

3rd of August 2022

Northland Regional Council
BY EMAIL

Attention: Stuarts@nrc.govt.nz

Tēnā koe,

RE: Response to Section 92(1) Resource Management Act 1991 Request for Further Information from Northland Regional Council - Resource Consent APP.003839.01-03 by Far North District Council for discharges associated with the Kohukohu Wastewater Treatment Plant.

Thank you for your letter dated 10 January 2020 requesting further information under Section 92(1) of the Resource Management Act 1991 (the Act) in relation to the above resource consent application. The Far North District Council (the Applicant) provides the following responses to this request.

Question

- An assessment of the effectiveness of the septic tank maintenance schedule and treatment plant desludging schedule. There are ongoing issues with excessive sludge accumulation in the treatment ponds and wetland of the WWTP. As the purpose of the septic tanks should be to retain the majority of sludge so it does not enter the ponds, it is considered that the current five yearly frequency of cleaning and inspection of the septic tanks is not sufficient.*

Reason: To assess the current effectiveness of the WWTP.

Response

Common effluent drainage servicing (EDS) is used to reticulate onsite wastewater from each serviced property in the Kohukohu community via gravity where it enters a rising main line (with 3 main pump stations) to a single facultative (oxidation) pond followed by a surface flow wetland before discharging to the Hokianga Harbour.

A historic Operations and Maintenance Manual (dated 2006) is available for these facilities but is considered to be out of date. The current WWTP Operator advises that the WWTP and pump stations are respectively inspected weekly and monthly and that remote monitoring of systematic operations is continuous and that all other maintenance is reactive in general (email comms, G. Potter, 3 June 2016).

Tank inspections had been implemented at the initial outset of the scheme but have not been continued on a regular basis. No other maintenance information has been found for the septic tanks which reside on private property.

The Applicant commissioned Jacobs Consultants Ltd (Jacobs) to review the current sludge management practices for the Kohukohu township in February 2020. Their memorandum (Jacobs 2020a) is attached at Appendix A with findings summarised as follows.

Jacobs (2020a) confirmed¹ that septic tank desludging for the entire Kohukohu township is undertaken every 5 years by local vacuum/sucker truck contractor. The collected sludge is transported to the septage reception facility at the Rawene WWTP. The Operator advised that the septic tanks were last emptied in April/May 2019 and are not due to be desludged again until 2024².

There is no influent sampling data and therefore the extent of treatment provided by the septic tanks is currently unknown. However, there were no reported significant issues of concern with the effluent quality as assessed by Jacobs. This suggests that the pre-treatment provided by the septic tanks is not unsuitable for the WWTP to cater for existing influent loads.

The recommendation by Jacob's to develop a Septage Management Plan is adopted by the Applicant and it is proposed as a condition of consent (see Appendix F).

Question

2. *A report on land disposal options for the wastewater which provides details of the cost and viability for each option. This report should provide a decision on whether land disposal is to be undertaken for this discharge and the reasons for that decision.*

Reason: This is to meet Policy D.4.3(b) of the Proposed Regional Plan which states a discharge to water will generally not be granted unless "a discharge to land has been considered and found not to be economically or practicably viable". Policy 23(2)(b)(i) of the New Zealand Coastal Policy Statement also requires that "there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge".

Response

Jacobs were engaged by the Applicant to undertake amongst other things, an assessment of the potential for discharge to land in accordance with Policy D.4.3 of the PRPN. Their report ((Jacobs) 2020b) on this matter³ can be found at Appendix B to this letter. In summary, the assessment by Jacobs advises the following;

- *Practical viability of a discharge to land*

The availability of suitable land to discharge treated wastewater was assessed within a 5-kilometre (km) radius of the WWTP. This radius was used as it strikes a balance between cost and identification of practically viable sites. Criteria for site selection also used proximity to sensitive receptors (i.e., residences), waterways, slope, groundwater, and natural hazards.

