



file: Los Osos Manage/monit  
TMDL

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION IX**

**75 Hawthorne Street  
San Francisco, CA 94105-3901**

05/10-7-2005

San Luis Obispo, CA

440 x 2005

Mr. Roger W. Briggs  
Executive Officer  
Central Coast Regional Water Quality Control Board  
895 Aerovista Place, Suite 101  
San Luis Obispo, CA 93401

Dear Mr. Briggs:


Thank you for submitting the total maximum daily load (TMDL) for nitrate in Warden Creek branch of Los Osos Creek, California. The submittal to EPA was dated December 22, 2004 and clarified in a letter dated February 4, 2005. Based on our review, EPA concludes that the TMDL adequately identifies nitrate levels necessary to ensure protection of the designated drinking water use and that upon implementation will result in attainment of applicable numeric nitrate water quality standards. The TMDL includes nitrate load allocations as needed, takes into consideration seasonal variations and critical conditions, and provides an adequate margin of safety. The State has provided adequate opportunities for public review of the TMDL. All required elements are adequately addressed; therefore, the nitrate TMDL is hereby approved pursuant to Clean Water Act Section 303(d)(2). As there are no current point source discharges of concern, the TMDL does not clearly express wasteload allocations. I would like to clarify our understanding that the nitrate wasteload allocation for any potential future point source discharges to this water body is zero.

While we are hopeful that proposed actions to implement the nitrate TMDLs will assist in lowering overall nutrient levels in Los Osos and Warden Creek, we are concerned that the nitrate TMDL does not fully address the listed impairments of Los Osos Creek (nutrients and dissolved oxygen) and Warden Creek (dissolved oxygen). The nitrate TMDL is not set at levels stringent enough to ensure protection of the existing aquatic life and recreation designated uses and attainment of the narrative biostimulation water quality objective. The TMDL and associated allocations are probably insufficient to remedy low dissolved oxygen levels, excessive algal growth, and excessive nutrient levels that were the basis for the existing Section 303(d) listings. Therefore, EPA expects that the Regional Board will develop additional TMDLs for nutrients and dissolved oxygen for these water bodies that are sufficient to attain all applicable standards. We hope the monitoring provisions described in the nitrate TMDL submittal will assist in developing these TMDLs in the near future.

EPA concludes that by completing and submitting the nitrate TMDL for Warden Branch of Los Osos Creek, the Regional Board has partially fulfilled its workplan commitment to adopt nutrient TMDLs for Los Osos Creek in 2005. We urge the Regional Board to submit TMDLs in the future that fully address the Section 303(d)-listed impairments for listed water bodies. We would like to work with your staff during the development of the 2005-06 workplan to ensure that ongoing TMDL projects are designed to fully address observed impairments.

The attached review discusses the basis for this approval decision in greater detail. I 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,

 1 March 2005  
Alexis Strauss, Director  
Water Division

Enclosure

cc: Celeste Cantú, SWRCB

## TMDL Checklist

**State:** California

**Waterbodies:** Los Osos Creek, Warden Creek and Warden Lake Wetlands

**Pollutant(s):** Nitrate

**Dates of State Submissions:** December 22, 2004 and February 4, 2005

**EPA Reviewer:** Cheryl McGovern

Review Criteria	Comments
<p><b>1. Submittal Letter:</b> 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).</p>	<p>Yes. The State submittal letter of December 22, 2004 indicates the TMDL for nitrates in Warden Creek Branch of Los Osos Creek was approved by the Regional Board on December 3, 2004. Although the submission is entitled "TMDL for Nutrients in Los Osos Creek, Warden Creek, and Warden Lake Wetland, the TMDL and allocations are set specifically for the Warden Creek Branch of Los Osos Creek. The submittal letter requests EPA approval pursuant to Section 303(d) of the Clean Water Act.</p>
<p><b>2. Water Quality Standards Attainment:</b> TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.</p>	<p>Page 1 of the Staff Report prepared November 8, 2004 states that the TMDL uses the numeric standard of 10 mg/l-N nitrate as the target for the protection of the Municipal Drinking Water Standard. The report suggests that impairment of the narrative standard for the protection of biostimulatory impacts to aquatic life and recreation could not be confirmed and that TMDLs to address this standard are not developed at this time. However, the submission is unpersuasive on this point as dissolved oxygen levels appear to frequently violate the standards, and reported nitrate and phosphate levels were higher than the levels associated with excessive biostimulation effects in freshwater streams. (see, e.g. EPA's Ecoregion Nutrient Criteria Recommendations for Ecoregion III, December 2000).</p>
<p><b>3. Numeric Target(s):</b> 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.</p>	<p>Resolution No. R3-2004-0165, p. 1 states Los Osos Creek was identified in 1998 as impaired by nutrients and is on the 2002 list but the listing does not specify whether the impairment is associated with the narrative objective for biostimulatory substances or for numeric objectives for particular nutrients or a combination. Los Osos Creek and Warden Creek are also listed for dissolved oxygen. The Staff Report concludes that the Warden Creek branch of Los Osos Creek experiences the most consistent nitrate violations whereas the Los Osos Creek branch of the Creek is not considered impaired for nitrates. The State argues that insufficient data are available to determine if and when algae is sufficiently dense to be perceived as a nuisance and clearly impacting uses. Therefore, the TMDL uses a maximum concentration for nitrate of 10 mg/l-N to protect the MUN beneficial</p>

