standards of CEQ A." *City of Arcadia v. State Water Resources Control Bd.*, 135 Cal. App. 4th 1392, 1422 (2006) (citation omitted). Further "[t]he board shall not adopt or approve a project that would cause significant adverse impacts if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse impact that the project may have on the environment." 23 Cal. Code Regs. § 3780(a). The discussion of alternatives in the Environmental Analysis studied the proposed project and two other alternatives. The first alternative was similar to the proposed project but with a 10-year, rather than 20-year, compliance schedule. Environmental Analysis, at H-84. The 10- year schedule was determined to be too short to implement the TMDL, and also would not reduce the proposed project's significant environmental impacts. *Id.* at H-84. The second alternative proposed taking "no action." *Id.* at H-85. The "no action" alternative was environmentally preferable because it would avoid environmental impacts including impacts associated with dredging or capping. *Id*.; see also id. at H-33 (identifying potentially significant air quality impacts from dredging) and H-37-38 (identifying potentially significant biological impacts from dredging). However, the "no action" alternative was found to be infeasible because it would not comply with the Water Code section 303(d) requirement to address the impairment listing. *Id.* at H-85. The proposed project was selected as the "preferred" alternative. *Id.* A reasonably foreseeable alternative omitted from the analysis is the implementation of load reductions called for by the TMDL, combined with monitored natural attenuation in place of active remediation. Under this approach, the	NASSCO – Latham & Watkins

	conditions in the mouth of Chollas Creek could be monitored as the load reductions are implemented to determine if source control efforts, combined with natural attenuation, are concurrently achieving the desired sediment quality. After the 20-year compliance period (or near the completion of that effort), monitoring would assess the extent to which dredging is needed, and the scope of any required dredging. If sediment quality targets have been achieved at this time, this alternative would avoid the significant environmental impacts to air quality and the benthic community that will result from active remediation. If the monitoring shows that conditions have improved, although not enough to avoid dredging entirely, the scope of dredging may be reduced as compared to what would be required only six years after the effective date of the Tentative Resolution, when cleanup abatement orders are to be issued under the Tentative Resolution and when discharges would still exceed the TMDL and recontaminate the sediment. This in turn would minimize the environmental impacts associated with the dredging. This proposed alternative also would avoid the potentially significant environmental impact of recontamination that may result if dredging occurs prior to source control. Recontamination could also require a subsequent round of dredging, causing even more environmental damage. As noted above, available data suggests that the proposed PCB sediment target already has been met and that no dredging is required for PCBs. Also discussed above, evidence from the Shipyard CAO proceeding demonstrates that natural attenuation is occurring at the adjacent Shipyard Sediment Site, resulting in significant sediment quality improvements. Thus, it appears to be certain that dredging is not necessary for PCBs, and there is a reasonable likelihood that the implementation of the TMDL's load reductions, in concert with natural attenuation, will feasibly achieve the objectives of the Tentative Resolution for the other contaminants of concern. To the extent monitoring shows that targets have not been met after the 20-year compliance schedule, appropriate dredging or other remediation could be implemented at that time. In discussing the "no action" alternative, the Environmental Analysis states that “some improvement might be seen over time through natural attenuation,” but dismisses this remedy because it would not reduce sediment loads or remove contaminated sediment. Environmental Analysis, at H-85. But the analysis fails to consider use of monitored natural attenuation in connection with load reductions required by the TMDL. Also, by discussing natural attenuation in the context of the "no action" alternative, the analysis fails to recognize that monitored natural attenuation is not a "no action" remedy, as it requires monitoring and other actions to determine the extent to which sediment quality is being attained, and provides for active remediation if goals are not met. Because implementation of the TMDL's load reductions with monitored natural attenuation is a reasonably foreseeable alternative that could avoid significant environmental impacts and feasibly attain project objectives, this alternative should be evaluated in a revised Environmental Analysis document, and selected in place of the proposed project.	

	Response: In evaluating this proposed program alternative, dischargers would be required, as in Alternative 1, to implement structural and non-structural BMPs to achieve waste load reductions in a 20-year compliance period. Instead of requiring sediment dredging and/or capping, however, this alternative relies on natural attenuation of existing and future pollutants for the restoration of water qualities in the three creek-mouth areas. Compared with Alternatives 1 and 2, this alternative has environmental advantages as the temporary cumulative impacts to the environment associated with sediment dredging/capping operation will be eliminated. However, this alternative is not likely to be viable because high concentrations of pollutants in sediment at depth remain in the environment and periodic maintenance dredging at all three of these creek mouth areas prevents monitored natural attenuation (MNA) from being successful. Periodic maintenance dredging is necessary for the continued and safe navigational operations in the channels of the three creek mouth areas. Based on the San Diego Water Board's experience with historical maintenance dredging at these areas, the operations have been performed on an as needed basis (every 10-15 years or so) to depths of typically within the range of -20 to -37 feet mean lower low water (MLLW). Whereas relatively surficial sediment contamination (e.g., < 5 cm) is more susceptible to natural attenuation, which is facilitated by advection flow, biodegradation, and natural deposition of clean sediments on top of the contaminated sediment, etc.; when buried deep in the sediment column, however, chemicals such as PCBs and chlordane do not easily attenuate naturally, as has been confirmed by tens of years of monitoring data of (legacy) PCBs and pesticides in San Diego Bay. Historical investigation results have shown that heavy PCB contamination in deep sediment column exists at many locations within the creek mouth areas. For example, the Navy's maintenance dredging sediment data of the Chollas Creek mouth (Ogden 1995) showed that the highest total PCB and total chlordane concentrations were found in the sediment layer closest to the planned dredge depth of -20 feet MLLW (see Appendix F, Section F1.4). Five years after the dredging took place in 2001, total PCB concentrations above 200 µg/kg were reported in the surface sediments of the dredged floor bottom at Chollas Creek mouth areas (SCCWRP and SPAWAR, 2005). Therefore, unless contaminated sediments (i.e., with pollutant concentrations above the receiving water limitations as sediment concentrations) that are greater than -20 feel MLLW are also removed via environmental dredging, heavily contaminated sediments will likely be exposed and pose threat to the health of local aquatic life and ecosystem every time after regular maintenance dredging is performed, rendering the MNA alternative ineffective. Additionally, it should be pointed out that other than very limited data of sporadic sampling locations, the existing data is not adequate to draw clear conclusions that MNA is occurring for all target COC groups at the three creek mouth areas. Based on above discussion, this alternative is not considered viable and will not achieve the objective of this Basin Plan amendment, i.e., to restore the water quality and ecosystem health of the three creek-mouth areas within San Diego Bay. Therefore it is not discussed in the SED. In regard to the portion of the comment about potentially significant environmental impact of recontamination, see the response provided in C-4.	

C-4. Recontamination from ongoing storm water discharges could cause potentially significant environmental impacts		
	Comment: The Environmental Analysis also fails to address potentially significant impacts that could result if dredged areas within the mouth of Chollas Creek are recontaminated by ongoing storm water discharges that will not be controlled when the remediation is scheduled to be completed. Assuming the TMDL is implemented on schedule, there will be 12 years of uncontrolled storm water discharges after the remediation is completed but before the load reductions have fully been implemented. Logic dictates against dredging before sources are controlled. As noted above, EPA Guidance provides that source control should generally be achieved before active remediation, and that "project managers should consider the potential for recontamination and factor that potential into the remedy selection process" "**before any sediment action is taken**." Remediation Guidance, at 2-21. The Tentative Resolution, Technical Report, and Environmental Analysis fail to heed this directive. There is no analysis of potential recontamination or feasible mitigation. The substitute environmental documentation thus fails to comply with the mandate to identify potentially significant environmental impacts and analyze reasonable alternatives or mitigation measures. 23 Cal. Code Regs. § 3777(b). Therefore, the Tentative Resolution may not be approved. Id at § 3780(a); see also City of Arcadia, 135 Cal. App. 4th at 1425 (invalidating TMDL under CEQA for failure to analyze reasonably foreseeable impacts of pollution control measures and mitigation for same). Importantly, CEQA requires an analysis of "indirect" environmental effects. An indirect effect is defined as an effect "which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment." CEQA Guidelines § 15064(d)(2). Recontamination constitutes a reasonably foreseeable indirect environmental effect of the proposed project. Hence, CEQA analysis is required. CEQA Guidelines §§ 15064(d)(2) and 15358(a)(2); 23 Cal. Code Regs. § 3777(b).	NASSCO – Latham & Watkins
	Response: The San Diego Water Board disagrees that there will be potentially significant impacts from recontamination by ongoing storm water discharges. Based on the schedule of waste load reduction (Table 10-1 in the Draft Technical Report), 64 percent of needed load reduction will be achieved by Year Eight when sediment remediation is completed at the three creek-mouth areas within San Diego Bay. The following table shows the comparison between TMDLs and estimated waste loads for the three constituents of concern (COC) groups at Year Eight:	

Pollutant	Existing load in High Flow Year	Total Max. Daily Load	WLA Total	64% of needed load reduction	Waste Loads at Year 8*
	g/d	g/d	g/d	g/d	g/d
Chlordane	0.777	0.582	0.460	0.203	0.574
PAHs	32.51	12.67	12.04	13.10	19.41
PCBs	3.31	3.31	3.15	0.10	3.21

* Does not include LAs. LAs for Chlordane, PAHs, and PCBs are 0.004, 0, and 0 g/d, respectively

As shown in the table, except for PAHs, the waste loads at Year Eight of Chlordane and PCBs will be less than their corresponding TMDLs, suggesting that pollutant loads in years eight and after will be within the assimilative capacity of the receiving water body and hence will not cause recontamination. The additional waste load reduction in years nine to 20 will help to provide the additional buffer, as expressed in the form of MOS, for the protection of water and sediment quality of the receiving water body.

The waste load allocation for PAHs at Year Eight is 19.41 g/d, which is about 1.5 times greater than the allowable TMDL (above table) and suggests that PAHs at this loading level may have the potential to recontaminate the receiving water. However, it should be noted that the TMDLs were developed based on conservative assumptions. As an example, one of the highest rainfall years on record (October 2004 through September 2005) was used to estimate watershed flows and loads (Page 86 of the draft Technical Report). Based on Table 6-1 of Appendix D, the annual flow in each record year (between October of the first year and September of the next year) from 2001 to 2006 ranged from 681,000 m^3 to 15,897,000 m^3, with an average of 5,314,000 m^3 and standard deviation of 6,107,000 m^3. The flow rate of 15,897,000 m^3 that was used in the model was almost three times greater than the average flow rate; in other words, for years of average flow rates, the actual pollutant loads are about three times less than what was used in the model (assuming the pollutant concentrations remain the same). Along this thought, if the above discussed average flow rate was used for year eight and after, then the actual annual PAHs load will be about three times less than 19.41 g/d (above table), or at 6.47 g/d, which is much less than the allowable TMDLs of 12.67 g/d. Additionally, the model assumes that there was no loss of pollutants through the bay to the ocean, and that the pollutants do not degrade over time. The potential volatilization of PAHs as they travel along/within surface water was also not included in the model. In reality, all these pollutant removal mechanisms, i.e., loss to the ocean, biodegradation, and volatilization will help to reduce the pollutant loads to the receiving water body.

In considering the above information, the potential for recontamination of the dredged area as a result of on-going storm water discharge between Year Nine and Year 20 is not considered to be significant, and so no changes were made in the Tentative Resolution and Draft Technical Report.

C-5. Recontamination may render the proposed project infeasible		
	Comment: The proposed project is identified as Alternative 1 in the Environmental Analysis. It is black-letter CEQA law that "potentially feasible" alternatives must be considered. CEQA Guidelines § 15126.6(a). CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines § 15364. Thus, the proposed project is not "feasible" to the extent that recontamination precludes its successful and timely implementation. The failure to address recontamination therefore results in an inadequate assessment of the feasibility of the proposed project.	NASSCO – Latham & Watkins
	Response: The San Diego Water Board disagrees that the proposed project is infeasible. The potential is not considered significant for the recontamination of the dredged areas due to on-going storm water discharge between Year Nine and the completion of the TMDL project. See detailed discussion in the response provided in C-4. No changes were made in the Tentative Resolution and Draft Technical Report.	Reference: C-4

Peer Review Issue Comment

PR-1. The sediment numeric target methodology did not receive the necessary external peer review		
	Comment: The methodology used to determine sediment numeric targets was not peer reviewed, as required by the California Health and Safety Code. The Tentative Resolution acknowledges that the scientific portions of the proposed TMDL are subject to the external peer review requirements of California Health & Safety Code section 57004. However, based on the documentation provided, it does not appear that the methodology used to determine sediment numeric targets was submitted for external peer review. See Tentative Resolution, at B-11; Technical Report, at 6; Technical Report Appx. A, at A-I. The Tentative Resolution develops sediment numeric targets using an Aquatic Life SQO MLOE Approach, which involves calculating the "the 95 percent upper confidence limit (UCL) of the mean of a dataset that represents 'unimpacted' conditions in San Diego Bay (i.e., data that meets the Aquatic Life SQO)," and setting the numeric target at that level. Technical Report, at 27. But this methodology was not included in the list of key issues provided to the peer reviewers, as set forth in Appendix A to the Technical Report. Rather, the peer reviewers were asked to assess the validity of a different methodology for setting numeric targets (the Logistic Regression Model Threshold 20 Percent Values ("LRM T20")), which was subsequently rejected by the San Diego Water Board and replaced with the Aquatic Life SQO MLOE Approach. Technical Report, at 26-31. California Health & Safety Code Section 57004 expressly provides that "[n]o board ... shall take any action to adopt the final version of a rule unless ... the board submits the scientific portions of the proposed rule, along with a statement of the scientific findings, conclusions, and assumptions on which the scientific portions of the proposed rule are based and the supporting scientific data, studies, and other appropriate materials, to [an] external scientific peer review entity for its evaluation." Cal. Health & Safety Code § 57004. "Scientific portions" include "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." *Id.* Accordingly, while NASSCO agrees that the LRM T20 is not a valid approach to setting numeric targets and was appropriately rejected after peer review, the San Diego Water Board is obligated to submit the proposed Aquatic Life SQO MLOE Approach for external peer review under California Health & Safety Code section 57004. The San Diego Water Board may not adopt the Tentative Resolution prior to obtaining the necessary external peer review.	NASSCO – Latham & Watkins U.S. Navy
	Response: The San Diego Water Board is confident that the approach used to establish numeric targets is a valid approach that provides scientifically sound results for the TMDL analysis. Three external peer reviews processes comprise the compliance with California Health & Safety Code § 57004. In sum, they provide the review of the scientific portions of the proposed Basin Plan amendment.	

	In 2011, the technical portions of this proposed Basin Plan amendment were peer reviewed by Mr. Robert Brown Ambrose, Jr., P.E., environmental engineering consultant and former Environmental Engineer with the Ecosystems Research Division of the U.S. Environmental Protection Agency and by Professor Ashish Mehta, Professor Emeritus of Coastal and Oceanographic Engineering at the University of Florida. The peer reviewers' primary focus was on the aspects of the modeling. At that time, the numeric targets were based on the Logistic Regression Model, 20 percent threshold. Since then, the numeric targets were revised to be consistent with the Enclosed Bays and Estuaries Plan, Part 1. Further peer review of the numeric target methodology presented in this Technical Report and Basin Plan Amendment is not required. An scientific peer review was completed as part of the rule-making process for the adoption of the Sediment Quality Objective, which included review of the approach to integrate the sediment chemical indicator, sediment toxicity indicator, and benthic community indicator into a robust classification of sediment quality that can be applied to determine the sediment quality at a station relative to the narrative sediment quality objective, or MLOE Approach, as required by the Health and Safety Code. The peer reviewers included John P. Knezovich, Linda C. Schaffner, David L. Sedlak, and Dominic M. Di Toro. The revised numeric targets development relied on a methodology developed by the San Francisco Estuary Institute (Thompson et al. 2009), which included: • Utilizing the Multiple Lines of Evidence (MLOE) Approach of the Sediment Quality Objective (SQO) for the Benthic Community Protection in the Enclosed Bays and Estuaries Plan to identify a San Diego Bay-specific dataset that meets the SQO, and • Performing statistical analyses to calculate the 95% upper confidence limit (UCL) of the mean of each pollutant data set to determine a sediment concentration. A peer review of the SFEI Report (Thompson et al. 2009) was performed by three aquatic toxicologists on staff at academic institutions was previously. The San Diego Water Board is satisfied with the review regarding the confidence limit approach that was presented in the SFEI Report (Thompson et al. 2009). The peer reviewers' comments are provided in Appendix N of the Draft Technical Report.	

Problem Statement Comments

PS-1. There is no basis to establish human health-based numeric targets for Chollas Creek		
	Comment: The Tentative Resolution proposes numeric targets to restore human health beneficial uses by attaining the narrative SQOs for Human Health. Tentative Resolution, at B-6. The Draft Technical Report explains that "the TMDL must address impairments affecting all identified beneficial uses," and that numeric targets for human health are included "to directly address the commercial and sport fishing (COMM) and shellfish harvesting (SHELL) beneficial uses identified in the Basin Plan for these waters." Technical Report, at 31. But the Basin Plan's list of identified beneficial uses for Chollas Creek does not include commercial and sport fishing or shellfish harvesting. Id at 20. Because fishing and shellfish harvesting are not identified beneficial uses for Chollas Creek, there is no basis to set human health based numeric targets to restore these beneficial uses. Accordingly, the human health numeric targets should be removed from the Tentative Resolution. In addition, the Tentative Resolution does not provide any evidence that fishing or shellfish harvesting is occurring or is expected to occur in or around the mouth of Chollas Creek, a storm water discharge area surrounded by industrial uses. Thus, the assumptions that would need to be made to support human health-based cleanup requirements in the mouth of Chollas Creek (i.e., subsistence angling) would be unrealistic and unsupportable.	NASSCO – Latham & Watkins
	Response: Finding 7 of tentative Resolution No. R9-2013-0003 clearly identifies the San Diego Bay Shoreline segments located at the mouths of Paleta, Chollas, and Switzer Creeks as the impaired water bodies. Table 2-4 of the Draft Staff Report provides the beneficial uses for San Diego Bay as designated in the Basin Plan, which includes COMM and SHELL. There is no question regarding the designation of the Bay for these beneficial uses and CWA section 303(d)(1)(C) requires TMDLs that set load limits on a pollutant that is sufficient to reduce contamination to levels necessary to satisfy narrative and numeric water quality criteria and protect all designated uses applicable to the water body. Additionally, fish are mobile and are exposed to the Bay's ambient environmental pollution, which includes bioaccumulative pollutants from these three toxic hot spots.	

PS-2. The Draft Technical Report incorrectly states that PCBs are a source of toxicity in the three creek mouths		
	Comment: The report incorrectly states in paragraph 2 on page 8 that "The source of toxicity to benthic organisms was identified as non-polar organics, such as pesticides, PAHs, and PCBs, at all three sites in TIE studies." With regard to PCBs, the TIE report categorically states "DDTs and PCBs, while prevalent at the sites, are unlikely to be a probable cause of direct sediment toxicity. Data from other laboratory and field studies indicate that the measured concentrations of DDTs and PCBs at the study sites are several orders of magnitude lower that the levels associated with direct toxicity from sediment exposure. The significant correlations with toxicity found for these compounds are likely to be coincidental, probably the result of similar sources of loading with those contaminants causing the toxicity." It is highly inaccurate to infer that PCBs have any link to toxicity to benthic organisms at the site.	U.S. Navy

	Response: The statement referenced by the commenter is a general statement about the two Toxicity Identification Evaluation (TIE) studies, both Phase I TIEs, which identified nonpolar organics as the cause of toxicity at the three creek mouths. Phase I TIEs are the characterization phase of the TIE process and are used to build a general "profile" of the causative toxicant(s), with the goal of determining the general category or type of toxicant involved (e.g., metals, nonpolar organics, volatiles, ammonia). Since many readers may be unfamiliar with what nonpolar organics are, the list was provided to inform the reader. It is correct that pesticides, PAHs, and PCBs are nonpolar organics. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. Usually water quality standards are applied. Only a Phase I TIE was performed. The TIE indicated chlordane and non-polar organics. PCBs and PAHs are non-polar organics. Funds were not available from U.S. EPA to carry the TIE any further. U.S. EPA was satisfied with the TIE results. The bioaccumulation analysis using *Macoma* does indicate PCBs and benzo(a)pyrene are human health stressors. The Phase I characterization studies TMDL analyses, along with further analyses performed by our staff and Tetra Tech (Appendix I) are enough evidence to provide a justification to move ahead with a Human Health TMDL at these three locations at this time. Although the San Diego Water Board plans to address PCBs in San Diego Bay as a whole in the future, rather than site by site, enough information is available at this time to take action at these three priority sites before a bay-wide PCBs TMDL can be implemented.	Reference: NT-3, NT-12, NT-14, NT-18, NT-26, NT-32, NT-33, NT-35

PS-3. Impacts to human health and aquatic-dependent wildlife are not addressed at an adequate level to support WLAs or sediment cleanup level development		
	Comment: In paragraph 4 on page 5, the Draft Technical Report states, "In this case, the TMDLs are intended to provide sediment quality that supports for healthy benthic communities and protects human health and aquatic dependent wildlife from bioaccumulation of toxic pollutants in the food web, especially human health from ingestion of contaminated fish from the bay." However, impacts to human health and aquatic dependent wildlife are not addressed at a level that is adequate to support either waste load allocations or sediment cleanup levels.	U.S. Navy
	Response: The San Diego Water Board acknowledges that the risk assessments conducted as part of this project were screening-level risk assessments. The findings of the screening-level risk assessments identified that the sediment concentrations of PCBs and benzo(a)pyrene (a PAH) were found to bioaccumulate in clam tissue at both Chollas and Paleta Creek mouths. The screening level results are sufficient evidence that supports the need to establish TMDLs for PCBs and PAHs. Currently, the WLAs and concentration-based sediment TMDLs are developed to protect the Aquatic Life Beneficial Uses. The San Diego Water Board has identified water column and fish tissue targets, or concentration-based TMDLs, in concert with monitoring requirements in the Basin Plan Amendment. The water column and fish tissue targets are based on water quality criteria (U.S. EPA 2000b) and Fish Contaminant Goals (OEHHA 2008), which are protective of human health. The monitoring associated with the targets, which will be implemented through permits and enforcement orders, will be used to monitor the conditions at the sites to determine if future actions are needed to ensure that Human Health Beneficial Uses are protected. The Basin Plan Amendment includes a re-evaluation provision for this purpose (see TMDL Implementation Plan, Section F of the Basin Plan Amendment). An aquatic-dependent and human health risk assessment will be needed to determine appropriate Alternative Cleanup Levels as part of a Cleanup and Abatement Order in accordance with Resolution No. 92-49. This Basin Plan Amendment includes a commitment by the San Diego Water Board to issue a Cleanup and Abatement Order in the future to address the impairments at the three creek mouths.	

PS-4. Acknowledge the successful remediation of former Campbell Shipyard Site and provide specific information of the Switzer Creek Mouth footprint		
	Comment: Per CAO 95-21 and the corresponding Order No. R9-2004-0295, the Port District completed an engineered cap over contaminated sediments, of which the pollutants included PAHs, PCBs and various metals. With the exception of chlordane, the pollutants are similar to those for the TMDL. This effort required the District to 1) dredge contaminated materials from the areas and 2) construct an engineered cap over the site. The engineered cap was completed in February 2008, and regular monitoring is ongoing to ensure and document the overall integrity of the cap over time. The Draft Technical Report accurately identifies the development of the cap and acknowledges that the Campbell Shipyard is not considered to be an ongoing source. However, it does not indicate what impact the cap may have had on remediating the Switzer Creek Project Area. The Draft Technical Report identifies the impaired Switzer Creek Project Area to be 5.5 acres at the mouth of the creek, although there do not appear to be any GPS coordinates within the draft TMDL document that clearly outline this 5.5-acre boundary. GPS coordinates are available for the engineered cap, and after comparing the TMDL photographs delineating the Switzer Creek Project Area boundary with the engineered cap, it is highly likely that the southernmost portion of the capping effort overlies the TMDL-defined Switzer Creek Project area. If so, then a portion of the site may have already been successfully remediated. The Port District intends to do its due diligence to determine whether the cap implemented in response to CAO 95-21 overlays the Switzer Creek Project Area prior to the proposed the TMDL Hearing on June 12, 2013. The Port District will be requesting the Switzer Creek Project Area GPS coordinates from the San Diego Water Board and would like to work with San Diego Water Board staff in advance of the June hearing to ascertain whether or not the projects overlay each other. Furthermore, it is extremely important to point out that any sediment remediation in response to the TMDL must take into consideration the cap on the north side of Switzer Creek for two reasons. First, the Port District has already allocated considerable resources to remediate a portion of the contaminated sediments along this site, and second, because the northern boundary of the site utilized capping as its remediation strategy, any further remediation in the form of dredging must not jeopardize the integrity of the engineered cap. Based on this information, the Port District requests that the Draft Technical Report include: 1) GPS coordinates to clearly outline the Switzer Creek Project Area; 2) provide an updated Figure 2-5 on page 17 to provide a current representation of the TMDL project area footprint and surrounding land area to reflect changes within the tideland areas in the creek mouth; and 3) include language (pending the outcome of the GPS coordinate review) that acknowledges efforts that the Port District has already completed in the sediment remediation and count those CAO 95-21 efforts toward any future cleanup obligations that are proportioned to the Parties.	Port of San Diego

	Response: The San Diego Water Board acknowledges the Port District's work in remediating the former Campbell Shipyard site. That said, it *is not* the intent of the San Diego Water Board for the implementation actions associated with this project to disturb the adjacent engineered cap over the former Campbell Shipyard site. However, it *is* the intent of the San Diego Water Board to correct the impairment in the creek mouth area of the Bay which lies in the channel between the cap and the Tenth Avenue Marine Terminal. This Basin Plan Amendment includes two courses of actions: control ongoing pollutant discharges and remediate legacy sediment contamination. Control of ongoing source loading will be beneficial to the surrounding area in the vicinity of the Switzer Creek Mouth area in not creating future impairments in these areas, including on the cap. Both of these actions will require the San Diego Water Board to take future regulatory action through permit revisions and enforcement order issuance. Development of a cleanup and abatement order for the remediation of marine sediment in the mouth of Switzer Creek will be completed at some future time within the next six years. It will be at that time that a specific footprint will be delineated. Specific information can be gathered and assessed in the context of current site information for the preparation of the cleanup and abatement order. The adjacent cap will, of course, be a consideration in the development of the order. It is conceivable that the results of Investigative Order(s) or other future data will justify a more limited CAO than contemplated in this TMDL Implementation Plan to achieve the sediment and water quality objectives. GPS coordinates are not available at this time.	

PS-5. The inclusion of the creeks' designated beneficial uses in Table 2-4 is misleading		
	Comment: The inclusion of beneficial uses for the creeks themselves is misleading in Table 2-4. Including them "for the sake of completeness" is not a good rationale because those beneficial uses have no bearing on the TMDL.	U.S. Navy
	Response: The Problem Statement in Section 2 of Draft Technical Report provides the foundation information for the impaired water body being addressed by the proposed action. Much of the analysis provided for the TMDLs' development, including the Source Assessment and Linkage Analysis (modeling), considers the watersheds as they relate to the impaired water body. Therefore, it is appropriate to include foundational information regarding the watersheds. Please note that the regulatory language of the Basin Plan Amendment clearly states the designated beneficial uses that are impaired.	

Numeric Targets Comments

NT-1. Describe the implications of having a PAH target that differs from that used in the models		
	Comment: The numeric target in the TMDL is for PPPAHs (priority pollutant PAHs). The WLA, however, uses Total PAHs because the equations used for watershed monitoring related to sediment loading identify Total PAHs, not PPPAHs. This discrepancy is of concern because Total PAHs include 20-30 pollutants, whereas there are only 16 PPPAHs listed in the TMDL. Please describe the implications of having a PAH target that differs from that used in the models.	Port of San Diego
	Response: The numeric target uses PPPAHs rather than Total PAHs because it was necessary to have the aquatic life numeric target agree with the aquatic dependent wildlife and human health numeric targets. These two numeric targets required development using PPPAHs, see Appendix I. The major high molecular weight PAHs of concern would be accounted for in the PPPAH measurement as well as important low molecular weight PAHs. Any other PAHs of concern would most likely be correlated with the measurement of the PPPAH measurement or one of the 16 representatives. The measurement in load or reduction of load for the TMDL for Total PAHs should be well correlated with PPPAHs. While the numeric target may miss some of the specific PAHs, it will cover the broad spectrum of PAHs and ensure that an overall mass load reduction is occurring. BMPs used for PAHs would not remove selective PAHs, but would be specific to high- or low- molecular weight PAHs.	

NT-2. The sediment numeric targets are not really related to SQOs since they were derived by an entirely different method		
	Comment: In paragraph 3 of the Executive Summary, the Draft Technical Report states "For the purpose of the TMDL calculations, sediment data were compared to sediment numeric targets to assess the required pollutant load reductions needed to meet the SQO for the protection of benthic communities." However, the sediment numeric targets are not really related to SQOs since they were derived by an entirely different method.	U.S. Navy
	Response: The San Diego Water Board followed the MLOE Approach, as prescribed in the Implementation Plan of the Enclosed Bays and Estuaries Plan – Part 1, to determine the station assessments for the sediment triad data collected in the Phase I characterization studies. This analysis was only used to categorize the data into one of five impairment categories. Once categorized, a subset of the data, representing the two unimpacted categories was identified for further analysis for the purpose of translating the SQO into numerical targets. The numerical targets represent meeting the Aquatic Life SQO; however, Responsible Parties will need to demonstrate attainment of the SQOs by the end of the compliance schedule.	

NT-3. Analysis of the sediment data pool used to set target concentrations provides strong evidence against chemical causality of impairment		
	Comment: The Board approach in selecting sediment chemical target concentrations presumes both chemical causation for the three TMDL target chemicals (which they have not demonstrated) and the existence of an exposure-response relationship. In other words, the method presumes that the degree of impairment is exposure dependent, and that the data can be interpreted to select a target concentration that reflects a "safe" exposure threshold for benthic macroinvertebrates. This assumption is readily testable using the Board's selected data pool. Correlation analysis provides a simple but powerful tool to assess the existence of an apparent exposure-response relationship between sediment concentrations and biological effects (either toxicity or community disturbance). A strong correlation does not necessarily demonstrate causation, but it demonstrates potential for causation, and can be interpreted to support a hypothesis of chemical causation. Absence of a strong correlation between exposure and effect is a clear indication that stressors other than the chemical being evaluated are responsible for any apparent adverse effects. We have performed a simple series of regressions to evaluate the relationship between sediment chlordane, PAH, and PCB concentrations and biological effects that are included in the Board's SQO analysis. These biological effects include two toxicity test responses: amphipod survival and bivalve larval development, as well as four benthic community metrics: BRI, RBI, IBI, and RIVPACs. None of the three target chemicals correlates well with any indicator of adverse biological effect that is incorporated into the SQO analysis. The very data used to derive the target sediment concentrations disprove the assumptions that underlie the derivation method selected. The data strongly indicate a lack of causation for the three TMDL target chemicals. Benthic community disturbance and toxicity are not a function of sediment concentrations of chlordane, PAH, or PCBs in these data. The underlying basic assumption of the derivation method is disproven by the data. The Board's use of the data to set target levels is therefore without technical justification, and the values themselves have no technical validity. Any action, such as sediment remediation or even development of wasteload allocations, that is based on these invalid targets is unlikely to result in any reduction of impairment or protection of beneficial uses. Only through a thorough stressor identification could actual sources of benthic community be confirmed and identified. With regard to Chollas Creek, the recent Chollas Creek and Paleta Creek storm drain characterization study (Tetra Tech/Mactech, 2010) noted "Pyrethroid pesticides, copper, chlordane, DDT and malathion were the predominant causes of observed toxicity throughout the Chollas and Paleta Creek watersheds during wet weather events." This further suggests that the Board has evaluated the wrong chemical stressors (with the possible exception of chlordane) to explain adverse biological effects on benthic communities. <u>Analysis of Data</u> We have tabulated the sediment data selected by the Board for their SQO-based target level derivation, as described in Appendix I-1 of the draft TMDL report (Table 1). As noted above, this appears to actually be a smaller data set than they ultimately used to derive their 95% UCL values, but it is the only pool of data provided in the draft	NASSCO – Exponent

	TMDL report attachments for which we have complete Triad data (chemistry, toxicity, and benthic community). In our analysis, unique station locations were identified, and all replicate samples were averaged for a given location, to prevent bias in the data set from locations with multiple replicates or repeat samples. The regressions of the three TMDL target chemicals on toxicity endpoints are shown in Figures 2 through 7. Positive correlations between TMDL chemical concentrations in sediment and toxicity are weak to non-existent for both amphipod mortality and bivalve larval development endpoints. The highest R-squared value is 0.27 for chlordane on amphipod toxicity, indicating that at least 73 percent of observed variability in amphipod survival is due to other factors. The R-squared value for PCBs on amphipod toxicity is only 0.11, indicating that 89 percent of observed variability is due to other factors. The PAH concentration in sediments can explain less than 1 percent of the observed variability in amphipod survival. The correlation coefficients for bivalve larval development endpoints are even lower for all three chemicals. This is a clear indication that the TMDL target chemical levels in sediment are poorly predictive of toxicity and cannot therefore be used to infer "safe" levels for benthic invertebrates. Regressions for the three TMDL target chemicals on benthic community metrics are shown in Figures 8 through 19. Few and only very weak positive correlations exist between exposure and benthic community disturbance, the highest with an R-squared value of only 0.16 (chlordane on BRI). The regression of PCBs on BRI has an R-squared value of only 0.10. For all PAH correlations, and for all RBI, IBI, and RIVPACS correlations, sediment concentrations explain less than 4 percent of the observed variability. As a whole, these data clearly indicate that these three chemicals are not causally related to benthic community disturbance in the Board's selected pool of samples, and cannot be used to infer "safe" sediment concentrations for benthic invertebrates.	
	Response: The TIE Phase I analysis was used to determine the causes of impairment. A Phase II TIE would have been more conclusive, but was not undertaken as funds were not available. The TIE is an appropriate analysis that is used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. The San Diego Water Board agrees that there may be additional chemicals that threaten impairment to the aquatic community. Therefore, additional TMDLs for the watershed-based loadings may be necessary in the future based on future data collection and analyses. Nonetheless, TMDLs for the pollutants herein are necessary based on the evidence from the TIE. The San Diego Water Board welcomes additional study for further identification the chemicals impairing the TMDL area. The San Diego Water Board recognizes that a multivariate analysis of several chemicals (such as PCA) could provide further insight. The TMDL process addresses chemical individually but not as mixtures, although it can address many chemicals in one TMDL. See other responses provided as referenced.	Reference: PS-2, NT-12, NT-14, NT-18, NT-26, NT-32, NT-33, NT-35

NT-4. There is no evidence to indicate a cause effect relationship between contaminants and the impairment at these sites		
	Comment: In paragraph 4 of the Introduction, the Draft Technical Report states "This TMDL Project is developed to address chlordane, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) as the pollutants causing impairment of the beneficial uses in the three creek mouths in San Diego Bay." However, there is no evidence to indicate a specific cause effect relationship between individual contaminants and the impairment at these sites. Detailed analyses in multiple supporting reports document this lack of a relationship. This is an important consideration because there is a presumption that controlling these specific pollutants will remedy the impairment when the evidence is not at all clear that this is the case. For example, the SFEI report states "There was no evidence that any individual contaminant may be responsible for biological impacts."	U.S. Navy
	Response: See response provided in NT-3, above.	Reference: NT-3

NT-5. There is no reason to expect the water column concentrations to be significantly influenced by TMDL actions		
	Comment: The use of water column concentration targets is inappropriate. Water column concentrations at these sites are largely controlled by processes in the bay and not at the sites except during extreme storm events. There is no reason to expect these concentrations to be significantly influence by the TMDL actions.	U.S. Navy
	Response: CWA requires that TMDLs are established at a level necessary to implement the applicable water quality standards (see USC §1313(d)(1)(C); 40 CFR § 130.3; and an informative district court analysis in *Anacostia v. Jackson*, 2011 WL 3019922 (D.D.C.)). Therefore limits on pollutants must be set at levels necessary to satisfy narrative and numeric water quality criteria and protect all designated uses applicable to water body. The impaired water bodies are designated for the human health beneficial uses of COMM and SHELL; therefore, it is necessary to set limits for pollutants that bioaccumulate in the food web to protect human health.	

