

BEFORE COMMISSIONERS APPOINTED BY THE NELSON CITY COUNCIL

IN THE MATTER OF Applications for resource consent under the
Resource Management Act 1991

AND IN THE MATTER OF The aberrational discharge of sewerage from
Nelson Sewerage Business Unit (NSRBU) pump
stations and reticulation network

STATEMENT OF EVIDENCE OF MATTHEW JAMES MOLLOY

Dated 27 November 2017

1. INTRODUCTION

1.1 My name is Matthew James Molloy. I am the Director of Operations for Environmental Health Consulting (NZ) Ltd (EHC) a small consultancy specialising in public and environmental health services to government departments, district health boards and local authorities. I reside in Nelson.

1.2 I have the following qualifications and experience relevant to the evidence I shall give:

- (a) Diploma in Environmental Health Science 1993, Diploma in Drinking Water Assessment 2005.
- (b) I was previously employed by the Nelson Marlborough District Health Board (NMDHB) from 1994 – 2011 as a Health Protection Officer (HPO) and Drinking Water Assessor. Along with responding to sewage spills one of my roles was to review, comment on and prepare evidence for all resource consent applications that had a public health component. This included some of the region's most contested applications such as the Southern By-pass, Mapua chemical site decontamination, methyl bromide at Port Nelson and regional sewage discharge consents.
- (c) In 2011 EHC was formed and continued to provide HPO and DWA services to DHBs across New Zealand. As a consultant I am still designated as a HPO in Nelson and also most of the North Island and provide advice, training and operational support. More recently I have been involved in the Havelock North campylobacter outbreak response and recovery.
- (d) I am familiar with the regional sewerage scheme having reviewed and commented on previous NRSBU consents from a public health perspective in the 2000's when employed by the NMDHB. Also during this period I was personally involved in sewage spill responses across the top of the South Island and lower North Island.

- (e) As a consultant I have assisted NCC with catchment management plans, stormwater discharge assessments, drinking water safety plans and marine biosecurity incursion responses.
 - (f) I am a member of the Pacific Water & Waste Association and the Water Industry Operations Group and have working relationships with Water New Zealand and the NZ Institute of Environmental Health.
- 1.3 I have read the Code of Conduct for expert witnesses issued as part of the Environment Court Practice Note. I agree to comply with the Code of Conduct. I am satisfied that the matters addressed in this statement of evidence are within my expertise. I am not aware of any material facts that have either been omitted or might alter or detract from the opinions expressed in this statement of evidence.

2. SCOPE OF EVIDENCE

- 2.1 My brief was to review the relevant discharge material and provide a public health overview of aberrational discharge events, with a focus on the management and operational response. As part of the review Mr Geoff Cameron the Senior Health Protection Officer at the NMDHB was consulted along with Mr Lindsay Bell the Contracts Manager at Nelmac. The purpose was to gain additional operational detail on the procedures. The brief did not cover preventative measures; only response. Although it should be noted that aberrant discharges have reduced since the 2013 upgrade as explained in others' evidence.
- 2.2 Accidental or aberration overflows are by definition unplanned. There must be adequate systems in place to respond to sewage overflows or spills as and when they occur. It's not under debate that spills have a potential environmental and public health risk but a prompt response and remedial actions will significantly reduce the risk of adverse public health effects. Appropriate response and operational plans must be in place and fit for purpose as recently evidenced during the campylobacter outbreak in Havelock North. Operational plans were reviewed as part of the brief along with appropriate guidelines.

- 2.3 The Ministry for the Environment and Ministry of Health “Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas” (MfE/MoH 2003) provide advice on contact recreation safety. These guidelines specifically exclude aberrant discharges but are significant for monitoring and response purposes, particularly if sampling is used to confirm that recreational bathing standards have been met after a discharge. They are referred to as “the guidelines” in this evidence.

