



March 12, 2021

David Gibson
San Diego Regional Water Quality Control Board (San Diego Water Board)
2375 Northside Dr. Suite 100
San Diego, CA. 92108

SUBJECT: Tentative Time Schedule Order No. R9-2021-0028

Dear Mr. Gibson,

On behalf of the Southern California Alliance of Publicly Owned Treatment Works (SCAP) and the California Association of Sanitation Agencies (CASA), thank you for the opportunity to provide comment on the Tentative Time Schedule Order ([TTSO No. R9-2021-0028](#)) pertaining to requiring designated responsible permittees to comply with bacteria TMDL requirements prescribed in the regional municipal separate storm sewer systems (MS4s) permit for the San Diego region.

By way of background for our organizations, SCAP represents over 80 public water and wastewater agencies in southern California who provide essential water supply and wastewater treatment for approximately 20 million people in the counties of Los Angeles, Orange, San Diego, Santa Barbara, Riverside, San Bernardino and Ventura. SCAP's wastewater members provide environmentally sound, cost-effective management of more than two billion gallons of wastewater each day and, in the process of protecting public health and the environment, convert wastewater into resources for beneficial uses such as recycled water and renewable energy. CASA represents more than 125 public agencies and municipalities that engage in wastewater collection, treatment, recycling, and resource recovery, and our mission is to provide trusted information and advocacy on behalf of California clean water agencies, and to be a leader in sustainability and utilization of renewable resources. CASA does not routinely comment on actions in individual regions except in circumstances such as here, where unrefined tools being utilized in the MS4 context may have implications for wastewater applications statewide.

The Use of the Proposed HF183 Method as a Water Quality Objective is Not Appropriate

The intent of this letter is to request that the HF183 provisions be removed from the TTSO. HF183 should be used as a screening tool only, not a water quality objective tool. There are too many variables that contribute to the HF183 count making it an imprecise tool that is not appropriate for numeric compliance purposes.

To be sure, the purpose of the TTSO is stated to protect human health until water quality objectives are obtained in the receiving water, and there is no disagreement with these ends. However, in question for us are the set of naturalized bacteria existing in the sand or brought to the beach by recreational water visitors. These cannot be controlled and have not been adequately catalogued due to limits of the current scientific techniques utilized for compliance purposes.

HF183 Does Not Differentiate Between Live and Dead Bacteria

A fundamental challenge for the proposed use of the HF183 method remains: it cannot differentiate between live versus dead bacteria which, if not considered in developing risk based thresholds, may produce false signals of true public risk, as these thresholds are based on projected models with technical limitations.

We appreciate the TTSO and referenced investigative order acknowledge compliance cannot be achieved when the use of this method is employed for waters dominated by recycled water. In watersheds where reclaimed water is used and interacts with runoff and groundwater seepage, we recommend more specific delineation in the Table 5 footnote about when such waters interact with each other for receiving water compliance determinations.

It should be noted that some San Diego water purveyors who produce recycled water are offering free pick up of recycled water to private citizens for yard irrigation to provide relief to the potable water supply during drought periods. As such, restricting use of HF183 to basins where recycled water systems exist does not fully capture the false signals from recycled water that may occur.

Humans Are Not the Only Warm-Blooded Animals that Carry the HF183 Signal

HF183 does not have sufficient discriminatory properties to used as a compliance tool. Other warm-blooded animals carry HF183 in their digestive tracks. These include birds, raccoons, and ruminants (sheep, cattle and deer). One bacterial source tracking study found that a total of 11 of 90 (12%) wildlife fecal samples tested positive for the HF183 human marker.¹

From a wastewater perspective, there are significant concerns with reliance on HF183 monitoring. “Routine monitoring for a wide variety of pathogenic microorganisms can be expensive and challenging due to their uneven distribution among the host population and the affected waters.”² The expense and challenge are even greater for producing high-quality, reliable data that may be appropriately used by regulators to base monitoring and reporting requirements. “Since the HF183 marker can occasionally be present in nontarget animal fecal samples, it is recommended that HF183 along with HAdVs or HPyVs should be used for human fecal pollution tracking...”³ Since the monitoring called for in the TTSO does not include these additional dimensions, the value and quality of the data that would be produced under the terms of TTSO is in question.

Bacterial TMDL Waste Load Allocations Need Modification for a Regulatory Pathway

The resolution of natural sources of bacteria from indirect inputs via anthropogenic and non-anthropogenic sources is a standing research-related question. No clear sources based on regrowth of fecal indicator bacteria (FIB) in sands, tidal influences, and other climatic drivers have been ruled out and controlled systematically nationwide. However, the regulatory pathway included in the TTSO includes the modification of the waste load allocations through a basin plan amendment process after elimination of all anthropogenic sources of bacteria that are identified, quantified, and subsequently controlled. While we understand that State policies are in alignment with this approach, recreational use of California beaches and surface waters, which can contribute to anthropogenic sources of bacteria, cannot be controlled and eliminated.

