

## Appendix J

### Specific TMDL Provisions to be Incorporated into NPDES Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the San Diego Region, Subsequent order for Order No. R9-2007-0001

The following language is recommended to be incorporated ~~in whole~~ at the end of Attachment E of the Regional MS4 Permit, a subsequent order for Order No. R9-2007-0001. [Detailed monitoring and assessment requirements as contained in Section X.e. may be subject to changes and modifications as deemed necessary and appropriate when these TMDL provisions are incorporated into the Order.](#) References made to “provisions” of Tentative Order No. R9-2013-0001 must be updated to be consistent with the provisions of the final Order prior to incorporation into the final Order.

#### X. Total Maximum Daily Loads for Chlordane, PAHs, and 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, Chollas, and Switzer Creeks

(6) Responsible Copermittees: City of La Mesa, City of Lemon Grove, City of National City, City of San Diego, County of San Diego, and Unified Port District of San Diego

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**b. Final TMDL Compliance Requirements**

The final TMDL compliance requirements for Paleta, Chollas, and Switzer creeks consist of the following:

(1) Final TMDL Compliance Dates

- (a) The Responsible Copermittees must be in compliance with the WQBELs under Specific Provision [X.b.\(2\)\(a\)](#), [Table X.1a](#), 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 Copermittees must be in compliance with the WQBELs under Specific Provisions [X.b.\(2\)\(a\)](#) [Table X.1b](#) and [X.b.\(2\)\(b\)](#), by December 31, [insert 20 years after TMDL effective date].
- (c) The Responsible Copermittees are required to attain the Sediment Quality Objective for Aquatic Life – Benthic Community Protection by December 31, [insert 20 years after TMDL effective date].

(2) Final Water Quality Based Effluent Limitations

(a) Final Receiving Water Limitations

Discharges from the 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 [X.b.\(1\)](#):

**Table X.1a**

*Final Receiving Water Limitations as Sediment Concentrations in Paleta, Chollas, and Switzer Creek Mouth Areas in San Diego Bay*

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

**Table X.1b**

*Final Receiving Water Limitations as Water Concentrations in Paleta, Chollas, and Switzer 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

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(b) Final Effluent Limitations

Discharges from each Responsible Copermittee's MS4 must not contain pollutant loads that exceed the following effluent limitations by the end of the compliance schedule under Specific Provision [X.b.\(1\)](#):

**Table X.2a**

*Final Effluent Limitations as Annual Loads in MS4 Discharges to Paleta Creek*

Pollutant		Effluent Limitation
<b>City of San Diego</b>		
Chlordane	g/yr	17.5
Total PAHs	g/yr	640
Total PCBs	mg/yr	87.7
<b>City of National City</b>		
Chlordane	g/yr	8.6
Total PAHs	g/yr	314
Total PCBs	mg/yr	43.0

**Table X.2b**

*Final Effluent Limitations as Annual Loads in MS4 Discharges to Chollas Creek*

Pollutant		Effluent Limitation
<b>City of San Diego</b>		
Chlordane	g/yr	124
Total PAHs	g/yr	3,250
Total PCBs	mg/yr	849
<b>City of La Mesa</b>		
Chlordane	g/yr	17
Total PAHs	g/yr	437
Total PCBs	mg/yr	114.2
<b>City of Lemon Grove</b>		
Chlordane	g/yr	21
Total PAHs	g/yr	541
Total PCBs	mg/yr	141.6
<b>County of San Diego</b>		
Chlordane	g/yr	0.74
Total PAHs	g/yr	19
Total PCBs	mg/yr	5.06

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Pollutant		Effluent Limitation
<b>Port of San Diego</b>		
Chlordane	g/yr	0.14
Total PAHs	g/yr	3.7
Total PCBs	mg/yr	0.973

**Table X.2c**  
*Final Effluent Limitations as Annual Loads in MS4 Discharges to Switzer Creek*

Pollutant		Effluent Limitation
<b>City of San Diego</b>		
Chlordane	g/yr	16.9
Total PAHs	g/yr	481
Total PCBs	mg/yr	179
<b>Port of San Diego</b>		
Chlordane	g/yr	0.31
Total PAHs	g/yr	8.9
Total PCBs	mg/yr	3.33

(c) Best Management Practices

- (i) The Responsible Copermittees must implement BMPs to achieve the WQBELs under Specific Provision X.b.(2) for Paleta, Chollas, and Switzer creek mouth areas.
- (ii) The Responsible Copermittees should coordinate the BMPs to address these TMDLs with Caltrans, U.S. Navy, and owners/operators of small MS4s wherever and whenever possible.

