
**OPENING STATEMENT OF ANDREW CAMREON MACLENNAN:
HAZ – NATURAL HAZARDS**

- 1 This statement provides an update of my understanding of the key issues related to Chapter 12: HAZ - Hazards and Risk, since I prepared my section 42A report¹ and supplementary evidence² on this topic.
- 2 The matters addressed in this statement of evidence, in relation to each section, are set out below.

Code of Conduct

- 3 I have read and agree to comply with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2023. I have complied with the Code in preparing my evidence. Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Recommended amendments

- 4 To assist the Hearing Panel and signal to the submitters where my views may be changing in response to the evidence, I have included within this statement additional recommendations to provisions. I am conscious that I have not heard questions from the Hearing Panel to submitters, and therefore these views are preliminary and no s32AA assessment has been included to support these changes. A full analysis and s32AA will be provided in the reply report.
- 5 Where I have recommended additional amendments to provisions, my recommendations are shown in addition to my original section 42A recommendations. The key below sets out how these different recommendations are shown.

¹ Chapter 12: HAZ – Hazards and risks (4 May 2022)

² Brief of supplementary evidence of Andrew Cameron MacleNNan – HAZ – Hazards and risks (11 October 2022)

Key to proposed amendments

Appearance	Explanation
Black text	Text as notified.
Black text with <u>underlining</u> or strikethrough	Amendments recommended in section 42A report.
Red text with <u>underlining</u> or strikethrough	Additional amendments recommended in supplementary evidence where there has been no previous amendment to the 'as notified' provision text.
Black text with <u>red underlining</u>	Text that was recommended to be deleted in s42A report but now recommended to be retained ("un-deleted") by supplementary evidence.
Red strikethrough with <u>black underlining</u> .	Text that was recommended to be inserted in s42A report (black underline) but now recommended to be deleted by supplementary evidence (red strikethrough).
Blue text with <u>blue underlining</u> or blue strikethrough	Text that is recommended to be inserted or deleted as part of this summary statement.

- 6 In the same way as the original section 42A report recommendations, the scope for all proposed amendments is included as a footnote in the amended provisions. Where the amendments were recommended in the section 42A report, the supporting explanation is in the section 42A report. Where the amendments are recommended through this supplementary evidence, the supporting explanation is contained in this supplementary evidence.

HAZ-NH – Natural hazards

Scope of Evidence

- 7 In my view, the outstanding issues associated with the HAZ-NZ Natural Hazards chapter can largely be grouped into four main themes:
- 7.1 Management of coastal hazards.
 - 7.2 Infrastructure located in areas subject to natural hazards.
 - 7.3 Amendments to APP6.
 - 7.4 Kaitiaki decision making.
- 8 There is also a range of more discrete issues that have been raised in evidence, such as the methods for monitoring natural hazard risk.

Management of coastal hazards

- 9 Some submitters³ seek clarity within the HAZ-NH chapter as to how coastal hazards are to be identified and managed, and in particular which provisions within HAZ-NH chapter apply to coastal hazards.
- 10 To provide greater clarity as to which provisions apply in the coastal environment and which do not, Ms O’Callaghan for Port Otago has sought additional notes be added to policies: HAZ-NH-P2, HAZ-NH-P3, and HAZ-NH-P4 to clarify that these policies do not apply to any area also subject to coastal hazard risk, which is to be managed by HAZ-NH-P1A and HAZ-NH-P10.
- 11 I agree in part with the intent of the drafting proposed by Ms O’Callaghan. I agree that HAZ-NH-P2, HAZ-NH-P3, and HAZ-NH-P4 do not apply to coastal hazards, as coastal hazards are managed by HAZ-NH-P10. However, there may be ‘non-coastal hazards’ such as fault lines that are located within the coastal environment. These hazards are to be managed by HAZ-NH-P2, HAZ-NH-P3, and HAZ-NH-P4. Given this I disagree any amendments are required.
- 12 Related to this theme, Ms McIntyre for Kāi Tahu notes that coastal communities such as Karitane may be affected by a combination of hazards, for example where river flooding, and coastal storm surges come together. In such locations, she suggests that there could be confusion about when HAZ-NH-P3 and HAZ-NH-P4 apply and when the HAZ-NH-P10 approach would be used.
- 13 HAZ-NH chapter requires⁴ that ‘coastal hazards’ are to be identified accordance with Policy 24 of the NZCPS. With respect to these coastal hazards HAZ-NH-P10 will apply.
- 14 When considering which processes will be included within the identification of coastal hazards, I note that the NZCPS guidance on Policy 24, states⁵:
- ‘There are a number of potential sources of inundation in the coastal environment, including:*
- *storm tides (comprising storm surges, high tides and short-term fluctuations in mean sea level at timescales of seasons to years);*

³ Ms O’Callaghan for Port Otago and Ms Bartlett for Kāi Tahu

⁴ HAZ-NH-P1A and HAZ-NH-M1(2)(c)

⁵<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/guidance/policy-24-to-27.pdf> - page 39.