3. REVIEW OF RELATED MATERIAL -MODELLING

- 3.1 The application has been supported with modelling information from NIWA including two reports. The Quantitative Microbial Risk Assessment for Waimea Inlet Nelson and the Waimea Inlet: microbiological water quality context both dated October 2017. Referred to as Attachments U1 and U2 in the application. These reports contain extensive modelling information and scenarios and show both Songer and Saxton sites can, under certain conditions, impact on the contact recreation areas. These areas are defined in the Nelson Resource Management Plan and Rob Greenaway’s April 2017 report on Monaco marine recreation activity areas for NRSBU accidental discharge assessments of water quality.
- 3.2 In making the following observations of the modelling results, I recognise that the modelling outputs are highly conservative and any consideration must regard these as a virtual worst-case scenarios. I therefore recognise that the probabilities of these outcomes occurring are very low.
- 3.3 The modelling shows:
- (a) likely areas that would breach recreational water guidelines and also an estimated illness risk. The illness risk assessment is consistent with the guidelines.
 - (b) Highest illness risk identified during certain conditions (as outlined in the reports) at parts of the Monaco peninsula and the edges of the Waimea estuary around the Saxton outfall. Whakatu and Airport effects appear to be negligible on the contact recreation areas.

- (c) only immediate area and don't cover the Parkers Cove and Tahunanui Beach recreation areas. The plume in some instances would/does extend to these areas.
- (d) Reports useful to assist in contact recreation risk assessments and in determining beach closures and the best positioning of warning signage and targeted advisories.
- (e) Contact recreation considered only in the NIWA reports, shellfish risk not covered.
- (f) Tahunanui and Monaco beaches are monitored for faecal bacteria as part of NCCs recreational state of the environment monitoring. The results are available on the NCC website.

4. REVIEW OF RELATED MATERIAL – PROCEDURES

- 4.1 Information on procedures from NCC, NRSBU, Nelmac and NMDHB were reviewed and the following comments made.
- 4.2 NCC/NRSBU Section 9; Emergency Procedures Manual, spillage A23029, Sept 2014, describes the following processes:
 - (a) Initial notifications (via automatic alarm or call-centre) key NCC, NRSBU and Nelmac staff. Notification to Environmental Inspections Ltd (NCCs Environmental Health Officers) and Nelson Marlborough District Health Board (NMDHB –Medical Officer of Health and Health Protection Officers). Further notifications to Iwi, TDC, DoC, MAF (this should be MPI);
 - (b) risk assessment undertaken by NCC, NRSBU, Nelmac, EIL and NMDHB;
 - (c) swimming ban refers to Nelmac putting up signage and media release (standard NCC template);
 - (d) any water testing is done by NCC;
 - (e) no ban can be lifted without consultation with the above parties.

- 4.3 Procedure is adequate for notification and initial response to aberrant discharges. The key decision-makers are consulted early and joint decisions made. This is consistent with good practice and its pleasing to see it formalised into the response document.
- 4.4 NMDHB Recreational Water Exceedances (for Bacteria & Cyanobacteria) and Sewage Spill Notification, HPO014, 13 May 2016. This procedure outlines what the NMDHB Health Protection Officers and Medical Officers of Health do and generally follows the procedures that NCC have in place, which is to be expected as they were jointly prepared (pers. com Geoff Cameron). This system of notification and joint collaboration has been in place regionally for many years. As a Health Protection Officer in this region for over 20 years I can confirm that the procedure is in place and operates successfully. I met with Mr Geoff Cameron the Senior Health Protection Officer and author of the NMDHB procedure on 16 Nov 2017 and confirmed that the procedure is current and in place. I sighted a copy of the spill register that NMDHB keep and it lines up with the notified spills recorded in the applicant's material (the data bundle).
- 4.5 As previously mentioned I am a designated HPO in Nelson and throughout New Zealand and as such I have had opportunity to see, and in some cases use, the appropriate DHB response plans. Notification thresholds and processes vary across the country but all plans refer to unplanned sewage overflows and contain details on response that are consistent with the NMDHB and NCC procedures, particularly the risk assessment step. This is also consistent with the advice that the Ministry of Health provide to District Health Boards.
- 4.6 Both the NCC and NMDHB procedures relate to the risk assessment step and give it the necessary importance. The initial risk assessment is one of the key parts of the process as this will dictate the level of response and likely resource requirements. Localised spills can be communicated easier than larger ones which require an escalated response. The time of the year and weather conditions at the time play a major factor in decision making. For example spills in winter and during heavy rainfall have a lesser effect on recreational activities. In all cases the public health decisions are made using the precautionary approach which is appropriate. During the initial assessment the need for signage, public notification and media releases are