(d) 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

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

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(3) Final TMDL Compliance Determination

Compliance with the final TMDL compliance requirements may be demonstrated via one of the following methods:

- (a) There is no direct or indirect discharge from the Responsible Copermitees' MS4s to the receiving water; OR
- (b) There are no exceedances of the final receiving water limitations under Specific Provision [X.b.\(2\)\(a\)](#) in the receiving water at, or downstream of the Responsible Copermitees' MS4 outfalls; OR
- (c) There are no exceedances of the final effluent limitations under Specific Provision [X.b.\(2\)\(b\)](#) at the Responsible Copermitees' MS4 outfalls; OR
- (d) The Responsible Copermitees can demonstrate that exceedances of the final receiving water limitations under Specific Provision [X.b.\(2\)\(a\)](#) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermitees' MS4s are not causing or contributing to the exceedances; OR
- (e) The Responsible Copermitees demonstrate that the sediment quality condition of Unimpacted or Likely Unimpacted is met using the Multiple Lines of Evidence Approach as described in the Specific Provision [X.e.\(4\)](#).
- (f) The Responsible Copermitees develop and implement the Water Quality Improvement Plan as follows:
  - (i) Incorporate the BMPs required under Specific Provision [X.b.\(2\)\(c\)](#) as part of the Water Quality Improvement Plan,
  - (ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision [X.b.\(2\)\(c\)](#) achieves compliance with Specific Provisions [X.b.\(3\)\(a\)](#), [X.b.\(3\)\(b\)](#), [X.b.\(3\)\(c\)](#), [X.b.\(3\)\(d\)](#), and/or [X.b.\(3\)\(e\)](#),
  - (iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,
  - (iv) The Responsible Copermitees continue to implement the BMPs required under Specific Provision [X.b.\(2\)\(c\)](#), AND
  - (v) The Responsible Copermitees continue to perform the specific monitoring and assessments specified in Specific Provision [X.e](#), to demonstrate compliance with Specific Provisions [X.b.\(3\)\(a\)](#), [X.b.\(3\)\(b\)](#), [X.b.\(3\)\(c\)](#), [X.b.\(3\)\(d\)](#), and/or [X.b.\(3\)\(e\)](#).

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**c. Interim TMDL Compliance Requirements**

**(1) Interim TMDL Compliance Requirements**

The Responsible Copermittees must comply with the following interim WQBELs, expressed as annual loads, by December 31 of the interim compliance year given in Tables X.3a – c:

**Table X.3a**

*Interim Water Quality Based Effluent Limitations Expressed as Annual Loads in MS4 Discharges to Paleta Creek*

<b>Interim Compliance Date</b>				
<b>Pollutant</b>		<b>[Year 5]</b>	<b>[Year 10]</b>	<b>[Year 15]</b>
		<b>40% Reduction</b>	<b>80% Reduction</b>	<b>90% Reduction</b>
<b>City of San Diego</b>				
Chlordane	g/yr	20.3	18.4	18.0
Total PAHs	g/yr	817	699	669
Total PCBs	mg/yr	90.4	88.6	88.1
<b>City of National City</b>				
Chlordane	g/yr	9.9	9.0	8.8
Total PAHs	g/yr	401	343	328
Total PCBs	mg/yr	44.4	43.5	43.3

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**Table X.3b**

*Interim Water Quality Based Effluent Limitations Expressed as Annual Loads in MS4 Discharges to Chollas Creek*

Pollutant		Interim Compliance Date		
		[Year 5]	[Year 10]	[Year 15]
		40% Reduction	80% Reduction	90% Reduction
<b>City of San Diego</b>				
Chlordane	g/yr	175	141	133
Total PAHs	g/yr	6,560	4,350	3,800
Total PCBs	mg/yr	876	858	854
<b>City of La Mesa</b>				
Chlordane	g/yr	24	19	18
Total PAHs	g/yr	882	585	511
Total PCBs	mg/yr	117.7	115.4	114.8
<b>City of Lemon Grove</b>				
Chlordane	g/yr	29	24	22
Total PAHs	g/yr	1,093	725	633
Total PCBs	mg/yr	145.9	143.0	142.3
<b>County of San Diego</b>				
Chlordane	g/yr	1.04	0.84	0.79
Total PAHs	g/yr	39	26	23
Total PCBs	mg/yr	5.21	5.11	5.09
<b>Port of San Diego</b>				
Chlordane	g/yr	0.20	0.16	0.15
Total PAHs	g/yr	7.5	5.0	4.4
Total PCBs	mg/yr	1.00	0.983	0.978