NT-6. The application of water column numeric targets is highly impractical and unsupported by any data or evidence that it is necessary		
	Comment: The application of water column numeric targets, as presented in Table 4-3 of the Draft Technical Report, is highly impractical and unsupported by any data or evidence that it is necessary. Detecting compounds at these levels is very difficult and can require highly specialized methods. Using standard methods, it will not be possible to determine if these levels are being achieved or not, so a waste of time. There is no data presented in the study that documents current levels, whether or not they exceed these thresholds, and what relationship that might bear to the sediments. There is no evidence to suggest that the waste load allocations will achieve these standards. There is no discussion even of how these thresholds might be applied.	U.S. Navy
	Response: See response provided in NT-5. In regard to detecting compounds at levels below current detection limits, see response provided in AK-1	Reference: NT-5, AK-1

NT-7. It is inappropriate to apply water column concentration targets to a site that is impaired for benthos		
	Comment: The application of the water quality standards included as water column concentration targets in Table 8-6 of the draft Technical Report to a site that is identified based on impaired benthos is inappropriate. There is no evidence that these concentrations bear any relationship to the impairment at the site. There is no rigorous analysis to suggest that the implementation of the TMDL will or will not have any influence on these levels. Concentrations in the water column for these compounds are largely regulated by bay-wide processes which will not be controlled in any way by the TMDL.	U.S. Navy
	Response: See response provided in NT-5.	Reference: NT-5

NT-8. It is inappropriate to use the SFEI approach to develop cleanup levels		
	Comment: The use of the SFEI study as the basis for development of sediment targets that are being viewed as sediment cleanup levels is highly flawed. While the approach is reasonable for establishing load allocations for PAHs and chlordane, it is not appropriate for establishing sediment cleanup targets. For PCBs, there is no evidence that they are driving toxicity, so setting an arbitrary target based on sediment toxicity is inappropriate.	U.S. Navy
	Response: The development of sediment numeric targets in no way implies what the cleanup level will ultimately be set at. As previously stated, the numeric targets were developed to restore the designated aquatic life beneficial uses by establishing watershed loading limits that promote sediment conditions which are consistent with the Sediment Quality Objective for benthic community protection; whereas cleanup levels established for the purpose of cleanup and abatement must be set at either background water quality or the best water quality which is reasonable if background levels cannot be restored.[6] Additionally, alternative cleanup levels less stringent than background must be set at a concentration that will not pose a substantial present or potential hazard to human health or the environment.[7] Generally speaking, concentrations that are protective of human health are more stringent than those that are protective of aquatic life. The alternative cleanup levels, if background levels cannot be restored, will be established through the development of the cleanup and abatement order(s).	Reference: NT-9, NT-16, M-2

[6] State Water Resources Control Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304*, as amended on April 21, 1994 and October 2, 1996.
[7] 23 CCR section 2550.4

NT-9. There is no evidence that meeting the targets will or will not protect beneficial uses		
	Comment: There is no evidence to suggest that meeting the targets in Table 8-5 of the Draft Technical Report will or will not be protective of beneficial uses. Additionally, it is inappropriate for the San Diego Water Board to set cleanup levels without consideration of all of the factors that require consideration for these decisions. U.S. EPA guidance requires consideration of a range of criteria (NCP) and a rigorous weighing of these factors in the final selection of cleanup goals and methods.	U.S. Navy
	Response: The sediment quality triad or SQO values are used not just to represent the benthic community, but to represent aquatic life of a waterbody. Therefore, by ensuring that the sediment quality triad is in a "good" state we are ensuring that not only is the benthic community being protected, but that the aquatic community is being protected, which translates into the protection of the aquatic life beneficial use. The TMDL and its numeric targets are not used to set sediment remediation levels. The alternative cleanup levels will be established through the development of the cleanup and abatement order(s) pursuant to Resolution No. 92-49. See the response provided in NT-8.	Reference: NT-8

NT-10. The dataset used in the numeric target analysis does not represent all of the unimpacted conditions		
	Comment: The Draft Technical Report states in Section 4.1.1 that "The methodology is to statistically calculate the 95 percent upper confidence limit (UCL) of the mean of a dataset that represents "unimpacted" conditions in San Diego Bay (i.e., data that meets the Aquatic Life SQO)." However it is not the case that this analysis represents all of the unimpacted conditions. In fact there are many unimpacted (no benthic or tox impacts) that are in SQO category 3 that were not included in this analysis. These stations were not incorporated in the analysis on the notion that they have a "high degree of uncertainty," however there is little uncertainty in a station where the benthic community is healthy and no significant toxicity is present. This sub-category of stations from category 3 should have been included in the analysis for it to have credibility.	U.S. Navy
	Response: This numeric target analysis followed the MLOE Approach set forth in Section V. of the Enclosed Bays and Estuaries Plan – Part 1 using the SQO analysis results, which includes the sediment chemistry portion of the chemistry, toxicity, and benthic community triad. Another valid approach to examine would be to use all data that represent low toxicity and high benthic community condition and run an analysis to develop the numeric targets, however that was not the approach adopted for this TMDL. The San Diego Water Board appreciates the US Navy's thoughtful suggestion, but we did not consider that approach before the modeling was completed. Category 3 stations were not considered for use as data for numeric targets because the data did not sort out as	Reference: NT-22

	well as the other categories (there is a large amount of variation in the data in this category), and it is considered one of the impacted categories. However, it is expected that the data in the lower confidence intervals (or percentiles) of Category 3 should be relatively unimpacted.	

NT-11. The bay-wide approach for setting individual watershed sediment target levels is not justified		
	Comment: The Board has elected to use a pool of sediment data from TMDL candidate sites in northern and central San Diego Bay as the basis for determining sediment target concentrations. These appear to have been drawn from any source of available sediment quality Triad data that would permit an SQO analysis, though the data selection criteria for inclusion in their analysis is both unclear and complicated by discrepancies and poor documentation in the draft TMDL report itself (see discussion below and comment 6[NT-27]). The representativeness of the data pool used has not been demonstrated for any TMDL site. There is also no apparent attempt to control for or even identify differences between the level of beneficial use impairment, causes of impairment, environmental conditions, or other baseline factors that may influence beneficial uses at individual TMDL sites. Non-chemical stressors that can affect community structure, such as altered sediment grain size distribution and freshwater influences in the mouths of creeks are not considered, nor are known physical stressors, such as the proximity of the Chollas Creek mouth to NASSCO berths V and VI that are routinely used for engine testing (see discussion in Exponent 2003, section 4.1). There is no consideration of temporal trends, even though the data may be influenced by them. The data included were collected over a 7-year period (1998-2005), and include both known impaired areas and designated reference areas. In summary, the Board have employed a one-size-fits-all approach, which ignores important site-specific information and would require a technical justification that is not found in the draft TMDL report. **Sediment Data Selection** The data sources for derivation of sediment target values include the Southern California Bight 1998 Regional Monitoring Program (Bight '98), the Phase 1 TMDL study of Chollas and Paleta Creeks (SCCWRP 2005), and the Phase 1 TMDL study of B Street, Broadway Piers, Downtown Anchorage and Switzer Creek (Anderson et al. 2004). The data selection and management process used by the Board in preparing their sediment data pool is poorly and inconsistently documented, to the point of being opaque. According to the report, "there were a total of 161 stations, with 190 samples collected from 1998 through 2003" (Appendix I, p. 2). However, examination of the data tables in Appendix I of the report reveals only 134 records from 69 unique sediment stations (only 10 of which are in the Chollas Creek mouth TMDL area). The data include multiple samples from many stations, which appear to be field replicates collected at the same time in some cases and time series samples collected in different seasons or years in other cases. It is unclear from the incomplete process description how or if replicate samples were combined by the Board or how time series data were handled, though it appears from the data tables that all samples were evaluated as independent stations. Replicate samples are tabulated separately with identical chemistry results. There is also reference in the report to exclusion of "statistical outliers" from the analysis (Appendix I, p. 4), though this exclusion process is neither explained nor documented. In the information produced by the Board in response to NASSCO's Public Records Act request, we did find working	NASSCO – Exponent

	files that document the data used by the Board to calculate sediment target concentrations (output files from the ProUCL program). The sample and station count match those cited above from the text, but the source of much of the data is unclear. As a result of the inadequate documentation, it is impossible to fully evaluate the quality or representativeness of the data pool used and the data selection process employed by the Board.	
	Response: The datasets used in this analysis were the same used in the SFEI Report (Thompson et al. 2009) plus the addition of the TMDL data for Downtown Anchorage, B St./Broadway Piers, and Switzer Creek mouth. The selection requirements were based on the available datasets for north or central San Diego Bay that fit quality assurance (QA) requirements and had the necessary sediment triad data: sediment chemistry, sediment toxicity, and benthic community data. ProUCL was used to determine outliers for the combined category 1 and 2 data, used to determine the numeric target. The data were not log transformed to normalize the data before Rosner's outlier test was run. One outlier was removed for each chlordane, PCBs, and PAHs. Note that the data used to calculate 95% UCLs of the mean were log transformed. An outlier test was rerun on log transformed data using the R Statistical software. Four outliers were found for PPPAHs and two outliers were found for PCBs. For both PCBs and PPPAHs sites SW08, SW21, SW22 and SW23 were outliers. For PCBs alone SW21 and SW08 were outliers.	Reference: NT-13, NT-25

NT-12. The bay-wide approach for setting individual sediment target levels is inappropriate		
	Comment: The San Diego Water Board pooled data from throughout San Diego Bay to set numeric limits, with no apparent effort to match reference data to conditions at the mouth of Chollas Creek where the numeric targets will be applied. The Technical Report makes no attempt to justify the representativeness of the data pool for use at the mouth of Chollas Creek. Nor is there any apparent attempt to control for or identify differences between the beneficial use impairment, cause of impairment, environmental conditions, or other baseline factors that may influence beneficial uses at the mouth of Chollas Creek. This results in a flawed assessment of the conditions in the mouth of Chollas Creek and flawed numeric targets. Among other things, criteria for selecting acceptable reference stations include sediment total organic carbon ("TOC") and grain size profiles similar to the site being investigated. See Shipyard CAO, at 9. For example, differences in grain size can affect sediment chemistry, benthic community composition and toxicity results, with sediments composed largely of fine particles showing a greater likelihood of apparent toxicity based solely on the size of the particles. Deposition of Tom Alo ("Alo Depo."), at 183:22 - 184:6,184:13 -185:15. Certain chemicals, including PCBs, have a high affinity for TOC. Id, at 193 :20 - 194:2, 194: 12 - 195 :3, 196: 14 - 196:25. As a result, assuming there is equal PCB contamination throughout the Bay, one would expect to see higher PCB concentrations in sediments containing higher percentages of organic carbon-purely as a result of differences in TOC content. Id With no effort to match reference stations to the conditions at the mouth of Chollas Creek, any apparent effects seen in the sediments may be due to differences in percentage of fine particles and organic carbon	NASSCO – Latham & Watkins

	at the mouth of Chollas Creek, rather than any alleged discharges. For these reasons, the Draft Technical Report should be revised to use reference areas that are similar to the mouth of Chollas Creek. To the extent reference stations differ from the site being investigated, a revised analysis should evaluate the consequences of such differences on the conclusions reached in the Tentative Resolution.	
	Response: The datasets used in this analysis were the same used in the SFEI Report (Thompson et al. 2009) plus the addition of the TMDL data for Downtown Anchorage, B St./Broadway Piers, and Switzer Creek mouth. The selection requirements were based on the available datasets for north or central San Diego Bay that fit QA requirements and had the necessary collected sediment triad data, sediment chemistry, sediment toxicity, and benthic community data. Data were too sparse to use site-specific data only to set numeric targets, therefore, a bay-wide approach was taken. The CWA 303(d) listing is for toxicity and benthic community impairment for Chollas and Paleta Creek mouths. These listings would be directly related to the aquatic life beneficial use; see response provided in NT-9: The sediment quality triad or SQO values are used not just to represent the benthic community, but to represent aquatic life of a waterbody. Therefore, by ensuring that the sediment quality triad is in a "good" state we are ensuring that not only is the benthic community being protected, but that the aquatic community is being protected, which translates into the protection of the aquatic life beneficial use. These impairments were verified with the TMDL Phase I and II Studies; see responses provided as referenced. The TIE Phase I studies identified the broad category of chemicals that were causing the impairment. Funds were not available for additional study. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. U.S. EPA confirmed that the TIE results were sufficient to verify cause of impairment. The standard suite of environmental measurements was collected during the Phase I and II data collection. Major stakeholders and SCCWRP, making up a team of well-respected scientists, were involved in the Phase I and II study design.	Reference: PS-2, NT-3, NT-14, NT-18, NT-26, NT-32, NT-33, NT-35

NT-13. The "unimpacted" stations with the highest concentrations of contaminants of concern were improperly removed from the data pool		
	Comment: As detailed in the Exponent Report, in selecting the 95% UCL of the mean concentration to characterize exposure at "unimpacted" and "likely unimpacted" stations, staff improperly elected to remove from its data pool stations with the highest concentration of each contaminant of concern, on the basis that these concentrations were "outliers." The effect is to drive down the numeric targets. But this decision is wholly improper and lacking in technical justification, because staff improperly assumed that the data is normally distributed, which it is not. The "Pro UCL" statistical program used by staff states that the outlier test relied upon by staff requires normal data, and that "it is necessary to perform a test for normality before applying this [outlier] test." Further, as guidance from the National Institutes of Standards and Technology provides, "If the normality assumption for the data being tested is not valid, then a determination that there is an outlier may in fact be due to the non-normality of the data rather than	NASSCO – Latham & Watkins

	the presence of an outlier." Thus, even if the 95% UCL methodology used in the Tentative Resolution is maintained, the analysis still must be revised to incorporate the highest concentrations of PCBs, PAH, and chlordane found at each station, and the targets adjusted accordingly. The 2,381 µg/kg concentration of PCBs in an unimpacted station in the data pool used by San Diego Water Board staff is markedly higher than the 168 µg/kg target reached through the Board's 95% UCL of the mean approach, but provides a true upper limit of sediment concentrations associated with SQO scores of "likely unimpacted" in this data pool.	
	Response: ProUCL was used to determine outliers for the combined category 1 and 2 data, used to determine the numeric target. The data were not log transformed to normalize the data before Rosner's outlier test was run. One outlier was removed for each chlordane, PCBs, and PAHs. Note that the data used to calculate 95% UCLs of the mean were log transformed.	Reference: NT-24, NT-25

NT-14. An expert analysis of the data pool used to set sediment targets demonstrates a lack of chemical causality of impairment		
	Comment: Exponent performed a regression analysis of the data pool used by the San Diego Water Board to evaluate the correlation between the identified contaminants of concern (including PCBs) in sediments and biological effects that are included in the San Diego Water Board's SQO analysis. These biological effects include two amphipod toxicity test responses, amphipod survival and bivalve larval development, as well as four benthic community metrics: BRI, RBI, IBI, and RIVP ACs. As shown in the Exponent Report, PCBs and the other target chemicals do not correlate well with any measured indicator of adverse biological effects that is incorporated into the SQO analysis. Thus, the exact same data used to derive the proposed sediment targets disproves the assumptions that underlie the method selected, and strongly suggests a lack of correlation for PCBs and the other target chemicals. Simply put, benthic community disturbance and toxicity are not a function of sediment concentrations of PCBs, chlordane or PAHs. Nor are there any positive correlations between exposure and toxicity for the three target chemicals. The San Diego Water Board's use of the data to set target levels therefore is without technical justification, and any remediation based on these invalid targets is unlikely to result in reduction of impairment or increase in beneficial uses. See Exponent Report, at 16-18. It is well-recognized that to the extent elevated concentrations of a contaminant are causing adverse effects to benthic life, such adverse effects will correlate with increased concentrations of the contaminant. In other words, more adverse effects will be seen as the concentrations rise. Deposition of Steven Bay ("Bay Depo."), at 168:11-23 and Ex. 109. The lack of correlation thus demonstrates that elevated sediment chemistry is not causing adverse effects.	NASSCO – Latham & Watkins
	Response: As previously stated, the TIE Phase I analysis was used to determine the causes of impairment. A Phase II TIE would have been more conclusive, but was not undertaken because funds were not available. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. The San Diego Water Board	Reference: PS-2, NT-3, NT-12, NT-18, NT-26, NT-32, NT-33, NT-35

	agrees that there may be additional chemicals that threaten impairment to the aquatic community. Therefore, additional TMDLs for the watershed-based loadings may be necessary in the future based on future data collection and analyses. Nonetheless, TMDLs for the pollutants herein are necessary based on the evidence from the TIE. The San Diego Water Board welcomes additional study for further identification the chemicals impairing the TMDL area.	

NT-15. The prediction limit is the preferred method for use in discrimination of future measurements		
	Comment: There is no discussion in Section 4.1.1 of the Draft Technical Report regarding the use of 95% UCL versus 95% prediction limits or other statistical limits for which a broad range of options were discussed in the SFEI report. Because the targets are being used to establish waste loads, they fundamentally form the basis for future comparisons. The prediction limit is the preferred method for use in discrimination of future measurements.	U.S. Navy
	Response: The correlation analysis and multivariate analyses would be used to determine the contaminants of concern. However, the contaminants of concern were determined when the Toxicity Identification Evaluation was completed for the TMDL, so it was not necessary to run those analyses. In the SFEI report (Thompson et al. 2009) confidence limits and prediction limits were used specifically to calculate options for determining cleanup levels in San Diego Bay. For this TMDL Project, the confidence limits are being used to calculate the numeric target rather than cleanup levels. Thompson et al. (2009) state that the confidence limits were calculated to show the expected range of the mean concentration based on the current data, for a chosen level of statistical probability. The numeric target represents the 95% upper confidence Limit (UCL) of the mean of the current "unimpacted" (Category 1 &2) data set. The approach is provided as an option for determining cleanup levels in the bay. Prediction limits are similar to confidence limits, except that they indicate the expected range of the mean in any future surveys of a chosen sample size (n). One option considered was to determine the numeric target for each TMDL site separately in San Diego Bay. In this case, the option would be to set the analysis to sample a very small number of sites in the future (2 or 3) and run the 95% UCL and prediction limit analysis on the Category 1 & 2 stations from that site only. A peer review of the SFEI Report (Thompson et al. 2009) by three aquatic toxicologists on staff at academic institutions was performed. The San Diego Water Board is satisfied with the review regarding the confidence limit approach that was presented in the SFEI Report (Thompson et al. 2009). The San Diego Water Board is confident that the approach used to establish numeric targets is a valid approach that provides scientifically sound results for the TMDL analysis.	Reference: PR-1, NT-18, NT-23, NT-25

NT-16. The numeric target discussion does not address the potential use of mixture metrics, as discussed in the SFEI report.		
	Comment: The development of numerical targets provides no discussion of the potential use of mixture metrics. As stated in the SFEI report "There was no evidence that any individual contaminant may be responsible for biological impacts." Also they state "Since sediment contaminant mixtures were always associated with biological impacts, clean-up efforts will also need to consider how to assess remediation of sediment mixtures." The report completely ignores this in the development of targets.	U.S. Navy
	Response: The San Diego Water Board realizes that a multivariate analysis of several chemicals (such as Principal Components Analysis) could provide further insight. However, the TMDL addresses chemicals individually but not as mixtures, although it can address many chemicals in one TMDL. The TIE for this TMDL indicated chlordane and non-polar organics. PCBs, DDT, and PAHs are non-polar organics that were analyzed in this study. DDT was ruled out as a possible cause of toxicity. No other types of organics found were indicated. Metals were not indicated by the TIE. Funds were not available from U.S. EPA to carry out a Phase II TIE. U.S. EPA was satisfied with the Phase I TIE results. Therefore, as a mixture of three chemicals, or as three chemicals individually, these three chemicals were indicated for toxicity. All three chemicals identified by the TIE are addressed in the TMDL. The San Diego Water Board agrees that there may be additional chemicals that threaten impairment to the aquatic community. Therefore, additional TMDLs for the watershed-based loadings may be necessary in the future based on future data collection and analyses. Nonetheless, TMDLs for the pollutants herein are necessary based on the evidence from the TIE. The San Diego Water Board welcomes additional study for further identification the chemicals impairing the TMDL area. The TMDL and its numeric targets are not used to set sediment remediation levels. The alternative cleanup levels will be established through the development of the cleanup and abatement order(s) pursuant to Resolution No. 92-49. See the response provided in NT-8.	Reference: NT-8, NT-17

NT-17. Co-varying chemicals lead to artificial underestimates of numeric targets		
	Comment: To develop the numeric targets for sediment, the Aquatic Life sediment SQO approach was used with a dataset that included samples from throughout the Bay, including from contaminated sites such as the mouths of the three subject creeks, the B Street/Broadway Pier site, and the Downtown Anchorage Site. As discussed previously, Thompson et al. (2009) found that most stations in San Diego Bay contain mixtures of co-occurring chemicals, including chemicals other than those for which TMDLs are developed.[5] When chemical mixtures are present, effects cannot be definitively attributed to any specific chemical with certainty. In particular, effects cannot be attributed to the subset of chemicals for which the numeric targets are developed. The set of stations in SQO categories 1 and 2 ("unimpacted" and "likely unimpacted," respectively) will not include stations where effects are caused by a non-TMDL chemical, and where the concentrations of TMDL chemicals would not result in adverse effects. This reduces	Solar Turbines – DLA Piper

	both the number of samples used to calculate 'no-effect' concentrations, and because of covariance among chemical concentrations, is likely to result in a set of samples in which there are no concentrations of TMDL chemicals that are slightly elevated but not enough so to cause adverse biological effects. Reducing the number of samples reduces the variance and leads to a lower upper confidence limit. Skewing the data set to include only low concentrations also leads to a lower upper confidence limit. The consequence is numeric targets for the TMDL chemicals that are artificially low by a substantial degree. According to Appendix I of the subject document, the sediment chemistry LOE for the SQO assessment was calculated using data for sixteen chemicals, including 11 that are not chemicals of concern at the creek mouths (i.e., cadmium, copper, lead, mercury, zinc, dieldrin, trans nonachlor, and four forms of DDT). Because the chemicals of concern at the creek mouths are chlordane, total PAHs, and total PCBs, any determination of numeric targets should focus solely on those chemicals and should not include data where adverse effects might be caused by other co-occurring chemicals. If co-occurring chemicals are present at toxic levels, they can result in numeric targets that are unrealistically low for the chemicals of concern. To illustrate, if the true toxicity threshold for total PCBs is in the range of 3,000 µg/kg, one would not expect to find toxicity at stations with lower concentrations. However, if stations with total PCB concentrations of 500, 1,500, 2,000 and 2,500 µg/kg were affected by toxic levels of nickel, for example, those stations would be excluded from the set of samples used to calculate numeric thresholds because of the observed toxicity, regardless of the fact that the toxicity was due to nickel instead of total PCBs. This exclusion could therefore result in a reference data set with no PCB concentrations greater than 500 µg/kg and thereby generate a numeric target that was much lower than the true toxicity threshold of 3,000 µg/kg, simply as an artifact of the co-occurrence of nickel with PCBs. In this manner, the numeric target developed for total PCBs would be inaccurate and artificially low. One method of minimizing the potential confounding effects of co-occurring chemicals is to develop toxicity thresholds using only stations at which no biological effects were found. The strength of this approach is that despite the presence of co-occurring chemicals, it is known that the chemical of interest was not toxic at the concentrations found at the no-effect stations, regardless of the presence of co-occurring chemicals. The development of protective toxicity thresholds at the Shipyards Site was conducted, in part, using a similar approach based on evaluations of the no-effect data. Following this method will produce more accurate numeric targets for the chemicals of concern. [5] SCCQRP and SPAWAR. 2005. Sediment Assessment Study for the Mouths of Chollas and Paleta Creek, San Diego. Phase I Final Report. Prepared for the San Diego Regional Water Quality Control Board by the Southern California Coastal Water Research Project, Westminster, California, and the Space and Naval Warfare Systems Center, San Diego, California.	
	Response: See the response provided in NT-16.	Reference: NT-16

NT-18. None of the limitations of the method used to develop the numeric targets are documented		
	Comment: In general, none of the limitations of the method used to develop the targets are documented. They are not cause-effect related, they are inconsistent with the TIE results, they include PCB targets based on toxicity and benthic community impacts that are not related to PCBs, they do not address mixtures which is the only measure that showed a significant relation to impact, they are not discriminatory but rather are just descriptive since they use the UCL, they are generic for San Diego Bay rather than site specific for the conditions at the individual locations, they don't address obvious factors that regulate bioavailability including grain size and TOC, to name a few.	U.S. Navy
	Response: The SQO implementation approach was peer reviewed and is now California regulation. To review methods see the Enclosed Bays and Estuaries Plan – Part 1.[8] A peer review of the SFEI Report (Thompson et al. 2009) by three aquatic toxicologists on staff at academic institutions was performed. The San Diego Water Board is satisfied with the review regarding the confidence limit approach that was presented in the SFEI Report (Thompson et al. 2009). The San Diego Water Board is confident that the approach used to establish numeric targets is a valid approach that provides scientifically sound results for the TMDL analysis. The TMDL process addresses chemicals individually but not as mixtures, although it can address many chemicals in one TMDL. The Implementation Plan does not address sediment cleanup; it only identifies that a CAO will be issued to address remediation. The alternative cleanup levels will be established through the development of the cleanup and abatement order(s) pursuant to Resolution No. 92-49. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. Usually water quality standards are applied. Only a Phase I TIE was performed. The TIE indicated chlordane and non-polar organics. PCBs and PAHs are non-polar organics. Funds were not available from U.S. EPA to carry the TIE any further. U.S. EPA was satisfied with the TIE results. The bioaccumulation analysis using *Macoma* does indicate PCBs and benzo(a)pyrene for human health. The original Phase I studies TMDL analyses, along with further analyses performed by our staff and Tetra Tech (Appendix I) are certainly enough evidence provide a justification to move ahead with a Human Health TMDL at these three locations at this time if necessary. However, the San Diego Water Board plans to address PCBs in San Diego Bay as a whole, but we still see the need to begin addressing PCBs at some level at priority sites until a bay-wide PCBs TMDL can be implemented. The SFEI report (Thompson et al. 2009) states that the confidence limits were calculated to show the expected range of the mean concentration based on the current data, for a chosen level of statistical probability. The numeric	Reference: PR-1, PS-2, NT-3, NT-12, NT-14, NT-19, NT-26, NT-32, NT-33, NT-35

[8] SQO information is available at http://www.waterboards.ca.gov/water_issues/programs/bptcp/sediment.shtml

	target represents the 95% UCL of the mean of the current "unimpacted" (Category 1 &2) data set. Prediction limits are similar to confidence limits, except that they indicate the expected range of the mean in any future surveys of a chosen sample size (n). One option explored was to determine the numeric target for each TMDL site separately in San Diego Bay. In this case, the option considered was to set the analysis to sample a very small number of sites in the future (2 or 3) and run the 95% UCL and prediction limit analysis on the Category 1 & 2 stations from that site only. The San Diego Water Board used the raw data as provided in the technical reports to make determinations of conditions at the TMDL sites. The data was not modified in any way, including for grain size or TOC. Bay et al. (2012) found that no significant correlation with TOC and biological effects was observed and it was determined that TOC normalization did not improve the analysis. See response provided in NT-19.	

NT-19. No attempt has been made to incorporate TOC normalization into the numeric target analysis		
	Comment: It is unclear why these organic contaminants for which it is widely known are regulated by the presence of organic matter in the sediment, and at Creek mouth locations where the TOC levels range as high as 6%, there is no attempt to incorporate TOC normalization into the analysis. It is unclear that the so called "unimpacted" sites used to develop the target levels are at all representative of the creek mouth areas which are distinctive in the range and variability of their sediment properties for TOC and grain size.	U.S. Navy
	Response: During the evaluation and development of the sediment chemistry indices for the Aquatic Life SQO MLOE Approach, Southern California Coastal Water Research Project examined the effect of TOC normalization on the predictive ability of sediment quality guidelines. In a comparison of national and regional sediment quality guidelines for classifying sediment toxicity in California, Bay et al. (2012) reported that TOC normalization of organics data did not result in any improvement in correlation or classification accuracy. The San Diego Water Board used the data as provided in the technical reports to make determinations of conditions at the TMDL sites. The data was not modified in any way, including normalizing for TOC.	

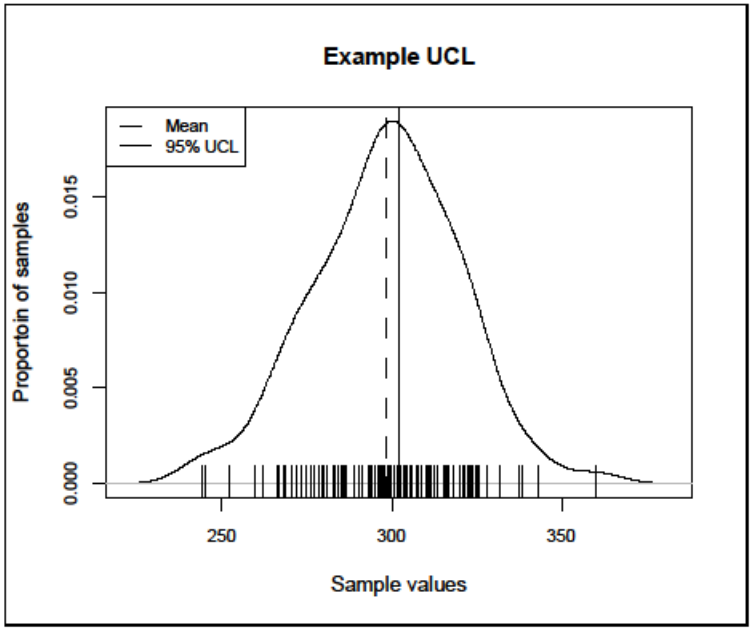
NT-20. Present evidence that the levels presented in Table 4-2 are consistent with the actual risk at the site		
	Comment: A comparison of these targets to low level screening SQGs and background levels, in Table 4-2, is highly misleading. Please present evidence that these levels are consistent with the actual risk at the site, and are in line with other TMDL actions and cleanup actions in the bay. At the stage of implementation, the work should be relying on well-developed, site-specific risk assessment data, not bay wide statistical descriptions and ultra-conservative national screening levels.	U.S. Navy
	Response: When the San Diego Water Board began working on this numeric target selection in 2005-06, seven different assessment reports were considered to see what contaminants of concern had been indicated in the reports for Chollas and Paleta Creek mouths. The TMDL Phase I and II reports were part of that review, which included the TIE report. With regard to numeric target selection, approaches from other contaminated sediment TMDLs were considered. Most often, the ER-L was used for aquatic life-based TMDLs, the ultra-conservative national screening level. The San Diego Water Board wanted to use a value other than ERLs that was either more locally represented or where the data analysis showed more of a relationship to the triad of results rather than just a percentile cut-off of available effects data nationwide. As a result, the San Diego Water Board began searching for a new way to develop a numeric target other than ER-Ls or approaches used to determine human health risk assessment values. The search for an appropriate statistical analysis was challenging considering the paucity of site-specific data. Fortunately, there was an abundance of bay-wide data from the very good datasets that were available for use in the analysis that was performed. The San Diego Water Board first ran statistics on site specific data, but very few Category 1 and 2 data per site were available, so it was not considered prudent to proceed with such a small sample set of “unimpacted” station data. Results among the sites appeared to be random, if category 1 or 2 stations were present at all at a site. To buffer this effect, a bay-wide approach was then chosen, since a large dataset could be used providing statistical robustness.	

NT-21. Biological effects should be the sole criterion for selecting the reference area data set		
	Comment: All stations categorized as "unaffected" or "low effect" based on the toxicity and benthic condition LOEs should be included in the reference area dataset, independent of sediment chemistry. Because the chemistry LOE has a disproportionate effect on the station assessment matrix (Table 11 of the SQOs), the selection of stations for the reference area dataset should be independent of the chemistry LOE, and based solely on the severity of biological effects (Table 9 of the SQOs). The disproportionate influence of the chemistry LOE on the station assessment matrix was discussed in previous comments.[6] Because the objective of the TMDLs is to protect benthic macroinvertebrate communities, the numeric targets should be based only on information that directly relate to the health of those communities (i.e., sediment toxicity tests and benthic community evaluations), and should not be controlled by indirect inferences about possible effects due to sediment chemistry. Sediment chemistry should enter the analysis only after the reference area dataset has been selected, when the numeric targets are calculated. This approach will minimize the confounding effects of co-occurring chemicals that are present at elevated concentrations at stations where concentrations of TMDL chemicals (i.e., chlordane, total PAHs, and total PCBs) are not elevated. As described in the previous comments, those stations would be excluded from the reference area data set based on elevated concentrations of the co-occurring chemicals rather than chlordane, total PAHs, and total PCBs. In that manner, some stations at which chlordane, total PAHs, and total PCBs are not causing toxicity would be eliminated from the reference area dataset for those three chemicals and likely result in numeric targets that are artificially low by a substantial degree. [6] Jan. 24, 2013, Solar Turbines Incorporated's Comments on the January 10, 2013 Public Workshop and CEQA Scoping Meeting as to the Downtown Anchorage and B Street/Broadway Piers' TMDLs for Toxic Pollutants in Sediments, § II.	Solar Turbines – DLA Piper
	Response: A weight of evidence framework approach is an integral sediment quality tool used to assess sediment quality. This approach integrates chemical concentration, sediment toxicity, and benthic infaunal community condition lines of evidence and it has been utilized to select the Reference Area Data set used in development of numeric targets. The use of a weight of evidence assessment based upon multiple lines of evidence (MLOE) is a well-accepted approach recognized by U.S. EPA and is considered to be a standard method for qualitatively assessing the relationship between chemical concentrations and biological effects. The weight of evidence framework has been developed based on sound scientific and technical principles and reasonably conservative assumptions designed to ensure that aquatic life beneficial uses will be protected. Its use as a tool to draw conclusions concerning impairment of the aquatic life beneficial use is reasonable, appropriate, and scientifically defensible.	

NT-22. Category 3 samples should be included in the data set		
	Comment: All Category 3 ("potentially impacted or inconclusive") stations should be included in the reference area data set because they show no evidence of meaningful biological effects. That is, the severity of effects of Category 3 stations is "low effect" (i.e., the same effects category as Category 1 and 2 stations). In addition, the potential for chemically mediated effects at Category 3 stations is Moderate Potential (i.e., the same category as Category 1 and 2 stations that are Unaffected with respect to severity of effect). The biological results of the Category 3 stations should take precedence over the sediment chemistry results because they are more directly related to the protection of benthic macroinvertebrate communities. The fact that sediment chemistry may be slightly elevated at those stations is no measure of corresponding biological effects, especially if chemical bioavailablity is low. By contrast, the biological results provide direct and unambiguous determinations of the severity of effects.	Solar Turbines – DLA Piper
	Response: This numeric target analysis followed the MLOE Approach set forth in Section V. of the Enclosed Bays and Estuaries Plan – Part 1 using the SQO analysis results, which includes the sediment chemistry portion of the chemistry, toxicity, and benthic community triad. Another valid approach to examine would be to use all data that represent low toxicity and high benthic community condition and run an analysis to develop the numeric targets, however that was not the approach adopted for this TMDL. Category 3 stations were not considered for use as data for numeric targets because the data did not sort out as well as the other categories (there is a large amount of variation in the data in this category) and it is considered one of the impacted categories. However, it is expected that the data in the lower confidence intervals (or percentiles) of Category 3 should be relatively unimpacted. We do not recommend including Category 3 stations as a whole group for an unimpacted analysis.	Reference: NT-10

NT-23. An upper confidence limit on the mean limits the usability of the numeric targets		
	Comment: The numeric target values in the draft TMDL document have been calculated as the UCL of the mean concentration in the reference area dataset. The UCL is a statistic that describes the level of certainty in the average (mean) value of reference area samples. Stated differently, the mean has been calculated with a 95% confidence level as to its accuracy. Therefore, this value is only appropriate for evaluation of the mean of another population of samples (or as a comparison to a mean concentration at a potentially contaminated site). The relationship of the UCL to individual data points in a data set is illustrated by the following figure. This figure shows 100 data points, where the sample values are representative of concentrations that might be measured in a reference area. Both the mean and the 95% UCL of these data points are shown on the figure. As the figure shows,	Solar Turbines – DLA Piper

the UCL is relatively close to the mean. Of these 100 data points, 43 are higher than the 95% UCL. If this 95% UCL value were used to evaluate data points from a site that was actually equivalent to the reference area, 43% of those site samples would also be expected to fall above the 95% UCL. Those 43 site samples are still below the upper limit of sample concentrations at the unimpacted reference area though.



