

Technical Comment

To: Sonya Nicol

From: Ewen Rodway (Environmental Scientist – Chemistry and Land)

Date: 29 April 2019

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Dear Sonya

Michael and I have reviewed the additional information supplied. The results show that the majority of nitrogen is present in an organic form. This is likely undergoing ammonification within the pond and the soluble products subsequently leached. I would agree with the applicant that the concentrations of soluble inorganic nitrogen do not appear to be unacceptably high. If a large proportion of the organic nitrogen is present as dissolved organic nitrogen (DON) this may also be contributing to the load of N leached to groundwater.

I would contest that the infiltration beds are an example of best practice. The method of disposal is still considered as high risk given that the infiltration beds do not include an appreciable soil filtration phase. This soil infiltration step is critical in attenuating contaminants. In this case wastewater is able to percolate almost directly to the aquifer meaning there will be no passive filtration prior to groundwater discharge. The monitoring results from bore E46/1007 (immediately south-east of the ponds) show excessive groundwater nitrogen contamination. The most recent sample on the 26th of November 2018 returned a total oxidised nitrogen concentration of 11.49 mg/L, this exceed the NZ drinking water standard.

Whilst the discharge from the ponds may not be the sole reason for this contamination, the applicant needs to take some action to reduce the nitrogen concentration in groundwater at this location. If changing the wastewater disposal method is not an option then perhaps assessing surrounding land use under their control and taking steps to reduce nitrogen pollution maybe be a more practicable option.

Kind regards

Ewen