

Appendix J

TENTATIVE RESOLUTION NO. R9-2007-0043

AND

ATTACHMENT A

**AMENDMENT TO THE WATER QUALITY CONTROL PLAN
FOR THE SAN DIEGO BASIN (9) TO INCORPORATE
TOTAL MAXIMUM DAILY LOADS FOR DISSOLVED
COPPER, LEAD, AND ZINC IN CHOLLAS CREEK,
TRIBUTARY TO SAN DIEGO BAY,**

**AND TO REVISE THE TOXIC POLLUTANTS SECTION OF
CHAPTER 3 TO REFERENCE THE
CALIFORNIA TOXICS RULE**

May 30, 2007

**California Regional Water Quality Control Board
San Diego Region**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**TENTATIVE
RESOLUTION NO. R9-2007-0043**

**A RESOLUTION ADOPTING AN AMENDMENT TO THE WATER QUALITY
CONTROL PLAN FOR THE SAN DIEGO BASIN (9) TO INCORPORATE
TOTAL MAXIMUM DAILY LOADS FOR DISSOLVED COPPER,
LEAD, AND ZINC IN CHOLLAS CREEK, TRIBUTARY
TO SAN DIEGO BAY,**

**AND TO REVISE THE TOXIC POLLUTANTS SECTION OF CHAPTER 3 TO
REFERENCE THE CALIFORNIA TOXICS RULE**

WHEREAS, The San Diego Regional Water Quality Control Board (hereinafter, San Diego Water Board), finds that:

1. **BASIN PLAN AMENDMENT:** Total Maximum Daily Loads (TMDLs) and allocations for pollutants that exceed water quality objectives in waterbodies that do not meet water quality standards under the conditions set forth in section 303(d) of the Clean Water Act [33 U.S.C. 1250, *et seq.*, at 1313(d)] (“Water Quality Limited Segments”) should be incorporated into the *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan) pursuant to Article 3, commencing with section 13240, of Chapter 4 of the Porter-Cologne Water Quality Control Act, as amended, codified in Division 7, commencing with section 13000, of the Water Code.
2. **CLEAN WATER ACT SECTION 303(d):** The lowest 1.2 miles of Chollas Creek (from the mouth of Chollas Creek at San Diego Bay to 1.2 miles inland) were placed on the List of Water Quality Limited Segments in 1996 due to levels of dissolved copper, lead, and zinc (metals) in the water column that exceeded numeric water quality objectives for copper, lead, and zinc, and narrative water quality objectives for toxicity, as required by Clean Water Act (CWA) section 303(d).
3. **BENEFICIAL USE IMPAIRMENTS:** Two beneficial uses exist in Chollas Creek that are sensitive to, and subject to impairment by elevated concentrations of dissolved metals in the water column. Warm Freshwater Habitat (WARM) and Wildlife Habitat (WILD) require water quality suitable for the protection of aquatic life and aquatic dependent wildlife. Dissolved metals are toxic to aquatic life and aquatic dependent wildlife at relatively low concentrations. Concentrations of dissolved metals in Chollas Creek exceed the water quality necessary to support the WARM and WILD beneficial uses of Chollas Creek.
4. **NECESSITY STANDARD** [Government Code section 11353(b)]: Amendment of the Basin Plan to establish and implement TMDLs for Chollas Creek is necessary because the existing water quality in the lowest 1.2 miles of Chollas Creek does not meet applicable

water quality objectives for copper, lead, zinc, or toxicity. CWA section 303(d) requires the establishment and implementation of TMDLs under the conditions that exist in Chollas Creek. TMDLs for copper, lead, and zinc are necessary to ensure attainment of applicable water quality objectives and restoration of water quality needed to support the beneficial uses designated for Chollas Creek.

- 5. WATER QUALITY OBJECTIVES:** The United States Environmental Protection Agency (USEPA) has established numeric criteria for toxic pollutants which are applicable water quality objectives for dissolved copper, lead, and zinc in the inland surface waters, enclosed bays, and estuaries of California through promulgation of the California Toxics Rule (CTR). [40 CFR 131.38]. These water quality objectives, presented below, are applicable to Chollas Creek.