Accordingly, and as this example shows, to support decision-making about individual locations within a site, a numeric target should be based on a statistic that characterizes the distribution of individual points in the reference area data set, rather than characterizing the uncertainty of the mean value. An appropriate statistical approach is an estimate of the upper limit of concentrations within the reference area data set. Any site station that is below such a numeric target is within the range of reference conditions. The upper limit of concentrations within the reference area data set can be estimated by computing a tolerance limit (an upper confidence limit on an upper percentile of the data, such as a 95% confidence limit on the 95th percentile), or by simply taking the maximum no-effect concentration within the reference area data set.[7] The suggested approach is well grounded in the literature and the California State Water Resources Control Board has in the past used a similar approach to what we suggest.[8]

[7] The maximum no-effect concentration is equivalent to a no-observed-adverse-effects level ("NOAEL") value if biological data are the sole basis for determining the presence of biological effects. CSWRCB. 1998. Evaluation and Use of

	Sediment Reference Sites and Toxicity Tests in San Francisco Bay. Final Report. Prepared by the California State Water Resources Control Board, San Francisco Bay Regional Water Quality Control Board, California Department of Fish and Game, and Institute of Marine Sciences, University of California Santa Cruz at Comment 2. April 1998. [8] *Id.*	
	Response: In the example case, the UCL is very close to the mean, which can occur in large data sets when the true mean is being approached. In the San Diego Bay data, the 95% UCL of the mean is between the 80th and 85th percentile of the data. As the commenter states, a valid approach would be to use a percentile of the data. The 85th percentile of the data is often used for reference data in water quality. For a normal distribution the 84th percentile is one standard deviation above the mean and represents all observations below that point under the curve. The similarity between the 95% UCL and the 85th percentile for the San Diego Bay data were discussed in the numeric target report. A peer review of the SFEI Report (Thompson et al. 2009) by three aquatic toxicologists on staff at academic institutions was performed. The San Diego Water Board is satisfied with the review regarding the confidence limit approach that was presented in the SFEI Report (Thompson et al. 2009). The San Diego Water Board is confident that the approach used to establish numeric targets is a valid approach that provides scientifically sound results for the TMDL analysis.	Reference: PR-1, NT-15, NT-18, NT-25

NT-24. The 95% UCL calculations misrepresent the actual concentrations associated with the unimpacted stations from their selected pool of data		
	Comment: If the lack of causal evidence, lack of an exposure-response relationship, and the contradiction between the underlying method assumptions made by the Board and the data themselves are ignored, their mathematical derivation method is still severely flawed. The Board's selection of the 95% UCL of the mean concentration to characterize exposure at "unimpacted" and "likely unimpacted" stations is inappropriate and without scientific or logical basis. The ostensible purpose of using these low disturbance categories to set sediment target concentrations is to characterize an exposure threshold below which the likelihood of impairment is negligible. In other words, the Board is defining a reference condition, and has defined SQO category 1 and 2 stations as their reference pool. The appropriate threshold to select from a reference pool is a point that represents the upper end of the reference concentration range, such as a 95^{th} percentile of the entire distribution. The central tendency, including the mean or 95% UCL of the mean, has no significance as a threshold, and is an arbitrary value from a risk perspective. This approach is also inconsistent with the Board's stated definition of a TMDL: "A TMDL represents the maximum amount of a pollutant that the waterbody can receive and still attain applicable water quality standards" (RWQCB 2013, p. 1). Based on this definition, it is clear that the thresholds derived from the reference pools should be based on statistical upper limits and NOT on an estimation of a mean value. In addition, the Board incorrectly assumed that all data were normally distributed and inappropriately removed high concentration data from their reference pool on the basis of an outlier test that presumes normality in the data, further skewing their target concentration estimates, and the range sediment concentrations at "likely unimpacted" stations .	NASSCO – Exponent

	The Board's 95% UCL Calculations The Board used the U.S. EPA statistical program ProUCL to calculate 95% UCLs of the mean concentrations in the SQO category 1 and 2 reference pool. Based on the ProUCL output files found in the Board's response to NASSCO's Public Records Act request (Attachment 1), we have deduced that they used ProUCL to apply Rosner's test for outliers and on this basis eliminated as statistical outliers the stations with the highest chlordane, PAH, and PCB concentrations. However, this outlier test requires normal data. Concerning Rosner's test, the EPA ProUCL guidance specifically says: "This test also assumes that the data are normally distributed; therefore, it is necessary to perform a test for normality before applying this test" (USEPA 2010, p. 73). The Board ignored the fact that none of the concentration distributions are normal, even though ProUCL clearly identified this fact in the program output (see Attachment 1). Use of Rosner's test or other distribution-dependent outlier tests in the case of non-normal data distributions is inappropriate and likely to lead to misinterpretation of data. National Institutes of Standards and Technology guidance says "If the normality assumption for the data being tested is not valid, then a determination that there is an outlier may in fact be due to the non-normality of the data rather than the presence of an outlier" (NIST 2012). The chlordane, PAH, and PCB concentrations that were thrown out by the Board as putative outliers (16.2 ppb, 17,383 ppb, and 2,381 ppb respectively) were 6 to 14 times higher than the arbitrary 95% UCL of the mean selected by the Board to characterize their reference concentrations, but provide the true upper limit of sediment concentrations associated with SQO scores of "likely unimpacted" in this data pool.	
	Response: ProUCL was used to determine outliers for the combined category 1 and 2 data and to determine the numeric target. The data were not log transformed to normalize the data before Rosner's outlier test was run. One outlier was removed for each chlordane, PCBs, and PAHs. Note that the data used to calculate 95% UCLs of the mean were log transformed. An outlier test was rerun on log transformed data using the R Statistical software. Four outliers were found for PPPAHs and two outliers were found for PCBs. For both PCBs and PPPAHs sites SW08, SW21, SW22 and SW23 were outliers. For PCBs alone SW21 and SW08 were outliers.	Reference: NT-13

NT-25. Use of 95th percentile values would be more appropriate

Comment:

NASSCO – Exponent

Appropriate Estimates of "Likely Unimpacted" Sediment Concentrations

Use of measures of the central tendency in a distribution, including the 95% UCL of the mean, is recognized by U.S. EPA guidance on statistical comparison of data as an inappropriate basis for comparison of a reference or background condition (commonly called a background threshold value or BTV) to individual sample concentrations. In fact, the ProUCL user's manual, the very software package used by the Board for this purpose cautions against this practice in several portions of the document:

> It should be noted that it is not appropriate to compare individual point-by-point site observations with the background mean concentration level. (USEPA 2010, p.1)
>
> A UCL95 should not be used to estimate a background threshold value (a value in the upper tail of the background data distribution) to be compared with individual site observations. There are many instances in background evaluations and background versus site comparison studies, when it is not appropriate to use a 95% UCL. Specifically, when point-by-point site observations are to be compared with a BTV, then that BTV should be estimated (or represented) by a limit from the upper tail of the reference set (background) data distribution. (USEPA 2010, p.21)

The ProUCL guidance goes on to recommend several acceptable options for comparison of reference ranges to site data:

> When individual point-by-point site observations are compared with a threshold value (pre-determined or estimated) of a background population or some other threshold and compliance limit value, such as a PRG, MLC, or ACL, then that threshold value should represent a not-to-exceed value. Such BTVs or not-to-exceed values are often estimated by a 95% UPL, UTL 95%-95%, or by an upper percentile. (USEPA, p. 21)

The ProUCL output files generated by the Board's analysis (Attachment 1) actually do contain calculation of an appropriate BTV concentration: the 95th percentile of the reference data pool (i.e., the SQO category 1 and 2 stations). The 95th percentile concentrations for "likely unimpacted" or better stations are: chlordane = 5.7 ppb, PAHs = 11,548 ppb, PCBs = 663.4 ppb. While not technically well-founded, due to the absence of an apparent exposure-response relationship or evidence of causality, these higher values are at least closer to the magnitude of site-specific LAET values demonstrated to be protective of the benthic community at the adjacent Shipyards Site, where the total PCB LAET was determined to be 5,450 ppb and the HPAH LAET was determined to be 25,500 ppb (RWQCB 2012). In the recently promulgated Cleanup and Abatement Order for the Shipyard Site (RWQCB 2012), the final protective value specified was 60 percent of the LAET (60%LAET), a value deemed to be both scientifically supportable and incorporating a sufficient safety factor to assure beneficial use protection. The 60%LAET values

	were 3,270 ppb for total PCBs and 15,300 ppb for HPAHs. It should be noted that total HPAH makes up only a portion of the total PP-PAH assessed in the draft TMDL report, indicating how conservative the upper 95th percentile values from the Board's selected TMDL reference pool is likely to be. Indeed, the upper range of sediment concentrations for total PCBs and total PAHs in the reference pool of "unimpacted" and "likely unimpacted" SQO stations is much closer to the Shipyard 60%LAET values (see discussion of "outlier" removal above). If the flawed sediment target derivation approach used by the Board were accepted for purposes of discussion, the 95th percentile values above would be far more appropriate BTV estimates than the 95% UCL values of the means, as proposed by the Board. While the use of the SQO station scores does not support any target sediment concentration for the purposes of setting a TMDL, the use of 95th percentiles would at least be a statistically meaningful comparison point for the selected reference pool of stations, and would still be highly protective. It should be noted that the highest average total PCB concentration among the 14 Chollas Creek mouth TMDL area stations (C01 through C14) is only 422 ppb, well below the 95th percentile value of SQO category 1 and 2 stations, further underscoring that Chollas Creek sediment PCBs are not a cause of impairment. Only two of the 14 Chollas Creek mouth TMDL stations would exceed the PP-PAH 95th percentile value for SQO category 1 and 2 stations (see Table 1).	
	Response: The SFEI report (Thompson et al. 2009) states that the confidence limits were calculated to show the expected range of the mean concentration based on the current data, for a chosen level of statistical probability. The numeric target represents the 95% UCL of the mean of the current "unimpacted" (Category 1 &2) data set. The 95% UCL of the mean range represents what could be seen as an acceptable range for a "mitigated" station or an "unimpacted" station. It represents the majority of the population that is within a range that is known to be part of the true population. Using an upper-end percentile range does not guarantee that some impacted stations or unrepresentative stations are not included in the data set you are selecting. However, choosing a percentile is no doubt a valid approach to use. The 85th percentile of the data is often used for reference data in water quality. For a normal distribution the 84th percentile is one standard deviation above the mean and represents all observations below that point under the curve. The similarity between the 95% UCL and the 85th percentile for the San Diego Bay data were discussed in the numeric target report. A peer review of the SFEI Report (Thompson et al. 2009) by three aquatic toxicologists on staff at academic institutions was performed. The San Diego Water Board is satisfied with the review regarding the confidence limit approach that was presented in the SFEI Report. The San Diego Water Board is confident that the approach used to establish numeric targets is a valid approach that provides scientifically sound results for the TMDL analysis.	Reference: PR-1, NT-15, NT-18, NT-23

NT-26. There is no supportable technical basis for using a 95 percent UCL of the mean of unimpacted and likely unimpacted stations		
	Comment: The Technical Report indicates that the numeric targets are based on "the 95 percent upper confidence limit (UCL) of the mean of a dataset that represents 'unimpacted' conditions in San Diego Bay (i.e., data that meets the Aquatic Life SQO)." Technical Report, at 27. The Technical Report states that this methodology was "first employed by Thompson et al. (2009) of the San Francisco Estuary Institute Aquatic Science Center." *Id*. Based on this methodology, the Tentative Resolution proposes a numeric sediment concentration target of 168 µg/kg for total PCBs. Tentative Resolution, at B-25. As explained in the Exponent Report, the 168 µg/kg target is derived from a flawed approach, and the target has no relevance or relationship to sediment toxicity, bioaccumulation, or impairment at the mouth of Chollas Creek. The numeric target simply is not linked to the presence or absence of ecological effects. In using the 95 percent upper confidence limit of the mean of sediment samples which represent unimpacted conditions, the San Diego Water Board improperly presumed that SQO station scores reflect some causal impairment that can be linked to sediment concentrations of chlordane, P AHs, and PCBs. But the San Diego Water Board failed to conduct any causal analysis of its selected sediment data pool-which is straight-forward technically, and is required by State Board SQO guidance-and also failed to consider the possibility that SQO station scores can reflect the effects of non-chemical stressors. See Exponent Report, at 12-15. Only after confirming that any observed benthic impacts have a chemical cause does the SQO process move to the second phase to focus on which specific chemicals are causing degradation, establishment of sediment concentrations associated with degradation, and beyond into mitigation of impacts. Because the San Diego Water Board failed to conduct the necessary causal analysis, its selection of contaminants of concern, as well as its establishment of numeric targets for those contaminants of concerns, lacks foundation and conflicts with the requirements of the State Board's SQO guidance. For these reasons, the Tentative Resolution and Technical Report must be revised. It also is notable that the Thompson methodology employed in the Tentative Resolution was not considered in setting cleanup levels for the remediation at the Shipyard Sediment Site adjacent to the mouth of Chollas Creek, pursuant to Order No. R9-2012-0024 ("Shipyard CAO") adopted last year. The Shipyard CAO was preceded by the most extensive sediment investigation ever conducted in San Diego Bay, (Deposition of David Barker ("Barker Depo."), at 83:8-12), and the Shipyard CAO proceedings lasted more than a decade with substantial involvement by staff, stakeholders, the public, and highly regarded expert consultants. The San Diego Water Board should explain why it is relying on a methodology that was not even considered in the very recent establishment of sediment targets adjacent to the mouth of Chollas Creek.	NASSCO – Latham & Watkins
	Response: The numeric targets were not developed using the SQO process. Only the SQO calculator tool to classify stations into one of five categories using the sediment quality triad data was used to develop the numeric targets, not the full SQO process. Furthermore, when this TMDL was begun, and the TMDL Phase I and II Studies were completed, the SQO process was not even under development, and therefore could not have been part of the	Reference: PS-2, NT-3, NT-12, NT-14, NT-18, NT-32, NT-33, NT-35

	causal analysis of this TMDL process. As previously stated, the TIE Phase I analysis was used to determine the causes of impairment. A Phase II TIE would have been more conclusive, but was not undertaken as funds were not available. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification.	

NT-27. The Board's derivation process for setting numerical targets is poorly documented, inadequately explained and justified, and lacks transparency		
	Comment: As detailed above, we find that the Board has inadequately documented and justified every aspect of their derivation of numerical sediment targets – demonstration of impairment, selection of chemicals, establishment of causation and exposure-response relationships, selection of data used for calculation of target concentrations, and numerical calculation of target values. As a result, their calculations are very difficult to follow, let alone reproduce or evaluate for accuracy. In its current form, the draft TMDL report lacks transparency and falls short of documenting, let alone justifying many critical assumptions and decisions that went into development of their method and calculation of target sediment concentrations. Only by reviewing additional information obtained by NASSCO though a Public Records Act request, including raw data files and program output files that require specialty software to review, have we been able to partially reconstruct calculation of the sediment target concentrations.	NASSCO – Exponent
	Response: The San Diego Water Board did not have the intention of leaving out any information that anyone found pertinent in their review of the analysis of the TMDL development. If information was not provided, it was purely an oversight, or we did not think certain information (such as copies of the statistical analyses printouts to verify the values presented in the report) needed to be released with the TMDL report and appendices. However, such information was/ is available upon request, as was provided for the Public Records Act request. The information provided includes all worksheets and results using EPA's free statistical software program ProUCL. All RIVPACs model input and output files and all SQO calculator tool input and output file printouts were provided in the public review process, which allowed for any review to ensure that stations were placed into the correct SQO category. In addition, all SQO calculator tool files were sent as part of the Public Records Act request along with all other files that pertain to the TMDL. Organizing this information requires time to complete such an important task in an agency with limited resources.	

NT-28. The risk analysis to date is insufficient to support development of sediment targets for PCBs		
	Comment: In paragraph 1 on page 9, the Draft Technical Report states "The pollutant causing human health beneficial use impairment is total PCBs." However human health risk assessment has only been performed at an individual station basis using very conservative screening values. The analysis to date is insufficient to support development of sediment targets for PCBs that could be applied to TMDL waste loads or sediment cleanup levels.	U.S. Navy
	Response: The San Diego Water Board agrees that the screening level human health risk assessment is not the best tool to develop sediment numeric targets or sediment cleanup levels for PCBs. Human health targets were selected in the TMDL calculations for the water column and fish tissue concentrations. Human health targets for the sediment will be established via the Cleanup and Abatement Order (CAO) process pursuant to Resolution 92-49. As part of the TMDL Implementation Plan, the San Diego Water Board will (1) issue a CAO to Responsible Parties that will require remediation of contaminated sediment to levels that attain sediment quality objectives and support the beneficial uses of San Diego Bay at each of the three TMDL site footprints, and (2) issue an investigative order to monitor for PCBs bioaccumulation prior to and after sediment remediation. Sediment cleanup levels for PCBs in the three creek mouth areas will be established pursuant to State Water Board Resolution No. 92-49, which will, at a minimum, consider the bioaccumulation monitoring data and the results of the tools used to interpret the sediment quality data objectives (i.e., multiple lines of evidence approach, human health risk assessment, and ecological risk assessment). The current sediment numeric target for PCBs may be revised to protect human health-related beneficial uses if the bioaccumulation data collected after remediation repeatedly exceeds the Fish Tissue Concentration Target. This revised target will be established by considering the bioaccumulation monitoring data, human health risk assessment, and the Fish Tissue Concentration Target expressed as a sediment concentration.	

NT-29. Human health-based targets are not justified		
	Comment: These shoreline (creek mouth) areas were included on California's 303(d) List of Water Quality Limited Segments because of toxic conditions to aquatic life and degraded benthic community conditions. Previous TMDL development efforts focused on addressing these aquatic life impairments and associated beneficial uses. In addition to aquatic life, the current draft TMDLs include numeric targets, monitoring requirements, and compliance actions that also address potential human health concerns for the pollutants of concern (PAHs, PCBs, and chlordane). Additional information is needed to better understand the need to include human health-based targets and associated TMDL requirements given the limited spatial extent of these creek mouth areas and complex interactions with San Diego Bay. The potential for human health impacts is extremely low due to limited (or no) public access to these areas and industrial/military activities along the shoreline that prevent access in many cases. In addition, more information is needed to better understand how the fish tissue target relates to concentrations within the proposed test organism (*Macoma*). Furthermore, designing an implementation strategy that focuses on achieving human health criteria in these small areas would be much less efficient and effective than a strategy focused on achieving these important beneficial uses across San Diego Bay. The TMDL states that adoption of a San Diego Bay PCBs in Fish TMDL would negate these requirements. Considering these issues and the need to develop a cost-effective and targeted implementation program, the City recommends that these TMDLs only address the listed aquatic life impairments which are related to local water and sediment quality issues, rather than focusing on potential human health impacts which are best addressed through comprehensive regulation of the San Diego Bay. If human health requirements are included in the final TMDL, the City recommends revisiting these targets as part of a broader Baywide TMDL in the future.	City of San Diego
	Response: The San Diego Water Board has modified the Draft Technical Report and Basin Plan Amendment description of this Special Study to be more generalized. The Responsible Parties may propose a relevant species and scientific testing method to be used in the study. See the response provided in IP-11. While the San Diego Water Board agrees that there is limited access for public fishing and shellfish harvesting in these areas, our statutory responsibility is to protect the present and reasonably anticipated beneficial uses designated for San Diego Bay. The beneficial uses pertaining to human health are COMM and SHELL. These beneficial uses are to be protected at all times regardless of the current site-access measures that limit or prevent the uses from occurring. Human health-based targets are included in the TMDL based on the results from the screening level risk assessments and 28-day *Macoma* bioaccumulation tests at the creek mouths. These results fail to meet the Human Health narrative SQO which states “Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health.” The screening level risk assessment results are described in Appendix F, Section F1.7.5. The 28-day *Macoma* bioaccumulation test results are presented below (SCCWRP and SPAWAR, 2005).	Reference: IP-7, IP-11, IP-12

	PCBs Chollas stations generally have similar bioaccumulation potential for PCBs compared to the reference stations, but higher bioaccumulation potential than the control sediments. Paleta stations generally have higher bioaccumulation potential than the reference stations and control sediments. **PAHs** Chollas stations generally have higher bioaccumulation potential for PAHs compared to the reference and/or control home sediments. Paleta stations generally have higher bioaccumulation potential for PAHs compared to the reference and/or control home sediments. **Pesticides** Chollas stations generally have higher bioaccumulation potential for total chlordane compared to the reference or control sediments, whereas total DDT showed comparable bioaccumulation potential to the reference stations, but higher than the control sediments. Paleta stations generally have higher bioaccumulation potential for total chlordane and total DDT compared to the reference or control sediments.	

NT-30. The aquatic life sediment concentration targets are well below appropriate risk thresholds		
	Comment: The Tentative Resolution proposes a numeric sediment concentration target of 168 µg/kg for total PCBs for aquatic life protection. Tentative Resolution, at B-25. This target is significantly lower than the extremely conservative risk threshold the San Diego Water Board approved last year at the adjacent Shipyard Sediment Site. In the Shipyard CAO, one metric used to establish appropriate cleanup levels for aquatic life protection was 60% of the Lowest Apparent Effects Threshold ("LAET"). Through this methodology, the San Diego Water Board determined the lowest total PCBs concentration expected to cause adverse effects to benthic life, and then reduced that number significantly by applying a very conservative 40% margin of safety. Technical Report for Cleanup and Abatement Order R9-2012-0024 ("Shipyard Technical Report"), at 32-31. The 60% LAET for total PCBs was determined to be 3,270 µg/kg, which was found to be "protective of benthic communities" with a "significant margin of safety." *Id* at 32-39. This is consistent with bay-wide results. Even the data upon which Board staff relied to develop the TMDL includes sediment concentrations of PCBs as high as 2,381 µg/kg for "unimpacted" and "likely unimpacted" stations. The Tentative Resolution's proposed target of 168 µg/kg is more than an order of magnitude lower than the conservative target applied in the Shipyard CAO, and is not based on any technically-supportable, risk-based methodology. Accordingly, NASSCO requests that the San Diego Water Board re-evaluate its sediment concentration targets using a recognized risk-based methodology focused on the actual likelihood of effects to benthic life.	NASSCO – Latham & Watkins
	Response: While the goal of the two PCB levels is similar, which is to protect aquatic life, it's not entirely appropriate to compare them. First, the intended use of the numeric targets and the 60% LAET levels are quite different. The numeric targets are the measureable endpoints for the TMDL and serve as the standards for the wasteload allocations assigned to the watershed. They do not represent the cleanup levels in the bottom sediments at the mouth of Chollas Creek. These cleanup levels will be determined through the issuance of a CAO to responsible parties within 6 years of the effective date of the Basin Plan Amendment (Implementation Plan, section G). As stated in the comment, the 60% LAET levels do, however, represent the cleanup levels in the bottom sediments at the Shipyard Sediment Site. Second, the paired chemistry and biological effects data used to generate the 60% LAET levels are site-specific (Exponent 2003) and as such, caution needs to be taken when comparing the levels to the numeric targets. These data account for a variety of factors (known and unknown) specific to the Shipyard Sediment Site that may affect (1) the relationship between chemicals and adverse biological effects data, and (2) calculation of the 60% LAET levels. These factors include, but are not limited to sediment grain size, organic carbon content, water depth, temperature, and salinity. Also see the response provided in NT-32.	Reference: NT-32

NT-31. Concern about demonstrating compliance when numeric targets are below current laboratory detection limits		
	Comment: Caltrans is concerned with the low numeric targets in the TMDL. For example, the numeric sediment target of 2.1 µg/kg for chlordane is far below current laboratory detection limits of 25 µg/kg. As a result, we may not be able to demonstrate compliance and may therefore be subject to enforcement actions or third party lawsuits. Caltrans recommends the numeric sediment target be revised to reflect the current laboratory detection limits. Alternatively, Caltrans recommends that determination of compliance account for the current laboratory detection limits.	Caltrans
	Response: The San Diego Water Board has added language to the proposed permit language in section 1.b.(1) of Appendix L to define the conditions under which the permittee is considered out of compliance and address Caltrans' concern. The responses provided in IP-26 and AK-1 are also relevant. Furthermore, current detection limits do not affect the pollutant concentrations necessary to support beneficial uses. A numeric target represents conditions under which uses are protected, and therefore is not a function of detection methodology. Because of the difficulty in confidently measuring to the level of the numeric target, the Implementation Plan recommends alternatives to determining compliance; for instance ones that rely on demonstration of BMP implementation and using detection monitoring as an indicator of success.	Reference: IP-26, AK-1

NT-32. The proposed numeric targets for sediment concentration are not based on any meaningful risk threshold		
	Comment: The proposed numeric targets for sediment concentration are not based on any meaningful risk threshold.	NASSCO – Latham & Watkins
	Response: When addressing Aquatic Dependent Wildlife or Human Health beneficial uses, certain standards or procedures apply. However, when addressing Aquatic Life beneficial uses for a TMDL, the procedures have not been as clear. In California, the approach for Aquatic Life beneficial uses has been to use ERLs for the numeric target and TIEs for the causal analysis. As previously stated, the TIE Phase I analysis was used to determine the causes of impairment. A Phase II TIE would have been more conclusive, but was not undertaken as funds were not available. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. An approach was provided by Thompson et al. (2009), referred to here as the SFEI approach to develop a numeric target for Aquatic Life using the sediment quality triad data. Triad data is commonly used to represent aquatic life for estuaries. The Thompson et al. (2009) approach was originally developed for the San Diego Bay Shipyard Sediment Site Cleanup project, but may not have been chosen for the Shipyard CAO because it represented Aquatic Life beneficial uses and not Human Health beneficial uses. The San Diego Water Board has used the SFEI approach to develop numeric targets for the PCS	Reference: PS-2, NT-3, NT-12, NT-13, NT-14, NT-15, NT-18, NT-26, NT-30, NT-33, NT-35, IP-4

	TMDL. For TMDLs, many times numeric targets are established using water quality objective for the contaminant of concern. In this case, a sediment quality objective is needed and we now have sediment quality objectives specifically for aquatic life, which have been translated into our numeric targets. The San Diego Water Board wanted to move away from the ERL approach for the numeric target to something that focused on the local data with the local community of organisms (or toxicity) and the local chemistry, which could be done with the SQO tool. Another positive aspect of using the SQO calculator tool was that using the sediment quality triad data would provide a multiple lines of evidence approach, as well as multiple analyses of the data. In addition, any possible relationships between the chemistry (individual or mixtures) and response could be seen.	

NT-33. The SQO analysis performed by the Board is incomplete, and the use of SQO station scores to set TMDL target sediment limits is inappropriate		
	Comment: The sediment target concentrations set by the Board are calculated as the 95 percent upper confidence limit of the mean (95% UCL) of sediment concentrations in samples which score as "unimpacted" or "likely unimpacted" in a SQO analysis. In selection of this approach, the Board has inappropriately presumed that SQO station scores reflect some causal impairment that can be linked to sediment concentrations of chlordane, PAH, and PCBs. The Board has performed no causal analysis of their selected sediment data pool, even though such an analysis is both straight-forward technically and is required by State Board guidance on interpretation of SQOs. The Board has also failed to evaluate or even acknowledge the possibility that SQO station scores can reflect the effects of non-chemical stressors. <u>SQO Guidance Requirements for Causal Analysis</u> The Part 1 SQO assessment method is a tool for determining whether or not sediment chemicals are causing benthic macroinvertebrate community disturbance. The State Board guidance document defines the overall objective of the process as follows: > Part 1 integrates chemical and biological measures to determine if the sediment dependent biota are protected or degraded as a result of exposure to toxic pollutants in sediment and to protect human health. (SWRCB 2008, p. 4) The Part 1 SQO method is an adaptation of sediment Triad analysis, where three independent lines of evidence (LOEs) are evaluated at each assessment station: sediment chemistry, sediment toxicity, and benthic community. Sediment samples are collected synoptically, assessed in the laboratory, and used to evaluate each LOE independently. A decision framework is then applied to the individual LOE findings to integrate them into a multiple line of evidence (MLOE) station score, which is a characterization of the likelihood that sediment contamination is causing adverse impacts to the benthic community. With respect to the overall objectives of the Part 1 SQOs, this would seem an appropriate tool for derivation of target concentration of sediment chemicals. However, completion of the initial SQO MLOE analysis does not establish causality between community effects and	NASSCO – Exponent

sediment chemistry or any sediment chemical. Establishment of causality requires an additional step: stressor identification. When an SQO investigation concludes that benthic community impacts are likely or clear, stressor identification is the required next step to determine the cause of the apparent disturbance. The stressor identification approach consists of the development and implementation of a work plan focused on confirmation and characterization of pollutant-related impacts, pollutant identification and source identification as described in Section VII.F of the SQO guidance document:

> The MLOE assessment establishes a linkage to sediment pollutants; however, the lack of confounding factors (e.g., physical disturbance, non-pollutant constituents) must be confirmed. (SWRCB 2008, p. 17)

The guidance goes on to describe in detail the types of confounding factors that can lead to false indications of a chemical-mediated benthic impact, which include physical disturbance, sediment characteristics (e.g., grain size distribution, organic carbon content), freshwater influences (particularly likely in creek mouths), and uncharacterized chemical constituents. SQO guidance and method recommendations are also provided in a technical support manual developed by the technical team at SCCWRP, who developed the SQOs for the State Board (Bay et al. 2009). The SCCWRP Assessment Manual provides a more detailed discussion on recommended methods for stressor identification, which includes the following:

> Three types of additional information are needed to assist in the planning of actions to improve sediment quality: 1) confirmation that pollutants are indeed the basis for the impact; 2) establishment of what specific chemical(s) is the cause of impact; 3) identification of the source of the chemical(s). (Bay et al. 2009, p. 103)

The U.S. Environmental Protection Agency (EPA) has published more extensive guidance on stressor identification, which is acknowledged and recommended by the SCCWRP Assessment Manual (Bay et al. 2009). This federal guidance summarizes the process this way:

> The first step in the SI process is to develop a list of candidate causes, or stressors, that will be evaluated. This is accomplished by carefully describing the effect that is prompting the analysis (e.g., unexplained absence of brook trout) and gathering available information on the situation and potential causes. Evidence may come from the case at hand, other similar situations, or knowledge of biological processes or mechanisms. The outputs of this initial step are a list of candidate causes and a conceptual model that shows cause and effect relationships. (U.S. EPA 2000, p. 1-3)

Stressor identification is a second tier of the SQO assessment that is designed to identify specific drivers of apparent benthic impairment and establish causality of the sediment chemical or other stressor that is leading to a finding of impaired stations. The type of analysis required for stressor identification is determined by the outcome of the initial SQO Triad assessment, and should be tailored to the site and data.

	Examples of the types of activities involved in the chemical linkage confirmation phase of stressor identification are described in the SCCWRP Assessment Manual and include: • Assessment of confounding factors and other non-chemical stressors. Examples at Chollas Creek would be presence of physical disturbance from deposition and nearby shipyard activities, episodic salinity disturbance from storm events, and physical characteristics of creek mouth sediments. • Comparison of site chemistry data to appropriate chemical-specific benchmarks. Examples at Chollas Creek would be site-specific sediment chemistry levels determined to be protective of the benthic community at the adjacent Shipyards Site, where lowest apparent effect thresholds (LAETs) were developed for total PCBs and high molecular weight PAHs (HPAH). • Statistical analysis of data to test correlations between chemistry and biological endpoints (i.e., evaluation of an exposure-response relationship). This exercise could easily have been performed for Chollas Creek or the entire TMDL sample pool (see discussion under comment 4). Only after confirmation that observed benthic impacts have a chemical cause does the SQO process move to the second phase that focuses on which specific chemicals are causing degradation, establishment of sediment concentrations associated with degradation, and beyond into mitigation of impacts. The presumptive approach of the Board in their incomplete application of the SQO method is that the causative agents of benthic community disturbance are known a priori, and that they are limited to the three TMDL target chemicals. In fact, an objective evaluation of the sediment data pool used to calculate the target concentrations clearly shows that these chemicals are not causally related to either toxicity or community disturbance (see comment 4 discussion below). Had the Board applied the principles of stressor identification, as required by the SQO guidance, they would have demonstrated a lack of chemical causality.	
	Response: Impairments were verified with the TMDL Phase I and II Studies, where triad data were collected at stations at the three creek mouth sites and TIEs and bioaccumulation studies were performed. As previously stated, the TIE Phase I identified the broad category of chemicals that were causing the impairment. Funds were not available for additional study. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. U.S. EPA confirmed that the TIE results were sufficient to verify cause of impairment. The standard suite of environmental measurements was collected during the Phase I and II data collection. Major stakeholders and SCCWRP, making up a team of well-respected scientists, were involved in the Phase I and II study design.	Reference: PS-2, NT-3, NT-12, NT-14, NT-18, NT-26, NT-32, NT-35

NT-34. By utilizing an SQO approach, the sediment numeric targets overemphasize chemistry, even though the SQOs explicitly preclude using the chemistry LOE to determine TMDLs

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Comment: The Tentative Resolution requires the attainment of sediment numeric targets, which are "sediment concentrations that are derived from the Aquatic Life SQO MLOE Approach." Tentative Resolution, at B-25. However, the process in the State Water Resources Control Board's "Water Quality Control Plan For Enclosed Bays and Estuaries Part 1: Sediment Quality" ("SQOs") itself is flawed, as it overemphasizes chemistry data, and fails to sufficiently weight biological data-particularly when relied upon in the absence of a robust stressor identification analysis.[3]

First, the SQO MLOE analysis is biased towards finding adverse effects, even when the data is equivocal. For example:

- When different toxicity measures produce a range of responses and the average falls between categories, the maximum adverse response (category) is assumed to be representative, which biases the interpretation towards a conclusion that adverse effects are present even when the evidence is equivocal. SQOs, at 10.
- When different benthic community measures produce a range of responses spanning multiple categories and the median falls in between categories, the next highest effect category is assumed to be representative, which biases the interpretation towards a conclusion that adverse effects are present even when the evidence is equivocal. SQOs, at 11.
- When two different chemistry categorization methods produce a range of responses spanning multiple categories and the median falls in between categories, the next highest exposure category is assumed to be representative, which biases the interpretation towards a conclusion that adverse effects are present even when the evidence is equivocal. SQOs, at 14.
- The interpretation for chemically-mediated effects is biased to produce a conclusion that chemicals have a moderate potential to cause toxicity even when the sediment is non-toxic. SQOs, at 15.

Because these biases both systematically drive the MLOE assessment towards conclusions that there are adverse effects and overemphasize the chemistry LOE, by using station designations to calculate sediment numeric targets under the SQOs, the San Diego Water Board is over-relying on a chemistry line of evidence to set TMDLs.[4] Yet, even the SQOs mandate that "the chemistry LOE of Section V.H.2., including the threshold values (e.g., CSI and CALRM), shall not be used for setting cleanup levels or numeric values for technical TMDLs." SQOs, at 28. Therefore, to the extent that the chemistry line of evidence is unduly emphasized in the approach for setting load numerics, such a protocol is technically invalid and improper, and in conflict with the SQOs.

