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To: Terrence Fleming, USEPA	From: Bruce Douglas
Fax: 415-972-3435	Pages: 7
Phone: (415) 972-3462	Date: February 11, 2003
Re: Bacteria TMDL for Malibu Creek Watershed (1/10/03 Draft)	CC: Katie Lichtig; Vic Peterson; Rick Morgan, Larry Young

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☒ Urgent    ☐ For Review    ☐ Please Comment    ☐ Please Reply    ☒ For Your Use

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Dear Mr. Fleming,

We are pleased to provide comments on behalf of the City of Malibu. Larry Young, the City of Malibu's Environmental Health Specialist and I collaborated with Victor Peterson, City of Malibu Building Official to develop these comments. We appreciate the effort that the United States Environmental Protection Agency – Region 9 (USEPA) has made to develop Total Maximum Daily Loads (TMDLs) for bacteria and nutrients in the Malibu Creek Watershed, California. The Malibu Creek watershed, the Creek itself, Malibu Lagoon and the surfzone in the vicinity of Surfrider Beach are vital resources in our community. We were grateful that you came down to Malibu last week for a frank discussion of the TMDL process and answer questions.

However, we have serious concerns that the process has been short-changed by the rush to meet the consent order deadline. The City of Malibu is concerned that if septic systems are incorrectly characterized as a source of bacteria and nutrients then the TMDL process will be seriously flawed and recommendations will be misdirected. Furthermore, since this TMDLs will be generated by the USEPA, they will hold a certain level of respect and authority. We feel that the document should be edited to include additional facts that we are providing and, where appropriate, to emphasize the uncertainty in assumptions that the TMDLs rely upon.

Although we recognize the complex nature of the TMDLs and the analysis that went into the following sections, the enclosed comments are focused on the contribution of septic systems in the following sections of the TMDLs:

1. Source Assessment (Section 3);
  2. Pollutant Allocation and TMDL (Section 5);
  3. Implementation Recommendations (Section 6); and
  4. Monitoring (Section 7).
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Omission of comments are not intended to imply concurrence with the TMDL, only that the short timeframe allowed for comment on the TMDLs, has limited the scope of our comments. Please do not hesitate to contact me or the City officials copied on this letter below if you have any questions.

Respectfully yours,

Bruce Douglas

**The City of Malibu's specific comments on the Bacteria TMDL are as follows:****1. Section 3 Source Assessment - Wastewater Flow from Septic Systems.**

Under "Source Assessment," regarding "Septic Systems," the assumptions made are mostly erroneous and, therefore, the TMDL allocations which follow are not based on facts as described below:

On page 14 second to last paragraph, the following statement is made: "The total number of septic systems in the watershed was estimated at 2,300 in the mid-1990s (NRCS, 1995)." While it is true that most of Calabasas, and much of Agoura Hills is sewered, the remainder of the watershed, i.e. the Los Angeles County part, is still unsewered. This includes the County part of Calabasas, Agoura, Lake Sherwood, Malibu Lake, Monte Nido, and all of Malibu. Clearly, there is likely to be considerably more than 2,300 septic systems in this area.

**EPA RESPONSE:** *No new information has been provided for EPA to modify our estimate of the number of septic systems in the Malibu Creek Watershed. The Tetra Tech report provides an additional line of evidence for the estimate of 2,400 total septic systems in the Malibu Creek watershed, which is data from the LVMWD on the number of customers who do not receive sewer bills (page 7-19 of Tetra Tech report). We encourage the City to provide any new information to the Regional Board so that it may be incorporated in future TMDL reviews.*

In the last paragraph on page 14 the statement that: "There are 20 commercial septic systems in shopping centers and commercial areas in the vicinity of Malibu Lagoon that discharge and estimated 70,000 to 80,000 gallons per day of septic effluent per day (LARWQCB, 2000). Several hundred thousand gallons per day are estimated to be discharged from private residences in the Malibu area of the lower watershed (LARWQCB, 2000)." This characterization is not supported by any facts and is contrary to the more detailed available data described below.