Within this radius, and subject to the selection criteria, 2 sites (Site 4 and 5) were identified as Being potentially suitable. However, these two were less than the required 3.0 hectares for sustainable land

¹ Conversations with WWTP Operator (Broadspectrum).

² Jacobs Memorandum, Kohukohu Septage Management Review 9 July 2020.

³ Specifically at Section 7 of the Report (Jacobs, 2020b).

application practices. As such, it is concluded that a discharge to land is practicably unfeasible at this time.

- *Economic viability of a discharge to land*

Council's policy on funding wastewater infrastructure is that each scheme must pay its own capital costs. Two targeted rates are levied that fund the provision and availability of sewerage services from each of the District's 16 sewerage schemes:

- Capital rate: Each scheme has a targeted rate to fund capital costs (interest and depreciation) levied against all properties connected to the scheme or properties where connection to the scheme is available.
- Operational rate: Operating costs for all schemes are charged district-wide to all properties connected to any Council wastewater scheme. Council also imposes a pan charge on any property with more than three toilets. This is a flat fee per additional pan.

Business and Economic Research Ltd (BERL) undertook analysis⁴ of rates affordability across the Far North District in 2020. BERL established that affordability concerns will arise where rates exceed 5% of gross household income because this exceeds costs relative to income and the ability of ratepayers to earn greater income to support rates increases. For the Kaikohe-Hokianga ward assessed, it was concluded⁵ that in most cases, households in this ward were currently spending over 5% of their income with those most vulnerable (i.e., super annuitants) spending much more than 5% due to reduced (and often fixed) incomes.

Jacobs did not carry out a detailed assessment of the economic viability of a discharge to land (DTL) due to the practical limitations relating to available suitable land. Although areas of land could have been scoped for suitability in excess of a 5km radius from the WWTP, essentially the further afield a discharge site is to the treatment plant, the more cost is incurred to install and operate. Given the ward which Kohukohu is located within is currently experiencing rates affordability issues, it is unlikely that the capital expenditure necessary to implement a DTL option would be affordable. It is therefore concluded that a DTL option is not economically viable and a discharge to water must continue to be pursued at this time.

The Applicant is continuing to look into DTL options across the district and will pursue these practices if they become more economical to implement in the foreseeable future.

Alternatives Assessment

When considering the effluent quality achieved through the current WWTP and the hydrodynamic study findings, no major drivers have been identified which substantiate a requirement to look at alternative methods, sites and routes for undertaking the discharge in significant detail.

Jacobs (Appendix C) considered the option to extend the existing outfall pipe by 240 metres into the main harbour channel but concluded that such work was unnecessary due to suitable dilution being available in the tidal mud flat channel as reported in the hydrodynamic study. In addition to Jacobs' findings, the physical disturbance required to extend the outfall pipe would have much greater

⁴ Far North District Council. 2020. *Rates Affordability in the Far North* (#6068). Business and Economic Research Ltd; Auckland accessible at <https://www.fndc.govt.nz/files/assets/public/objectivedocuments/water-services-and-waste-management-wwr/wastewater-management/wastewater-schemes/appendix-4-rates-affordability-in-the-far-north.pdf>

⁵ At page 20 (<https://www.fndc.govt.nz/files/assets/public/objectivedocuments/water-services-and-waste-management-wwr/wastewater-management/wastewater-schemes/appendix-4-rates-affordability-in-the-far-north.pdf>)

adverse effects than the discharge would, even when managed according to best construction industry standards. This is due to the receiving environments sensitivity to physical disturbances compared to physio-chemical effects of the discharge which can be assimilated more efficiently and with less residual impact within the receiving environment.

The activity as proposed is considered the most suitable method, site, and route for undertaking the discharge when balancing this with the economic and environmental effects of alternatives (i.e., DTL, or extending pipeline).