[3] NASSCO notes that the SQOs should not be applied to the mouth of Chollas Creek. The SQOs expressly exempt "existing sediment cleanup activities where a site assessment was completed and submitted to the Regional Water Board by February 19, 2008." SQOs, at § 2.B. The legislative history for the exemption makes clear that the SQOs were never intended to apply to sediment cleanups of water body segments listed under Section 303(d), for which a site assessment was submitted to the San Diego Water Board prior to February 19, 2008. The mouth of Chollas Creek is exempt because

	the San Diego Water Board approved a detailed sediment investigation, conducted by Exponent in 2001, that included a portion of the Chollas Creek TMDL area, and conducted additional Phase I and Phase II sampling of the area prior to February 19, 2008. [4] In addition, it appears that the sediment numeric targets are based on chemistry data from only the locations identified as "unimpacted" or "likely unimpacted," which would appear to omit chemical data from sites classified as "possibly impacted" where toxic chemicals are not the cause of the impact. Thus, the process of deriving numeric targets appears to have omitted potentially relevant chemical data and is not consistent with the SQOs.	
	Response: This comment is composed of seven sub-comments. 1. Comment: However, the process in the State Water Resources Control Board's "Water Quality Control Plan For Enclosed Bays and Estuaries Part 1: Sediment Quality" ("SQOs") itself is flawed, as it overemphasizes chemistry data, and fails to sufficiently weight biological data-particularly when relied upon in the absence of a robust stressor identification analysis. Response: The MLOE approach requires a response in at least two of the three indicators (sediment chemistry, sediment toxicity and benthic community health) to demonstrate impact therefore no single indicator alone determines the station category. 2. Comment: First, the SQO MLOE analysis is biased towards finding adverse effects, even when the data is equivocal. Response: The performance of this assessment framework in comparison with experts, demonstrated no appreciable bias. (See link below) **http://www.swrcb.ca.gov/water_issues/programs/bptcp/docs/sediment/framework4interpreting_sedqual.pdf** 3. Comment: When different toxicity measures produce a range of responses and the average falls between categories, the maximum adverse response (category) is assumed to be representative, which biases the interpretation towards a conclusion that adverse effects are present even when the evidence is equivocal. SQOs, at 10. Response: Application of the toxicity LOE does not require the use of the maximum adverse response measured. When the average response falls between two categories the higher of the two categories is used for that LOE. This “rounding up rule” only applies when an adverse response is measured and the average of the responses fall between categories. 4. Comment: When different benthic community measures produce a range of responses spanning multiple categories and the median falls in between categories, the next highest effect category is assumed to be representative, which biases the interpretation towards a conclusion that adverse effects are present even when the evidence is equivocal. SQOs, at 11.	

Response: Bias of the benthic community assessment tool was evaluated based on comparison with experts. The benthic community assessment tool did not differ significantly from individual experts. (See link below) **http://www.swrcb.ca.gov/water_issues/programs/bptcp/docs/524_eval_benthic_community_indicators3.pdf**

5. Comment: When two different chemistry categorization methods produce a range of responses spanning multiple categories and the median falls in between categories, the next highest exposure category is assumed to be representative, which biases the interpretation towards a conclusion that adverse effects are present even when the evidence is equivocal. SQOs, at 14.

   Response: The situation described would not affect the final station category unless biological effects based responses (either sediment toxicity, benthic community health or both) were also reported. See response to question 1.

6. Comment: The interpretation for chemically-mediated effects is biased to produce a conclusion that chemicals have a moderate potential to cause toxicity even when the sediment is non-toxic. SQOs, at 15. Because these biases both systematically drive the MLOE assessment towards conclusions that there are adverse effects and overemphasize the chemistry LOE, by using station designations to calculate sediment numeric targets under the SQOs, the San Diego Water Board is over-relying on a chemistry line of evidence to set TMDLs.4.

   Response: As described in previous responses, the chemistry LOE does not drive the station outcome. The final station category results from the integration of the independent LOE indicators (sediment chemistry, sediment toxicity and benthic community health) responses, which prevents a single indicator from overly influencing the outcome.

7. Comment: Yet, even the SQOs mandate that "the chemistry LOE of Section V.H.2., including the threshold values (e.g., CSI and CALRM), shall not be used for setting cleanup levels or numeric values for technical TMDLs." SQOs, at 28. Therefore, to the extent that the chemistry line of evidence is unduly emphasized in the approach for setting load numeric, such a protocol is technically invalid and improper, and in conflict with the SQOs.

   Response: The TMDL numeric targets will not be used for setting cleanup levels. Cleanup levels will be determined during the CAO process under Resolution No. 92-49. Regarding using SQOs for TMDLs, the Water Boards disagree. Enclosed Bays and Estuaries Plan – Part 1, Section VII.B includes the following:

   > Nothing in this section shall limit a Water Board's authority to develop and implement waste load allocations for Total Maximum Daily Loads. However, it is recommended that the Water Boards develop TMDL allocations using the methodology described herein, wherever possible.

NT-35. The Board did not conduct the stressor identification analysis required by the SQOs		
	Comment: While SQOs are intended to protect benthic communities from harm caused by toxic chemicals, the SQOs recognize that chemical concentrations are not the only possible cause of adverse biological effects: "This [chemistry] LOE does not establish causality associated with specific chemicals." SQOs, at 7. "The LOEs applied to assess biological effects can respond to stresses associated with natural or physical factors, such as sediment grain size, physical disturbance, or organic enrichment." *Id.* Accordingly, the mere co-occurrence of elevated chemistry with toxicity or community alteration does not necessarily indicate that the observed biological effects are caused by elevated chemistry. As a result, the SQOs require that a stressor identification analysis be conducted to determine whether the observed effects are due to elevated sediment chemistry, versus other potential causes. Exponent Report, at 13 ("Completion of the initial SQO MLOE analysis does not establish causality between community effects and sediment chemistry or any sediment chemical. Establishment of causality requires an additional step: stressor identification."). Specifically, the SQOs make clear that although "[t]he MLOE assessment establishes a linkage to sediment pollutants ... , the lack of confounding factors (e.g., physical disturbance, non-pollutant constituents) must be confirmed." SQOs, at 24 (emphasis added). This is because "stressors that are not related to toxic pollutants ... may cause the narrative to be exceeded .... " *Id.* Examples of such stressors include physical stressors, such as reduced salinity, impacts from dredging, very fine or coarse grain size, prop wash from passing ships, and uncharacterized chemical constituents. *Id.; see also* Exponent Report, at 15. As the SQOs recognize, "these types of stressors may produce a non-reference condition in the benthic community that is similar to that caused by pollutants. If impacts to a site are purely due to physical disturbance, the LOE characteristics will likely show a degraded benthic community with little or no toxicity and low chemical concentrations." SQOs, at 25. In addition, the SQOs recognize that constituents, such as elevated total organic carbon, ammonia, nutrients, and pathogens-all of which are likely to be found in stormwater runoff-may be responsible for biological effects, unrelated to sediment chemistry or legacy pollutants. *Id.* Here, however, the Regional Board has apparently determined that observed biological effects are attributable to chemistry, *without conducting an appropriate stressor identification as required by the SQOs*. As discussed in the attached Exponent Report, "an objective evaluation of the sediment data pool used to calculate target concentrations clearly shows that [PCBs, PAHs, and Chlordane] are not causally related to either toxicity or community disturbance." Exponent Report, at 15. "Had the [Regional] Board applied the principles of stressor identification, as required by the SQO guidance, they would have demonstrated a lack of chemical causality." *Id.* The lack of stressor identification (and flawed pollutant identification) is particularly concerning, given that the Regional Board has previously acknowledged that alternative causes, including "recurring sediment physical disturbance associated with ship engine tests performed at NASSCO Shipyard's Berth VI may contribute to the observed benthic community impacts in this area." Technical Report, at 63. See also Shipyard Technical Report, at 33-3, 33-4 ("A Total Maximum Daily Load ("TMDL") is being developed for the mouth of Chollas Creek, which encompasses one station (NA22) of the Shipyard Sediment Site study area .... NA22 is in an area where propeller testing occurs routinely, suggesting that physical impacts could be causing the [moderately] impaired benthic condition."). Further, (and not surprisingly), the turbulent flow of water from Chollas Creek during storm events could	NASSCO – Latham & Watkins

	also cause a significant "physical disturbance" of the sediment in the mouth of the creek.	
	Response: The San Diego Water Board took into account the physical disturbance at the Shipyard Berth VI when considering impairment at Chollas Creek. This was only one or two of the fourteen sites in Chollas Creek. Flows from the creek appear to influence distribution of pollutants and therefore, these pollutants would be a confounding factor with disturbance from freshwater inflows from the creek that the commenter states may show disturbance in the benthic community. However, many of the species found near creek mouths are adapted to conditions of changing salinity. In addition, the benthic community metrics appear to be forgiving of such varying conditions in these enclosed bay and estuary systems. However, occasions of rapid burial could be met with a significant decrease in benthic populations. As previously stated, the TIE Phase I analysis was used to determine the causes of impairment. A Phase II TIE would have been more conclusive, but was not undertaken as funds were not available. U.S. EPA confirmed that the TIE results were sufficient to verify cause of impairment. The TIE is an appropriate analysis that is often used to indicate impairment for TMDLs, and is identified in Section VII.F. of the Enclosed Bays and Estuaries Plan – Part 1 for use in SQO stressor identification. In accordance with CWA section 303(d) TMDLs must be established at a level necessary to implement the applicable water quality standards. While the MLOE Approach was used to translate the Aquatic Life SQO into numeric targets for TMDL development, attainment of the SQO through its prescribed implementation is the responsibility of the Responsible Parties. The standard suite of environmental measurements was collected during the TMDL Phase I and II data collection. Major stakeholders and SCCWRP, making up a team of well-respected scientists, were involved in the Phase I and II study design.	Reference: PS-2, NT-3, NT-12, NT-14, NT-18, NT-26, NT-32, NT-33

NT-36. The fish tissue concentration target for PCBs is inappropriate		
	Comment: The use of a PCB tissue screening level that is 6X below background levels is inappropriate and cannot be achieved.	U.S. Navy
	Response: It is not appropriate to compare the *Macoma* PCB tissue concentrations from the baseline pool (SCCWRP and U.S. Navy, 2005) to the Fish Tissue Concentration Target. The baseline pool represents the baseline condition for the mouths of Chollas Creek and Paleta Creek. While the baseline condition is considered a contemporary ambient background condition in San Diego Bay that excludes the effects of point source discharges, this condition is not representative of a pristine pre-industrial background and may contain low levels of PCBs: "The baseline condition was defined as the existing ambient condition in the bay. This condition was based on a pool of reference stations selected to meet requirements of remoteness from	

source and similar habitat to the study sites. This condition acknowledges the potential presence of background contamination as well as natural variability in toxicity and benthic condition."

These low levels of PCBs are wide-spread throughout San Diego Bay and as such, the San Diego Water Board is expected to consider a Resolution supporting a San Diego Bay Strategy for Healthy Water at its December 2013 meeting that will guide Water Board actions for such bay-wide bioaccumulative concerns. The San Diego Water Board expects to initiate a bay-wide PCB TMDL Project by 2018. This Project may include further evaluation of the PCB levels identified in the baseline pool.

NT-37. Baseline clam tissues from reference stations are above the fish tissue target level; therefore, the target is unachievable

Comment: In Table4-4 of the Draft Technical Report, the numeric target listed here for "fish tissue," which will actually be applied to clam tissue is unachievable. Baseline data from reference stations in the original Chollas and Paleta Creek studies showed tissue levels averaging about 21 µg/kg wet weight.

U.S. Navy

Response: The San Diego Water Board converted the dry weight tissue concentrations to wet weight using the percent solids data and based on our calculations the average *Macoma* tissue levels are approximately 12 µg/kg wet weight; not 21 µg/kg wet weight. Nevertheless, it is inappropriate to use the *Macoma* PCB tissue concentrations from the baseline pool. See the response provided in NT-36.

Reference: NT-36

Station ID	PCB (ug/kg – dry wt)	% Solids	PCB (ug/kg wet wt)
CP 2231	164	11.5	18.9
CP 2243	159	104	16.5
CP 2433	138	12.1	16.7
CP 2441	77	11.7	9.0
CP 2238	56	11.8	6.6
SY 2441	39	12.6	4.9
SY 2433	83	14.7	12.2
SY 2231	86	15.5	13.3
SY 2243	80	15.1	12.1
Mean			12.2

NT-38. The fish tissue concentration targets are excessively conservative		
	Comment: The Tentative Resolution includes overly-conservative metrics for assessing risk to human health. The Tentative Resolution proposes a fish tissue target for PCBs based on the Office of Environmental Health and Hazard Assessment's ("OEHHA") Fish Consumption Guideline of 3.6 parts per billion ("ppb"), which is based on a maximum cancer risk level of 1xl0^{-6}. Tentative Resolution, at B-20. But the cited guidance from OEHHA lists numerous benefits of fish consumption, and concludes that "setting the risk level at 1 x 10^{-5} or 1 x 10^{-6} would restrict fish consumption to the extent that it could largely deny fishers the numerous health benefits that can be accrued through fish consumption." Accordingly, OEHHA concluded that a maximum risk level of l x10^{-4} should be used to determine whether to issue a fish consumption advisory. See OEHHA, *Development of Fish Contaminant Goals and Advisory Tissue Levels For Common Contaminants in California Sport Fish: Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene* (June 2008). Using this more appropriate risk level, OEHHA further concluded that fish tissue levels containing between 21 and 120 ppb PCBs pose no significant health risk, and can be consumed safely, depending on the size and frequency of servings. The Tentative Resolution's proposed fish tissue target of 3.6 ppb is overly-conservative in light of the OEHHA guidance it purports to rely on. Accordingly, the fish tissue target should be revised based on OEHHA's 1x10^{-4} risk level.	NASSCO – Latham & Watkins
	Response: The San Diego Water Board recognizes that OEHHA developed Advisory Tissue Levels (ATLs) to account for the benefits of consuming fish with low contaminant levels. While the ATLs do not pose significant health risks to individuals consuming sport fish in the quantities shown over a lifetime, the ATLs do not account for subsistence anglers and the family members who may eat the fish caught by these anglers (e.g., pregnant women and children). The ATLs are based on consumption rates of 16, 48, and 96 g/day whereas the consumption rate for subsistence anglers is 161 g/day (SCCWRP and MBC, 1994). The San Diego Water Board, therefore, elected to use the Fish Contaminant Goal (FCG) for PCBs which doesn't directly account for subsistence anglers, but provides a more protective level. It should also be noted that the U.S. EPA approved use of the FCG in the following TMDLs adopted by the Los Angeles Water Board: • Toxic Pollutants in Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters; • Pesticides and PCBs in Machado Lake; and • Organochlorine Pesticides, PCBs, Sediment Toxicity, PAHs, and Metals in Colorado Lagoon.	

NT-39. Why is the report citing background values for the Shipyard Cleanup?		
	Comment: Background values were developed specifically for these sites. Why is the report citing background values for the Shipyard Cleanup?	U.S. Navy
	Response: When the numeric target section for this TMDL was originally written in 2007 and possible numeric targets were being explored for the contaminants of concern, the San Diego Water Board reviewed the Shipyard Sediment Site reports to see what had been proposed for cleanup values at the Shipyard Site. At that time, nothing of consequence as a cleanup level had been proposed, so the background value for the site was used for comparison.	

NT-40. Alternate methods are needed to develop sediment numeric targets because SQO methods do not provide necessary guidance		
	Comment: An alternative approach to developing numeric targets for chlordane, total PAHs, and total PCBs—or for any other chemicals at other locations—would be to select stations for the reference area dataset based only on the Sediment Toxicity and Benthic Condition LOEs. This approach is consistent with the stated objective of the TMDL document to develop numeric targets that are protective of benthic communities, because those two LOEs are directly related to the health of those communities. In addition, this approach will minimize the confounding effects of co-occurring chemicals because it ensures that no biological effects were found at the concentrations of chlordane, total PAHs, and total PCBs in the reference area dataset regardless of the presence of co-occurring chemicals. For the numeric targets to be effective at identifying important variability in conditions within a potentially contaminated site, the numeric targets should be an upper bound on the distribution of no-effects data. An upper tolerance limit and the maximum no-effect value are both reasonable representations of the upper bound of no-effects data. In summary, because the SQO methods do not provide guidance as to how chemical-specific toxicity thresholds should be developed, alternate or supplementary methods are needed to develop the TMDL numeric targets. The method selected to develop the targets must be technically valid and not overly affected by confounding factors such as the presence of co-occurring chemicals. The most technically valid numeric targets can only be developed by focusing on the information provided at the stations where biological effects were not found and by using an upper bound of the concentration data within this data set.	Solar Turbines – DLA Piper
	Response: This TMDL numeric target analysis followed the MLOE Approach set forth in Section V of the Enclosed Bays and Estuaries Plan – Part 1 using the SQO analysis results, which includes the sediment chemistry portion of the chemistry, toxicity, and benthic community triad. The 95% upper confidence limit of the mean was used to represent an upper threshold for the data. This is an	Reference: NT-21

	upper range of the majority of the population of the data represented by the mean. The 95% UCL is close to the 85th percentile of the data, a threshold percentile that is often used in environmental data. Another valid approach to examine would be to use all data that represent low toxicity and high benthic community condition and run an analysis to develop the numeric targets, however that was not the approach adopted for this TMDL. The San Diego Water Board recognizes that covarying chemicals can influence results and that a multivariate analysis of several chemicals could provide further insight. The TMDL process addresses chemicals individually but not as mixtures, although it can address many chemicals in one TMDL. The Phase I TIE analysis performed should have addressed such concerns, since it only indicates those chemicals which were causing toxicity, and not all chemicals that were correlated due to other chemical or physical factors that are confounding under natural conditions.	

Sources and Source Assessment Comments

SA-1. Since chlordane is an uncontrollable source, what is possibility of controlling loadings, why conduct a cleanup, and will there be a cleanup of upland soils?		
	Comment: The descriptive paragraphs in Section 5.1 of the Draft Technical Report are instructive. The report states, "The most likely route for chlordane to enter the water is from urban and agricultural soils, as its tendency is to adsorb to particulates before entering a body of water (ATSDR 2004). Therefore, the most likely source of chlordane in the watershed is storm water runoff carrying chlordane attached to eroded sediment particles." Given that chlordane is no longer being applied (hopefully), and it is primarily from a legacy of application to upland soils, what is the practical possibility of controlling loadings? In addition, what is the point of conducting extensive cleanup for a compound that is coming in from what is largely and uncontrollable source? Will there be an effort to identify and cleanup the upland soils that are driving the issue?	U.S. Navy
	Response: Controlling watershed loading of chlordane will be achieved through the control of sediment and erosion, of which there are many standard best management practices available that have been widely used for many years. NPDES permittees are responsible for controlling what gets into their conveyance system and what is discharged from it to surface waters. In many cases for these watersheds, city governments and districts have the legal authority through land use zoning, land development, and storm water management and discharge ordinances to control such discharges. Other facilities and sites, such as industrial, construction, and non-traditional small MS4s, are responsible for controlling what is discharged from their sites. The means and the mechanisms are currently available to control watershed sources of pollution and it is important to remediate the legacy pollutants so that the sediment conditions at these three creek mouths can be restored.	

	The Responsible Parties are directed to prepare load reduction plans to address these water quality impairments. To the extent that parties identify areas of significant source loading, they have the flexibility to choose the course of action, whether it be directed source control, structural BMP installation, or discrete removal of any identified upland sources.	

SA-2. Chlordane should not be listed as a toxic pollutant in the TMDLs		
	Comment: Recent studies have confirmed that chlordane is not the cause of toxicity in sediments, including those at the mouth of Switzer Creek. Therefore, the Port District strongly recommends that the San Diego Water Board remove Chlordane as a contaminant of concern in the TMDLs for Paleta, Chollas, and Switzer Creeks. The listing of chlordane and its inclusion in the TMDL is based on studies that incorrectly identify chlordane as a toxicant. More recent studies have occurred since the original studies used in the development of the TMDL. These follow-up studies by Anderson et al., (2010) and Phillips and Anderson (2011) confirm that chlordane is not a potential cause for toxicity in sediments, including those at the mouth of Switzer Creek. Furthermore, several of these researchers were the same ones involved in the original studies referenced in the TMDL. The studies describe that spiked concentrations of chlordane thousands of times greater than that currently found in the sediments were non-toxic to the amphipod *Eohaustorius estuarius*. Subsequently, the Phase II/ III TIEs identified pyrethroid insecticides as the cause for toxicity in sediments in the mouth of Switzer Creek. Studies prior to development of the TMDL initially suggested that chlordane might be responsible for toxicity (SWRCB, 2003 and Greenstein et al., 2005). These initial conclusions were based on Phase I toxicant characterization TIEs that identified non-polar organic compounds as the cause for toxicity combined with a simple correlation between toxicity and chlordane concentrations. Correlation, as noted by the authors of the studies, cannot implicate and identify causes of toxicity since many chemicals and physical parameters will co-correlate with toxicity simply based on relationships to pollutant inputs and physical parameters such as grain size. In addition, only a small fraction of chemicals are routinely measured, so it is impossible to use single correlations to identify a cause of toxicity in any matrix, particularly in sediments which have very complex properties. Based on these updated findings, the inclusion of chlordane in the TMDL should be reevaluated and the pollutant ultimately removed from the TMDL. Please see the following references for more information: Phillips, B., and B. Anderson, 2011. *RMP Sediment Toxicity Study 2009-2010 - Determining the Causes of Sediment Toxicity in the San Francisco Estuary*. Regional Monitoring Program for the San Francisco Estuary. December 22, 2011. 51pp. Anderson, B.S., B.M. Phillips, J.W. Hunt, S.L. Clark, J.P. Voorhees, R.S. Tjeerdema, J. Casteline, M. Stewart, D. Crane, and A. Mekebri. 2010. *Evaluation of methods to determine causes of sediment toxicity in San Diego Bay, California, USA*. Ecotoxicology and Environmental Safety: 73:534-540.	Port of San Diego
	Response: The San Diego Water Board acknowledges that the recent studies referenced by the commenter	

	indicate that chlordane appears to have a much higher threshold for producing toxicity than once thought and that does not appear to cause direct toxicity at the levels found in these creek mouths and that toxicity of San Diego Bay sediment in Switzer Creek mouth was likely partly due to mixtures of pyrethroid pesticides. The latter study was conducted for the purpose of evaluating various methods that could be used in Phase II TIE procedures (toxicant identification phase). Nonetheless, the San Diego Water Board is still obligated to adopt a chlordane TMDL under CWA 303(d)(3). The San Diego Water Board recognizes a potential future need to develop TMDLs for pyrethroid pesticides; however, sufficient watershed and marine sediment data was not readily available at the time of development. It should be noted that the State Water Board has begun work on a statewide TMDL project to address urban pesticides, including pyrethroids. We also expect that urban pesticides may be a bay-wide matter well suited for being addressed within the context of the pending Water Board's San Diego Bay Strategy. Additionally, Komoroske et al. (2011) found bioaccumulation of chlordane in the resident Pacific green sea turtle population of San Diego Bay. While more study is needed to determine immunological and physiological effects from legacy pollutants on these federally-listed endangered species, implementation of TMDLs and sediment remediation in these three watersheds and creek mouth areas will be another step forward towards restoring beneficial uses of San Diego Bay.	

SA-3. By U.S. EPA definition, storm water runoff is by far the more significant nonpoint source to the creek mouths		
	Comment: In paragraph 1 on page 2, the statement "Atmospheric Deposition represents the primary nonpoint pollutant source." is misleading. By U.S. EPA's definition, non-point sources include storm water runoff, and this is by far the more significant source to these creek mouths. This is obvious based on the location of all of these sites at the creek mouths of large urban/industrial watersheds.	U.S. Navy
	Response: In these urban watersheds, storm water is conveyed from the land to surface waters via discrete conveyances subject to point source regulation pursuant to the Clean Water Act. Please see the response provide in SA-1.	Reference: SA-1

SA-4. Given the nature of PAHs, is the Water Board anticipating control measures for atmospheric deposition		
	Comment: In paragraph 1 on page34, the report states "It is assumed that the primary source of PAHs to the San Diego Bay shorelines is urban storm water runoff where most airborne PAHs are deposited on the land (e.g., through precipitation or indirect atmospheric deposition) and are transported to the bay through storm water runoff." Given the nature of this source, is the San Diego Water Board anticipating control measures for atmospheric deposition in order to control this source?	U.S. Navy
	Response: In Section 5.2.2.1 of the Draft Technical Report, atmospheric deposition has been identified as an uncontrollable nonpoint source. It has been accounted for in two ways: directly and indirectly. Direct atmospheric deposition has been allocated a LA; however, indirect deposition, which becomes a controllable nonpoint source once it deposits on the watershed and becomes part of urban runoff, is effectively allocated to the storm water conveyance system.	Reference: RP-4

SA-5. HWM PAHs are much more likely to have a net flux from the atmosphere to the water/sediment		
	Comment: In paragraph 2, on page 94, the report cites the Schiff study indicating that there is a net loss of TPAHs and TPCBs from the water to the atmosphere and so atmospheric deposition can be neglected. While LMW PAHs may have a net flux to the atmosphere, these are not the compounds that tend to accumulate in sediments. HMW PAHs are the predominant issue for sediments, and are much more likely to have a net flux from the atmosphere to the water/sediment.	U.S. Navy
	Response: As stated in Section 5.2.2.1 of the Draft Technical Report, Sabin et al. (2010) investigated cross-media transport between both the sediment and the water column, and the water column and the atmosphere to understand the role of each compartment as sources or sinks of PAHs in San Diego Bay. High water concentrations of PAH compounds were found to result in a net gas exchange to the atmosphere making the impaired water body act as a net source of PAH compounds to the atmosphere. The low molecular weight PAHs dominated the fraction of total PAHs that volatilized to the atmosphere and partitioned out of sediment providing a flux of pollutants into the water column. While the high molecular weight PAHs tended towards dry deposition and sedimentation in general, the flux for San Diego Bay indicated a net movement from the water to the atmosphere. Sabin et al. (2010) reports that these order-of-magnitude estimates indicate that sediments remain a source of PAH to the water column and, at the most polluted sites, to the local/regional atmosphere via volatilization from the water column. Because of high sediment concentrations, input to the water column from the sediment far exceeds input/output from the water column resulting from air-water exchange, under the conditions studied here (e.g., quiescent, nonstormwater conditions).	

SA-6. Atmospheric deposition is not adequately addressed		
	Comment: Indirect atmospheric deposition is a significant pollutant source that was not explicitly addressed or quantified in these TMDLs. Atmospheric deposition is the greatest source of PAHs and primarily originates from vehicle engine combustion within and outside of these watersheds. Other PAH sources to the atmosphere include the combustion of fuel from airplanes and ships, wood burning activities and forest fires, power plants, and other sources that can be hundreds or thousands of miles away. An accurate accounting of the contribution of atmospheric deposition to these impairments is especially important given the extremely limited ability of the City and other local agencies to control this source. The City is currently working with leading scientists in the region and nationally to conduct an atmospheric deposition study to help quantify this source using state-of-the-art monitoring equipment at several locations in downtown San Diego. The results of this study will be provided to the San Diego Water Board to help improve the understanding of atmospheric deposition processes and develop future recommendations on how to comprehensively address this source. For these TMDLs, the City recommends that atmospheric deposition in the watershed be included as a separate source given that MS4s have no ability to control this source and considering its ubiquitous nature. The TMDL states atmospheric deposition is an uncontrollable source, therefore it will be important to include as a separate source category that can be refined later through studies such as the one the City is currently developing. In addition, the City recommends that the California Air Resources Board and San Diego Air Pollution Control Board be listed as responsible parties for this source. This recommendation is consistent with language in the TMDL that states the San Diego Water Board will send a letter to these agencies requesting that they address issues related to air deposition of toxic organic pollutants in the San Diego Bay airshed.	City of San Diego
	Response: The San Diego Water Board appreciates the efforts the City is making to work with leading scientists to study atmospheric deposition and looks forward to the findings of that important work. Please see the response provided in RP-4.	Reference RP-4, SA-4

SA-7. The Source Assessment does not reflect the remediation work completed at six IRP sites at Naval Base San Diego		
	Comment: Beginning at paragraph 4 on Page 43, the information provided in the Source Assessment regarding the six Installation Restoration Program (IRP) sites is out of date and does not reflect (1) the extent of remediation that has already taken place at these sites, (2) the extent of sediment removal that has already occurred, and (3) the limited pathways of several of these sites in terms of connection to the bay.	U.S. Navy
	Response: The information in the Source Assessment is about past facilities and activities at Naval Base San Diego that were located in proximity to the impaired water body segments at the mouths of Paleta and Chollas creeks, as stated in paragraph 4 on page 43. The historical documentation identifies past activities and types of wastes and materials that were used and/or disposed of at the Base, and establishes that the Base contributed to legacy pollution in the creek mouth areas.	

	The successful remediation of the IRP sites, as noted in the following five comment submittals, will aid in meeting the WLAs for current/future discharges.	

SA-8. Updated information regarding the Mole Pier (IRP Site 2) at Naval Base San Diego		
	Comment: The Navy submits the following information on the Mole Pier (IRP Site 2): For the Mole Pier (IRP Site 2) for example, four of the seven subsites have undergone soil removal actions. Soil within Subsite 2G, the former Wharf Builder's Yard, was the subject of a non-CERCLA cleanup action performed under Petroleum Exclusion Regulations. Soil within this area was excavated to approximately 10 feet bgs, treated using low-temperature thermal desorption technology, and backfilled in the excavation. About 2,000 cubic yards of hydraulic-fluid-impacted soil from Building 132 (the automotive maintenance facility) was also thermally treated and placed at this subsite. Approximately 4,000 cubic yards of the thermally treated soil also was spread over the surface of Subsites 2C and 2G. Subsite 2A underwent a soil removal action performed by Foster Wheeler Environmental Corporation and the Navy PWC between 2000 and 2003 with excavation depths from 10 to 15 feet bgs. The excavation limits exceeded 70 percent of the subsite. A total of 123,470 tons of soil was removed. Of the total soil removed, 106,594 tons was disposed as California hazardous waste, 14,190 tons as nonhazardous waste, 1,418 tons as Resource Conservation and Recovery Act (RCRA) waste, and 1,268 tons as low-level radiation waste. A TCRA was conducted in 2007 and 2008 at Subsites 2B, 2C and 2G in which the upper 3 to 4 feet of soil was removed, and clean fill material imported to bring the subsites back to their original grade. Over 45,000 cubic yards of soil were excavated and disposed of. The excavated area was backfilled with clean soil and repaved. From a pathway perspective, the site is now almost completely paved, with the few remaining unpaved areas mostly covered with other materials such as gravel that inhibit the movement of particulates. Communication with shallow groundwater was cut off in 2003 when interlocked welded sheet piles were driven outboard of the existing concrete pile, and a cementitious fill poured into the resulting void. The current potential for discharge of groundwater to the bay is low. In addition, substantial sediment offshore of IRP Site 2 in the Paleta Creek Channel was dredged in 1971. Additional material near the mouth of Paleta Creek was removed by dredging in 1993. Multiple dredging events were also performed in the main navigational channel and approaches to the piers between 1955 and 1985.	U.S. Navy
	Response: The San Diego Water Board thanks the U.S. Navy for providing the information.	

SA-9. Updated information regarding the Salvage Yard (IRP Site 3) at Naval Base San Diego		
	Comment: The Navy submits the following information on the Salvage Yard (IRP Site 3): At the Salvage Yard (IRP Site 3), the top 8 inches of PCB-contaminated soil was removed in an area approximately 200 by 150 feet in the vicinity of the former dual incinerators. In 1993, approximately 180 cubic yards of soil was excavated as part of underground storage tank removal activities in the northern area of the site. In 1997, approximately 21,000 cubic yards of soil containing PCBs and lead in the southern portion of IRP Site 3 was excavated as part of a TCRA under CERCLA. In 2000, a localized area of soil was removed as part of construction activities in the southern area. In 1997 the surface of IRP Site 3 was repaved with asphalt. The protective asphalt cover minimizes surface water infiltration and windblown transport of fugitive dust. The potential for discharge of contaminated groundwater from IRP Site 3 to the bay is low. Net groundwater flow in both the shallow and deeper water-bearing zones is away from the creek. In addition, IRP Site 3 groundwater is not reported to be impacted by organic contaminants above aquatic screening criteria. Finally, substantial sediment offshore of IRP Site 3 in the Paleta Creek Channel was removed in 1971. Additional material near the mouth of Paleta Creek was removed by dredging in 1993. Multiple dredging events were also performed in the main navigational channel and approaches to the piers between 1955 and 1985.	U.S. Navy
	Response: The San Diego Water Board thanks the U.S. Navy for providing the information.	

SA-10. Updated information regarding the DPDO Storage Yard (IRP Site 4) at Naval Base San Diego		
	Comment: The Navy submits the following information on the DPDO Storage Yard (IRP Site 4): At the DPDO Storage Yard (IRP Site 4) the current potential for discharge of particulate contamination to San Diego Bay is low in the northern area of the site, which is nearly entirely paved, and has been since at least 1975. This paving precludes migration of particulates from this area. The potential for the transport of contaminants to San Diego Bay from IRP Site 4 via groundwater transport is low. Surface water in Paleta Creek is not in direct hydraulic communication with the groundwater underlying IRP Site 4, eliminating the groundwater-to-surface-water pathway. In addition, substantial sediment offshore of IRP Site 4 was removed in 1971 in the dredging of Paleta Creek Channel. Additional material near the mouth of Paleta Creek was removed by dredging in 1993. Multiple dredging events were also performed in the main navigational channel and approaches to the piers between 1955 and 1985.	U.S. Navy
	Response: The San Diego Water Board thanks the U.S. Navy for providing the information.	

SA-11. Updated information regarding the Firefighting Training Facility (IRP Site 8) at Naval Base San Diego		
	Comment: The Navy submits the following information on the Firefighting Training Facility (IRP Site 8): At the Firefighting Training Facility (IRP Site 8), from 1993-1995, approximately 3,000 gallons of free product were recovered from a product-recovery system at the site. In 1997, the Navy began operating a multiphase extraction (MPE) system comprising 31 extraction wells at IRP Site 8. Remediation was conducted on both the northern and southern plumes. The MPE system recovered approximately 15,000 gallons of free product and extracted and treated approximately 2,400,000 gallons of contaminated groundwater from both plumes at the site. In January and February of 2002, PWC excavated a portion of the southern plume. Soil, capillary fringe material, water, and free product were removed from the site. The excavation has been backfilled and paved. Historical direct discharge to the bay during fire training was possible, but it has not been reported. A system of underground tanks existed to capture quench water generated during training, thus reducing the chance for accidental discharge to the bay. Historical discharge of particulate contaminants to the bay from unpaved areas of the site is unlikely. Review of Station Condition Maps of Destroyer Base San Diego show the area of IRP Site 8 as almost entirely paved as early as 1943, the date of the first map on which the "firefighting school" appears. The current potential for discharge of particulate contamination to San Diego Bay sediments is low because the site is completely paved. The potential for discharge of contaminated site groundwater to the bay is also considered to be low. Finally, substantial sediment immediately offshore of IRP Site 8 was removed in 1971 and again in 1993. These two dredging activities likely removed sediment that may have been influenced by IRP Site 8 activities prior to 1971. Additional material farther out into the channel offshore of NBSD was removed in multiple dredging events conducted between 1955 and 1993.	U.S. Navy
	Response: The San Diego Water Board thanks the U.S. Navy for providing the information.	

SA-12. Updated information regarding the PCB Storage Facility (IRP Site 9) at Naval Base San Diego		
	Comment: The Navy submits the following information on the PCB Storage Facility (IRP Site 9): At the PCB Storage Facility (IRP Site 9), a removal action was completed in 1994 to clean PCB-contaminated structures and soils at IRP Site 9. As part of the removal, three structures at the north end of the site were decontaminated and demolished. In addition, asphalt/concrete that covers approximately one third of the surface area of the site was deemed contaminated and handled as hazardous waste. After the asphalt/concrete was removed, PCB-contaminated soils were excavated. The excavations extended outside the boundaries of IRP Site 9 and in some places to a depth of 4 feet. In addition, PCB-contaminated sediment was removed from the storm drain inlet in the southeast corner of the site. This storm drain was cleaned using a Hydroblaster and pneumatic pumps. IRP Site 9 is now closed. Because of the long distance from IRP Site 9 to the bay (approximately 1,200 feet southeast of Paleta Creek and approximately 1,000 feet east of San Diego Bay), historical discharge of contaminated soil particles to Paleta Creek from storm drain outfalls prior to installation of pavement is likely the only potential mechanism for the transport of site contaminants to the bay. IRP Site 9 is currently paved with asphalt and used as a parking lot and contractor staging area, and there are no current transport pathways from the site to Paleta Creek or San Diego Bay. In addition, substantial sediment west of IRP Site 9 was removed in 1971. Additional material near the mouth of Paleta Creek was removed by dredging in 1993. Multiple dredging events were also performed in the main navigational channel and approaches to the piers between 1955 and 1985.	U.S. Navy
	Response: The San Diego Water Board thanks the U.S. Navy for providing the information.	