**EPA Response:** *This information is from citation noted above (LARWQCB, 2000) titled "The Regional Board Report on Wastewater Disposal Issues and Malibu Technical Investigation in the City of Malibu"*

The only commercial septic systems within 300 feet of Malibu Creek are located on the east side of Cross Creek Road. These include septic systems serving Cross Creek Shopping Center, 23351-61 Pacific Coast Hwy., and 3822-96 Cross Creek Rd.. There are no multiple-family septic systems within 300 feet of Malibu Creek. The Adamson House currently utilizes a holding tank for wastewater and therefore does not discharge to the groundwater. There are no other discharging commercial septic systems, or multiple family septic systems, within 300 feet of Malibu Lagoon. Since the septic system serving Cross Creek Shopping Center is now in the approval process for renovation to a tertiary treatment system (i.e. a Xenon filtration system), it will soon be returning Title 22 reclaimed water to the environment. Furthermore, the draft states at page 29: "Residential septic systems were not targeted for load

reductions by the Regional Board since many of them are dispersed in rural areas. The residential septic systems in Malibu Colony produce about 1% of the bacterial loads produced by the commercial septic systems, so they are not targeted for reductions.” Therefore, soon there will be no septic systems within 300 feet of Malibu Creek, or Malibu Lagoon, that will be of any concern in regard to TMDL bacterial discharge (Young, 2003).

**EPA Response:** *The claim here is that we overestimated the impact of septic systems on the lagoon. This information was not available to EPA at the time of this report. If indeed is shown that we have overestimated the fecal coliform loadings then this information can be incorporated into a future model updates or TMDL revisions. The net effect of any potential overestimate of the source loadings would be that the reductions needed to implement the allocations would be less than indicated in the TMDL. The TMDL decision identifies the percent reductions for information only; they are not part of the formal decision to establish particular TMDLs, wasteload allocations and load allocations.*

The City of Malibu (Malibu) has been working with the LARWQCB since September of 2001 on this issue. Malibu is implementing the project entitled, “Risk Assessment of Decentralized Wastewater Treatment Systems in High Priority Areas in the City of Malibu, California”. This project is funded under Proposition 12 through the Santa Monica Bay Restoration Project (SMBRP) and the California Coastal Conservancy. Within this project, the City of Malibu is conducting a risk assessment to evaluate environmental impacts of current onsite wastewater management practices. This project has been specifically designed to accurately characterize the impact of septic systems on groundwater in the lower Malibu Creek and Malibu Lagoon watershed.

Data was submitted to the RWQCB in an interim report entitled: Malibu Preliminary Conceptual Model, dated December 4, 2002 that should be cited in this TMDL. The TMDL unit of the Los Angeles Regional Water Quality Control Board had a draft of this report and provided comments in September of 2002. This report includes an estimate of permitted flows as shown in table 2 (attached). This recent estimate is based on a parcel-by-parcel assessment of current land use. The City of Malibu is currently working with Los Angeles County Department of Public Works, Water District #29 to retrieve water level meter reading data on an area basis. The risk assessment project will also develop the first comprehensive water table map of the lower Malibu Creek Watershed in the City of Malibu to identify which septic systems are contributing to the Creek and Lagoon as well as to see if the Creek and Lagoon are discharging to groundwater at any time during the year. This investigation will allow us to develop an understanding of actual flows in the Lower Malibu Creek and Malibu Lagoon watershed and provide a fact-driven basis to objectively address the impacts of septic systems on the creek and lagoon.

