RECONSIDERATION OF CERTAIN TECHNICAL ELEMENTS OF THE CALLEGUAS CREEK METALS AND SELENIUM TMDL

STAFF REPORT

California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
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August 9, 2016

Acronyms

303(d) list	State of California Clean Water Act Section 303(d) List of Water Quality Limited Segments
BMP	Best Management Practice
Caltrans	California Department of Transportation
CCC	Criterion Continuous Concentration
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CMC	Criterion Maximum Concentration
CMP	Coordinated Monitoring Plan
CTR	California Toxics Rule
CWA	Clean Water Act
ERL	Effects Range Low
FCG	Fish Contaminant Goal
g/day	grams per day
g/day/ac	grams per day per acre
g/yr	grams per year
kg/yr	kilograms per year
LA	Load Allocation
LACFCD	Los Angeles County Flood Control District
m^3/year	cubic meters per year
mg/L	milligrams per liter
mg/kg	milligram per kilogram
ml	milliliter
MLOE	Multiple Lines of Evidence
mt/m^3	metric ton per cubic meter
MTRLs	Maximum Tissue Residual Levels
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollution Discharge Elimination System
OAL	Office of Administrative Law
OEHHA	Office of Environmental Health Hazard Assessment
POTW	Publicly Owned Treatment Works
SCCWRP	Southern California Coastal Water Research Project
SIP	Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy)
SQO	Sediment Quality Objectives
SWRCB	State Water Resources Control Board
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
WER	Water Effect Ratio
WLA	Waste Load Allocation
WQCP	Water Quality Control Plant
WRP	Water Reclamation Plant
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

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I. INTRODUCTION

In 2006, the Regional Water Quality Control Board, Los Angeles Region (Regional Water Board) adopted the Total Maximum Daily Load for Metals and Selenium in the Calleguas Creek, its Tributaries and Mugu Lagoon (Calleguas Creek Watershed Metals and Selenium TMDL or 2006 CCW TMDL). This staff report presents data analyses in support of recommendations to reconsider and update aspects of the 2006 CCW TMDL.

The scope of the reconsideration is narrow, focusing only on updating the copper numeric targets in two reaches and re-evaluating the copper and nickel allocations assigned to certain POTW discharges. No other changes to the 2006 CCW TMDL are being considered at this time. The updates to the numeric targets for copper concentrations in the water column are based on previously adopted, and now effective, site-specific water effect ratios (WERs) that were derived for Reach 1 (Mugu Lagoon) and Reach 2 (Lower Calleguas Creek).[1] The re-evaluation of the copper and nickel wasteload allocations (WLAs) assigned to certain POTW discharges is based on an assessment of current receiving water conditions in the downstream, previously impaired areas, and a consideration of current effluent quality. A brief discussion of the previously adopted site-specific WERs is provided in section II.C, and the presentation and discussion of data and information on current conditions is provided in section III. Recommendations based on staff's reconsideration are presented in section IV.

The regulatory background, beneficial uses to be protected, geographical extent and all required TMDL elements, along with supporting analyses, are described in the original 2006 CCW TMDL staff report and respective amendment to the Los Angeles Region's Water Quality Control Plan (Basin Plan) (LARWQCB, 2006a and 2006b) at (http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/tmdl_list.shtml) and are not repeated, herein.

While the Regional Water Board has the authority to amend the Basin Plan to revise a TMDL at any time, TMDLs adopted by the Regional Water Board have often included scheduled "reconsiderations" at a specific point during implementation. Specific reconsiderations are included so that aspects of the TMDL can be re-evaluated and adjusted based on anticipated new data and information. The 2006 CCW TMDL provided for a scheduled reconsideration of certain portions of the TMDL based on information collected in several special studies and monitoring that were part of the TMDL implementation schedule. This allowed the Regional Water Board to establish the 2006 CCW TMDL as required, including all necessary elements, while acknowledging and planning for the potential benefit to refining certain elements of the TMDL after additional study and data collection were completed. Note that some of the special studies identified in the 2006 CCW TMDL implementation schedule were optional, and have not been completed, so this reconsideration is limited in scope, as described above.

[1] See Water Quality Control Plan, Los Angeles Region, Chapter 3, Table 3-11 Site-specific Water-Effect Ratios for Copper, p. 3-36.

II. TMDL BACKGROUND

A. Regulatory History of the TMDL

The 2006 CCW TMDL was developed and adopted by the Regional Water Board on June 8, 2006 (Resolution No. R06-012) and then approved by the State Water Resources Control Board (State Water Board) on October 25, 2006 (Resolution No. 2006-0078), the Office of Administrative Law on February 6, 2007, and the United States Environmental Protection Agency (USEPA) on March 26, 2007. The effective date of the TMDL is March 27, 2007 upon the filing of the no effect determination with the California Department of Fish and Wildlife.

The TMDL was developed to address impairments due to metals and selenium in the Calleguas Creek Watershed (CCW) including three of fourteen reaches of Calleguas Creek, which were identified on the 2002 Clean Water Act Section 303(d) list of water-quality limited segments as impaired due to elevated levels of metals and selenium in water. These reaches remain on the most current 2010 Clean Water Act Section 303(d) list (SWRCB, 2010). The 2006 CCW TMDL addresses the requirements prescribed by section 303(d) of the Clean Water Act (40 C.F.R. §§130.2 and 130.7) and USEPA guidance (USEPA, 1991).

In a related action, on November 9, 2006, the Regional Water Board adopted a Basin Plan amendment to incorporate site-specific water effect ratios (WERs) for copper in Lower Calleguas Creek (Reach 2) and Mugu Lagoon (Reach 1) (Resolution No. R06-022) (LARWQCB, 2006c). A WER of 1.51 was established for the copper water quality objective for Mugu Lagoon and a WER of 3.69 was established for the copper water quality objective for lower Calleguas Creek (Reach 2).

B. Numeric Targets

The 2006 CCW TMDL includes four types of numeric targets:

(1) water column targets based on concentrations of dissolved copper, nickel, and zinc and concentrations of total mercury and selenium based on the water quality criteria established in the California Toxics Rule (CTR) (40 C.F.R. §131.38);

(2) fish tissue targets for methylmercury;

(3) bird egg targets for total mercury and total selenium; and

(4) sediment quality targets for copper, nickel, and zinc. In addition, the TMDL includes provisions that attainment of sediment quality targets will be evaluated in combination with sediment toxicity data, if available.

The numeric targets identified in (2), (3), and (4) are not under reconsideration at this time. Regarding the targets in (1), the only revisions proposed to these water column targets are to update the water column targets for dissolved copper based on the Regional Water Board adopted site-specific WERs.

The TMDLs for copper and nickel were derived from water column targets expressed as the dissolved fraction of the metal, as described above. To address the potential for conversion of particulate bound metals, present in discharges, into a dissolved form upon discharge to the receiving water, allocations based on the total recoverable concentration of the metal were developed to ensure that the numeric targets expressed as the dissolved metals concentration would be attained.

The water quality objectives for copper and nickel to protect aquatic life in marine or brackish waters are more stringent than the copper and nickel objectives applicable in fresh waters. Therefore, for copper and nickel, the applicable numeric targets are more stringent for the lower reaches of the Calleguas Creek system (i.e., Mugu Lagoon (Reach 1), Lower Calleguas Creek (Reach 2), and Revolon Slough (Reach 4)). These lower numeric targets drive the allowable pollutant loads to those points, but upstream of those areas, the allowable pollutant load is larger due to the higher freshwater numeric targets. Additionally, upstream of the saltwater/freshwater interface, some of the pollutant load discharged is diverted for reclaimed water use, seeps into the groundwater, or is diluted by other sources of water. Consequently, the pollutant load that reaches the lower portion of the watershed is not equal to the pollutant load that was discharged. Therefore, while application of the freshwater targets in the freshwater reaches might not protect the downstream reaches due to the lower targets applicable in the downstream reaches, applying the saltwater targets to discharges to the upstream, freshwater reaches might not be necessary to protect downstream reaches (due to the diversions and dilution).

To address the concern that using saltwater targets to derive allowable pollutant loads from upstream discharges may be overly conservative, a watershed hydrology model was used in the development of the 2006 CCW TMDL to determine the WLAs for the upstream discharges to account for the impacts of the discharges on the lower reaches.

The numeric targets for dissolved copper and dissolved nickel in the water column are provided below as they appear in the existing 2006 CCW TMDL. The Criterion Continuous Concentration (CCC) is the chronic toxic concentration; the Criterion Maximum Concentration (CMC) is the acute toxic concentration.