SA-13. Resuspension and transport of contaminated sediments from the highly contaminated areas of the Shipyard Sediment Site is a concern		
	Comment: With respect to PCBs in sediments, as mentioned in paragraph 6 in Section 5.1 of the Draft Technical Report, an obvious concern is the resuspension and transport of contaminated sediments from the highly contaminated areas at NASSCO and Southwest Marine (BAE). Concentrations in the sediments at those sites is documented to be several orders of magnitude higher than in the Chollas Creek mouth, and the ongoing movement of ships in those areas, especially during incoming tides could direct significant contamination to the Chollas Creek site. While cleanup at the Shipyard sites is contemplated, no action has occurred and this raises concerns for ongoing recontamination at the Chollas Creek mouth site.	U.S. Navy
	Response: Cleanup activities scheduled will address sediment contamination at the Shipyard Sediment Site. All dredging and construction activities in contaminated sediment areas within the Shipyard Sediment Site remedial footprint will be conducted in accordance with the applicable requirements of Cleanup and Abatement Order R9-2012-0024 and with the mitigation measures identified in the certified Final Environmental Impact Report for the Shipyard Sediment Site. Construction best management practices will be in place to address any potential for ongoing recontamination at the Chollas Creek mouth site.	

	Based on above discussion, no changes were made in the Resolution and Technical Report.	

SA-14. PCB sampling methods used in the Monitoring and Modeling Report are likely inadequate		
	Comment: No analysis is presented to determine if the sampling methods used in the Monitoring and Modeling Report (Schiff and Carter 2007, Appendix C-1) were adequate for the detection of PCBs. The approach of monitoring whole water samples for evaluating PCBs, even with low detection limits, is likely inadequate since the PCBs are almost entirely associated with particles, and action levels are very low, so even with low detection limits this approach will generally fail. Given that PCBs are associated with historical use and releases and are typically bound to soils in specific areas, and given that they are still being found in the surface sediments at the creek mouths, it seems likely that they are still entering the bay through the creeks at some level. Further evaluation of this in a more rigorous way would help to resolve this issue.	U.S. Navy
	Response: Please see Appendix C-1 regarding the methods and analysis of PCBs and TSS. It is expected that the identified special studies, in addition to the compliance monitoring in section 10.6, will assist in determining if additional modified sampling of the watershed is needed.	

Modeling Comments

M-1.	**The model did not adequately represent background sources and failed to utilize significant available data**	
	Comment: The model did not adequately represent background sources, and failed to utilize significant available data to characterize background sources. This is an important oversight because it is likely that background sources will control the long-term recovery of the site.	U.S. Navy
	Response: Pollutant sources were represented explicitly or implicitly through model development and calibration based on available water quality and sediment data. The TMDL calculation assumes remediation of sediment contamination that was caused by legacy/background sources, for the purpose of focusing the model results on identifying the watershed load reduction needed to achieve the numeric targets.	

M-2.	**Use of the model assumption that sets bed sediment at numeric target levels is inappropriate; numeric targets not been vetted for use as sediment cleanup levels**	
	Comment: In paragraph 3 on page 2 of the Draft Technical Report states "Model assumptions included reducing bed sediment concentrations to numeric target levels, which assumes future remediation of contaminated sediments that may continue to contribute pollutant loads to the impaired creek mouth areas." However, the development of numeric targets has not been adequately vetted or negotiated to assume their use for sediment cleanup levels. Then, in paragraph 4 on page 83, the report states, “This inherently assumes that contaminated sediment at the mouths of the creeks were dredged or remediated in some manner.” The assumption that creek mouth sediment is cleaned up to numeric target levels implies that there is agreement that the target levels are reasonable cleanup levels. However, these target levels have not been vetted or negotiated with stakeholders as cleanup levels, there has been no rigorous analysis or development of site specific cleanup levels, and there is no assurance these will represent the sediment concentrations at the mouth.	U.S. Navy
	Response: The purpose of this model assumption is to allow for the model to predict whether watershed discharges will cause an exceedance of a particular sediment numeric target over time. If the discharge does not cause an exceedance, then the watershed loading becomes the TMDL. If the discharge does cause an exceedance, then the watershed load is reduced and the model is re-run until a level of watershed loading that does not cause an exceedance is determined. The use of this assumption in no way implies what the cleanup level will ultimately be set at. The alternative cleanup levels will be established through the development of the cleanup and abatement order(s). See the response provided in NT-8.	Reference: NT-8

M-3.	**The model simulates fate and transport of contaminants without considering significant salinity stratification and temperature gradients**	
	Comment: Section 6.2.1 of the Draft Technical Report states that "The model was configured as a three-dimensional model, with 4 layers along the vertical axis to resolve vertical variability. Since water in San Diego Bay is generally not significantly stratified, a 4-layer representation was considered appropriate. Cell depths range from 2.2 to 20.1 meters." However, the model is being used to simulate the fate and transport of contaminants associated with a highly stratified freshwater discharge into a saltwater embayment. The bay itself is also often significantly stratified by temperature gradients.	U.S. Navy
	Response: Stratification in the creek mouth areas are explicitly simulated in the model. Exchanges with the bay were represented as a constant open boundary condition; therefore, it was not necessary to represent stratification in the Bay explicitly.	

M-4.	**Provide the background values and their basis used as the boundary conditions in the model**	
	Comment: Section 6.2.2.3 of the Draft Technical Report states "For toxics, the water column concentrations were set to be the same as the background concentrations." We could not find what these values were or what they were based on.	U.S. Navy
	Response: The receiving water (EFDC) modeling report, provided in Appendix D, provides information on the background values used for model development and calibration.	

M-5.	**The fine sediment concentrations used in the model are too high and are not likely accurate**	
	Comment: Section 6.3.3 of the Draft Technical Report states that "The fine sediment concentration at the outer boundary of the Paleta Creek mouth can be very high during storm events, reaching values close to 1,000 mg/L." This concentration is far higher than any observation or any previous modeling simulation and seems unlikely to be accurate. What is the basis for this value?	U.S. Navy
	Response: The referenced sentence describes the model results for the outer boundary of Paleta Creek, presented as an example for the three watershed mouths. The model results, which are illustrated in Figure 6-1 of Appendix D, as referenced in this paragraph, reflect values that approach 1,000 mg/L. This value was not used in the model to represent the Paleta Creek mouth boundary. The model domain extends much further beyond the mouth of the creek, thus the open boundary condition was set to represent the "outer bay" condition, not the condition at the outer mouth of the creek. A value of 0.001 mg/L was used to represent the open boundary condition.	

M-6. Using extreme wet weather conditions as the underlying basis for a sediment TMDL is not appropriate		
	Comment: Section 7.2 of the Draft Technical Report states "To ensure protection of the impaired waterbodies during wet periods when a maximum amount of sediment and pollutant transport to the creek mouths is likely, a critical period associated with extreme wet conditions was selected for loading analysis and TMDL calculations." This makes no sense. The sediment impairment is the results of the long-term, integration of creek discharges over time. To accurately understand this requires integrating the range of events, not looking at extreme events. Using an extreme event as the underlying basis for a sediment TMDL is not appropriate.	U.S. Navy
	Response: TMDL development requires identifying and using the critical condition in the modeling and TMDL calculations in order to meet beneficial uses at all times. Since watershed pollutant transport is related to storm events, the typical practice is to model a high flow hydrologic year (not individual storm events).	

M-7. The inference that the model can predict sediment toxicity is clearly not correct		
	Comment: Section 7.6 of the Draft Technical Report states "Outcome 2: If the sediment toxicity increases over time and results in a buildup of the sediment pollutant concentration that is higher than the numeric target at the end of the simulation period, then a reduction of the existing watershed load is needed and additional model runs to determine the amount of reduction are performed (see Scenario 2)." However this infers that the model can predict sediment toxicity which is clearly not correct. It may predict increasing concentrations, but there is no causal link to toxicity and no predictive power for individual contaminant concentrations.	U.S. Navy
	Response: The model cannot predict toxicity. Predictions of toxicity were made in relationship to sediment chemistry concentration. The model can only predict an increase in the sediment chemistry concentration.	

M-8. Elevated levels of chlordane in the surface sediments at the mouth of Paleta Creek provides strong evidence that the model results are inaccurate		
	Comment: Section 8.1 (paragraph 4) of the Draft Technical Report states that "the existing load produced in the modeled high flow year was found to be within the assimilative capacity of Paleta and Switzer Creek mouth areas." However, the presence of elevated level of Chlordane in the surface sediments at the mouth of Paleta Creek provides strong evidence that this is not the case. If the current loading were not an issue, then it is unlikely that high levels would be found in the surface sediments.	U.S. Navy
	Response: The model analysis evaluated whether current loadings (data from water years 05/06 and 09/10) would exceed the desired sediment condition (numeric target) over time, assuming 3 consecutive high flow hydrologic years. The model is not being used to historically re-create the existing condition within the sediments of the creek	

	mouths. The model results actually indicate that recent loadings from these watersheds are not contributing, or perhaps no longer contributing, loading of these previously banned pollutants. However, the presence of elevated levels of chlordane in the surface sediments at the mouth of Paleta Creek does provide strong evidence that historic discharges are responsible for the current impairment.	

Margin of Safety Comments

MOS-1. There is a general lack of consideration for uncertainty		
	Comment: There is a general lack of consideration for uncertainty in the report. While implicit and explicit MOS are used, the report itself does little to recognize the uncertainties associated with a broad range of underlying assumptions.	U.S. Navy
	Response: It is unclear what the commenter is requesting. The San Diego Water Board acknowledges there are inherent uncertainties and assumptions made in the TMDL process. These are generally found in the Appendices within specific reports, such as for watershed modeling.	

MOS-2. Clarify why a margin of safety is applied to PCBs		
	Comment: It is unclear how a 5% margin of safety is applied to PCBs when there is no requirement for load reduction.	U.S. Navy
	Response: The findings of the modeling determined that the current discharge of PCBs during the modeled high flow year was sufficient to maintain the numeric targets in the creek mouth sediment. This means that as long as current concentrations of effluent can be maintained at these levels, then there is assurance that the water quality standards will be met into the future. However, much of the watershed data used to calculate the existing load was non-detection results, where the actual value is unknown. Additionally, there are unknown contributions from sources within the tidal prism that could not be quantified, which will be investigated in the Intertidal Segments Study.	

TMDLs and Allocations Comments

WLA-1. Correct the characterization of the Katz et al. (2003) Study		
	Comment: On page 90 of the Draft Technical Report, it is not correct that Katz et al. (2003) reported data from the tidal portions of the creek and from the Naval Base only. The data from the Katz study included composite samples from both Naval Station storm drains and from the City of San Diego's mass loading stations on both Chollas and Paleta Creeks. These were used to develop mass loading values from Navy and upstream watershed sources. Additionally, bay water samples were collected in the tidal portion of the creek mouth outward to assess concentration gradients.	U.S. Navy
	Response: The San Diego Water Board thanks the U.S. Navy for the comment and the incorrect statement has been deleted.	

WLA-2. Correction of claim about use of U.S. Navy data for TMDL analysis		
	Comment: The claim on page 90 of the draft Technical Report that the U.S. Navy did not give permission to use their data for the TMDL analysis false and implies that the Navy has not been cooperative in the TMDL process. Section 8.1 of the Draft Technical Report states that ""The few storm water concentration data points collected from the Naval Base would have been helpful in this analysis, but the U.S. Navy did not give permission to use their data for the TMDL analysis." However, all of the data reported in Katz, which the San Diego Water Board clearly already has, was given to the San Diego Water Board, is public, and available for use. The San Diego Water Board has made use of numerous public reports from the Navy in the TMDL without asking the U.S. Navy for permission, so it is unclear why this specific statement would be made which seems to suggest that the U.S. Navy has not been cooperative in the TMDL process, which could not be further from the truth. The U.S. Navy did suggest that it would be inappropriate to compare mass loading data collected from the City mass loading sites in 2006 with U.S. Navy mass loading data collected in 2001, particularly given differences in methodology. The U.S. Navy had already compared loading from upstream Chollas and Paleta creeks with U.S. Navy loading from the 2001 timeframe, which represented a direct comparison that could have been used.	U.S. Navy
	Response: San Diego Water Board has reworded this statement to reflect that staff contacted SPAWAR to ask permission to use its data. SPAWAR did reply that it would be inappropriate to use the two different data sets for the TMDL. The San Diego Water Board wants to make clear that it appreciates all the U.S. Navy's efforts on this TMDL project. The U.S. Navy has been very cooperative during the TMDL process, and has provided a vast amount of technical resources towards this project.	

WLA-3. Clarify what pollutant concentrations from San Diego Bay "cannot be reduced"		
	Comment: On page 88 of the Draft Technical Report states that "...the assumption was made that the pollutant concentrations from San Diego Bay cannot be reduced and that sediment toxic pollutant concentrations will be reduced to target values." Please clarify this assumption. Is it referring to contaminants in the water column? Does this include storm water?	Port of San Diego
	Response: The subject passage in section 8.1 (p.88) of the Draft Technical Report refers to assumptions used when developing the mass-based TMDLs. The assumption used is that contributions to the target area from the ambient San Diego Bay water column would not be reduced via the Implementation Plan to restore the impaired waters. On the other hand, toxic pollutant storm water discharges from regulated facilities are expected to decrease as a result of applicable NPDES permit requirements.	

Implementation Plan Comments

IP-1. Define the term "remediation" as it pertains to this project		
	Comment: The term "remediation" should be clarified as it pertains to this TMDL. A definition of remediation should be defined in the glossary, and any references to "dredging" should be replaced with "remediation" throughout the document.	Port of San Diego
	Response: The San Diego Water Board uses sediment "remediation" in the Basin Plan Amendment and supporting materials to refer to actions taken in the marine sediments by Responsible Parties to correct existing conditions of pollution in the impaired creek mouths. For instance, the CEQA analysis, (e.g., section H3.1) identifies removing or isolating the contaminated sediment from the environment as potential sediment remediation activities.	Reference: IP-23

IP-2. Sediment remediation actions will not necessarily reduce all sediment-associated pollutant concentrations		
	Comment: As stated in Section 8.1 of the Draft Technical Report, it is not the case that similar sediment remediation actions would reduce all sediment-associated pollutant concentrations since different contaminants have different spatial distributions and thus would require individual consideration for remedial design.	U.S. Navy
	Response: The San Diego Water Board agrees with the general point that the commenter is making; however, the intent of the statement was to assert that any remediation would also remediate collocated pollutants. The statement has been modified.	

IP-3.	**Disagree with claim that cleanup levels don't need to be set at numeric target levels as long as sediment quality meets Sediment Quality Objectives**	
	Comment: The U.S. Navy does not agree with the claim in Section 10.5 of the Draft Technical Report that cleanup levels need not be set at the TMDL numeric targets as long as sediment quality meets sediment quality objectives. Sediment Quality Objectives have primarily been developed to identify impairment, not set cleanup levels. Furthermore, cleanup levels have to consider many other factors besides impairment and thus may or may not meet sediment quality objectives.	U.S. Navy
	Response: The purpose and goal of this Implementation Plan is to restore the beneficial uses in the three creek mouths, which will be considered restored when the Sediment Quality Objectives are met in the marine sediments. As previously mentioned in the response provided in NT-8, the cleanup levels will be established as either background or alternative cleanup levels through the development of the cleanup and abatement order, which may not be the sediment numeric targets used for TMDL calculation. The sediment numeric targets are a numerical translation of the Aquatic Life Sediment Quality Objective. And as the commenter observes, many other factors must be considered when establishing cleanup levels. Given the documented impairments, by the end of the TMDL compliance schedule, the sediment conditions must demonstrate attainment of the Sediment Quality Objectives or additional actions will need to be pursued.	Reference: NT-8

IP-4.	**Even if the proposed sediment target for PCBs is appropriate, no action is required to attain the target**	
	Comment: The TIE analyzed sediments at three stations in the mouth of Chollas Creek for sediment toxicity in three separate surveys. In 2001, concentrations measured at stations C10 and C14 were 189.49 µg/kg and 211.57 µg/kg, respectively, exceeding the Tentative Resolution's proposed target. However, the concentrations of PCBs measured in 2002 at the same stations were 112.94 µg/kg and 54.58 µg/kg, well below the proposed target. In 2004, PCBs were not detected at station C13. All congeners were below the detection limit of 1 µg/kg. Sediment concentrations were also reported by Brown and Bay (2011) for stations C10 and C14. Samples were collected in July and November 2001, and February, June and October 2002. In July 2001 and October 2002, results were the same as reported in the TIE. The mean PCB concentrations in the top 2 cm of Sediment was 138 µg/kg and 136 µg/kg at CI0 and C14, respectively, below the Tentative Resolution's proposed target. This data plainly shows a decreasing trend in the concentration of PCBs in the surface sediments at the mouth of Chollas Creek, and that compliance with the proposed targets already appears to have been achieved. Therefore, no basis exists to impose any remediation to achieve the proposed sediment target for PCBs in the mouth of Chollas Creek (even assuming the target is valid), at least not in the absence of new data showing that PCB concentrations are above the proposed target.	NASSCO – Latham & Watkins

	Response: It is a good indication that sediment PCB concentrations appear to be on a decreasing trend in these select stations over the three years that the monitoring studies represented. There were other stations in the same studies that revealed a number of concentrations above 200 µg/kg and station C02 reported a concentration of 422 µg/kg. Assuming the trend could be representative of all creek mouth stations, the U.S. Navy is expected to be conducting maintenance dredging in both the Chollas and Paleta Creek mouth areas within the next year. It is certain that these values would not represent the new surface created by these actions. The purpose of this Basin Plan Amendment is to establish the mechanisms that will allow the San Diego Water Board to coordinate the actions needed to restore beneficial uses. Limits are proposed to control watershed discharges, which will serve to ensure that the impairment condition will not reappear from these pollutants, and will be maintained through demonstration of periodic monitoring over time. Proposed remediation of existing polluted sediment will remove the existing impairment. Investigation and analysis conducted in developing cleanup and abatement orders will provide current information that will aid in determining attainment of the Human Health SQO and necessary cleanup levels as required, which must consider all uses and not pose a substantial present or potential hazard to human health or the environment. As mentioned previously in NT-8, the sediment numeric targets do not represent human health protection.	Reference: NT-8

IP-5. State Board Resolution 92-49 requires similar sites to be treated similarly		
	Comment: State Water Resources Control Board Resolution 92-49 ("Resolution 92-49") provides guidance to the Water Boards regarding issuance of cleanup and abatement orders under Clean Water Act section 13304. The Tentative Resolution acknowledges that any cleanup and abatement order issued by the San Diego Water Board will be subject to Resolution 92-49. Tentative Resolution, at B-31; Technical Report, at 119. Under Resolution 92-49, the "Regional Water Board shall ... prescribe cleanup levels which are consistent with appropriate levels set by the Regional Water Board for analogous discharges that involve similar wastes, site characteristics, and water quality considerations." See also Barker Depo., at 345: 12-345: 17 (recognizing that a goal of Resolution 92-49 is to ensure that Water Boards treat similar sites similarly). Principles of due process and equal protection also require fundamental fairness, and that similarly situated persons subject to legislation or regulation be treated alike. U.S. Const. amend. XIV, § 1; Cal. Const. art. I, §§ 7, 15. The mouth of Chollas Creek is within the same water body as, and immediately adjacent to, the Shipyard Sediment Site. The Tentative Resolution and the Shipyard CAO both identify total PCBs as a contaminant of concern. The Tentative Resolution is being considered for adoption approximately one year after the Shipyard CAO was adopted. Hence, Resolution 92-49 dictates that cleanup levels implemented under the Tentative Resolution be "consistent" with those in the Shipyard CAO. The cleanup levels imposed by the Shipyard CAO are substantially more stringent than levels imposed by the San Diego Water Board for other shipyard and boatyards locations on San Diego Bay involving analogous discharges and similar circumstances to the Shipyard Sediment Site. See e.g., San Diego Water Board Order Nos. 88-86, 88-	NASSCO – Latham & Watkins

	78, 89-31, 84-100, 94-101, 94-102, 95-21,97-63,99-06,2001-303, R9-2002-0072; Barker Depo., Ex. 1210 at Exhibit A; Cleanup Team Response to NASSCO's RFA No. 21. Many of these sites, including the Commercial Basin Boatyards, Paco Terminals, Convair Lagoon, and Campbell Shipyard are similar to the NASSCO Shipyard (and the mouth of Chollas Creek) in many respects, including but not limited to geographical location, water quality considerations, uses, wastes, beneficial uses, and receptors of concern. Barker Depo., at 118:14 -140:1; 346:25 - 352:15; 354:22 - 361:18; 385:17 - 387:4,564:25 - 565:23,567:7 - 567:16; see also Barker Depo., Ex. 1210 at Exhibit A. Despite these similarities, the cleanup levels imposed by the Shipyard CAO are far more stringent than those for the other sites, including Campbell Shipyard, for the same constituents. See e.g., Barker Depo., 365:8 - 365:23. More specifically, cleanup levels for PCBs are much more stringent at NASSCO than Campbell. Barker Depo., Ex. 1210 at Exhibit A. To reach such low cleanup levels for Shipyard CAO, staff introduced extreme conservatism into its analysis. For example, cleanup levels for Campbell were calculated using an apparent effects approach; while the lowest apparent effects threshold was utilized for the Shipyard CAO, which included an additional 40% safety buffer. This resulted in exceptionally low cleanup levels compared to other sites in the Bay. Barker Depo., 373:14 - 374:22. Because the cleanup levels imposed at the Shipyard Site are much lower than (and inconsistent with) levels required at similar sites in the Bay, the Shipyard CAO violated Resolution 92-49. Here, the Tentative Resolution proposes PCB numeric targets dramatically lower than even the levels set in the Shipyard CAD, as discussed above. Resolution 92-49 precludes such targets from being mandated as part of any cleanup and abatement order issued for the mouth of Chollas Creek, and the Tentative Resolution should be revised to clarify this point.	
	Response: Each sediment site within San Diego Bay is unique and has its own particular characteristics with respect to chemical of concern, sediment characteristics, physical constraints and characteristics, and many other important variables. Another consideration is the fact that there have been numerous substantial advances in data collection, analytical techniques and analytical tools. Resolution No. 92-49 does not mandate the San Diego Water Board remain stuck in time, nor that it cannot use scientific advances with respect to understanding beneficial use impairment, emerging remediation technologies, and analyzing the effectiveness of numeric targets for a water body. Resolution 92-49 merely provides that the Water Boards are to prescribe cleanup levels which are consistent with analogous discharges that involve similar wastes, site characteristics and water quality consideration, not that cleanup levels must be identical for all sites and water bodies. The numeric target levels prescribed in the proposed TMDL are not cleanup levels. Cleanup levels will be established and determined in a Cleanup and Abatement Order to be issued at a later date.	

IP-6. It is inappropriate to remediate before the TMDL's load reductions are fully implemented		
	Comment: <u>Source Control Should Be Established Before Remediation</u> Under the Tentative Resolution's Implementation Action Schedule, 100% attainment of the TMDL's waste load reductions is not required until 20 years after the effective date of the TMDL. Tentative Resolution, at B-35. The same schedule requires a cleanup and abatement order for the mouth of Chollas Creek to be issued within 6 years after the effective date of the TMDL, with remediation to be completed within 8 years of the effective date. Thus, dredging will be completed before source control has been established and while uncontrolled storm water discharges continue to reach sediments in the mouth of Chollas Creek. This process is contrary to black-letter guidance providing that source control should be established prior to active remediation, and presents a risk of recontamination. According to EPA Guidance, "significant continuing upland sources ... should be controlled to the greatest extent possible before sediment cleanup." Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, EPA-540-R5-05-012 (Dec. 2005)("Remediation Guidance") at 2-21; see also id at 2-20 ("[i]dentifying and controlling contaminant sources typically is critical to the effectiveness of any [] sediment cleanup. "). Further, EPA Guidance cautions that "project managers should consider the potential for recontamination and factor that potential into the remedy selection process" "***before any sediment action is taken.***" Id at 2-21 (emphasis added). Ideally, source control should be achieved prior to active remediation because "[t]he long-term effectiveness of any remedial option can be reduced if sediment transport acts to recontaminate the site." SPAWAR Interim Guidance for Assessing Sediment Transport at Navy Facilities (June 2004), at 5-2. San Diego Water Board staff have acknowledged that dredging prior to source control may cause recontamination. See Deposition of Cynthia Gorham ("Gorham Depo."), at 63:4-63:23. There is no dispute that ongoing storm water discharges are depositing contaminants (although not PCBs) to the mouth of Chollas Creek. Nor is there any dispute that these sources will not be sufficiently controlled for at least 20 years after the effective date of the TMDL. Indeed, the time-period for attainment could be longer.[9] Nevertheless, contrary to the guidance discussed above, the Tentative Resolution does not discuss why active remediation is proposed prior to source control, or consider the extent to which recontamination could ameliorate the benefits of pre-source control dredging. The Tentative Resolution should be revised so that remediation is not scheduled until after the load reductions have been fully implemented. At minimum, the San Diego Water Board must address the potential for recontamination and consider measures to protect against it. A revised Tentative Resolution should also discuss the extent to which its remediation goals may be infeasible and unachievable because of ongoing storm water contamination. <u>Implementation of Load Reductions, Along with Monitored Natural Attenuation, May Obviate Any Need for Dredging</u>	NASSCO – Latham & Watkins

Dredging prior to full implementation of the TMDL's load reductions also is flawed because the numeric targets may be achieved through implementation of source control in concert with monitored natural attenuation - an option that improperly was omitted from the San Diego Water Board's analysis.

Monitored natural attenuation refers to the reliance on natural processes to achieve site-specific remedial objectives. As explained in the Technical Report prepared for the Shipyard Sediment Site CAO, monitored natural attenuation:

> [i]s a contaminated sediment remedy that depends on un-enhanced natural processes to reduce risk to human and environmental receptors to acceptable levels. [Monitored natural attenuation] involves leaving the contaminated sediment in place and allowing the ongoing aquatic processes to contain, destroy, or otherwise reduce the bioavailability of the sediment pollutants in order to achieve site specific remedial action objectives. Underlying MN[A] processes may include biodegradation, biotransformation, bioturbation, diffusion, dilution, adsorption, volatilization, chemical reaction or destruction, resuspension, and burial by clean sediment.

Shipyard Technical Report, at 30-2.

With respect to PCBs, it appears that natural attenuation is already occurring at the mouth of Chollas Creek based upon the available data. PCB concentrations are decreasing and compliance with the proposed PCB target appears already to have been achieved. Further, by way of example, in connection with the Shipyard Sediment Site CAD, sampling conducted in 2009 demonstrated that natural attenuation is occurring in that location of the Bay, which is adjacent to the mouth of Chollas Creek, as the Surface Weighted Average Concentrations for the five primary contaminants of concern at the Shipyard Sediment Site (including PCBs) decreased substantially in the monitored locations during the seven years since initial data collection in 2002. Natural attenuation can reasonably be expected to continue at the mouth of Chollas Creek for PCBs and, presumably, the other contaminants of concern.

Given the likelihood that natural attenuation will improve sediment conditions at the mouth of Chollas Creek, particularly as source control is implemented, active remediation should be postponed until after the load reductions have been fully attained. At that time, sampling should be conducted to determine the extent to which dredging or other remedial activities are required, and the remediation can be tailored in response to the then-existing conditions. This would avoid potential recontamination from storm water discharges. This may also avoid the need for dredging, or require less dredging than would be required before source control is established and before the benefits of natural attenuation have been realized. Given the potentially significant and unavoidable environmental impacts associated with dredging that have been identified by the San Diego Water Board, including air quality impacts and adverse impacts to benthic communities, this approach should be favored.

	[9] For example, the Chollas Creek TMDL for metals, adopted in 2008, does not require full compliance until 2028. San Diego Water Board staff testified that compliance will probably not be achieved on schedule because existing technology is insufficient and cost-prohibitive. Deposition of Benjamin Tobler ("Tobler Depo."), at 90:6-92:5 ("[W]ithout getting into spaceage technology, which is extremely cost-prohibitive, the only possible fix for the problem is a system of sand filters ... the best sand filters right now only just barely get you to the ballpark of compliance. There's no margin of safety with it."). Thus, it is "probable" that full compliance will not be achieved, even after 20 years and significant infrastructure improvements, "unless technology comes to the rescue." *Id.* at 91 :23-24.	
	Response: The source control program that has been developed for this TMDL will rely on structural and non-structural best management practices. Pollutants can be effectively reduced in discharges by the application of a combination of pollution prevention, source control, and treatment control management practices to minimize the contact between pollutants and flows. The elimination of pollutant generation at its source should and will be used in conjunction with source control and treatment control management practices. Regarding remediation options, there is very limited data of sporadic sampling locations available, and the existing data is not adequate to draw clear conclusions that MNA is occurring for all target COC groups at the three creek mouth areas. Also, relying on natural attenuation of existing and future pollutants for the restoration of water qualities in the three creek-mouth areas is not likely to be viable solution to the contamination problem present because of the high concentrations of pollutants in sediment at depth and also the parties' operational expectations for regular maintenance dredging at these areas prevent MNA from being a viable remedial alternative. Natural attenuation would be more likely to occur in relatively surficial sediment contamination, facilitated by advection flow, biodegradation, and natural deposition of clean sediments on top of the contaminated sediment. However, when the contamination is buried deep in the sediment column, chemicals such as PCBs and chlordane do not easily attenuate naturally. Historical investigation results have shown that heavy PCB contamination in deep sediment column exists at many locations within the three creek-mouth areas. Unless contaminated sediments at depth are removed, heavily contaminated sediments will likely be exposed and pose threat to the health of local aquatic life and ecosystem every time after regular maintenance dredging is performed, rendering MNA an ineffective approach to the cleanup of contaminated sediments. Based on above discussion, monitored natural attenuation is not a feasible alternative for the sediment contamination that currently exists at the three sites, and it will not restore the water quality and ecosystem health of the three creek-mouth areas within San Diego Bay.	

IP-7. The Tentative Resolution requires application of the Human Health SQO, but implementation guidance for the Phase II SQOs has not been issued		
	Comment: The Tentative Resolution states that "attainment of the TMDLs is based on ... attaining the SQOs for benthic community protection (aquatic life) and human health in the creek mouth areas of Paleta, Chollas, and Switzer creeks in San Diego Bay." Tentative Resolution, at B-27. With respect to human health, the SQOs provide that: > Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health. … Th[is] narrative human health objective ... shall be implemented on a case-by-case basis, based upon a human health risk assessment. In conducting a risk assessment, the Water Boards shall consider any applicable and relevant information, including California Environmental Protection Agency's (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) policies for fish consumption and risk assessment, Cal/EPA's Department of Toxic Substances Control (DTSC) Risk Assessment, and U.S. EPA Human Health Risk Assessment policies. SQOs, at 6, 19. However, the State Board has not yet adopted a process for implementing this narrative objective, and is not expected to do so for several years. As a result, it is unclear how the San Diego Water Board will assess whether the human health SQO is met, or whether the *Macoma* tissue monitoring study proposed in the Tentative Resolution (or any other risk assessment ordered by the San Diego Water Board) will be consistent with the Phase II SQO guidance that ultimately is adopted. Given the delays in the Phase II SQO process to date, and the lack of any State Board guidance for implementing the narrative human health objective comprising the Phase II SQOs, it is premature for the San Diego Water Board to order attainment of the Phase II SQOs.	NASSCO – Latham & Watkins
	Response: The San Diego Water Board will proceed with the implementation of the proposed actions in this Basin Plan Amendment in a manner that is consistent with current laws, plans, and policies. In accordance with the Human Health SQO, as currently adopted, the San Diego Water Board will proceed by considering any applicable and relevant information, including California Environmental Protection Agency's (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) policies for fish consumption and risk assessment, Cal/EPA's Department of Toxic Substances Control (DTSC) Risk Assessment, and U.S. EPA Human Health Risk Assessment policies. The proposed water column and fish tissue targets were selected as the backstop provisions which represent meeting the Human Health SQO. In the event that other limits are identified that better represent the levels that may be present in sediment that are not harmful to human health, the San Diego Water Board may amend the Basin Plan to replace these limits (see Resolution No. R9-2013-0003, Attachment A, Implementation Plan Section F). The proposed *Macoma* Tissue Monitoring Study, now renamed as a Bioaccumulation Monitoring Study, is	Reference: IP-11

	proposed as a way to demonstrate attainment of the fish tissue target after remediation and into the future, which excludes potential influences of bay-wide exposures to the test organisms. See response provided in IP-11.	

IP-8. Allow consideration of information from special studies as compliance with TMDL requirements		
	Comment: The Port District requests that the San Diego Water Board include language in the TMDL that allows consideration of information from special studies and/or assessments of drainage and jurisdictional authority in the area to comply with the requirements of the TMDLs. For example, a proposed special study by the Port District to analyze pollutant concentrations from the District's jurisdiction to the creek mouths could be completed and submitted to the San Diego Water Board for timely review. As a result of the special study, monitoring requirements in the TMDLs could be modified to require the District to implement appropriate monitoring activities and BMP strategies for TAMT and remove the District's obligations for upstream Phase I monitoring requirements. This approach supports the adaptive management process outlined in the Draft Technical Report, by enabling the District to allocate its resources to areas within its control thus providing the most water quality benefit. Additionally, it will further support San Diego Water Board policies recently adopted or in development, such as the Regional Monitoring Framework and the San Diego Bay Strategy. Language in the TMDL should support such possibilities, continuing to hold the District accountable for future discharges from its jurisdiction (below the tidal prism) but not requiring monitoring or assessment of upstream watershed sources.	Port of San Diego
	Response: The Port District is not restricted from conducting additional monitoring or special studies to further its own goals, and the San Diego Water Board will review all appropriate monitoring reports in order to evaluate subsequent courses of action to best address the impairments and protect beneficial uses. The Implementation Plan recognizes that the MS4 permittees, including the Port District, will use the framework of Water Quality Improvement Plans per requirements of the MS4 Permit Order No. R9-2013-0001. Those plans provide appropriate flexibility in selecting BMPs, monitoring their effectiveness, and compliance reporting.	

IP-9. Clarify how the Water Board will use the required special studies throughout the TMDL compliance process		
	Comment: The TMDL requires that the Port District contribute to a special study(ies) to investigate contributing sources, pathways and loads and sediment concentrations of chlordane, PAHs, and PCBs. On page 117 of the Draft Technical Report, the first special study is referred to as "intertidal segment studies." It is unclear how the San Diego Water Board will use this monitoring information once collected (i.e., to refine load-based requirements of the TMDL, or in developing CAOs).	Port of San Diego
	Response: The "intertidal segment study" results will be used to determine whether there are any unaccounted for sources of contaminants in this segment of the watershed. Only the non-tidal portion of the watershed was sampled for the TMDL analysis. If data results indicate that there are additional significant sources, then those sources will need to be addressed through compliance with the TMDLs for ongoing discharges or issuance of additional enforcement actions to remediate contamination. The bioaccumulation study results will be used to determine whether human health is being supported through the commercial and sport fishing beneficial use. While this TMDL addresses the aquatic life use, all TMDLs must ensure that all designated beneficial uses are met for the waterbody in question. Meeting all beneficial uses is required under the Clean Water Act because water quality standards must be attained once the TMDL implementation phase is completed, and water quality standards consist of three parts: the water quality criterion (objective), the designated (beneficial) uses, and the antidegradation policy.[9] If the human health beneficial use is not being met, then further action will be taken to address human health. A bay-wide PCB study is being planned for San Diego Bay. Participation in the bay-wide TMDL could be viewed as such an action.	

