

MEMO

To: Frances Lojkin

Cc: Carl Jenkins

From: Kate McArthur

Date: 30 April 2016

Subject: NRSBU SEWAGE OVERFLOW DISCHARGE CONSENT - INITIAL ASSESSMENT OF APPLICATION

Introduction

This memorandum outlines questions arising from an initial assessment of an application on behalf of the Nelson Regional Sewage Business Unit (NRSBU) for discharges of untreated sewage from four pump station locations to the Waimea Estuary, Nelson. It is intended that this memo guide a further information request of the Applicant under section 92 of the Resource Management Act 1991 (RMA).

Records of discharge following infrastructure upgrades

Given the time passed between the compilation of information for the original application and the re-submitted application it would be useful if the applicant could provide records of the number, cause, location and duration of any discharges that have occurred over the last 18 months i.e. since September 2014.

Saxton PS

According to the application, Saxton has the highest risk of adverse ecological effect, potential discharge volumes, number of historic discharges and highest contaminant concentrations. What can be done to further avoid, remedy or mitigate the risks of discharge from this pump station?

Contact recreation and public health risks

Please advise public health risk for secondary or primary recreational contact following an overflow event under various high and low tide scenarios.

Please advise where signage is placed following a discharge i.e. is signage placed at all contact recreation sites? All access points? Only in proximity to the discharge location? How is this determined?

Please advise how long signage remains in place and how it is determined that the health risk has passed following a discharge event. The application mentions that Environmental Monitoring undertake sampling for this purpose. What is the programme of sampling undertaken and for how long and how was it determined? Is there a record from this sampling that could be used to inform a more direct assessment of the pathogenic health risk from discharges?

At 4.2.17 and 4.2.18 of the application there is a discussion of an analysis of enterococci sampling in relation to historic discharge events and monitoring of contact recreation standards. Please advise who undertook this analysis and provide it for technical review.

Appropriateness of limits and guidelines

Please comment on the relevance of the Bell's Island and Coastal Permit limits to this particular application and discharge into the estuary (given that Bell's Island is required to discharge only on the ebb tide to allow for assimilation and dispersion into the wider coastal environment).

Please state the Trade Waste Bylaw standards that are stated to have been exceeded at times in the effluent inflows to the Saxton PS (include mention of BOD). What is being done to address exceedences of Trade Waste limits in waste entering the NRSBU system?

Assessment of ecological effects

Provide a citation for the framework used to determine the persistence and risk level of effects (Table 8). If this was based on expert opinion please state this.

Please explain what the terms 'temporary/moderately persistent', 'tolerable' and 'moderately persistent edge-effects' mean in specific terms. For example, is persistence of effect over hours, days or weeks? Does 'tolerable' include mortality, relocation or community change effects to some taxa or communities in the estuary? What are the anticipated edge-effects? Do these effects include sedimentation, eutrophication, in-fauna community shifts or toxicity? To what degree? Over what spatial and temporal scale? Please ensure this is discussed with reference to the definition of effect in section 3 of the RMA.

Please provide information on whether adverse effects are likely to occur with respect to inanga or estuarine/marine fish spawning and migrations of freshwater fish (e.g. whitebait and elvers)? Consider occurrence of discharges during critical times for these ecological processes and the relevance of Policy 11 of the NZCPS to any effects on indigenous biodiversity and threatened or at-risk species and habitats (e.g. saltmarsh).

Are there sessile fauna or indigenous flora and fauna that could suffer more than minor effects under low tide scenarios (e.g. Wakatu and high tide areas around the Songer PS) or in the immediate vicinity of each discharge outfall? If so what is the likely spatial area of these effects and their expected duration and scale?

What are likely concentrations of BOD in the vicinity of the discharge during, immediately following and after 'temporal mixing'? What are the potential ecological effects on estuarine in fauna? Please assess the risks for the Saxton discharge separately.

Reasonable mixing zone and dilution factors

Please provide additional comment on why a reasonable mixing zone should allow for dispersal time to ensure contaminants concentrations are below Coastal Permit limits or ANZECC guideline values? How does this assist in managing the effects?

Please provide comment on effects within the zone of reasonable mixing proposed as '1-2 tidal cycles following the cessation of the discharge' relative to the general requirements of mixing zone by Rutherford et al., 1994 noted in Appendix 2 of the Cawthron report.

Please explain the potential ecological effects that could occur within the proposed reasonable mixing zone of '1-2 full tidal cycles following the cessation of discharge' under various high and low tide scenarios.

The Cawthron report uses the entire estuary volume as a dilution factor to determine cumulative effects of contaminants e.g. BOD, TN, TP TSS on the estuary as a whole. However, this does not address the potential

site specific effects of these contaminants, particularly the Saxton PS outfall in relation to elevated BOD, metals and other contaminants.

Please provide a recommendation for spatial and temporal monitoring in relation to the proposed 1-2 tidal cycle mixing zone following a discharge event.

Please advise the relationship between the diagrams in the Cawthron addendum of potential discharge plumes and the temporal reasonable mixing zone of '1-2 tidal cycles following cessation of the discharge' and how risks to public health and ecology should be managed, given this paradigm.

Effects of climate change

Please consider the use of climate change predictions, including those produced by MfE¹ to determine the potential increase in frequency and magnitude of further overflow events and plume propagation estimates.

Please consider the effects of predicted sea-level rise (resulting from climate change) on the assessment of ecological effects and the functioning of pump stations and the risk of their failure.

I am happy to meet with the applicant's consultants to discuss the further information directly. Please don't hesitate to pass my contact details on if the applicant feels this would be a useful approach.

Kind regards,



Kate McArthur
Practice Leader – Water Quality
The Catalyst Group
30 April 2016

¹ <http://www.mfe.govt.nz/climate-change/how-climate-change-affects-nz/how-might-climate-change-affect-my-region/nelson-and>