Water Quality Objectives for dissolved metals in Chollas Creek.

Metal	Numeric Target for Acute Conditions: Criteria Maximum Concentration	Numeric Target for Chronic Conditions: Criteria Continuous Concentration
Copper	$(1) * (0.96) * \{e^{[0.9422 * \ln(\text{hardness}) - 1.700]}\}$	$(1) * (0.96) * \{e^{[0.8545 * \ln(\text{hardness}) - 1.702]}\}$
Lead	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 1.460]}\}$	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 4.705]}\}$
Zinc	$(1) * (0.978) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\}$	$(1) * (0.986) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\}$

Hardness is expressed as milligrams per liter.

Calculated concentrations should have two significant figures [40 CFR 131.38(b)(2)].

The natural log and exponential functions are represented as “ln” and “e,” respectively.

In addition, the Basin Plan establishes the following narrative water quality objective for “toxicity” to ensure the protection of the WARM and WILD beneficial uses.

Toxicity Objective: *All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the San Diego Water Board.*

The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water factors, shall not be less than that for the same water body in areas unaffected by the waste discharge or, when necessary, for other control water that is consistent with requirements specified in USEPA, State Water Resources Control Board (State Board) or other protocol authorized by the San Diego Water Board. As

a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour acute bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances will be encouraged.

6. **NUMERIC TARGETS:** Numeric targets are established for the purposes of calculating TMDLs. Since the numeric targets are equal to the water quality objectives in the CTR for dissolved copper, lead, and zinc cited in finding 5, attainment of TMDLs will ensure attainment of these water quality objectives.
7. **SOURCES OF DISSOLVED METALS:** Many land uses and activities associated with urbanization are sources of copper, lead, and zinc to Chollas Creek. Freeways and commercial/ industrial land uses are major contributors. Automobiles are a significant source of all three metals. Water supply systems, pesticides, industrial metal recyclers and other industrial activities also contribute to levels of copper, lead, and zinc in excess of water quality objectives for Chollas Creek. Metals released to the environment by different land uses and activities are washed off of the land surface by urban runoff and storm flows and conveyed to Chollas Creek through municipal separate storm sewer systems. Quantification of bacteria loading in all watersheds is necessary to calculate the load reductions required to meet TMDLs.
8. **WATER QUALITY OBJECTIVE VIOLATIONS:** Concentrations of dissolved copper, lead, and zinc have frequently exceeded numeric water quality objectives contained in the CTR. Furthermore, in a Toxicity Identification Evaluation performed in 1999, Chollas Creek stormwater concentrations of zinc and to a lesser extent copper, were identified as causing or contributing to reduced fertility in the purple sea urchin.
9. **ADVERSE EFFECTS OF COPPER, LEAD, AND ZINC:** Concentrations of copper, lead, and zinc in excess of CTR criteria entail increased risk of adverse toxic effects in aquatic organisms exposed to them. Copper, lead, and zinc may bioaccumulate within lower organisms, however they do not biomagnify up the food chain. Of these three metals, copper is considered the most potent toxin at environmentally relevant aqueous concentrations.
10. **TOTAL MAXIMUM DAILY LOADS AND ALLOCATIONS:** TMDLs for dissolved copper, lead, and zinc are equal to the total assimilative or loading capacity of Chollas Creek for dissolved copper, lead, and zinc. The loading capacities are defined as the maximum amount of each dissolved metal that Chollas Creek can assimilate and still attain water quality objectives needed for the protection of designated beneficial uses. Each TMDLs must accommodate all known sources of a pollutant, whether from natural background, nonpoint sources, or point sources, and must include a margin of safety (MOS) to preclude pollutant loading from exceeding the actual assimilative capacities of Chollas Creek. The TMDL calculations also account for seasonal variations and critical conditions and were developed in a manner consistent with guidelines published by the USEPA. The TMDLs are

concentration based, therefore, the allocations are not additive. The TMDLs for dissolved copper, lead, and zinc are equal to the Waste Load Allocations (WLAs) which are 90 percent of the CTR Criteria Continuous Concentration (CCC) and Criteria Maximum Concentration (CMC) equations. Discharges of dissolved copper, lead, and zinc require significant reductions from current levels to meet the allocations.