Table 2-1. Copper Water Column Targets

Subwatershed	Water Quality Target (µg dissolved Copper/L)	
	Dry Weather CCC	**Wet Weather CMC**
Mugu Lagoon	3.1*WER[1]	4.8*WER[1]
Calleguas Creek Reach 2	3.1*WER[1]	4.8*WER[1]
Calleguas Creek Reach 3	25.9	26.3
Revolon Slough / Beardsley Wash	3.1*WER[1]	4.8*WER[1]
Conejo Creek	27.9	41.6
Arroyo Simi/Las Posas	29.3	29.8

[1] The 2006 CCW TMDL states that, "[t]he water quality targets for copper in the TMDL are expressed as the copper water quality criteria from the federal California Toxics Rule (CTR). Those criteria include a numerical threshold multiplied by a water-effect ratio (WER). The WER has a default value of 1.0 unless a site-specific WER is approved. To use a WER other than the default of 1.0, a study must be conducted consistent with USEPA's WER guidance and adopted by the Regional Board through the state's basin plan amendment process. A WER study for Mugu Lagoon (Reach 1), lower Calleguas Creek (Reach 2), Revolon Slough (Reach 4) and Beardsley Wash (Reach 5) has been submitted to the Regional Board. If the Regional Board approves site-specific WERs for copper in these waterbodies, the TMDL targets will be modified in accordance with all legal and regulatory requirements and implemented in accordance with the approved WERs using the equations set forth above."

Table 2-2. Nickel Water Column Targets

Subwatershed	Water Quality Target (µg dissolved nickel/L)	
	Dry Weather CCC	Wet Weather CMC
Mugu Lagoon	8.2	74
Calleguas Creek Reach 2	8.2	74
Calleguas Creek Reach 3	149	856
Revolon Slough / Beardsley Wash	8.2	74
Conejo Creek	160	1292
Arroyo Simi/Las Posas	168	958

C. Water Effect Ratio (WER) for Copper in Lower Calleguas Creek (Reach 2) and Mugu Lagoon (Reach 1)

The water quality criteria for metals established in the CTR are expressed as a function of a water effect ratio (WER). In the CTR, the USEPA has provided for the adjustment of these water quality criteria by states through development of site-specific WERs. A WER is a means to account for a difference between the toxicity of a pollutant (e.g., copper) in laboratory test water and its toxicity in local waterbodies. The WER has a default value of 1.0 unless a study is conducted consistent with USEPA's WER guidance (USEPA, 1994 and USEPA, 2001) and adopted by the Regional Water Board. Where approved, the site-specific WER modifies the acute (one-hour average) and chronic (4-day average) copper objectives set to protect aquatic life for this subset of surface waters.

On November 9, 2006, the Regional Water Board adopted a Basin Plan amendment to incorporate site-specific WERs for copper in Lower Calleguas Creek (Reach 2) and Mugu Lagoon (Reach 1) (LARWQCB, 2006c). Therefore, a WER of 1.51 is applicable to the copper objectives for Mugu Lagoon and a WER of 3.69 is applicable to the copper objectives for lower Calleguas Creek (Reach 2). In addition, the Implementation Provisions for Priority Pollutants, contained in Chapter 3 of the Basin Plan, which include the copper WERs for Mugu Lagoon (Reach 1) and Calleguas Creek Reach 2, also require that regulatory actions to achieve applicable criteria, as modified by site-specific WERs, must ensure the downstream standards will also be achieved. In this reconsideration, the TMDL targets and assigned allocations are modified in accordance with these implementation provisions and site-specific WERs using the equations set forth in the 2006 CCW TMDL.

D. Interim and Final WLAs and LAs in 2006 CCW TMDL

Concentration-based WLAs and mass-based WLAs (as a daily load) are included in the existing 2006 CCW TMDL for total recoverable copper, nickel, and selenium and are assigned to POTWs (not including selenium), Permitted Stormwater Dischargers (PSDs), and other NPDES Dischargers for discharges during both wet and dry weather. Mass-based load allocations (LAs) for agriculture and open space are included in the existing 2006 CCW TMDL for total recoverable copper, nickel and selenium.

Because regulatory actions to achieve applicable objectives, and thus numeric targets, as modified by site-specific WERs, must also ensure downstream standards are achieved, the copper WER of 1.51, which is applicable to Mugu Lagoon is also used to calculate the applicable WLAs for the upstream POTWs, Permitted Stormwater Dischargers, and other NPDES Dischargers and to calculate the LAs for agriculture and open space.

The copper WLAs assigned to POTWs in the 2006 CCW TMDL are presented in Table 2-3. The nickel WLAs assigned to POTWs in the 2006 CCW TMDL are presented in Table 2-4. Copper and nickel WLAs for Permitted Stormwater Dischargers and other NPDES Dischargers and LAs for agriculture and open space are provided in Tables 2-5 to 2-8 as they are in the 2006 CCW TMDL.

Table 2-3. Interim and Final WLAs for Total Recoverable Copper in Water Column Assigned to POTWs in the 2006 CCW TMDL

POTW	Interim		Final[1]		
	Daily Maximum (ug/L)	Monthly Average (ug/L)	Daily Maximum (ug/L)[2]	Monthly Average (ug/L)[2]	lb/day
Hill Canyon WWTP	20.0	16.0	(a)	(a)	0.11*WER - 0.04
Simi Valley WQCP	(b)	(b)	31.0	30.5	(c)
Moorpark WTP	(b)	(b)	31.0	30.5	(d)
Camarillo WRP	57.0	20.0	(a)	(a)	0.12*WER - 0.04
Camrosa WRP	(b)	(b)	27.4	27.0	(d)

The 2006 CCW TMDL includes the following table notes:

[1] The 2006 CCW TMDL states, "[i]f site-specific WERs are approved by the Regional Board, TMDL waste load allocations shall be implemented in accordance with the approved WERs using the equations set forth above. Regardless of the final WERs, total copper loading shall not exceed current loading. In addition, effluent concentrations shall not exceed the performance standards of current treatment technologies."

[2] Concentration-based targets have been converted to total recoverable allocations using the CTR default translator of 0.96

(a) Concentration-based final limits will be included in the permits in accordance with NPDES guidance and requirements, but are not calculated as part of the TMDL.

(b) Interim limits are not required because the discharger is meeting the final limits.

(c) Discharges from Simi Valley WQCP do not reach lower Calleguas Creek and Mugu lagoon during dry weather. Monitoring will be conducted and mass-based WLAs will be evaluated if targets are not met in Arroyo Simi/Las Posas or downstream reaches.

(d) Discharger does not contribute loading during dry weather. Concentration-based WLAs apply during wet weather when discharges occur. Monitoring will be conducted and mass-based WLAs will be evaluated if targets are not met in receiving water and/or downstream reaches.

Table 2-4. Interim and Final WLAs for Total Recoverable Nickel in Water Column Assigned to POTWs in the 2006 CCW TMDL

POTW	Interim		Final		
	Daily Maximum (ug/L)	Monthly Average (ug/L)	Daily Maximum (ug/L)[1]	Monthly Average (ug/L)[2]	lb/day
Hill Canyon WWTP	8.3	6.4	(a)	(a)	0.3
Simi Valley WQCP	(b)	(b)	960.0	169.0	(c)
Moorpark WTP	(b)	(b)	960.0	169.0	(d)
Camarillo WRP	16.0	6.2	(a)	(a)	0.2
Camrosa WRP	(b)	(b)	858.0	149.0	(d)

The 2006 CCW TMDL includes the following table notes:

1 Concentration-based targets have been converted to total recoverable allocations using the CTR default translator of 0.998.

2 Concentration-based targets have been converted to total recoverable allocations using the CTR default translator of 0.997.

(a) Concentration-based final limits will be included in the permits in accordance with NPDES guidance and requirements, but are not calculated as part of the TMDL.

(b) Interim limits are not required because the discharger is meeting the final limits.

(c) Discharges from Simi Valley WQCP do not reach lower Calleguas Creek and Mugu lagoon during dry weather. Monitoring will be conducted and mass-based WLAs will be evaluated if targets are not met in Arroyo Simi/Las Posas or downstream reaches.

(d) Discharger does not contribute loading during dry weather. Concentration-based WLAs apply during wet weather when discharges occur. Monitoring will be conducted and mass-based WLAs will be evaluated if targets are not met in receiving water and/or downstream reaches.

Table 2-5. Interim WLAs for Total Recoverable Copper and Nickel Assigned to Permitted Stormwater Dischargers (PSDs) in the 2006 CCW TMDL

Constituents	Calleguas and Conejo Creek			Revolon Slough		
	Dry Daily Maximum (ug/L)	Dry Monthly Average (ug/L)	Wet Daily Maximum (ug/L)	Dry Daily Maximum (ug/L)	Dry Monthly Average (ug/L)	Wet Daily Maximum (ug/L)
Copper	23	19	204	23	19	204
Nickel	15	13	(a)	15	13	(a)

(a) The 2006 CCW TMDL states, "[t]he current loads do not exceed the TMDL under wet conditions; interim limits are not required."