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**Table X.3c**

*Interim Water Quality Based Effluent Limitations Expressed as Annual Loads in MS4 Discharges to Switzer Creek*

Pollutant		Interim Compliance Date		
		[Year 5]	[Year 10]	[Year 15]
		40% Reduction	80% Reduction	90% Reduction
<b>City of San Diego</b>				
Chlordane	g/yr	19.6	17.8	17.3
Total PAHs	g/yr	554	505	493
Total PCBs	mg/yr	185	181	180
<b>Port of San Diego</b>				
Chlordane	g/yr	0.36	0.33	0.32
Total PAHs	g/yr	10.3	9.4	9.2
Total PCBs	mg/yr	3.43	3.36	3.34

(2) Interim Compliance Determination

Compliance with interim compliance requirements of Specific Provision [X.c.\(1\)](#) may be demonstrated via one of the following methods:

- (a) There is no direct or indirect discharge from the Responsible Copermittees' MS4s to the receiving water; OR
- (b) There are no exceedances of the final receiving water limitations under Specific Provision [X.b.\(2\)\(a\)](#) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; OR
- (c) There are no exceedances of the final effluent limitations under Specific Provision [X.b.\(2\)\(b\)](#) at the Responsible Copermittees' MS4 outfalls; OR
- (d) The Responsible Copermittees can demonstrate that exceedances of the applicable receiving water limitations under Specific Provision [X.b.\(2\)\(a\)](#) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4s are not causing or contributing to the exceedances; OR
- (e) The pollutant loads discharging from the Responsible Copermittees' MS4 outfalls do not exceed the interim effluent limitations under Tables [X.3a – c](#) of Specific Provision [X.c.\(1\)](#); OR
- (f) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim TMDL compliance requirements will be achieved by the interim compliance dates.

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**d. Pollutant Load Reduction Plan and Water Quality Improvement Plan for San Diego Bay**

- (1) The Responsible Copermittees are required to develop Pollutant Load Reduction Plans that identify specific implementation actions that will be used to comply with the required waste load reductions and meet the final and interim TMDLs as required in Sections X.b. and X.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 incompliances with the TMDL requirements as stated in Sections X.b. and X.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.
- (2) The Pollutant Load Reduction Plans must be submitted to the San Diego Water Board within 12 months of the TMDL effective date. The Responsible Copermittees, on their own or together with Caltrans and the U.S. Navy, must commence with implementation of the Pollutant Load Reduction Plan no later than 6 months after submission, unless otherwise directed in writing by the San Diego Water Board.
- (3) 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 Provision B.1. of Tentative Order No. R9-2013-0001 to be developed and implemented by the MS4 copermittees including those identified in Resolution No. R9-2013-0003 (i.e., the Responsible Copermittees listed in Section X.a.(6)).

**e. Monitoring and Assessment Requirements**

(1) General Requirements

- (a).Monitoring and assessment (M&A) of storm water effluent, receiving water (including sediment) 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 Copermittees 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 Copermittees must develop technically appropriate Monitoring and Reporting Plans (MRPs) and Quality Assurance Project

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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 Assurance Program Plan.<sup>1</sup> The MRPs and QAPPs shall be included in the Pollutant Load Reduction Plan of Section X.d, above.

- (d). Monitoring and assessment activities for the tidally-influenced creek portions and PCB accumulation in *Macoma* 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 Copermitees must develop and implement a monitoring program to meet the goals listed in Section 10.6 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 X.b.(2)(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 jurisdictional areas of the Responsible Copermitees within the watershed areas of Paleta, Chollas, and Switzer Creeks meet requirements with respect to pollutant mass loading limits and schedule, as stated in Sections X.b.**Error! Reference source not found.** and X.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.