11. **IMPLEMENTATION PLAN:** The technical report entitled *Total Maximum Daily Loads for Dissolved Copper, Lead and Zinc in Chollas Creek, Tributary to San Diego Bay* dated [insert date] presents a summary of measures that, if adopted by the San Diego Water Board, the State Water Resources Control Board (State Water Board), and local governmental agencies, will promote attainment of the load reductions needed to keep discharges of metals at or below the TMDLs calculated for Chollas Creek. Section 303 of the CWA and the federal National Pollutant Discharge Elimination System (NPDES) regulations direct the USEPA and authorized states to impose requirements consistent with TMDLs for point source discharges to “impaired” waterbodies. When the San Diego Water Board and the State Water Board re-issue or revise NPDES requirements for municipal, construction, and industrial stormwater discharges, and groundwater extraction discharges in the Chollas Creek watershed, including discharges of “small MS4s,” they will have to include requirements that will implement all TMDLs applicable to waters affected by the regulated discharges.
12. **COMPLIANCE MONITORING:** Water quality monitoring will be necessary to assess progress in achieving WLAs and compliance in Chollas Creek with the water quality objectives for dissolved copper, lead, and zinc.
13. **COMPLIANCE SCHEDULE:** Full implementation of the TMDLs for dissolved copper, lead, and zinc shall be completed within 20 years from the effective date of the Basin Plan amendment. The compliance schedule for implementing the wasteload reductions required under these TMDLs is structured in a phased manner, with 80 percent of reductions required in 10 years, and 100 percent of reductions required within 20 years. The 20-year compliance schedule is contingent upon the dischargers implementing integrated controls to achieve required copper, lead, zinc, indicator bacteria, diazinon, and trash reductions.
14. **SCIENTIFIC PEER REVIEW:** The scientific basis of this TMDL has undergone external peer review pursuant to Health and Safety Code section 57004. The San Diego Water Board has considered and responded to all comments submitted by the peer review panel and has enhanced the Technical Report appropriately. No change to the fundamental approach to TMDL calculations was necessary as a result of this process.
15. **STAKEHOLDER AND PUBLIC PARTICIPATION:** Interested persons and the public have had reasonable opportunity to participate in review of the proposed TMDL. Efforts to solicit public review and comment included five public workshops held between April 1999 and April 2005, including a CEQA scoping meeting held on March 21, 2003; a public review and comment period of 45 days preceding the San Diego Water Board public hearing in May 2005; a two week extension of the comment period after the public hearing in May 2005; a second public review and comment period of 45 days commencing in July 2006; a third public review and comment period of 45 days commencing on March 9, 2007; and a public

hearing on April 25, 2007. Notices for all meetings were sent to interested parties including cities and San Diego County with jurisdiction in Chollas Creek. All of the written comments submitted to the San Diego Water Board during the review and comment periods have been considered, and written responses provided in Appendix M to the Technical Report.

16. **CEQA REQUIREMENTS:** Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.) requirements for preparing environmental documents. [14 CCR section 15251(g); 23 CCR section 3782] As such, the San Diego Water Board's basin planning documents together with an Environmental Checklist are the "substitute documents" that contain the required environmental documentation under CEQA. [23 CCR section 3777] The substitute documents for this project include the Environmental Checklist, the detailed technical report entitled *Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay*, responses to comments raised during the development of the TMDL, and this resolution. The project itself is the establishment of TMDLs for toxic metals in Chollas Creek where water quality has been listed as "impaired" by the State Water Board pursuant to section 303(d) of the CWA, as required by that section. While the San Diego Water Board has no discretion to not establish a TMDL (the TMDL is required by federal law) the San Diego Water Board does exercise discretion in assigning wasteload allocations, determining the program of implementation, and setting various milestones in achieving the water quality objectives for Chollas Creek.
17. **PROJECT IMPACTS:** The accompanying CEQA substitute documents satisfy the requirements of substitute documents for a Tier 1 environmental review under CEQA, pursuant to Public Resources Code section 21159 and CCR Title 14, section 15187. Nearly all of the compliance obligations anticipated to be necessary to implement the TMDLs for copper, lead, and zinc in Chollas Creek will be undertaken by public agencies that will have their own obligations under CEQA for implementation projects that could have significant environmental impacts (*e.g.*, installation and operation of structural best management practices). Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies pursuant to Public Resources Code section 21159.2.

