

Appendix K

Specific TMDL Provisions to be Incorporated into NPDES Permit and Waste Discharge Requirements for U.S. Navy, Naval Base San Diego, San Diego County, Order No. R9-2002-0169, or Subsequent Order

The following language is recommended to be incorporated into Order No. R9-2002-0169, or subsequent order. [Detailed monitoring and assessment requirements as contained in Section 1.d. may be subject to changes and modifications as deemed necessary and appropriate when these TMDL provisions are incorporated into the Order.](#) Any references made to “provisions” of a tentative order must be updated to be consistent with the provisions of the final order prior to incorporation into Order No. R9-2002-0169, or subsequent order.

1. Total Maximum Daily Loads for Chlordane, Total PAHs, and Total PCBs in Sediment of the Mouths of Paleta, Chollas, and Switzer Creeks in San Diego Bay

a. Applicability

(1) TMDL Basin Plan Amendment: Resolution No. R9-2013-0003

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	TBD
State Water Board Approval Date:	TBD
Office of Administrative Law Approval Date:	TBD
U.S. EPA Approval Date:	TBD

(3) TMDL Effective Date: TBD

(4) Watershed Management Area: San Diego Bay

(5) Water Body: Creek and Mouth Areas of Paleta and Chollas Creeks

(6) Responsible Party: U.S. Navy

(7) Applicable Facilities: Naval Base San Diego: Main Base and Naval Medical Center San Diego

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b. Water Quality Based Effluent Limitations

The WQBELs for Paleta and Chollas creeks and creek mouth areas in San Diego Bay consist of the following:

(1) Receiving Water Limitations

- (a) Discharges from the storm water discharge points (including both industrial storm water and MS4s) must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedule under Specific Provision 1.c:

Table 1.1
Receiving Water Limitations as Sediment Concentrations in Paleta and Chollas Creek Mouth Areas in San Diego Bay

Constituent	Receiving Water Limitation
Chlordane	2.1 µg/kg
Total PPPAHs	2,965 µg/kg
Total PCBs	168 µg/kg

Table 1.2
Receiving Water Limitations as Water Concentrations in Paleta and Chollas Creek Mouth Areas in San Diego Bay

Constituent	Receiving Water Limitation
Chlordane	0.00059 µg/L
Benzo(a)pyrene	0.049 µg/L
Total PCBs	0.00017 µg/L

- (b) If the above receiving water limitations are not met in the receiving water, the Responsible Party must demonstrate that the discharges from the storm water discharge points are not causing or contributing to the violation of receiving water limitations. To do so, the Responsible Party must provide data that demonstrate discharges from its storm water discharge points is meeting the effluent limitations under Specific Provision 1.b.(2).

(c) The Responsible Party is out of compliance with a Receiving Water Limitation which applies to the sum of a group of chemicals if the sum of the individual pollutant concentrations in the monitoring sample is greater than the Receiving Water Limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as not detected (ND). The Minimum Reporting Limits acceptable for the compliance monitoring of the three key COC groups are listed below:

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Minimum Reporting Limits

<u>Analyte Group</u>	<u>Analyte</u>	<u>Water</u> (<u>µg/L</u>)	<u>Sediment</u> (<u>µg/kg</u>)	<u>Tissue</u> (<u>µg/kg ww</u>)
<u>Chlordane</u>	<u>cis-Chlordane</u>	<u>0.002</u>	<u>1</u>	<u>2</u>
	<u>trans-Chlordane</u>	<u>0.002</u>	<u>1</u>	<u>2</u>
<u>PAHs</u>	<u>Acenaphthene</u>	<u>2</u>	<u>20</u>	<u>100</u>
	<u>Acenaphthylene</u>	<u>2</u>	<u>20</u>	<u>100</u>
	<u>Anthracene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Benzo(a)anthracene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Benzo(a)pyrene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Benzo(b)fluoranthene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Benzo(g,h,i)perylene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Benzo(k)fluoranthene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Chrysene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Dibenzo(a,h)anthracene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Fluoranthene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Fluorene</u>	<u>2</u>	<u>20</u>	<u>100</u>
	<u>Indeno(1,2,3-cd)pyrene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Naphthalene</u>	<u>2</u>	<u>20</u>	<u>100</u>
	<u>Phenanthrene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
	<u>Pyrene</u>	<u>0.1</u>	<u>20</u>	<u>100</u>
<u>PCBs</u>	<u>PCB 5</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 8</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 15</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 18</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 27</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 28</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 29</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 31</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 33</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 44</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 49</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 52</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 56</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
	<u>PCB 60</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>
<u>PCB 66</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>	
<u>PCB 70</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>	
<u>PCB 74</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>	
<u>PCB 87</u>	<u>0.002</u>	<u>0.2</u>	<u>0.4</u>	

