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Letter 30

August 16, 2017

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100
Via email: commentletters@waterboards.ca.gov

Subject: SFPUC Comment Letter – Bacteria Provisions

Dear Ms. Townsend:

30.01

The San Francisco Public Utilities Commission (SFPUC) appreciates the opportunity to comment on the draft Bacteria Provisions. Although we have comments, including requested changes, on the specific objectives selected in the Provisions and on the associated control programs, in general we support this initiative to update the bacteria objectives for water contact recreation. Our comments are included in the attachment to this letter.

In addition to domestic and industrial wastewater, the San Francisco combined sewer system captures almost all stormwater runoff in the City and provides a range of treatment that varies with the size of the storm. Runoff from smaller storms receives full secondary treatment. During larger storms, the combined flows receive primary or secondary-level treatment at the treatment plants. During the largest storms, a portion of the flows cannot be stored or accommodated at the treatment plants. These flows are released directly from the storage/transports as combined sewer discharges (CSD). The CSDs are generally comprised of approximately 95% stormwater and receive baffling and settlement treatment prior to discharge. The system design is based on permit-assigned long-term average frequencies for CSDs that vary from one per year to ten per year depending on the basin location.

The Wastewater Master Plan was completed in 1997 at a cost of approximately $1.4 billion in 1997 dollars ($2.4 billion in 2017 dollars). Building the large storage/transports constructed around the periphery of the City to capture, hold, and transport wet weather flows comprised a significant portion of these costs. As noted, the storage/transports hold flows for later treatment at the treatment plants and provide baffling and settling treatment prior to shoreline discharge.

All primary and secondary effluents receive disinfection on the Bayside. The Westside treatment plant effluent is not disinfected because it is discharged more than three miles from shore through a deep water outfall. We have investigated disinfecting our shoreline CSDs but no feasible methods have been identified due to the variable flow volume, the dispersed nature of the discharges, and the difficulty in providing on-demand disinfection facilities at multiple locations. These CSDs will be impacted by the Bacteria Provisions proposed for adoption.

We support the site-specific modifications of the standards included in the Provisions, such as the "off-ramps" of the "clean-beach" reference system, the natural source exclusion approach, and a variance option based on the EPA variance regulations. However, we are concerned that they are inadequate to address the situations involving wildlife bacteria sources and request that these they be expanded and other options be made available. We also are concerned about the recommendation to select EPA Recommendation 2, which is the more restrictive of the two EPA recommendations for the bacteria objectives. We believe Recommendation 1 is more appropriate for REC-1 locations with limited water contact such as those around San Francisco.

Thank you for consideration of these issues. If you have any questions or concerns, please do not hesitate to contact my staff member, Laura Pagano, at 415-554-3109 or lpagano@sfwater.org.

Sincerely,

Tommy T. Moala
Assistant General Manager, Wastewater

Comments on the Draft Bacteria Provisions Submitted by the City and County of San Francisco Public Utilities Commission

Comments applicable to the proposed plan as a whole

30.02

1. **Anti-wildlife measures** – We have concerns with the position taken in the Provisions that wildlife is potentially a problem requiring remedial action by permittees. As stated in the Staff Report, natural sources include direct inputs from birds, terrestrial and aquatic animals, wrack line and aquatic plants, and other unidentified sources within the receiving waters. The Staff Report indicates these non-human sources are potentially a problem requiring corrective action and permittees may need to target them for elimination or diversion. For example:

   > *Birds are a common source of bacteria both at beaches and in inland urban areas. Some of the potential control strategies include public education to reduce feeding, habitat modification (exclusion barriers), deterrence measures (such as motion active sprinklers and sonic devices), dispersion measures (falcons have been used), chemical repellents, reproductive controls and occasional removal.* [Draft Staff Report, section 6.2.2.4 Pet, Bird and Other Urban Wildlife]

   The Staff Report also identifies the possible need to relocate wildlife by trapping. Relocating animals to another habitat—potentially at carrying capacity—means these animals are unlikely to survive. We are concerned with the underlying assumption that dischargers have the responsibility in some cases to decrease or eliminate wild animals by modifying habitat and harassing or removing wildlife.

   We request that instead these proposed bacteria standards take into account the fact that some waterways will have elevated bacteria due to natural sources and this is a natural phenomenon that does not require correction by permittees.

   The current provisions to address a natural source issue (the natural source exclusion and reference system/antidegradation alternatives) are inadequate. These "off-ramps" require a TMDL and result only in an adjustment of the statistical threshold value; the geometric mean, however, would remain the same. In some locations, natural sources will result in ongoing bacteria levels above the geometric mean.

