



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Lars Seifert, Chief
Land & Water Quality Division
San Diego County Department of Environmental Health

Re: REQUEST FOR CONCURRENCE TO IMPLEMENT ddPCR FOR BEACH WATER QUALITY
RAPID DETECTION METHOD FOR RECREATIONAL BEACHES IN SAN DIEGO COUNTY

Dear Mr Seifert:

EPA Region 9 is approving the use of the method digital droplet Polymerase Chain Reaction (ddPCR) and beach action value (BAV) for beach water quality monitoring under EPA's BEACH program in San Diego County as a pilot program for California. The ddPCR method will be used by the County of San Diego to provide same-day notice of elevated bacteria at beaches in lieu of the current beach action value using the Enterolert method.

When EPA published revised Recreational Water Quality Criteria in 2012, the agency recognized that technologies were changing rapidly and created a path for the use of new bacterial methods and indicators. In 2014, EPA published a technical support manual¹ (TSM) that described the process the agency would use in approving new bacterial methods or indicators on a site-specific basis for ambient water monitoring and serve as an alternative to the Alternate Testing Procedures (ATP) pursuant to 40 CFR§136. The TSM allows for comparison of different methods and indicators to evaluate health risk.

San Diego Department of Public Health (SD DPH) and collaborators analyzed samples using ddPCR and Enterolert (an EPA approved method for ambient water bacteria) at 51 diverse beaches along the San Diego coastline for over the AB411 beach season (April 1 to October 31). Following the procedures in the TSM, SD DPH established an acceptable level of agreement between the two indicators/methods and also showed a 90% agreement in beach notification decisions. The error rates for ddPCR are comparable to error rates associated with other EPA approved bacteria methods such membrane filtration for *Enterococci* (EPA Method 1600). The false positive rate for the application in San Diego County is 6%, making beach notifications protective 96% of the time with increased sensitivity than EPA approved methods.²

¹ EPA 2014. Site-Specific Alternative Recreational Criteria Technical Support Materials For Alternative Indicators and Methods EPA-820-R-14-011 U.S. Environmental Protection Agency Office of Water Office of Science and Technology Health and Ecological Criteria Division December 2014.

² C. Crain et al. In Review. Application of ddPCR for the detection of *Enterococcus* spp. for coastal water quality monitoring. Submitted to Journal of Microbiological Methods

In summary, San Diego County has demonstrated that ddPCR can be used to reliably determine levels of *Enterococci* bacteria as an indication of overall microbiological fecal contamination conditions for San Diego County beaches. This rapid test method can effectively and quickly determine the need for public notification for recreational beach water quality surveillance, thereby reducing the period of time the public is at risk.

If you have any questions about the attached study, please contact me at 415-972-3462 or fleming.terrence@epa.gov.

Sincerely,

TERRENCE FLEMING Digitally signed by TERRENCE FLEMING
Date: 2020.10.06 08:43:48 -0700
Terrence Fleming
EPA Region 9 BEACH Coordinator

cc: Dr. Wilma Wooten, Health Officer, County of San Diego
Brett Austin, Director, County of San Diego Public Health Laboratory
William Draper, CDPH, Drinking Water & Radiation Laboratory Branch
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