CT 2345 - mail log only/NO assignment
Ken Harrold

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 2 6

Ms. Celeste Cantú
Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Dear Ms. Cantú:

Thank you for submitting the total maximum daily loads (TMDLs) for pathogens and sediments in Morro Bay, Los Osos Creek, and Chorro Creek, California. The pathogen TMDLs were submitted for EPA review in a letter dated December 10, 2003, and the sediment TMDLs were submitted in a letter dated December 20, 2003. Based on our review, EPA concludes that the TMDLs adequately address the pollutants of concern and that upon implementation will result in attainment of applicable water quality standards. The TMDLs include allocations as needed, take into consideration seasonal variations and critical conditions, and provide adequate margins of safety. The State has provided adequate opportunities for public review of the Basin Plan Amendments that include all of the components of the TMDLs. All required elements are adequately addressed; therefore, the TMDLs are hereby approved pursuant to Clean Water Act Section 303(d)(2).

The attached review checklists discuss the basis for this approval decision in greater detail. I appreciate the State and Regional Boards' work to complete and adopt the TMDLs and look forward to our continuing partnership in TMDL development. If you have questions concerning this approval, please call me at (415) 972-3572 or Cheryl McGovern at (415) 972-3415.

Sincerely,

Alexis Strauss 20 Jan. 2004
Alexis Strauss
Director
Water Division

Enclosure
cc: Roger Briggs, Executive Officer, Central Coast Regional Board

TMDL Checklist

State: California
Waterbodies: Morro Bay, Los Osos and Chorro Creeks
Pollutant(s): Pathogens
Date of State Submission: December 10, 2003
EPA Reviewer: Cheryl McGovern

Review Criteria	Comments
1. Submittal Letter: State submittal letter indicates final TMDL(s) for specific water(s)/pollutant(s) were adopted by state and submitted to EPA for approval under 303(d).	Submittal letter, p. 1: TMDL is for pathogens in Morro Bay, Los Osos Creek and Chorro Creek. Submittal letter enclosure, p. 17: Morro Bay and Chorro and Los Osos Creeks were listed on the State's 1998 303(d) list for impairment due to pathogens.
2. Water Quality Standards Attainment: TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.	1. Submittal letter enclosure, p. 7: " This TMDL is expressed as concentrations that are equal to the numeric targets. For Bay waters, a geometric mean of 14 MPN/100mL must be achieved and no more than 10% of the samples may be over 43 MPN/100mL for fecal coliform. For tributaries (Chorro and Los Osos Creeks and fresh water seeps) to the Bay, the geometric mean shall not exceed 200 MPN/100mL over a 30-day period nor shall 10% the samples exceed 400 MPN/100nL over any 30-day period for fecal coliform. Point and nonpoint sources cannot exceed the concentrations specified above. Therefore, the wasteload allocations and load allocations, which include background levels, are also equal to the numeric targets. 2. Submittal letter enclosure, p. 17: The applicable basin plan standard for the protection of Water Contact Recreation which was previously approved by EPA is "Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml." Morro Bay is also listed for impairment of Shellfish Harvesting from pathogens but the Regional Board does not have a standard established for fecal coliform for the protection of Shellfish Harvesting. 3. Submittal letter enclosure, p. 25. Targets for protection of Shellfish Harvesting in Morro Bay are based on regulations that Department of Health Services follows. Numeric water quality objectives for fecal coliform bacteria are set by the US Department of Health Services Food and Drug Administration's National Shellfish Sanitation Program.

3. Numeric Target(s): Submission describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. Numeric water quality target(s) for TMDL identified, and adequate basis for target(s) as interpretation of water quality standards is provided.	**See above under #2.**