   In addition, the two off-ramps currently provided have other restrictions that seriously limit their use. The reference system/antidegradation approach requires a reference beach minimally impacted by human activities. San Francisco Bay apparently does not have any beaches meeting this requirement. The natural source exclusion approach may similarly be inapplicable because during wet weather, municipal sources outside of San Francisco release substantial volumes of untreated stormwater to the bay and these may contain "non-natural" bacteria which impact San Francisco beaches in addition to the natural sources.

   A related concern is that our permits and other NPDES permits for municipalities typically include mandates for low impact development (LID) and green infrastructure. San Francisco is actively pursuing these technologies. They include planting trees and other vegetation. This

vegetation, especially an increased canopy along streets, supports increased bird populations and inevitably results in greater bacteria loadings in runoff.

In summary, we have these two wildlife-related objections to the Provisions in their current form:

(1) The Provision "off-ramps" intended to address natural exceedances are too limited and consequently inapplicable in many locations. As a result, permittees could be required to remove the sources, even if these sources are wildlife in their natural habitat and removal would be harmful to them or other wildlife.

As an example, the floating docks at Pier 39 in San Francisco are used by sea lions. If local bacteria concentrations violate standards, neither of the two off ramps in the Provisions would be available. A reference beach exclusion is not allowed for San Francisco Bay, and the natural source exclusion could change the Statistical Threshold Value (STV) but not the Geometric Mean (GM). Would San Francisco be required to remove the floating docks which currently provides habitat for this wildlife or otherwise forcibly remove the sea lions from this area?

(2) The requirement that permittees address natural sources is a potential constraint on LID and green infrastructure which are technologies that typically encourage and support wildlife.

We recommend that the approach taken in the Provisions consider wildlife as a benefit, not a problem to be eliminated or relocated, and expand the off-ramps to accommodate this approach as discussed further in the following comments.

30.03

2. **Need for additional or expanded "off ramps"** – As discussed in the previous comment, the current paths for developing an alternative to the proposed GM and STV standards are inadequate. An additional or expanded method will potentially be needed for several locations around the San Francisco bay that exhibit elevated bacteria concentrations not connected to the CSDs or treatment plant effluent. San Francisco is investigating other potential sources such as sewer leaks, but anthropogenic sources are unlikely in some locations and the exceedances almost certainly are the result of natural sources.

The reference beach/antidegradation approach will apparently not be allowed in San Francisco Bay because no reference beach is available; all bay waters are impacted. As defined in the Appendix:

A reference system is an area and associated monitoring point that is not impacted by human activities that potentially affect bacteria densities in the receiving waterbody.

The natural source exclusion approach may similarly be inapplicable because untreated stormwater discharges to the bay may make it difficult to demonstrate that only natural sources cause the exceedances.

Consequently, the reference beach/antidegradation and natural source exclusion approaches need to be expanded to address these situations. A possible change could include:

- Establishing a procedure for implementing a modified GM or STV without needing to implement a TMDL

Without an expanded off-ramp, dischargers will need to remove or otherwise address natural sources which may be impossible or have adverse environmental impacts, as discussed in the first comment.

30.04

3. **Responsibility for exceedance locations not caused by permitted dischargers** – The Provisions need to clarify when exceedances from natural causes must be addressed by the local permittee. In other words, how and on what basis is the responsibility for identified exceedances assigned to permittees.

   As discussed in the previous comments, locations may have elevated bacteria due to natural sources such as marine mammals or birds. In some cases, these locations are far enough removed from wastewater or stormwater systems that these sources are very unlikely to be the cause of the elevated bacteria. As currently structured, the responsibility for investigation and addressing these sites appears to be assigned to the nearest stormwater or wastewater utility. In the natural world, some locations have high bacteria. As discussed in the previous comment, these elevated concentrations should not be considered as necessarily a sign of impairment requiring human intervention. And, the nearest permittee should not have to commit the funds and staff time when it is unlikely the permittee is responsible for the exceedances. The Provisions need a clear methodology for determining when to assign responsibility to a permittee.

30.05

4. **Separate assessment of dry and wet weather** – During wet weather beach use decreases significantly and this factor should be considered in the identification of objectives and in their application. This is particularly critical because wet weather compliance is problematic based on both local and statewide sampling.

Specific comments

The following are comments specific to proposed actions in Part 3 of the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Bacteria Provisions and a Water Quality Standards Variance Policy* (Part 3).

