

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application to the **BAY OF PLENTY REGIONAL COUNCIL** by **NGATI TŪWHARETOA GEOTHERMAL ASSETS LIMITED** for a change to the conditions of a resource consent (67151) that authorises the discharge of geothermal water from the eastbank of the Tarawera River

**STATEMENT OF EVIDENCE OF BLAIR CAMPBELL MCLEAN
PLANNING**

1.0 INTRODUCTION

- 1.1 My name is Blair Campbell McLean. I am a Senior Planner at Enspire Consulting Limited ('Enspire'), a consultancy that provides environmental, planning and process management services and advice. I have worked at Enspire since May 2019.

Qualifications and experience

- 1.2 I hold the following qualifications:
- a. Bachelor of Science (Development Studies, French, Geography) from Victoria University of Wellington (2015); and
 - b. Master of Humanities and Social Sciences (Urban Development and Public Policy) from the Université Jean Monnet de Saint-Etienne in France (2018).
- 1.3 I am an associate member of the New Zealand Planning Institute. I intend to seek full membership as soon as I am able to do so. I am also a member of the Resource Management Law Association.
- 1.4 I have attached, as **Annexure A**, my professional curriculum vitae. It lists, amongst other things, the resource management processes that I have led or have been involved in.

Involvement in the Proposal

- 1.5 Enspire was engaged by Ngāti Tūwharetoa Geothermal Assets ('**NTGA**') in February 2020 to assist it with the advancement of the Consent Condition Change Project ('**the Proposal**'). I was involved in and undertook the following tasks:
- a. The preparation of the Assessment of Environmental Effects report ('**AEE**') lodged by NTGA. As part of this, I reviewed the numerous technical reports that were prepared to inform the design of the Proposal, and to assess the Proposal's impacts on the environment;
 - b. Reviewing the submission lodged in opposition to the NTGA resource consent application;

- c. Reviewing the evidence of the parties that have prepared evidence as part of NTGA's case in these proceedings;
 - d. Reviewing the report prepared by Mary Pappon for the Bay of Plenty Regional Council ('the Council' or 'BOPRC');
 - e. Attending some, but not all of, the meetings that NTGA has undertaken with the Council, the Council's experts, and Tangata Whenua; and
 - f. Proposing an amended suite of proposed conditions for the Proposal.
- 1.6 I have visited the site as part of a briefing and exercise undertaken with BOPRC personnel. This included a visit to:
- a. The East Bank discharge point ('EBDP') and the Serpentine Channel, which is the subject of this application to change resource consent conditions; and
 - b. The West Bank discharge point ('WBDP') and the Umupokapoka Lagoon and Savage Pools, the discharge from which is not the subject of the Proposal.

Purpose and scope of evidence

- 1.7 Sections 5 and 8 of the AEE address the statutory framework under the Resource Management Act 1991 ('the Act') and I do not duplicate that information here. Rather, this brief of evidence considers the Proposal against:
- a. The relevant statutory planning instruments. In that regard, I agree that the instruments identified in the s42A report accurately identify those documents.
 - b. Addresses two planning matters that are of relevance to defining the 'existing environment'.
- 1.8 I have also assessed the Proposal against any matters that may be considered relevant under Part 2 of the Act. In doing so, I am not questioning the manner in which the various regional planning instruments have been prepared, or suggesting that there is an area where the policy framework is incomplete or contradictory. I have completed that analysis in the event that the Commissioners consider that Part 2 is relevant to their consideration of the Proposal, even under section 104(1)(c). My analysis is summarised in **Annexure C** to this evidence.
- 1.9 The AEE (section 5), and the Memorandum provided to Mrs Pappon on the 30th of October ('**NTGA Consent Change Application - NPS-FM and NES-FW Considerations**'), contain a detailed assessment of the planning instruments as they existed at the time NTGA's application for a change of conditions was lodged. I do not repeat that detail in my evidence. Rather, I discuss what I consider to be the most applicable planning instruments. While that discussion is drawn from the AEE, it has been extended to address the information¹ that has become available following the lodgement of the resource consent application on the 24th of April 2020, including the evidence of NTGA's expert witnesses and the submission to the Proposal from Te Runanga o Ngāti Awa ('**TRoNA**').

¹ Which includes the outcomes of the requests for further information from the Council, the response to Te Runanga o Ngāti Awa's submission lodged to NTGA's resource consent applications, the proposed conditions of consent, an assessment against the National Policy Statement for Freshwater Management 2020 and National Environmental Standards for Freshwater 2020, and Mrs Pappon's section 42A report to this committee

1.10 My evidence is structured as follows:

- a. Section 2.0 provides a summary of my evidence;
- b. Section 3.0 outlines the Context for and Background to this Application;
- c. Section 4.0 outlines the existing environment, the relevant Statutory Acknowledgements, and the matters addressed in TRoNA's submission;
- d. Section 5.0 outlines four statutory planning instruments that are, in my opinion, of particular relevance to the Proposal;
- e. Section 6.0 assesses the Proposal against the applicable provisions of the National Policy Statement for Freshwater Management 2020 ('NPS-FM');
- f. Section 7.0 assesses the Proposal against the applicable provisions of the Bay of Plenty Regional Policy Statement (the 'RPS');
- g. Section 8.0 assesses the Proposal against the applicable provisions of the Bay of Plenty Regional Natural Resources Plan (the 'RNRP');
- h. Section 9.0 assesses the Proposal against the applicable provisions of the Tarawera Regional Catchment Plan (the 'TRCP');
- i. Section 10.0 assesses the Proposal against the Kawerau Geothermal System Management Plan (the 'KGSMP');
- j. Section 12.0 summarises my assessment of the Proposal against Part 2 of the Act;
- k. Section 13.0 provides a summary of the proposed changes to the conditions of consent that have been developed by the team at NTGA in consultation with the team of experts that assisted in the development of this application for resource consent; and
- l. Section 14.0 provides a discussion regarding an appropriate time frame for the extension.

1.11 The AEE and the evidence of NTGA's expert witnesses provides a comprehensive summary of the environmental effects of the Proposal. I do not address those effects separately but rather in the context of my assessment of the provisions of the relevant planning instruments. In doing so, I discuss NTGA's evidence, the AEE, the single submission on the Proposal, and Mrs Pappon's assessment.

Expert Witness Code of Conduct

1.12 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note (2014) and I agree to comply with it. In that regard, I confirm that this evidence is written within my expertise, except where I state that I am relying on the evidence of another person. I also confirm that I have not deliberately omitted to consider material facts known to me that might alter or detract from the opinions expressed. I also acknowledge that my overriding duty is to impartially assist the Committee's consideration and assessment of the Proposal.

2.0 SUMMARY OF EVIDENCE

NPS-FM

- 2.1 The Proposal will be managed in a way that accords with the three priorities of the NPS-FM's single objective. In this regard I am of the opinion that the Proposal does not run counter to the NPS-FM's priorities. Put succinctly, I am of the opinion that a very minor improvement in water quality (with very minor ecological benefits) does not trump the need to enable people and communities to provide for their social, economic and cultural wellbeing. The Proposal will see the environmental improvement delayed until when it is, I understand, practicable to do so, and in a manner that will allow social, economic and cultural wellbeing of the local population to be provided for.
- 2.2 Similarly, I am of the opinion that the Proposal is consistent with the policies of the NPS-FM. While not offering direct 'protection' of habitats and ecosystems, or 'improvement' of the quality of water bodies, I consider that the magnitude of effects on the water quality of the Tarawera River as analysed by Dr Hicky shows that the EBDP discharge to be consistent with the outcomes sought by the policies. In this regard, I record that the status quo will be maintained, there will be a no more than minor or less degree of adverse effect on the river water quality, and the Proposal will allow the applicant to continue to provide for the social, economic and cultural wellbeing of its owners and the local population.
- 2.3 An outstanding cultural matter appeared to limit full consistency with the principles of Te Mana o Te Wai which are in the NPS-FM in that TRoNA objected to the continued discharge from the EBDP in their Cultural Effects Assessment and Submission. However, based on the evidence of Amorangi Te Rire and Mrs Adlam regarding Ngāti Tūwharetoa, and the recommendations of Mr Milner regarding bridging the position of Ngāti Tūwharetoa with that of TRoNA, I am of the opinion that adverse effects are able to be resolved through the ongoing tikanga process. Accordingly, I view that Te Mana o Te Wai has had a central place in the process and is being provided for based on the magnitude of effects, and the involvement of tangata whenua in decision making. The policy guidance in the NPS-FM relating to Te Mana o Te Wai is helpful in addressing the kaitiakitanga chapters of the RPS and RNRP.

RPS

- 2.4 The most relevant chapter for this application is the Geothermal Resources ('GR') chapter. In my opinion, the Council planner has adopted an overly literal approach to the interpretation of the GR Chapter of the RPS which has resulted in the author adopting a view that cessation of the surface discharge in favour of reinjection is necessary to satisfy the direction advanced in the RPS. However, the RPS only establishes a policy preference in that regard, not a hard and fast requirement. In this regard I note the following:
- a. The RPS encourages reinjection to avoid adverse effects. Dr Burnell has concluded in his evidence that sustainability of the KGF will be continued should the Proposal be approved², and any underlying uncertainty regarding subsidence effects has been removed³.
 - b. The RPS requires consistency with the KGSMP discharge strategy. The KGSMP contains a clear policy preference for reinjection, but that is not hard and fast requirement in all cases. In this respect, the strategy sets out a number of principles that advance a preference for discharge via reinjection as part of sustainable management of the system. Although the principles are, I understand, to be considered as part of any review of resource consent conditions, the KGSMP also states that *"Due to historical decisions, current discharge practices do not (and cannot easily) reflect all of the*

² Burnell evidence, paragraph 2.3

³ Burnell evidence, paragraph 6.23 and 6.24

principles”⁴. I consider that this demonstrates an approach that requires a degree of flexibility and adaptability.

- 2.5 When considering whether something can be implemented as a best practicable option (‘BPO’) (in this case discharge via reinjection), regard must be had to:
- a. the nature of the discharge and sensitivity of the environment;
 - b. the current state of technical knowledge and the likelihood that the option can be successfully applied; and
 - c. the financial implications and effects on the environment of that option compared with other options⁵.

Dr Hickey and Mr Chilton have concluded that the effects of the Proposal will not cause more than minor adverse effects on the river, and negligible air quality and odour effects. Dr Burnell’s evidence is that reinjection is important for the sustainability of reservoirs is generally a valid statement⁶, but that that in this case it is not required⁷. However, Mr McClintock, Mr Osborne and Mrs Adlam have raised significant commercial, economic and social concerns that lead me to the opinion that it is important to view the process with a wider lens: that of the effect on the environment which includes social; cultural; and economic effects.

RNRP

- 2.6 The chapters of the RNRP advance a similar message to the RPS regarding a preference for discharge of geothermal fluid to ground via reinjection, however no directive objective or policy requires the same. Policy GR P6 provides the most helpful guidance in this regard, as it sets out how to manage the discharge of geothermal water according to the three scenarios included under table GR 3:
- a. Where the discharge is into the resource from which it was extracted; or
 - b. Discharge of fluid to a surface or groundwater body that is geothermally or naturally influenced by geothermal inputs; or
 - c. If the effect on the environment is minor.

Dr Hickey’s evidence outlines the significant geothermal influence⁸ on the Tarawera River, and it has also shown that any adverse water quality and ecological effects caused by the Proposal are expected to be minor. While not consistent with the first scenario, the Proposal is consistent with the remaining two.

TRCP

- 2.7 The main thrust of the TRCP is to improve the water quality of the Tarawera River, which can be partly achieved by encouraging reinjection of geothermal fluid and ceasing surface discharges. I consider that the Proposal is consistent with this policy direction, despite prolonging the discharge to the river and essentially delaying an expected

⁴ KGSMP, Section 7.4.2, page 49.

⁵ Section 2(1) of the RMA: Best Practicable Option: the best method for preventing or minimising adverse effects on the environment while having regard to: a. The nature of the discharge and sensitivity of the receiving environment; b. The financial implications and effects on the environment when compared with other options; and c. The current state of technical knowledge and ability to successfully apply the option.

⁶ Burnell evidence, paragraph 7.2

⁷ Burnell evidence, paragraph 7.4

⁸ Hickey evidence, section 3, pages 9-10

improvement in water quality, due to the overall effects of continuing the discharge on the river, the ecosystems it supports, and its cultural importance to Ngāti Tūwharetoa.

- 2.8 An equally important policy direction is that advanced in chapter 7: Community Attitudes and Perceptions. It directs that the social and economic wellbeing of people and communities shall be considered when making decisions regarding the management of the Tarawera River. The expert evidence commissioned by NTGA has shown that there is no compelling need for the removal of the EBDP discharge from the river. Accordingly, a “win-win” can be achieved which would balance the economic and social wellbeing of local people, with the maintenance of the minor or less adverse effect on the river, with a view for improvement when industry is able to adjust.

Conditions

- 2.9 Dr Hickey has proposed a suite of conditions in response to the Officer’s recommended conditions. Both sets are similar in that further monitoring will be undertaken by NTGA. Should effects be more than minor, NTGA will be required to propose solutions to remedy the effects to an appropriate level, and enhanced review conditions. The key differences are firstly the frequency of monitoring recommended by the Officer compared to Dr Hickey. Secondly, the wording used by the officer such as “to quantify” effects and risks is not appropriate considering Dr Hickey’s evidence, which I consider to have already quantified effects and risks.

Timeframe of the extension

- 2.10 The timeframe of the extension sought is 14 years, or specifically, the EBDP to continue until the 1st of January 2035. The Officer recommended a timeframe of only two years based on BPO’s available, policy guidance, NTGA’s past record, and to maintain an eye for caution and uncertainty.
- 2.11 I disagree with this recommendation based on NTGA’s expert evidence which has shown that adverse environmental effects will be, at worst, minor (and consequentially any environmental improvements achieved by reinjecting will be very small); NTGA having demonstrated efforts to increase reinjection; important economic challenges that need to be considered when determining BPO’s; and the flexibility present in the policy direction that in my opinion provides for continued surface discharges in certain circumstances.

