February 11, 2003
File: 31-370-40.4A

Mr. Terrence Fleming
U.S. Environmental Protection Agency Region 9, WTR-2
75 Hawthorne Street,
San Francisco, CA 94105

Dear Mr. Fleming:

Comments on the Proposed Draft TMDLs for Nutrients in Malibu Creek

The County Sanitation Districts of Los Angeles County (Districts) have reviewed the proposed draft Malibu Creek Nutrients TMDLs (dated January 10, 2003). We appreciate the opportunity to comment on these proposed TMDLs and offer several comments for your consideration. The Districts own and operate seven Wastewater Reclamation Plants (WRPs) that discharge directly to the Santa Clara and San Gabriel Rivers in nearby watersheds. Both of these watersheds also are listed as impaired for nitrogen compounds or algae and thus, the Malibu Creek Nutrient TMDLs may set a precedent for developing TMDLs in these other watersheds.

In addition, the Districts operate the Calabasas Landfill within the Malibu Creek Watershed under a Joint Powers Agreement between the County of Los Angeles and the Districts. The Calabasas Landfill is operated to provide for the management of solid waste from approximately 1.4 million people in the Los Angeles area in an environmentally sound and cost-effective manner.

First and foremost, the Districts would like to commend EPA for reviewing the basis of each impairment in the introduction of these TMDLs. By clearly stating the criteria by which an impairment is judged as well as the individual evidence (or lack thereof) of impairment for different waterbodies, the TMDLs set the stage for considering allocations for only those listings that appear valid. This approach also highlights those listings that warrant reevaluation by the Los Angeles Regional Water Quality Control Board (Regional Board) for potential delisting or further study. One concern in this area, however, is that five of the existing listings for organic enrichment and dissolved oxygen are missing from the list of impairments in the watershed (Table 1). The subsequent discussion on impairments in each waterbody has corresponding omissions.

Numeric Targets and Allocations

The Districts acknowledge that it is a daunting task to develop TMDLs for algae and "eutrophic conditions" given the dearth of conclusive scientific findings on the topic. However, the allocations put forward in the proposed TMDLs are premature and assumptive. The Malibu Creek Nutrient TMDLs document states that "[e]xcessive algae in the Malibu Creek watershed has resulted in several waterbodies not supporting their beneficial uses associated with aquatic life and recreation" (Page 9). The original listings in 1996 for algae were based on subjective values extracted from an "aesthetic stressors" worksheet. The values were used to justify that the waterbodies were impaired with respect to the Basin Plan's narrative criteria for biostimulatory substances. In fact, the Regional Board's 1996 Water Quality Assessment identifies the contact recreation and non-contact recreation uses as "not supporting" due to algae, but does not identify the aquatic life beneficial use as impaired due to algae. Also, from the "aquatic stressors" worksheet, it is not clear how the recreational beneficial uses are actually being impacted (other than perhaps

for aesthetic reasons). Therefore, the assertion that associated beneficial uses were compromised appears a misstatement.

EPA Response: *EPA did not review the original data sheets that were used in the 1996 listing process for algae. We have reviewed all the available data on algae (See TMDL and Response to Regional Board 4 Comments). The 30% cover threshold developed by Biggs (2000) and used by the Regional Board is linked to human use. See response to Regional Board comments for further analysis of the algal cover thresholds.*

Regardless, the original algae listings were the product of subjective visual observations. These TMDLs reevaluate the impairments with criteria developed by Biggs (in 2000) which link 30 percent coverage of benthic algae with an impairment. Should this criteria be used to judge attainment of the applicable narrative biostimulatory substances requirement? Is this criteria meant to indicate an impairment of aquatic life uses or an aesthetic impairment? Does the Biggs criteria represent the best standard for this watershed, or just the best available standard?

EPA Response: *Biggs recommended a threshold of 30% algal cover for filamentous algae greater than 2 cm in length. He also recommended a threshold of 60% cover for bottom algae (diatoms and blue green algae) greater than 0.3 cm thick. These thresholds were designed to protect human use (aesthetic/recreation). The Regional Board used 30% cover in greater than 10% of the samples as an assessment threshold in their 2002 303(d) listing process. We believe that it is appropriate for the Regional Board to use information from the scientific literature to inform their assessment process as part of best professional judgement. See response to Regional Board comments for further discussion of the algal cover thresholds*