Question

3. *A report on the outcome of quantitative microbiological risk assessment which assesses the level of risk the discharge poses to the health of people contacting the waters of and consuming shellfish gathered within, the Hokianga Harbour. This report shall identify all recreational swimming and food gathering areas that were included in the assessment. If there is identified to be an unacceptable level of risk to public health, then the assessment shall recommend mitigation measures to reduce this risk to an acceptable level.*

Reason: To allow council to properly assess the risk to human health from the discharge.

Response

Streamlined Environmental Ltd (SEL) was engaged by the Applicant to prepare a semi-quantitative microbial human health risk assessment (QMRA). Their analysis used WWTP monitoring data from 2011-2019 and the hydrodynamic modelling carried out by MetOcean Ltd. SEL and MetOcean reports can be found at Appendix D and E with summary outcomes of these studies provided as follows.

Recreational water quality

Most results from historic monitoring reports showed that Faecal Indicator Bacteria (FIB) were usually within the MfE guidelines for swimming/contact recreation. The results of the QMRA show that the Kohukohu WWTP discharge generally does not negatively impact recreational water quality, as most receiving environment sites comply with the MfE/MoH criterion for “*Acceptable/Green (surveillance) Mode*” (hereafter MfE/MoH “Green”)⁶ most of the time.

Shellfish-gathering water quality

Existing guidelines for shellfish-gathering waters are more stringent than for recreation (compared to MfE/MoH guidelines). FIB are used as a proxy for determining human health risk in relation to shellfish, these primarily being faecal coliforms (for shellfish-gathering waters) and *E. coli* (for shellfish tissues).

While no specific microbiological guidelines exist for shellfish gathered for domestic (non-commercial) consumption, it is recommended that the commercial shellfish limits be applied in non-commercial settings⁷ (New Zealand Food Safety Authority (NZFSA), 2006). These guidelines can be applied to point source-affected approved growing areas where relaying, depuration (Oliveira et al., 2011) or other post-harvest treatments are not required.

⁶ 140 enterococci/100 mL.

⁷ Animal Products (Regulated Control Scheme—Bivalve Molluscan Shellfish) Regulations 2006.

http://www.legislation.govt.nz/regulation/public/2006/0038/latest/DLM369353.html?search=ts_regulation_bivalve_resel&sr=1

With continuous discharge of wastewater containing concentrations of faecal coliforms at the current consent limit (15,000 CFU/100mL), 6 out of the 20 sites failed to comply with the MfE (2003) criterion for shellfish-gathering waters, when background concentrations are not included. When background concentrations were included, all 20 sites failed to comply with the MfE (2003) criterion for shellfish-gathering waters.⁸

Assessment

These results suggest that the current discharge limit for Kohukohu WWTP discharge is too high to prevent health risks from FC associated with shellfish consumption, particularly when background concentrations are included.

To protect shellfish-gathering waters in the receiving environment, the existing consent limit will need to be lowered. Results indicate that the consent limit would need to be set at 2,000 CFU/100mL before the MfE/MoH criterion for shellfish-gathering waters can be met at all the sites. With or without considerations for background concentrations, if the consent limit is set at 2,000 CFU/100mL, all twenty sites in the Hokianga Harbour will comply with the MfE/MoH (2003) criterion for shellfish-gathering waters.

Jacobs (Appendix C) have assessed that the current WWTP generally performs well with the median effluent faecal coliform concentration for the past 10 years at **800 CFU/100 mL**⁹. The maximum FC consent limit of 15,000 CFU/100mL was exceeded on six occasions in the past 10 years however. Therefore, although median FC concentration is well below 2,000 CFU/100mL, treatment process upgrades would be beneficial to mitigating the risk to humans from shellfish consumption, in association with amendment to stated consent limits.

The Applicant will install curtain baffles and will move the inlet pipe to the north-eastern corner of the pond as recommended by Jacobs (2020b) in order to improve the treatment process. This is proposed to take place after desludging planned during the 2023-2024 financial year.

A percentile limit on FC concentration to allow for the natural variability of effluent quality from ponds is also proposed as a consent condition.