3.0 CONTEXT AND BACKGROUND

- 3.1 NTGA has lodged an application (under section 127 of the Act) to change the conditions of Discharge Consent (‘RC67151’), which was granted by the Council in January 2016. RC67151 allows spent geothermal fluid (or ‘SGF’) to be discharged to the Tarawera River at two locations:
- a. The West Bank Discharge Point (‘WBDP’); and
 - b. The East Bank Discharge Point (‘EBDP’).
- 3.2 Condition 2.0 of RC67151 requires the overall discharge volume to decrease by the 1st of January 2021, and condition 3.2 stipulates that discharges shall only occur via the WBDP from that date (other than in contingency circumstances). Several other conditions refer to the 1st of January 2021 as a consequence. RC67151 will expire on the 31st of December 2050.
- 3.3 An application was lodged with the Council on the 24th of April 2020, to change conditions 2.0, 3.2 and other consequential conditions of RC67151. In summary, the changes would

defer reinjection for 14 years, and authorise NTGA to continue to discharge SGF into the Tarawera River via the EBDP for this same period.

- 3.4 The initial reason which necessitated a change to conditions was due to commercial and scientific considerations. These considerations are set out within the evidence of Mr McClintock⁹, and supported by the evidence of Mr Osborne. Upon further consultation with Amorangi Te Rire, Mrs Adlam and the rest of the NTST trustees, it was evident that there were also a number of cultural reasons why the EBDP flow should remain in place. I will not repeat those details as they were discussed in detail in Mr McClintock's evidence, Mr Milner's evidence, and the evidence of Amorangi Te Rire¹⁰ and Mrs Adlam¹¹.

4.0 EXISTING ENVIRONMENT, STATUTORY ACKNOWLEDGEMENTS

Existing environment

- 4.1 The s42A report and expert evidence addresses the existing environment within and adjacent to the area that is the subject to the Proposal (including both the geothermal reservoir and the Tarawera River and its surroundings). Details of the existing environment are also set out within sections 3.0 and 6.1 of the AEE. I have updated the analysis of the extant consent and permitted baseline exercises reflected in the AEE. My findings in this regard are outlined as follows:

- a. I have revisited the permitted baseline analysis as a consequence of the National Environmental Standards for Freshwater ('NES-FW') coming into effect on the 3rd of September 2020. Having done so I note that there are no permitted activities within that document that are of relevance to this Proposal. Mrs Pappon shares this opinion¹². I therefore consider that there is no change to the original findings of the permitted baseline analysis presented in section 6.1 of the AEE that no permitted baseline applies to this Proposal.
- b. I have also revisited my analysis of the extant consents that exist, and that would need to form part of the existing environment. I originally completed that analysis prior to lodging the resource consent application for the Proposal. When I repeated my original analysis, I identified two further relevant resource consents that have been granted since the lodgement of the applications for the Proposal (or were not captured as they fell outside the original area of interest).

- 4.2 I now summarise those two resource consents:

- a. RM19-0181 authorises a discharge of stormwater to the Tarawera River at Firmin Field, Kawerau. The discharge point is located approximately 3.84km upstream of the EBDP. The stormwater is sourced from the internal roading network of a residential development, along with overflow from the existing stormwater system during high rainfall events.

I am advised by Jason Laurent, Senior Regulatory Compliance Officer at BOPRC that this consent was implemented by the consent holder on the 20th of November 2019. As a consequence, any discharge has been part of the existing environment since that date. I understand the evidence of Dr Hickey to be that this discharge does not alter the receiving environment for the Proposal or cause his conclusions to be altered.

- b. RM19-0559 is a suite of resource consents that authorise damming and diversion of an unnamed tributary of the Tarawera River for the removal of old culverts and the

⁹ McClintock evidence, sections 4 and 5, paragraph 7.4.

¹⁰ Te Rire evidence, paragraph 6.3.

¹¹ Adlam evidence, paragraphs 1.12, 4.8.

¹² Pappon, section 5.

installation of new culverts, the temporary discharge of sediment contaminated water during construction, deposition of rock rip rap, and stream realignment of the unnamed tributary of the Tarawera River. The works are located at River Road and Cobham Drive in Kawerau, approximately 4.2km upstream of NTGA's EBDP. This suite of resource consents authorises the discharge of Total Suspended Solids ('TSS') resulting in turbidity effects on water quality. I note that the resource consent relates only to temporary effects associated with the installation of the culverts. My understanding of Dr Hickey's evidence is that NTGA's discharge does not contain TSS, or cause TSS in the river to be elevated. The Council's records indicate that this resource consent was given effect to on the 20th of October 2020 and that the works have been completed. With the completion of the works, I understand that any discharge is unlikely to be continuing. I therefore consider that this consent is of limited, if any, relevance to assessing the Proposal.

- 4.3 Given the foregoing, I am of the opinion that the two additional resource consents do not alter, to a material extent, the existing environment or cause a change in the Proposal's actual or potential environmental effects.

Statutory acknowledgements

- 4.4 Ngāti Tūwharetoa hold a Statutory Acknowledgement (or 'SA') over the Kawerau Geothermal Field and over the Tarawera River. Ngāti Awa hold a Statutory Acknowledgement over the Tarawera River. Ngāti Rangitihi will soon also hold a statutory acknowledgement over the Tarawera River as soon as the Ngāti Rangitihi Claims Settlement Bill (introduced to Parliament on the 23rd of March 2021) is given the Royal assent. This recognition clearly shows that the Tarawera River is highly valued by three Tangata Whenua groups. I have been very mindful of that recognition as I advanced my analysis of the Proposal.

5.0 STATUTORY PLANNING INSTRUMENTS

- 5.1 In the following sections I address the relevant statutory planning instruments. I have addressed, either within the main body of this evidence or in annexures, the objectives, policies, assessment criteria and methods that I consider to be of relevance to the Proposal by reference to provisions of each planning instrument.
- 5.2 No national environmental standards('NES'), and no other regulations are relevant to this Proposal. The only possible NES of relevance, being the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 ('NES-FW'), was considered in the 30th of October memorandum. The only regulations in the NES-FW that could have been potentially relevant to this Application related to Subpart 1 - Natural Wetlands. However, as described in the memorandum by Dr Shaw, there were no natural wetlands that would be affected by the discharge¹³. As a consequence of Dr Shaw's advice, I am of the opinion that the NES-FW is not relevant. I am also of the opinion the New Zealand Coastal Policy Statement is not relevant to the Proposal. It appears that Mrs Pappon shares these views¹⁴.
- 5.3 The evidence that follows will therefore address the relevant provisions in the documents listed below:
1. the National Policy Statement for Freshwater Management 2020 ('NPS-FM');
 2. the Bay of Plenty Regional Policy Statement 2014 ('RPS');
 3. the Bay of Plenty Regional Natural Resources Plan 2008 ('RNRP');

¹³ Regulation 54 therefore does not apply

¹⁴ Pappon, section 5, page 6

4. the Tarawera River Catchment Plan 2014 ('TRCP'); and
5. The Kawerau Geothermal System Management Plan ('KGSMP')

6.0 NPS-FM 2020

- 6.1 The NPS-FM 2020 supports improved freshwater management in New Zealand. The role of Tangata Whenua in freshwater management is, in my experience, increasing rapidly and changing at pace. As a nation, work is being advanced to understand how to recognise and provide for Te Mana o Te Wai when processing applications that utilise freshwater resources or impact upon those resources.
- 6.2 The NPS-FM 2020 and accompanying National Environmental Standard have been released and came into force on the 3rd of September 2020.
- 6.3 The NPS-FM 2020 sets expectations as to what regional councils and territorial authorities are required to do to uphold Te Mana o Te Wai, protect the mauri of the water, and restore and preserve the balance between the water, the wider environment, and the community. This is to include developing long-term visions, identifying values and setting environmental outcomes for freshwater in their regions and including these things as objectives in their regional policy statements or regional plans.
- 6.4 In addition, the NPS-FM directs regional councils to set environmental flows and levels and identify take limits. It also states that monitoring must occur in a manner which encompasses mātauranga Māori. The operative Bay of Plenty RPS and regional plans have not yet been updated to reflect the recent version of the NPS-FM 2020.
- 6.5 The Proposal was assessed against the NPS-FM 2014 (2017 amendment) at the time of lodgement, and an updated assessment was provided to the Council Officer following the gazettal of the NPS-FM 2020. Since that time, I have revisited the policy framework in light of the further information provided by NTGA, the submission in opposition from TRoNA, the Officer's report and the expert evidence of those assisting NTGA. I now summarise my findings.

NPS-FM Objective

- 6.6 With regard to the sole objective, I understand that the NPS-FM 2020 ensures that natural and physical resources will be managed to prioritise:
 - a. in the first instance, the health and wellbeing of water bodies and freshwater ecosystems;
 - b. secondly, the health needs of people; and
 - c. thirdly, the ability of people and communities to sustainably provide for their social, economic and cultural well-being.

Priority One: Health and Wellbeing of water bodies

- 6.7 I consider that the Proposal has prioritised the health and well-being of the Tarawera River and its associated ecosystems. I acknowledge that by continuing a point source discharge into a river, it appears to run counter to prioritising the associated health and well-being of the river. However, having reviewed Dr Hickey's evidence, I understand that the EBDP discharge will have effects on the river that are considered to be scientifically acceptable for the water quality and ecosystems that are present in the

Tarawera River¹⁵. I therefore consider that the health and well-being of the river will not be further degraded.

- 6.8 Dr Hickey presented additional information regarding the significant natural geothermal inputs which enter the Tarawera River from the Lake and all along the river, including from the Onepu thermal area. He notes that these natural flows around Kawerau have now declined compared to historical levels. There are a number of causes including downcutting of the river and development of the KGF. The present EBDP represents a replacement of these inputs, albeit via an artificial point source discharge.
- 6.9 Dr Hickey also stated that *“the discharge is composed only of geothermal fluids and no additional chemical components - so are largely comparable with the natural geothermal inputs”*¹⁶.
- 6.10 Given this evidence, I understand that the discharge via the EBDP is at worst having minor adverse ecological and water quality effects. This outcome is aligned, in my opinion, with the prioritisation of the health and wellbeing of the Tarawera River, its water quality and the ecosystems within it.

Priority Two: Health Needs of People

- 6.11 Dr Hickey’s evidence outlines the effects on the health and wellbeing of people who consume eel, shellfish and watercress and practice recreational activities on the Tarawera River. It included toxicology and species sampling analysis, a receiving water effects assessment for geothermal contaminants, and an analysis of existing resource consents with the following results:
- a. Concentrations of tissue mercury and arsenic in these wild caught foods were all below relevant standard consumption guidelines¹⁷;
 - b. The limited exceedances of recreational guidelines downstream of the NTGA discharges would not significantly limit undertaking recreational activities¹⁸; and
 - c. There are no consented takes for the purpose of supplying drinking water for humans downstream of the NTGA discharges. This suggests to me that the Proposal will not affect human health, although I accept that some could take water under the permitted activity rules for this purpose. I am not aware of this occurring, and it would seem improbable, in my opinion, given the river’s historic pollution and the way it is viewed by most¹⁹.
- 6.12 Given the foregoing, I am of the opinion that the Proposal does not represent any risk to human health.
- 6.13 Given the significance of human health considerations, I consider it appropriate that a precautionary approach be adopted by NTGA. The Proposal responds appropriately to this by offering a programme of further monitoring (of eels and watercress) as a condition of consent. If the monitoring programme shows that adverse effects are more than minor, then an additional condition²⁰ requires NTGA to provide management proposals to ensure any such effects are reduced so that they are no more than minor. In addition, a new review condition is proposed²¹ which will enable Council to assess whether changes

¹⁵ Hickey evidence, paragraph 15.3

¹⁶ Hickey evidence, paragraph 2.2

¹⁷ Hickey evidence, 2.8

¹⁸ Hickey evidence, paragraph 9.2

¹⁹ Hickey evidence, 2.9

²⁰ Proposed condition 11.3

²¹ Proposed condition 18.1(e)

to the conditions of consent, including changes to the discharge volume and or contaminant limits from the East Bank, are required to reduce any adverse effects within 6 months of receiving the aforementioned monitoring programme.

- 6.14 A detailed health risk assessment will also be undertaken on a five-yearly basis, taking into consideration the eating habits of the local population. This additional investigation is proposed as a precautionary measure to support Dr Hickey's assessment of the 2009 watercress survey, the 2019 eel survey, and the 2017 to 2019 water quality monitoring that have reported acceptable concentrations of geothermal contaminants in shellfish, finfish/eels and watercress. Such monitoring should, in my opinion, ensure that Dr Hickey's effects projection is correct and maintained for the length of the extended EBDP discharge, or it will enable action to be taken to ensure that the effects are aligned with Dr Hickey's opinions.
- 6.15 Changes to the conditions of consent are proposed to reflect these proposals. See section 13 and **Annexure B** of this evidence.