- *high spring or larger ‘king’ tides*
- *wave set-up and run-up;*
- *short-term fluctuations in mean sea level (seasons to years);*
- *river flooding (which can also be influenced by storm surge and tide conditions);*
- *groundwater (from rising water tables with tidal connectivity);*
- *sea-level rise; and*
- *tsunami (which ride on the back of the sea level at the time of the event).*

Therefore, the combined effect of these sources will need to be considered, including the combined, cumulative effects of sea, river/stream catchment and groundwater influences.’

- 15 Given this, I consider the identification of coastal hazards will ensure the processes that effect coastal inundation will be taken into account when assessing and managing ‘coastal hazards’.

Infrastructure located in areas subject to natural hazards

- 16 Several submitters seek amendments to HAZ-NH-P3(1) to include an exclusion for nationally significant infrastructure that has a functional need or operational need for its location.
- 17 As set out in the s42A⁶ report HAZ-NH-P3 relates to the risk associated with an activity. If the natural hazard risk is significant, the activity is to be avoided. If the activity is undertaken in an area of high risk but given the nature of the activity or the mitigation measures proposed, if the risks associated with the activity are not significant, then the avoid test does not apply. Given this, I disagree any additional amendments are required.

APP6

- 18 Some submitters⁷ seek amendments to the HAZ-NH chapter as they consider methodology in APP6 should not carry any legal weight or set unreasonably low thresholds for determining what is a ‘significant’ natural hazard risk. They

⁶ Para 132

⁷ Realnz, and NZSki

consider natural hazard risk thresholds must be undertaken following a transparent community engagement process into the formulation of the risk.

- 19 I consider the intention of APP6 is two-fold. First and foremost, it is a framework that will be used to inform future plan review processes where community input will ensure that the risk thresholds in district and regional plans are appropriate. Prior to that occurring, APP6 provides a framework for undertaking a risk assessment within resource consent processes. When used in these contexts, I disagree any amendments are required.
- 20 Within its original submission the ORC (Hazards team) sought amendments to Table 8 – Risk Table, seeking either a greater requirement for quantitative risk assessment, or an additional scenario considered a ‘significant’ risk rather than ‘tolerable’ risk.
- 21 Following the pre-hearing conferencing, an amendment was made to step 4 of APP6 that included an additional requirement to undertake a quantitative risk assessment. To highlight visually when a quantitative risk assessment is required, I suggest an additional amendment to Table 8 – Risk assessment, to include hatching when a quantitative risk assessment is required, as follows:

Table 1 – Risk table

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Green	Yellow	Yellow	Red	Red
Likely	Green	Green	Yellow	Hatched	Red
Possible	Green	Green	Yellow	Hatched	Red
Unlikely	Green	Green	Green	Green	Hatched
Rare	Green	Green	Green	Green	Hatched

Green, Acceptable Risk: Yellow, Tolerable Risk: Red, Significant Risk, Hatching: Quantitative assessment required⁸

- 22 Following a meeting with the ORC Hazards Team they confirmed that combination of the change in consequence table, amendments to the quantitative risk assessment trigger, the additional hatching in Table 8, resolves the concerns raised in their submission.
- 23 Mr Kelly for GNS has also suggested an amendment to Limb 3 of Step 1 within APP6, directing which Shared Socio-Economic Pathway (SSP) scenarios or

⁸ 00415.002 ORC

Representative Concentration Pathways (RCP) scenarios should be used as part of the APP6 assessment. I support this suggested change.

Kaitiaki decision making

- 24 Ms McIntyre for Kāi Tahu has sought an amendment to the notified version of HAZ-NH-P11. She notes that the intent of the policy was to provide for rakatirataka in respect to decision-making on Māori land susceptible to natural hazards. Within my s42A report⁹ I recommended that the policy be deleted as I considered there were already pathways for communities, stakeholders, and partners to be included in the assessment of natural hazard risk.
- 25 On reflection, I agree that a redrafted version of HAZ-NH-P11 would support HAZ-NH-M2(1) and HAZ-NH-M5(2), and better align with the direction in the MW and HCV chapters. Following several discussions with Ms McIntyre, Mr Bathgate, and Ms Stevens I am now recommending a two staged approach to the policy, as set out below.
- 26 This recommended drafting aligns with the management approaches taken for native reserves and Māori land in the MW chapter (MW-P4 and MW-M5) and the management of wāhi tūpuna in the HCV-WT chapter (HCV-WT-O2 and HCV-WT-M3). As such, I support the inclusion of the following policy:

HAZ-NH-P11 Kāi Tahu rakatirataka

Recognise the rakatirataka of Kāi Tahu by:

- (a) enabling mana whenua to lead approaches on the management of natural hazards affected native reserves, and Māori land; and
- (b) including Kāi Tahu in decision-making on the management of natural hazards affecting the values of wāhi tūpuna.¹⁰

- 27 In relation to the scope of the suggested amendments, I note that Kāi Tahu's submission on HAZ-NH-P11 sought amendments to the policy to enable mana whenua to exercise kaitiakitaka by 'involving' them in decision making and management processes. In my view, the recommended amendments set out above go beyond the scope within Kāi Tahu's submission point on HAZ-NH-P11. However, Kāi Tahu's submission on the pORPS21 generally sought recognition

⁹ Paragraph 253

¹⁰ 00226.048 Kāi Tahu ki Otago

of Kāi Tahu's rakatirataka¹¹, and specifically sought amendments to MW-P4 to enable Kāi Tahu to protect, develop and use land and resources within native reserves. Given this, I consider the amendments suggested above can be made under the scope provided generally within the Kāi Tahu submission and as a consequential amendment to the relief sought within MW-P4.

Other matters

28 Mr Place for QLDC has correctly highlighted that within my Section 42A report¹², I recommend the inclusion of the following into HAZ-NH-M1(2):

(d) continually monitor natural hazard risk to understand how levels of natural hazard risk change overtime, and where required, update the natural hazard mapping areas identified in 2(b) and (c) above,

29 However, this change was not incorporated in the s42A version of the pORPS21. This was an omission, and I still support this suggested amendment.

HAZ-CL - Contaminated land

Scope of Evidence

30 In my view, the outstanding issues on the HAZ-CL chapter are largely related to four key provisions:

30.1 HAZ-CL-P14 – Managing contaminated land.

30.2 HAZ-CL-P15 – New contaminated land.

30.3 HAZ-CL-P18 – Waste facilities and services.

30.4 HAZ-CL- M8A – Prioritisation and action plans.

HAZ-CL-P14

31 HAZ-CL-P14 aims to manage already contaminated, or potentially contaminated land. The evidence of submitters seeks amendments to this policy to:

- include additional limbs relating to determine magnitude of the adverse effect,
- simplify the direction with the subclauses, and

¹¹ Paragraph 1.14 of Kāi Tahu submission

¹² Para 363

- give greater focus to the avoidance of 'unacceptable risk' rather than the protection of the environment.

32 I retain the view set out in the s42A report.

HAZ-CL-P15

33 HAZ-CL-P15 relates to the avoidance of new contaminated land. Submitters raise concern with the use of the term 'minimise to the smallest extent practicable', preferring variations such as 'reduced, remedied or mitigated' or seeking to exclude particular activities from the policy.

34 Mr Taylor for the DCC has sought an exclusion from the policy for wastewater discharges to land. Mr McCullagh for the Fuel Companies has suggested that the policy be deleted and replaced with a policy that manages hazardous facilities where adequate controls are not provided by other legislation.

35 I largely retain the view that the drafting of HAZ-CL-P15 in the s42A report version is appropriate. However, I support a minor amendment suggested by Ms McIntyre for Kāi Tahu that replaces 'mana whenua' with 'Kāi Tahu' for consistency.

HAZ-CL-P18

36 The Kāi Tahu submissions, and evidence of Ms McIntyre has sought amendments to HAZ-CL-P18 to provide greater clarity as to the adverse effects that must be considered.

37 I note that paragraph 533 of my s42A report I provide commentary on this submission. I state:

It is my opinion that an amendment to the policy is required to ensure that the environmental protection provided by other policies within the pORPS are considered when applying this policy. I consider this amendment should require that the potential adverse effects of the activity are managed to ensure the values of the receiving environment, whether that be a landscape, biodiversity, or Kāi Tahu value, are not compromised.

38 However, no change of this nature is included in the tracked change version of the chapter. On reflection, I consider the architecture of the pORPS21 is such that all the relevant provisions of the document are to be read together and considered on their merits. Given this I consider the relevant environmental or cultural protection provided by other policies within the pORPS21 will be

considered when applying this policy. As such, I disagree any amendment to the policy is required.

HAZ-CL-M8A

39 Following the pre-hearing meetings, I recommended an additional limb be added to HAZ-CL-P14 and a new method be added to the Contaminated Land chapter related to the identification and management of closed landfills and contaminated land at risk from the effects of climate change, in response to a submission from Kāi Tahu. Ms McIntyre for Kāi Tahu has provided further evidence on the methods noting that reference to prioritisation of sites at greatest risk has not been incorporated into the method. I agree that prioritising sites at greatest risk from climate change is a necessary addition. As such I suggest clause 4 of HAZ-CL-M8A be amended to read:

(4) develop and implement action plans to avoid release of contaminants from the identified closed landfills and contaminated land, prioritising sites at greatest risk, and



Andrew Cameron MacLennan

25 April 2023