The TMDLs go on to assign numeric targets for chlorophyll-a and percent coverage of algae that are loosely derived from somewhat representative studies. At this point, one would expect the TMDL to set allocations for the numeric targets for chlorophyll-a or to admit that the linkage between causal factors and algae is too blurry to define. While the TMDLs do state the values of nitrogen or phosphorus in the water column "have little predictive power in explaining the patterns in algal abundance or biomass within the Malibu Creek watershed" (Page 18), allocations for phosphorus and nitrogen are still specified as the salvation to the algae problem. The TMDLs contain conflicting statements that undermine the validity of its assertions: "The streams, lakes and lagoons in the Malibu Creek Watershed are 303(d) listed for exceedance of narrative criteria associated with excessive algal and periphyton growth, and associated water quality problems. The pollutants responsible for these conditions are nitrogen and phosphorus" (Page 16) conflicts with "There is uncertainty as to what factors control algal abundances in the Malibu Creek watershed…Their experiments in the field were also inconclusive, some tests suggesting nitrogen limitation at undeveloped sites and P limitation at the more developed sites. They indicated that there might be other factors such as light and flow that may help to better explain the patterns in algal abundances" (Pages 18-19). EPA then reaches the conclusion that "In the absence of conclusive information on limiting factors, the EPA will target both nitrogen and phosphorus for the summer period" (Page 19). This conclusion seems more influenced by the consent decree schedule than a preponderance of evidence. Doesn't the EPA have the responsibility to be reasonably assured that the allocations it approves will result in waterbody attainment of water quality objectives?

EPA Response: *This TMDL is designed to obtain water quality objectives. While we acknowledge that there is uncertainty in the relationship between nutrient concentrations and algal cover and biomass, it can not be disputed that algae need N and P to grow. EPA has developed a set of targets for N and P that are attainable and will result in decreased algal abundance.*

The basis of the summer allocations of 1.0 mg/L of total nitrogen (TN) and 0.1 mg/L of total phosphorus (TP) is measurements from monitoring station R9. The median concentrations recorded at R9 between 1991 and 1999 are TN of 0.71 mg/L and phosphate of 0.08 mg/L. Presumably, these levels of TN

and TP will result in the waterbodies complying with the objective for Biostimulatory Substances in the Basin Plan. However, in Table 7 on Page 14, the same R9 monitoring station is listed as having the highest percent of samples exceeding the 30 percent algae coverage in summer months! Thus, the background "reference condition" being touted by these TMDLs actually has an abundance of algae (the 30% coverage criteria was exceeded 50% of the time in 210 summer samples) despite attaining the water quality that EPA has confidence will guarantee non-eutrophic conditions. How can the EPA justify that requiring these TN and TP allocations will lessen the alleged algae impairments in the watershed? The fact that the reference site with the desired water quality has an existing, documented abundance of algae strongly indicates that regulating TN and TP may, in the end, require the expenditure of significant resources without corresponding reductions in algae. This situation calls into question whether or not a reference approach should be used for determining the appropriate levels of nutrients in Malibu Creek.

EPA Response: *The numeric targets for the summer months of 1.0 mg/l TN and 0.1 mg/l TP are consistent with guidance from EPA and NOAA. They are consistent with thresholds from the scientific literature. They are consistent with concentrations from reference areas in the watershed. While we acknowledge that there may be other factors which are contributing algal growth, we believe that the reductions being proposed in this TMDL will result in decreases in algal abundance throughout the watershed, particularly during the summer season when algal cover is the greatest.*

EPA also invited comment on setting the TN and TP allocations at higher levels, 2.5 mg/L and 0.4 mg/L, respectively. These levels were apparently recommended by the Regional Board as being representative of local un-impacted conditions. Without further explanation as to the origin of these limits, the Districts cannot comment on the appropriateness of these limits as compared to the limits proposed by EPA.

EPA Response: *The values of 2.5 mg/l for TN and 0.4 mg/l for TP were based on an analysis performed by the Regional Board (Cited in the TMDL as RWQCB, 2000b).*

The State of California is in the midst of determining the appropriate approach to determine statewide objectives or guidance for nutrients; the allocations in these TMDLs short-circuit the state's efforts in that regard. As a starting point, it would seem wiser to work toward the existing limit for nitrogen from the Basin Plan and then adopt more stringent limits into the Basin Plan after the State has developed its recommendations on the national nutrient criteria.