Priority Three: Social, Economic and Cultural well-being

- 6.16 The third priority is the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future. Should NTGA's application to defer injection be declined, it may result in some Tangata Whenua groups being able to provide for their cultural well-being (in this instance, TRoNA). However, others may not be able to do so (Ngāti Tūwharetoa). It is, in my opinion, a challenging situation.
- 6.17 With regard to NTGA and its owners and beneficiaries, I understand the expert evidence of Mr McClintock²² and Mr Osborne²³ to be that the Proposal provides for the continued development and use of the KGF by NTGA. This use provides for the economic and social wellbeing of not only the Company, but its owners and the beneficiaries of the Ngāti Tūwharetoa (BOP) Settlement Trust, who I understand are the members of Ngāti Tūwharetoa ki Kawerau.
- 6.18 The maintenance of the cultural wellbeing of Ngāti Tūwharetoa and the intrinsic link that exists between them and their geothermal taonga is another important consideration. The cultural values expressed in Amorangi Te Rire²⁴ and Mrs Adlam's²⁵ evidence is to the effect that by continuing to discharge geothermal fluid into the river, the mauri of the wai is being protected and replenished.
- 6.19 I consider that the written approval provided by Ngāti Rangitihi can be interpreted as acceptance that the Proposal will not adversely affect its cultural, economic and social well-being.
- 6.20 A key concern for TRoNA is the disposal of contaminants into natural waterways and mixing of water from different sources. I acknowledge that this issue needs to be assessed, as it presents a challenge in terms of the policy framework. The important point to note is that the river is naturally subject to geothermal inputs and that these have reduced over time naturally and as a result of the development of Kawerau's geothermal resources²⁶.
- 6.21 I acknowledge that the discharge from the EBDP is an artificial input which leads it to be considered as a separate water source by TRoNA. However, as identified in Dr Hickey's

²² McClintock evidence, paragraph 4.10, 4.11, 4.12

²³ Osborne evidence, paragraph 5.11, 5.12, 5.13

²⁴ Te Rire evidence, paragraphs 3.10, 6.3

²⁵ Adlam evidence, section 4

²⁶ Hickey evidence, paragraph 3.5, 3.6, 3.7

- evidence, (along with that from Mrs Adlam and Amorangi Te Rire²⁷), the river has always had geothermal inputs. In this regard, I understand that the KGF and the Tarawera River are part of one hydrogeological system, with each natural resource influencing the other.
- 6.22 Further, the water monitoring and mixing zone studies have shown that the quality and temperature of the discharge do not adversely affect the water quality attributes of the river.
- 6.23 Dr Hickey states that *“The NTGA wastewater discharges are composed only of geothermal fluids with no additional chemical components - so are largely comparable with the natural geothermal inputs”*.²⁸
- 6.24 It is my understanding that TRoNA is concerned that the continuation of the discharge will affect the mauri of the river. I am of the opinion that NTGA has, to the best of its abilities, commissioned research into these matters, albeit via ‘western science’, in an effort to address these concerns. The available science suggests that any effects will be minor in nature and will be temporary, given their composition and because they will be removed from the river in a reasonable timeframe, however this does not necessarily mean that there are no adverse cultural effects. I understand that both Ngāti Tūwharetoa and Ngāti Rangitihi have accepted this advice, whereas TRoNA has not.
- 6.25 Additionally, while not part of this Proposal, I consider that it is important for me to highlight that the WBDP discharge sustains the Umupokapoka Lagoon and the Savage Pools, the only geothermal surface features in the vicinity of the NTGA site. The retention of this discharge accords with TRoNA’s submission that surface geothermal features be protected. The WBDP sustains, and thus protects, those features. NTGA has also accepted²⁹ the advice of Dr Hickey³⁰ that construction of a silica terrace for the East Bank discharge to flow over be considered as an additional geothermal surface feature that also improves water quality.
- 6.26 NTGA has engaged with TRoNA on several occasions to better understand its concerns, and to see what can be done to resolve them. Unfortunately, agreement has not been possible at this stage, with some meetings postponed with little to no notice to NTGA. This has left me in the position of having to work with the available information to reach and offer the opinions I have. Given Dr Hickey’s response to each of TRoNA’s submission points, I consider that it is possible for the Proposal to be advanced in a manner whereby the cultural well-being of Ngāti Awa is acknowledged and addressed to the best of NTGA’s abilities. Ultimately, however only TRoNA is able to advise the Hearing Panel whether its cultural concerns have been addressed. At this stage, this appears to be the only inconsistency with the third priority that requires further consideration.
- 6.27 Mr Milner was engaged to assist the process of resolving the outstanding concerns of TRoNA. Mr Milner stresses that evidence is not intended to disregard or trample the mana of any group by being overly prescriptive. It is to support and acknowledge the connection that multiple groups have to the Tarawera River, and help facilitate the process only. Mr Milner has presented recommendations in his evidence that can be used as a foundation on which resolution of outstanding issues can be resolved. This includes ongoing ‘tikanga based’ discussions between TRoNA and NTST³¹, which may lead to a Cultural Monitoring Plan such as the Waka Hourua model³², and even a relationship

²⁷ Te Rire evidence, paragraphs 3.10, 6.3

²⁸ Hickey evidence, paragraph 2.2

²⁹ McClintock evidence, paragraph 5.11 and 5.12

³⁰ Hickey evidence, paragraph 2.11(a)

³¹ Milner evidence, section 4

³² Milner evidence, paragraph 5.4

agreement³³. Ultimately though, it is up to NTST and TRoNA to determine if these recommendations are appropriate or even necessary.

- 6.28 Based on the progress made so far, and the anticipated outcomes of the whakawhanaungatanga approach, I consider that the cultural wellbeing of TRoNA is also being provided for.

NPS-FM Policies

Te Mana o te Wai

- 6.29 Te Mana o te Wai is described in the NPS-FM as a fundamental concept that incorporates six principles that are listed in the NPS-FM.
- 6.30 Policies 1 and 2 address:
- a. The requirement to give effect to Te Mana o te Wai;
 - b. the involvement of Tangata Whenua in managing freshwater; and
 - c. the identification and provision for Maori freshwater values.
- 6.31 Subpart 3 of the NPS-FM addresses implementation of the NPS-FM. Clause 3.2(1) requires regional councils to *“engage with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region.”* Clause 3.2(3) requires regional councils to include an objective in regional policy statements describing how Te Mana o te Wai will be given effect to. Clause 3.3 sets out requirements regarding developing long-term visions for freshwater, which must be developed through engagement with communities and tangata whenua. There are numerous other provisions in subpart 3 regarding implementation. I have noted the above ones in particular because the BOPRC has not yet implemented the NPS-FM insofar as determining how Te Mana o te Wai applies to freshwater bodies and has not developed any long-term visions for any freshwater bodies to give effect to the NPS-FM. Given the need for engagement with the community and tangata whenua regarding these matters, I consider that it will be some time before regional planning documents are updated to give effect to Te Mana o te Wai and include long-term visions to give effect to the NPS-FM.
- 6.32 As a result, what Te Mana o te Wai ultimately means for freshwater bodies in the region and how it is applied are yet to be determined for the Tarawera River and every other freshwater body in the region. Despite this, I provide some comments below on Te Mana o te Wai based on the evidence and information available to me.
- 6.33 Te Mana o Te Wai promotes both the involvement of tangata whenua in decision making and in determining the values of freshwater bodies which prioritise the health and wellbeing of the wai. I am of the opinion that both of these aspects of Te Mana o Te Wai are being achieved in this instance. In this regard, tangata whenua (being the holders of Statutory Acknowledgements over the river and the KGF) were engaged with in the development of this Proposal and post the lodgement of the Application³⁴. This included a meeting between TRoNA and NTST trustees; followed by the production of a cultural effects assessment by TRoNA, which was used to articulate their concerns and position on the Proposal; and organising multiple planned meetings between technical project staff of NTGA and representatives of TRoNA, however these were unfortunately unable to run due to cancellation by TRoNA.

³³ Milner evidence, paragraph 4.8

³⁴ Mr McClintock, appendix 2

- 6.34 The NAEP was considered when producing the AEE. This exercise resulted in renewed efforts to engage with TRoNA in the hope that its issues could be addressed.
- 6.35 Ngāti Rangitihi and Ngāti Tūwharetoa provided letters of support for the Proposal. I take this to mean that both were satisfied that the Proposal, and NTGA's engagement over the same, were satisfactory.
- 6.36 TRoNA's submission does not directly discuss the concept of Te Mana o Te Wai, but does refer to it in the last paragraph on page 2 of the submission. The submission focusses on water quality, effects on the mauri of the river, and effects on mahinga kai resources. My reading of TRoNA's submission with respect to the mauri of the river is that the mauri (life supporting capacity) has to be sustained for future generations and that the Proposal does not improve the water quality of the river and, as a result, will have an impact on its mauri.
- 6.37 With regard to the alleged adverse effects of the Proposal on cultural values, I note that TRoNA's submission states that the Proposal will not prioritise the health and well-being of the river and that it will adversely impact on the mauri of the river.
- 6.38 Dr Hickey's evidence has been provided to TRoNA to resolve concerns regarding water quality. Mr Milner's evidence assists responding to this concern by recommending mechanisms that TRoNA and NTST may wish to consider to resolve issues, in particular regarding mauri:
- a. Whakawhanaungatanga engagement³⁵ to continue work to develop values and expectations for the Tarawera River as part of the process to implement the NPS-FM and exercising the principles of Te Mana o Te Wai³⁶;
 - b. A potential Cultural Monitoring Plan which combines elements of 'western science' and cultural monitoring. It is expected to assess the state of the environment holistically, and therefore be able to articulate the health of the mauri in their waterways³⁷. In effect, TRoNA will be able to answer its own questions regarding water quality and the effect of the EBDP discharge on the mauri of the river; and
 - c. A potential relationship agreement could see cooperation formalised between NTST and TRoNA, and lead into the future Tarawera Awa Restoration Strategy Group that is to be established as part of the Ngāti Rangitihi Treaty settlement process, which will further support Te Mana o te Wai o Tarawera³⁸.
- 6.39 Generally, the approach adopted by NTGA to its engagement with Tangata Whenua is, in my opinion, aligned with the thrust of Policies 1 and 2, while at the same time recognising:
- a. The kaitiaki role that all Tangata Whenua fulfil, and providing every opportunity for Tangata Whenua to exercise that role, both in the AEE preparation and 'post consent notification' phases of the Proposal;
 - b. All relevant Tangata Whenua groups have been able to exercise the kaitiaki role through their input into the Proposal. By consulting with Tangata Whenua and asking / commissioning TRoNA to prepare a CEA, I consider that NTGA has sought to

³⁵ Milner evidence, section 4

³⁶ Milner evidence, paragraph 3.7

³⁷ Milner evidence, paragraph 5.1

³⁸ Milner evidence, paragraph 3.7

undertake effective consultation that is early, meaningful and accords with Tikanga Māori;

- c. The need for Tangata Whenua to be involved in the assessment of effects, and the manner in which such effects are addressed. This includes encouraging Tangata Whenua to advise on which customary, traditional and / or intergenerational knowledge applies to the Proposal and seeking advice as to how NTGA should respond to the same;
- d. The ongoing and enduring relationship that Tangata Whenua have with the area that will be impacted (both directly and indirectly) by the Proposal, and the manner that this has been articulated within the applicable Iwi Planning Document; and
- e. The need for NTGA to protect those characteristics of the Tarawera River and the KGF that are of importance to Tangata Whenua, and values they support (such as the passage of eels, harvesting watercress), where it has been possible to do so.

6.40 I agree with the following statements in Mr Milner's evidence regarding Te Mana o te Wai:

*"both TRoNA and NTST are seeking to protect the health and wellbeing of the Tarawera Awa to, in turn, protect the mauri of the wai. In terms of the six principles in the framework, the NTST and TRoNA are both seeking to exercise mana whakahaere, kaitiakitanga, and manaakitanga with respect to the Tarawera Awa."*³⁹

6.41 I consider that tangata whenua have been afforded a significant role in this process, and have exercised their right to identify values, and be at the heart of the decision-making process.

Policy 4: Relevance of climate change

6.42 Policy 4 requires that freshwater is managed as part of New Zealand's integrated response to climate change. This Policy is not, in my opinion, of particular relevance to the Proposal, although I note that Dr Hickey has highlighted some issues in his evidence, including:

- a. An increased likelihood of extreme rainfall events;
- b. higher water temperatures in Lake Tarawera; and
- c. Greater demands for abstractive use of water downstream for irrigation and stock water⁴⁰.

6.43 However, Dr Hickey concludes that NTGA's discharge is unlikely to affect, or be affected by, any of these changes. This is because, while there may be additional flow into the river due to increased rainfall, there will be no increase in contaminants. Furthermore, background geothermal heat is already found in the reaches of the Tarawera River around Kawerau, reducing any impact from increased water temperature in Lake Tarawera. Lastly, there are no geothermal contaminants which might restrict the use of the Tarawera River for stock watering⁴¹. Accordingly, I am of the opinion that the Proposal has been considered in light of potential responses to climate change that may be seen in the wider Tarawera River Catchment.

³⁹ Milner evidence, paragraph 3.7

⁴⁰ Hickey evidence, paragraphs 10.2, 10.3 and 10.4

⁴¹ Hickey evidence, *ibid*.

Policy 5: Maintenance or improvement of degraded water bodies

- 6.44 Policy 5 seeks the maintenance or improvement of the health and well-being of degraded water bodies and freshwater ecosystems, via the management of a National Objectives Framework ('NOF'). I note that as the NPS-FM 2020 has only recently come into effect, the NOF has yet to be developed for the Tarawera River catchment. However, in the meantime, the TRCP provides guidance. The river is classified as *Fish Purposes Lower Tarawera River* ('FPLT') in the TRCP. The purpose of this classification is to 'improve dissolved oxygen levels to be consistent with Fish Purpose Standards which indicate a healthy river environment'. The evidence of Dr Hickey indicates that there would be no toxicity to fish or invertebrates as a result of the EBDP discharge, and is therefore consistent with the FPLT classification⁴². Given the existing water quality and inputs to this river from industrial activities it would be reasonable to assume, in my opinion, that any NOF process is most likely to seek to improve water quality.
- 6.45 This application seeks to maintain the status quo of the health and well-being of the Tarawera River, with a view to enabling an improvement in water quality of the river after 14 years. I am of the opinion that the small environmental improvement that is sought by the resource consent as it stands will continue to be achieved in the life of the existing consent. It will just be delayed in a manner that will not generate more than minor adverse effects, and will preserve a number of positive economic, social and cultural benefits that the discharge enables. This approach accords with the outcome sought within Policy 5 insofar as it both maintains and then improves water quality. Furthermore, the recommended monitoring of the discharge and the receiving water body and freshwater ecosystems will, in my view, allow action to be taken if unexpected degradation is detected. This additional 'belt and brace' is not a feature of the existing resource consent.

Policy 6: Natural inland wetlands

- 6.46 Policy 6 strives for no further loss of extent of natural inland wetlands, the protection of their values, and the promotion of their restoration. As outlined in the memorandum from Dr Shaw, no natural inland wetlands are currently affected by the discharge, nor will they be if the discharge is to continue. This provision is therefore irrelevant. This position was accepted by the Council Officer.