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<sup>1</sup> The SWAMP Quality Assurance .Program Plan is available on line at [http://www.waterboards.ca.gov/water\\_issues/programs/swamp/docs/qapp/qaprp082209.pdf](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 apply to storm water discharge points within the jurisdictional boundaries of each Responsible Copermittee specified in Section [X.a.\(6\)](#) that, either directly or indirectly, discharge to Paleta, Chollas, or Switzer Creek and their tributaries.
- (ii). Each Responsible Copermittee should identify representative storm water monitoring locations that are characteristic of the storm water flow conditions as well as their associated pollutant mass loadings within its jurisdictional boundaries that drain to Paleta, Chollas, or Switzer Creek and their tributaries. 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, and PCBs) discharged to Paleta, Chollas, or Switzer Creek and their tributaries due to activities at the jurisdictional area of each Responsible Copermittee. These pollutant mass loadings will be used to evaluate the compliance status in accordance with requirements in Specific Provision Sections [X.b.](#) **Error!** [Reference source not found.](#) and [X.c.](#) To achieve these goals:
  - [a]. Each Responsible Copermittee should identify all storm water discharge locations within its jurisdictional boundaries that discharge to Paleta, Chollas, or Switzer Creek and their tributaries. This information should be reported, and updated as necessary, in the Annual Self-Monitoring Report (ASMP) required in Section [X.f.](#) of this Specific Provision.
  - [b]. At least five representative monitoring locations for each watershed within the jurisdictional areas of each Responsible Copermittee that discharge to Paleta, Chollas, or Switzer Creek and their tributaries should be proposed to characterize storm water flows within that jurisdictional area. Outfalls at the monitoring locations should be representative of storm water flows from areas consisting primarily of residential, commercial, and industrial land uses. The Responsible Copermittes should designate the monitoring locations in accordance with the requirements of Provision D.1.b. of Tentative Order No. R9-2013-0001. The criteria and methods used to identify the representative monitoring locations should also be provided initially in the MRPs required in Section [X.e.\(1\)\(c\)](#), above. Any proposed updates of the representative monitoring locations, as well as the rationale for those updates, should be included in the Annual Self-Monitoring Reports required in Section [X.f.](#) of this Specific Provision. If the total number of outfalls of certain watershed within the Responsible

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Copermittee's jurisdictional boundaries covered by this Specific Provision is less than five, then all of the outfalls within the jurisdictional area in that watershed should be monitored.

- [c]. For any one of the three key constituents of concerns (COCs), total chlordane, total PAHs, and total PCBs, any monitoring location that has concentrations below the detection limit (non-detect) for 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.
- [d]. 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 [X.e.\(2\)\(c\)](#), below, to identify any sources causing 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

Each Responsible Copermittee 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 acceptable to the San Diego Water Board;
- (iii) The Responsible Copermittees must collect storm water samples from at least two wet weather events during the wet season (October 1 – April 30). At a minimum, one wet weather monitoring event must be conducted during the first wet weather event of the wet season, and one wet weather monitoring event at least a month after the first wet weather event of the wet season.

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- (iv) Monitoring parameters must include total chlordane, PCB congeners<sup>2</sup> and total PCBs, total PAHs and PPPAHs, total suspended solids, general water chemistry (temperature, dissolved oxygen, pH, and electrical conductivity), and a flow measurement.
  - (v) Flow weighted composite sample should be collected for the analysis of the key COCs and total suspended solids.
  - (vi) Storm water effluent samples should not be influenced by sea water.
  - (vii) The Responsible Copermittees should conduct storm water effluent monitoring in accordance with requirements (i) through (vi) 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 Copermittees’ MRPs 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 [X.e.\(2\)\(c\)\(i\)](#), 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

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<sup>2</sup> PCB congeners should include those listed in Attachment A in the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (SWRCB 2009).

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MRP and QAPP required in Section [X.e.\(1\)\(c\)](#). Pollutants other than PAHs may also be included in this first round of monitoring for pollutant source identification to maximize the beneficial information that will facilitate the design of effective monitoring programs.

(d) Assessment and Reporting Requirements

The Responsible Copermittees should analyze the storm water monitoring data collected pursuant to requirements of Specific Provision Section [X.e.\(2\)\(a\)](#) and [\(b\)](#), and calculate or estimate the annual loads, in accordance with below requirements:

- (i) The Responsible Copermittees 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 each Responsible Copermittee's jurisdiction;
  - [c]. The volume of storm water discharged from the Responsible Copermittee's storm water outfalls to receiving waters within its jurisdiction for each storm event;
  - [d]. The pollutant loads from each of the Responsible Copermittee'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.
- (ii) Each Responsible Copermittee must evaluate the storm water monitoring data to assess whether the interim and final wet weather WQBELs in Specific Provisions [X.b.](#)**Error! Reference source not found.** and [X.c.](#) have been achieved and is on schedule.
- (iii) If the interim wet weather WQBELs of Section [X.c.](#) are not achieved on schedule, the Responsible Copermittees 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 [X.e.\(3\)\(a\)](#), below, and also meet requirements stated in Section [X.e.\(2\)\(c\)](#). Storm Water Pollutant Source Identification Monitoring Program of this Specific Provision.