EPA Response: *EPA is aware of and involved in the State of California's effort to develop statewide objectives for nutrients. The State is anticipating that these will not be available until 2006. It is not clear that the existing numeric objectives in the Basin Plan were designed to fully protect the recreational and aquatic life uses of concern in this TMDL. When establishing a TMDL for a listed pollutant, it is necessary to ensure that the TMDL is set at a level which results in attainment of all applicable water quality standards including beneficial uses and both narrative and numeric water quality standards associated with the listed pollutant. Therefore, it is reasonable for EPA to set TMDLs that address aquatic life uses as well as recreational uses.*

Reclaimed Water Use

The proposed Nutrient TMDLs list an allocation of 0 pounds/day for nitrogen and phosphorus loading for "effluent irrigation" or reclaimed water use in both the summer and winter periods. The TMDL uses as justification for this allocation that the current waste discharge permits that regulate the use of reclaimed water prohibit the application of reclaimed water in amounts that result in pollutant discharges to receiving waters. It would be a correct interpretation of this requirement to assume that reclaimed water is not allowed to be applied such that overland flow is caused. But the TMDLs assume that a given percentage

of the reclaimed water applied percolates down to the groundwater and eventually a portion of the nutrients (25% of the nitrogen load and 10% of the phosphorus load) contributes to surface water. Thus, the proposed TMDLs in effect require that all ground application of reclaimed water be stopped.

EPA Response: *EPA disagrees that the TMDL prohibits ground application of reclaimed water. It is not the intent of EPA to stop reclamation activities in the watershed but simply to limit the amount of nitrogen and phosphorous that seeps into the creeks. If reclaimed water is applied at agronomic rates, as currently required in the Waste Discharge Requirements, there will be no percolation of nutrients to groundwater and associated nutrient delivery to surface water. The TMDL source analysis made the conservative assumption that a fraction of nutrient loads associated with percolation of reclaimed water reaches Malibu Creek. This assumption was based on a concern expressed by Regional Board staff that reclaimed water was being applied at higher than agronomic rates.*

The Districts are deeply concerned that EPA is proposing allocations in the TMDLs that would preclude future reclaimed water usage in the Malibu Creek Watershed. This position would directly conflict with the State Water Resource Control Board's long-standing policy supporting reclaimed water usage in California, (Resolution 77-1), and the language contained in the Regional Board's own Basin Plan, which states that Regional Boards encourage reclamation projects for which reclaimed water will replace or supplement the use of fresh water or better quality water. *See* pages 5-7 of 1994 Basin Plan. Currently, the Calabasas Landfill uses between 70 and 100 million gallons of reclaimed water from Las Virgenes Water Reclamation Facility per year for irrigation and dust control purposes at the landfill. In addition, a heliport is maintained at the landfill to be used by local fire control authorities in the case of a fire in the nearby vicinity of the Santa Monica Mountains. Under the proposed TMDLs, these uses would have to be met by purchasing and using potable water. The use of potable water where reclaimed water use is appropriate (and available) would only serve to widen the gap between the supply and demand for drinking water throughout southern California.

EPA Response: *As discussed above, the allocation for reclaimed water application can be met by irrigating at agronomic rates*.

Furthermore, specifically in the case of the Calabasas Landfill (from where the proposed TMDLs assume ¼ of the load from reclaimed water in the watershed originates), the possibility of reclaimed water at the landfill significantly contributing to the downstream Malibu Creek is highly unlikely. To protect groundwater quality at the Calabasas Landfill and to impede landfill-affected groundwater from migrating offsite, the Sanitation Districts have installed eight subsurface barrier systems and eight liner systems at the site.

The subsurface barriers were placed at the landfill to block the natural flow patterns at the site (e.g., across historic streambeds or canyons). A subsurface barrier system includes three components: a cement-bentonite slurry wall (barrier) with a design permeability of less than 10^{-6} cm/sec, extraction wells upgradient of the barrier and monitoring wells downgradient of the barrier. The primary purpose of the subsurface barriers and extraction systems is to impede the potential for any landfill-affected water to impair the beneficial uses of surface water or groundwater downgradient of the barrier. In addition to the barriers, there are eight liner systems at the Calabasas Landfill. The liner systems work in conjunction with the subsurface barriers to impede offsite migration of groundwater. The components of the eight liners vary with applicable regulations at the time of construction. The most recent five are composite liners that include a layer of high density polyethylene over a layer of low permeability clay, sandwiched between 2 layers that provide drainage of the liners. What this means, in terms of groundwater migrating offsite, is that there are two pathways. One, the reclaimed water from Las Virgenes is applied over an area of the landfill where there is no liner, and the water must pass through a barrier to migrate offsite; or two, if the reclaimed water is applied over a liner,

the reclaimed water must first pass through a liner (with drainage systems in place) before trying to migrate through a low-permeability subsurface barrier. Under either scenario, it is highly unlikely that the landfill is contributing the flows and concentrations of nutrients to warrant an impact to downstream waters. Therefore, the assumption that 25% of the nitrogen and 10% of the phosphorus content of the reclaimed water used at the landfill contributes to the nutrient loading in local surface waters is a gross overestimate.[1]