Policy 7: River extent and values

- 6.47 Policy 7 seeks to ensure that, to the extent practicable, the loss of river extent and values is avoided. I consider that the Proposal will have no effect on the extent of the river in that the Proposed prolongation of the EBDP discharge contributes to the flow of the river and does not take any water away, nor does it dam, divert or affect the course of the river in any way.
- 6.48 I understand the evidence of Mr McClintock and Mr Osborne to be that without a significant countervailing benefit (such as avoiding impacts on values), it is difficult to justify the economic imposition and adverse economic, social and cultural effects (for NTGA and NTST) that would result should the proposal be declined.⁴³⁴⁴
- 6.49 With respect to the potential for the Proposal to cause a loss of the values associated with the river, I note that:

⁴² Hickey evidence, paragraph 6.8

⁴³ McClintock evidence, paragraph 7.4

⁴⁴ Osborne evidence, paragraphs 2.9 and 2.10

- a. In this case, the Applicant is seeking to only delay what Dr Hickey's evidence suggests is a very modest improvement by 14 years. Dr Hickey's evidence is that the Proposal therefore will not contribute to any loss of ecological value. In 2035, when it is practicable for NTGA to realise the predicted modest ecological and water quality benefits by reinjecting the EBDP discharge, it will do so.
- b. TRoNA is concerned that their values of the Tarawera River are potentially impacted by the discharge. Based on the evidence of Mr Milner which recommends ongoing engagement, I am of the opinion that there is a good foundation to resolve issues and avoid a loss of values.

Policy 8: Protecting significant values of outstanding water bodies

6.50 Policy 8 seeks the protection of significant values of outstanding water bodies. I have addressed these considerations already, but record, for completeness, the following points:

- a. While there were some uncertainties highlighted by the request for further information, and subsequent discussions between Dr Hickey, Dr Phillips and Dr Suren (regarding effect on algal toxicity, and human health risk - consumption of food), Dr Hickey's evidence addressed them, and concludes that the NTGA discharges represent minimal risk to human health in relation to consumption. Additional algal toxicity testing for both the East and West Bank Discharge Points is proposed for compliance monitoring only⁴⁵.
- b. BOPRC has not yet undertaken the NOF process for the Tarawera River. As I have already noted, the section of the river that is impacted by the Proposal is classified as FPLT in the TRCP. The detail regarding FPLT that was contained in section 6.3.4 of the AEE concluded that the Proposal can be advanced in accordance with the FPLT classification. This is supported by Dr Hickey's evidence which stated that the Proposal is consistent with the standards and intent of the FPLT classification as there would be no toxicity to fish or invertebrates⁴⁶. Dr Hickey has also considered water quality testing undertaken by BOPRC at six sites on the Tarawera River showed that all sites were graded A or B for parameters measured over the monitoring period 2013 to 2017, with only limited examples of worse grades⁴⁷. Dr Hickey interpreted this monitoring as indicating that diffuse and point source geothermal discharges are not resulting in marked changes in the Tarawera River⁴⁸.
- c. It is clear from the Ngāti Awa Environment Plan, Ngāti Awa's submission, and the Statutory Acknowledgements of Ngāti Awa and Ngāti Tūwharetoa⁴⁹ that the river is culturally significant to all of these iwi groups, and has particular values that may be impacted. As I have already discussed, I am of the opinion that the cultural values of all three Tangata Whenua organisations have been considered. The whakawhanaungatanga hui which has been put in place will help determine a way forward that is appropriate to NTS and TRoNA.⁵⁰

Policies 9 and 10: Protecting habitats of indigenous freshwater species, trout, and salmon

6.51 Policy 9 seeks to achieve the protection of habitats of indigenous freshwater species, while Policy 10 seeks the protection of the habitat of trout and salmon while being

⁴⁵ Hickey evidence, paragraph 6.8

⁴⁶ Hickey evidence, paragraph ibid

⁴⁷ Hickey evidence, paragraph 7.11

⁴⁸ Hickey evidence, paragraph 7.12

⁴⁹ In addition to that of Ngāti Rangitihi that is forthcoming.

⁵⁰ Milner evidence, paragraph 6.4 and 6.5

consistent with Policy 9. A number of discussions have occurred between Dr Hickey, Dr Phillips and Dr Suren regarding the Proposal's potential to achieve the thresholds set out by these policies. Dr Hickey's evidence advanced some further information demonstrating the Proposal's minimal effect on habitats of freshwater species:

- a. *"the mobile bed in the river limits the suitability of the river-bed habitat for colonisation by most invertebrate species - thus limiting their potential for exposure to the elevated sediment contaminant concentrations"*⁵¹;
- b. *"The river downstream of Kawerau is a poor habitat for eels because of channelisation and the mobile pumice bed"*⁵²;
- c. *"Based on my experience with the lower Tarawera River, I consider that the high flow velocity and mobile pumice bed would not be considered a depositional environment. Thus, particulate suspended solids and particle-associated metal contaminants will not settle and accumulate in the river sediments nor in the small estuarine area near the mouth."*⁵³;
- d. *"A multispecies (trout, cladocerans and alga) ecotoxicity assessment of the East Bank discharge compared with the worst-case dilution (1.6% geothermal water addition) showed there would be no toxicity to fish or invertebrates"*⁵⁴; and
- e. *"I consider that the [effect] on the river during these rare contingency periods would not constitute a significant adverse effect on resident fish communities or for fish passage."*⁵⁵

- 6.52 Accordingly, while not offering direct 'protection' of habitats and ecosystems, I consider that the magnitude of effects shows that the EBDP discharge to be consistent with the outcomes sought by this policy.

Policy 11: Allocation of freshwater

- 6.53 Policy 11 requires that freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided. The Proposal does not involve the take or use of freshwater so this Policy is not relevant to the Proposal.

Policy 12: National target for water quality improvement

- 6.54 Policy 12 requires that the national target (as set out in NPS-FM Appendix 3) for water quality improvement is achieved. This relates to the suitability of the water body for primary contact and is based on measures of E. coli. The Proposal does not contribute any of this contaminant into the river, and this policy is therefore not relevant. Furthermore, Dr Hickey's evidence is clear, in my opinion, that there will be no effects on contact recreation from the EBDP flow into the river⁵⁶.

Policies 13 and 14: Monitoring and reporting

- 6.55 Policy 13 requires systematic and regular monitoring of the condition of water bodies, while Policy 14 requires reporting and publication of this information, and action if freshwater is degraded or deteriorating trends are observed. Dr Hickey and the Council's

⁵¹ Hickey evidence, paragraph 7.9

⁵² Hickey evidence, table in paragraph 117.4

⁵³ Hickey evidence, paragraph 12.17

⁵⁴ Hickey evidence, paragraph 6.8

⁵⁵ Hickey evidence, paragraph 7.4

⁵⁶ Hickey evidence, paragraph 9.5

technical reviewers have recommended further monitoring as set out in the conditions addressed in section 13 of this evidence.

- 6.56 However, if monitoring returns results that suggest more than minor adverse effects are occurring, or which show a deteriorating trend, the proposed conditions require NTGA to conduct investigations and then implement measures to ensure that such effects are reduced so that they are no more than minor⁵⁷. As I have already noted, this represents an additional precaution that does not presently exist. Based on those outcomes, I am of the opinion that the Proposal is consistent with these policies.

Policy 15: Social, economic and cultural wellbeing

- 6.57 Policy 15 gives effect to the third priority of Te Mana o Te Wai in that communities are enabled to provide for their social, economic and cultural well-being, in a way that is consistent with the NPS-FM.
- a. As I have outlined in paragraphs 6.16 to 6.28 of this evidence, the Proposal will enable people and communities to provide for their economic, social and cultural well-being, while also being consistent with the principles that are advanced in the NPS-FM 2020.
 - b. NTGA has either engaged or sought to engage with TRoNA in an effort to ensure that its cultural well-being is provided for. Unfortunately, the engagement has not yet yielded any solutions. In the absence of this advice, NTGA has sought to minimise the Proposal's impact on the river, the KGF and the geothermal surface features that exist close to the Site. NTGA has also engaged Mr Milner, a recognised independent cultural expert to assist it with the assessment of, and the development of, culturally appropriate responses to the cultural effects set out by TRoNA. The whakawhanaungatanga hui which has been put in place will help determine a way forward⁵⁸.

Final comment

- 6.58 I understand Mrs Pappon's position to be that the Proposal is unlikely to lead to significant adverse effects on instream ecology or ecotoxicology. Furthermore, I understand her to opine that the proposed monitoring conditions would provide further comfort regarding water quality and cultural concerns to the Submitter, Council's reviewers and Officer, and Commissioners.
- 6.59 Where my assessment differs from Mrs Pappon is in regard to the timeframes intended by the Plan, and how Mrs Pappon considers the Proposal to be inconsistent with the direction of the Policy Statement. I agree that there is a need for urgent action to reverse degradation of freshwater quality generally, however I also am of the opinion that each case needs to be viewed in a broad context of practicability, overall effects and benefits (including at all levels of the hierarchy of priorities), and timeframes.
- 6.60 As is apparent from my evidence, I am of the opinion that the Proposal does not run counter to the NPS-FM's priorities. Put succinctly, I am of the opinion that a very minor improvement in water quality (with very minor ecological benefits) does not trump the need to enable people and communities to provide for their social, economic and cultural wellbeing. The Proposal will see the environmental improvement achieved when it is, I

⁵⁷ NTGA's proposed condition 18.1(e) is clear that should adverse environmental effects be detected that are more than minor, NTGA would be required to determine necessary actions such as a change to discharge volumes or contaminant levels from the East Bank.

⁵⁸ Milner evidence, paragraph 6.5

understand, practicable to do so, and in a manner that will allow social, economic and cultural wellbeing to be maintained.

7.0 BOP RPS 2014

- 7.1 The Bay of Plenty RPS was made operative in 2014. I have arranged my commentary on the additional provisions according to the topic headings of relevance to the Proposal, including: Air Quality; Energy and Infrastructure; Geothermal Resources; Integrated Resource Management; Iwi resource management; Matters of national importance; and Water quality and land use.

Air Quality

- 7.2 One objective and one policy are relevant to the Proposal:
- a. Objective 1 of the RPS requires that adverse effects of odours, chemical emissions and particulates are avoided, remedied or mitigated so as to protect people and the environment.
 - b. Policy AQ 2A manages the adverse effects from the discharge of odours, chemicals and particulates.
- 7.3 Based on the evidence of Mr Chilton, the odour effects of the Proposal will be very low⁵⁹. The Proposal is therefore, in my opinion, consistent with this objective and policy.

Energy and Infrastructure

- 7.4 The objectives and policies in the Energy and Infrastructure chapter of the RPS provide for energy efficiency and conservation, and for the development and use of renewable energy sources. They also provide for all associated benefits for the region and nation (including social, economic, environmental and cultural), while managing any adverse environmental effects. These provisions were addressed in section 8.4.1 of the AEE. Mr Osborne's evidence has necessitated that I revisit that analysis.
- 7.5 Policy EI 4B recognises and provides for the social, economic, cultural and environmental benefits from the use and development of renewable infrastructure (and equally from infrastructure). Mr Osborne's evidence highlighted the risks that the Company faces should the Proposal be declined, especially considering the likely closure of Norske Skog Tasman which is NTGA's key client. Further, Mr Osborne's evidence specifically stated that should the Proposal be declined and a requirement to fund reinjection wells and pipelines enforced, there will be the following consequences:
- "6.2 *Manufacturers have seen increased energy costs that, coupled with the effects of Covid, have placed increased pressure on rationalisation and closures;*
 - 6.4 *The closure, or reduction of NST operations would, in itself, have a significant impact on NTGA viability;*
 - 6.6 *cumulative impacts on NTGA and its ability to provide affordable energy and process heat to existing customers; and*
 - 2.7 *substantial operational and financial risk on NTGA to deal with that significant reduction in income, including diversification into alternative aspects of geothermal energy demand (e.g., cascade use) all of which would require significant research and development and capital costs."*

⁵⁹ Chilton evidence, paragraph 5.1

I understand his evidence to be that this would represent a significant adverse economic effect, whereas the granting of the Proposal would remove risk from NTGA which would enable the company to weather the likely closure of Norske Skog Tasman and other short-term challenges alluded to above. A final quote from Mr Osborne's evidence is clear indication of this significant adverse effect should the Proposal be declined:

"2.10 the most prudent course of action from an economic perspective is to enable the status quo to be maintained under the current conditions."

- 7.6 In my opinion, this evidence reinforces the conclusion that the social, cultural and environmental benefits of the use and development of renewable energy can be provided for, should the Proposal proceed.

Geothermal Resources

- 7.7 The Geothermal Resources chapter addresses the sustainable use and management of geothermal systems.

- 7.8 Relevant objectives and policies include the following:

- a. Objective 8 of the RPS which requires holistic and sustainable use of the geothermal resource;
- b. Policy GR 3A which also provides for the sustainable use of the geothermal resource; and
- c. Policy 6B provides guidance on managing use, takes and discharges, requiring efficient use, and the provision for the continuation of existing consents provided they are not inconsistent with the relevant system management plan.

- 7.9 Dr Burnell's evidence is relevant to the consideration of Objective 8 and its associated policies. His evidence is that the sustainability of the KGF will be continued should the Proposal be approved⁶⁰. In his report, Dr Burnell states *"delaying reinjection of the East Bank river discharge until 2035 has a negligible effect"*, and as a result *"will not impact the activities of the other developers"* and *"is fully consistent with the long-term sustainability of the Kawerau geothermal resource"*⁶¹.

- 7.10 Furthermore, Dr Burnell's evidence is that while deep reinjection is beneficial for the sustainability for geothermal reservoirs in general, in this case it is not necessary to maintain pressure or avoid adverse effects resulting from takes and discharges.

- 7.11 Subsidence effects were an area of concern for Dr Clearwater and Mrs Pappon, and the reason for notifying the users and tappers of the KGF. Dr Burnell accessed further data and updated his model to remove the underlying uncertainty regarding subsidence effect. His evidence predicts 10mm of subsidence around the production wells and 26mm of subsidence around the reinjection wells due to the delay in reinjecting for both scenarios 1b and 2b⁶²⁶³. This compares favourably to the prediction in Dr Burnell's earlier report (which was submitted in support of the Proposal) of 65mm⁶⁴.

⁶⁰ Burnell evidence, paragraph 5.3

⁶¹ Burnell evidence, 2.3

⁶² Model scenarios run by Dr Burnell using V5 of the Kawerau Reservoir Model (Mercury, 2019). Scenario 1a: all operators at Kawerau produce and inject at full consent conditions - current scenario; Scenario 1b: Variant of 1a where all operators at Kawerau produce and inject at full consent conditions, except 471 t/h of NTGA's separated brine is discharged into the river until 2035 - application scenario; Scenario 2b: Scenario 1b with NTGA production spread over a wider area.