As a realized occurrence of the proposed regulatory ideal, the Regional stay at home orders due to COVID-19 would be the closest version of control of citizens ability to recreate at the beach. Research by one of our mutual members, the South Orange County Wastewater Authority (SOCWA), of speciation of enterococcus bacteria indicated a large concentration of *e. faecalis* and *e. faecium*, which are established as the bacterium most connected to humans, which furthers establishes the fact of the limited effects of control of human visitation as a transport mechanism that can be controlled, due to the regrowth of bacteria in sands. Absent large rain events and high surf which have been shown to act as significant flushing of harbored beach sand bacteria, coupled with no human input, the likelihood to routinely control additional inputs from recreational users would seem impossible as a compliance pathway.

¹ “Expansion and Evaluation of Texas’ Bacterial Source Tracking Program.” G.D. Di Giovanni, E.A. Casarez, J.A. Truesdale. 2015. Texas Water Resources Institute. Available here: <https://twri.tamu.edu/publications/technical-reports/2015-technical-reports/tr-493/>

² “Distributions of Fecal Markers in Wastewater from Different Climatic Zones for Human Fecal Pollution Tracking in Australian Surface Waters.” W. Ahmed, J. P. S. Sidhu, K. Smith, D. J. Beale, P. Gyawali, S. Toze. Applied and Environmental Microbiology. Feb 2016, 82 (4) 1316-1323 at 1316; DOI: 10.1128/AEM.03765-15. Available here: <https://aem.asm.org/content/aem/82/4/1316.full.pdf>

³ Id at 1321

In the highly urbanized southern California coastal region, there is a sink for anthropogenic activity that limits the ability to remove all anthropogenic activities from the region. These constraints should be considered for inputs of HF183 as an alternative compliance pathway for FIB. Identification and cataloging of naturalized bacteria should be included in lieu of extreme source control connected with recreational users conveying those sources to the beaches.

The QMRA Limits Should Feature the Inclusion of the CAT Marker with HF183

The TTSO states that the Quantitative Microbial Risk Assessment (QMRA) method to develop risk-based thresholds for alternative indicators should be used where the predominant source of fecal contamination is non-human. The USEPA 2012 criteria allow the use of the QMRA where the predominant source of fecal contamination is non-human. However, the human marker threshold provided in the TTSO was developed when sewage is the primary source of unaged contamination which is in direct conflict with the stated objective of the discretionary ability to use a QMRA method.

In addition to this contradiction, 23 CCR § 2250 provides statutory oversight and legal requirements for responsible parties in collection systems and other conveyance systems to report sewage spills greater than 1,000 gallons of flow. A recent review of the 2020 report of sanitary sewer overflows for the portion of Orange County regulated by the SDRWQCB indicated less than ten instances where the SSO flowed to a surface water, resulting in less than 10,000 gallons of sewage impacting surface waters and no definitive impact to recreational water uses. Therefore, the application of risk-based thresholds (RBT) for raw sewage when it is not in alignment with the actual conditions occurring, should be carefully considered prior to moving forward with quantitative limits of copies of HF183.

Quantification limits proposed in the TTSO couple the HF183 human marker and gull feces to obtain the proposed limit for unaged sewage and gull contributions as identified in the cited article in the TTSO. In the referenced publication in the TTSO, the gull species of unaged RBT limit is 200,000 copies/100mL. Further, the publication states that if the LeeSeagull bird fecal marker (CAT) is present at 1,000 copies/100mL, then the HF183 RBT would be 70 copies/100mL. However, the inclusion of the CAT marker in conjunction with the HF183 marker is absent from the TTSO, and if the HF183 provisions remain, it should be included within the regulatory discretionary allowance under the USEPA 2012 discretion for establishing water quality indicators at beaches where the pollution source is not human dominated.

Overarching Concerns with HF183

During your Executive Officer's report at the March 10 San Diego Water Board meeting this year, you noted a staff level recommendation to use the HF183 method as a water quality objective, like FIB. However, there are numerous outstanding technical issues that should be addressed, including compliance thresholds and applicability as a Basin Plan and/or MS4 Permit action, before the use of HF183 for such a purpose. Indeed, microbial source tracking studies have yet to produce a clear source contribution.

To substantiate these points about source contribution, in 2018, the City of Santa Barbara engaged with multiple stakeholders to conduct a comprehensive, 3-year, \$2 million research investigation of recreational waters featuring rigorous hypothesis testing to evaluate *all* viable sources of bacteria, including stormwater and wastewater.⁴ Despite of the various pathways evaluated, the study concluded unequivocally from the multi-year evaluation that bather shedding was the source of HF183 input, not wastewater treatment plant discharge nor stormwater. This research underscores the need for developing further the rationale in the TTSO's supporting materials.

⁴ *Santa Barbara Beaches MST Study – Case Study on MST at High Use Beaches.* Brandon Steets. October 17, 2018. Available here: <https://www.casqa.org/asca/santa-barbara-beaches-mst-study-case-study-mst-high-use-beaches>

Accordingly, the regulatory discretion to rely on the technical tools available and developing methods for those tools should be carefully evaluated so the San Diego Water Board does not send false pathogen risk messages to the public and recreational users of California beaches.

Conclusion

In consideration of the above, we respectfully request the San Diego Water Board modify the TTSO to reflect these challenges of HF183 as proposed and either remove the HF183 provisions from the TTSO or if retained, detail opportunities to evaluate the proposed compliance pathway. Thank you for your consideration of these comments. If there any questions, please do not hesitate to reach us directly at (760) 415-4332 or sjepsen@dudek.com and (916) 694-9269 or jvoskuhl@casaweb.org.

Thank you,



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