Table 2-6. Final Dry-Weather WLAs for Total Recoverable Copper and Nickel Assigned to Permitted Stormwater Dischargers (PSDs) (lbs/day) in the 2006 CCW TMDL

Flow Range	Calleguas and Conejo Creek			Revolon Slough		
	Low Flow	Average Flow	Elevated Flow	Low Flow	Average Flow	Elevated Flow
Copper[1] (lbs/day)	0.04*WER - 0.02	0.12*WER - 0.02	0.18*WER - 0.03	0.03*WER - 0.01	0.06*WER - 0.03	0.13*WER - 0.02
Nickel (lbs/day)	0.100	0.120	0.440	0.050	0.069	0.116

[1] The 2006 CCW TMDL states, "[i]f site-specific WERs are approved by the Regional Board, TMDL waste load allocations shall be implemented in accordance with the approved WERs using the equations set forth above. Regardless of the final WERs, total copper loading shall not exceed current loading."

Table 2-7. Final Wet-Weather WLAs for Total Recoverable Copper and Nickel Assigned to Permitted Stormwater Discharges (PSDs) (lbs/day) in the 2006 CCW TMDL

Constituent	Calleguas Creek	Revolon Slough
Copper[1] (lbs/day)	(0.00054*Q^2*0.032*Q - 0.17)*WER - 0.06	(0.0002*Q2+0.0005*Q)*WER
Nickel[2] (lbs/day)	0.014*Q^2+0.82*Q	0.027*Q^2+0.47*Q

The 2006 CCW TMDL includes the following table notes:

[1] The 2006 CCW TMDL states, "[If i]f site-specific WERs are approved by the Regional Board, TMDL waste load allocations shall be implemented in accordance with the approved WERs using the equations set forth above. Regardless of the final WERs, total copper loading shall not exceed current loading."

[2] Current loads do not exceed loading capacity during wet weather. Sum of all loads cannot exceed loads presented in the table

Q: Daily storm volume.

Table 2-8. Final WLAs for Total Recoverable Copper and Nickel Assigned to Other NPDES Dischargers in the 2006 CCW TMDL

Reach	Copper[1]		Nickel	
	Dry Monthly Everage (ug/L)[2]	Wet Daily Maximum (ug/L)[2]	Dry Monthly Average (ug/L)[3]	Wet Daily Maximum (ug/L)[3]
1	3.7*WER	5.8*WER	8.2	74
2	3.7*WER	5.8*WER	8.2	74
3	27.0	27.4	149	859
4	3.7*WER	5.8*WER	8.3	75
5	3.7*WER	5.8*WER	8.3	75
6	(a)	31.0	(a)	958
7	(a)	31.0	(a)	958
8	(a)	31.0	(a)	958
9	29.1	43.3	160	1296
10	29.1	43.3	160	1296
11	29.1	43.3	160	1296
12	29.1	43.3	160	1296
13	29.1	43.3	160	1296

The 2006 CCW TMDL includes the following table notes:

1 If site-specific WERs are approved by the Regional Board, TMDL waste load allocations shall be implemented in accordance with the approved WERs using the equations set forth above. Regardless of the final WERs, total copper loading shall not exceed current loading. In addition, effluent concentrations shall not exceed the performance standards of current treatment technologies

2 Concentration-based targets have been converted to total recoverable allocations using the CTR default translator of 0.96 for freshwater reaches and 0.83 for saltwater reaches.

3 Concentration-based targets have been converted to total recoverable allocations using the CTR default translator of 0.997 for freshwater reaches and 0.99 for saltwater reaches.

(a) Discharges from these reaches do not reach lower Calleguas Creek and Mugu Lagoon during dry weather. Allocations are not required for these reaches.

III. CURRENT CONDITION AND COMPLIANCE ASSESSMENT

This section assesses copper and nickel data collected through the monitoring program required by the 2006 CCW TMDL and the Ventura County Municipal Separate Storm Sewer System (MS4) NPDES Permit (NPDES Permit No. CAS004002), and data collected under the Irrigated Agricultural Lands Conditional Waiver Program (Order Nos. R4-2005-0080 and R4-2010-0186).

The Calleguas Creek Watershed Management Plan Quality Assurance Project Plan (QAPP) – Coordinated Monitoring and Reporting Program Plan (CMP) for the Nitrogen Compounds, OC Pesticides and PCBs, Toxicity, and Metals and Selenium Total Maximum Daily Loads was submitted by the responsible dischargers on June 26, 2007, revised and resubmitted on August 14, 2008, and approved by the Regional Water Board on January 30, 2009.

The 2006 CCW TMDL Monitoring Program (CCWTMP) is a coordinated effort with the various stakeholders that make up the Calleguas Creek Watershed Management Plan (CCWMP) and the Water Quality/Water Resources Subcommittee. Annual CMP reports have been submitted as required by other TMDLs and the CCW Metals and Selenium TMDL for Calleguas Creek Watershed. To date, a total of seven annual monitoring reports have been submitted to the Regional Water Board from 2008 to 2015 (LWA, 2010 – 2015b).

The current condition summary statistics tables presented in this section for each reach consider CMP data, MS4 data, and the irrigated agricultural lands data collected between 2008 and 2015. This time frame is selected for analysis to represent conditions after the adoption and during implementation of the 2006 CCW TMDL. These data were compiled and submitted to the Regional Water Board by Larry Walker Associates (LWA) for stakeholders implementing TMDLs in Calleguas Creek Watershed (LWA, 2016).

To determine the current water quality condition and impairment status of Mugu Lagoon, the data described above were compared to numeric targets presented in the Numeric Targets section of the TMDL.

A. Current Condition

Available receiving water quality data for salt water reaches including Mugu Lagoon (Reach 1), Calleguas Creek (Reach 2), Revolon Slough (Reach 4), and the freshwater reaches Beardsley Wash (Reach 5) and Calleguas Creek Reaches 9A, 10, 11, and 12 collected from the CMP, MS4 data, and agricultural data from 2008 to 2015 were compared to the TMDL targets. Table 3-1 presents the results of the data analysis for dissolved copper and nickel. Note that in these tables the WERs have been applied to the targets (for example, the Reach 1 dissolved copper target of 3.1 µg/L has been multiplied by the WER of 1.51 for a target of 4.68 µg/L).

There were no exceedances of TMDL dissolved saltwater targets for copper and nickel in Reach 1, Mugu Lagoon, or lower Calleguas Creek, Reach 2 except for one exceedance of nickel, which occurred in 2010.

For Calleguas Creek, Reach 3, there were no exceedances of TMDL dissolved targets for copper and nickel in either dry weather or wet weather conditions.

TMDL targets for copper were exceeded during both wet and dry weather conditions in Revolon Slough and Beardsley Wash (Calleguas Creek Reaches 4 and 5).

Table 3-1. Receiving Water Data Summary for Copper and Nickel (2008-2015)

Reach 1/ Mugu Lagoon		Fraction	n	Target (ug/L)	Mean	Max Value	95%	Number Exceeded
Copper Dry		**Dissolved**	130	4.68	0.35	2.32	1.06	0
Nickel Dry		**Dissolved**	140	8.20	0.54	4.68	1.90	0
Reach 2		**Fraction**	**n**	**Target**	**Mean**	**Max Value**	**95%**	**Number Exceeded**
Copper	**Wet**	**Dissolved**	12	17.71	2.36	5.20	4.70	0
	Dry	**Dissolved**	37	11.44	1.59	6.30	4.16	0
Nickel	**Wet**	**Dissolved**	12	74.00	3.93	5.40	5.35	0
	Dry	**Dissolved**	39	8.20	2.82	9.30	6.57	1
Reach 3		**Fraction**	**n**	**Target**	**Mean**	**Max Value**	**95%**	**Number Exceeded**
Copper	**Wet**	**Dissolved**	38	26.30	4.08	8.40	5.91	0
	Dry	**Dissolved**	49	25.90	2.55	4.53	3.67	0
Nickel	**Wet**	**Dissolved**	38	856.00	4.02	9.00	7.41	0
	Dry	**Dissolved**	49	149.00	5.23	7.55	6.63	0
Reach 4		**Fraction**	**n**	**Target**	**Mean**	**Max Value**	**95%**	**Number Exceeded**
Copper	**Wet**	**Dissolved**	14	4.80	3.17	7.325	5.36	1
	Dry	**Dissolved**	37	3.10	2.26	5.80	3.66	5
Nickel	**Wet**	**Dissolved**	14	74.00	3.91	8.2	7.00	0
	Dry	**Dissolved**	37	8.20	5.49	9.40	8.88	3
Reach 5		**Fraction**	**n**	**Target**	**Mean**	**Max Value**	**95%**	**Number Exceeded**
Copper Wet		**Dissolved**	2	4.80	12.1	13.40	13.27	2
Nickel Wet		**Dissolved**	2	74.00	4.6	4.90	4.87	0

In addition, there is a trend of decreasing dissolved copper concentrations over time in Mugu Lagoon and Calleguas Creek, Reach 2 when the TMDL began to be implemented in 2008 (Figures 3-1 and 3-2). There are no notable temporal trends in copper and nickel concentrations in other reaches of the Calleguas Creek system.