⁶³ Burnell evidence, paragraph 6.23 and 6.24

⁶⁴ Burnell, J. (2020), Assessing the Impact of Delaying Reinjection of NTGA River Discharge, GNS Science consultancy report 2020/16. page 21.

- 7.12 Policy GR 1A (Requiring classification of geothermal systems) is also relevant. The KGF is classified as a 'Development Systems Group 4 Feature' because it has few, if any, Significant Geothermal Features. Its purpose is to provide extractive use, provided adverse effects on SGFs are remedied or mitigated.
- 7.13 Policies GR 6B and GR 7B (Requiring integrated geothermal system management) draw on this in that geothermal use, takes and discharges, and the system in general, are to be managed in an integrated way in a manner that is consistent with the geothermal management group ('GMG').
- 7.14 Considering the negligible magnitude of effects of the Proposal as discussed in Dr Burnell's report and evidence⁶⁵, I am of the opinion that the Proposal is consistent with the management purpose of the system. I also consider that the principles of integrated management have been demonstrated in the evidence of Dr Hickey, Mr Chilton and Dr Burnell, as cumulative effects on water quality and ecology of the river, air quality, cultural effects, and the sustainability of the geothermal resource have been addressed.
- 7.15 Mrs Pappon briefly discussed the recognised significant benefits to the community, region and nation of using the geothermal field (Policy GR 6B(g)), and considered that requiring reinjection will not adversely affect these benefits. Mr McClintock's evidence leads me to a different opinion, insofar as I understand him to state that the benefits that NTGA derive from the productive use of the KGF will be jeopardised should this Application be declined or a short term be imposed, including reductions in dividends paid to NTST and associated social, cultural and economic consequences⁶⁶.
- 7.16 Mr Osborne's evidence supports this position, when he cites that either outcome is likely to jeopardise the viability of NTGA in the context of customers closing operations⁶⁷, put the Company's significant contribution to the district and regional economy through direct value-added production, employment, and direct support through trust contributions to the local community at risk⁶⁸.
- 7.17 Amorangi Te Rire and Mrs Adlam's evidence foresee these adverse economic and social effects as being contrary to the efforts of Ngāti Tūwharetoa to become financially independent, reconnect with their traditional taonga (Awa and Ngawha)⁶⁹, and exercise their kaitiaki obligation⁷⁰.
- 7.18 Policy GR 8B requires that geothermal discharges are in accordance with a discharge strategy which addresses in particular the return of geothermal water to the system (b), and avoidance, remediation or mitigation of contamination of surface or ground water (g).
- 7.19 I have considered the Proposal's consistency with the discharge strategy in the KGSMP and. Mrs Pappon considers that the KGSMP is implicit in its preference for and encouragement of reinjection of SGF to the degree that this method is the only option provided for. Discharges to surface water are included in the current discharge strategy.
- 7.20 The KGSMP contains a clear policy preference for reinjection, but that is not hard and fast requirement in all cases. In this respect, the strategy sets out a number of principles that advance a preference for discharge via reinjection as part of sustainable management of the system. Although the principles are, I understand, to be considered

⁶⁵ Burnell evidence, paragraphs 2.1 to 2.9

⁶⁶ McClintock evidence, paragraph 4.10

⁶⁷ Osborne evidence, paragraph 6.4

⁶⁸ Osborne evidence, paragraphs 5.13, 5.14

⁶⁹ Adlam evidence, paragraphs 2.1, 2.24

⁷⁰ Te Rire evidence, section 5

as part of any review of resource consent conditions, the KGSMP also states that “Due to historical decisions, current discharge practices do not (and cannot easily) reflect all of the principles”⁷¹. I consider that this demonstrates an approach that requires a degree of flexibility and adaptability.

7.21 When considering whether something can be implemented (in this case discharge via reinjection), regard must be had to the nature of the discharge and sensitivity of the environment; the current state of technical knowledge and the likelihood that the option can be successfully applied; and the financial implications and effects on the environment of that option compared with other options⁷². This was highlighted in Mrs Pappon’s discussion of the RMA’s definition of ‘best practicable option’ in section 2(1) of the RMA.

7.22 With respect to these factors, I note that:

- a. The nature of the discharge and sensitivity of the environment have been addressed in Dr Hickey and Mr Chilton’s evidence. Dr Hickey concludes that the effects of the Proposal will not cause more than minor adverse effects on the river, and Mr Chilton concludes that there will be negligible air quality and odour effects.
- b. With regard to the ability to apply the current technical knowledge, Dr Burnell’s evidence is that reinjection is important for the sustainability of reservoirs is generally a valid statement⁷³, but that that in this case it is not required⁷⁴.
- c. However, as discussed, the evidence of Mr McClintock⁷⁵, Mr Osborne⁷⁶ and Mrs Adlam⁷⁷ raise commercial, economic and social concerns that lead me to the opinion that it is important to view the process with a wider lens: that of the effect on the environment which includes social; cultural; and economic effects.

7.23 I do not consider that the financial implications and effects on the environment compared with other options has been given significant weight in Mrs Pappon’s report. This is largely due to NTGA not providing detailed economic evidence until only recently. I consider that it is very relevant here. Mr McClintock and Mr Osborne’s evidence identified significant adverse financial implications should reinjection now be required, and Dr Hickey and Dr Burnell’s evidence demonstrated minimal improvement on the receiving environment and geothermal field should reinjection be required. Mr Chilton’s evidence has shown the negligible effects on the receiving environment with regard to air quality, and Mr Milner’s evidence has demonstrated that there is a pathway for the potential adverse cultural effects on TRoNA to be resolved through ongoing whakawhangaungatanga engagement between TRoNA and NTST. I consider that there is sufficient reason to authorise alternative options (in this case the proposed discharge to surface water) instead of the technical ‘best practicable option’.

Integrated Management

7.24 My assessment of the provisions of the Integrated Management (‘IR’) Chapter is the same as in section 8.4.3 of the AEE - in brief summary, that:

⁷¹ KGSMP, Section 7.4.2, page 49

⁷² Section 2(1) of the RMA: Best Practicable Option: the best method for preventing or minimising adverse effects on the environment while having regard to: a. The nature of the discharge and sensitivity of the receiving environment; b. The financial implications and effects on the environment when compared with other options; and c. The current state of technical knowledge and ability to successfully apply the option.

⁷³ Burnell evidence, paragraph 7.2

⁷⁴ Burnell evidence, paragraph 7.4

⁷⁵ McClintock evidence, paragraph 4.9

⁷⁶ Osborne evidence, paragraph 5.3

⁷⁷ Adlam evidence, paragraphs 4.8, 4.9

- a. A precautionary approach was taken by engaging technical experts to model the effects on the geothermal field, the current and anticipated effects on water quality of the Tarawera River, and odour effects anticipated by continuing the discharge of SGF to the Tarawera River via the EBDP until 2035;
- b. Expert's reports indicating that cumulative effects of the Proposal (that is, on the water quality of the Tarawera River, and on the sustainability of the KGS) will be minor or less⁷⁸⁷⁹;
- c. Open and transparent consultation with Tangata Whenua has also been undertaken since the Proposal's conception; and
- d. The proposal results in multiple positive cultural, social, and economic effects, but also potentially some adverse cultural effects for TRoNA.

Iwi Resource Management

- 7.25 Iwi Resource Management issues have been addressed in my assessment of the NPS-FM 2020⁸⁰. Again, I do not restate my opinions here.

Matters of National Importance

- 7.26 The objectives and policies of the Matters of National Importance chapter are, in my opinion, relevant to this Proposal and have been assessed in section 8.4.5 of the AEE.
- 7.27 The only additional comment I consider is necessary is in regard to Objective 20 and Policy MN 2B which require protection of significant indigenous habitats and ecosystems. I have discussed the direction to 'protect' in paragraphs 6.46 and 6.47 of this evidence.
- 7.28 Overall, I consider that the Proposal is consistent with the provisions of this chapter.

Water Quality and Land Use

- 7.29 The commentary in section 8.4.6 of the AEE, and above in paragraph 6.41 and 6.42 of this evidence is also relevant to assessing this issue.

8.0 BOP RNRP 2008

- 8.1 An assessment of the Proposal against the relevant provisions of the RNRP was undertaken and included in section 8.5 of the AEE. I have revisited that analysis in light of the latest information. In this regard, I now address key provisions of the Geothermal Resources; Integrated Management; Kaitiakitanga; Beds of Water Bodies; Discharges to Water and Land chapters, and a comment on Rules and Activity Status.

Geothermal Resources

- 8.2 Objective GR O1 and Policy GR P2 focus on sustainable use of geothermal resources, with a particular regard to effects and ability of future generations to use the resource. As discussed in paragraphs 7.6 to 7.16, Dr Burnell has assessed the effect of the continued discharge on the sustainability of the KGF, and resolved the only remaining uncertainty regarding subsidence⁸¹.

⁷⁸ Burnell evidence, paragraphs 2.3, 2.5

⁷⁹ Hickey evidence, paragraph 15.3

⁸⁰ Paragraphs 6.16 to 6.38 of this evidence

⁸¹ Burnell evidence, paragraphs 5.3, 6.25

- 8.3 Accordingly, I am of the opinion that the Proposal is consistent with each of the considerations of this objective and policy as NTGA's experts' evidence has identified that the potential effects on the physical environment are minor or less in nature.
- 8.4 I note that a number of objectives and policies of the GR chapter signal a policy preference for discharges of SGF to occur to ground via reinjection. These provisions include Objective GR O5 and policies GR P1(e) and GR P6(a). I have discussed the policy direction that encourages and prefers reinjection in the earlier RPS discussion (particularly regarding the KGSMP discharge strategy) - while there is a preference and the policy encourages reinjection, it is not required.
- 8.5 In this regard, I note that GR P1(e) encourages reinjection of geothermal water "*where appropriate to the circumstances and subject to an evaluation of effects*".
- 8.6 In my opinion, Dr Burnell's evidence has shown that reinjection is not required in this instance, and the evidence of Mr McClintock and Mr Osborne has demonstrated that doing so would have significant adverse economic, social and cultural effects on NTGA and Ngāti Tūwharetoa iwi and hapu. This is primarily due to the reduction in benefits that NTST will be able to provide (though things such as school grants and Pakeke (over 65s) grants⁸²), and the potential for NTGA and third parties to suffer as a result of the loss of jobs, reduction of economic growth, and short-term viability risk that will result should NTGA be forced to invest \$30-45 million to reinject EBDP fluid coupled with the impact of the likely NST closure⁸³.
- 8.7 As noted in Mr Osborne's evidence:
- "2.9 To justify that economic imposition and consequent adverse effects, I consider that significant countervailing benefits would need to be demonstrated. My understanding is that:
- (a) Reinjection is not required to maintain the KGF;
- (b) The discharge that would be discontinued to enable reinjection is having only minor adverse effects on the Tarawera River;
- (c) The only opposition to the discharge is on cultural grounds.
- 2.10 In these circumstances, I consider that the only prudent course of action from an economic perspective is to enable the status quo to be maintained as long as possible."
- 8.8 With regard to Mrs Pappon's comment on this policy that "*sufficient time has passed to enable NTGA to transition away from the discharge to the river to a discharge via reinjection*"⁸⁴, I highlight Mr McClintock's evidence which stated that NTGA constructed two deep geothermal reinjection wells in 2013 and a deep reinjection pumping station in 2018. The cost of this infrastructure was \$35.2M and NTGA is still servicing the debt and will be until 2033⁸⁵. In my opinion this demonstrates that NTGA has investigated the practicability of reinjection options and implemented them to the extent that the business is able to sustain economically.
- 8.9 Policy GR P6 makes provision to discharge SGF to water in and sets out how to manage the discharge of geothermal water according to table GR 3 (and in accordance with

⁸² McClintock evidence, paragraph 2.9

⁸³ Osborne evidence, paragraph 6.5

⁸⁴ Pappon, M. Officer's Report, Page 34

⁸⁵ McClintock evidence, paragraph 2.8

policies GR P1 and GR P2). These provisions essentially set out three scenarios where SGF can be discharged to water:

- a. Where the discharge is into the resource from which it was extracted; or
- b. Discharge of fluid to a surface or groundwater body that is geothermally or naturally influenced by geothermal inputs; or
- c. If the effect on the environment is minor.

- 8.10 Mrs Pappon's assessment of the Policies of the RNRP considered that there is strong policy direction for discharge of geothermal fluid via reinjection, supported by a hierarchy of provisions in the GR chapter. I note that while the Proposal does not meet scenario (b)(i), I am of the opinion that the word 'or' indicates that Proposals that do not meet this provision are still able to be considered consistent with the policy, should the other criteria apply. In this case both (b)(ii) and (iii) apply to the Proposal.
- 8.11 Dr Hickey's evidence has outlined the significant geothermal influence⁸⁶ on the Tarawera River. Accordingly, I am of the opinion that the Proposal is provided for by the second scenario. Further, Dr Hickey's evidence has also shown that any adverse water quality and ecological effects caused by the Proposal are expected to be minor or less⁸⁷.
- 8.12 I have already addressed the intent of Policy GR P3 in paragraphs 7.10 of this evidence. Policy GR P3 states that appropriate Geothermal Management Groups ('GMG') are to be used to guide decisions. GMG 4 provides for the use of geothermal water, heat and energy where the adverse effects of the activity can be avoided, remedied or mitigated.
- 8.13 The direction advanced by Policy GR P5 is to allocate geothermal heat, water and energy according to Policies GR P1 and GR P2, and according to efficient use. I do not consider the allocation of geothermal resources to be of particular relevance to this Application which is focused primarily on the discharge of SGF.

Integrated Management

- 8.14 All matters of the Integrated Management Chapter have been addressed in section 8.5.2 of the AEE and in paragraphs 7.10 and 7.11 of this statement.
- 8.15 The Tarawera River does not have a Water Quality Classification under the RNRP (as required by objective IM O3), instead, it is classified as Fish Purposes Lower Tarawera under the TRCP. Consistency with the TRCP is addressed in following sections of this evidence.