	waste management, septic system maintenance and improved central treatment facilities, and feral dog/cat reductions are included in the Implementation Plan. (p.1285)
7. Margin of Safety: Submission describes explicit and/or implicit margin of safety for each pollutant.	TMDL Report, located in the Administrative Record, on p. 1282 states: "A margin of safety has been established implicitly through the use of protective numeric targets." The level of uncertainty is minimized through the approach of setting the TMDLs equal to the concentration based water quality standards.
8. Seasonal Variations and Critical Conditions: Submission describes method for accounting for seasonal variations and critical conditions in the TMDL(s)	TMDL Report , located in the Administrative Record, on p. 1282 provides an assessment of wet weather bacteria concentrations and dry weather bacteria concentrations and the sources for each of these seasonal variations. Although Chorro Creek has the highest concentrations of bacteria during dry weather, during wet weather conditions Los Osos Creek and ground water contributions increase and percentage of bacteria from Chorro Creek decreases.
9. Public Participation: Submission documents provision of public notice and public comment opportunity; and explains how public comments were considered in the final TMDL(s).	The Regional Board held public workshops and hearings for a 2002 and 2003 Basin Plan Amendment to incorporate a TMDL and implementation plan for Morro Bay, Los Osos Creek, and Chorro Creek. The State Board also held approval hearings. The State provided ample opportunities for public review of and comment on the TMDL provisions as contained in the Administrative Record. Public comments were adequately addressed in staff reports prepared by Regional Board in preparation for numerous public hearings
10. Technical Analysis: Submission provides appropriate level of technical analysis supporting TMDL elements.	Staff report and responsiveness summaries provided detailed technical justifications for each TMDL element.
Note: **The following criteria do not apply to all TMDLs, but must be applied in the situations noted.**	
11. Monitoring Plan for TMDLs Under Phased Approach (where phased approach is used): TMDLs developed under phased approach identify implementation actions, monitoring plan and schedule for considering revisions to TMDL.	The monitoring plan is identified on p. 1296-1301 of the Administrative Record, with follow-up actions described if lack of compliance is not achieve.
12. Reasonable Assurances (for waters affected by both point and nonpoint sources): Where point source(s) receive less stringent wasteload allocations because nonpoint source reductions are expected and reflected in load allocations, implementation plan provides reasonable assurances that nonpoint implementation actions are	The Basin Plan Amendment adopted by the Regional Board contains an implementation plan for attainment of the numeric targets, wasteload and load allocations with a concentration target that meets the appropriate water quality standard for protection of each beneficial use impacted by fecal coliform..

4. Source Analysis: Point, nonpoint, and background sources of pollutants of concern are described, including the magnitude and location of sources. Submittal demonstrates all significant sources have been considered.	The Source Analysis is described in the staff report. The TMDL Administrative Record, Volume 1, p. 1-82 describes the study, report, technical advisory committee meeting notes, conclusions, recommendations, and staff report that used DNA fingerprinting to identify sources of pathogens to the impaired waterbodies. Funding of $260,000 was directed to this effort and Regional Board resources of 1.5 person years, in additional to participation by US EPA staff. The TMDL identifies all sources of pathogens as nonpoint and point source. The study matched samples of DNA from local samples to the site-specific library which was developed for this purpose. Although "false positives" and "no match" findings cluttered the background of readings, the number of samples taken and QA resulted in the findings being accepted by the TAC and peer reviewers.
5. Allocations: Submittal identifies appropriate wasteload allocations for point sources and load allocations for nonpoint sources. If no point sources are present, wasteload allocations are zero. If no nonpoint sources are present, load allocations are zero.	As stated above, wasteload allocations and load allocations are expressed as concentrations which is consistent with other pathogen TMDL's developed for California waterbodies. This approach is appropriate for bacteria because bacterial concentrations are a more discriminating indicator of human health risks associated with bacterial exposure than mass loads. This approach is also consistent with the requirements of 40 CFR130.2(i), which provides that TMDLs may be expressed in terms of "other appropriate measures." The Morro Bay National Estuary Program's volunteer monitoring program and the CA Department of Health Services monitoring program will be used to measure compliance with TMDL targets.
6. Link Between Numeric Target(s) and Pollutant(s) of Concern: Submittal describes relationship between numeric target(s) and identified pollutant sources. For each pollutant, describes analytical basis for conclusion that sum of wasteload allocations, load allocations, and margin of safety does not exceed the loading capacity of the receiving water(s).	TMDL as provided in the Administrative Record enclosed with the submittal letter, p. 1256 reports that concentration based targets are more logical because public health risks related to recreating in waters, or eating shellfish from contaminated waters are greater with organism concentrations and that the sources of this contamination are not easily controlled on a mass basis. Volume three of the Administrative Record includes historical studies that implicate pathogens with human illness from consumption of shellfish from Morro Bay. The Administrative Record, p. 1281 states a model was developed to understand the relative change in bacteria concentrations, rather than absolute percentages due limited data set information. Reductions in all non-natural sources is required. Targets will be included in the one NPDES permit in the Chorro Creek subwatershed basin. Voluntary grazing management measures, boat management, pet

sufficient to result in attainment of load allocations in a reasonable period of time. Reasonable assurances may be provided through use of regulatory, non-regulatory, or incentive based implementation mechanisms as appropriate.	