Question

4. *The application acknowledges the continued operation of the WWTP will affect Māori cultural values, however the application does not present a sufficient assessment of adverse effects on tangata whenua, their values and resources. The application also does not include an assessment of the effects on the Te Rarawa statutory acknowledgment area of the Hokianga Harbour. It is therefore requested that an assessment be undertaken on the effects on tangata whenua values and resources by the discharge. As minimum, this assessment should be undertaken in accordance with the criteria of Policy D.1.2 of the Proposed Regional Plan.*

Reason: This is to allow the council to determine which tangata whenua are adversely affected by the application in accordance with Policy D.1.3 of the Proposed Regional Plan and to provide potential means of mitigation of any adverse cultural effects. It will also allow council when making a decision on this application to meet the requirements of Policy 23(2)(b)(ii) of the New Zealand Coastal Policy Statement

⁸Dada A.C (2020). *Semi-quantitative microbial human health risk assessment of Kohukohu WWTP discharge in the Hokianga Harbour*. FDC 2001-Final v6.0, Streamlined Environmental, Hamilton, 46 pp.

⁹ The consent limit is a rolling median limit of 5,000 CFU/100mL.

which only allows a discharge of treated sewage to coastal water if it is “informed by an understanding of tangata whenua values and the effects on them”.

Response

After consultation with Te Rūnanga o Te Rarawa, hapū, and marae, a request for quote was issued to a chosen supplier to prepare a Cultural Impact Assessment (CIA). Their work was commissioned in June 2020. Multiple attempts have been made since then to expediate the CIA with the supplier, hapū, and marae however these attempts have been unsuccessful.

Most recently, the supplier was contacted by phone (pers. conv, 7 July 2022) and advised that the CIA was in draft final form and was due to be consulted on with whānau. They explained that COVID-19 had interrupted the ability to carry out meaningful face to face hui with whānau hence the delay.

The Applicant does not refuse to provide the information, however, without a CIA, this aspect of the s 92(1) of the Act request cannot be responded to at this time.

Question

5. *Where the outcome of questions 3 or 4 above identify either an unacceptable level of risk to public health or a minor, or more than minor, adverse effect on Tangata Whenua, then a report on an assessment of the potential upgrade options for the WWTP that would mitigate these effects shall be provided. The report should provide details of the estimated cost of each option and incorporate the outcomes of the assessments required by questions 1 to 4 above.*

Reason: To allow council to assess what methods are available to the applicant to mitigate any adverse effects. This information is also a requirement of Policy 23(2)(b)(i) of the New Zealand Coastal Policy Statement which requires that “there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge”.

Response

Regarding the outcome of Question 3, Jacobs (Appendix C) concluded that no major drivers had been identified from their analysis and that of SELs (Appendix D) which proved a requirement to implement major upgrades to the WWTP. However, an options analysis has been carried out by Jacobs (Appendix C). Three options were identified for analysis all of which included maintaining the use of the existing outfall discharge into the tidal mud flat channel.

Regarding the outcome of Question 4, the magnitude of effects on tangata whenua have not been qualified through a CIA (Question 4). Without an appropriate assessment of effects, it is assumed that the adverse effects on tangata whenua will be more than minor.

The options considered by Jacobs (Appendix C) included, in summary;

- Option 1: No upgrades, only improved maintenance activities such as desludging and vegetation removal from wetland.
- Option 2: Option 1 + installation of baffles in the pond and moving inlet to the north-eastern corner of the pond.
- Option 3: Option 1 + 2 + installation of UV disinfection system on the wetland effluent.

Out of the three options identified, Option 2 scored highest in a Multi Criteria Analysis (MCA), including score sensitivity testing. It should be noted that while the MCA included impacts on Māori Cultural values and practices as a scoring criterion with success being the safeguarding of Māori cultural values and practices, these were developed by staff from past consultation with tangata

whenua. The criterion and success factor may not be in accordance with actual tangata whenua views and would need to be corroborated with the CIA.