If not properly mitigated at the project level, implementation and compliance measures undertaken could have significant adverse environmental impacts. The substitute documents for this TMDL, and in particular the environmental checklist and responses to comments, identify broad mitigation approaches that should be considered at the project level. The San Diego Water Board does not engage in speculation or conjecture regarding the projects that may be used to implement the TMDLs and only considers the reasonably foreseeable alternative methods of compliance, the reasonably foreseeable feasible environmental impacts of these methods of compliance, and the reasonably foreseeable mitigation measures which would avoid or eliminate the identified impacts, all from a broad general perspective consistent with the uncertainty regarding how the TMDLs, ultimately, will be implemented. The lengthy implementation period allowed by the TMDLs will allow persons

responsible for compliance with wasteload allocations to develop and pursue many compliance approaches and mitigation measures.

18. **PROJECT MITIGATION:** The proposed amendment to the Basin Plan to establish TMDLs for copper, lead, and zinc in Chollas Creek could have a significant adverse effect on the environment. However, there are feasible alternatives, feasible mitigation measures, or both, that would substantially lessen any significant adverse impact. The public agencies responsible for implementation measures needed to comply with the TMDLs can and should incorporate such alternatives and mitigation into any projects or project approvals that they undertake for the impaired creek. Possible alternatives and mitigation are described in the CEQA substitute documents, specifically the Technical Report and the environmental checklist. To the extent the alternatives, mitigation measures, or both, are not deemed feasible by those agencies, the necessity of implementing the TMDLs that is mandated by the federal Clean Water Act and removing the copper, lead, and zinc impairments in Chollas Creek (an action required to achieve the express, national policy of the Clean Water Act) outweigh the unavoidable adverse environmental effects identified in the substitute documents.
19. **ECONOMIC ANALYSIS:** The San Diego Water Board has considered the costs of the reasonably foreseeable methods of compliance with the wasteload reductions specified in these TMDLs. The most reasonably foreseeable methods of compliance involve implementation of structural and non-structural controls. Surface water monitoring to evaluate the effectiveness of these controls will be necessary.
20. **NO ADVERSE ENVIRONMENTAL EFFECTS:** This Basin Plan amendment will result in no adverse effect, either individually or cumulatively, on wildlife.
21. **REVISION TO BASIN PLAN:** The USEPA promulgated a final rule prescribing water quality criteria for toxic pollutants in inland surface waters, enclosed bays, and estuaries in California in 2000 (The California Toxics Rule or “CTR;” [40 CFR 131.38]). CTR criteria constitute applicable water quality objectives in California. In addition to the CTR, certain criteria for toxic pollutants in the National Toxics Rule [40 CFR 131.36] constitute applicable water quality objectives in California as well. The section in Chapter 3 of the Basin Plan titled “Toxic Pollutants” should be revised to be consistent with the current federal rules. The subsection entitled “Water Quality Objectives for Toxic Pollutants” in Chapter 3 of the Basin Plan needs to be deleted. This subsection is redundant since the CTR and certain NTR criteria constitute applicable water quality objectives in California.

NOW, THEREFORE, BE IT RESOLVED that

1. **AMENDMENT ADOPTION:** The San Diego Water Board hereby adopts the amendment to the Basin Plan to incorporate the TMDLs for dissolved copper, lead, and zinc in Chollas Creek and to revise the Basin Plan to reference the California Toxics Rule as set forth in Attachment A hereto.