EPA Response: *The assumptions used in the model were based on information provided to EPA and Tetra Tech by the Regional Board. Any new information should be directed to the Regional Board so that they can consider it if and when they review and revise the TMDL. If EPA has overestimated the source loadings, then the needed source load reductions would be lower than estimated. The allocations themselves would not change.*

Whereas the Districts has not done studies on all the sites in the watershed that utilize reclaimed water from Las Virgenes Water Reclamation Facility, from the example of the Calabasas Landfill, it is clear that the assumptions used in the source model are oversimplified. And the result of the oversimplified model is the assignment of allocations that are not appropriate. In the case of the Calabasas Landfill, there is adequate evidence that the nutrients from the reclaimed water applied on site do not significantly contribute to the nutrient load in Malibu Creek or its tributaries. Whereas the model may be an adequate screening tool, clearly it would be reasonable to assume that all sites have unique hydrogeology that do not contribute the same loading to surface waters in the watershed.

EPA Response: *All models require assumptions. These assumptions were provided to EPA and Tetra Tech by the Regional Board. We believe that we have made appropriate assumptions regarding nutrient sources being loaded to the waters within the Malibu Creek watershed. We also believe that the information on sources and loadings is sufficient for implementing agencies to begin targeting areas for reduction. We disagree that potential errors in the source analysis result in inappropriate allocations. The allocations analysis did not rely on the source analysis.*

Recommendations

These TMDLs benefit from a source analysis and evaluation of the available body of knowledge on algae and nutrient relationships. However, the TMDLs are lacking an adequate linkage between the established impairments and the nutrient concentrations in the waterbody. A certain level of nutrients are essential to the aquatic habitat a waterbody supports. Another level of nutrients (along with other environmental factors) may be harmful to the aquatic community in a waterbody. Neither of these levels or the consequence of flow, light, substrate and other environmental factors have been definitely established. Therefore, the Districts strongly recommend that the allocations in this TMDL be less restrictive until further studies can be completed. While EPA cannot specify an implementation plan, it can make implementation recommendations. The Districts would recommend that EPA set an interim target to be reevaluated after 5-10 years. Then, the TMDL could be reopened and the target reevaluated. For the time period that the interim target is effective, localized studies (that the TMDLs cite) could be concluded and possibly enhanced. Golf Courses, agriculture and other nonpoint sources could be evaluated and different control measures tested for nutrient control. The source model and its underlying assumptions could be verified and validated. At the time the target was reevaluated, the linkage between algae and nutrients and light and flow and other causes would be better defined, and the TMDL would also benefit from practical knowledge of the limitations of nonpoint source controls.

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1. The Districts have collected water quality information for decades at the Calabasas Landfill. Specific water quality data does not accompany this comment letter, but can be furnished upon request.

EPA Response: *We stand by the targets developed for the TMDL. We have recommended to the Regional Board that a phased approach toward implementation is reasonable given the uncertainties mentioned above. We encourage the commenter to work with the Regional Board in future efforts to review the TMDL and identify implementation provisions.*

The proposed TMDLs do not outline any opportunities for pollutant trading despite the availability of a complex source analysis. Notwithstanding our concern that 90 to 100% reductions of nitrogen and phosphorus loads are probably not achievable for most land uses, the framework for evaluating trading exists within the source analysis and thus should be utilized to the benefit of interested stakeholders.

EPA Response: The *Regional Board may consider the possibility of pollutant trading when they identify implementation options*.

Specific comments

Nitrogen: It is unclear throughout the TMDL document whether total nitrogen is meant to encompass only nitrate-nitrogen and nitrite-nitrogen or all species of nitrogen. Page 17 indicates that the total nitrogen limits for the TMDLs is supposed to be for nitrate and nitrite only. This clarification should be made throughout the TMDLs whenever the limits are mentioned.

EPA Response: *The summer targets are based on total nitrogen and total phosphorous. The winter targets are based on nitrate and nitrate nitrogen as reflected in the existing water quality standard*.

Missing 303(d) listings: Table 1 (on Page 5) fails to indicate two waterbodies listed for organic enrichment and three listed for dissolved oxygen impairments. Several of the waterbody descriptions following the table include the same omissions.

EPA Response: *The table has been edited*.