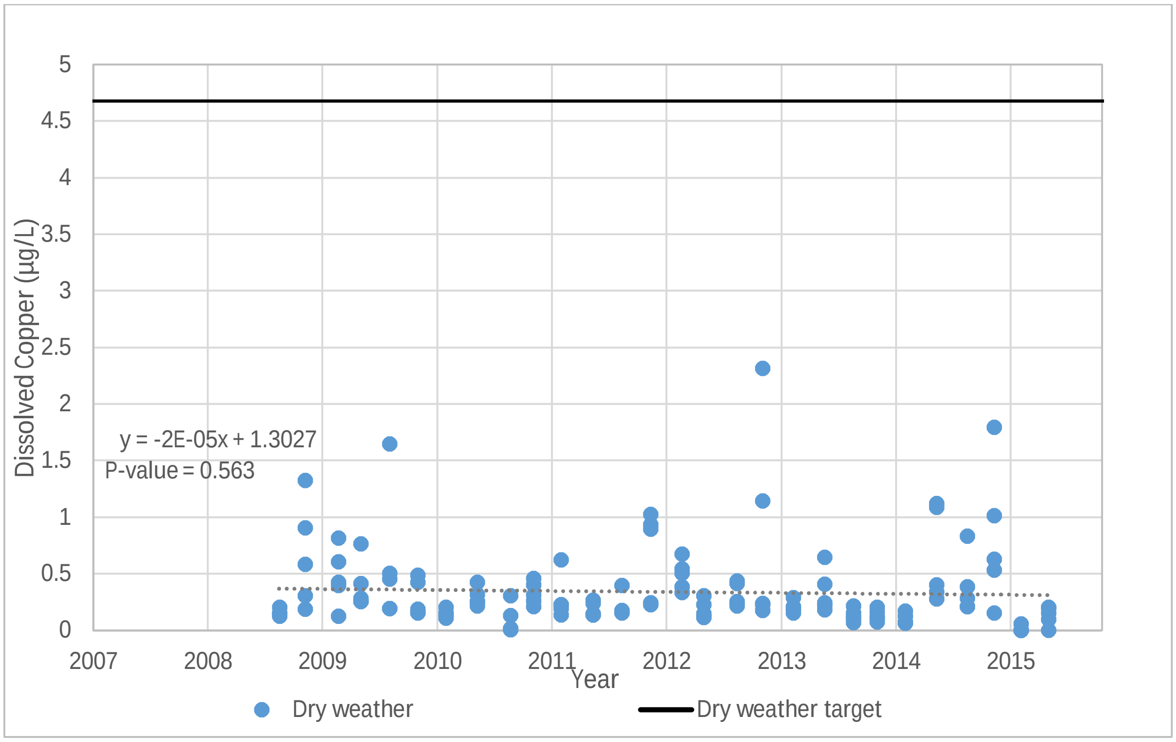

Figure 3-1. Copper Dry Weather Receiving Water Data for Mugu Lagoon (Larry Walker Associates, 2016)

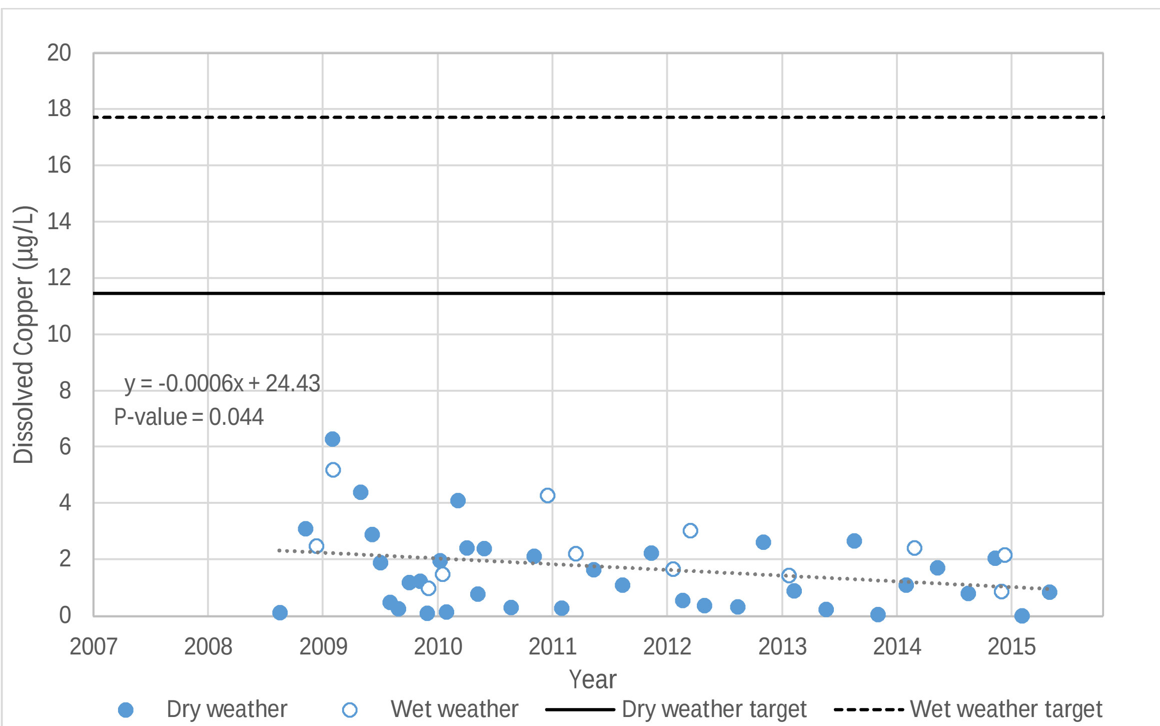

Figure 3-2. Copper Receiving Water Data for Calleguas Creek Reach 2 (Sampling Site 01_RR_BR) (Larry Walker Associates, 2016)

B. TMDL Attainment Assessment

According to the results presented in the previous section, the receiving waters in the lower part of the Calleguas Creek system are not impaired by copper or nickel and are attaining the copper and nickel numeric targets (Reaches 1-3). The exception is Revolon Slough, which is a tributary that enters Mugu Lagoon from the north (i.e., despite being identified as Reach 4, it is only downstream of Reach 5 (Beardsley Wash)). Revolon Slough has exceedances of both the dissolved copper and dissolved nickel numeric targets.

1. Status of Copper and Nickel in POTW Discharges

The WLAs attainment analysis in this section will be used to propose revisions to the assigned WLAs for POTWs. There are five POTWs in the Calleguas Creek Watershed that are assigned WLAs in the 2006 CCW TMDL. The Moorpark Water Treatment Plant (WTP) and Camrosa Water Reclamation Plant (WRP) are meeting their WLAs by not discharging. Discharges from the Simi Valley Water Quality Control Plant (WQCP) do not reach lower Calleguas Creek and Mugu Lagoon during dry weather and are currently meeting final WLAs for both copper and nickel. The Hill Canyon Waste Water Treatment Plant (WWTP) and Camarillo WRP are implementing measures at their facilities to reduce copper and nickel discharges.

Table 3-2. POTWs in the Calleguas Creek Watershed

POTW	Discharge Point	Control Measures
Hill Canyon WWTP	North Fork of the Arroyo Conejo, Reach 10	Implementing source control/treatment
Simi Valley WQCP	Arroyo Simi, Reach 7	Discharges reach creek only during wet weather.
Moorpark WTP	Arroyo Las Posas, Reach 7	Ceased discharges to surface water
Camarillo WRP	Conejo Creek, Reach 9	Implementing source control
Camrosa WRP	Calleguas Creek, Reach 3	Ceased discharges to surface water

POTW effluent data as well as MS4 and irrigated agricultural lands discharge data were compared to final WLAs and LAs to determine the status of attainment of each category of discharger with its applicable final copper and nickel allocations. Data used in the analysis were from the CMP, MS4 data, and irrigated agricultural lands data covering the period 2008 to 2015.