2. **TECHNICAL REPORT APPROVAL:** The San Diego Water Board hereby approves the Technical Report entitled *Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay*, dated [insert date].
3. **CERTIFICATE OF FEE EXEMPTION:** The Executive Officer is authorized to sign a Certificate of Fee Exemption.
4. **AGENCY APPROVALS:** The Executive Officer is directed to submit this Basin Plan amendment to the State Water Board for approval in accordance with Water Code section 13245.
5. **NON-SUBSTANTIVE CORRECTIONS:** If, during the approval process for this amendment, the State Water Board, San Diego Water Board, or OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the San Diego Water Board of any such changes.
6. **ENVIRONMENTAL DOCUMENT CERTIFICATION:** The substitute environmental documents prepared pursuant to Public Resources Code section 21080.5 are hereby certified, and the Executive Officer is directed to file a Notice of Decision with the Resources Agency after State Water Board and OAL approval of the Basin Plan Amendment, in accordance with section 21080.5(d)(2)(E) of the Public Resources Code and the California Code of Regulations, title 23, section 3781.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on [insert date].

JOHN H. ROBERTUS
EXECUTIVE OFFICER

**ATTACHMENT A
TO RESOLUTION NO. R9-2007-0043**

**AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO
BASIN (9) TO INCORPORATE TOTAL MAXIMUM DAILY LOADS FOR
DISSOLVED COPPER, LEAD, AND ZINC IN CHOLLAS CREEK,
TRIBUTARY TO SAN DIEGO BAY,

AND TO REVISE THE TOXIC POLLUTANTS SECTION OF CHAPTER 3 TO
REFERENCE THE CALIFORNIA TOXICS RULE**

This Basin Plan amendment establishes a Total Maximum Daily Load (TMDL) and associated load and wasteload allocations for copper, lead and zinc in Chollas Creek, and revises the Toxic Pollutants section of Chapter 3 to reference the California Toxics Rule. This amendment includes a program to implement the TMDL and monitor its effectiveness. Chapters 2, 3, and 4 of the Basin Plan are amended as follows:

Chapter 2, Beneficial Uses

Table 2-2. Beneficial Uses of Inland Surface Waters

Add the following footnote 3 to Chollas Creek

³Chollas Creek is designated as an impaired water body for copper, lead and zinc pursuant to Clean Water Act section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to address this impairment. See Chapter 3, Water Quality Objectives for Toxicity and Toxic Pollutants and Chapter 4, Total Maximum Daily Loads.

Chapter 3, Water Quality Objectives

Inland Surface Waters, Enclosed Bays and Estuaries, Coastal Lagoons, and Ground Waters

Water Quality Objectives for Toxicity:

Add a fifth paragraph as follows:

Chollas Creek is designated as a water quality limited segment for dissolved copper, lead, and zinc pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapters 2, Table 2-2, *Beneficial Uses of Inland Surface Waters*, *Footnote 3* and Chapter 4, Total Maximum Daily Loads.

TOXIC POLLUTANTS:

Revise as follows:

The USEPA promulgated a final rule prescribing water quality criteria for toxic pollutants in inland surface waters, enclosed bays, and estuaries in California on May 18, 2000 (The California Toxics Rule or "CTR;" [40 CFR 131.38]). CTR criteria constitute applicable water quality objectives in California. In addition to the CTR,

certain criteria for toxic pollutants in the National Toxics Rule [40 CFR 131.36] constitute applicable water quality objectives in California as well.

Chollas Creek is designated as a water quality limited segment for dissolved copper, lead, and zinc pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapters 2, Table 2-2, *Beneficial Uses of Inland Surface Waters, Footnote 3* and Chapter 4, Total Maximum Daily Loads.

~~Federal Register, Volume 57, Number 246 amended Title 40, Code of Federal Regulations, Part 131.36 (40 CFR 131.36) and established numeric criteria for a limited number of priority toxic pollutant for inland surface waters and estuaries in California. USEPA promulgated these criteria on December 22, 1992, to bring California into full compliance with section 303(c)(2)(B) of the Clean Water Act. California is not currently in full compliance with this section of the Clean Water Act due to the invalidation of the Water Quality Control Plan for Inland Surface Waters of California and the Water Quality Control Plan for Bays and Estuaries of California. However, the criteria established in 57 FR 60848 (December 22, 1992) (specifically pages 60920-60921) are still applicable to surface waters in the Region.~~

Water Quality Objectives for Toxic Pollutants:

~~*Inland surface waters, enclosed bays, and estuaries shall not contain toxic pollutants in excess of the numerical objectives applicable to California specified in 40 CFR 131.36 (§131.36 revised at 57 FR 60848, December 22, 1992).*~~

Chapter 4, Implementation

After the subsection on the TMDL for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay add the following subsection:

Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek

On **[Insert Date]**, the Regional Board adopted Resolution No. R9-2007-0043, *Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate Total Maximum Daily Loads for Dissolved Copper, Lead and Zinc in Chollas Creek, Tributary to San Diego Bay*. The TMDL Basin Plan Amendment was subsequently approved by the State Water Resources Control Board on **[Insert Date]**, the Office of Administrative Law on **[Insert Date]**, and the USEPA on **[Insert Date]**.

Problem Statement

Dissolved copper, lead and zinc concentrations in Chollas Creek violate numeric water quality objectives for copper, lead, and zinc promulgated in the California Toxics Rule, and the narrative objective for toxicity. Concentrations of these metals in Chollas Creek threaten and impair the designated beneficial uses of warm freshwater habitat (WARM), and wildlife habitat (WILD).

Numeric Targets

The TMDL numeric targets for copper, lead, and zinc are set equal to the numeric water quality objectives as defined in the California Toxics Rule (CTR) and shown below. Because the concentration of a dissolved metal causing a toxic effect varies significantly with hardness, the water quality objectives are expressed in the CTR as hardness based equations. The numeric targets are equal to the loading capacity of these metals in Chollas Creek.

Table 4 [insert number] Water Quality Objectives/Numeric Targets for dissolved metals in Chollas Creek.

Metal	Numeric Target for Acute Conditions: Criteria Maximum Concentration	Numeric Target for Chronic Conditions: Criteria Continuous Concentration
Copper	$(1) * (0.96) * \{e^{[0.9422 * \ln(\text{hardness}) - 1.700]}\}$	$(1) * (0.96) * \{e^{[0.8545 * \ln(\text{hardness}) - 1.702]}\}$
Lead	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 1.460]}\}$	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 4.705]}\}$
Zinc	$(1) * (0.978) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\}$	$(1) * (0.986) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\}$

Hardness is expressed as milligrams per liter.

Calculated concentrations should have two significant figures [40 CFR 131.38(b)(2)].

The natural log and exponential functions are represented as “ln” and “e,” respectively.

Source Analysis

The vast majority of metals loading to Chollas Creek are believed to come through the storm water conveyance system. An analysis of source contributions reveals many land uses and activities associated with urbanization to be potential sources of copper, lead and zinc to Chollas Creek. Modeling efforts point toward freeways and commercial/industrial land uses as the major contributors

Total Maximum Daily Loads

The TMDLs for dissolved copper, lead and zinc in Chollas Creek are concentration-based and set equal to 90 percent of the numeric targets/loading capacity.

Margin of Safety

The TMDL includes an explicit margin of safety (MOS). Ten percent of the loading capacity was reserved as an explicit MOS.

Allocations and Reductions

The source analysis showed that nonpoint sources and background concentrations of metals are insignificant, and thus, were set equal to zero in the TMDL calculations. The wasteload allocations are set equal to 90 percent of the numeric targets/loading capacity. Concentrations of

dissolved copper, lead and zinc require significant reductions from current concentrations to meet the loading capacity.

TMDL Implementation Plan

Persons whose point source discharges contribute to exceedance of WQOs for copper, lead, and zinc in Chollas Creek will be required to meet the WLA hardness dependant concentrations in their urban runoff discharges before it is discharged to Chollas Creek. Actions to meet the WLAs in discharges to Chollas Creek will be required in WDRs that regulate MS4 discharges, industrial facility and construction activity stormwater discharges, and groundwater extraction discharges in the Chollas Creek watershed. The following orders may be reissued or revised by the Regional Board to include requirements to meet the WLAs. Alternatively, the Regional Board may issue new WDRs to meet the WLAs.

Order No. 2007-0001, NPDES No. CAS0108758, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, and the San Diego Unified Port District*, or subsequent superceding NPDES renewal orders.