II Beneficial Uses

30.06

Proposed action: Addition to the standards of the *Limited Water Contact Recreation* (LREC-1) beneficial use.

Specific comment #1: This beneficial use is not currently available in Region 2 and we support makingLREC-1 available statewide as is proposed.

We also request that the LREC-1 designation or REC-2 apply to waters used for fishing because ingestion of water is not likely while fishing. As stated by EPA in the 2012 recommended criteria:

> Primary contact recreation typically includes activities where immersion and ingestion are likely and there is a high degree of bodily contact with the water, such as swimming, bathing, surfing, water skiing, tubing, skin diving, water play by children, or similar water-contact activities. [*emphasis added*]

Fishing does not involve a high degree of bodily contact. The EPA Recreational Water Quality Criteria Document also does not include fishing as an activity covered by the standards. However, *fishing* is currently categorized as part of REC-1 in the Basin Plans.

We also note that the applicability of the proposed standards for the ISWEBE is stated as:

> Chapter III.E.2 establishes water quality objectives for reasonable protection of people that recreate within all surface waters, enclosed bays, and estuaries of the state that have the water contact recreation beneficial use (REC-1). [*emphasis added*]

Fishing does not appear to have the requisite amount of bodily contact necessary to be a REC-1 activity.

We request that the Provisions specify that *fishing* be included as either a LREC-1 or REC-2 activity. In Region 2, *beachcombing, camping, boating, tide pool and marine life study* are currently classified as REC-2 activities and would likely have the same limited contact as fishing.

Suggested edits:

> Limited Water Contact Recreation (LREC-1): Uses of water that support limited recreational activities involving body contact with water, where the activities are predominantly limited by physical conditions such as very shallow water depth, fishing (unless classified as REC-2), or restricted access and, as a result, body contact with water and ingestion of water is infrequent or insignificant.

III. E.2. - Bacteria Water Quality Objectives - Enterococci

30.07

Proposed action: Adoption of new criteria (objectives) for enterococci. The proposed objectives are based on the second of the two EPA recommendations in the 2012 criteria. *See table*:

2012 Recommended Criteria: Geometric Mean & Statistical Threshold Value

Bacterial Indicator **Enterococci**	EPA Recommendation 1	EPA Recommendation 2 (included in Provisions)
Estimated illness rate:	**36 per 1,000**	**32 per 1,000**
Geometric mean—GM (cfu/100mL)	35	30
Statitical threshold value—STM (cfu/100mL)	130	110

- Estimated illness rate applies to water contact recreators
- Geometric mean: a type of average calculated as the nth root of n numbers multiplied by each other, applied to a six-week interval, calculated weekly; generally 5 samples are necessary
- Statistical threshold value: value not to be exceeded by more than 10% of the samples, calculated monthly

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Specific comment #2: The current GM objective in the San Francisco Basin Plan is 35 cfu/100 mL, the same as EPA recommendation number 1 in the 2012 criteria. The proposed Provisions, however, selected a GM value of 30 cfu/100 mL which is the second alternative identified by EPA. EPA has indicated that the REC-1 designated use would be protected if either set of criteria recommendations are adopted into state WQS and approved by EPA.

Decreasing the objective from 35 to 30 CFU/100mL could have a significant impact in some locations. For example, samples taken at Aquatic Park from 2008 through 2011 show a significant increase in exceedance rates (55%) if the objective is decreased from 35 to 30 CFU/100mL - *see table below*.

Aquatic Park Monitoring (2008 - 2011)

6 weeks rolling enterococci geometric mean		
Enterococci objective (cfu/100mL)	**35** cfu	**30** cfu
Number of samples exceeding	21	37
Percent exceedance	10%	18%

Neither CSDs or other wastewater is discharged into Aquatic Park. Aquatic Park is partially enclosed and the exceedances appear to be typical of waterbodies with limited circulation and which are impacted by natural sources. In an assessment of statewide water quality at beaches, Heal the Bay found a strong correlation between partially enclosed water bodies and decreased water quality as measured by

indicator bacteria, especially in wet weather. The correlation was stronger for the enclosed water bodies than for beaches impacted by storm drains (see Beach Report Card, page 22). The bacteria sources appear to be birds and possibly sea mammals.

We request the current value of **35** cfu/100 mL (i.e., EPA's recommendation 1) be retained as the appropriate enterococcus standard for the following reasons.