**EPA Response:** *The text of the EPA TMDL has been modified to include a reference to this study. We encourage the Regional Board to consider this additional data in future TMDL reviews as appropriate. New data that has become available may be incorporated into future updates of the model.*

The conceptual model report estimates that there is approximately 68,000 gallons per day of commercial and multifamily indoor water use from 25 septic systems in the alluvial aquifer in the vicinity of Malibu Creek and Malibu Lagoon. It should be noted that the groundwater beneath all of these systems is not likely to be flowing in to the Creek and Lagoon. There is an additional estimated commercial flow of 34,000 gallons per day discharging into the bedrock aquifer and apparently upgradient of the alluvial aquifer near the creek and lagoon, though a considerable distance from the surface waters. All residential systems in the alluvium and bedrock areas account for an estimated 104,000 gallons per day of recharge to the groundwater in the vicinity of Malibu Creek and Lagoon.

**EPA Response:** *Again, we will encourage the Regional Board to review these results and incorporate them as appropriate if they revise the TMDLs in the future. These data do not support revision of the individual WLAs and LAs established with the TMDLs.*

## **2. Failure rates of septic systems**

The first full paragraph on Page 15 of the Bacteria TMDL states: “Septic system failure rates have been estimated to be 20 to 30% in the Malibu Creek Watershed.” At a February 4, 2003 briefing on these draft TMDLs in Malibu, Rod Collins of the LARWQCB stated that this estimate was from the Warshall Report and input from Los Angeles County Department of Health Services. We feel that there is not justification for using these sources for the purpose of estimating bacteria contribution to Malibu Creek and Malibu Lagoon. First of all the use of these sources was based on the interpretation that repairs of septic systems are equivalent to failures (Rod Collins, Personal Communication February, 2003). Septic systems are often repaired to fix broken or worn-out components, not because they are inadequately treating wastewater. Furthermore, since both of these sources are based on experience in the lower Malibu Creek watershed from 10 or more years ago –before incorporation of the City of Malibu – there is no consideration of the significant advancements in onsite septic system management in the City over the past 10 years.

Furthermore, Mr. Larry Young was a Senior Deputy Health Officer for the Los Angeles County Department of Health Services in Malibu for 10 years (1981-90), and Environmental Health Specialist for the City of Malibu for 12 years (1991-03). He states: “This rate is certainly not true for the septic systems in Malibu, including the septic systems adjacent to Malibu Creek, and Malibu Lagoon.” And yet, no one has ever asked him what the failure rate for septic systems is, either prior to incorporation, or after (Young, 2003).

**EPA Response:** *We were not provided with a copy of the memo from Mr. Young. The rates were derived based on conversations with staff from the Los Angeles County Department of Environmental Health (Jack Petralia, personal communication).*

Also on page 15, in the last two paragraphs, the draft repeats the erroneous assumption that the septic systems sited close to Malibu Lagoon are too close to the “high ground water table,” and are “short-circuited” when the water in the lagoon rises, as during the winter rain months.

It should be pointed out that these septic systems were all approved, and installed under the jurisdiction of Los Angeles County, which required a proven 5 feet separation to groundwater pursuant to the Los Angeles County Uniform Plumbing Code. Furthermore, a recent UCLA study (Ambrose, 1995) states: “Gold et al (1992) also provided clear conclusions concerning the assumption that the Malibu Colony septic systems experience failure if heavy residential use coincides with a high water table and greater than 3.5 feet water level within the lagoon channels. Their data showed that water levels within the lagoon have little impact on the bacterial densities because bacterial densities were generally high all the time in the lagoon, regardless of the water level within the lagoon.” (Gold, M., M. Bartlett, C. McGee, and G. Deets. 1992. Pathogens and Indicators in Storm Drains Within the Santa Monica Bay Watershed. Santa Monica Bay Restoration Project, Monterey Park, CA, p.47). (Young, 2003)

**EPA Response:** *The information on number of failing and short-circuited systems was provided to EPA and Tetra Tech by the Regional Board. The modeling was based on data available at the time of the study. The Malibu Technical Investigation (LARWQCB, 2000) showed high pollutant concentrations in shallow groundwater, limited depths of leach fields due to a high water table, and short-circuiting to storm drain pipes. The conclusion was made in this report that septic systems sited close to Malibu Lagoon were short-circuited. If the City has evidence which contradicts the assumptions made in the model, we suggest that they provide the supporting documentation to the Regional Board so that this information can be incorporated into future TMDL reviews by the State*