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Minimum Reporting Limits

-	PCB 95	0.002	0.2	0.4
-	PCB 97	0.002	0.2	0.4
-	PCB 99	0.002	0.2	0.4
-	PCB 101	0.002	0.2	0.4
-	PCB 105	0.002	0.2	0.4
-	PCB 110	0.002	0.2	0.4
-	PCB 114	0.002	0.2	0.4
-	PCB 118	0.002	0.2	0.4
-	PCB 128	0.002	0.2	0.4
-	PCB 137	0.002	0.2	0.4
-	PCB 138	0.002	0.2	0.4
-	PCB 141	0.002	0.2	0.4
-	PCB 149	0.002	0.2	0.4
-	PCB 151	0.002	0.2	0.4
-	PCB 153	0.002	0.2	0.4
-	PCB 156	0.002	0.2	0.4
-	PCB 157	0.002	0.2	0.4
-	PCB 158	0.002	0.2	0.4
-	PCB 170	0.002	0.2	0.4
-	PCB 174	0.002	0.2	0.4
-	PCB 177	0.002	0.2	0.4
-	PCB 180	0.002	0.2	0.4
-	PCB 183	0.002	0.2	0.4
-	PCB 187	0.002	0.2	0.4
-	PCB 189	1	10	20
-	PCB 194	0.002	0.2	0.4
-	PCB 195	0.002	0.2	0.4
-	PCB 200	0.002	0.2	0.4
-	PCB 201	0.002	0.2	0.4
-	PCB 203	0.002	0.2	0.4
-	PCB 206	0.002	0.2	0.4
-	PCB 209	0.002	0.2	0.4
-	Aroclor 1248	2.5	25	50
-	Aroclor 1254	1	10	20
-	Aroclor 1260	1	10	20

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(2) Effluent Limitations

Discharges from the Responsible Party's storm water conveyance system must not contain pollutant loads that exceed the following effluent limitations by the end of the compliance schedule under Specific Provision 1.c:

Table 1.3
Effluent Limitations as Annual Loads in Discharges to Paleta and Chollas Creeks and Creek Mouth Areas

Pollutant		Effluent Limitation
		g/yr
Paleta Creek/Seventh Street Channel		
Chlordane	g/yr	3.2
Total PAHs	g/yr	117
Total PCBs	mg/yr	16.0
Chollas Creek and Creek Mouth Area		
Chlordane	g/yr	0.36
Total PAHs	g/yr	9.5
Total PCBs	mg/yr	2.47

(3) Pollutant Load Reduction Plan and Water Quality Improvement Plan for San Diego Bay

- (a) The Responsible Party is required to develop Pollutant Load Reduction Plan that identify specific implementation actions that will be used to comply with the required waste load reductions and meet the TMDLs as required in Section 1.b. and c. of this Specific Provision. The Pollutant Load Reduction Plan must meet requirements set forth in Section 10.3.1 of the Technical Report for Resolution No. R9-2013-0003. In particular, the Pollutant Load Reduction Plan should 1) identify pollutant sources and other stressors that may cause incompliance with the TMDL requirements as stated in Section 1.b. and c. of this Specific Provision; 2) describe strategies and identify methods to improve water quality, and define implementation schedules to achieve compliance with TMDL requirements; and 3) execute a coordinated monitoring and assessment program to determine progress towards achieving compliance with TMDL requirements.
- (b) The Pollutant Load Reduction Plan must be submitted to the San Diego Water Board within 12 months of the TMDL effective date. The Responsible Party, on its own or together with Caltrans and the identified MS4 copermittees (discussed below), must commence with implementation of the Pollutant Load Reduction Plan no later than 6

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months after submission, unless otherwise directed in writing by the San Diego Water Board.

