
To:	Gregory Harris, PE Herwit Engineering	From:	Vijay Sundaram, PE & Steve Beck, PE Stantec
File:	Discovery Bay	Date:	March 20, 2019

Reference: Discovery Bay CSD WWTP UV System Evaluation Update

Stantec is currently evaluating the UV system at Discovery Bay CSD WWTP. Objectives of the evaluation are to determine the potential causes for performance issues reported in the Moreland Consulting Spot Check Bioassay Report (October 2017). Reported performance issues could be related to how the tests were conducted, errors in sampling and/or analysis, equipment issues, and/or system hydraulics.

Based on the preliminary evaluation, Stantec recommends the following strategies in addressing the UV performance issues:

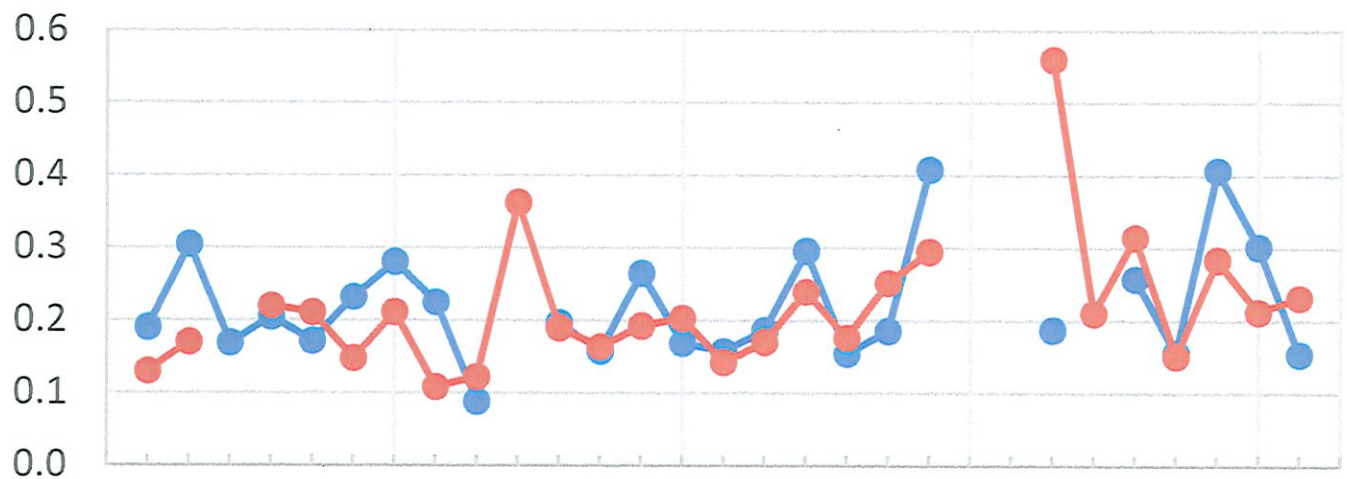
1. Enhance the hydraulic profile across the channel at the beginning and end of each bank under a range of flows. If required, installation of temporary baffles can be considered.
2. After evaluating the hydraulic profile across the channel, conduct a challenge testing with current flows utilizing appropriate number of banks and system power. Inject surrogate pathogen (MS2) and SuperHume at an upstream location during the testing to achieve a well-mixed influent stream. Conducting the testing at current plant flows eliminates the uncertainty related to 1) recirculation of effluent, and 2) the extent of MS2 and SuperHume mixing during the testing.

Discovery Bay Master Plan and Facility Project Schedule

Based on the combined schedule for both NPDES permit projects. We have been internally running on the following schedule.

- 1) Complete the Master Plan by July 2019.
- 2) Begin Design of the Nitrate improvements, UV improvements and any upgrades to Plant No. 1 by August/September of 2019
- 3) Update the Financing plan with the new numbers from the Master Plan by December 31, 2019.
- 4) Finish Design August/September 2020.
- 5) Secure funding for the projects by August 2020.
- 6) Go out to bid, receive bids, and award construction, and notice to proceed. November/December 2020.
- 7) Finish all construction by September 2022. This gives 4 months to operate prior to permit change on Title 22 Disinfection and over 12 months for operation on the nitrate plant prior to the permit change.