Comparisons of total copper and total nickel loads to the final WLAs for Hill Canyon WWTP and Camarillo WRP, which discharge to Conejo Creek Reach 10 and Reach 9A, respectively, are presented in Table 3-3. As shown in Table 3-3**,** the Hill Canyon WLA for total copper was exceeded 20 times out of 99 samples analyzed in the period examined. However, downstream reaches that could potentially be impacted by the discharge from the Hill Canyon WWTP -- i.e., Mugu Lagoon and Calleguas Creek Reaches 2 and 3 -- are not exceeding TMDL targets, as discussed above.

Table 3-3. POTWs' Effluent Quality compared to Final WLAs (Larry Walker Associates, 2016)

	Total Copper		Total Nickel	
	Number of Samples	**Exceedances of Final WLA**	**Number of Samples**	**Exceedances of Final WLA**
Hill Canyon WWTP	99	20	50	0
Camarillo WRP	49	0	49	1[1]

1. The single exceedance of the final WLA at Camarillo WRP occurred on November 7, 2007. Nickel was not detected in the lab analysis; however, the detection limit was 20 µg/L. If half the detection limit is the assumed concentration used to calculate the load from the WRP, the resulting load exceeds the WLA.

The final WLAs for POTWs in the TMDL are to be met by March 27, 2017.

2. Status of Copper and Nickel in MS4 Discharges

The final WLAs for MS4 discharges in the TMDL are expressed as in-stream loads in Calleguas Creek, Conejo Creek and Revolon Slough. For this analysis, loads were calculated based on urban land use data collected by the Calleguas Creek TMDL Monitoring Program for urban discharges in Revolon Slough and Conejo Creek. Flows were calculated using a Hydrologic Simulation Program-Fortran (HSPF) model using historic rainfall data through August 2013. Flow data from July 2008 through August 2013 were used to calculate pollutant loads that could be compared to WLAs (LWA, 2016). The analysis demonstrates that MS4 discharges are not attaining final WLAs (expressed in lbs/day) with the exception of total copper in Conejo Creek during wet weather and total nickel during wet weather in Revolon Slough and Conejo Creek, as shown in Table 3-4 and Table 3-5.

Table 3- 4. MS4 Discharge Data Comparisons with Final WLAs for Copper (Larry Walker Associates, 2016)

Water Body	Reach	Event Type	Total Samples	Observed Loads Exceed Allocation
Revolon Slough	**4**	Dry	9	8
		Wet	20	17
		Total	**29**	**25**
Conejo Creek	**9B**	Dry	19	17
		Wet	10	0
		Total	**29**	**17**

Table 3-5. MS4 Discharge Data Comparisons with Final WLAs for Nickel (Larry Walker Associates, 2016)

Water Body	Reach	Event Type	Total Samples	Observed Loads Exceed Allocation
Revolon Slough	**4**	Dry	9	3
		Wet	20	0
		Total	**29**	**3**
Conejo Creek	**9B**	Dry	19	8
		Wet	10	0
		Total	**29**	**8**

The final WLAs for MS4 discharges in the TMDL are to be met by March 27, 2022.

3. Status of Copper and Nickel in Discharges from Irrigated Agricultural Lands

The final WLAs for discharges from irrigated agricultural lands in the 2006 CCW TMDL are expressed as in-stream loads in Calleguas Creek, Conejo Creek, and Revolon Slough. Loads were calculated based on water quality data collected by the Calleguas Creek TMDL Monitoring Program for agricultural discharges in Calleguas Creek Reach 2, Revolon Slough, and Conejo Creek. Flows were calculated using a HSPF model using historic rainfall data through August 2013. Flow data from July 2008 through August 2013 were used to calculate pollutant loads for comparison to WLAs (LWA, 2016). The analysis demonstrates that agricultural dischargers are not yet attaining final WLAs for copper and nickel in all reaches and under all conditions, as shown in Table 3-6 and Table 3-7.

Table 3-6. Agricultural Discharge Quality Compared to Final WLAs for Copper (Larry Walker Associates, 2016)

Water Body	Reach	Event Type	Total Samples	Observed Loads Exceed Allocation
Calleguas Creek Reach 2	2	Dry	15	1
		Wet	7	4
		Total	**22**	**5**
Revolon Slough	4	Dry	8	5
		Wet	13	10
		Total	**21**	**15**
	5	Dry	9	3
		Wet	20	13
		Total	**29**	**16**
Conejo Creek	9B	Dry	2	2
		Wet	8	0
		Total	**10**	**2**

Table 3-7. Agricultural Discharge Quality Compared to Final WLAs for Nickel(Larry Walker Associates, 2016)

Water Body	Reach	Event Type	Total Samples	Observed Loads Exceed Allocation
Calleguas Creek Reach 2	2	Dry	15	2
		Wet	7	0
		Total	**22**	**2**
Revolon Slough	4	Dry	8	6
		Wet	13	0
		Total	**21**	**6**
	5	Dry	9	1
		Wet	20	0
		Total	**29**	**1**
Conejo Creek	9B	Dry	2	0
		Wet	8	0
		Total	**10**	**0**

The final WLAs for agricultural discharges in the TMDL are to be met by March 27, 2022.

C. Implementation Progress

The Hill Canyon WWTP initiated a pilot project starting in August 2014 to investigate the effectiveness of polymer addition for removal of copper from POTW effluent. The use of the polymer Metalsorb PCZ resulted in a 45.7% reduction in copper concentrations in the effluent based on a comparison of effluent data prior to the polymer addition (i.e., from January - June 2014) and effluent data after polymer addition (i.e., August - September 2014). The Hill Canyon WWTP continues to track the effectiveness of Metalsorb PCZ addition on copper removal (City of Thousand Oaks, 2016).

Additionally, the California Brake Pad Partnership has successfully led to legislation that has reduced and will reduce the amount of copper in brake pads over time. Based on information collected on the copper content of brake pads, concentrations of copper in brake pads have decreased by over 30% since 2006 and it is anticipated that this source will only decrease over time. Based on analysis in the Metals TMDL, brake pads are a potentially significant source of copper in certain areas of the watershed. The more rapid than anticipated decrease in copper in brake pads could be contributing to the reductions in copper observed in the watershed and this source of copper will be virtually eliminated over the next ten years.

IV. TECHNICAL MATTERS TO BE CONSIDERED TO UPDATE THE TMDL

In this Section, revisions to the Calleguas Creek Metals and Selenium TMDL are proposed as follows:

- Update the dissolved copper numeric targets applicable to Mugu Lagoon (Reach 1) and Calleguas Creek (Reach 2) based on the site-specific WERs and update the assigned WLAs and LAs accordingly.
- Revise the WLAs for certain POTWs based on a consideration of existing receiving water conditions, including the conditions in downstream reaches.

Revisions to allocations assigned to discharges from irrigated agricultural lands and Permitted Stormwater Discharges (PSDs) are not proposed at this time.

A. Incorporation of the Site-specific WERs for Mugu Lagoon and Calleguas Creek, Reach 2 into the Calleguas Creek Metals TMDL

1. Summary of the Adopted WERs for Mugu Lagoon and Calleguas Creek, Reach 2

As discussed in Sections 2.2 and 2.3, the Regional Water Board adopted a Basin Plan amendment to incorporate site-specific WERs for copper in Lower Calleguas Creek (Reach 2) and Mugu Lagoon (Reach 1) on November 9, 2006. A WER of 1.51 was assigned for the Mugu Lagoon and a WER of 3.69 was assigned for lower Calleguas Creek, Reach 2. As envisioned in the 2006 CCW TMDL, staff proposes to modify the TMDL targets and assigned allocations in accordance with the approved WERs using the equations set forth in the CCW Metals and Selenium TMDL.

As stated in Section 2.3 above, the Implementation Provisions for Priority Pollutants, contained in Chapter 3 of the Basin Plan, which include the copper WERs for Mugu Lagoon (Reach 1) and Calleguas Creek Reach 2, require that regulatory actions to achieve applicable criteria, as modified by site-specific WERs, must ensure the downstream standards will also be achieved. Therefore, the WER of 1.51 for Mugu Lagoon is selected to calculate the WLAs LAs

2. Recommendation for the Incorporation of the Adopted WERs into the Calleguas Creek Metals TMDL

Staff recommends incorporation of the site-specific WERs for Mugu Lagoon (Reach 1) and Calleguas Creek Reach 2 into the 2006 CCW TMDL as directed in the footnote to the Copper Targets in Table 7-19.1 of the Basin Plan (the 2006 CCW TMDL). The updated numeric targets and associated WLAs and LAs for copper are provided in Tables 4-1 to 4-5.

Table 4-1. Revised Copper Numeric Targets

Subwatershed	Water Quality Target (µg dissolved/L)	
	Copper	
	CCC	CMC
Mugu Lagoon[1]	4.681	7.248
Calleguas Creek 2[2]	11.439	17.712

1 Site-specific copper WER of 1.51 applied to calculate applicable target for Mugu Lagoon.
2 Site-specific copper WER of 3.69 applied to calculate applicable target for Calleguas Creek, Reach 2.