- (c) The Pollutant Load Reduction Plan discussed above should be incorporated into the Water Quality Improvement Plan for San Diego Bay (WQIP). The WQIP is required in Section II.B.1. of ~~Tentative~~ Order No. R9-~~2012-0011~~2013-0001 to be developed and implemented by the MS4 copermittees including those identified in Resolution No. R9-2013-0003 (hereinafter, the identified MS4 copermittees, to be specific, County of San Diego, City of San Diego, City of Le Mesa, City of Lemon Grove, the National City, and Port of San Diego). The Responsible Party should participate, with Caltrans and the identified MS4 copermittees, in the development and implementation of the WQIP.
- (4) Best Management Practices
- (a) The Responsible Party must implement BMPs capable of achieving the WQBELs under Specific Provision 1.b for Switzer, Paleta and Chollas creek mouth areas
- (b) The Responsible Party should coordinate the BMPs to address these TMDLs with Caltrans, the identified MS4 copermittees, and owners/operators of small MS4s wherever and whenever possible.

c. Compliance Schedule

(1) Compliance Dates

- a. The Responsible Party must be in compliance with the WQBELs under Specific Provision 1.b.(1), at the completion of sediment remediation directed by the San Diego Water Board at the mouths of Paleta, Chollas, and Switzer creeks in San Diego Bay.
- b. The Responsible Party must be in compliance with the WQBELs under Specific Provision 1.b.(2), by December 31, [insert 20 years after effective date of OAL Approval Date].
- c. The Responsible Party is required to attain the Sediment Quality Objective for Aquatic Life – Benthic Community Protection by December 31, [insert 20 years after effective date of OAL Approval Date].

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(2) Interim Compliance Requirements

The Responsible Party must comply with the following interim WQBELs by the interim compliance dates:

a. Interim wet weather WQBELs

Table 1.5

Interim Effluent Limitations as Annual Loads in Discharges to Paleta and Chollas Creeks and Creek Mouth Areas

Interim Compliance Date				
Pollutant		[insert Year 5]	[insert Year 10]	[insert Year 15]
		40% Reduction	80% Reduction	90% Reduction
Paleta Creek/Seventh Street Channel				
Chlordane	g/yr	3.7	3.4	3.3
Total PAHs	g/yr	149	127	122
Total PCBs	mg/yr	16.5	16.2	16.1
Chollas Creek and Creek Mouth Area				
Chlordane	g/yr	0.51	0.41	0.39
Total PAHs	g/yr	19.1	12.7	11.1
Total PCBs	mg/yr	2.55	2.50	2.49

d. Monitoring and Assessment Requirements

(1) General Requirements

- (a).Monitoring and assessment (M&A) of storm water effluent, receiving water (including sediment), tidally-influenced creek portions, and fish tissue should be conducted in accordance with requirements of Section 10.6 of the Technical Report for Resolution No. R9-2013-0003.
- (b).To protect environment and save cost, the Responsible Party should coordinate and implement the M&A activities required in this Section with other applicable M&A activities of other relevant monitoring programs, whenever and wherever possible.
- (c).The Responsible Party must develop technically appropriate Monitoring and Reporting Plans (MRPs) and Quality Assurance Project Plans (QAPPs) to implement the monitoring activities accordingly. The QAPPs shall be developed in accordance with the requirements of Surface Water Ambient Monitoring Program (SWAMP) Quality

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Assurance .Program Plan¹ The MRPs and QAPPs shall be included in the Pollutant Load Reduction Plan of Section 1.b.(3) above.

- (d).Monitoring and assessment activities for the tidally-influenced creek portions and PCB accumulation in fish tissues should be conducted in accordance with requirements of Investigative Orders No. [insert order number] and [insert order number], respectively.
- (e).For the monitoring of receiving water and storm water effluent, the Responsible Party must develop and implement a monitoring program to meet the goals listed in Section 10.6 of the Technical Report for Resolution No. R9-2013-0003. In specific the monitoring program should be designed to answer the following questions :
 - (i). Does the receiving water condition meet requirements of the Receiving Water Limits for water column and sediments, respectively, as listed in Section 1.b.(1) (a) of this Specific Provision?
 - (ii). Do the pollutant mass loadings associated with storm water effluents that are discharged to the San Diego Bay and its tributaries as a result of activities at the Main Base and Naval Medical Center San Diego, meet requirements with respect to pollutant mass loading limits and schedule, as stated in Sections 1.b.(2) and 1.c. of this Specific Provision?
 - (iii). If exceedances of either the Receiving Water Limits or storm water effluent limits occur, where are the principal source areas of the pollutants that have caused the exceedances?
 - (iv). If corrective actions or source control measures are taken to treat the identified principal source areas of pollutants, are these corrective measures successful?
 - (v). Are the beneficial uses restored and maintained in the receiving water?