### **3. Contribution of bacteria from failed and short-circuited septic systems**

In the last paragraph on page 15, the following statement is made: “Forty percent of the bacteria from the failed systems were assumed to reach surface waters (Tetra Tech 2001). For the short-circuited and commercial septic systems adjacent to the lagoon, the calibrated fecal coliform failure rate was 20 percent throughout the year, assuming that all of the bacteria from the failed systems reached the lagoon.” This assertion is quantified in Table 9 on page 15. [Tt] Forty percent of the bacteria loads reaching surface waters from failed systems was determined through calibration. All septic systems near the lagoon were assumed to be short-circuited, and 20% of coliform from these systems reached the lagoon. This percentage was determined through calibration. The statement above states that 100% of coliform from 20% of systems reached the lagoon, and is not correct (however the net result to the modeling would be the same). This will be updated in the final TMDL. Table 9 on page 15 presents gross loads from septic systems, before the above percentages are applied.

Notwithstanding the above fact that there is no justification for the number of failed septic systems in the lower Malibu Creek watershed, there is no justification given for the amount of bacteria that would reach the surface waters. A review of the Tetra Tech report indicates that it is a draft report that states: “Draft --Please do not quote or cite”. Regardless, there is no specific justification of these numbers other than calibration of the model. Calibration of a model based on unsubstantiated data does not improve the quality of the conclusions. Documentation of the calibration approach and the basis for the assumptions of percentages

of fecal coliform from failed, short circuited and commercial systems was requested from USEPA-Region 9 by Bruce Douglas, Questa Engineering Corporation, on behalf of the City of Malibu. (Terry Fleming, Personal Communication, January 30, 2002). It has not been provided.

**EPA Response:** *The “Draft” label was inadvertently left on the front of the report from an earlier version. In response to the statement ‘Calibration of a model based on unsubstantiated data does not improve the quality of the conclusions’, we respectfully disagree. On the contrary, calibration is often the only means by which we have to estimate site-specific parameters and data that are uncertain. The purpose of the model is to estimate the loadings to the surface water system based on the agreement between predicted and observed concentrations. If we knew the loadings beforehand, there would be no reason to use this tool. The calibration process is an iterative one, in which loadings are adjusted in a systematic manner within reasonable ranges until acceptable agreement is reached between predicted and observed concentrations in the streams.*

The same loading from septic systems was assumed year round. There was no consideration of seasonal changes in depths to groundwater relative to wet weather and dry weather conditions. Water tables fluctuate seasonally resulting in potential changes in soil treatment of bacteria.

**EPA Response:** *Seasonal changes were in fact accounted for in all septic systems except for those adjacent to the lagoon (see page 8-6 of Tetra Tech report). Failure rates were set to the maximum rate of twenty percent during the wettest months and to 2.5 percent during the driest months, with intermediate values for months in between. These percentages were set during the calibration process. This resulted in an average annual failure rate of about 8 percent. At the Lagoon, septic systems were not adjusted seasonally because a high groundwater table exists all year round (during summer from impounding of the lagoon and in winter from rains).*

#### **4. Summary of bacteria sources**

Table 13 on page 19 summarizes the inaccurate information described above stating that  $300,000 \times 10^9$  counts/year is an order of magnitude approximation of contribution. We feel that due to the above mentioned flaws in the estimation of these numbers, they cannot be considered accurate even to an order of magnitude.

**EPA Response:** *The information in Table 13 is as accurate as the assumptions that were provided to EPA and Tetra Tech by the Regional Board. We will encourage the Regional Board to consider any new information in future TMDL reviews.*

#### **5. Load Allocations**

Table 18 on page 26 shows that septic systems contribute  $105,000 \times 10^9$  counts per year, or 18%, of dry season fecal coliform to the watershed. Table 19 on page 27 shows that septic



systems contribute  $246,000 \times 10^9$  counts per year, or 4%, of annual fecal coliform to the watershed. This statement is not appropriate based on the shortcomings of the data cited above. The City of Malibu recommends that the load allocations for septic systems be postponed until the Risk Assessment study is completed to refine the actual loads.

