

Appendix P: NIWA Review Letter

5 June 2020

Mr Richard Petersen
STANTEC
Wellington

Dear Richard

Review of deliverables, Titahi Bay wastewater treatment plant treatment plant consent renewal

NIWA was commissioned to review several deliverables prepared in support of the application to renew the discharge consent for the Titahi Bay wastewater treatment plant (WWTP). The reviews of the reports were undertaken primarily by Drs Rebecca Stott and Neale Hudson, with internal review provided by Mr Graham McBride, an emeritus researcher in NIWA Hamilton.

The primary report described a Quantitative Microbial Risk Assessment (QMRA)¹, undertaken to assess the human health risk arising from the discharge of treated wastewater from the Titahi Bay WWTP to the marine environment via an ocean outfall. As part of the brief, we reviewed and provided detailed feedback on the following:

- A draft document provided on 11 October 2019.
- A second draft document provided on 4 November 2019.
- A substantially revised draft document on 19 March 2020.
- A final draft document provided on 22 May 2020.

The QMRA applied standard processes and practices used for assessments of this nature, and from the information provided (input data, assumptions, and scenario conditions), the results of the modelling appear plausible. The QMRA model itself was not provided for review. We consider the final report represents the outcomes of good QMRA practice.

Separately we reviewed a technical memorandum regarding UV disinfection proposed as a component of the plant upgrade.² The memorandum describes how UV disinfection will be applied to the treated wastewater prior to discharge. It describes the efficacy of disinfection under current and likely future discharge conditions, including average dry- and wet-weather conditions.

The technical memorandum relates the predicted UV disinfection performance to the required level of treatment efficacy identified through the QMRA process. The UV dosage is predicted to exceed the disinfection requirements defined by the QMRA.

¹ Oldman, J.W., Dada, A.C (2020) A Quantitative Microbial Risk Assessment of the Porirua WWTP discharge and receiving environment. DHI1901, *Streamlined Environmental*, Hamilton: 58.

² Peter Loughran (Stantec), Graeme Jenner and Ron Haverland (Connect Water) – May 8, 2020. *Porirua Wastewater Treatment Plant – Virus Reduction and Disinfection Performance*: 15.

We consider the technical work adequate for a robust assessment of human health effects.

On behalf of NIWA, Dr Stott and I thank you for the opportunity to contribute to this important technical work.

Yours sincerely

A handwritten signature in black ink, consisting of several overlapping loops and a small tail at the end.

Neale Hudson
Environmental Chemist/Centre Manager, Freshwater & Estuaries