At a minimum, the monitoring program should meet the criteria discussed in Section (2) through (4) below.

¹ The SWAMP Quality Assurance .Program Plan is available on line at http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/qaprp082209.pdf.

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(2) Monitoring and Assessment Requirements for Storm Water Discharges

(a) Monitoring Stations

- (i). Requirements of this section applies to all storm water discharge points that, either directly or indirectly, discharge to Chollas Creek, Paleta Creek, and the mouth areas of these two creeks from the Main Base, as well as those discharging to Switzer Creek from the Naval Medical Center San Diego.
- (ii). The Responsible Party should identify representative storm water monitoring locations that are characteristic of the storm water flow conditions as well as their associated pollutant mass loadings corresponding to each land use activity (i.e., industrial storm water and MS4) at the Main Base and Naval Medical Center San Diego. The number and locations of identified monitoring points should be adequate and appropriate, so that the monitoring results will be sufficient and suitable to properly calculate or estimate the mass loadings of pollutants (to be specific, chlordane, PAHs, PCBs, and total suspended solids) discharged to San Diego Bay and its drainage systems due to activities at the Navy. These pollutant mass loadings will be used to evaluate the compliance status in accordance with requirements in Specific Provision [1.b.\(2\)](#) and [1.c.](#) To achieve these goals:
 - [a]. The Responsible Party should identify all storm water discharge locations at the Main Base discharging to Chollas Creek, Paleta Creek, and the Chollas and Paleta creek mouth areas, and those at Naval Medical Center San Diego discharging to Switzer Creek, and report the information in a format comparable to Attachment M of this Order. This information should be reported in the Annual Storm Water Risk Level Designation Report as required in Section IV.B.2 of this Order.
 - [b]. For the monitoring of industrial storm water effluent, monitoring locations that are representative of industrial storm water flows should be proposed, and updated annually as necessary, according to the criteria stated in Monitoring and Reporting Program (MRP) Section II.B. of this Order.
 - [c]. At least two representative monitoring locations for each watershed within the jurisdictional areas of Main Base and Naval Medical Center San Diego, respectively, should be proposed to characterize storm water flows in the small MS4 areas of these facilities. The criteria and methods used to identify, and update annually as necessary, the representative monitoring locations should be provided initially in the Storm Water Management Plan (SWMP) for Small MS4s as required

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in Section IV.D.2. of this Order. Any proposed updates of the representative monitoring locations, as well as the rationale for those updates, should be included in the Self Monitoring Reports required in Section X. of the MRP. If the total number of outfalls of certain watershed within the Navy's jurisdictional boundaries covered by this Specific Provision is less than five, then all of the outfalls within that watershed should be monitored.

- [d]. For either one of the three key constituents of concerns (COCs) – total chlordane, total PAHs, and total PCBs, any monitoring location that has concentrations of “Below Detection Limit (Non Detect)” three successive years should be replaced with a different monitoring location for that particular constituent. The same monitoring locations may continue to be used for the monitoring of the other key COCs if their concentrations are quantifiable and reportable.
- [e]. If exceedances of the concentration-based TMDLs are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented, in accordance with the requirements of Section 1.d.(2)(c) below, to identify the sources causing the exceedances. The additional monitoring locations and/or other source identification methods must also be used to demonstrate that organic pollutant loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

(b) Monitoring Procedures

The Responsible Party must monitor the effluent of its storm water outfalls for the three key COCs (chlordane, PAHs, and PCBs) and flow, and develop monitoring procedures to be consistent with the following criteria:

- (i) A narrative description must be provided of the station identification and location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event which generated the sampled discharge and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event;
- (ii) Flow rates and volumes for each monitoring station must be measured or estimated during each monitoring event in accordance with sections 3.2.1 or 3.2.2 of the [USEPA Storm Water Sampling Guidance Document](#) (EPA-833-B-92-001), or other method proposed by the Responsible Party that is

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acceptable to the San Diego Water Board;