**EPA Response:** *We believe that the information provided in the source assessment and load allocation sections of the TMDL provide sufficient information for the City of Malibu and other implementing agencies to begin targeting reductions. We do not believe that the public is served by postponing actions to reduce bacterial loadings until a risk assessment study has been performed. We applaud the City of Malibu for actions that it has already taken to improve conditions in and around Malibu Lagoon.*

#### **6. Implementing Load Allocations**

The first three paragraphs on page 29 discuss implementation of the TMDL. Current requirements for commercial and multifamily septic systems should be mentioned here. Future efforts to implement load allocations should be done in full cooperation with the City of Malibu.

Specifically, in the first paragraph of page 29 the following statement is made: “The sites targeted for reduction by the Regional Board are commercial septic systems located in the Malibu Lagoon subwatershed; specifically in the areas of the Malibu Colony Plaza, Cross Creek Plaza, and Malibu Civic Center. These systems have been improperly sited. These septic systems are located adjacent to the lagoon, in a groundwater table with historic levels that do not allow at least 10 feet between the groundwater and septic system.” First, the Malibu Colony Plaza (Malibu Bay Company) septic system is located in Winter Canyon, which is about a mile from either Malibu Creek, or Malibu Lagoon. This septic system is in the approval process for renovation to a tertiary treatment system (i.e. a Xenon filtration system). It has been well established by subsurface geological work in Winter Canyon, that the seepage pits used for subsurface disposal in Winter Canyon do in fact have a 10 feet, or more, separation to groundwater. Secondly, the Malibu Civic Center belongs to, and is under the jurisdiction of Los Angeles County. The drainfield serving the Civic Center was installed pursuant to the Los Angeles County Uniform Plumbing Code, and does have a 10 foot separation to groundwater. The City of Malibu is not responsible for this septic system. This septic system is about ½ mile from Malibu Creek, and more than that from Malibu Lagoon. As noted in item #3 above, the Cross Creek Shopping Center septic system is scheduled for renovation to tertiary treatment in the near future (Young, 2003).

**EPA Response:** *The text has been modified to include discussion of these actions.*

#### **7. Monitoring**

The water quality monitoring section on page 30 should include mention of the ongoing risk assessment project and groundwater elevation and quality monitoring in the lower Malibu Creek watershed that will help define the contribution of septic systems to the creek and lagoon in this area.



**EPA Response:** *The text has been modified to include discussion of this issue.*

References:

1. Los Angeles Regional Water Quality Control Board, 2000; Malibu Technical Investigation.
2. Stone Environmental, Inc, December 4, 2002; Preliminary Conceptual Model; Prepared for the Santa Monica Bay Restoration Project
3. Tetra Tech, Inc.; December 31, 2002; Nutrient and Coliform Modeling for the Malibu Creek Watershed TMDL Studies - Draft; Prepared for US Environmental Protection Agency, Region 9 and Los Angeles Regional Water Quality Control Board;.
4. U.S. Environmental Protection Agency, Region 9; January 10, 2003; Total Maximum Daily Loads for Bacteria in the Malibu Creek Watershed – Public Review Draft.
5. U.S. Environmental Protection Agency, Region 9; January 10, 2003; Total Maximum Daily Loads for Nutrients in the Malibu Creek Watershed – Public Review Draft.
6. Warshall, Peter, and Robert Coats. 1992. Malibu Wastewater Management Study: A Human Ecology Of The New City; Peter Warshall and Assoc. Philip Williams & Assoc.; Prepared for the City of Malibu
7. Young, Larry. February 11, 2003; Memo Regarding: TMDL for Bacteria in the Malibu Creek Watershed.