Table 4-2. Revised Final Mass-Based Copper WLAs for POTWs

Constituents	POTWs	Final Mass-Based (lb/day[1])
Copper	**Hill Canyon WWTP**	0.11*WER-0.04=0.1261
	Camarillo WRP	0.12*WER-0.04=0.1412

1 The site-specific copper WER of 1.51 for Mugu Lagoon is used to calculate the assigned WLAs for discharges to upstream reaches to ensure the downstream standard is achieved.

Table 4-3. Revised Final Mass-Based Copper WLAs for Permitted Stormwater Dischargers (PSDs)

Calleguas and Conejo Creek[1]			
Flow Range	**Low Flow**	**Average Flow**	**Elevated Flow**
Dry Copper (lb/day)	0.04*WER-0.02 = 0.0404	0.12*WER-0.02 = 0.1612	0.18*WER-0.03 = 0.2418
Wet Copper[5] (lb/day)	$(0.00054*Q^2*0.032*Q-0.17)*1.51-0.06$		

1 The site-specific copper WER of 1.51 for Mugu Lagoon is used to calculate the assigned WLAs for discharges to upstream reaches to ensure the downstream standard is achieved.

Table 4-4. Revised Final Copper WLAs for Other NPDES Dischargers

Reach	Copper[1]	
	Dry Monthly Average (ug/L)	Wet Daily Maximum (ug/L)
1	5.6	8.7
2	13.8	21.3

1 WERs of 1.51 for Mugu Lagoon (Reach 1) and 3.69 for Calleguas Creek Reach 2 are used to derive the WLAs using the equations set forth in the adopted TMDL. Regardless of the final WERs, total copper loading shall not exceed current loading. In addition, effluent concentrations shall not exceed the performance standards of current treatment technologies.

Table 4-5. Revised Final Copper Mass-Based LAs for Agriculture and Open Space

Flow Range		Calleguas and Conejo Creek[1]		
		Low Flow	Average Flow	Elevated Flow
Dry Copper (lb/day)	Agriculture	0.07*WER-0.02 = 0.086	0.12*WER-0.02 = 0.161	0.31*WER-0.05 = 0.418
	Open Space	0.150	0.080	0.130
Wet Copper (lb/day)	Agriculture	(0.00017*Q^2*0.01*Q - 0.05)*1.51 - 0.02		
	Open Space	0.0000537*Q^2+0.00321*Q		

1 The site-specific copper WER of 1.51 for Mugu Lagoon is used to calculate the assigned LAs for irrigated agricultural discharges to upstream reaches to ensure the downstream standard is achieved.

B. Revision of the WLAs for POTWs Based on Current Conditions and Associated Compliance Status of POTWs

Revisions to the WLAs only apply to POTWs that contribute pollutant loads to downstream saltwater reaches in both wet and dry weather. These POTWs are Hill Canyon WWTP and Camarillo WRP. Discharges from Simi Valley WQCP do not reach lower Calleguas Creek and Mugu Lagoon during dry weather. Moorpark and Camrosa WRPs do not contribute loading during dry weather.

1. Summary of Current Condition Analysis

a) Receiving Water Overview

As detailed in Section 3.1, Current Condition, downstream reaches including Mugu Lagoon and Reaches 2 and 3 of Calleguas Creek meet the 2006 CCW TMDL dissolved targets for both copper and nickel. However, while downstream receiving water targets are being met, the POTWs are not meeting their assigned WLAs as detailed in Section 3.2, TMDL Attainment Assessment.

b) POTWs Current Performance

Concentrations of dissolved copper and dissolved nickel in POTW effluent from Hill Canyon WWTP and Camarillo WRP over time are presented in Figures 4.1 - 4.4. These effluent concentrations are achieving the interim WLAs for copper and nickel.

As discussed in Section III.B.1**,** the Hill Canyon WWTP effluent exceeded the final WLA for copper 20% of the time from 2008-2015. However, downstream reaches potentially impacted by the discharge from the Hill Canyon WWTP - i.e., Mugu Lagoon and Calleguas Creek Reaches 2 and 3 - did not exceed copper targets. Hill Canyon WWTP and Camarillo WRP effluent concentrations for copper and nickel are compared to their respective interim WLAs as well as to the numeric targets applicable to Mugu Lagoon in Figures 4.1 - 4.4. In these Figures, in order to compare to the numeric targets in dissolved fraction, available dissolved data were used. Interim allocations were converted to dissolved concentrations using CTR default translators. Comparisons are made here to the Criterion Continuous Concentration (CCC) or chronic target in Reach 1, Mugu Lagoon.

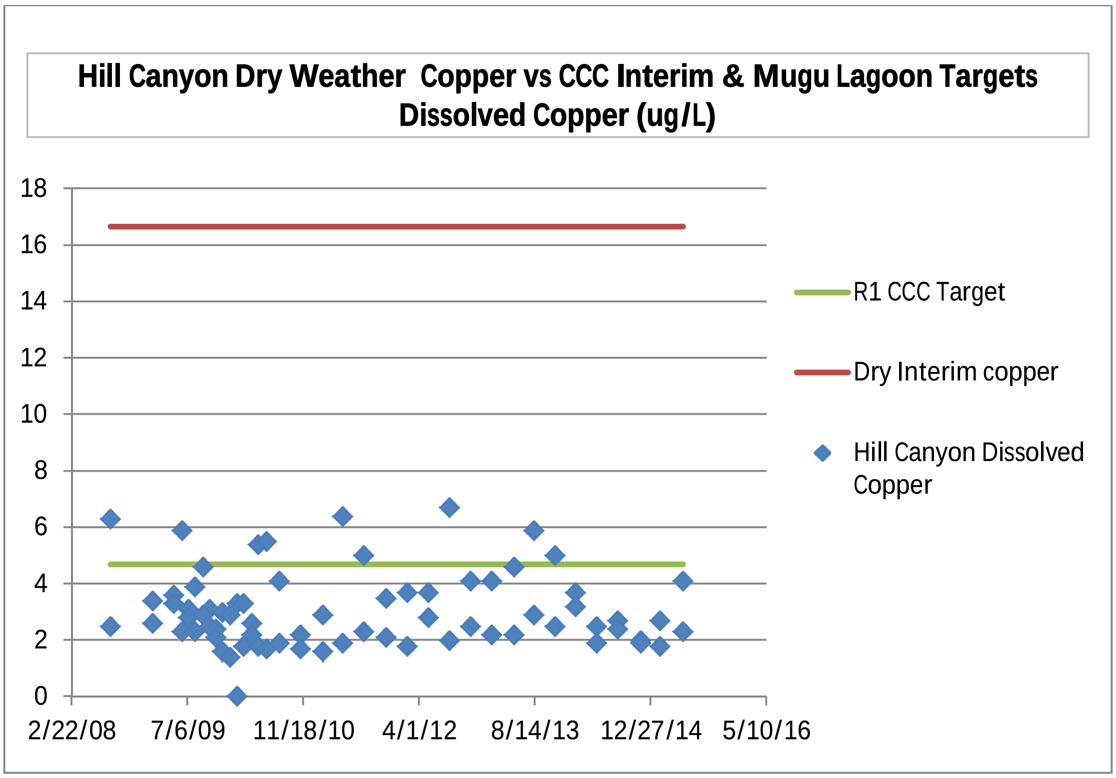

Figure 4-1. Hill Canyon WWTP Effluent Concentration for Dissolved Copper during Dry Weather

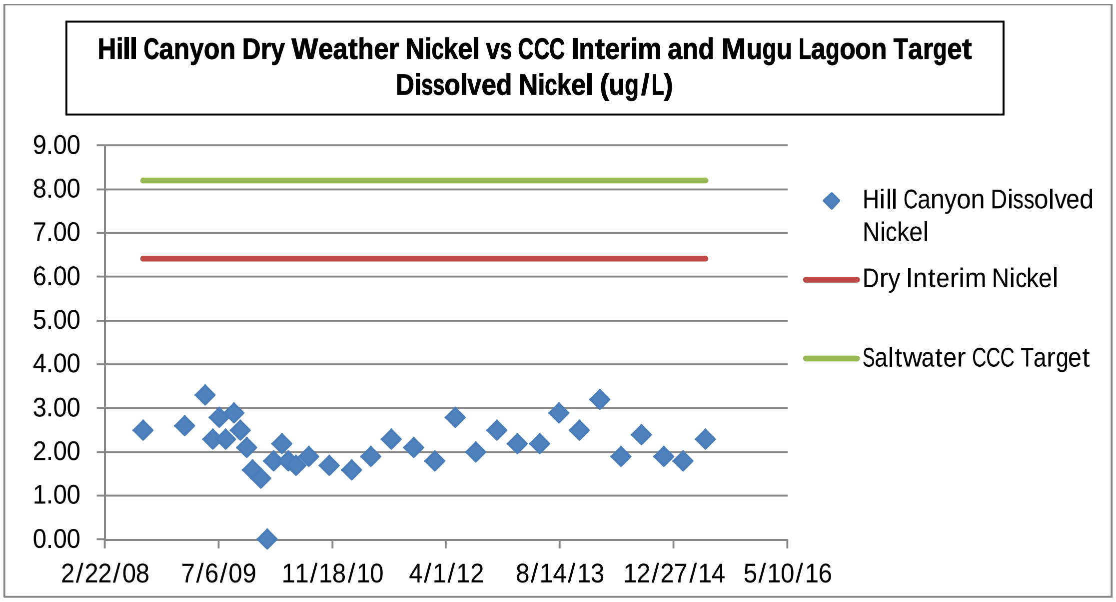

Figure 4-2. Hill Canyon WWTP Effluent Concentration for Dissolved Nickel during Dry Weather