- (iii) The Responsible Party must collect storm water samples, including both industrial storm water and MS4s, from at least two qualifying storm events² during the wet season (October 1 – April 30). The Responsible Party should collect storm water samples from the first qualifying storm event of the wet season.
- (iv) Monitoring and analysis of industrial storm water samples should meet requirements of MRP Section IX.A.3.a. through d.
- (v) Monitoring and analysis of MS4 water samples should meet requirements of MRP Section IX.B.
- (vi) Monitoring parameters must include total chlordane, total PAHs and PPPAHs, PCB congeners³ and total PCBs, total suspended solids, general water chemistry (temperature, dissolved oxygen, pH, and electrical conductivity), and a flow measurement.
- (vii) Flow weighted composite sample should be collected for the analysis of the key COCs and total suspended solids.
- (viii) Storm water effluent samples should not be influenced by sea water.
- (ix) The Responsible Party should conduct storm water effluent monitoring in accordance with requirements (i) through (viii) listed above unless otherwise directed in writing by the San Diego Water Board.

(c) Storm Water Pollutant Source Identification Monitoring Program

- (i) The Responsible Copermittees must develop and implement monitoring programs with the purpose to identify the source areas of the key COCs, as well as other pollutants as necessary, discharged from their storm water outfalls. The storm water pollutant source identification programs should include a “moving upstream” monitoring strategy, in which systematic and focused monitoring moves upstream into each storm water outfall drainage area as necessary to identify the sources of the pollutants. Results of the programs should be used to guide the implementation of corrective actions or source control measures at the facilities. Monitoring for the effectiveness of corrective actions may be included in the programs after corrective actions are taken to treat the identified pollutant sources. These source identification programs should be included as a component in the Responsible

² A qualifying storm event is defined in Section IX.2.b. of the MRP.

³ PCB congeners should include those listed in Attachment A in the Water Quality Control Plan for Enclosed Bays and Stuaries – Part 1 Sediment Quality (SWRCB 2009).

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Copermittees' Monitoring and Reporting Plans as well as Pollutant Load Reduction Plans.

- (ii) Considering that the receiving water is in noncompliance with the WQBEL of receiving water with respect to PAHs, the first year of TMDL compliance monitoring should include a first-round of pollutant source identification monitoring to identify the sources that have been causing this WQBEL exceedance. The Responsible Copermittees should compile and evaluate existing data that may help with source identification, and subsequently identify data gaps, and accordingly develop and implement a monitoring plan to locate pollutant sources. The "moving-upstream" monitoring strategy discussed in Section 1.d.(2)(c)(i) above should be used in the first round of source identification monitoring. Results of this first round of monitoring should be used to update, as appropriate, the monitoring design in the MRP and QAPP required in Section 1.d.(1)(c). Pollutants other than PAHs may also be included in this first round monitoring of pollutant source identification to maximize the informational benefits that will facilitate the design of effective monitoring programs.

(d) Monitoring Data Assessment

The Responsible Party should analyze the storm water monitoring data collected pursuant to requirements of Specific Provision 1.d.(2)(a) and (b), and calculate or estimate the annual loads, in accordance with below requirements :

- (i) The Responsible Party should calculate or estimate:
 - [a]. The monthly mean rainfall estimates (or summary of weather bureau data) and the monthly average number of storm events;
 - [b]. The average storm water runoff coefficient for each land use type within the Responsible Party's jurisdiction;
 - [c]. The volume of storm water discharged from the Responsible Party's storm water outfalls to receiving waters within its jurisdiction for each storm event;
 - [d]. The pollutant loads from each of the Responsible Party's storm water outfalls to receiving waters within its jurisdiction for each storm event; and
 - [e]. The percent contribution of pollutant loads from each land use type within the drainage basin to storm water discharges for each storm water outfall within its jurisdiction, for each storm event.

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- (ii) The Responsible Party must evaluate the storm water monitoring data to assess whether the interim and final wet weather WQBELs in Specific Provisions 1.b.(2) and 1.c.(2)(a) have been achieved.
- (iii) If the interim wet weather WQBELs of Section 1.c.(2) are not achieved on schedule, the Responsible Compermittees must identify and incorporate additional storm water outfalls and receiving water monitoring stations and/or adjust monitoring frequencies, as necessary and appropriate, to identify sources causing exceedances of the WQBELs. Efforts to identify pollutant sources should be based on the conceptual fate and transport model discussed in Section 1.d.(3) (a) below, and also meet requirements stated in Section 1.d.(2).(c). Storm Water Pollutant Source Identification Monitoring Program of this Specific Provision.
- (iv) The monitoring and assessment results must be submitted annually as part of the Self Monitoring Reports required under Section X.B. of the MRP.

