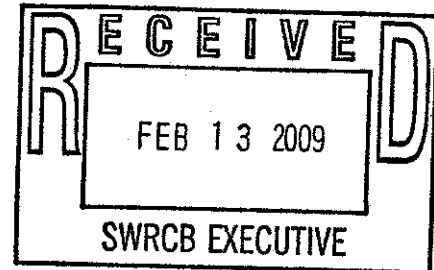




THE CITY OF SAN DIEGO

February 13, 2009

Jeanine Townsend, Clerk of the Board  
State Water Resources Control Board  
1001 I Street, 24<sup>th</sup> Floor  
Sacramento, CA 95814  
[commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)



Subject: City of San Diego Comments Letter – San Diego – Indicator Bacteria Water Quality Objectives

Dear Ms. Townsend:

The City of San Diego, Storm Water Department, is pleased to provide the State Water Resources Control Board (State Board) with comments regarding the Draft Amendment to the Water Quality Control Plan for the San Diego Basin (Basin Plan Amendment) dated January 22, 2008, and the associated Appendix 1. We appreciate the opportunity to provide the comments on these important documents.

The City of San Diego staff participated in several scientific advisory group (SAG) meetings addressing this Basin Plan Amendment, and has summarized in this document general and specific comments on the Basin Plan Amendment. While we agree that the Basin Plan should allow TMDLs for bacteria indicators to include provisions for natural sources of indicator bacteria, the Basin Plan Amendment in its current form does not provide for feasible or implementable solutions to the challenging problem of addressing natural sources of indicator bacteria associated with impaired water bodies.

**General Comments**

The Basin Plan Amendment makes no mention of how the Reference System and Anti-Degradation Approach and Natural Source Exclusion Approach should be applied in the context of §303(d) water body listing. At present, using the binomial approach, an allowable exceedance frequency of 10% is made. If the data in Section 3, Table 2 were used for a Water Quality Listing evaluation, San Onofre Creek and Lagoon would be listed as impaired for indicator bacteria (27-100% exceedance frequency); however, this creek is considered by some to be indicative of reference conditions in Southern California. It is recommended that the Basin Plan Amendment reference the Water Quality Listing Policy (2003) and make recommended changes that incorporate reference systems during the Listing process.

The Basin Plan Amendment refers to the use of ribotyping as a means to determine the origin of natural sources of indicator bacteria. It is suggested that ribotyping can be used to demonstrate that after all anthropogenic sources of bacteria are controlled, the remaining fecal indicator



**Storm Water Department**

9370 Chesapeake Drive, Suite 100, MS 1900 • San Diego, CA 92123  
Hotline (619) 235-1000 Fax (858) 541-4350

bacteria originate from wildlife. A recent State Water Resource Control Board funded study to determine the validity of ribotyping has shown that it is ineffective as a "stand-alone" technique for properly identifying sources of indicator bacteria originating from wildlife (Letters in Applied Microbiology pending publication). There is currently no microbial technique that can distinguish indicator bacteria from domesticated animals (e.g.-dogs and cats) from indicator bacteria originating from natural wildlife (coyotes and bobcats). While effective techniques are available to distinguish whether indicator bacteria are human or non-human in origin, the USEPA requires that domesticated animals (i.e.-livestock, dogs, cats) be considered anthropogenic sources. Since there is currently no viable technology to distinguish the origin of non-human indicator bacteria, it is not possible to ascertain whether exceedances of indicator bacteria are acceptable under the Natural Source Exclusion Approach. It is recommended that ribotyping as the key means to demonstrating the origin of indicator bacteria is removed from the Basin Plan Amendment.

The Natural Source Exclusion Approach is so stringent that it is effectively impossible to implement. "Under the [Natural Source Exclusion Approach], all anthropogenic (human and domesticated animal) sources of indicator bacteria to a water body subject to an indicator bacteria TMDL must be controlled." The requirement to conclusively demonstrate that all anthropogenic (human and domesticated animal) sources of indicator bacteria have been fully controlled assumes that the discharger can identify all sources. Even with exhaustive source investigation studies, it is unlikely that all sources will be determined since bacteria are ubiquitous, dynamic, and have seasonal variation in viability. It remains the responsibility of the discharger to demonstrate that the remaining sources of bacteria are natural and do not pose a public health risk. As such, there would most likely be a requirement for a site specific epidemiology study. Several current and most future TMDLs pertain to water bodies which do not have the minimum number of 5,000 visitors who submerge their heads to conduct a scientifically valid epidemiology study. For example, the Mission Bay Epidemiology study that was conducted in 2003-2004 attempted to determine a correlation between non-point sources of fecal indicator bacteria and risk of illness (Epidemiology, 18(1), pp27-35). Cohort methodologies for epidemiology studies at recreational waters require a minimum of 5,000 participants for statistically accurate and defensible data. This study had a prospective cohort of over 8,700 beachgoers in order to produce scientifically relevant results and conclusions. No other inland waterbody in San Diego has records for this level of recreational attendance and those who submerge their heads. Without the ability to demonstrate that the remaining sources of bacteria do not pose a public health risk, a Natural Source Exclusion Approach is impossible to obtain.