IP-10. Pre-remediation *Macoma* tissue monitoring has already been conducted		
	Comment: In the "*Macoma* Tissue Monitoring Study" described in Section 10.4 of the Draft Technical Report, the report requires monitoring to define pre-remediation concentrations in *Macoma*, but this work has already been done at both the sites and the reference areas. The reference area results already demonstrate that any remediation effort at the sites will fail because the target is set at 6X below background.	U.S. Navy
	Response: The San Diego Water Board recognizes that *Macoma* bioaccumulation tests were conducted as part of the Phase I Characterization Studies for the three locations. The tissue data, however, are over 10 years old. Field sampling at the mouths of Chollas, Paleta, and Switzer Creeks was conducted in July 2001, August 2001, and February 2003, respectively. The sediment quality conditions at these locations have likely changed over	Reference: NT-36, IP-11, IP-12

[9] 40 CFR section 131.6

	time and as such, it's necessary to develop current baseline conditions. Additionally, the U.S. Navy is expected to be conducting maintenance dredging in both the Chollas and Paleta Creek mouth areas within the next year. See the response provided in NT-36 regarding the comparison to background *Macoma* tissue concentrations. Also see the response provided in IP-11 and IP-12 regarding modifications to the description of this Special Study.	

IP-11. Remove *Macoma* as a specific test species for special studies related to human health beneficial uses		
	Comment: The San Diego Water Board's evaluation of PCB limits in fish tissue in the TMDL should not include specific species or protocol, such as the use of *Macoma nasuta*. The Port District has concerns that physiological differences between *Macoma nasuta* and fish consumed by humans may make the clam a poor indicator of potential human health impact. No studies are currently available that demonstrate a direct relationship between *Macoma nasuta* and fish tissue testing. The San Diego Water Board should not specify a particular species or protocol for evaluating numeric PCBs limits. Stating such specificity at this stage for monitoring that will occur at a much later date would preclude the development of protocols to which all responsible parties may agree. Moreover, stating a testing method in the TMDLs mandates the use of *Macoma nasuta* as a test species even if other organisms or methods prove more appropriate at the time of the study. Therefore, the San Diego Water Board should provide flexible language in the TMDL to direct the parties to use the most relevant species and scientific testing methods. The TMDL is proposing to address the protection of human health in two ways: 1) comparison of chlordane, benzo(a)pyrene, and total PCBs levels in ambient water samples to human health protection CTR numeric criteria, and 2) collecting post-remediation creek mouth sediments and conducting 28-day-long, ex-situ laboratory tests using the clam *Macoma*. Following the 28-day-long exposure period, the clam tissues would be analyzed for PCB levels. The TMDL's numeric target for the protection of human health would use OEHHA's Fish Contaminant Goal of 3.6 µg/kg (wet weight) for total PCBs in fish tissue. Essentially, the TMDL would use the tissue of the *Macoma* clam as a surrogate for fish tissues. While *Macoma* is a common test species for conducting bioaccumulation analyses for dredged material investigations and ecological risk assessments studies, its utility as an endpoint for the protection of human health is questionable. *Macoma* is an attractive species for conducting sediment contaminant investigations because it is a sessile, sediment-dwelling, particle-feeding bivalve; however, these same attributes make it a questionable choice as a surrogate for fish. Clams also metabolize and partition compounds differently than fish, and have a greater water content and lower lipid concentration than fish. In addition, OEHHA's fish contaminant goals for total PCBs is based upon analysis of only the edible portion (i.e. skin-off or skin-on fillets) of the fish, whereas *Macoma* analyses would be conducted on the whole body of the clam. Furthermore, page 41 of OEHHA's Fish Contaminant Goals and Advisory Tissue Levels for Contaminants in Sport Fish report (June 2008) states, "Any agency using FCGs provided in this report to establish fish tissue-based criteria for their own purposes must accept the assumptions described herein." Therefore, did the San Diego Water Board seek an opinion from OEHHA (or any other agency) regarding the acceptability of using of the clam *Macoma* in laboratory exposures as	Port of San Diego

	a surrogate for wild-caught fish and comparing the results of these laboratory bioaccumulation tests to the total PCB FCG of 3.6 µg/kg (wet weight) derived for fish by OEHHA? Finally, Phase II of the SQOs focused on human health is currently under development, but is expected to be finalized well before post-remediation sediment sampling and testing is required by the TMDL. To be consistent with final protocols in Phase II of the SQOs and the San Diego Bay Strategy, the TMDL should not yet specify a particular species to assess human health impacts from eating contaminated fish. The difficulty with relating tissue PCB concentrations of fish at the site is well recognized due to the low site fidelity and movement of fish caught for consumption to other areas in the bay. It should be noted, however, that there are standard ASTM protocols for assessment of bioaccumulative substances in fish that would provide a much better measure than a benthic dwelling clam (ASTM E1022 - 94[2013] Standard Guide for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Mollusks). The Port District recommends that the San Diego Water Board modify the Draft Technical Report language so that it does not specify a particular species or protocol for evaluating numeric PCBs limits. Stating such specificity at this early stage for monitoring that would occur six or more years after TMDL approval would preclude the ability to consider new testing protocols which may be more scientifically defensible. Moreover, stating the testing method in the TMDLs mandates the use of *Macoma nasuta* as a test species even if other organisms or methods prove more appropriate at the time of the study. For example, the San Diego Water Board should take into account the development and implementation of Phase II of the Sediment Quality Objectives for human health, which are currently being developed by the State Water Quality Control Board and will be released well before post-remediation sediment sampling and testing is required by the TMDLs. Therefore, the San Diego Water Board should provide flexible language in the TMDL to direct the parties to use the most relevant species and scientific testing methods.	
	Response: The San Diego Water Board agrees with the Port's recommendation to not specify a particular species or protocol to determine if the fish tissue target is being met. The following sections and table will be modified in the Draft Technical Report to clarify that Responsible Parties may propose the most relevant species and scientific testing methods: Section 4.2 – Numeric Targets to Address Human Health, Section 10.2 – Implementation Framework, Section 10.4 – Special Studies and Table 10-2 – Implementation Action Schedule. The proposal shall, at a minimum, consider the following information when selecting a test method and species: 1. U.S. EPA recommends five species for conducting sediment bioaccumulation tests (U.S. EPA 1993). The five species are bivalves *Macoma nasuta*, *Macoma balthica*, and *Yoldia limatula* and polychaetes *Nereis diversicolor* and *Neanthes (Nereis) virens*. 2. Dr. Catherine Zeeman raised several points to the San Diego Water Board (Zeeman 2013): a. Collecting resident species in the creek mouths are preferred over conducting laboratory bioaccumulation	Reference: NT-29, IP-7, IP-12

tests. Resident species better reflect the accumulation of contaminants that occur over long term exposure.

b. Collecting resident fish with high site fidelity (e.g., gobies) are preferred when comparing tissue concentrations to the OEHHA fish tissue target. Fish are taxonomically and physiologically different from invertebrates, and as such may (or may not) accumulate contaminants that are (or are not) accumulated by an invertebrate species.

c. Fish, crabs, and lobsters include species that occupy high trophic levels, while bivalves and polychaetes are generally lower trophic level species.

3. The California SQO indirect effects assessment selected the following indicator fish species (SWRCB 2010):

Dietary Guild	Description	Indicator Species
Piscivore	The majority of the diet is fish, large predatory invertebrates are also consumed to some degree	California halibut
Benthic diet with piscivory	Diet regularly includes a mixture of benthic invertebrates and forage fish	Spotted sand bass White catfish
Benthic and pelagic diet with piscivory	Diet includes a combination of benthic invertebrates, pelagic invertebrates, and forage fish	Queenfish
Benthic diet without piscivory	Diet largely composed of small benthic invertebrates	White croaker
Benthic and pelagic diet without piscivory	Diet includes a mixture of epibenthic and pelagic invertebrates	Shiner perch
Benthic and pelagic diet with herbivory	Largely consumes benthic invertebrates, benthic algae, and aquatic plants	Common carp
Benthic and pelagic diet with herbivory	Diet consists of benthic and pelagic invertebrates and plant material, including benthic algae and phytoplankton	Top smelt

Pelagic diet with benthic herbivory	Diet includes largely pelagic invertebrates and benthic algae	Striped mullet

4. The California SQO database shows that *Macoma nasuta* has the greatest number of samples with matching sediment data (SFEI 2005):

Species	Number of Samples with Matching Sediment Data
Macoma nasuta	410
Nephtys caecoides	159*
Neanthes virens	88*

* Almost all samples were non-detect.

IP-12. *Macoma nasuta* tissue is not appropriate for assessing human health risk

Comment: The Tentative Resolution requires monitoring "to assess the human health threat from post-remediation creek mouth sediments in San Diego Bay at Paleta, Chollas, and Switzer creek mouths." Tentative Resolution, at B-30. The monitoring will test bioaccumulation of PCBs by exposing *Macoma nasuta* clams to site sediments. *Id.* The investigative order will be issued within four years of the effective date ofTMDLs,[5] with a baseline monitoring event prior to remediation to be followed by sampling every two to three years after remediation until concentrations meet the numeric targets. *Id*. There are several flaws with this approach.

First, the proposed schedule calls for baseline monitoring to be conducted before the load reductions in the TMDL are fully implemented. The baseline assessment therefore would comprise different conditions than those that will exist when the TMDL is fully implemented and source control is achieved. This is not logical. Instead, the baseline sampling (and any active remediation) should not be conducted until the load reductions are fully implemented.

Second, *Macoma nasuta* clams are proposed to be used as a "surrogate" for concentration of PCBs in fish tissue in the mouth of Chollas Creek. But there is no need to use a surrogate when actual fish tissue results are readily available to be collected, which would provide more accurate and representative results. The Technical Report contends that clams are "sessile" and will represent bioaccumulation only from the sediment at the mouth of Chollas Creek. Technical Report, at 32. By contrast, fish are "mobile," and fish tissue samples would represent bioaccumulation from San Diego Bay as a whole. But since the purpose of the analysis is to demonstrate hypothetical human health risks from fish caught in the mouth of Chollas Creek and consumed by humans (though there is no evidence that fishing occurs in this location), the fish tissue analysis should be representative of fish actually present in the mouth of Chollas Creek, mobile or not. In addition, use of a surrogate is based on laboratory generated bioaccumulation data that may not be relevant to actual environmental conditions. Expert

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	Report of Brent L. Finley, Ph.D., DABT, in connection with the Shipyard CAO ("Finley Report"), at 8. Third, even if a "surrogate" is used, an appropriate surrogate species should show ecological and physical similarities to a species that would naturally occur at the mouth of Chollas Creek and be harvested by humans. Expert Report of Thomas C. Ginn, Ph.D., in connection with the Shipyard CAO ("Ginn Report"), at 78. Based on studies conducted in connection with the Shipyard Sediment Site, *Macoma nasuta* is relatively rare in the vicinity of the mouth of Chollas Creek, and is not subject to recreational or subsistence harvesting by humans in California, or elsewhere. *Id*. On this point the Technical Report acknowledges that *Macoma* "is not a primary food source for humans." Technical Report, at 32. Internal San Diego Water Board staff documentation, which appears to be an early draft of the Technical Report, shows that San Diego Water Board staff had concerns about the utility of *Macoma* as a surrogate for fish.[6] Staff initially proposed to use a "translation factor that is accepted for risk assessment" to convert bioaccumulant concentrations in *Macoma* tissue to expected bioaccumulant concentrations in fish tissue. But this proposal was stricken out, and the Technical Report issued by the San Diego Water Board does not explain why a "translation factor" was not included, or justify the use of *Macoma* in the absence of some analysis showing tissue concentrations in *Macoma* are a viable surrogate for fish tissue concentrations. [5] The Tentative Resolution is inconsistent regarding when the investigative order will issue. Page B-30 indicates that the investigative order will be issued within four years of the effective date of the TMDLs. Page B-35 provides that the investigative order will issue within six years of the effective date. [6] See Draft of Toxic Pollutants in Sediment TMDLs, Mouths of Poleta, Chollas, Switzer Creeks, October 15, 2012.	
	Response: The purpose of the baseline monitoring is to establish existing sediment conditions from which future changes and anticipated improvement in water quality can be measured. The San Diego Water Board has modified the Draft Technical Report and Basin Plan Amendment description of this Special Study to be more generalized. The Responsible Parties may propose a relevant species and scientific testing method to be used in the study. See response provided in IP-11.	Reference: NT-29, IP-7, IP-11

IP-13. Include flexible language that allows for monitoring requirements to be lifted if a Responsible Party continues to receive "non-detects"		
	Comment: The San Diego Water Board should add language in the Monitoring Requirements that allows for flexibility in long-term management. For example, if the Port District continues to receive "non-detects" during storm water and receiving water analytical monitoring, then that requirement should be lifted and the Port District should be "in compliance" with the TMDL.	Port of San Diego
	Response: TMDLs are needed to address existing and future discharges of pollutants of concern to the impaired water bodies. Thus, monitoring is needed in order to ensure that wasteload and load allocations are met over time and that compliance is attained and maintained during the course of the TMDL. Should monitoring continue to show allocations are being met, and there is sufficient data to support the removal of the water body(ies) from the CWA section 303(d) List, then monitoring may be reduced or lifted. Please also see response provided in PCB-4.	Reference: PCB-4

IP-14. Monitoring requirements should be modified in the following ways		
	Comment: The City recommends the following changes to the monitoring requirements: (A) The numeric targets for water column concentrations provided in Table 7 (Numeric Targets for Toxic Pollutants at the Creek Mouths of Paleta, Chollas, and Switzer Creeks) are much lower than current method reporting limits (MRLs) for standard analytical methods. For example using Method 8270C to analyze for Benzo(a)pyrene, the standard MRL is 0.1 µg/L and the numeric target is 0.049 µg/L. (B) Specific details of the Special Studies outlined in Section C of the TMDL Implementation Plan (pg. B-29) should be removed to allow the responsible parties to develop the Special Studies as advocated by the Monitoring Framework approved by the San Diego Water Board during the December 2012 Board Hearing. (C) The Basin Plan Amendment should only require development of a Quality Assurance Project Plan (QAPP) for TMDL Compliance Monitoring, as opposed to developing both a Monitoring and Reporting Plan (MRP) and a QAPP. The QAPP may be modified to include all the components detailed in a MRP, thereby streamlining the planning process. The QAPP should also be compliant with the Surface Water Ambient Monitoring Program (SWAMP) and consistent with the state Bioaccumulation Policy when adopted. (D) The City acknowledges that the Storm Water Effluent Monitoring provisions are consistent with the requirements of the current Draft MS4 NPDES Permit but requests that samples be collected at representative outfalls throughout the watershed and not individual jurisdictions. This will allow the jurisdictions to pool their limited resources since the monitoring will serve dual purposes (NPDES permit and TMDL compliance).	City of San Diego

	(E) If the San Diego Water Board requires specific special studies as part of this Basin Plan Amendment, the City agrees with the assignment of responsible parties for the fish tissue (*Macoma*) special study on page B-30 of the Basin Plan Amendment, which states that the Phase I MS4s will be named only if results from the Intertidal Segments Study find that the MS4s are contributing a PCB source load to the creek mouth impairments.	
	Response: A) The San Diego Water Board utilizes U.S. EPA Method 8270M for PAH's and 1668A for PCBs with low levels. B) The special studies represent a minimum level of information needed to further address issues regarding the TMDL. It is expected that the parties assigned to conduct the special studies utilize the Monitoring Framework when developing the study plans. Furthermore, the investigative orders will be developed and issued by the San Diego Water Board at a later time, allowing for specific requirements to be better defined during the development process. C) The TMDL identifies the need for the QAPP and conducted monitoring to be consistent with SWAMP requirements. While the QAPP often contains duplicative information found in Monitoring and Reporting Plans (MRPs), the inclusion of plans as separate from QAPPs is required as a single QAPP may be developed to address sampling efforts from multiple MRPs. Or an MRP may reference an existing QAPP for monitoring already conducted (e.g. stormwater). D) The Regional MS4 Permit monitoring requirements state: *The Copermittees may adjust the wet weather MS4 outfall discharge monitoring locations in the Watershed Management Area, as needed, to identify pollutants in storm water discharges from MS4s, to guide pollutant source identification efforts, and to determine compliance with the WQBELs associated with the applicable TMDLs in Attachments E of this Order in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan, provided the number of stations is at least equivalent to the number of stations required under Provision D.2.a.(3)(a). Additional outfall monitoring locations, above the minimum per jurisdiction, may be required to demonstrate compliance with the WQBELs associated with the applicable TMDLs in Attachments E.* This language allows MS4 permittees in a watershed to adjust locations sampled within their jurisdiction to specific watersheds of higher priority. Thus, individual Copermittees may choose to put more emphasis on sampling, for example, Chollas Creek outfalls within their jurisdiction relative to other watersheds. The Copermittees are free to coordinate with each other regarding setting jurisdictional priorities within a specific watershed. E) Comment Noted.	

IP-15. Request for modifications to Load Reduction Plan compliance requirements		
	Comment: The current Draft MS4 NPDES Permit includes requirements for developing a Water Quality Improvement Plan (WQIP) which will satisfy the TMDL requirements for development of a CLRP. The City recommends noting that development of a WQIP will satisfy these requirements. For consistency with MS4 permit requirements and to avoid duplicative planning efforts, the City recommends that Table 7 on page B-34 of the Basin Plan be revised to set the due date for the CLRP at 18 months (instead of 12) from the effective date of the Basin Plan Amendment, or the due date for the next WQIP annual update, whichever is later. The City also requests clarification on the language on page B-28 and in Table 7 of the Basin Plan Amendment that states that CLRPs "must be implemented ... no later than 6 months after submittal." The CLRPs necessarily will contain many long-term actions that cannot be implemented within 6 months. <u>Caltrans</u> Caltrans requests that the deadline for submittal of the load reduction plan be extended. Extending the deadline to 18 months would be consistent with other TMDLs in the region, such as the Los Penasquitos Lagoon Sediment TMDL. Caltrans may consider coordination with other stakeholders to develop the plan, and the extension would allow the responsible parties sufficient time to coordinate. <u>City of La Mesa</u> Preparing pollutant load reduction plans require considerable time and effort. Allow 18 months to develop the plans, similar to what was required for the Bacteria TMDL load reduction plans.	City of San Diego Caltrans City of La Mesa
	Response: This comment is composed of three sub-comments including the requests of: 1) noting that the development of Water Quality Improvement Plan satisfies the development of contaminant Load Reduction Plan (LRP); 2) extending the due date for the Load Reduction Plan (LRP) to 18 months from the effective date of the Basin Plan amendment, or the effective date of the next Water Quality Improvement Plan annual update; and 3) clarifying the language about implementing the LRP within six months after its submittal. The San Diego Water Board's responses to the sub-comments are provided below: 1. Comment noted and agreed. It is clearly stated in Section X.d.(3) of Appendix J of this Basin Plan amendment that the LRP should be incorporated into the development of the Water Quality Improvement Plan. No change was made in this Basin Plan amendment. 2. The recently adopted MS4 NPDES permit (Order No. R9-2013-0001) goes into effect at the end of June 2013. This Basin Plan Amendment is scheduled for consideration by the San Diego Water Board on June 19, 2013. Once adopted by the San Diego Water Board, subsequent approvals are needed by the State Water Board, the Office of Administrative Law, and the U.S. EPA which will take an additional 10 to 12 months. Given the 12 months of time provided for LRP development in the Basin Plan Amendment, the Responsible Parties will have 24 months to prepare and incorporate the elements of an LRP into the Water Quality Improvement Plan for these watersheds. This time frame is considered adequate for the submittal of the LRP. No changes were	

	made in the Basin Plan amendment. 3. Clarification for "Implementing the LRP within six months after its submittal": within six months after the submittal of the LRP, the Responsible Parties should take actions to implement the load reduction activities as proposed in the LRP, i.e., start to conduct management and source control (e.g., plan, contract, design, and installation of structural and non-structural BMPs), education and outreach, and monitoring activities.	

IP-16. Include flexible language to allow consistency with other ongoing regulatory efforts		
	Comment: The TMDL should be coordinated with other ongoing regulatory efforts by the San Diego Water Board. For example, the Port District recommends that the San Diego Water Board include flexible language in the TMDL requirements that would allow consistency with the San Diego Bay Strategy, which is currently under development. More flexible language in the TMDL would also allow responsible parties' monitoring efforts to be consistent with requirements set forth in the Framework for Monitoring and Assessment, which was approved by the San Diego Water Board in December 2012. Furthermore, the Port District agrees with the statement on page 120 that mentions we should avoid duplication of other TMDL implementation plans and regulatory actions within watersheds where there are TMDLs.	Port of San Diego
	Response: It is the intent of the San Diego Water Board that TMDL provisions, once incorporated into the applicable permits, will be consistent with the requirements of that permit. Section 10.6 of the Draft Technical Report identifies that avoiding duplication with other TMDL implementation and regulatory monitoring requirements within a watershed is a goal.	

IP-17. Provide a reopener clause to allow for requirements to be reevaluated and altered through an adaptive management approach		
	Comment: The Port District supports a reopener clause being incorporated into the TMDL. This approach allows for an adaptive management approach, providing a mechanism to facilitate adaptive monitoring to enable consistency with requirements of future bay-wide strategies and other San Diego Water Board regulations.	Port of San Diego
	Response: A reopener provision is provided in the Basin Plan Amendment (Implementation Plan Section F) in the event that new information or data indicates that a re-evaluation of the TMDLs, WLAs, or LAs is needed for the purpose of restoring beneficial uses. Re-evaluation of TMDLs implicitly includes evaluating the need for modifications to elements of the Implementation Plan and schedule, if needed. However, this Implementation Plan is a framework for the actions that are needed to restore beneficial uses and actual implementation occurs through the incorporation of requirements into permits, enforcement orders, etc. Those regulatory implements will be adopted by the San Diego Water Board at a later date from this action. Flexibility already exists in the proposed Basin Plan Amendment language and in the proposed draft regulatory language for the NPDES permits. Responsible Parties will have opportunity to propose and implement their own Load Reduction Plans, which are expected to make use of an adaptive management approach, and participate in public review	

	opportunities required during the issuance of investigative and enforcement orders.	

IP-18. A reopener provision should be included		
	Comment: The City recommends explicitly including a TMDL reopener provision in the compliance schedule, as was done for the Los Penasquitos Lagoon Sediment TMDL. A reopener will likely be needed in the near future to incorporate the findings from the City's atmospheric deposition monitoring study, address any changes in the anticipated sediment remediation project that affect the assumptions in this TMDL, and potential future development of a Baywide TMDL for PCBs. A commitment by the San Diego Water Board to participate in a TMDL reopener should be clearly reflected in these TMDLs, consistent with other recently adopted TMDLs.	City of San Diego
	Response: The Basin Plan Amendment includes a reopener provision similar to the Los Penasquitos Lagoon Sediment TMDL. See the response provided in IP-17.	Reference: IP-17

IP-19. Extend the 80 percent interim reduction goal to year 15 to allow for additional time to identify effective best management practices		
	Comment: Caltrans requests that the load reduction target milestones for this TMDL be extended. There is currently no proven technology that can effectively treat the organic pollutants listed in this TMDL. To allow additional time to identify effective best management practices (BMPs), we request that the 80 percent target be extended to 15 years rather than 10 years from the effective date of the Basin Plan Amendment. This is consistent with the Los Peñasquitos Lagoon Sediment TMDL in the region. Applying a uniform approach to compliance would better enable the stakeholders (dischargers) to achieve these waste load allocation (WLA) targets in a timely manner. We encourage San Diego Water Board staff to coordinate the compliance schedule for similar TMDLs developed in the Region. Caltrans requests that the compliance schedule to achieve 80 percent WLA be extended to 15 years.	Caltrans
	Response: Organic pollutant loading of these organic pollutants will be achieved through the control of sediment and erosion, of which there are many standard best management practices available that have been widely used for many years. Caltrans' Construction Site Best Management Practices (BMPs) Manual and the California Stormwater Quality Association's BMP Handbooks contain a number of technologies that are effective in controlling sediment and/or organics. It is not necessary to extend the timeline for milestone attainment. The San Diego Water Board is sensitive to the need for consistency and feels that the implementation approach in this Plan is consistent with the Los Peñasquitos Lagoon Sediment TMDL. The identified action to develop load reduction plans that incorporate adaptive management approaches and utilize a variety of BMPs to control discharges are the same in both Implementation Plans. One should note that the attainment schedule does not become effective until the Basin Plan Amendment has received all approvals, the San Diego Water Board consideration and approval being the first. The expectation that 10 years plus the additional time needed to	

	complete the approval process is a reasonable amount of time with which Interim Goal 3 should be achieved. If necessary, the San Diego Water Board may exercise the re-evaluation provision to make any needed modifications to the compliance schedule included in the Basin Plan amendment.	

IP-20. Revise the milestone schedule to be consistent among requirements and provide sediment remediation at a later time		
	Comment: This is an aggressive milestone schedule. The required load reductions for the Los Peñasquitos Sediment TMDL responsible parties included a 20 percent reduction at year 5, 40 percent reduction at year 10, 80 percent at 15 years, and 100 percent at 20 years. The Port District requests a revision to the schedule to provide more time to implement programs and strategies to adequately address sources of the pollutants. The timing of the sediment remediation and watershed load reductions also does not appear to be in sync, as remediation is to be completed and monitoring to be initiated prior to the second milestone while there are still potentially ongoing sources from the MS4.	Port of San Diego
	Response: Both projects are consistent in having a 20 year time schedule. The Los Peñasquitos Watershed has much larger management area and still contains areas of land development that are current sources of sediment. Whereas the Paleta, Chollas, and Switzer Creek Watersheds are completely developed. Additionally, the analysis demonstrated that several of the pollutant loads were already supporting water quality standards. The restoration of the current impairment through sediment remediation needs to be achieved within a reasonable timeframe while assuring that time is given to control watershed sources. The San Diego Water Board believes that the proposed compliance schedule achieves this goal. Additionally, the San Diego Water Board may exercise the re-evaluation provision to make any needed modifications to the compliance schedule included in the Basin Plan amendment.	

IP-21. The TMDL compliance schedule should be modified		
	Comment: The TMDL compliance schedule should include flexibility in meeting the final milestones and targets given the complexities of San Diego Bay and watershed interactions that affect local water and sediment quality conditions. Also, atmospheric deposition is a significant source of organic pollutants in the region that has not been quantified and is considered uncontrollable. An extension of the 20-year compliance schedule may be needed considering these factors, as well as the implications of potentially meeting human health-based targets as part of these TMDLs (note the difficulties and recommendations listed above). At a minimum, the possible need for an extension of the schedule should be noted based on activities completed and trends in improvements. The schedule should also be updated to reflect a more realistic BMP implementation timeframe and associated watershed load reductions. The current schedule does not take into consideration the planning needs of the responsible parties to identify and implement BMPs necessary to improve water quality and sediment conditions. The City recommends following a compliance schedule similar to the one that was included in the Los	City of San Diego

	Penasquitos Lagoon Sediment TMDL. This compliance schedule provides a phased BMP implementation schedule that is more consistent with the timing required to plan for and implement BMPs using an adaptive management approach. In particular, the compliance requirements at years 8 and 10 are overly aggressive considering a 20-year compliance schedule and municipal planning and funding challenges. We recommend 20% compliance in year 5, 40% compliance in year 9, 60% compliance in year 13, 80% compliance in year 17, and 100% compliance in year 20.	
	Response: The compliance schedule of 20 years was selected based on the San Diego Water Board's past experiences with TMDL project implementation, and is believed to be able to provide the discharge permittees with adequate time and flexibility to acquire necessary funding resources, evaluate and select the means of compliance that would improve water quality in the most cost-effective manner, and plan and coordinate actions to implement the selected compliance methods. The San Diego Water Board assumes that the Responsible Parties are familiar with the TMDL process and watershed conditions, as two existing TMDL projects have been carried out for the Chollas Creek watershed (diazinon TMDL and dissolved copper, lead and zinc TMDLs). Instead of starting from scratch, the Responsible Parties are expected to apply the information and knowledge (e.g., number and locations of the sediment sources) learned during the implementation of the two existing TMDLs to the development and implementation of the subject TMDL's Load Reduction Plan. Therefore, the planning needs for the identification and installation of BMPs are likely to be addressed in the first five years or so, and the need for the extension of the compliance period to more than 20 years is not considered warranted. Matching with the time frame (eight years) identified for completing sediment dredging at the creek-mouth areas, the compliance schedule of achieving 40% and 80% of load reduction at year five and ten, respectively, are necessary to minimize any potential of re-contamination of the receiving water bodies by the influx of pollutants carried by storm water runoff. It should be noted that meeting Interim Goals 1 through 4 will not be used as the exclusive criterion for the determination of Responsible Parties' compliance status (see Appendix J, section X.c.(2) for interim compliance determination criteria). The interim goals are intermediate objectives (including timelines) for load reduction and remediation that the Responsible Parties should endeavor to reach, and should be used by the Responsible Parties to guide their efforts in plan (including coordination), design, and carry out of load reduction activities and sediment remediation activities. Finally, the phased implementation approach proposed for this Basin Plan Amendment is indeed similar to the one employed in the Los Penasquitos Lagoon Sediment TMDL project. The subject TMDLs are "expected to be implemented in a phased approach with a monitoring component to identify pollutant sources, determine the effectiveness of each phase, and guide the selection of BMPs…"(Page 122 of the Draft Technical Report). Moreover, "an adaptive management approach will be utilized in the Load Reduction Plan" (Page 109 of the Technical Report). In this approach, "implementation actions to achieve WLA and LA will be implemented via an iterative process, whereby existing and new information can be used to inform the implementation of subsequent activities. Load Reduction Plans can be adjusted as necessary based on information gained as implementation progresses" (Page 109 of the Technical Report).	

IP-22. The phrase "removal of pollutants" suggests dredging as a presumptive remedy and is inconsistent with U.S. EPA guidance		
	Comment: The Draft Technical Report references in paragraph 2 on page 4 that "an Implementation Plan has been developed that describes the regulatory and enforcement actions that the San Diego Water Board will take to remove legacy pollutants from creek mouth sediments…" Using the term "removal of pollutants" suggests dredging as a presumptive remedy which is inconsistent with EPA guidance that specifies that all remedy options need to be considered.	U.S. Navy
	Response: The San Diego Water Board fully expects that an evaluation of the technological and economic feasibility of various remedial options will be considered as part of the analysis required during the development of the Cleanup and Abatement Order. There is a need to remove and/or isolate the pollutants from pathways which would cause harm to aquatic life, aquatic-dependent wildlife, and human health in order to restore beneficial uses. The fact that all three creek mouths are maintained for navigational purposes appears, on the surface, to be a limiting factor as to available remedial options, such as an engineered cap or a confined disposal facility.	

IP-23. Remove references to dredging as the method of remediation		
	Comment: It is inappropriate for the San Diego Water Board to specify the method of remediation as dredging, as it does in paragraph 6 on page 121 of the draft Technical Report.	U.S. Navy
	Response: The word "dredging" has been changed to "remediation" in the above referenced passage of the Draft Technical Report and in the corresponding language in Implementation Plan, Section E in the Basin Plan Amendment. No other occurrences were found.	

IP-24. Describe how maintenance dredging activities affect sediment remediation requirements		
	Comment: The TMDL should take in account periodic maintenance dredging for navigational purposes at Chollas and Switzer Creeks. For example, maintenance dredging of Chollas and Switzer Creeks occurs every 10 to 15 years on average, so a portion of the mouth of Chollas Creek will likely be dredged this year. Therefore, it is important to understand how the dredging footprint may correlate with the proposed TMDL sediment remediation footprint for each creek and how the timing of maintenance dredging correlates with the TMDL timeline. The dredging footprints will affect how named parties may be able to implement remediation within the sediment remediation footprint as the sediment will periodically be removed. Finally, there may also be impacts on water quality monitoring activities and results due to dredging activities.	Port of San Diego
	Response: The San Diego Water Board will consider and address maintenance dredging in the context of developing the requirements in the investigative order for the bioaccumulation monitoring study and in the CAO for the removal of contaminated sediments in the creek mouths.	

IP-25. Describe how physical disturbance from maintenance dredging activities and boat traffic will affect monitoring requirements and TMDL compliance		
	Comment: Physical disturbance such as maintenance dredging activities will temporarily affect benthic community conditions and should clearly be acknowledged in the TMDL. Therefore, TMDL monitoring requirements must take into consideration maintenance dredging activities and how they may influence the benthic community and monitoring results. There should be some flexibility or allowances in compliance requirements relating to the periodic maintenance dredging for Chollas and Switzer Creeks and anticipated impacts on TMDL monitoring activities and results. Furthermore, the areas in front of the mouths at both Chollas and Switzer Creek experience heavy boat traffic, which regularly causes physical disturbance to the sediments due to prop wash from boats. This factor should be highlighted further in the TMDL and will need careful consideration with regard to assessment of benthic community condition and ultimate SQO scores.	Port of San Diego
	Response: The San Diego Water Board will consider the effects of physical disturbance due to maintenance dredging and boat traffic in the context of developing the requirements that are included in the permits.	

IP-26. Minimum acceptable detection limits should be included since water column targets are below current laboratory detection levels		
	Comment: The water column concentration targets for chlordane, benzo(a)pyrene, and total PCBs are set equal to human health targets in the CTR. These concentrations, however, are much lower than the detection levels that laboratories can currently achieve. Therefore, it is important for the San Diego Water Board to include "minimum acceptable detection limits" for analysis of these compounds in waters, sediments, and tissues. Similar language has been used in Table II-4 of the Ocean Plan, in MS4 permits, and the CA SWAMP protocol. This is to ensure that responsible parties receiving "non-detect" levels from laboratory analysis are in compliance with the TMDL requirements. The web address for the latest minimum reporting limit tables following SWAMP protocols is: http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/qaprp082209.pdf. These tables are located within the SWAMP Quality Assurance Program Plan and include applicable limits for water, sediments, and tissue.	Port of San Diego
	Response: The San Diego Water Board has added language to the proposed permit language in section X.b.(2) of Appendix J to define the conditions under which permittees are considered out of compliance and address the Port District's concern. The responses provided in NT-31 and AK-1 are also relevant.	Reference: NT-31, AK-1

IP-27. The TMDLs are too prescriptive: requiring cleanup and meeting SQOs		
	Comment: In general, the TMDL is too prescriptive regarding actions to be taken for sediment cleanup and meeting sediment quality objectives. The TMDL should focus on source control, and the requirement to attain sediment quality objectives should be more flexible. The link between cause and effects for the specific compounds targeted in the TMDL is very tenuous, and the target levels leave a large degree of uncertainty as to whether anything would be improved if they were met. The report makes multiple references to dredging of sediments that are inappropriate since there are a range of remedial approaches that could be used effectively at these sites.	U.S. Navy
	Response: The Basin Plan Amendment is a long-term plan that establishes the mechanisms that will allow the San Diego Water Board to coordinate the actions needed to restore beneficial uses. The Implementation Plan is the framework for future work and includes source control measures and remediation of the current impairment conditions. The Plan's implementation schedule is reasonable and flexibility is built in to allow the San Diego Water Board to work with Responsible Parties to develop the regulatory documents that will achieve the goal of restoring beneficial uses to these creek mouth areas. Additionally, the Plan also includes a re-evaluation provision in the event that changes to the Basin Plan are needed for the purpose of meeting this goal.	

Appendix J Comments

AJ-1. Jurisdictions should be able to designate the number of monitoring locations to obtain representative data		
	Comment: The requirement of selecting five outfalls per jurisdiction, per watershed, is not necessary in order to collect representative data. The City of La Mesa area tributary to Chollas Creek is a relatively small area, upstream of jurisdictional waters of Chollas Creek. Jurisdictions should be able to designate the number monitoring locations as required to obtain representative data of the watershed, per the management questions, while preserving other resources for addressing water quality concerns.	City of La Mesa
	Response: The minimum number of five (stations) is consistent with the federal requirements that "the Director shall designate between five and ten outfalls or field screening points as representative of the commercial, residential and industrial land use activities of the drainage area contributing to the system…. (40 CFR 122.26(d)(2)(iii)(A)." Additionally, in a typical statistical analysis, a sample size of thirty to forty is considered adequate where the Central Limit Theorem could apply. Since there are a total of eight dischargers in the Chollas Creek watershed, and after being adjusted for factors including the appropriate use (analysis and comparison) of monitoring data, cost of monitoring, and ease of management, etc., the minimum number of five (stations) is selected to get the total number of 40 stations in the watershed. Language has been added to Appendices J, K, and L to clarify the intent of the Basin Plan Amendment that the permit writer may make changes and modifications to monitoring requirements as deemed necessary and appropriate when the TMDL implementation provisions are incorporated into the corresponding NPDES permits [e.g., MS4 permit (Order No. R9-2013-0001)].	