Odors: Lake Lindero is 303(d)-listed for algae, eutrophy, and odors. The proposed TMDLs do not discuss the data that was the origin of this listing or the numeric objective for odors.

EPA Response: *The text has been edited.*

Ammonia: The description of the numeric objectives for ammonia corresponds to the 1986 EPA criteria that is in the current Basin Plan (Page 9). However, on Page 10, the historical measurements are compared to the 1999 EPA Ammonia Guidance (which were adopted in April 2002 by the Regional Board). This inconsistency should be corrected.

EPA Response: *The text has been edited*

Numerical Target for ammonia toxicity: The acute and chronic targets for Malibu Creek in Table 11 appear to be incorrectly transposed.

EPA Response: *The text has been edited*

Numerical Target for algae/chlorophyll a: The TMDL states the Regional Board has used 30 percent cover as an indicator of impairment in making listing decisions. Has this criteria been used to list or delist any waterbodies or just for reevaluation of already listed waterbodies?

EPA Response: *The Regional Board used this in a reevaluation of already listed waterbodies. They also proposed listing Cold Creek on the basis of the 30% guideline*.

Source Assessment: The summer source analysis did not include the entire summer allocation period defined by these TMDLs. Are there any subsequent limitations of the source analysis?

EPA Response: *We acknowledge that there is a slight difference in the summer period used for the source assessment (May 1 to October 31) and the summer allocation defined in the TMDL (April 15 to November 15). The summer period for the TMDL was defined to correspond with the Tapia summer prohibition period. The net effect of this discrepancy is small, since most of the loads are associated with runoff during winter storms.*

Failed Septic systems: The percent phosphorus assumed to enter the waterway is specified, but not the percent of nitrogen.

EPA Response: *The text has been edited.*

Runoff from Undeveloped Areas: The TMDLs do not include nutrient loadings associated with waterfowl at the lakes in the watershed. Clearly, this data gap should be rectified; bird waste could be a considerable portion of nutrient loading at the lakes.

EPA Response: *No data were available to support an estimate of the nutrient loads to lakes from bird wastes*.

Waste Load Allocation-Tapia: It is nonsensical that the Tapia Plant will be able to meet the summer allocations in the TMDL. Given that summer discharge from the plant is sporadic (and only occurs in the event of a storm or to maintain a flow level in the creek), the notion that somehow the plant (which cannot even meet the current winter allocation according to the TMDL) will magically be able to meet the summer loads overnight (in the case of a rain storm) is ridiculous.

EPA Response: *The summer allocation to Tapia is based on the language in their permit regarding the summer discharge prohibition*.

Concluding Remarks

The fast-paced schedule of developing TMDLs across the country has led to some unattainable and illogical water quality allocations. In the case of this TMDL, instead of working to attain the objectives in the current Basin Plan and establishing the appropriate criteria for algae impairments, new water quality objectives based on a reference condition have been proposed as appropriate (despite the fact that this reference location has algae). Setting such a precedent without additional justification or research is troublesome. The result of the allocations in these TMDLs will lead to substantial capital costs being incurred by many parties. If the beneficial uses of these waterbodies are indeed impaired, and the criteria for impairment is duly established, as well as the linkage to the causes of impairment, then strict allocations may be warranted. But the proposed TMDLs do not establish a sufficient linkage between levels of nutrients and algae, and thus the TMDLs should not come out the door with such low and unsubstantiated allocations.

EPA Response: *The waters in Malibu Creek have been listed for algae related impairments since at least 1996. Little to no progress has been made to rectify the problem. The TMDL*

lawsuit and the deadlines established in the consent decree were a direct response to that inaction. EPA has stepped in to establish the TMDL because the Regional Board was unable to meet the consent decree schedule. The targets and the allocations being established in this TMDL are attainable and defensible. We agree that the TMDL could be strengthened by additional studies. We also believe that it a phased approach to implementation is a reasonable approach to dealing with uncertainty. The TMDL actions are based on interpretation of the narrative water quality objectives and do not involve the establishment of numeric objectives.

We would like to commend EPA on writing a refreshingly transparent TMDL document. What the Districts finds lacking is the locally available scientific knowledge to make a defensible linkage between algae and its causes. Thus, we would recommend adoption of more attainable interim standards in conjunction with requirements to reopen the TMDLs at a later date. The Districts appreciate the opportunity to comment on these potential precedent-setting TMDLs. If you have any questions concerning this letter, please contact Beth Bax at (562) 699-7411, extension 2835.

Very truly yours,

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Beth C. Bax
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BCB:drs
Enclosure