Order No. 2000-90, NPDES No. CAG19001, *General Waste Discharge Requirements for Temporary Groundwater Extraction and Similar Waste Discharges to San Diego Bay and Storm Drains or other Conveyance Systems Tributary Thereto*, or subsequent superceding NPDES renewal orders.

Order No. 2001-96, NPDES No. CAG 919002, *General Waste Discharge Requirements for Groundwater Extraction Waste Discharges from Construction, Remediation and Permanent Groundwater Extractioi Projects to Surface Waters within the San Diego Region Except for San Diego Bay* or subsequent superceding NPDES renewal orders.

Order No. 97-11, *General Waste Discharge Requirements for Post-Closure Maintenance of Inactive Nonhazardous Waste Landfills within the San Diego Region* or subsequent superceding NPDES renewal orders.

The Regional Board shall request the State Water Resources Control Board amend the following statewide orders:

Order No. 99-06-DWQ, NPDES No. CAS000003, *National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit, and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation (Caltrans)*, or subsequent superceding NPDES renewal orders.

Order No. 97-03-DWQ, NPDES No. CAS 000001, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, or subsequent superceding NPDES renewal orders.

Order No. 2003-0005-DWQ, NPDES No. CAS000004, *Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems*, or subsequent superseding NPDES renewal orders.

Order No. 99-08-DWQ, NPDES No. CAS000002, *General Permit for Storm Water Discharges Associated with Construction Activity*, or subsequent superseding NPDES renewal orders.

The Regional Board shall require the U.S. Navy to submit a Notice of Intent to enroll the Naval Base San Diego facility under statewide Order No. 2003-005-DWQ or subsequent superseding NPDES renewal orders .

Implementation Monitoring Plan

The dischargers will be required to monitor Chollas Creek and provide monitoring reports to the Regional Board for the purpose of assessing the effectiveness of the management practices implemented to meet the TMDL allocations. The Regional Board shall amend the following order to include a requirement that the cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, the San Diego Unified Port District, and CalTrans investigate excessive levels of metals in Chollas Creek and feasible management strategies to reduce metal loadings in Chollas Creek, and conduct additional monitoring to collect the data necessary to refine the watershed wash-off model to provide a more accurate estimate of the mass loads of copper, lead and zinc leaving Chollas Creek each year.

Order No. R9-2004-0277, *California Department of Transportation and San Diego Municipal Separate Storm Sewer System Copermittees Responsible for the Discharge of Diazinon into the Chollas Creek Watershed, San Diego, California.*

Schedule of Compliance

Concentrations of metals in urban runoff shall only be allowed to exceed the WLAs by a certain percentage for the first nineteen years after initiation of this TMDL. Allowable concentrations shall decrease as shown in Table 4 [insert number]. For example, if the measured hardness in year ten dictates the WLA for copper in urban runoff is 10 µg/l, the maximum allowable measured copper concentration would be 12.0 µg/L. By the end of the twentieth year of this TMDL, the WLAs of this TMDL shall be met. This will ensure that copper, lead and zinc water quality objectives are being met at all locations in the creek during all times of the year.

Table 4 [insert number] ~~Compliance schedule and~~ Interim goals for achieving Wasteload Allocations

Compliance Year	Allowable Exceedance of the WLAs (allowable percentage above)		
	Copper	Lead	Zinc
1	100%	100%	100%
10	20%	20%	20%
20	0%	0%	0%

Compliance with the interim goals in this schedule can be assessed by showing that dissolved metals concentrations in the receiving water exceed the WQOs for copper, lead, and zinc by no more than the allowable exceedances for WLAs shown in the table above. Regulated groundwater discharges to Chollas Creek must meet the WLAs at the initiation of the discharge. No schedule to meet interim goals will be allowed in the case of groundwater discharges.

The compliance schedule for implementation of the TMDLs shall be as follows in Table 4 [insert number].