Conclusions

Although septic tank maintenance has not been prioritised as an operational management matter, there were no reported significant issues of concern with the effluent quality, suggesting that the pre-treatment provided by the septic tanks is not unsuitable for the WWTP to cater for existing influent loads (Appendix A and C). However, the Applicant accepts that improving the operational maintenance planning and record keeping of the septic tanks can assist with minimising the solids loading to the facultative pond and therefore result in treatment performance improvements. Consent conditions are proposed at Appendix F which seek to provide a framework for maintaining the septic tanks which is in accordance with best industry standards. Subject to the proposed consent conditions, the effectiveness of the septic tanks in providing pre-treatment of the influent to the WWTP can be validated with good record keeping over the duration of the proposed consent term.

Land discharge options were assessed (Appendix B) and considered to be practicably and economically unfeasible at this current time. A discharge to water as proposed must continue to be pursued to avoid unreasonable delay.

Upgrade options have been assessed and it was concluded (Appendix C) that improved maintenance activities coupled with installation of baffles in the pond and movement of the inlet would improve disinfection performance. Additionally, Jacobs (Appendix C) have recommended that the consent maximum FC and ammonia limits be changed to include a percentile standard alongside median values as limits. These changes reflect that some high values will be recorded but that the effect of these exceedances is transitory and not significantly adverse on the receiving environment compared with values which occur over sustained periods.

A CIA has not been made available at this time from the mandated writer and therefore the Applicant is unable to provide this aspect of the requested information. The Applicant anticipates that the application will be publicly notified and does not disagree with this being the next step procedurally, unless the Northland Regional Council wishes to have the CIA presented to them prior to a notification decision being made in which case the s 92(1) RMA request would need to remain in place.

The Applicant looks forward to receiving advice of receipt of the information and confirmation that the information that has been able to be submitted is of sufficient detail to consider the application.

Nga mihi mahana,



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Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Proposed Conditions (to replace similar, or in addition to, current consent conditions)

1. The Consent Holder must, no later than 1 July 2025, de-sludge the facultative pond, remove the excess vegetation present in the wetland, install baffles and move the influent inlet to the north-eastern corner of the pond as recommended by [*Reference Jacobs (2020b)*] so that the quality of the treated wastewater, as measured at NRC Sample Site 323 (discharge from the wetland) meets the following standards, based on the results of [*TBC but expect fortnightly*] samples collected each calendar year as required by Schedule 1 of this Consent:

Parameter	Unit	Median	95 th Percentile
Ammoniacal Nitrogen	g/m ³	20	32
Faecal Coliforms	cfu/100ml	2,500	24,300

2. Septic tanks which are a part of the common effluent drainage service (CEDS) shall be inspected and maintained in accordance with the Septage Management Plan.
3. Within six months of the commencement of consent the Consent Holder shall commission a suitably qualified and experienced person to prepare a Septage Management Plan (SMP) to demonstrate how the CEDS is to be operated and maintained to ensure compliance with the conditions of this consent. The SMP must, at minimum, contain the following information;
 - a. A suitable record of each individual tank connected to the CEDS that contains, at minimum, the following information;
 - i. Location details (i.e., GPS coordinates), and sketch plan of the septic tank on each property
 - ii. Basic property information (legal description, address)
 - iii. Contact information for the property owner
 - iv. Water supply type
 - v. The number of years the septic tank has been in service (the age of the septic tank).
 - b. A protocol for tank inspections which includes
 - i. The frequency at which tanks will be inspected;
 - ii. The methods of inspection that may be used.

Advice note: *A consistent set of inspection methods are necessary to ensure that collected information is comparable for use in any improvement processes and for demonstrating compliance.*

- c. Details on how education and advice will be shared with properties connected to the CEDS for proper septic tank use and operation.

- d. A template for recording tank inspection information which generally follows tank inspection requirements under AS/NZS 1547:2012.
- e. A desludging programme for the septic tanks connected to the CEDS which recognises that older tanks may need to be desludged more frequently than newer tanks.