(3) Monitoring and Assessment Requirements for Water and Sediment Concentration in the Creek Mouth Areas

The Responsible Party should develop and implement a Work Plan for the monitoring of receiving water conditions in order to assess compliance with the Receiving Water Limits set forth in Section 1.b. of the Specific Provision. This Work Plan may be incorporated into and submitted together with the Water and Sediment Monitoring Plan as required in Section VII.3. of the MRP. This Work Plan should be developed based on the results of the fate and transport of pollutants from the conceptual model as discussed below [see section (a)] and in Section VIII.A.3. of the MRP. The Work Plan should also meet below requirements:

(a) Conceptual Model.

A Conceptual Model identifying the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the water and sediment shall be developed and included in the Work Plan. The Conceptual Model will serve as the basis for assessing the appropriateness of the Work Plan design, including the number and locations of monitoring stations, time frame and frequency of monitoring, and parameters to be monitored. The Conceptual Model shall consider:

- (i) Points of discharge into the segment of the water body or region of interest;
- (ii) Tidal flow and/or direction of predominant currents;

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- (iii) Historic or legacy conditions in the vicinity;
 - (iv) Nearby land and marine uses or actions;
 - (v) Beneficial Uses;
 - (vi) Potential receptors of concern;
 - (vii) Change in grain size, salinity, water depth, and organic matter;
and
 - (viii) Other sources or discharges in the immediate vicinity.
- (b) Existing Data and Information.
The Responsible Party shall take into consideration existing data and information of appropriate quality including ongoing monitoring programs conducted by other entities during the development of the Work Plan.
- (c) Report Completion Schedule
The Work Plan should include a schedule for completion of all sample collection and analysis activities. The Responsible Party should implement the Work Plan in accordance with the schedule contained in the Work Plan unless otherwise directed in writing by the San Diego Water Board.
- (d) Monitoring Stations
- (i) The number and locations of monitoring points for bed sediment and water column should be spatially representative of the water and sediment qualities within the receiving water segment of the corresponding creek mouth areas.
 - (ii) Water Column - The Responsible Party must establish at least one monitoring location for the mouth of Switzer Creek, and two monitoring locations, one within the creek channel and the other closer to the open water, for the mouth areas of Chollas Creek and Palate Creek, respectively.
 - (iii) Sediment – The Responsible Party must establish at least two monitoring locations for the Switzer Creek mouth, and three monitoring locations, two within the creek channel and one closer to the open water, for the mouth areas of Chollas Creek and Palate Creek, respectively.
 - (iv) Monitoring locations for bed sediment and water column should include station locations sampled in the Phase I Studies for these creek mouths.⁴

⁴ Phase I study results are contained in Anderson, et al., 2004 and SCCWRP and SPAWAR, 2005

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(e) Monitoring Procedures

- (i) The Responsible Party must collect sediment quality samples for total chlordane, total PAHs, PPPAHs, total PCBs, sediment grain size, and total organic carbon from receiving water monitoring locations. At each monitoring station, two grab samples should be collected from the 0-5 cm depth interval and composited in the field. For comparison purposes, the sediment sampling depth and methods should be consistent with those used in the Phase I studies for these creek mouths. Samples must be collected at least once every 2 to 3 years.
- (ii) The Responsible Party must collect water quality samples for total chlordane, benzo(a)pyrene, and total PCBs from receiving water monitoring locations. Grab water samples should be collected from 10 feet below the water surfaces, or at a minimum one foot above the sediment bed. Samples must be collected at least twice a year.
- (iii) All sediment stations should be sampled between the months of June through September to correspond with the benthic community index period.
- (iv) The Responsible Party should coordinate monitoring activities with Caltrans, the identified MS4 copermittees, and NASSCO, wherever and whenever possible.
- (v) Before beginning sample collection activities, the Responsible Party shall :
 - [a] Notify the San Diego Water Board at least 14 days in advance of the beginning of sample collection activities; and
 - [b] Comply with any conditions set by the San Diego Water Board with respect to sample collection methods such as providing split samples.