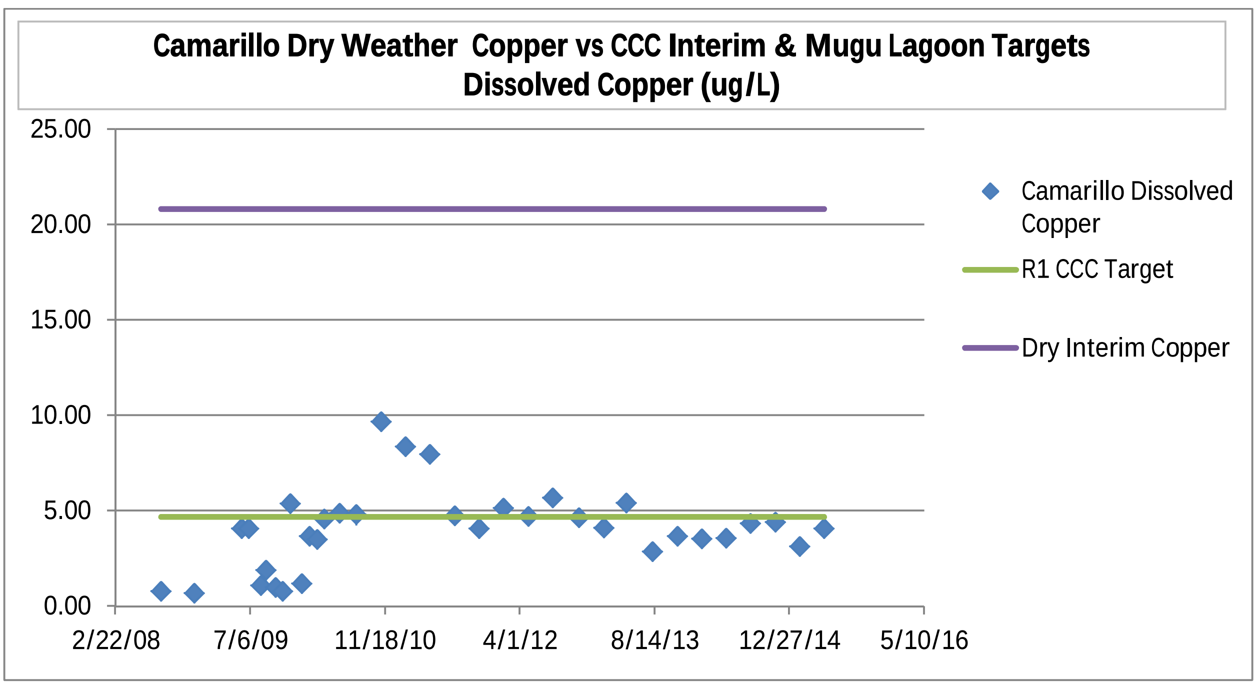

Figure 4-3. Camarillo WRP Effluent Concentration for Dissolved Copper during Dry Weather

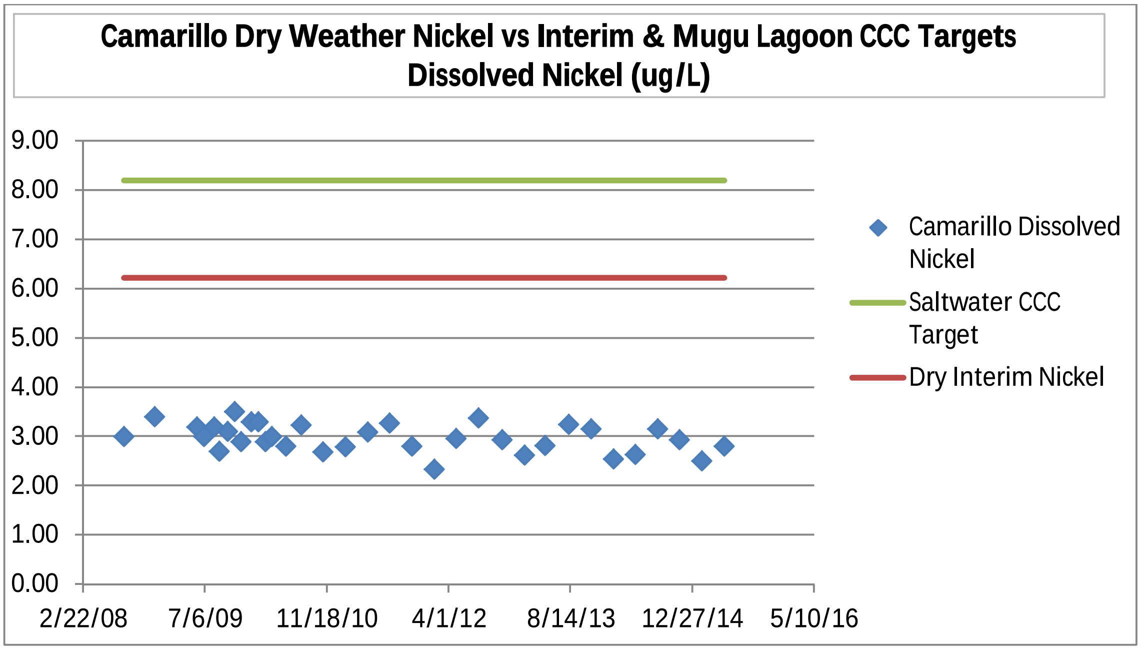

Figure 4-4. Camarillo WRP Effluent Concentration for Dissolved Nickel during Dry Weather

c) Copper and Nickel Concentration Profile

Staff examined the spatial profiles of copper and nickel concentrations from upstream to downstream reaches in order to further confirm if the downstream reaches of the Calleguas Creek watershed are attaining the 2006 CCW TMDL numeric targets even though not all upstream discharges are attaining their final WLAs. These spatial profiles, based on annual average concentrations of total copper and total nickel, are provided in Table 4-6, Table 4-7, and Figure 4-5. As shown, copper and nickel concentrations in the receiving water decrease as the water travels downstream from Reach 9A to Mugu Lagoon.

Table 4-6. Copper Concentration Profile Using Dry Weather Data (annual average total recoverable µg/L)

Year	Downstream to Upstream Reach Profile				
	Reach 1	**Reach 2**	**Reach 3**	**Reach 9A**	**Reach 10**
2009	0.92	4.05	2.3	2.87	4.53
2010	0.73	2.33	2.85	3.28	2.73
2011	0.7	1.44	3.41	3.73	2.59
2012	0.78	1.57	3.23	3.55	3.33
2013	0.99	1.65	4.44	3.1	3.66
2014	0.68	1.27	2.68	4.97	3.31
2015	0.66	1.65	2.55	6.43	1.78

Table 4-7. Nickel Concentration Profile Using Dry Weather Data (annual average total recoverable µg/L)

Year	Downstream to Upstream Reach Profile				
	Reach 1	**Reach 2**	**Reach 3**	**Reach 9A**	**Reach 10**
2009	1.02	6.23	5.09	2.05	3.02
2010	0.79	3.46	5.85	4.65	2.2
2011	0.88	2.41	4.67	4.08	2.53
2012	0.96	2.52	6.54	4.83	2.3
2013	1.22	2.69	6.32	3.9	1.95
2014	0.99	2.2	5.81	5.41	2.38
2015	1.07	3.23	6.43	6.52	2.08