Kaitiakitanga

- 8.16 The 'Kaitiakitanga chapter' of the RNRP was addressed in section 8.5.3 of the AEE and its themes and provisions have been discussed in the preceding sections of this evidence relating to the Proposal's consistency with the NPS-FM 2020. I, therefore, do not restate that evidence here.

Beds of Water Bodies

- 8.17 The Beds of Water Bodies chapter has been addressed in section 8.5.4 of the AEE, and in my preceding discussion of the NPS-FM 2020. I also do not repeat that discussion here.

⁸⁶ Hickey evidence, section 3, pages 9-10

⁸⁷ Hickey evidence, paragraph 15.3

Discharges to Water and Land

8.18 This Section of the RNRP ('DW Chapter') relates to discharges to water and land. The provisions of relevance to the Proposal are as follows:

- a. Objective DW O1 sets two goals for the management of discharges of contaminants to water:
 - i. Discharges of contaminants are to meet the water quality classification of the receiving water bodies as a minimum after reasonable mixing, and they are to have no more than minor adverse effects on heritage values, existing users in downstream areas, and lakes, harbours and estuaries.
 - ii. Discharges of contaminants to water are in a manner that takes into account the cultural values of Tangata Whenua acknowledged for that area.
- b. Similarly, Objective DW O3 focuses on the accumulation of persistent toxic contaminants;
- c. Objective DW O4 is concerned with the avoiding, remedying, or mitigating adverse effects of discharges of water to water;
- d. Policy DW P1 sets out the requirements that discharges shall comply with;
- e. Policy DW P5 recognises and provides for the effects on the mauri of the receiving environment caused by the discharge of contaminants to water;
- f. Objective DW O5 and Policy DW P9 address cumulative effects of small-scale discharges of contaminants to ensure they are managed appropriately to avoid, remedy or mitigate adverse effects on water quality;
- g. Policy DW P11 requires the setting of a reasonable mixing zone in conditions of resource consents to discharge contaminants to water where relevant, having regard to the criteria specified in DW M16; and
- h. Policy DW P6 outlines what the consent authority must have regard to when considering applications for discharge, including the extent to which adverse effects on the life supporting capacity of the water and on the health of people and communities is avoided.

8.19 The themes and obligations advanced by these objectives and policies have been addressed in my preceding discussion of the provisions of the NPS-FM. I will not discuss them further other than to note that Dr Hickey's evidence demonstrates that the Proposal will meet the FPLT water quality classification, and that it will overall result in minor or less adverse effects on the Tarawera River, its ecological values, and its recreational values. The written approvals demonstrate in my opinion that heritage and cultural values will similarly not be adversely affected for Ngāti Tūwharetoa and Ngāti Rangitihi. Mr Milner's evidence indicates to me that there is a solid foundation for the concerns of TRoNA to similarly be addressed through ongoing whakawhanaungatanga values-based engagement⁸⁸.

Rules and Activity Status

8.20 Mrs Pappon considered the activity status of reinjection (restricted discretionary) and surface discharge (discretionary) as being further indication that there is policy

⁸⁸ Milner evidence, section 4.6

preference for reinjection. I consider this aspect of Mrs Pappon's evidence to be an overstatement. In this respect, a restricted discretionary activity does not imply that such an activity is preferred over a discretionary activity per se, simply that it enables a more confined assessment of effects. Both types of applications can be declined. I consider that this is further example of a 'soft push' towards reinjection, but not a clear direction that states that reinjection needs to occur. A non-complying or prohibited activity classification would clearly, in my opinion, demarcate that one activity is preferred over another.

9.0 TRCP 2014

- 9.1 The Tarawera River Catchment Plan was made operative in 2004 and updated in 2014. An assessment of the Proposal against the relevant provisions of the TRCP is found in section 8.5 of the AEE.
- 9.2 The TCRP contains a suite of related objectives and policies provide guidance regarding disposal of geothermal water and discharges into the river:
- a. Objective 17.4.2 and Policies 17.4.3(a) and 17.4.3(b) provide the framework to limit effects of geothermal fluid by encouraging reinjection to protect freshwater resources from contamination;
 - b. Policy 15.8.3(b) promotes the reduction of contaminant discharges into the Tarawera River; while
 - c. Policy 15.8.3(e) encourages dischargers to avoid, remedy or mitigate any actual or potential adverse effects arising from their direct or indirect discharge of contaminants into water by limiting and reducing quantities and concentrations of discharged contaminants.
- 9.3 I consider that the Proposal is consistent with this policy direction, despite prolonging the discharge to the river, due to the overall effects on the river, the ecosystems it supports, and its cultural importance to Ngāti Tūwharetoa.
- 9.4 Mrs Pappon considers that the Proposal is inconsistent with some of these provisions⁸⁹. I disagree. I am of the opinion that the evidence demonstrates that the Proposal can be authorised. In this regard:
- a. The intent of policy 17.4.3(a) is to limit the effects of the discharge. I am of the opinion that the evidence of Dr Hickey has demonstrated that the effects of the discharge are scientifically appropriate and are of a magnitude that is minor or less⁹⁰. Furthermore, the language used is only semi-directive, in that it states '*to limit the effects*' ... '*by encouraging reinjection*'. This leads me to the view that while reinjection may be preferred, there is flexibility that will allow other discharge methods anticipated by the Plan.
 - b. However, Policy 17.4.3(b) uses more directive language: '*restrict and limit*' geothermal discharges to the river. This, in my opinion, does not exclude discharges. Rather, it suggests that such discharges need to be carefully evaluated; which has, in my opinion, been done by the experts assisting both NTGA and the Council. It is also important for me to reiterate that the Proposal is to defer an existing discharge on a temporary basis only, and not to request a new discharge with a view to it never ceasing. In this way, I see that the discharge will be restricted and limited over time.

⁸⁹ Pappon, M. Officer's Report, section 10.1, pages 30-31

⁹⁰ Hickey evidence, paragraph 15.3

- c. Indeed, it is also important to consider the discharge of geothermal contaminants from the WBDP is allowed to continue until 2051. The fluid that is discharged via the WBDP is sourced from the same geothermal aquifer as that which is discharged via the EBDP. Another noteworthy consideration, in my opinion, is Dr Hickey's evidence regarding the interactions between the river and the geothermal field⁹¹. These points are echoed by Amorangi Te Rire and Mrs Adlam in their evidence that the *ngawha* and *awa* are one source of water and cannot be separated⁹². In my opinion, this reinforces two things for me:
 - i. One, that geothermal fluid is an integral part of the river, and
 - ii. two, that a timeframe of 14 years for the EBDP to move to reinjection is not unreasonable.

This view is supported by Dr Hickey's evidence which recalls a decline in natural geothermal inputs into the river since the early 1900s, prior to exploitation of the geothermal resource. Natural seepages have continued to decline since the 1950s and has continued to the present⁹³. However, the river still receives significant geothermal inputs from Lake Tarawera and other discharges within the catchment⁹⁴. Dr Hickey also recalls that the *"wastewater discharges are composed only of geothermal fluids with no additional chemical components - so are largely comparable with the natural geothermal inputs"*⁹⁵.

- d. The Proposal is, in my opinion, consistent with Policy 15.8.3(e) due to the minor effects that are anticipated should SGF continue to be discharged into the river via the EBDP. 15.8.3(e)(b) and 15.8.3(e)(c) are not possible because land discharge is not possible in this location, and the discharge is from a point-source rather than non-point source. However, I consider that monitoring conditions⁹⁶ will ensure appropriate remediation or mitigation is undertaken. It will *'limit or reduce quantities and concentrations of discharged contaminants'* should more than minor adverse effects which can reduce the life supporting capacity of the aquatic ecosystem be identified, thus according with 15.8.3(e)(a). This is more than what is currently required.
- e. Mrs Pappon's report appeared to agree with the conclusions of NTGA's experts regarding instream ecology and ecotoxicology effects, and that outstanding matters should be addressed by monitoring conditions, although it seemed to prefer more frequent monitoring. In my opinion, Mr Milner's evidence is also helpful in this instance as he concluded that the concurrent tikanga based process consisting of ongoing engagement will help determine a way forward to address TRoNA's concerns⁹⁷.
- f. However, the Proposal is not entirely consistent with Policy 15.8.3(b) to the extent that it seeks to extend the timeframe in which the discharge to the river will occur, rather than *'promote reduction of contaminant discharges'*. I consider that the effects outlined in Dr Hickey's evidence are important to draw on in this instance. I understand that an improvement that would be gained in water quality would only be very minor which leads me to consider that the timeframe for them to occur (14 years as proposed) is appropriate. I therefore consider the Proposal to be consistent with the anticipated outcomes of these Policies.

⁹¹ Hickey evidence, paragraph 3.4

⁹² Amorangi Te Rire, section 4

⁹³ Hickey evidence, paragraphs 3.6, 3.7

⁹⁴ Hickey evidence, paragraphs 3.3, 3.4

⁹⁵ Hickey evidence, Paragraph 2.2

⁹⁶ In particular, proposed condition 11.3

⁹⁷ Milner evidence, paragraph 6.4

- 9.5 For the reasons set out in paragraph 6.39 and 6.40 of this evidence in relation to Policy 7 of the NPS-FM 2020 (no further degradation of river extent and values), I consider that the Proposal is consistent with Policy 13.5.3(a).
- 9.6 Policy 13.5.3(h) requires that wetland and river habitats, along with migration pathways, are conserved and, as appropriate, enhanced. I consider that the discussion of Policies 6, 9 and 10 of the NPS-FM 2020 section of this evidence has addressed this Policy also.
- 9.7 In my opinion, water quality testing, the studies of available information undertaken by Dr Hickey, and the current (and proposed) monitoring conditions ensure that the outcomes of Policy 15.8.3(i), which encourages discharge permit holders to conduct appropriate tests and monitoring of the toxic effect of their effluent, will be achieved. These proposed consent conditions will require the ongoing ecological / ecotoxicity monitoring to be undertaken, should consent be granted.
- 9.8 It is clear, in my view, that the continued improvement of water quality, particularly in the lower reaches of the Tarawera River is given importance and a key result sought by the TRCP. To this end, Dr Hickey has identified that the water quality and ecological values of the river will not be degraded as a result of the Proposal. I acknowledge that this does not achieve improvement in itself, however based on the wider effects of the Proposal, I consider a delay in the minor expected improvement to be appropriate. Regarding the mauri of the water, Ngāti Tūwharetoa identify that, from their cultural perspective, the return of geothermal fluid to the river positively impacts the Mauri of the river.
- 9.9 It is acknowledged that this opinion is counter to TRoNA's view as expressed in its submission. However, the evidence of Mr Milner, and the recommended ongoing engagement gives me confidence that TRoNA will be able to answer its own questions regarding the effect of the discharge on the mauri of the river⁹⁸.
- 9.10 The TRCP also contains provisions in chapter 7: Community Attitudes and Perceptions which provide important social and economic context to decisions. These provisions are as follows:
- a. *Objective 7.5.2 - Achieving the desired enhanced life supporting capacity of the Tarawera River at a rate that enables people and communities, including industry to adjust;*
 - b. *Policy 7.5.3(a) - To consider the social and economic wellbeing of people and communities when making decisions about the sustainable management of the Tarawera River.*
 - c. *Policy 7.5.3(c) - To stage the achievement of water quality standards as set out in the methods of Chapter 15 in a way that provides a defined schedule of goals to enable the community including industry to adjust.*
 - d. *Anticipated Environmental Result 7.5.5(b) - Both the sustainable management of natural and physical resources and the social and economic wellbeing of the community will be safeguarded and enhanced over time.*
- 9.11 As previously stated, there is a preference to move away from surface water discharge in order to improve water quality in the Tarawera River, however these provisions indicate that this should not come at the unreasonable expense of the economic and

⁹⁸ Engagement scheduled for the week of the 8th of June to discuss technical advice regarding water quality and effect on mahinga kai.

social wellbeing of people. The evidence of Mr Osborne and Mr McClintock have shown that the status quo discharge strategy is still required to enable industry to adjust to an alternative discharge method, and to weather the other economic challenges that are looming large.

- 9.12 The Principal Reasons for this policy direction as included in section 7.5.4 states the following:

“the clear message to those composing this regional plan was: clean up the Lower Reach of the Tarawera River but do not compromise our employment opportunities in the process. Both these tasks can, with good cooperation, be achieved”

- 9.13 In my opinion, the evidence of Dr Hickey, Dr Burnell and Mr Chilton demonstrate that the environmental effects can be achieved while also not compromising employment and social and economic wellbeing. Overall, the “win-win” situation promoted by BOPRC will be achieved.

10.0 KGSMP

- 10.1 I have considered the KGSMP when I assessed the RPS, particularly the section regarding the discharge strategy. I will not repeat that evidence here other than to restate that the Proposal is provided for and reinjection is not expressly required, and only encouraged by the KGSMP and its principles.
- 10.2 Mrs Pappon’s report briefly assessed the discharge strategy of the KGSMP. In her view, only by moving away from discharging to the river as soon as possible would the Proposal be consistent with the policy direction advanced by the KGSMP.
- 10.3 Mrs Pappon also advances the view that over time there is an expectation that the discharges be brought into line with the principles of the KGSMP. Without direct guidance from the provisions of the KGSMP, it is reasonable to assume, in my opinion, that reinjection is sought as soon as it is practicable to do so, or where the adverse effects of not reinjecting are unacceptable. Contrary to Mrs Pappon’s position in the s42A report, I am of the opinion that Mr McClintock and Mr Osborne’s, corporate and economic evidence has demonstrated that reinjection is impracticable at the current time⁹⁹¹⁰⁰ due to the considerable adverse economic (and associated social and cultural) effects, and the evidence of Dr Burnell which demonstrates that it is not required to avoid adverse effects on the KGF¹⁰¹.

11.0 NAEP 2019

- 11.1 The Ngāti Awa Environmental Plan is relevant to the Proposal as it forms the basis of the submission received from TRoNA. The submission of TRoNA has been addressed in the evidence of Mr Milner and I have referred to that above with respect to the ongoing whakawhanaungatanga approach.