	<p>use. There is no numeric phosphate standard that protects waters within the Central Coast Regional Water Quality Control Board. Dissolved oxygen levels do not meet water quality objectives at two stations in Los Osos and Warden Creeks. The State argues, without providing any supporting analysis, that these violations are likely driven by low flow, canopy conditions, temperature, and other environmental conditions. Further monitoring will be conducted to evaluate the dissolved oxygen and algal conditions in the creeks and TMDLs will be prepared if impairment is indicated.</p> <p>Our review indicates that the State decided not to establish TMDLs at this to address algae and dissolved oxygen-related impairments due to the lack of definitive evidence confirming the degree to which designated uses are impaired due to algal growth and low DO levels. Instead, the State focused upon nitrate because a numeric standard is in effect for nitrate to address the drinking water use. EPA concurs that the TMDLs will be sufficient to address the frequent nitrate objective exceedences observed. However, the State should have completed more stringent nutrient TMDLs addressing the apparent impairments associated with extensive algal growth, low DO, and high nitrogen and phosphorus levels in the streams. The State will need to do so in the future unless it is demonstrated that the applicable biostimulation objective is attained in these streams.</p>
<p><b>4. Source Analysis:</b> 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.</p>	<p>Page 12 of the Final TMDL dated September 2004, presents potential sources of nitrates to Warden Creek using GIS land use coverages. Estimates of nitrate loads based on loading rates of (derived from Pollutant Mass Emissions to the Coastal Ocean of California (Southern California Coastal Water Research Project et al, 2000) water quality data indicating elevated nitrate levels adjacent to croplands. Estimates of loading are expressed as: 1) Woodland, 161 acres, 2% of land area, 1.4 lbs/ac/year, estimated load of 225 lbs/year for a total of 0% of Total Load; 2) Rangeland, 5,260 acres, 63% of land area, 1.4 lbs/ac/year, estimated load of 7,364 lbs/year, 14% of Total Load; 3) Cropland, 2,911, 35% of land area, 15.4 lbs/ac/year, 44,829 lbs/year, 86% of Total Load.</p>
<p><b>5. Allocations:</b> 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.</p>	<p>The Final TMDL dated September 2004, p. 14, presents load allocations for the four major land uses in the watershed. The TMDL load allocation is 10 mg/l of nitrate for each source.</p> <p>As there are no point sources of concern in the</p>

	<p>watershed, no wasteload allocations were established by the State. It is our understanding, therefore, that a WLA of zero allowable nitrate loading would apply to any future point source discharge in the targeted watershed. Future TMDLs should establish WLAs even if there are no current point sources of discharge or the point sources are not significant loading sources.</p>
<p><b>6. Link Between Numeric Target(s) and Pollutant(s) of Concern:</b> 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).</p>	<p>The TMDL sets the TMDL and load allocation equal to the numeric nitrate objective (p. 14). Expressing the TMDL as a nitrate concentration equal to the water quality objective provides a direct measure of the nitrate levels in the watershed to compare with water quality objectives and provides a measurable target for sources to monitor and with which to comply and establishes a direct link between the TMDL target and sources.</p>
<p><b>7. Margin of Safety:</b> Submission describes explicit and/or implicit margin of safety for each pollutant.</p>	<p>A margin of safety is provided on page 15 of the Final TMDL of September 2004 which implicitly protects through the use of the nitrate water quality objective as the TMDL. The water quality objective was established using conservative assumptions. Furthermore, rangeland loading of nitrate should be less than 10 mg/l because rangeland has not been proven to be a source of nitrate.</p>
<p><b>8. Seasonal Variations and Critical Conditions:</b> Submission describes method for accounting for seasonal variations and critical conditions in the TMDL(s)</p>	<p>Since the load assignments are equal to the water quality standard they must be met regardless of season or flow conditions.</p>
<p><b>9. Public Participation:</b> Submission documents provision of public notice and public comment opportunity; and explains how public comments were considered in the final TMDL(s).</p>	<p>The Central Coast Regional Board held a public meeting on December 6 and 13, 2002 to adopt the Chorro Creek and Los Osos Creek TMDL for Nutrients and Dissolved Oxygen but the Regional Board did not adopt the TMDL because it didn't address ammonia and the data linking of biostimulatory impairment was weak. The Staff Report prepared November 8, 2004, p. 1 and 2, summarizes public participation. Public comments were accepted through November 22, 2004. Additional outreach was conducted through Morro Bay National Estuary meetings. Public review and comment through the December 3, 2004 Regional Board meeting provided another formal opportunity for public input prior to adoption of the TMDL. Notice of public hearing was given by notifying newspapers of general circulation within the Region and a copy of the notice was mailed to all persons requesting such notice and affected government agencies. On February 4, 2005 the Regional Board replied to EPA staff requests for a Responsiveness Summary. This transmittal indicates that no comments were received except a letter of support and</p>

	no comments were made during the public hearing.
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