all considered. NMDHB and EIL provide the public and environmental health advice and operationally, on the ground, it is Nelmac who put up the signs and carry out the actual clean-up should it be considered necessary.

- 4.7 The Nelmac/NRSBU document “Emergency Procedures -Sewage overflow clean-up. 02/2015” was reviewed. It is a high level instruction of activities that may be required to be undertaken. The practical applications of these activities are outlined in the Nelmac document “Emergency Response Plan. Operation and Maintenance of the Nelson Regional Sewerage System. Contract No.3458, July 2016. Version 3” and supporting documentation. These documents discuss the practical application of repairing sewage infrastructure and responding to spillages and were found to contain an appropriate level of information. Additional detail on the operational and maintenance manuals is covered in Mr Johan Thiar’s evidence.

5. REVIEW OF RELATED MATERIAL -SUBMISSIONS

- 5.1 Submissions were reviewed and were generally in two areas, those opposed to the discharge for health, environmental or infrastructure reasons (approx. 2/3rd) and those from Tahunanui and/or Monaco recreational users. It is unfortunate when an aberrant sewerage discharge occurs and often they cannot be prevented so having an appropriate response is important. Early notification to those in decision making and response roles is one of the key factors. Clear procedures for response, public notification and public health advisories. The general adequacy of the emergency and response plans is covered in the previous section of this evidence. Often monitoring is required after an aberrant discharge however a formalised program as a consent condition would be appropriate. This can assist with clarifying the impacts of discharges when they occur, enable better quality decisions to be made and provide a historical local dataset. Monitoring is often a requirement from the NMDHB to confirm dispersion, if contact recreation areas are closed.
- 5.2 There is a risk from contact recreation in areas subject to a sewage spill as outlined in the guidelines. Therefore it is paramount that the public are advised of issues promptly as appropriate. This may involve large scale media releases down to door knocking and letter box drops. In general, the

response is proportional to the risk and the risk assessment initially undertaken. This has been covered above.

6. REVIEW OF AEE

- 6.1 Relevant parts of the AEE are referred to below. AEE refers to the report “Johnston O 2014. Assessment of environmental effects from accidental wastewater overflow on Waimea estuary receiving environments Prepared for Nelson Regional Sewerage Business Unit (NRSBU). Cawthron Report No.2588”. An addendum to this report (No.2588A) and a further October 2017 Cawthron report (no.3091) Nelson Regional Sewerage Business Unit (NRSBU) aberrational wastewater overflows don’t contradict the original findings as discussed below.
- 6.2 With regard to shellfish risk, Johnston concluded that “Any additional public health risks due to shellfish consumption after an accidental discharge is low, as shellfish harvesting is not recommended in Waimea Estuary”. This is consistent with general public health advice not to gather shellfish for consumption at any time from coastal locations near urban areas. It is not advisable to collect any shellfish from any confined estuary area that are subject to urban or agricultural runoff. This is more due to stormwater and other run off entering the sea that can contain a very high bacterial loading. This includes all locations around the overflow outfalls but the same advice would be present without the outfalls. This is reinforced by the presence of signs along Rocks Rd warning not to take shellfish as a result of the increased risk from stormwater and historical monitoring results. Commercial shellfish are outside the scope of this evidence but the notification to MAF (MPI) would trigger their own notification procedures with potential halts on harvesting if the event is significant enough.
- 6.3 Section 5.1 of the AEE refers to mitigation and concludes that the best option to mitigate ecological effects is to remove visible waste / debris, and allow the discharge to be assimilated by the estuary. Further actions of flushing were also suggested using brackish or freshwater at low flow rates. Use of chemicals was also suggested but with a strong caution included. Again this is consistent with the current approach to spillages in this and many other regions of New Zealand.