Table 4 [insert number] Compliance Schedule

<u>Item</u>	<u>Implementation Action</u>	<u>Responsible Parties</u>	<u>Date</u>
1	<u>Effective date of Chollas Creek Metals TMDL Waste Load Allocations.</u>	<u>San Diego Water Board, Municipal Dischargers, Caltrans, Navy, Industrial Stormwater Dischargers, Construction Stormwater Dischargers, Landfill Stormwater Dischargers</u>	<u>Effective date¹</u>
2	<u>Recommend High Priority for grant funds.</u>	<u>San Diego Water Board</u>	<u>Immediately after effective date</u>
3	<u>Submit annual Progress Report to San Diego Water Board due January 1 of each year.</u>	<u>Municipal Dischargers</u>	<u>Annually after reissue of NPDES WDRs.</u>
4	<u>Submit annual Progress Report to San Diego Water Board due April 1 of each year.</u>	<u>Caltrans</u>	<u>Annually after reissue of NPDES WDRs.</u>
5	<u>Submit annual Progress Report to San Diego Water Board due July 1 of each year.</u>	<u>Industrial Stormwater Dischargers</u>	<u>Annually after reissue of NPDES WDRs.</u>
6	<u>Submit annual Progress Report to San Diego Water Board due July 1 of each year.</u>	<u>Construction Stormwater Dischargers</u>	<u>Annually after reissue of NPDES WDRs.</u>
7	<u>Municipal NPDES WDRs shall be issued, reissued, or revised to include WQBELs consistent with the assumptions and requirements of the Chollas Creek WLAs.</u>	<u>San Diego Water Board</u>	<u>Within 5 years of effective date</u>
8	<u>Caltrans NPDES WDRs shall be issued, reissued, or revised to include WQBELs consistent with the assumptions and requirements of the Chollas Creek WLAs.</u>	<u>State Water Board</u>	<u>Within 5 years of effective date</u>
9	<u>Construction NPDES WDRs shall be issued, reissued, or revised to include WQBELs consistent with the assumptions and requirements of the Chollas Creek WLAs.</u>	<u>State Water Board</u>	<u>Within 5 years of effective date</u>
10	<u>Industrial NPDES WDRs shall be issued, reissued, or revised to include WQBELs consistent with the assumptions and requirements of the Chollas Creek WLAs.</u>	<u>State Water Board</u>	<u>Within 5 years of effective date</u>

¹ Upon approval of by Office of Administrative Law.

<u>Item</u>	<u>Implementation Action</u>	<u>Responsible Parties</u>	<u>Date</u>
11	<u>Amend Orders No. 2000-90, and No. 2001-96 (or superseding renewal orders) which regulates temporary groundwater extraction discharges to San Diego Bay and its tributaries to include WQBELs consistent with the assumptions and requirements of the Chollas Creek WLAs.</u>	<u>San Diego Water Board</u>	<u>Within 5 years of effective date</u>
12	<u>Municipal and Navy WDR Order No. R9-2004-0277 shall amended to require additional monitoring for metals and hardness.</u>	<u>San Diego Water Board</u>	<u>Within 5 years of effective date</u>
13	<u>Landfill NPDES WDR Order No. 97-11 (or superseding renewal orders) shall be issued, reissued, or revised to monitor for metals and hardness.</u>	<u>San Diego Water Board</u>	<u>Within 5 years of effective date</u>
14	<u>Navy and all other Phase II small MS4 permittees in the Chollas Creek watershed shall be enrolled in Order No. 2003-0005-DWQ (or superseding renewal orders).</u>	<u>San Diego Water Board</u>	<u>Immediately after effective date.</u>
15	<u>Take enforcement actions</u>	<u>San Diego Water Board</u>	<u>As needed after effective date.</u>
16	<u>Meet 80% Chollas Creek Metals TMDL WLA reductions.</u>	<u>Municipal Dischargers, Caltrans, Navy, Industrial Stormwater Dischargers, Construction Stormwater Dischargers, Landfill Stormwater Dischargers</u>	<u>10 years after effective date.</u>
17	<u>Meet 100% Chollas Creek Metals TMDL WLA reductions.</u>	<u>Municipal Dischargers, Caltrans, Navy, Industrial Stormwater Dischargers, Construction Stormwater Dischargers, Landfill Stormwater Dischargers</u>	<u>20 years after effective date.</u>