12.0 PART 2 OF THE RESOURCE MANAGEMENT ACT 1991

- 12.1 The effect of the decision of the Supreme Court in *Environmental Defence Society Incorporated v The New Zealand King Salmon Company Limited & Ors*¹⁰² was that decision makers do not need to revert to Part 2 of the Act unless there is any invalidity,

⁹⁹ McClintock evidence, paragraphs 4.10, 7.4

¹⁰⁰ Osborne evidence, paragraphs 6.4, 7.3

¹⁰¹ Burnell evidence, Paragraph 7.3 and 7.4

¹⁰² [2014] NZSC 38

incomplete coverage, or uncertainty of meaning within the relevant statutory planning instruments.

- 12.2 As I noted within the main body of this evidence, I do not perceive any incomplete coverage or invalidity. I have, however, considered the Proposal against Part 2 of the Act in the event that the Panel wishes to consider those provisions. My discussion of Part 2 is appended to this evidence as **Annexure C**.
- 12.3 Based on the evidence presented by NTGA's independent experts, my overall view is the Proposal is consistent with all relevant aspects of Part 2.

13.0 PROPOSED CONDITIONS OF CONSENT

- 13.1 NTGA has advanced a suite of proposed changes to some of the conditions of consent which regulate the discharge of the SGF. These proposed changes were developed to delay the cessation of the EBDP to the river.
- 13.2 I now, for completeness, concisely discuss the proposed changes that are now proposed (which are more extensive than originally recommended), focussing mainly on their form and function and what I consider to be the similarities and key differences from those recommended by Mrs Pappon.
- 13.3 Conditions 2.0, 2.0A, 3.1, 3.2, and 6.1 propose a change to all dates referring to 1st of January 2021 in the original conditions, to a proposed date of 1st of January 2035. Mrs Pappon recommends the insertion of a different date¹⁰³. I address that date in the following section of this statement, and thus do not address it here.
- 13.4 I noted that Mrs Pappon proposes to retain the existing contingency discharge timeframe, which expires on the 1st of January 2026 in condition 2.0A. It appears that Mrs Pappon's position is based on the expectation that the EBDP will be reinjected from the 1st of January 2023, and thus that retaining the 2026 timeframe for contingency discharges seems appropriate.
- 13.5 I am of the opinion that the 14-year extension to the contingency discharge timeframe that was sought in the AEE is warranted, and consequently, that an extended contingency discharge timeframe which expires on the 1st of January 2040 is appropriate. Five years is needed after reinjection occurs given Mr McClintock's advice¹⁰⁴ that it can take up to 5 years to see a significant reservoir response, and then identify new injection locations and construct new reinjection wells and pipelines. As such, should reinjection occur on the 2035 (as NTGA proposes) the timeframe in this condition needs to be extended to the 1st of January 2040.
- 13.6 Additionally, following recommendations of Dr Hickey, a new suite of conditions is proposed in the form of a new monitoring regime¹⁰⁵. NTGA's proposed condition (11.0) includes the (non-exhaustive) following elements as part of this monitoring programme, that will be certified by the Council:
- a. An additional algal toxicity testing be undertaken on both East and West discharges or a combined discharge sample;
 - b. A five-yearly multispecies toxicity testing be undertaken on a representative combined sample of the East and West bank geothermal discharges;

¹⁰³ Pappon, M. Officer's Report, Section 12 page 50, 51

¹⁰⁴ McClintock evidence, paragraph 5.6

¹⁰⁵ Hickey evidence, paragraph 2.10

- c. A five-yearly multisite eel and marine shellfish monitoring programme be incorporated into the consent. This future monitoring should include additional sites in the regions of diffuse geothermal input and downstream of the reasonable mixing zone of the NTGA discharges;
- d. Additional sediment monitoring sites shall be included with the five-yearly eel monitoring to include sites immediately upstream and below the reasonable mixing zone;
- e. Information on harvest quantities and locations (both commercial and recreational) to be collected on eels from the Tarawera River (and local Rangitaiki River as a local reference river); and
- f. A health risk assessment for recreational consumers - particularly focusing on local Māori populations and their consumption of mahinga kai species - to be undertaken using the data obtained from the first 5 yearly eel survey.

13.5 I am of the opinion that proposed condition 11.0 broadly aligns with Mrs Pappon's Condition A1 for the following reasons:

- a. Mrs Pappon recommends that NTGA shall submit a monitoring programme for approval by the Council no later than 31st of July 2021 (Condition A1(a)). Considering the adjournment and delay to the timeframes, NTGA alternatively propose a date no later than 31st of August 2021. I am of the opinion that such a delay is inconsequential and still ensures that the Company will produce the required information in a timely manner. Furthermore, Dr Hickey's evidence states that trout are currently taken for testing for the Norske Skog / Carter Holt Harvey Joint Venture testing from July to November¹⁰⁶;
- b. Mrs Pappon has proposed condition A1(b)(iv) to undertake multi-species whole effluent toxicity testing (including algal testing) annually. I consider that based on the evidence of Dr Hickey, five-yearly testing would be more appropriate, as outlined in proposed condition 11.0(b).
- c. Condition A1(b)(v) of Mrs Pappon's conditions is to "*quantify the level of exposure*" that algae have to the discharge of contaminants. NTGA have proposed condition 11.0(a) which requires additional algal toxicity testing to be undertaken on both East and West Bank Discharges or a combined sample. These two conditions are similar; however, I am of the opinion that, as Dr Hickey has already provided his recommendation on the effect on algal mass, the condition should only be required to test algal toxicity to remove any uncertainties, rather than quantify its effects as expressed in Mrs Pappon's condition. I therefore consider NTGA's proposed condition to be appropriate.
- d. Mrs Pappon has also recommended to "*quantify the level of exposure*" that eel, freshwater mussel and watercress have to mercury and arsenic in condition A1(b)(vi). I again consider that Dr Hickey has provided sufficient evidence regarding the effect of mercury and arsenic on eels, mussels and watercress. I therefore consider that proposed condition 11.0(c), which provides for a five-yearly multisite eel and marine shellfish monitoring to be the equivalent. Dr Hickey has only recommended that marine shellfish be monitored as no freshwater mussels live in the river due to there being unsuitable habitat¹⁰⁷. Additionally, due to the limited distribution of watercress downstream of NTGA's discharges (being located in significant quantities

¹⁰⁶ Hickey evidence, paragraph 6.7

¹⁰⁷ Hickey evidence, paragraph 13.2 (page 37)

only around Kawerau Bridge), Dr Hickey has not included watercress in his recommended condition¹⁰⁸.

- e. Mrs Pappon proposed condition A1(b)(vii) to quantify the potential risk to human health of mercury and arsenic through information on harvesting quantities, locations, dietary intakes and comparison to the Food Standards Australia New Zealand. NTGA has proposed alternative condition 11.0(g). This condition requires the consent holder to provide a health risk assessment using data obtained from the five-yearly eel survey and focusing on consumption habits of local populations. This obligation is further reinforced by Condition 11(f) which requires the consent holder to provide additional information on harvest quantities, locations (both recreational and commercial) in the Tarawera River and Rangitaiki River (as a local reference river). Aside from my comment on the use of “*quantifying*” which I have outlined above, I am of the opinion that NTGA’s proposed conditions achieve the intent of that of Mrs Pappon.
- f. Mrs Pappon proposed condition A1(b)(viii), which requires the consent holder to undertake water and sediment sampling and monitoring at various points above the discharge point, at the mixing zone boundary and below the discharge point to quantify effects on ecology (algae and invertebrates) and ecotoxicity. I consider that proposed conditions 11.0(d);(e); and (h) of the proposed changes advanced by NTGA provide for this information, the difference being that the information will be provided to support Dr Hickey’s findings rather than “*quantify the effects*”.

Additionally, condition 11.0(h) will provide for baseline monitoring of geothermal contaminants to obtain reference data for the river both upstream of Kawerau and immediately upstream of the discharges. I consider for completeness that 11.0(a) provides for the additional algal toxicity testing.

- g. The Officer’s proposed condition A1(b)(ix) is to set out the frequency of testing. Dr Hickey has recommended testing on a five-yearly basis for multispecies toxicity; eel and shellfish; sediment; algal toxicity; and health assessment. Should the Committee accept Dr Hickey’s evidence, Mrs Pappon’s proposed condition is not, in my opinion, required.
- h. The Officer’s condition A1(b)(x) is to outline the frequency and method of reporting. Condition A1(f) of the Officer’s proposed conditions, similarly directs the consent holder to provide a summary of the monitoring results to the Council in accordance with A1(b)(x). Although essentially identical, I consider that both conditions are better addressed within NTGA’s proposed condition 11.0(j); and (i) in that the proposed methods of testing, monitoring, assessment and obtaining information will be set out, along with frequency of proposed reporting. In this regard, NTGA’s proposed conditions are simplified and easier to understand.
- i. Conditions A1(c); and (d) which outline the purpose of certification of the monitoring regime, and who will perform it are not necessary in my opinion. Instead, I consider that NTGA’s proposed condition 11.2 is sufficient in that it provides a timeframe for the Council to certify the monitoring programme. Coincidentally, condition 11.2 provides for the Officer’s proposed A1(e) which outlines what happens if NTGA does not receive a response from the Council. The only difference being the specification of a one-month timeframe that the Council will have to respond.
- j. Condition A1(g) proposed by Mrs Pappon directs the consent holder to provide TRoNA with a copy of the certified monitoring report, and a copy of the summary report within one month of both reports being provided to Council. It is not clear if the term

¹⁰⁸ Hickey evidence, *ibid*

‘monitoring report’ is used instead of the ‘monitoring program’ which will be certified by the Council. In any regard, NTGA’s proposed condition 11.4 directs NTGA to provide all monitoring programme reports to TRoNA within one month of the date they are provided to Council.

- 13.7 As briefly mentioned in the preceding paragraph, I do not agree with the overall framing of a number of the conditions, using expressions such as: *“to understand the effects of the discharge”*; *“quantify effects”*; and *“quantify the potential risk to human health”*. In my opinion, Dr Hickey’s evidence has already quantified the effects and risks of the Proposal to a level that the experts agree is sufficient to be able to approve this change of conditions application, however suggest that more monitoring is needed to validate the effects. The conditions proposed by NTGA are therefore intended as a method to provide further comfort to the Council and the submitter that the effects of the Proposal are consistent with his conclusions, and that they will continue at the anticipated magnitude.
- 13.8 Secondly, Mrs Pappon states that the reason for the proposed monitoring programme, despite the short term she has recommended for continuation of the discharge, is required because the Applicant has often applied to extend timeframes, and that should further timeframe extensions be sought, the effects will be well known.
- 13.9 I do not agree with the timeframes and frequency of monitoring/reporting requested by Mrs Pappon throughout the proposed conditions and view them as excessive should such a short term for continuation of the discharge be granted.
- 13.10 Dr Hickey’s evidence is that monitoring on an annual basis is not required, even for the algal toxicity testing, and instead recommends a five-yearly monitoring regime for each of its components¹⁰⁹. Further, and as set out in the evidence of Mr McClintock¹¹⁰, NTGA is also happy to consider further baseline monitoring of geothermal contaminants and construction of a silica terrace for the East Bank discharge to flow over, based on Dr Hickey’s recommendations¹¹¹.
- 13.11 Mrs Pappon’s conditions A1(b)(xi); and (xii) provide for a description of trigger values that would prompt an adaptive management response, and a description of the adaptive management response itself. I consider that this is provided for by NTGA’s proposed condition 11.3, which sets the ‘trigger’ as when adverse effects are more than minor. I consider that all of the technical experts agree that effects are likely to be no more than minor. Therefore, this seems to me to be the appropriate trigger for action.
- 13.12 Similarly, the Officer’s proposed condition 18.1(e) states that the Council may serve notice that it is to review the conditions of RC67151 should the ‘trigger levels’ be met or exceeded. NTGA proposed an alternative to 18.1(e) which provides for a review should the monitoring reports indicate that the adverse effects are more than minor. In my opinion, this is consistent with the overall effects of the Proposal that have been identified by the water quality and ecological experts, and therefore represents a trigger. NTGA’s proposed 18.1(e) adopts the same timeframe (within 6 months of the Council receiving the report), and purpose, which is to identify appropriate adaptive management solutions (such as reduction in the volume of fluid discharged, and or contaminant limits), in order to reduce the adverse effects so that they are no more than minor.
- 13.13 Lastly, I agree with Mrs Pappon’s recommendations to include monitoring conditions incorporating a mātauranga māori lens if the NTST and TRoNA wish to do so. I consider

¹⁰⁹ Hickey evidence, paragraph 13.1, page 36

¹¹⁰ McClintock evidence, paragraph 5.11 and 5.12

¹¹¹ Hickey evidence, paragraph 2.11(a) and (b)

that the further engagement between NTST and TRoNA is required to run its course before recommending any additional conditions of consent, to ensure that they are appropriate and necessary from the perspective of the tangata whenua groups themselves.

- 13.14 I consider that, based on the expert evidence provided, these additional conditions will ensure that the Proposal's projected magnitude of adverse effects are either confirmed, or should the monitoring identify an adverse effect, enable adaptive management mechanisms to be employed to ensure that this magnitude of effects is not exceeded.

14.0 CONSIDERATION OF TIME FRAME OF EXTENSION

- 14.1 Mrs Pappon has outlined her considerations of what an appropriate extension to the time frame associated with the cessation of the EBDP may be. I understand her evidence to be that the key considerations included the effects on the environment (*"expected to be no more than minor from a western science standpoint"*¹¹²), cultural effects, along with NTGA's past record, alternatives and best practicable options, and maintained an eye for caution and uncertainty. Mrs Pappon has also referred to case law including the *PVL Proteins v Auckland Regional Council* case¹¹³.
- 14.2 Overall, Mrs Pappon recommended a preferred term of two years, with reinjection required on the 1st of January 2023. In addition, Mrs Pappon considered aligning the consent with the date in which anticipated plan changes will be completed (December 2027). I am of the opinion that both of these timeframes are overly restrictive and are not appropriate.
- 14.3 I am of the opinion that a 14-year extension is appropriate, and accords with both the wider policy direction of the relevant planning instruments and Part 2 of the Act. This opinion is founded primarily on the technical water quality, ecology and geothermal systems evidence which all concludes that any adverse environmental effects will be, at worst, minor. It also reflects the support for the Proposal that has been offered by both Ngāti Tūwharetoa and Ngāti Rangitihi. I consider that Mr Milner's evidence indicates the presence of a solid foundation to address the concerns raised by TRoNA through ongoing hui, and potentially monitoring results from the Cultural Monitoring Plan if one is deemed appropriate and necessary. Lastly, I am of the opinion that this timeframe is necessary to alleviate the significant risk that the Company is facing economically.
- 14.4 With regard to Mrs Pappon's consideration of the past record of NTGA, I note that the past resource consents have all sought to transition from discharging to the river to discharging via reinjection. Consent 24200 was granted in 1997 and therefore preceded 2005 when NTGA assumed responsibility for complying with the legacy contracts. There was ultimately a disconnect between the commercial reality of transitioning to reinjection and the conditions of consent agreed to by the Minister of Finance. Since the consents were transferred to NTGA, there has been a concerted effort to reduce discharge to the River with the construction of multiple reinjection wells and pumps over the years. Details of recent such investments are outlined in Mr McClintock's evidence.
- 14.5 I therefore do not agree with the Officer's assessment that NTGA's past record indicates that NTGA continue to discharge similar volumes of spent geothermal fluid and heat within that fluid to the Tarawera River as they were in 2016, and that conditions designed to reduce discharge to the river are not useful as they have not been implemented by the Company.