AJ-2. The MS4 permit requirements incorrectly insert the numeric targets as water quality based effluent limitations		
	Comment: Attachment J includes specific TMDL provisions "recommended to be incorporated in whole at the end of Attachment E in the Regional MS4 Permit." It is not appropriate for the San Diego Water Board to adopt permit language as part of this Basin Plan Amendment because the permit must be reopened and amended through a separate process that gives the Copermittees an opportunity to comment and a hearing on the proposed language. 40 C.F.R. § 124.10(b). A Basin Plan Amendment is a quasi-legislative process, not a quasi-judicial process like a permit revision. These two actions cannot be combined in this proceeding. The City reserves its right to comment further on the proposed permit language when the permit amendment process is initiated, but would like to bring the following comments to the San Diego Water Board's attention now. The proposed permit language in Attachment J is substantially similar to the language in Attachment E to the Draft Tentative Order for the Regional MS4 permit, dated October 31, 2012. The City and other Copermittees have submitted extensive comments requesting modification of this language because it inappropriately inserts TMDL receiving water numeric targets into the permit as Water Quality Based Effluent Limitations (WQBELs). A WQBEL is a restriction on the quantity of pollutant that may be discharged from a point source into a receiving water. 40 C.F.R. § 122.44(d). A WQBEL is not a concentration of pollutants in the receiving water or sediment, which is how the TMDL numeric targets are expressed. Categorizing the numeric targets as WQBELs is inconsistent with federal regulations and standard permitting practices and could subject the Copermittees to Mandatory Minimum Penalties. The Chollas/Paleta/Switzer TMDLs are different from the other TMDLs incorporated into the Regional MS4 Permit because they assign individual Waste Load Allocations (WLAs) to the responsible parties. The Clean Water Act requires that if WQBELs are included in permits, then those WQBELs must be consistent with the assumptions underlying the WLAs. 40 C.F.R. § 122.44(d)(1)(vii)(B). A one-size-fits-all approach to WQBELs is not appropriate where individual WLAs have been established.	City of San Diego
	Response: This comment is composed of three sub-comments: 1) it's inappropriate to include permit language in Basin Plan amendment; 2) it's inappropriate to insert TMDL receiving water numeric targets into the permit as Water Quality Based Effluent Limitations (WQBELs); and 3) a one-size-fits all approach to WQBELs is not appropriate where individual WLAs have been established. The San Diego Water Board responses to each sub-comment are provided below: 1. The proposed permit language in Appendix J has been provided in the Draft Technical Report for two reasons: (1) as a means of providing transparency to the Responsible Parties about how the implementation provisions will be incorporated into permits and (2) as a starting point for the permit writers. It should be noted that the proposed permit language is not included as regulatory language of Tentative Resolution R9-2013-0003. TMDL projects developed as Basin Plan Amendments that require multiple actions by a San Diego Water Board that affect multiple persons in addressing a given impairment can be complex. The Basin Plan Amendment acts as a guideline that ties the multiple actions together where all of the actions can be properly considered. As stated in Section B of the Implementation Plan (attachment A of Tentative Resolution No. R9-2013-0003), "the	

	San Diego Water Board will issue, or revise and re-issue waste discharge requirements (WDRs) to point sources that were assigned WLAs in the San Diego Region to enforce the requirements of the TMDLs, WLAs, and implementation." It is anticipated that permit writers may make modifications (e.g., monitoring and assessment requirements), as deemed necessary and appropriate in finalizing the TMDL implementation provisions for incorporation into the corresponding NPDES permits [e.g., MS4 permit (Order No. R9-2013-0001)]. If necessary to achieve compliance with applicable water quality standards, NPDES requirements must contain WQBELs, derived from the applicable receiving water quality standards, more stringent than the applicable technology-based standards. In the context of a TMDL, the WQBELs must be consistent with the assumptions and requirements of the WLAs of the TMDLs included in this Basin Plan Amendment.[10] 2. In accordance with federal regulation, the San Diego Water Board is authorized to "Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use."[11] The numerical targets as shown in Tables X.1a and X.1b of Appendix J are considered protective of the water quality and beneficial uses of the receiving waters of concern. Therefore, setting these numerical targets as WQBELs is consistent with federal regulations. Note that there are more than one way to express WQBELs, including (i) conditions in receiving waters (that are to be attained to restore or protect water quality standards in receiving waters), e.g., the sediment and water concentrations in receiving water as shown in Tables X.1a and X.1b. of Appendix J; (ii) conditions in discharges (that will not cause or contribute to exceedances of water quality standards in receiving waters), e.g., the mass based effluent concentrations as shown in Tables X. 2 a to c; (iii) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, e.g., Section X.b.(2).(c), or (iv) a combination of one or more of (i)-(iii). Similar expressions of WQBELs as shown in (i) to (iv) above have been included in Attachment E of the Regional MS4 NPDES permit (Order No. R9-2013-0001), which was adopted by the San Diego Water Board in May 2013. Based on above discussion, developing WQBELs based on numerical targets in this TMDL project is consistent with federal regulations and standard permitting practices. **3.** The San Diego Water Board disagrees that the approach is one-size-fits-all, because each Responsible Party gets its own WLA and WQBEL for effluent discharges. For each Responsible Party, the WQBELs expressed as mass-based effluent limitations [Table X.2. a to c, with units in grams (of pollutant discharged) per year] are actually developed from its corresponding WLAs, based on the receiving water numerical targets and taking into consideration the differences in the aerial percentages of different jurisdictions/ Responsible Party contributing to waste load. Thus, the underlying assumptions for the development of WQBELs are consistent with those for WLAs.	

[10] 40 CFR section 122.44(d)(1)(vii)(B)
[11] 40 CFR. section 122.44.(d)(1)(vi)(A)

Appendix K Comments

AK-1. Determining the receiving water limitations in Table 1.2 is not possible given standard laboratory methods and it is not known whether current levels bear any relationship to sediments		
	Comment: The application of receiving water limitations is highly impractical and unsupported by any data or evidence that it is necessary. Detecting compounds at these levels is very difficult and can require highly specialized methods. Using standard methods, it will not be possible to determine if these levels are being achieved or not, so a waste of time. There is no data presented in the study that documents current levels, whether or not they exceed these thresholds, and what relationship that might bear to the sediments. In addition, the U.S. Navy represents a small portion of the watershed contributing to Chollas and Paleta Creeks and there are other baywide issues that affect water column concentrations for these pollutants.	U.S. Navy
	Response: This comment is specific about the Receiving Water Limitations as Water Concentrations (RWL_{water}). Water bodies addressed by the subject TMDL project have beneficial uses of commercial and sportfishing (COMM) and shellfish harvesting (SHELL) designated by the Basin Plan. California Toxics Rule (CTR) promulgates numeric water quality criteria for priority toxic pollutants for the protection of aquatic life and human health. The CTR criteria are water quality standards that must be achieved and included in existing permits statewide, and must be met at all times. The RWL_{water} (Table 1.2) were developed directly from CTRs. The development and application of RWL_{water} is necessary to protect the designated beneficial uses of COMM and SHELL, and is also necessary to evaluate if the receiving water condition is protective of those beneficial uses. The San Diego Water Board has added language to the proposed permit language in section 1.b.(1) of Appendix K to define the conditions under which permittees are considered out of compliance and address the U.S. Navy's concern. The new language includes the Minimum Reporting Limits (MRLs, for the three groups of COCs) that are acceptable for the purpose of compliance monitoring. The Responsible Party will be considered out of compliance with the RWL_{water} if future monitoring results of COCs concentrations show equal to or greater than the MRLs in future monitoring events. The relationships between TSS and the COCs have been studied in historical storm water investigations and the results are shown in the Appendices of the draft Technical Report (Figure 10 in App. C-1, Tables 6 and 7 in App. C-2, and Figures 9 and 10 in App. E). With respect to the water concentrations of COCs in the receiving waters, the last round of water quality measurements (focused on PAHs and copper) was conducted in 1997 and showed PAH concentrations in the range of 72 to 160 ng/L. It is the responsibility of the U.S. Navy, as well as the other Responsible Parties named in this Tentative Resolution, to collect new data for comparison with the RWLs (for both sediment and water). No matter how small a portion a discharger represents, every discharger who has contributed to pollutants to the Bay is required by law to take initiatives to clean up the pollution. The San Diego Water Board is aware of the bay-wide issues that may affect the pollutant concentrations in the Bay and is expected to initiate bay-wide TMDLs for	Reference: NT-31, IP-26

	the pollutants by 2018. Although the three creek-mouth areas only represent small portions of San Diego Bay, cleaning up of these small portions will contribute to the overall cleanup of the San Diego Bay as a whole. Additionally, monitoring results of the subject TMDLs (for the three creek-mouth areas) will be used as appropriate in the development of future bay-wide pollutant TMDLs.	

AK-2. Inappropriate to hold U.S. Navy responsible for attaining SQOs when upstream sources contribute higher pollutant loading and PCBs are a bay-wide issue		
	Comment: In reference to Section 1.c.(1)c., because the NBSD activities represent a relatively small portion of the Chollas and Paleta Creek watersheds, it is inappropriate to hold the U.S. Navy responsible for attaining the SQOs when upstream sources contribute higher pollutant loading and PCBs are not a site-specific, but a bay-wide issue.	U.S. Navy
	Response: No matter how small a portion a discharger represents, every discharger who has discharged pollutants to the Bay is required by law to take actions to clean up the pollution. Similar to the Navy, the "upstream source contributors", i.e., MS4 copermittees will be required to reduce their waste loads according to their allocations, and to participate in the sediment dredging activities if identified as Responsible Party to the cleanup and abatement order. All the Responsible Parties identified in this TMDL project are responsible for demonstrating attainment of the Aquatic Life and Human Health SQOs by Year 20. The San Diego Water Board is aware of the bay-wide issues that may affect PCB concentrations in the Bay, and is expected to initiate bay-wide TMDLs for PCBs by 2018. Implementing source control measures in the three watersheds and cleaning up the three creek-mouth areas will contribute to the overall cleanup of the San Diego Bay as a whole.	

AK-3. Please explain how the Interim Effluent Limitations in Table 1.5 were calculated

Comment: The interim compliance loads in Table 1.5 of Appendix K do not look correct based on the percent load reductions. Please explain how these numbers were calculated. — U.S. Navy

Response: The calculation is correct. Please see below example of needed load reductions for PAHs from the military base in the Chollas Creek watershed. The numbers highlighted were presented in Table 1.5.

Pollutant = PAHs						**Effluent Limitations after X% of Load Reduction (g/yr)**		
Existing Load (g/yr)	WLA (g/yr)	Load Reduction Required (g/yr)	40% of Load Reduction (g/yr)	80% of Load Reduction (g/yr)	90% of Load Reduction (g/yr)	**X = 40%**	**X = 80%**	**X = 90%**
25.52	9.46	16.06 =25.5-9.5	6.42 =0.4*16.06	12.85 =0.8*16.06	14.45 =0.9*16.06	**19.1** =25.52-6.42	**12.7** =25.52-12.85	**11.1** =25.52-14.45

AK-4. Requiring the U.S. Navy to collect and analyze two sediment samples at the Navy Medical Center is excessive

Comment: The Navy Medical Center is a very small portion of the Switzer Creek watershed. Requiring the Navy to collect and analyze two sediment samples is excessive and should be removed. — U.S. Navy

Response: No matter how small a portion a discharger represents, every discharger who has discharged pollutants to the Bay is required by law to take actions to clean up pollution, including performing monitoring activities of the receiving water bodies.

As shown on Page K-14, Section d.(4)(b)(iii), the San Diego Water Board encourages the Navy to coordinate the receiving-water monitoring activities with the City of San Diego and Caltrans in Switzer Creek watershed. The sediment samples, as well as water samples, at the three creek-mouth areas can be jointly obtained by all Responsible Parties identified for the corresponding watershed in this TMDL project. In the cases where the joint effort is not achievable, each of the Responsible Parties, including the U.S. Navy, must obtain the required numbers of samples on its own.

III. Comments Received at Public Workshop and CEQA Scoping Meeting, October 14, 2008

1.	Len Sinfield, U.S. Navy	
	Comment: Will the Basin Plan Amendment incorporating the TMDL have flexibility to change the TMDL or waste load allocations at a later date?	**Response**: Yes. The San Diego Water Board may amend the Basin Plan at any time. Additionally, the Implementation Plan in section 10 of the draft Technical Report incorporates an adaptive management approach and a TMDL re-evaluation clause in the event that the implementation of these TMDLs is not resulting in the restoration of beneficial uses. The adaptive management approach is expected to provide flexibility for both the San Diego Water Board and the responsible parties. The San Diego Water Board may revise and re-issue WDRs or use its regulatory authorities in response to results from monitoring data and special studies, or other new information. Responsible parties are expected to utilize adaptive management in the implementation of programs that implement TMDL requirements.
2.	Chuck Katz, U.S. Navy	
	Comment: Mr. Katz stated that there has been some coring done in Paleta Creek, but that the data are very limited. There is not a lot of data on what is below the superficial sediments.	**Response**: The San Diego Water Board thanks Mr. Katz for noting data limitations.
3.	Chuck Katz, U.S. Navy	
	Comment: Will past and present discharges be discussed and considered in the Technical Report?	**Response**: The Source Assessment in Section 5 of the draft Technical Report and the Compilation of Sediment, Storm Water and Water Quality Data in Appendix F provides discussion and descriptions of past and present discharges.
4.	Chuck Katz, U.S. Navy	
	Comment: Is the San Diego Water Board using the Chollas TIE (toxicity identification evaluation) study as a basis for naming numeric targets in the other creeks? It should be noted that the study reported that PCBs concentrations were too low to be considered toxic. Why is the San Diego Water Board developing TMDLs for PCBs in the three watersheds?	**Response**: Numeric target selection was based primarily on results of TIE studies conducted at each of the waterbodies. Phase I studies conducted at each of the waterbodies were also considered. The Sediment Toxicity Identification Evaluation for the Mouths of Chollas and Paleta Creeks (Greenstein et al. 2005) identified non-polar organic chemicals as source of toxicity. The study identified that the

		probable causes of toxicity were chlordane and PAHs at Chollas Creek Mouth and PAHs in Paleta Creek Mouth. Additionally, bioaccumulation evidence was presented in the Sediment Assessment Study for the Mouths of Chollas and Paleta Creeks, Phase I Final Report (SCCWRP and SPAWAR 2005) that benzo(a)pyrene (BAP), a high molecular weight PAH, and PCBs were found to be bioaccumulating in clam tissue at both Chollas and Paleta creek mouth areas. A similar study was performed for Switzer Creek Mouth (Anderson et al. 2005) that also identified non-polar organics as the cause of toxicity in the water body. The study reported that sediment toxicity was highly correlated with chlordane and PCBs concentrations and weakly correlated with mixtures present in the sediment, including PAHs. Anderson et al. (2005) also reported that clams exposed to site sediments were bioaccumulating BAP, potentially impairing aquatic-dependent wildlife. The purpose of adopting the TMDLs for these non-polar organic pollutants is to correct impairments and restore beneficial uses. Currently, San Diego Bay is listed on the CWA section 303(d) List for PCBs in fish tissue. The presence of PCBs in Bay sediment at documented Toxic Hot Spots and proof that PCBs are bioaccumulating up the food chain at these locations is sufficient evidence for TMDL development. Additionally, CWA section 303(d)(3) provides authority for the San Diego Water Board to develop TMDLs for all pollutants in all waterbodies.
5.	Chuck Katz, U.S. Navy	
	Comment: Will a table be included in the technical report to specify what kind of reductions will be included in a total suspended solids (TSS) load to meet the TMDL goals?	**Response**: No. While the model uses TSS as a surrogate for the pollutants, the TMDLs have been developed as pollutant loads that will ultimately attain pollutant sediment concentrations in the bay sediment at or below a concentration that is protective of beneficial uses.
6.	Chuck Katz, U.S. Navy	

	Comment: On the subject of Waste Load Allocations (WLAs), is today's presentation referring to allocating responsibility to stakeholders or allocating where each responsible party would have to meet a specific target?	**Response**: WLAs pertain to allocation of a portion of the TMDL to a particular party. It is used to measure compliance with the TMDL.
7.	Chuck Katz, U.S. Navy	
	Comment: The commenter requested that the Technical Report specifically state how the land uses contribute as pollutant sources.	**Response**: The Source Assessment in Section 5 of the draft Technical Report reviews the known sources and discusses how each source contributes each pollutant of interest.
8.	Chuck Katz, U.S. Navy	
	Comment: Is there an official stakeholder list?	**Response**: The San Diego Water Board maintains contact information for parties that have been involved with the project to date. There is also an electronic mailing list subscription for the project that is used to distribute all publicly noticed information.
9.	Ivan Karnezis, Caltrans	
	Comment: Please explain the significance of the 20% threshold used in the numeric target selection.	**Response**: Field et al. (2002) developed individual chemical logistic regression models to predict the probability of toxicity using a national database of matching sediment chemistry and toxicity data. The 20 percent threshold (T20) of the dataset is the point where 20 percent of the samples were toxic. Chemical concentrations below the T20 value were predicted to be associated with a low incidence of toxicity and concentrations above (T20 – T50) had moderately low incidence of toxicity.
10.	Ivan Karnezis, Caltrans	
	Comment: Since it seems as though the PAHs are the biggest culprit, would it be better to model each pollutant separately.	**Response**: Each pollutant is modeled separately.
11.	Ivan Karnezis, Caltrans	
	Comment: Will the measure of compliance be sediment or water quality?	**Response**: There will be two measures of compliance: pollutant loading (water quality and flow) in the watersheds and sediment quality assessment in the creek mouth areas. It is expected that the water quality measurement will be total pollutant concentration of the water sample. Sediment quality assessment includes measurement of sediment concentration, toxicity, and benthic community condition and an assessment of attainment of the Aquatic Life Sediment Quality

		Objective (SQO).
12.	Ivan Karnezis, Caltrans	
	Comment: Please describe the difference between a cost-benefit analysis and a use-attainability analysis.	**Response**: A use-attainability analysis is used to make a change in the basin plan with regard to how the beneficial uses are identified (e.g, changing a beneficial use currently in the Basin Plan). A cost-benefit analysis is a process that attempts to measure the social benefits of a proposed project in monetary terms and compare them with its costs. The TMDL basin plan amendment process does not require either of these analyses to be performed.
13.	Stephanie Bauer, Port of San Diego	
	Comment: Do the models account for other sources, such as creosote pilings?	**Response**: Other sources are considered to the extent that they are represented by the data used as boundary conditions within the model for background toxic pollutant concentrations in Bay seawater. For instance, water column total PAH concentrations reported by Katz (1998) were the basis of the pollutant concentrations used for the boundary condition in the model. The study reported that PAH fingerprinting characterized the seawater samples as predominantly weathered creosote. Additionally, fuel product sources were also identified at a sample site located in the vicinity of Naval Base San Diego.
14.	Karen Holman, Port of San Diego	
	Comment: If the TMDLs are only allocated to upstream sources, how can the San Diego Water Board be sure that other bay sources are not affecting the concentrations in the sediment at the creek mouths? Upstream sources could actually be doing a good job within the watershed, but the overall numbers might remain the same or even increase due to bay sources.	**Response**: Based on a review of the sources, the primary source of pollutants to the creek mouth areas is the loading from the watershed sources. The TMDL Implementation strategy is to reduce and control watershed-based pollutant loading and remove the contaminated sediment impairing the creek mouth areas. The model indicates that if the bay sediments are cleaned-up to levels at or below the numeric targets and the discharges from the watershed meet the TMDLs/WLAs

		then the bay sediments would not exceed the Aquatic Life SQO over time. Additionally, sediment remediation efforts at other locations within the Bay should provide added assurance that other bay sources would not re-contaminate these creek mouth areas.
15.	Karen Holman, Port of San Diego	
	Comment: If the watershed load reduction for PCBs is zero, why is the San Diego Water Board adopting a TMDL for PCBs?	**Response**: A zero load reduction means that the existing load, based on storm water monitoring data collected in 2006 and 2009-10 and the flow measurements from a high flow hydrologic year, was sufficient to maintain sediment pollutant concentrations in the water body at or below the numeric target at the end of the three-year model run. In other words, the existing load equals the TMDL. The basis for calculating PCB TMDLs for these waterbodies is TIE results that identified non-polar organics and clam tissue data that demonstrated bioaccumulation of PCBs.
16.	Ed Kimura, Sierra Club	
	Comment: There does not appear to be any data to support sediment resuspension as a pollutant source.	**Response**: The San Diego Water Board agrees and is not aware of any site-specific data; however, it is reasonable to expect that resuspension occurs and can cause contaminated sediment to move in localized areas within the Bay. For this reason, sediment resuspension was identified as a potential source in the Source Assessment, but was not quantified. For purposes of the receiving water model, literature values were used for this term.
17.	Ed Kimura, Sierra Club	
	Comment: The San Diego Water Board is misreading the sediment quality objectives. The original study used several lines of evidence; it appears that the Technical Report will only be considering sediment concentration. The analysis appears to be ignoring health effects and bioaccumulation. How can the San Diego Water Board set sediment quality objectives without considering other lines of evidence? I think this is unacceptable.	**Response**: The numeric targets have been revised and are now based on the Multiple Lines of Evidence (MLOE) approach of the Aquatic Life SQO. Use of the MLOE approach ensures that sediment chemistry, toxicity, and benthic community lines of evidence are considered in setting the numeric targets for each of the pollutants of concern. In addressing health effects and bioaccumulation, concentration-based TMDLs are proposed for water column concentration at the three creek

	When are you going to consider this? What you're basing this on is only a draft.	mouth areas, based on the human health California Toxics Rule criteria that are for consumption of organisms. Additionally, a fish tissue numeric target based on the California Office of Environmental Health Hazard Assessment's Fish Contaminant Goals for PCBs will be implemented through an investigative order to monitor fish tissue in San Diego Bay.
18.	Ed Kimura, Sierra Club	
	Comment: How will the CEQA Process address issues that may not appear in the CEQA Checklist?	**Response**: To the extent that the public identifies such issues during the CEQA Scoping and subsequent public review process, the San Diego Water Board will consider any additional issues not currently in the checklist. The San Diego Water Board welcomes any additions and comments on the CEQA checklist from the public.
19.	Bob Harris, National School District	
	Comment: Is the San Diego Water Board making the assumption that all pollutant sources are coming from storm water (i.e., runoff from watershed land uses) and not the bay and adjacent industrial and military sources near the creek mouths?	**Response**: The San Diego Water Board has considered all of the known sources, which are discussed in Section 5 of the draft Technical Report. The primary source to each of the creek mouth areas is storm water flow from all of the land uses, including industrial and military uses near the waterfront.
20.	Bob Harris, National School District	
	Comment: If a school district has never had an illicit discharge, then the only runoff being contributed to the watershed is rainwater.	**Response**: Whether or not an illicit discharge has taken place does not negate or affirm the need for storm water pollution prevention through the use of management measures and best management practices. Urban development creates new pollution sources as human population increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides,

		household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the municipal separate storm sewer system (MS4). As a result, the runoff leaving the developed urban area is greater in pollutant load than the pre-development runoff from the same area. School district facilities have many impervious areas, including parking lots, playground areas, building rooftops, and lunch areas, which cause rain water to runoff and discharge to a Phase I MS4 or a water body. These areas should be maintained through good housekeeping practices in order to prevent pollutants that accumulate on impervious surfaces from coming into contact with storm water.
21.	Bob Harris, National School District	
	Comment: Please clarify the purpose of the Public Workshop and CEQA Scoping Meeting. Is the San Diego Water Board looking for a funding source to cleanup contaminated Bay sediment?	**Response**: The Public Workshop and CEQA Scoping Meeting are stakeholder outreach efforts to inform the public about the project and receive comments and concerns from the public regarding the project itself and any physical environmental impacts from the implementation actions that may be taken as a result of the project.
22.	Elidia Dostal, Latham & Watkins for NASSCO	
	Comment: NASSCO shipyard requests that since the shipyard is impacted by Chollas Creek, a portion of the shipyard should be included in the TMDL.	**Response**: The San Diego Water Board has provided an exclusion of the NA22 polygon from CAO No. R9-2011-0001. This Basin Plan Amendment incorporating TMDLs for Toxic Pollutants in Sediment at Chollas Creek Mouth will apply to the NASSCO leasehold portion that overlaps with the TMDL project footprint at Chollas Creek. As part of the TMDL implementation in Section 10 of the draft Technical Report, the San Diego Water Board will issue a CAO for the purpose of remediating contaminated sediment in the mouth of Chollas Creek. NASSCO will be named as a responsible party in the CAO.
23.	Rosanna Lacarra, PBS&J for the City of Irvine	
	Comment: Will the environmental documentation required to meet CEQA be a programmatic document? If so, would these projects then have to go through additional CEQA review?	**Response**: This TMDL project, which will be adopted as a Basin Plan amendment, sets performance standards for meeting established water quality standards and includes an implementation plan that identifies actions that should be taken to implement the performance standards. The CEQA analysis for this project is on a programmatic level as the San Diego Water Board is not allowed to prescribe or specify what measures are to be used where. Responsible parties will determine

		what actions that they will implement to meet their wasteload allocations (e.g., structural/non-structural BMPs). Responsible parties will need to comply with the requirements of CEQA as they pertain to the actions that they implement that may have physical impacts on the environment. Sediment remediation will be needed to address the contaminated bay sediment impairing aquatic life and human health and a more specific CEQA analysis will be required.
24.	Rosanna Lacarra, PBS&J for the City of Irvine	
	Comment: Will a formal cost benefit analysis be required?	**Response**: No, a formal cost benefit analysis is not required when adopting a basin plan amendment. In the Porter-Cologne Act, economic considerations are to be considered when adopting water quality objectives.[12] However, a TMDL is not a water quality objective, but rather a performance standard that translates an existing water quality objective. In another requirement, an estimate of the cost of such a program, together with an identification of potential sources of financing must be stated when implementing any agricultural water quality control program.[13] The Basin Plan amendment process is a Certified Regulatory Program under CEQA that requires the San Diego Water Board to perform an environmental analysis of the reasonably foreseeable methods of compliance with WLAs and LAs. This analysis must take into account a reasonable range of various factors, including economic factors.[14]
25.	Scott Stein	
	Comment: Wildfires are a major source of PAHs and metals. Does the San Diego Water Board know how wildfires affect the sediment loads? Are the models used in this project able to consider wildfires?	**Response**: Large wildfires occurred in the San Diego Region in October 2003 and October 2007. Storm water monitoring data for Chollas, Paleta, and Switzer Creeks were collected in two separate studies. The first study, in early 2006, monitored three events in February and March on North Chollas Creek, South Chollas Creek, Paleta Creek, and Switzer Creek (Schiff and Carter 2007). The second study in late 2009 through early 2010 had a larger scope and monitored

[12] Pursuant to Water Code section 13241
[13] Pursuant to Water Code section 13141
[14] Pursuant to title 23 CCR section 3777(c)

		storm water runoff from twelve land use sites and eleven larger catchment-scale sites (City of San Diego, 2010a, City of San Diego, 2010b). It is not likely that any effects from the most recent wildfires in the San Diego region were captured in the monitoring data collected for TMDL development. A special study would need to be conducted to determine if air deposition from wildfires has an effect on sediment loads. The Implementation Plan includes a provision for conducting special studies that will provide information to refine and improve the implementation of the TMDLs. Any findings from such a study may result in revising permit requirements, initiating additional enforcement actions, or revising this Basin Plan amendment.
26.	Unknown Commenter	
	Comment: The model used to perform the linkage analysis seems very complex. Is it possible to run the scenarios for different combinations of pollutants?	**Response**: Yes, it is possible to simultaneously simulate different combinations of pollutants.
27.	Unknown Commenter	
	Comment: Even though there is flexibility written in the TMDL implementation plan, the stakeholders still fear that they are taking an excessive load while other sources that may be negligent aren't given any allocation. The commenter asked if there is a mechanism for bringing those other stakeholders into sharing the load and to have them share in back-expenses.	**Response**: Sources that do not receive an allocation, effectively have been give an allocation of zero. A source without an allocation is not permitted to discharge any amount of chlordane, PAHs, or PCBs to receiving waters. The Implementation Plan includes the incorporation of TMDL-related requirements for permittees, such as industrial facilities, construction sites, and regulated small MS4s, that makes them responsible for demonstrating that they are not contributing to this impairment.

IV. Other CEQA-Related Comments

1.	John Stump, CREAC Received via email on September 2, 2008	
	Comment: Our membership is currently very concerned about a possible PAH plume in the surface and ground waters of the Auburn Creek. This plume was identified in the EIR for Mary Fay Elementary school, built by the San Diego Unified School District. The size and extent of this plume was one of the reasons San Diego City Schools chose a different site than the old Standard Pipe industrial site, at 52nd and University in City Heights. As you are aware, groundwater depths, in this area, are between 1 to 3 feet and moving very rapidly. The site is being used as warehouse by the San Diego Mission for used goods. The possible PAH site is just North of the proposed Wightman Street park. The Wightman Park site was purchased by the City because of flooding and is currently in the CEQA process, at the legislative appeal level before San Diego City Council. We would appreciate it if this potential point source could be included in the scoping review.	**Response**: As indicated by the analysis presented in the Final Environmental Impact Report(EIR) for the proposed 52nd Street Area Elementary School (now Mary Lanyon Fay Elementary), the former San Diego Pipe and Supply facility was located in the footprint of Alternate Site 1 and Alternate Site 3. It appears that the Preferred Site was selected as the location of the school, which did not include the parcel that was previously the San Diego Pipe and Supply facility due to the presence of hazardous materials. The Case Closure Summaries from the Leaking Underground Fuel Storage Tank Program indicate that 2 underground storage tanks were removed and soils were left in place and buried in the tank excavation. The closure summaries, and EIR analysis, also indicate that they were both "soils only" cases and that groundwater was not impacted by the unauthorized release. The EIR indicates that the groundwater is greater than 100 feet below ground surface. Although the Case Closure Summaries did not state, the contaminated soils would have been covered with clean fill or paved over to isolate the contaminated soils. TMDLs specifically apply to surface waters. At this time, it seems unlikely that this source would impact surface waters. In the event that it becomes a source, the City of San Diego would be responsible for identifying the problem and taking corrective action of some kind to prevent an exceedance of their assigned WLA.
2.	San Diego Coastkeeper Received via email on September 9, 2008	
	Comment: Thank you for the notice of the workshops. I wanted to add Coastkeeper's voice to the call for the PAH plume issue to be added to the discussion for these meetings.	**Response**: See response to comment no. 1 in this section, above.

3.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: The Chollas Restoration, Enhancement and Conservancy (CREAC) requests participation in the scoping for the CEQA study on Chollas Creek. CREAC would like to the San Diego Water Board to review and consider the following information, submitted on September 15, 2008, as it pertains to the Toxic Pollutants in Sediment TMDLs for the Mouths of Paleta, Chollas, and Switzer Creeks Project: a. City of San Diego Memorandum regarding Metzger et al. vs. City of San Diego, dated March 8, 2001, b. Geotechnical Investigation for Oak Park Drainage Channel Flood Control Channel Improvements, prepared by GEOCON Inc., dated August 1993, c. Excerpt and exhibits from Deposition of Peter Yee on March 27, 2006 for the California Superior Court Case No. GIC 831229, Metzger it al. vs. City of San Diego, d. Figure 7 for Project No. 88-41-367-01, Fault Map with site location by Converse Environmental Consultants California undated, e. List of Technical Appendices, Section 4.6, and page 1 of Section 4.7 of the Draft Environmental Impact Report for 52nd Street Area Elementary School, and f. City of San Diego, Notice of Application for a Site Development Permit for Fox Canyon Sewer Repair in City Heights, date August 29, 2008.	**Response**: The submitted documents were reviewed and considered for the TMDL project. The San Diego Water Board thanks Mr. Stump for submitting the documents to accompany his comments.

4.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: CREAC would like the San Diego Water Board to review and consider the following projects as they pertain to the Toxic Pollutants in Sediment TMDLs for the Mouths of Paleta, Chollas, and Switzer Creeks Project: a. DTSC initial study reopening for the Webster Elementary School [Elm and 47th, San Diego 92102] Burn Ash biology and storm water study. b. Wightman Street Park construction in City Heights c. Fox Canyon Sewer Repair in City Heights at 3802 49th Street. Project 163044. d. Burn Ash subsidance and exposed burn ash at the Chinese Community Church [47th and Fairmount, Webster Community, San Diego 92102] e. Sunshine Beraradini Park CEQA Scoping. The proposed park, adjacent to the N Chollas Branch, is nearly 100 acres and contains known listed species and plants. f. Home Avenue Park CEQA Scoping. Home Avenue Park [Home and Euclid City Heights 92105] is along the Auburn Creek. g. San Diego Flood Plan for FEMA. The proposed Flood Plan fails to include the spring source headwaters of the Auburn Creek [University and Wightman, City Heights 92105. h. 52nd Street Elementary School [SDUSD 52nd and university, City Heights, CA 92105] this study identifies a PAH and Toxin plume at Auburn Creek headwaters at "Standard Pipe Industrial site. i. Flo Jo Elementary School EIR [SDUSD 43rd and Myrtle, City	**Response**: The San Diego Water Board thanks Mr. Stump for providing this list of projects from the Chollas Creek Watershed. The San Diego Water Board is the lead agency for this TMDL project, a Basin Plan amendment, and complies with CEQA as a Certified Regulatory Program. The scope of the environmental analysis is limited to an analysis of the reasonably foreseeable methods of compliance in meeting the TMDL allocations. This analysis is similar to a program level analysis. The statute specifically states that the agency shall not conduct a "project level analysis."[15] Rather, a project level analysis must be performed by the responsible parties that are required to implement the TMDLs.[16] The actual environmental impacts will depend upon the compliance strategies selected by the responsible parties identified in the Technical Report. While these projects cannot be evaluated in the context of a project level environmental analysis, the San Diego Water Board has thoughtfully considered them as it has taken into account a reasonable range of environmental factors, economic factors, technical factors, population, geographic areas, and specific sites, as required.

[15] Public Resources Code section 21159(d)
[16] Public Resources Code section 21159.2

	Heights 92105] this study is adjacent to the Lexington Creek which should drain to the Chollas Creek; but may have been diverted to the Switzer watershed by Caltrans. j. Chollas Landfill closure management and reuse should be carefully monitored as source point. For example the City recently installed more than a mile of zinc galvanized drainage for the landfill. k. Chollas Reservoir Lake relining and leakage. The Chollas Lake loses waters faster than predicted evaporation models. Water is suspected to travel through the closed Chollas land fill to Chollas Creek and its aquifer. l. Utility Franchise renewals with SDG&E and communications are scheduled for review and renewal during the current TMDL/WLA reduction periods. These utilities use or have used listed organics and metals for the TMDL transformer sites, service yards and utility poles all.	
5.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: Jurisdictions/CEQA lead Agency should require consistent studies and data collection methods for CEQA studies. Lead Agency studies should be consistent with Water Board standards.	**Response**: No new studies will be performed as part of the environmental analysis. The Water Board continues to make an effort to assure that monitoring projects and programs are conducted in a consistent manner, using standardized methods, by requiring SWAMP comparability, where appropriate.
6.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: The Lead Agency for any CEQA studies related to this Project should measure "flow" and annual loading using Water Board standards.	**Response**: No new studies will be performed by the San Diego Water Board as part of the environmental analysis.