1. **35 cfu/100 mL is a protective standard** –As noted earlier, the EPA has indicated that the REC-1 designated use would be protected at this level.
2. **Bacteria sources** – Natural sources will frequently be prevalent at levels similar to the GM objective, especially in water bodies that are partially enclosed and have limited circulation
3. **Laboratory Methodology** – The use of the Enterolert methodology for assessing bacterial concentrations provides a reportable value of 10 cfu/100 mL representing a non-detect, in contrast to the reportable value of 2 cfu/100 mL using multiple filtration methodology. Enerolert while providing for a quicker result, substantially increases the geomean value; thus impacting percent exceedance. It is a disadvantage to use this faster detection method if the geomean is reduced, as proposed.
4. **Alternative standards** - The proposed Provisions provide only two methods to address natural sources: 1) Reference System/Antidegradation, and 2) Natural Source Exclusion. These methods, however, are only allowed within context of a TMDL and both require an extensive effort and may not provide the appropriate relief for natural causes, as discussed in previous comments. We have also been informed that the Reference System/Antidegradation approach is not appropriate for San Francisco Bay due to the lack of un-impacted beaches to use as a reference beach.

We request that the Provisions use EPA recommendation 1 or recommendation 2 on a site-specific basis. Higher use beaches, such as those meeting the AB411 criteria, could apply the 30 GM and beaches with limited use due to location or colder water could apply the 35 GM.

IV. IMPLEMENTATION, E. Bacteria, 1. Applicability

30.08

Proposed action: The current proposed text applies the new water quality objectives with the only exception being TMDLs established before the effective date.

Specific comment #4: The applicability should be expanded to include:

- **Variances** – The current proposed text allows very few exceptions to the strict application of the GM and STV. This could prohibit variances which is obviously not the intent of the Water Boards as indicated by the inclusion of the Variance Policy.

- **Modification of the geometric mean** – It will be necessary to modify the GM in situations where natural sources result in a continuous or near-continuous exceedance of the proposed GM.
- **Modification of the GM and STV without a TMDL** – Due to natural sources, it is likely that many waterways will need adjustment to the STV and GM. Restricting these adjustments only in the context of a TMDL places unnecessary administrative constraints on implementation of these standards.

IV. IMPLEMENTATION, E. Bacteria, 2. Natural Sources of Bacteria

30.09

Proposed action – Implement the Reference System/Antidegradation Approach and Natural Sources Exclusion Approach

***Specific comment* #5** – As discussed in more depth in earlier comments, these two options need to be expanded. As currently described, they will not be viable in many locations where natural sources are the cause of the exceedance. Specifically:

- The approach should be allowed to be implemented without a TMDL
- The GM should be adjustable, when needed, in addition to the STV
- Allow reference beaches that are not in the same waterway (e.g., San Francisco reference beaches do not need to be elsewhere in the Bay)
- Provide a method for taking into account not only natural sources but also other anthropogenic sources not subject to the control of the wastewater permittee (e.g., agricultural discharges, non-point source discharges, other permittees in the watershed or waterway)
- Provide sufficient flexibility to address local conditions

IV. IMPLEMENTATION, E. Bacteria, 3. 3. High Flow Suspension of the Water Contact Recreation (REC-1) Beneficial Use

30.10

Proposed action – Allow suspension of the standards due to high flows resulting in unsafe conditions. This option has been applied in Los Angeles for flows in constructed channels generated by daily rainfall of more than ½ inch.

***Specific comment* #6** – We request this suspension or the seasonal suspension below be expanded to encompass situations where controls are not possible due to very high flows where treatment including disinfection is infeasible. This temporary suspension could include mandatory beach advisories.

IV. IMPLEMENTATION, E. Bacteria, 4. Seasonal Suspension of the Water Contact Recreation (REC-1) Beneficial Use

30.11

Proposed action – Allow suspension of the standards due to low water flows, low water temperatures, or conditions that freeze water.

***Specific comment* #7** – We request this suspension be expanded to include situations where beach use is very limited due to weather conditions and where controls are not feasible (e.g., high flows where treatment including disinfection cannot be implemented. This suspension could include mandatory beach advisories.

Attachment A. Glossary

30.12

***Specific comment* #10** – As noted previously, in practice, the reference system approach has been defined such that no reference beaches are available to compare with other locations in San Francisco Bay. We propose that the definition be modified as follows:

> *REFERENCE SYSTEM: A reference system is an area and associated monitoring point that is not impacted by human activities that potentially significantly affect bacteria densities in the receiving waterbody. The reference system beach may be located in another water body, for example, San Francisco Bay beaches could be compared to beaches located elsewhere along the coast that are similarly partially enclosed.*