It is recommended that the language describing the Natural Source Exclusion Approach should be modified to provide practical and flexible implementation while still providing robust protection of the beneficial use. As is stated in the Basin Plan Amendment, a "weight of evidence" approach must be used to demonstrate control of all anthropogenic sources (Section 5.3.2). However, criteria to be incorporated into the approach are not clear. Completion of the example list of activities used to find and abate anthropogenic sources of bacteria has not been defined as an endpoint to the Natural Source Exclusion Approach process. Therefore, it is further recommended that a more explicit list of activities and criteria to meet the "weight of

evidence" approach to the Natural Source Exclusion Approach be incorporated into the Basin Plan Amendment.

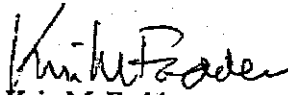
#### Specific Comments

1. Page 1, second paragraph, last sentence: remove the reference to SHELL beneficial uses.
2. Page 3, Section 1.2, first paragraph: if all anthropogenic sources of indicator bacteria to a water body subject to indicator bacteria TMDL are controlled, then why must the discharger demonstrate that remaining indicator bacteria do not indicate an elevated health risk? If the dischargers abate all anthropogenic influence, they are no longer responsible for bacterial most probable numbers in receiving waters.
3. Page 7, Table 1: remove total coliform comparison to SHELL standards.
4. Page 11, Section 4, paragraph 3, line 3: Remove SHELL. Should read....."for protection of the REC-1 and REC-2 beneficial uses...."
5. Page 16, Section 5.1.3: Critical Wet Weather Condition. The guidance listed here is that the wettest year for the period of data used in TMDL calculations should be used to define the critical wet weather condition. The critical wet weather condition should be defined based on a frequency duration curve of flow frequencies over a longer time frame than 12 years. The likelihood of a 100-year rainfall event or season is unlikely in such a small timeframe. This could adversely affect the wet weather limits in a TMDL such that a wet year (and the associated exceedance days) would make it impossible to comply with the TMDL. It is recommended that historic rainfall data for the region, and the associated modeling, should be used for a timeframe closer to 100 years if possible.
6. Page 18, Section 5.2.2: Identification of Dry Weather days is also related to comment #5. It is recommended that selection of weather conditions capture the variability of rainfall in the targeted water body for which the TMDL applies.
7. Page 18, Section 5.2.3: It is recommended that language from Section 5.2.4 be used to clarify that the 30-day geometric means are NOT rolling geometric means, but a static dry-weather set of 30-days.
8. Appendix 1, Page 4, Total Coliform: Why is this water quality criteria applied to the top 60 feet of water column? The water column within the streams, creeks, estuaries, and lagoons in San Diego are generally less than 20 feet. In addition, for the Pacific Ocean and San Diego Bay, recreational contact is generally limited to less than 60 feet of water. Please provide justification of these criteria.
9. Appendix 1, Page 4, Total Coliform: It is recommended that language be included to clarify that the 30-day geometric mean is NOT a rolling 30-day geometric mean, but a static dry-weather set of 30 days.
10. Appendix 1, Page 5: (5) TMDL Implementation Process: remove reference to shellfish harvesting. "The water quality objectives for total coliform bacteria for shellfish harvesting may be implemented using a "natural sources exclusion approach."
11. Appendix 1, page 6, paragraph 3 under Implementation Provisions: If the targeted water body has fewer allowable exceedance days than the reference system, why is it regulated by a TMDL? The City of San Diego has beaches in Scripps HAS that meet de-listing criteria for removal from the §303(d) List. Once again, the City is requesting these beaches be removed from TMDL and NSEA applicability.

12. Appendix 1, page 7, paragraph 1 under Implementation Provisions: The requirement for control of "all" anthropogenic sources of indicator bacteria to the water body is effectively impossible to obtain. The requirement for such does not adequately address the costs associated with the extensive source identification studies, subsequent BMP installations, and years of effectiveness monitoring to insure that "all" sources of anthropogenic are controlled. It is recommended that "all" be replaced with "to the maximum extent practicable."
13. Appendix 1, page 7, paragraph 1 under Implementation Provisions: The statement "exceedances of the indicator bacteria water quality objectives may be permitted based on the residual exceedances in the target water body" implies that even after a discharger controls all sources of anthropogenic indicator bacteria and demonstrates residual indicator bacteria that exceeds the allowable exceedance days does not pose a public health risk, there is no certainty that the discharger will be allowed those exceedances based on a NSEA. It is recommended that the regulations pertaining to RSAA and NSEA have clear and quantifiable end points.

Your consideration and approval of our recommendations and requests is greatly appreciated. If you have any questions, please contact me at (858) 541-4320 or Ruth Kolb at (858) 541-4328.

Sincerely,



Kris McFadden  
Deputy Director

KM/rk

cc: Chron File  
Tony Heinrichs  
Ruth Kolb