7.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: CREAC requests that the Lead Agency's CEQA analysis must be required to respond to TMDL achievement standards/target as a focus. Mitigation measures must answer the question on how these mitigations will meet the TMDL target.	**Response**: The San Diego Water Board is the lead agency for this TMDL project, a Basin Plan amendment, and complies with CEQA as a Certified Regulatory Program. The scope of the environmental analysis is limited to an analysis of the reasonably foreseeable methods of compliance in meeting the TMDL allocations. This analysis, which is similar to a program level analysis, identifies broad mitigation approaches that could be considered at the project level. Project level analyses for specific projects would identify mitigation measures that are necessary to avoid or reduce significant adverse environmental impacts.
8.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: CREAC requests that the San Diego Water Board's CEQA document includes jurisdiction sites adjacent to permitted (licensed) uses such as the following: a. Closed landfills and burn ash sites, b. SDG&E service, stage and transformer sites, and c. Jurisdictions' usages - kennels, stables, cemeteries, garages, landfills.	**Response**: The scope of the environmental analysis for this project is limited to an analysis of the reasonably foreseeable methods of compliance in meeting the TMDL allocations. The Phase I MS4 permittees associated with these watersheds have been given WLAs. As they evaluate potential load reduction strategies and identify projects to comply with the WLAs, project level analyses would be expected to evaluate these types of sources, as required. These sources would be expected to be considered during a project level analysis.
9.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: Please list and catalogue (1) all storm water diversions to sanitary sewers, and (2) the concentration and delivery of bilge and dewatering discharges to sanitary sewers, in the environmental documentation.	**Response**: TMDLs are specific to controlling sources of pollutants to surface waters. Storm water diversions to sanitary sewers are not considered to be pollutant sources to impaired surface waters. The Phase I MS4 permittees associated with these watersheds have been given WLAs. As they evaluate potential load reduction strategies and identify projects to comply with the WLAs, project level analyses would be expected to evaluate these types of sources, as required.

V. Other Comments Received on the Project

1.	Rob Chichester, U.S. Navy Written comment dated October 29, 2007	
	Comment: It is the Navy's position that the 33% California regression model is the correct version that should be used in developing these TMDLs.	**Response**: The San Diego Water Board decided not to use the California regression model as the basis for numeric target determinations and thanks the U.S. Navy for its comment.
2.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: Any water quality testing studies for this Project must include measurements for personal care products (PCPs), PAHs, event mean concentrations (EMCs), chlordane, lindane, metals, and TSS.	**Response**: The monitoring requirements for this TMDL project are specific to the pollutants of interest, other parameters needed to calculate mass loading, and measurements needed for conducting the MLOE approach to interpret the Aquatic Life SQO. Other water quality monitoring requirements are more appropriately specified in WDRs/NPDES permits that are tailored to the type of permit (e.g., storm water, industrial storm water, etc.). The monitoring requirements identified in this TMDL project will be incorporated into appropriate permits in order to implement the TMDLs.
3.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: Please identify and monitor storm water diversions made by jurisdictions, which may have created hot spot concentrations or diverted water from one watershed to another. Examples include Caltrans roadwash diversion to Chollas Creek (North Beach) at Federal and I-805 overcrossing or contribute to meeting the TMDL targets on time. For example: "Project specific BMPs are required because they will contribute to chlordane target reduction of 80% by 2012".	**Response**: The TMDL Implementation Plan creates a framework for how the TMDLs will be implemented and includes actions such as revising and reissuing permits. Once the TMDL/WLAs are incorporated into those permits, the permitted dischargers are then required to take actions (e.g. structural BMP installation) and monitor to show compliance. The type of monitoring the commenter is requesting would be performed in the context of permit compliance. For instance, if a permitted discharge is exceeding their WLA/WQBEL and determines that the exceedance is being caused by storm water diversion, then they would report and take action to correct the exceedance. The San Diego Water Board is prohibited from specifying the manner of compliance with its regulations.[17]

[17] Pursuant to Water Code section 13360

4.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: CREAC requests that the San Diego Water Board use atmospheric data collected in the study watersheds rather than data collected from Lindbergh Field. It seems the Air Quality sampling site in Barrio Logan or at the Naval Station would be more appropriate. Alternately, the data should be verified.	**Response**: The watershed model required input of hourly precipitation data. Lindburgh Field station was found to be the most representative weather station with hourly data for the project watersheds (Paleta Creek, Chollas Creek, Switzer Creek, B St/Broadway Piers, and Downtown Anchorage watersheds). The station also has long-term hourly wind speed, cloud cover, temperature, and dew point data. Localized data collected during two sampling efforts in the Chollas watershed were used to augment the data from Lindburgh Field station. This data included hourly rainfall data obtained from SCCWRP for February 16 to May 8, 2006 (Schiff and Carter 2007) and from the City of San Diego for December 5, 2009 to January 12, 2010 (City of San Diego 2010a; City of San Diego 2010b). In addition, SCCWRP research on atmospheric deposition and gas exchange between the water surface and atmosphere was conducted at a sample site located in San Diego Bay at the mouth of Chollas Creek. The study results were used in determining load allocations attributed to atmospheric deposition (Sabin et al. 2010; Schiff 2011).
5.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: CREAC supports that allocations should be assigned based on their measured TMDL start loads. For example, Chollas Creek TMDL at Lemon Grove boundary. Also each major branch should have an Allocation baseline measure and goal.	**Response**: The model assigned the total load (TMDL) from each watershed into separate WLAs for each specific jurisdiction or right-of-way (for Caltrans). This was based on land use area data and jurisdictional boundary locations.

6.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: CREAC supports that the margin of safety (MOS) should be formulated based on the best modeled possible decreased assumption in any given period. The MOS should not be allocated away from any single jurisdiction's modeled goal until after that jurisdiction has obtained 80% of its allocation. The last 5 pounds are the hardest to lose.	**Response**: A margin of safety is incorporated into a TMDL to account for uncertainty in developing the relationship between pollutant discharges and water quality impacts (U.S. EPA 1991). The margin of safety can be incorporated in the TMDL either explicitly or implicitly (U.S. EPA 2000a). Reserving a portion of the loading capacity provides an explicit margin of safety. Whereas, making and documenting conservative assumptions used in the TMDL analysis provides an implicit margin of safety. In either case, the purpose of the margin of safety is the same: to ensure that the beneficial uses currently impaired are restored, given the uncertainties in developing the TMDL. This TMDL project uses both implicit and explicit margins of safety. The 5 and 20 percent margins of safety is essentially reserved and is not available for WLA or LA, which is more protective of the impaired water body because the assumption makes the available load allocations smaller.
7.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: Please clarify how other non-MS4 jurisdictions, schools, colleges, universities, and hospitals are going to be included as sources in the Technical TMDL Report? Please consider the following: The San Diego Unified School District (SDUSD) is one of the largest property owners and operators. SDUSD is the largest bus company in San Diego County, bigger than MTDB in ridership, fuel and vehicles. Other than streets, SDUSD probably has the most impermeable surfaces and building roofs in the Chollas Creek watershed. The San Diego Zoo may be one of the largest single properties with exclusive uses.	**Response**: Phase I MS4s, Caltrans, and the U.S. Navy were identified as requiring load reductions to achieve and meet their WLAs. The linkage analysis identified urban land uses as the most significant controllable point sources causing or contributing to the toxic pollutant impairments during wet and dry weather conditions in all the watersheds addressed by these TMDLs. Some urban land uses within the Phase I MS4 are associated with non-traditional small MS4s, which are governmental facilities such as military bases, public campuses, and hospital complexes. Regulated Small MS4s, as well as industrial facilities and construction sites, are required to enroll in state-wide general NPDES permits. These sources have been named as responsible parties and TMDL implementation requirements will be incorporated into existing general NPDES permits.[18]

[18] State Water Board Order Nos. 97-03-DWQ (Industrial), 2009-0009-DWQ (Construction), 2003-0005-DWQ (Small MS4s), or subsequent orders.

8.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: If creek restoration is considered as an implementation action, it should include remediation of legacy sources and not just habitat restoration.	**Response**: Creek restoration is not being considered as an implementation action at this time. A special study will be required to characterize the contributing load of PAHs, PCBs, and chlordane from the tidally-influenced portion of each of the three watersheds at the sub-watershed level. It is possible that remediation of contaminated sediment within the creek itself may be needed, depending on the findings of this or other special studies. Creek restoration may be a consideration at that time.
9.	John Stump, CREAC Written comment received on September 15, 2008	
	Comment: All "Road" and "Park" projects in the three watersheds should be given interim and final waste load allocations.	**Response**: Road and park projects are already regulated under various NPDES permits. The responsibility for oversight and source control of these projects is with the regulated discharger. These types of individual projects will not receive individual WLAs. In large part, these projects are expected to be within the larger Phase I MS4 permit, which already includes requirements for source control of development projects. Additionally, each Phase I MS4 jurisdiction is receiving a WLA and it is in their best interest to prevent new sources from contributing to the waste load.
10.	John Stump, CREAC Oral comment received on September 15, 2008	
	Comment: Why was Lindberg Field meteorological data station used in the model rather than data from a station further south, such as Barrio Logan?	**Response**: See response to comment no. 4 of this section, above.
11.	John Stump, CREAC Oral comment received on September 15, 2008	
	Comment: SDGE does not remove soils around the telephones when they remove or replace them. Please include telephone poles and the surrounding soil as potential PAH sources in all watersheds.	**Response**: The discussion in the Source Assessment, Section 5 of this draft Technical Report, includes telephone poles as a potential PAH source.
12.	John Stump, CREAC Oral comment received on September 15, 2008	
	Comment: The Convention Center discharges near the mouth of Switzer Creek. Please include dewatering discharges as a source of PAHs in the Switzer Creek TMDL.	**Response**: Section 5.6.2 of the draft Technical Report includes a discussion about the San Diego Convention Center Groundwater Extraction and Treatment System.

13.	John Stump, CREAC Oral comment received on September 15, 2008	
	Comment: Caltrans should be considered as a potential source for all contaminants.	**Response**: The discussion in the Source Assessment, Section 5 of this draft Technical Report, includes an assessment of Caltrans as a source of pollutants to all three waterbodies. Caltrans has been named as a responsible party and has been assigned WLAs.
14.	Gabe Solmer, San Diego Coastkeeper Oral comment received on September 15, 2008	
	Comment: What are the assumptions for the Margin of Safety?	**Response**: Both implicit and explicit margins of safety are being applied to these TMDLs. The rationale, including a list of assumptions, can be found in Section 7.7 of the draft Technical Report.
15.	Ruth Kolb, City of San Diego Oral comment received September 15, 2008	
	Comment: Who should be involved in resolving atmospheric deposition issues?	**Response**: The Air Resources Board and the local Air Pollution Control District are the appropriate agencies that regulate air pollution in California.
16.	Ruth Kolb, City of San Diego Oral comment received September 15, 2008	
	Comment: The City of San Diego requests that the San Diego Water Board develop TMDLs for all listings in an integrated watershed approach, rather than just at the mouths of the Creeks.	**Response**: An integrated watershed approach to addressing impairments is an approach that the San Diego Water Board will pursue for future projects. This project was originally conceived to be part of a series of projects addressing 5 toxic hot spots in San Diego Bay. The project now includes 3 of those projects. The Cleanup and Abatement Order No. R9-2011-0001 addresses the Shipyard Sediment Site and another TMDL project will address the toxic hot spot at B Street/Broadway Piers and the Downtown Anchorage site in the future.
17.	Ruth Kolb, City of San Diego Oral comment received September 15, 2008	
	Comment: Small municipal separate storm sewer systems (NPDES phase 2 dischargers) should be identified as sources.	**Response**: Small MS4s have been included in the discussion in the Source Assessment and identified as responsible parties in the draft Technical Report.

18.	Hiram Sarabia, U.C. San Diego Oral comment received on September 15, 2008	
	Comment: Is sediment loading affecting the PCB loading numbers?	**Response**: The organic pollutants identified for TMDL development in this project are associated with sediment. The modeling system used to determine the TMDLs effectively models flow and transport of sediment from the watershed. Pollutant concentrations are used in the model to predict the pollutant loading to the receiving waters (i.e., creek mouth areas). Sediment loading is directly related to the pollutant loading results.
19.	Bart Chadwick, U.S. Navy Oral comment received on September 15, 2008	
	Comment: What was the reference document of toxic boundary conditions?	**Response**: The reference document used the toxic boundary conditions was: Katz, C.N. 1998. Seawater polynuclear aromatic hydrocarbons and copper in San Diego Bay. Technical Report 1768. SPAWAR Systems Center San Diego The process used to determine the toxics concentrations used for the boundary cells is discussed in section 4.2.3.1 of the Receiving Water Model Configuration and Evaluation for the San Diego Bay Toxic Pollutants TMDLs (Appendix D of this Technical Report).
20.	Bart Chadwick, U.S. Navy Oral comment received on September 15, 2008	
	Comment: Why would PCB sediment concentrations decrease over time if PCB values are based on detection limits?	**Response**: Sediment bed concentration was initialized to the numeric target in the receiving water model considering future sediment remediation activities that would be necessary to address these TMDLs. In addition, watershed loading was estimated based on modeled flow and half the detection limit for PCB concentration, based on available watershed monitoring data that did not exceed the laboratory detection limit. The resulting modeling analysis indicates PCB loading from the watershed would not sustain the bed concentration at the numeric target and the concentration would decrease over time. PCB sediment concentrations increase when the watershed load contribution is sufficiently high enough to result in an increasing bed concentration.

21.	Bart Chadwick, U.S. Navy Oral comment received on September 15, 2008	
	Comment: Will the San Diego Water Board be asking for PCB load reductions? If load reductions are not required, why is the San Diego Water Board proceeding with development of a TMDL for PCBs?	**Response**: See response to comment No. 15. in section II, above.
22.	Bart Chadwick, U.S. Navy Oral comment received on September 15, 2008	
	Comment: How realistic is it for stakeholders to meet the load allocations for PAHs?	**Response**: Controlling discharges laden with PAHs will present a challenge. Naturally occurring in petroleum-based lubricating oils and as byproducts of fuel combustion PAHs have a widespread presence in highly urbanized environments such as these three watersheds. These pollutants, particularly the more environmentally problematic high molecular weight PAHs, have a tendency to bind to soil particles (ATSDR 1994). It will be important to effectively manage sediment transport in order to protect the local waterways. There are a number of proven practices and widely available technologies that provide erosion and sediment control. Commonly used sediment control practices include using fiber rolls and geotextile mats to keep erodible soils in place and installing storm drain inlet protection to protect waterways. Treatment control BMPs can provide medium to high removal efficiencies, including infiltration trenches, basins, bioretention, swales, buffer strips, media filters, and drain inserts (CASQA 2003a). Additionally, the TMDL project includes a generous compliance schedule that is phased in over 20 years. This will allow for time to implement BMPs, to work on solutions to the complex issues related to air deposition, and for technological improvements in motor vehicle fuel sources and emission technologies to develop.

23.	Bart Chadwick, U.S. Navy Oral comment received on September 15, 2008	
	Comment: The San Diego Water Board should consider that the adjacent shipyards and other areas could be influencing the mouths of the creeks.	**Response**: All potential sources were included in the modeling analysis through representation in the watershed or receiving water models. Shipyard areas and other potential sources within the drainage area for each impaired creek mouth were included in the watershed model to estimate pollutant load contributions. Bay sources, including initial sediment bed concentrations that were set based on numeric target levels, are included in the receiving water models.
24.	Bart Chadwick, U.S. Navy Oral comment received on September 15, 2008	
	Comment: Please identify the compliance points for each TMDL.	**Response**: The Implementation Plan in the draft Technical Report provides information relating to how compliance will be achieved. This includes a phased load reduction schedule for the mass-based TMDLs over a 20 year period, TMDL requirements that will be incorporated into applicable permits (including Appendices K, L, and M), and a TMDL compliance schedule.
25.	Ed Kimura, Sierra Club Oral comment received on September 15, 2008	
	Comment: Why did the San Diego Water Board only use one sediment type in the modeling?	**Response**: TSS concentration was divided among the three modeled sediment classes in the EFDC model (i.e., clay, silt, and sand). Section 4.2.3.2 of Receiving Water Model Configuration and Evaluation for the San Diego Bay Toxic Pollutants TMDLs Report (Appendix D) discusses the sediment ratios used in the models for each creek mouth.
26.	Unknown Commenter Oral comment received on September 15, 2008	
	Comment: Is it possible that there are PCB sources that are not accounted for in the model?	**Response**: Yes. The data sets used for the model analysis were collected at monitoring stations above the tidal prism. As a result of this, the San Diego Water Board has addressed this potential by incorporating an explicit MOS to account for this uncertainty and by including a requirement in the Implementation Plan to conduct a special study to characterize the contributing load of PAHs, PCBs, and chlordane from the tidally-influenced portion of each of the three watersheds. If the study identifies any new sources, San Diego Water Board can exercise several options, including but not limited to issuance of investigative orders, new waste discharge requirements, or revision of existing waste discharge requirements.

27.	Ruth Kolb, City of San Diego Received via email on October 1, 2008	
	Comment: The Port of San Diego dredged the mouth of Switzer in the last 5 to 6 years and the U.S. Navy dredged Chollas Creek in 1997. How are the past dredging projects that likely removed legacy pollutant-contaminated sediment accounted for in the model?	**Response**: These past maintenance dredging projects do not affect the modeling used for TMDL development. The modeling predicts whether the watershed loading will cause the sediment in the mouth area to exceed the numeric target. This approach requires an assumption that the sediment in the mouth area is already at or below the numeric target. The existing sediment concentrations were taken into consideration with respect to the numeric targets development and in the sediment remediation options and cleanup levels. The Port of San Diego's dredge project for Tenth Avenue Marine Terminal was conducted in 2002. The Phase I study took place in 2003 and reported elevated PCBs and chlordane, toxicity to amphipods, and mixed habitat degradation. The U.S. Navy dredged the mouth of Chollas in 1997. The Phase I study took place in 2001 and reported elevated PAHs, PCBs, and chlordane, toxicity for amphipod survival and urchin embryo development, and benthic community values reflecting a 50 percent or greater loss of biodiversity. Please see Compilation of Sediment, Storm Water, and Water Quality Data Summaries for the Mouths of Paleta, Chollas, and Switzer Creeks in Appendix F.
28.	Ruth Kolb, City of San Diego Received via email on October 1, 2008	
	Comment: Is there any documentation on how long it takes the benthic community to re-establish itself once an area has been dredged?	**Response**: There have been a number of studies that have looked at benthic recolonization after dredging in harbors and estuaries. Two such studies are referenced in the draft Technical Report as rationale for compliance with the Aquatic Life SQO after completion of sediment remediation. One study indicated that 6 months are required for a disturbed area to re-establish a sediment structure and a macrobenthic community similar to undisturbed areas (Guerra-Garcia et al. 2003). Another study reported that the system recovered to pre-dredging values after 1 year (Ceia et al. 2011). The TMDL Implementation Plan will allow for 2 years for the system to recover prior to requiring compliance with the SQO for benthic community protection.

29.	Ruth Kolb, City of San Diego Received via email on October 1, 2008	
	Comment: It appears that the model did not consider sediment transport from beyond the edge of the TMDL area, i.e., there is known sediment contamination just beyond the mouth of Chollas Creek at the Shipyard Sediment Site. Please verify whether this potential source was considered.	**Response**: With respect to the Shipyard Sediment Site, the potential for contamination coming from the Shipyards to Chollas Creek is remote. There are no new or ongoing discharges of pollutants coming from either of the shipyard facilities and the contaminated sediment will be removed to a level that will be protective of aquatic-dependent wildlife and human health. The Shipyard Sediment Site Cleanup and Abatement Order No. R9-2012-0024 was approved on March 14, 2012 and is proceeding.
30.	May Alsheikh, Caltrans Received via email on October 1, 2008	
	Comment: Caltrans does not oppose the assignment of one WLA for the mouth or a specific WLA for each source as long as Caltrans is assigned an appropriately representative load. For example, Caltrans should not be considered a source of chlordane or lindane since Caltrans has not used products containing these chemicals for over 20 years. Also these products were not detected in Caltrans' three year characterization Studies (2000-2003).	**Response**: The San Diego Water Board thanks Caltrans for it's comment. With respect to chlordane, Caltrans will receive a WLA (lindane has been delisted). Chlordane is persistent in the environment and can persist in some sediment and soils for more than 20 years (ATSDR 1994). Additionally, Southern California Coastal Waters Research Project found dry particle deposition of chlordane in the San Diego Bay airshed (Schiff 2011). Receiving no WLA would be equivalent to having a zero allocation. Any future discharge of measurable quantities of chlordane, whether from air deposition or the presence of legacy sediment concentrations in fill, would be subject to enforcement action.
31.	May Alsheikh, Caltrans Received via email on October 1, 2008	
	Comment: When land use GIS layers are used to determine the WLA, local/urban streets should be differentiated from any other land use within the local cities right of way so that the transportation layer in the model includes urban streets and freeways.	**Response**: The watershed models for Chollas, Paleta, and Switzer Creek watersheds were reconfigured in 2010 to include additional monitoring data were collected within each of the watersheds by the City of San Diego to improve the understanding of toxic pollutant concentrations and other water quality constituents within the creeks. Additionally, an updated land use dataset was used that enabled the model to distinguish road surfaces and highway right-of-ways.

32.	May Alsheikh, Caltrans Received via email on October 1, 2008	
	Comment: Caltrans believes that there is not sufficient data to understand the sediment toxicity problem or to accurately calculate the WLAs. The watershed model was developed using three data points for each pollutant and this is a significant cause for concern. The model was not calibrated or validated for the organic pollutants and without additional data these steps are not possible. We would suggest for the TMDL to be postponed until additional data can be collected by the Stakeholders. In addition, since this is a TMDL for sediment toxicity due to organic pollutants, development of a site specific objective (SSO) would be beneficial to evaluate the ability of the receiving waters to assimilate the pollutant.	**Response**: Since the original watershed models were developed, additional monitoring data were collected within each of the watersheds by the City of San Diego to improve the understanding of toxic pollutant concentrations and other water quality constituents within the creeks. The contribution from different land use types and catchments was a primary focus of the recent monitoring studies. This information was used to update the watershed models, along with updated land use information (SANDAG 2009), to more accurately model flow and pollutant concentrations. The 2006 measured hydrology was used to calibrate the hydrology of the new land use parameters. Data collected from the land use catchments by the City of San Diego were used to calibrate the water quality portion of the model and the data from the larger catchment-scale sites were used for validation (City of San Diego 2010a). The project, with the primary focus on the modeling approach, was reviewed by two independent peer reviewers (see Appendix A of this draft Technical Report). One reviewer determined that the TMDL project is based upon sound scientific knowledge, methods, and practices. The second reviewer concluded that in general the TMDL project documentation was an impressive effort, especially with respect to the watershed and receiving water modeling. His primary concern was with the sparse data available for input into the receiving water model. Lastly, a site-specific objective is not needed for this project. The recently developed Aquatic Life SQO applies to these waterbodies. The SQO's MLOE approach will be used to determine whether the beneficial uses are being met. Additionally, development of numeric targets for bioaccumulative pollutants using a risk assessment approach will assure that human health is protected.

33.	May Alsheikh, Caltrans Received via email on October 1, 2008	
	Comment: Aerial deposition should be considered as a non-controllable, non-point source in the TMDL.	**Response**: Atmospheric deposition is discussed in the Source Analysis in Section 5 in this draft Technical Report. LAs for direct deposition of chlordane to the water surface of each of the water bodies have been allocated (see Section 8.1.2).
34.	May Alsheikh, Caltrans Received via email on October 1, 2008	
	Comment: Caltrans recommends that the San Diego Water Board pursue de-listing of PCBs since all samples collected were below the detection limit for this pollutant.	**Response**: Delisting of PCBs is not justified solely because PCB watershed storm water concentrations were not detected. Sediment concentrations remain elevated in the creek mouth sediments, which are impairing beneficial uses and are considered as a potential source to the greater San Diego Bay fish tissue impairment. The Mass Loading Stations, where the samples were collected, are above the tidal influence of the Bay. This information only reduces the source potential of those portions of the watersheds above the monitoring station for this pollutant. The segments of the creeks that are influenced by the tides will be investigated as part of the TMDL Implementation Plan and an appropriate action will be pursued that is based on the special study results. TMDLs are required to be calculated for the purpose of assuring beneficial use restoration. The fact that the watershed appears to be providing minimal PCB loads to the creek mouth areas allows the TMDL to set at the current loading value (0 percent reduction). The TMDL is then allocated to the sources, excluding the explicit margin of safety.
35.	May Alsheikh, Caltrans Received via email on October 1, 2008	
	Comment: There's no current technology to efficiently remove the organic pollutants listed for this TMDL. Therefore, we request a similar implementation schedule as the dissolved metals for Chollas Creek TMDL to effectively address pollutants of concerns in this watershed with the most effective BMPs.	**Response**: The TMDLs will be phased in over 20 years. The compliance milestones are as follows: 1. 25 percent reduction by year 5 2. 50 percent reduction by year 10 3. 75 percent reduction by year 15 4. 100 percent reduction by year 20 The TMDL for Dissolved Copper, Lead, and Zinc in Chollas Creek also utilizes a 20 year compliance schedule.

36.	Len Sinfield, U.S. Navy Received via email on October 6, 2008	
	Comment: The last dredging of the channel at the Mouth of Chollas Creek was completed in Jan 1997 and removed approximately 100,000 cubic yards of dredge spoils. Periodic maintenance dredging occurs every 10 to 15 years, depending upon the amount of rainfall (and drought). The Navy conducts hydrosurveys of the creek mouth once every three years. The last survey was in 2006 and the results indicated that dredging was not required yet. The next survey should be completed sometime this fiscal year (which started Wednesday Oct 1, 2008). If the new survey indicates that dredging is required, it could take 2 - 3 years of additional work (biological, NEPA, permitting, etc) before the dredging would occur. Dredging could potentially occur in 2011/2012, 2014/2015, or 2017/18, depending again on the amount of sediment transport and deposition. 1. Since the current concentrations will be removed in the next dredging, what is the impact on the TMDL model? 2. How does it affect the Implementation Plan?	**Response**: While maintenance dredging may remove some of the most contaminated sediment, there are other areas within the TMDL project footprint that should be considered for remediation. Additionally, a maintenance dredging project is not consistent with Resolution No. 92-49 on its own merit, since navigation is its only purpose. The prospect of a maintenance dredging project occurring has no impact on the TMDL model. The receiving water model assumes that the sediment in San Diego Bay at the mouth of Chollas Creek has already been remediated to numeric target concentrations. The model runs then test whether discharges in the watershed will lead to an exceedance of the numeric targets over time, given a critical condition (3 consecutive high flow hydrologic year cycles). The primary purposes of the model are to determine the TMDLs and allocations for surface water discharges from the watershed, which will ultimately discharge into San Diego Bay. The remediation of the bay sediments is a separate, albeit related, issue. The Implementation Plan requires issuance of a cleanup and abatement order, pursuant to Water Code section 13304, to address the impairment caused by contaminated sediment in the mouth area of the creek. In response to the second question, the prospect of a maintenance dredging project occurring does not affect the Implementation plan. The Implementation Plan provides a framework for the Water Board to implement actions and includes a schedule for those actions to occur. TMDLs are not self-implementing or directly enforceable against pollutant sources. Other Water Board regulatory tools, programs, and authorities must be used to implement the TMDL pollutant reductions required to achieve water quality standards. The most effective authorities and programs used to implement the TMDLs will depend on the type of point source(s) of pollutants to be controlled in the watershed. Although it would be optimal to coordinate a maintenance dredging project and a sediment remediation project, the Implementation Plan is not dependent on the schedule of the maintenance dredging project.

37.	Ed Kimura, Sierra Club Written comment dated November 10, 2008	
	Comment: Please provide the final version of Draft Phase II report (September 2005) for the Chollas and Paleta Creek. At the September 15 meeting staff indicated that a final version exists. The draft report summary recommended: • Additional studies to provide more specificity to the toxicant identifications for the Chollas and Paleta Creek study areas. These tests would provide data that could be used to establish cleanup thresholds or interpret assessment data from other locations. • Toxicity studies that include body burdens. We recommend that bioaccumulation of PCB, chlordane, DDT, metals and other contaminants in fish that are not metabolized and consumed by humans. • The potential for unmeasured contaminants to cause toxicity in the study sites should be addressed through sediment fractionation studies.	**Response**: The Southern California Coastal Water Research Project (SCCWRP) has taken action to finalize the reports titled, *Temporal Assessment of Chemistry, Toxicity, and Benthic Communities in Sediments at Chollas Creek and Paleta Creek, San Diego Bay* (dated November 2011) and *Sediment Toxicity Identification Evaluation for the Mouths of Chollas and Paleta Creek, San Diego* (November 2011). No public comments were received since the draft were made available: presentation of draft findings at a publicly noticed workshop on January 18, 2005, electronic mailing notice soliciting comments on the Temporal Study, and availability of both reports on the project website since draft publication dates in 2005. Only the San Diego Water Board submitted minor comments on the two reports to SCCWRP, which have now been incorporated. Additionally, an internal review performed by SCCWRP identified some additional clerical errors that have been corrected. Both final reports are available on the project website: http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/sediment_toxicity.shtml The San Diego Water Board will not be performing any additional studies prior to TMDL adoption. Additional studies may be required during implementation of the TMDLs, as appropriate, and would be directed to responsible parties by investigative order (Water Code section 13267). The Toxicity Identification Evaluation conclusively identified non polar organic pollutants and developed TMDLs for the organic pollutants found at these sites.

38.	Ed Kimura, Sierra Club Written comment dated November 10, 2008	
	Comment: Our review of the Draft Tetra Tech Receiving Water Model Configuration and Evaluation for the San Diego Bay Toxic Pollutants TMDL (Bay Model Report) reveals serious omissions and errors. Here are some examples: 1. It fails to acknowledge that the monitoring data for the mouths of the Chollas and Paleta are surficial samples (Van Veen grabs). Presumably these data (referred as core data in the draft report) were used to characterize the contaminants of concern from the sediment surface to the base of the sediment. The report states that the EFDC model is capable of simulating any number of sediment bed layers. 2. Sediment Transport Model Calibration section 5.2 refers the reader to Appendix C for the simulated TSS results. Appendix C is the Time Variable Loading for the Mouth of Paleta Creek. Graphical TSS results are omitted. It is no wonder that the text notes discrepancies between the model predictions and the data given that are surficial samples and do not represent the actual bed sediment properties. 3. Toxic Model Calibration section 5.3 refers the reader to Appendix D, the Time Variable Loading for the Mouth of Chollas Creek. Results are again not shown. The discussion on page 20 notes that the results show a greater range than that predicted by the model. This is not surprising given the erroneous use of the surficial data. 4. Sensitivity to Watershed Loading Level section 6.5 figures are missing. The report erroneously refers to Appendix E, the Time Variable Loading Results the Mouths of Switzer Creek. 5. The results of the Temporal Response to Sediment Bed Toxicity section 6.6, in our view, are not credible because the model erroneously used surficial monitoring data.	**Response**: 1. Only surficial data were available, therefore this information was used to represent the entire bed; however, this assumption would not have a significant influence on the model calibration and resulting TMDLs. Deep bed layers would not have a significant impact on surficial concentrations, in particular, since the models were developed based on setting the initial sediment bed concentration equal to the numeric targets (assuming sediment remediation down to these levels). Also, the models were run for a relatively short duration in order to examine the response in sediment concentration in the critical period for these TMDLs. 2. There appears to have been some error with the documents reviewed by this commenter. The original Technical TMDL Report prepared by Tetra Tech contained Appendices C, D, and E that contained Time Variable Loading Results for Paleta, Chollas, and Switzer creeks, respectively. The Bay Model Report, as currently posted on the website, appears to have the appropriate appendices as noted in the text of the report. See previous response in bullet no. 1 regarding surficial samples and bed concentration. 3. See previous response in bullet no. 2 regarding the reference to Appendix D. See previous response in bullet no. 1 regarding bed concentration data availability. Where data are limited, reasonable assumptions are used to represent the broader modeling domain and overcome data gaps. These issues are common in modeling studies and represent potential uncertainty in the results, rather than erroneous use of available data. 4. See previous response in bullet no. 2 regarding the reference to Appendix E. 5. See previous response in bullet no. 1 regarding surficial bed data availability and modeling uncertainty.

39.	Ed Kimura, Sierra Club Written comment dated November 10, 2008	
	Comment: Section 6.7 of the Bay Model Report [Appendix D of the draft Technical Report] discusses the TMDL development strategy. The Time Variable loading results given in Appendix C, D and E are not discussed. It appears that these results were to present the TMDLs needed to attain the numeric targets for the contaminants of concern. Because the model used surficial data the results are not credible. Consider Appendix D, Figure D-1 is the time variable loading for PCB, a legacy contaminant. It shows that after approximately 3 years the PCB decreases to the numeric value because there is no loading from the watershed. If this were true, then according to this figure the PCB today would be at the numeric limit since the data used were measured in 2001, seven years ago. It is reasonable to assume that the PCB sources in the watershed became a legacy contaminant some at some time prior to 2001. If this occurred in 1998, the PCB would be at the numeric limit in 2001. This indicates the importance of sediment core samples (including chemistry, grain size, total organic carbon) to obtain the mass loading at the mouths of the Chollas and Paleta Creek. Transport of the not only the legacy contaminants but also other potential contaminants of concern should be used in the modeling.	**Response**: See response to bullet no. 1 of comment no. 38 regarding surficial bed data availability and modeling uncertainty. Also, legacy sediment contamination was addressed through using initial sediment bed concentrations that were set equal to the numeric targets, which assumes sediment remediation down to these levels based on future bay cleanup activities. The modeling analysis and TMDLs focus on the watershed contribution and pollutant reductions needed to address these loads.
40.	Ed Kimura, Sierra Club Written comment dated November 10, 2008	
	Comment: Core samples that provide a profile of the constituents of concern are one of the essential actions to determine the remediation plan. Remediation will need to provide a healthy sediment bed environment that restores and protects the beneficial uses. That is one reason why I objected to the use of the Southern California LRM to obtain the numeric targets for the contaminants of concern. This is a tall order and one that is still a topic for the State Water Resources Control Board SQO effort. I recommend that Chris Beegan at the SWRCB be consulted on this issue.	**Response**: The Implementation Plan includes a requirement to remediate the contaminated sediments in the three creek mouth areas to levels that are at or below the numeric targets. As mentioned in the response to comment no. 17 in Section II, above, numeric sediment quality targets have been developed using the MLOE approach of the Aquatic Life SQO with the express purpose of restoring sediment quality that will support a healthy ecosystem. A current sediment characterization will be needed to complete the analysis required by State Water Board Resolution No. 92-49 in the issuance of a Cleanup and Abatement Order. California regulations require that the San Diego Water Board consider the potential for health risks caused by human exposure to waste constituents, and the potential damage to wildlife caused by exposure to waste constituents. The Southern California LRM is no longer being used as the basis for numeric targets.

41.	Ed Kimura, Sierra Club Written comment dated November 10, 2008	
	Comment: The TMDL fails to address the bioaccumulation of contaminants that are harmful to human health as required by the recently adopted Sediment Quality Objectives. The narrative requirement Section IV. Sediment Quality Objectives Part B, Human Health states, "Pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels that are harmful to human health."	**Response**: See response to comment no. 17 in Section II, above.
42.	Lisa O'Neal, Brown & Winters Received via email on December 12, 2008	
	Comment: What has changed that would cause the possible delisting of lindane for Switzer Creek on the 2008 List Update? Does this mean that the proposed lindane TMDL for Switzer Creek will also be dropped?	**Response**: During the 2002 303(d) List Update, State Board listed specific pollutants that were assumed to be causing the toxicity and degraded benthic community impairment at the site. According to the fact sheets prepared for the listings for "San Diego Bay Shoreline, near Switzer Creek", the data that was used to assess the water quality was the Bay Protection Toxic Cleanup Program (BPTCP). One of 18 samples exceeded the lindane water quality objective. The one sample that exceeded the objective was recorded at 8.2 μg/kg. The San Diego Water Board has determined that the single elevated value should be treated as an outlier since all of the other lindane values were reported as non-detections. Additionally, subsequent sediment sampling that occurred in 2003 and 2004 during the Phase I and Phase II studies for Switzer Creek reported no detectable concentrations of lindane. Furthermore, toxicity identification evaluations conducted in 2004 on samples collected at the mouth of Switzer Creek indicated that chlordane is the most likely pesticide that contributes to the sediment toxicity in that area. The San Diego Water Board believes that the listing of lindane as a direct cause of impairment at the mouth of Switzer Creek was in error and has delisted lindane for the San Diego Bay Shoreline, near Switzer Creek in the Clean Water Act Section 305(b) and 303(d) 2008 Integrated Report for the San Diego Region, approved on December 16, 2009, and approved by the State Water Board in the California 2010 Integrated Report on August 6, 2010. Therefore, the San Diego Water Board has developed proposed TMDLs for PAHs, PCBs, and chlordane; however, a TMDL for lindane will not be developed.