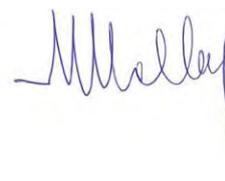
- 6.4 The same section states that overall, short-term contact recreation health and possible shellfish consumption concerns could likely be dealt with through standard signage, monitoring and other public health measures designed to warn recreational water users. This is the general approach currently taken by NCC, NRSBU and NMDHB in the event of sewerage spills (see review of related materials –procedures) and is appropriate.

7. EFFECTIVENESS OF MANAGEMENT STRATEGIES

- 7.1 Keeping people away and preventing access to areas that have been affected by a sewage spill is the most effective way to prevent illness. Signage is effective if placed at the appropriate locations where recreational users enter the water. Signage must be clear as to the expectations. For example, “a temporary ban on bathing is in place”. Over the last few years NCC have placed warning signs around the Collingwood St bridge as a result of elevated bacteria levels in the lower Maitai River at times. In addition, cyanobacteria signage has been used Maitai River advising dog owners of the algae risk to dogs, particularly during low summer flows. These signs have been effective in notifying the public of the potential risk. However signs themselves need to be supported by further information. Some warning or advisory signs contain ‘bar codes’ that can be scanned by most modern phones and it takes the user directly to a supporting website. This should be considered in the future.
- 7.2 Use of other media includes the newspaper, radio and electronic media such as websites and Facebook. The recent campylobacter outbreak in Hastings, the chlorination of the Napier water supply and the typhoid outbreak traced back to shellfish taken from within the Napier marina were all examples of how effective the social media platform can be in disseminating the appropriate information. There were some gaps in the coverage such as the elderly, however it would be expected that signage would be effective for these recreational users.
- 7.3 Some people may not be reached by main stream media and other ways can be considered such as beach patrols, loud halers, letterbox drops and door knocking. These measures are also effective and are important to demonstrate to the public that notification/warning of the event in place has significance. As mentioned previously the local responses are commensurate to the risk.

8. CONCLUSION

- 8.1 A review of the NMDHB, NCC/NRSBU and Nelmac response plans showed they were adequate and fit for purpose. It is good practice to have a system that has appropriate responses and approaches in place rather than react without appropriate resources. It was noted that some of the contact details are out of date.
- 8.2 It should be noted that in many other parts of the country emergency sewage discharge consents are not applied for nor considered and the proactive approach the NRSBU has taken is acknowledged.
- 8.3 There is a potential health risk to the recreational users of Monaco and possibly Tahunanui from large sewage spills however prompt remedial action and public notification will reduce these risks. The precautionary approach to public health is used in all instances.
- 8.4 Faecal bacteria monitoring after a spillage is appropriate and at times required by the NMDHB.
- 8.5 Preventing access to areas where sewage spills have occurred is the most effective way to reduce the public health risk. The use of warning signage, media releases, social media and more hands-on activities such as beach patrols and door knocking are effective in notifying the public of the potential risk. All of these have been considered or used in the past by NCC.
- 8.6 Overall the public health risk from an aberrant sewage discharge from the NRSBU sewage system is likely to be minor. This is based on the NIWA modelling and explanatory reports along with a review of the operational and management practices in place. Should an aberrant discharge occur and the response as outlined in the relevant emergency procedures of the various organisations is undertaken, then the public health risk to the general population and recreational users is considered to be minor.



Matthew James Molloy