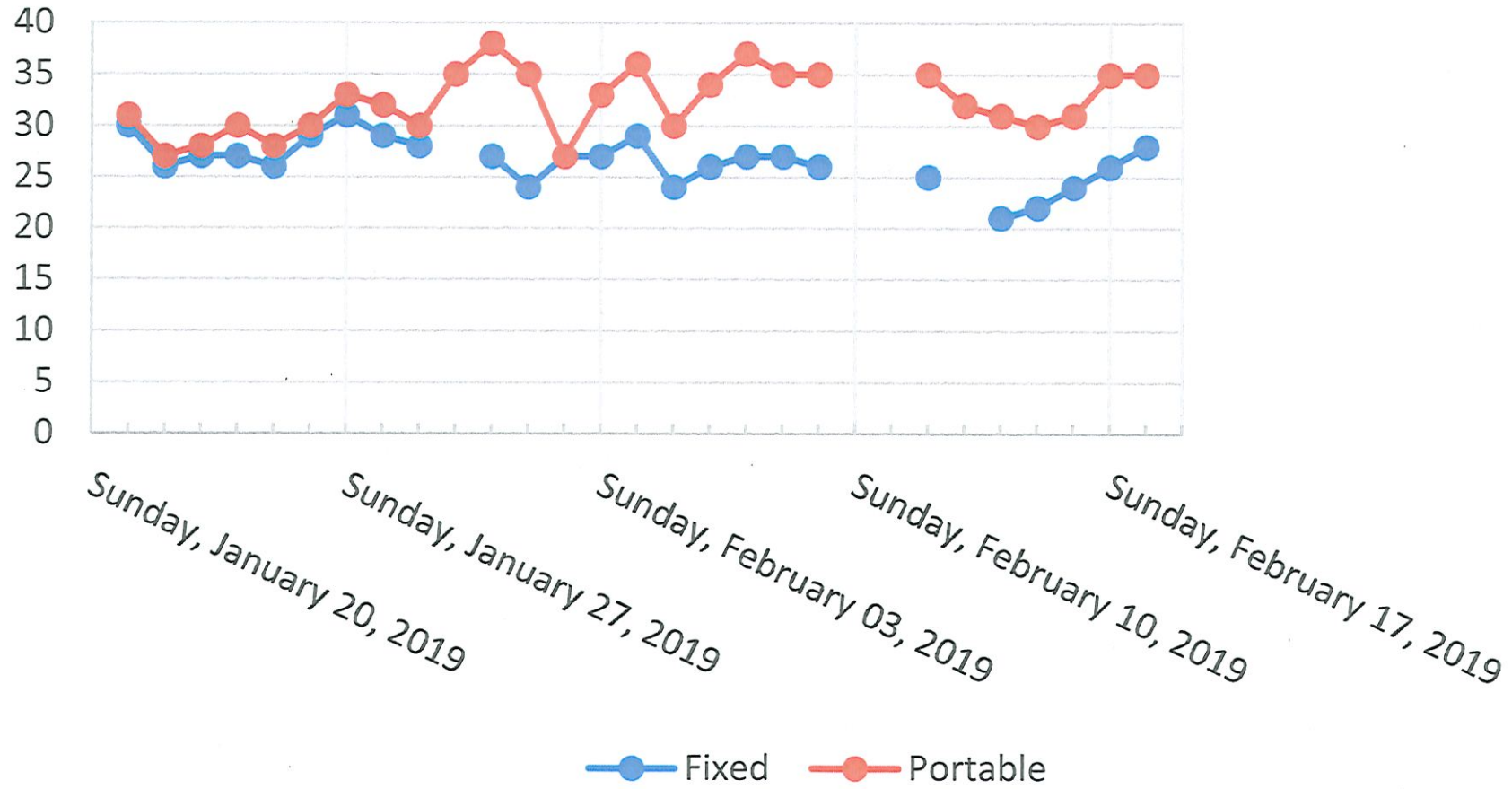
TKN/BOD



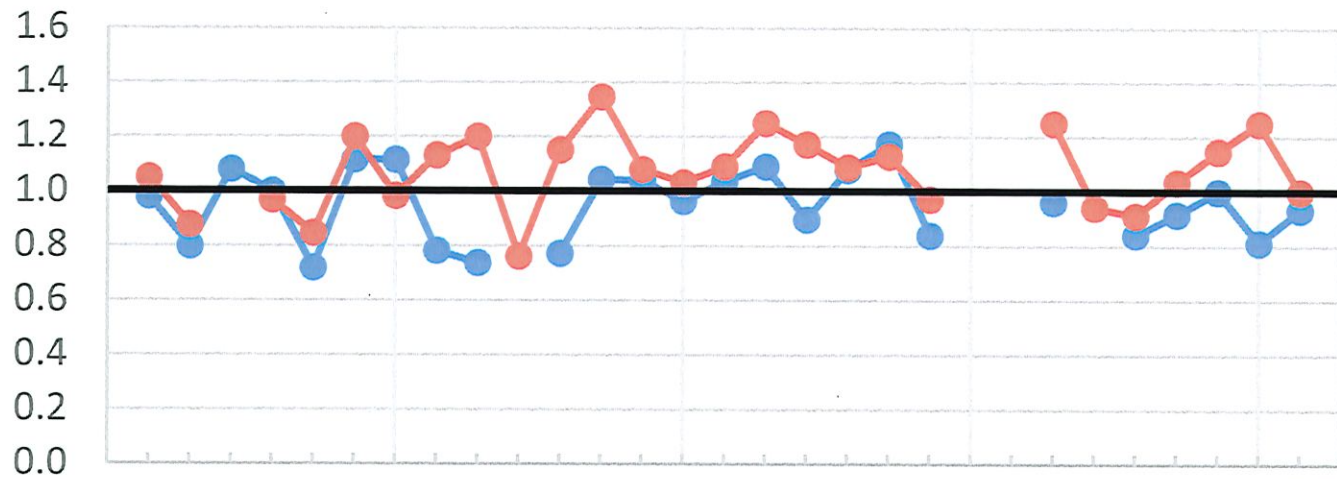
Sunday, January 20, 2019 Sunday, January 27, 2019 Sunday, February 03, 2019 Sunday, February 10, 2019 Sunday, February 17, 2019

—●— Fixed —●— Portable

Ammonia-N, mg/L



Ammonia-N/TKN



>1 is Impossible

Sunday, January 20, 2019 Sunday, January 27, 2019 Sunday, February 03, 2019 Sunday, February 10, 2019 Sunday, February 17, 2019

—●— Fixed —●— Portable — Ratio = 1