(f) Assessment and Reporting Requirements

- (i) The Responsible Party must analyze the sediment and water quality data to assess whether the receiving water WQBELs have been achieved.
- (ii) If the receiving water WQBELs have not been achieved, the Responsible Party must review the storm water outfall monitoring data to assess whether the interim and final effluent WQBELs have been achieved.
- (iii) The Responsible Party must identify and incorporate additional storm water outfalls and receiving water monitoring stations and/or adjust monitoring frequencies as necessary and appropriate to identify sources causing exceedances of the receiving water

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WQBELs. Efforts for pollutant source identification should be based on the conceptual fate and transport model discussed in Section 1.d.(3)(a) above, and also meet requirements stated in Section 1.d.(2)(c) Storm Water Pollutant Source Identification Monitoring Program of this Specific Provision.

- (iv) The Responsible Party must analyze the sediment and water quality data to properly update, as necessary, the conceptual fate and transport model of pollutants, the sampling locations, and the sampling frequencies for sediments and water columns.
- (v) The monitoring and assessment results for water columns and sediments in the receiving waters must be submitted annually and may be included as part of the Self Monitoring Reports required under Section X.B. of the MRP.

(4) Demonstrating Attainment of the Sediment Quality Objective

(a) Monitoring Stations

The Responsible Party must establish monitoring locations in accordance with requirements set forth in Section 1.d.(3)(c) above. Monitoring stations for attainment of the Sediment Quality Objectives may be the same as those used for water column and sediment monitoring required in Section 1.d.(3) above.

(b) Monitoring Procedures

- (i) The Responsible Party must collect sediment chemistry, sediment toxicity, and benthic community samples from receiving water monitoring locations at least once every 2 to 3 years beginning 2 years after the completion of sediment remediation that will be directed by the San Diego Water Board.
- (ii) Evaluation of sediment quality conditions should be consistent with the requirements of State Water Board's *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1: Sediment Quality* (SQO Part 1), and those of Section VIII.A.3.ii. of the MRP , to be specific:
 - [a]. Sediment Chemistry: Bulk sediment chemical analysis shall include at a minimum the pollutants identified in Attachment A of the SWRCB Sediment Quality Plan and listed in Attachment K of this Order.
 - [b]. Sediment Toxicity: A 10-Day amphipod survival test shall be performed using a species tolerant of the sample salinity and grain size characteristics (e.g., *Hyalella azteca* or *Eohaustorius* estuaries) as specified in the SQO Part 1. The results shall be recorded as "Percent of control survival".

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[c]. Benthic Community- Subtidal Habitat: For discharges to unvegetated subtidal, the benthic community shall be evaluated using the line of evidence approach in Section V.G of SQO Part 1. For discharges to vegetated subtidal (*Zostera marina*), the proposed benthic community monitoring must be conducted in accordance with Section V.J of SQO Part 1 and utilize a reference site approach to assess the benthic invertebrate community and impacts to *Zostera marina* as a line of evidence. Assessment of *Zostera marina* must be done in accordance with the Southern California Eelgrass Mitigation Policy.

(iii) The Responsible Party should coordinate monitoring activities with Caltrans, the identified MS4 copermittees, and NASSCO, wherever and whenever possible.

(c) Assessment and Reporting Requirements

(i) The Responsible Copermittees must analyze the data using the MLOE Approach in accordance with SQO Part 1.

(ii) (Monitoring results of attainment of SQO Part 1 should be submitted annually in the Self Monitoring Report required in Section X. of the MRP.

(5) Monitoring and Assessment Requirements for Investigation of Tidally-Influenced Creek Portions

The Responsible Party must implement the monitoring and assessment requirements issued, as directed, under the Investigation Order No. [Insert Order Number] for investigation of the tidally-influenced portions of Paleta, Chollas, and/or Switzer creeks, when issued for the Total Maximum Daily Loads for Toxic Pollutants in Sediment at San Diego Bay – Mouths of Paleta, Chollas, and Switzer Creeks. The monitoring reports required under Investigation Order No. [Insert Order Number] must be submitted as part of the Self Monitoring Reports required under Section X.B. of the MRP.

(6) Monitoring and Assessment Requirements for Investigation of PCB Concentrations in Fish Tissue

The Responsible Party must implement the monitoring and assessment requirements issued, as directed, under the Investigation Order No. [Insert Order Number] for investigation of PCB concentrations in the creek mouth areas of Paleta, Chollas, and/or Switzer creeks, when issued for the Total Maximum Daily Loads for Toxic Pollutants in Sediment at San Diego Bay – Mouths of Paleta, Chollas, and Switzer Creeks. The monitoring reports required under Investigation Order No. [Insert Order Number] must be submitted as part of the Self Monitoring Reports required under Section X.B. of the MRP.