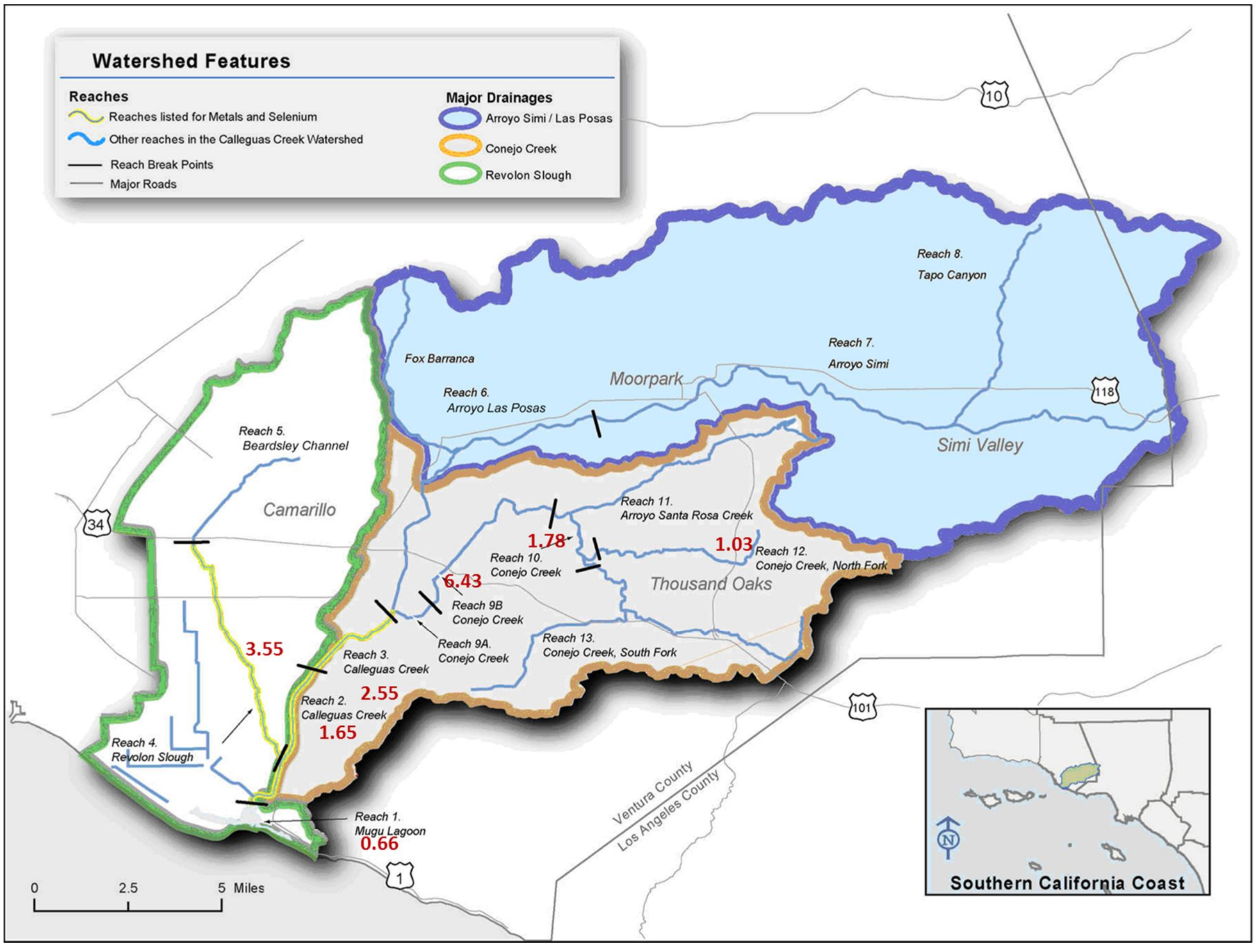

Figure 4-5. 2015 Copper Concentration Profile (annual average total copper µg/L)

d) Sediment Data Analysis

In addition to evaluating the concentrations of copper and nickel in the water column of the downstream reaches, staff also evaluated available sediment quality data to determine whether there was any evidence that total metals loading during wet weather has caused exceedances of sediment quality targets. As shown in Table 4-8, sediment targets for copper and nickel have been met except for two exceedances in Mugu Lagoon, which occurred in 2008, early in TMDL implementation.

Table 4-8. Sediment Data Analysis Using Data Available from 2008-2015 (ppm dry weight)

Reach 01	n	Target	Mean	Max Value	95%	Number Exceeded
Copper	15	34.00	8.41	22.17	20.92	0
Nickel	15	20.90	10.70	27.35	25.16	2[2]

Reach 02	n	Target	Mean	Max Value	95%	Number Exceeded
Copper	1	34.00	12.89	12.89	12.89	0
Nickel	1	20.90	12.98	12.98	12.98	0

Reach 03	n	Target	Mean	Max Value	95%	Number Exceeded
Copper	1	31.60	2.28	2.28	2.28	0
Nickel	1	22.70	3.47	3.47	3.47	0

Reach 04	n	Target	Mean	Max Value	95%	Number Exceeded
Copper	1	34.00	7.38	7.38	7.38	0
Nickel	1	20.90	6.05	6.05	6.05	0

Reach 09	n	Target	Mean	Max Value	95%	Number Exceeded
Copper	2	34.00	7.10	7.45	7.42	0
Nickel	2	20.90	16.47	18.22	18.04	0

2. WLA Alternatives

Three alternatives for revising the copper WLAs for POTWs were considered to ensure downstream water quality will be maintained and continue to improve:

1. No change to the assigned[3] final copper WLAs to POTWs – Under this alternative, the assigned mass-based WLAs of 0.126 lb/day for Hill Canyon WWTP and 0.141 lb/day for Camarillo WRP shall be the same as they are in the 2006 CCW TMDL. These WLAs were based on a watershed hydrology model to achieve the loading capacity required to meet the dissolved saltwater criteria of 4.8 µg/L in the lower Calleguas Creek Reach 2, and 3.1 µg/L Mugu Lagoon.

2. Concentration-based WLAs based on the receiving water targets for the downstream saltwater reach – Under this allocation scenario, concentration-based WLAs for the POTWs are assigned using the more conservative targets

[2] Both exceedances occurred in 2008.
[3] The site-specific copper WER of 1.51 for Mugu Lagoon is used to calculate the assigned WLAs for discharges to upstream reaches to ensure the downstream standard is achieved

for the downstream saltwater reach. These would incorporate the copper WER of 1.51 for Mugu Lagoon (Table 4-9). This allocation alternative would be protective of the upstream and downstream beneficial uses by ensuring that the POTW discharges are not exceeding downstream targets.

Table 4-9. Concentration-based alternative WLAs for POTWs based on Mugu Lagoon Targets

POTWs	Total Recoverable Copper (ug/L)	
	Dry Weather	Wet Weather
Hill Canyon WWTP	5.6	8.7
Camarillo WRP	5.6	8.7

3. Existing Conditions WLAs for POTWs Based on Performance

Since receiving water targets are being achieved for upstream and downstream reaches including lower Calleguas Creek Reach 2 and Mugu Lagoon under current discharge conditions, performance-based allocations that assign WLAs to POTWs based on their current performance would also be protective of the upstream and downstream beneficial uses. Under this allocation scenario, concentration-based WLAs for the POTWs are assigned using the current performance of Hill Canyon WWTP and Camarillo WRP. Current performance is defined based on the 95^{th} percentile value of monthly average concentrations for the period 2010-2015. This period coincides with the TMDL implementation period. See Table 4-10. Mass-based WLAs were calculated using current performance concentrations and design capacities applicable to POTWs (14 MGD for Hill Canyon WWTP and 7.25 MGD for Camarillo WRP).

Table 4-10. Performance Based WLAs for Copper Assigned to Hill Canyon WWTP and Camarillo WRP

POTW	Final Monthly Average Allocation (total recoverable µg/L)	Mass-based Allocation (lb/day total recoverable)
Hill Canyon WWTP	6.0	0.70
Camarillo WRP	8.4	0.51

4. Recommendation for Revision of Assigned WLAs for POTWs

Staff recommends alternative 3 – Performance-based WLAs for copper for the Hill Canyon WWTP and Camarillo WRP. Downstream receiving water targets are being achieved under current discharge conditions, thus performance based allocations that reflect existing discharge conditions are protective of beneficial uses. In addition, POTWs are required to maintain and improve treatment technologies and facility operations to ensure effluent discharges do not impact downstream reaches. WLAs for Simi Valley WQCP, Moorpark WTP, and Camrosa WRP would remain the same as in the 2006 TMDL as discussed in Section IV.B. As established in the 2006 CCW metals TMDL, monitoring will be conducted and the WLAs will be re-evaluated if targets are not met in the immediate receiving water and/or downstream reaches.

For nickel, while a similar performance-based calculation could be made for Hill Canyon WWTP and Camarillo WRP, staff recommends no change to the assigned WLAs for these POTWs because the discharge of both POTWs is well below the saltwater, Mugu Lagoon, target and currently meeting final WLAs.

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