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- (iv) The Responsible Copermittees should submit the monitoring and assessment results annually in the Annual Self-Monitoring Reports required under Section X.f of this Specific Provision

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

The Responsible Copermittees 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 X.b.(2)(a) of the Specific Provision. This Work Plan should be incorporated into and submitted together with the Monitoring and Reporting Plan required in Section X.e.(1)(c) of this Specific Provision. This Work Plan should be developed based on the results of the fate and transport of pollutants from the conceptual model as discussed below. 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;
- (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 Copermittees 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.

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(c) Report Completion Schedule

The Work Plan should include a schedule for completion of all sample collection and analysis activities. The Responsible Copermittees 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 Copermittees 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 Paleta Creek, respectively.
- (iii) Sediment – The Responsible Copermittees 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 Paleta Creek, respectively.
- (iv) Monitoring locations for bed sediment and water column should include station locations monitored in the Phase I Studies for these creek mouths.<sup>3</sup>

(e) Monitoring Procedures

- (i) The Responsible Copermittees 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 Copermittees 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

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<sup>3</sup> Phase I study results are contained in Anderson, et al., 2004 and SCCWRP and SPAWAR, 2005

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through September to correspond with the benthic community index period.

- (iv) The Responsible Copermittees should coordinate monitoring activities with U.S. Navy, Caltrans, and NASSCO, wherever and whenever possible.
- (v) Before beginning sample collection activities, the Responsible Copermittees 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 Copermittees 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 Copermittees must review the storm water outfall monitoring data to assess whether the interim and final effluent WQBELs have been achieved.
- (iii) The Responsible Copermittees 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 WQBELs. Efforts to identify pollutant sources should be based on the conceptual fate and transport model discussed in Section X.e.(3)(a), above, and also meet requirements stated in Section X.e.(2)(c). Storm Water Pollutant Source Identification Monitoring Program of this Specific Provision.
- (iv) The Responsible Copermittees 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 included as part of the Annual Self-Monitoring Reports required under Section X.f. of this Specific Provision.

(4) Demonstrating Attainment of the Sediment Quality Objective

(a) Monitoring Stations

The Responsible Copermittees must establish monitoring locations in accordance with the Site Conceptual Model [Section X.e.(3)(a)] and

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requirements set forth in Section X.e.(3)(d)(i), (iii), and (iv), 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 X.e.(3), above.

(b) Monitoring Procedures

- (i) The Responsible Copermittees must collect SQO 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), to be specific:
  - [a]. Sediment Chemistry: Bulk sediment chemical analysis shall include at a minimum the pollutants identified in Attachment A of the SQO Part 1.
  - [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 SQO Part 1. The results shall be recorded as "Percent of control survival".
  - [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 Copermittees should coordinate monitoring activities with U.S.Navy, Caltrans, 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 in the Annual Self-Monitoring Report of Section X.f. of this Specific Provision.

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

The Responsible Copermittees 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] should be included, as appropriate, as part of the Annual Self-Monitoring Reports and submitted to the San Diego Water Board.

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

The Responsible Copermittees must implement the monitoring and assessment requirements issued, as directed, under the Investigation Order No. [Insert Order Number] for investigation of PCB concentrations in fish tissue 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 included as appropriate in the Annual Self-Monitoring Report required under Section X.f., below.

f. **Reporting Requirements**

(1) Annual Self-Monitoring Reports

- (a) The Responsible Copermittees shall initially submit Annual Self-Monitoring Reports (ASMRs) by hard copy to the San Diego Water Board office and electronically using the State Water Board's California Environmental Data Exchange Network (CEDEN) at <http://ceden.org/>. The San Diego Water Board shall notify the Responsible Party when they may stop submitting hard copy ASMRs.
- (b) The Responsible Copermittees shall report in the ASMR the results of the previous reporting period (July 1<sup>st</sup> through June 30<sup>th</sup>) for all monitoring specified in Sections X.e. of this Specific Provision. The ASMR is due to the San Diego Water Board no later than October 31<sup>st</sup> following the end of the reporting period.
- (c) The ASMR may be included and submitted as part of the Annual Reports required under Provision F.3.b. of Tentative Order No. R9-2013-0001.