¹¹² Pappon, M. Officer's Report, section 11, page 47.

¹¹³ *PVL Proteins v Auckland Regional Council* ENC Auckland A61/2001, 3 July 2001

- 14.6 I understand that TRoNA has consistently opposed the surface water discharge of NTGA's operations, and the discharges of all industrial processes into the Tarawera River. I consider that there has been genuine engagement to bridge the differences between TRoNA and Ngāti Tūwharetoa, however it appears that TRoNA presently maintains its opposition to the Proposal, but is actively engaged in hui with NTST to resolve outstanding issues. This follows the advice of Mr Milner¹¹⁴. I consider his evidence to be significant, as it suggests that there are meaningful and robust ways to address the concerns that have been highlighted by TRoNA that do not involve giving only two years for NTGA to reinject its EBDP discharge.
- 14.7 Considering Mrs Pappon's comments regarding alternatives and the best practicable option, I agree that, as a general principle, that it is not unreasonable to require users of the geothermal resource to discharge geothermal fluid via reinjection. However, I do consider that this is not a typical case. In this regard, the effects of the discharge are predicted to be, or are capable of being, addressed so that they are no more than minor.
- 14.8 Equally, requiring the reinjection of the discharge only yields a very modest improvement in the water quality and ecology of the river yet is expected to result in significant social and economic harm. While it may improve the cultural wellbeing of TRoNA, I understand the evidence of Amorangi Te Rire and Mrs Adlam to be that it would negatively impact on at least the cultural wellbeing of Ngāti Tūwharetoa¹¹⁵¹¹⁶.
- 14.9 Furthermore, I consider Mrs Pappon's comments on the definition of *best practicable option* as provided for in the RMA to be important. I agree that regard must be had, and has been had, to the likelihood that the option can be successfully applied, as well as to the nature of the discharge and sensitivity of the receiving environment. However, while the officer stated that she had considered the financial implications of the requirement to reinject the EBDP discharge, I am of the opinion that there was insufficient information provided to enable her to give this consideration any particular weight. This is not a criticism of Mrs Pappon. NTGA has since commissioned expert economic evidence to quantify these considerations for the Council, submitters and commissioners. In this regard, the economic effects of reinjection had not been properly quantified by a qualified expert at the time of writing of the s42A report. Mr Osborne's evidence demonstrates the importance of continuing the EBDP for an additional 14 years when considering the typical best practice discharge method (which is reinjection)¹¹⁷. I am of the opinion that while NTGA may have had 16 years to transition to discharge of the EBDP via reinjection, the significant financial implications and the, at best, minor improvement in the environment that reinjection would generate does not justify a two- or seven-year reinjection timeframe.
- 14.10 I agree with Mrs Pappon that there is some degree of uncertainty in the freshwater policy landscape, with new regional plans being required by the NPS-FM to become operative no later than November 2027. Balanced against these considerations are the actual and potential adverse effects of the discharge, the additional monitoring and review opportunities that are proposed by NTGA and, indeed the ability for the Council to review conditions of consent, under section 128(1)(a) and 128(1)(b) of the Act, should a new water quality or allocation regime be made operative via a regional planning process.
- 14.11 I also do not agree with the officer that the policy direction, encouraging a reduction in surface discharges, could form the basis for a recommendation that declines this s127 application. I agree that the policy direction indicates a preference for the discharge to cease. It does not, however, require that discharges to surface water cease. Put another

¹¹⁴ Milner evidence, section 4 & paragraph 6.3

¹¹⁵ Te Rire evidence, paragraphs 4.4, 4.5, 4.6

¹¹⁶ Adlam evidence, paragraph 4.10

¹¹⁷ Osborne evidence, paragraphs 2.9 and 2.10 (and 7.1 and 7.2)

way, I have not found any policy that “requires” discharge via reinjection, although it is clear that the policy prefers, promotes and encourages the same. The less directive language provides for certain cases where reinjection is not the best option, for a number of reasons. I consider that this reading can be applied to the present Proposal.

- 14.12 I consider that based on the evidence presented by NTGA’s experts, the overall effect that is anticipated by continuing the discharge, the proposed conditions of consent, and cultural considerations that a 14-year term (from the 1st of January 2021) is appropriate.

Blair McLean
28th May 2021

Annexure A - Professional Curriculum Vitae of Blair Campbell McLean

Blair McLean

Senior Planner

Profile

Blair graduated from Victoria University of Wellington in 2015 with a Bachelor of Science majoring in Development Studies and French with a minor in Geography. He then went on to complete his Master's Degree in Urban Planning and Policy at the Université Jean Monnet de Saint-Etienne in France in 2018.

As a recent graduate with overseas experience, and now more than two years of experience in the New Zealand context, Blair brings fresh insights to the environmental management domain with experience in community development and engagement, international cooperation and urban development. Blair's internship with an International City Network¹¹⁸ provided a good understanding of the different territorial challenges and alternative policy solutions facing the world's leading cities. He has progressed quickly since he began working at Enspire in early 2019, and has been given greater responsibilities and opportunities to lead larger projects.

Blair brings his interdisciplinary background, policy analysis skills and strong understanding of New Zealand's social, natural and political environments to the team at Enspire which ensures a high standard of research, policy analysis, consent processing and application preparation for clients.

Qualifications / Professional Memberships

- Master of Humanities and Social Sciences (Urban Planning and Policy), Université Jean Monnet de Saint-Etienne, France, 2018
- Bachelor of Science (Development Studies and French, minor in Geography), Victoria University of Wellington, 2015
- Associate Member, New Zealand Planning Institute (NZPI)
- Young Resource Management Law Association (RMLA) Membership

Expertise

RESEARCH AND POLICY ANALYSIS

Blair has worked on a broad range of projects in his time at University, during his internships, and recently at Enspire, ranging from urban sprawl, rehabilitation of former industrial sites and international urban development policy.

Examples

Planning and Policy monitoring

Ongoing monitoring of central and local government websites and personnel to provide policy analysis and sound and targeted planning advice to clients, to assist their participation in policy and plan making processes.

District and Regional Plan Change Reviews

Assessing planning maps and draft plan provisions on behalf of clients and engaging with Council staff prior to plan notification to ensure clients' interests are reflected in any change to the plan. Assisting clients in the review of proposed regional plan changes, preparation of submissions on the same, and

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¹¹⁸ INTA International Urban Development Association - a global membership association of urban policy-makers and practitioners

providing assistance throughout the evidence exchange, hearing, and appeals stages of the plan change process. Examples include:

- Taupo District draft energy chapter
- Waitaki District Plan draft quarrying and mining chapters
- Waitomo District Planning maps and draft energy and rural industry zone chapters
- Review HBRC Plan Change 9, and prepare submissions
- Review of Otago Regional Council Plan Change 8 (water quality) to the Water Plan
- Assist client prepare company evidence for Horizons Plan Change 2 hearing of submissions
- Provide advice on proposed wording of a proposed rule being appealed in the Bay of Plenty Plan Change 13 process

INTA International Urban Development Association, France 2018

Masters dissertation on the role of international city networks and their annual events in the exchange of best practice urban development. Informed through a case study on the INTA's World Urban Congress which has roots in the New Town movement in mid-20th century.

Université Jean Monnet de Saint-Etienne, France 2018

Analysis of the public transport system of Saint-Etienne, informing a project of the deconstruction of a motorway overbridge, leading to the urban renewal and partial rezoning of the Terrenoire neighbourhood in Saint-Etienne and a new local accessibility plan.

Centre Jacques Berque/INAU, Morocco 2017

Research on the demographics and economics of the Rabat-Casablanca Metropolitan area and the associated urban planning policies aimed in accommodating growth whilst combatting urban sprawl.

Etablissement public foncier de l'ouest Rhône-Alpes (EPORA), France 2017

A group rehabilitation project of an industrial neighbourhood located in the periphery of the Saint-Etienne metropolitan area utilising a participatory methodology in a project involving heritage protection, promoting community actions, redevelopment of public housing stock and the daylighting of a paved-over stream. Key tasks included managing communications, community engagement strategies, and developing project proposals.

RESOURCE CONSENTS

Blair undertakes processing of resource consent applications on behalf of Council clients. This involves s88 checks, preparing further information requests, coordinating technical specialists, liaison with applicants and submitters, identifying methods to resolve issues, performing robust statutory analysis, making recommendations, drafting consent conditions officer's and notification reports. Blair has gained familiarity in navigating and applying national, regional and territorial level planning instruments.

Project Examples

- Stormwater discharge
- Take, use, and discharge of geothermal fluid
- On-Site Effluent Treatment consents
- Surface and ground water takes (irrigation, frost protection, dust control)

Blair also prepares applications for resource consent which involves performing consent risk analysis, statutory analysis, preparation of robust Assessment of Environmental Effects, assessing existing environments and performing permitted baseline assessments, preparing expert planning evidence, engaging qualified and experienced experts, and providing consent risk advice.

Project Examples

- Water take and use

- Earthworks and Erosion and Sediment Control Plan
- Building additions - infringing on height plane; located in flood prone area and overland flow path
- Change of landuse - residential to commercial
- Construction of a structure within mean high-water springs
- Discharge of geothermal fluid to water
- Environmental Management Plan (including a specific Dust Management Plan) for earthworks
- Environmental Audit of a Limestone Quarry and Processing Plant and forensic planning assessment
- Certificate of Existing Use Rights
- Consent risk for redeveloping a high-rise tower
- 'Extant' consent analysis for resource consent applications to establish existing consented environments
- Audit of a limestone quarry and processing kiln to ensure compliance with existing consent conditions, and recommend required changes



Prepared By: Blair McLean, Senior Planner

Annexure B - Proposed Conditions of Consent

Condition Number	67151 Conditions and proposed changes in red (additions <u>underlined</u> , deletions struck through)
2.0	<p>The quantity of spent geothermal fluid discharged by the Consent Holder to the Tarawera River shall not exceed:</p> <p>(a) From the commencement of this resource consent until the 1st of January 2024 <u>2035</u>:</p> <ul style="list-style-type: none"> i. 20,880 cubic metres per day; and ii. 870 cubic metres per hour, <p>(b) From the 1st of January 2024 <u>2035</u>:</p> <ul style="list-style-type: none"> i. 9,600 cubic metres per day; and ii. 400 cubic metres per hour, <p>except where contingency discharges occur in accordance with conditions 7.1 and 7.1A. (Refer to Advice Note 4)</p>
20A	<p>The Consent Holder may, between the 1st of January 2024 <u>2035</u> and the 1st of January 2026 <u>2040</u>, discharge in accordance with conditions 2.0(a) and 6.1(a) if:</p> <p>(a) There is a failure in a reinjection well (or wells) and, as a consequence of the failure, there is insufficient suitable reinjection capacity within the Consent Holder's injection system to comply with conditions 2.0(b) and 6.1(b); and</p> <p>(b) The Consent Holder supplies a report to the Chief Executive of the Bay of Plenty Regional Council (or delegate) that sets out:</p> <ul style="list-style-type: none"> i. The nature of failure that has occurred and the circumstances that led to the problem occurring (if known); ii. The available and suitable injection capacity within the Consent Holder's system; iii. The investigations and actions that will be undertaken (and the timeframe for them to be implemented) to prevent the reoccurrence of the problem highlighted in condition 2.0A(b)(i) and to develop additional reinjection capacity such that conditions 2.0(b) and 6.1(b) will be met; iv. The maximum flow required to be discharged and the contaminant load of the spent geothermal fluid that will be discharged; and vi. The maximum duration of the discharge; and <p>(c) The Chief Executive of the Bay of Plenty Regional Council (or delegate) certifies that the report produced in accordance with condition 2.0A(b) warrants a discharge for the duration and up to the flow rate sought by the Consent Holder; and (Refer to advice notes 3 & 5)</p>
3.1	<p>From the commencement of this resource consent until the 1st of January 2024 <u>2035</u>, the spent geothermal fluid discharged to the Tarawera River shall only be discharged at one or both of the two discharge points shown on BOPRC Plan No. 67151-1 and located at the map references set out in condition 4.</p>
3.2	<p>From the 1st of January 2024 <u>2035</u> the spent geothermal fluid discharged to the Tarawera River shall only be discharged via the West Bank Discharge Point, unless contingency discharges occur in accordance with conditions 7.1 to 7.4 of this resource consent. In such circumstances, the Consent</p>

	Holder may use either or both of the two discharge points set out in condition 3.1.
6.1	<p>The discharge of spent geothermal fluid shall not exceed the following limits, except where a contingency discharge occurs in accordance with condition 7.1 and 7.1A:</p> <ul style="list-style-type: none"> a. From the commencement of this resource consent until the 1st of January 2024 <u>2035</u>: <ul style="list-style-type: none"> i. A total discharge of hydrogen sulphide of 540 grams per hour; ii. A total discharge of heat of 180 GJ per hour; iii. A total discharge of arsenic of 2160 grams per hour; iv. A total discharge of boron of 50400 grams per hour; v. A total discharge of lithium of 5760 grams per hour; vi. A total discharge of ammonia - nitrogen of 1370 grams per hour; and vii. A total discharge of mercury of 300 milligrams per hour. b. From the 1st of January 2024 <u>2035</u> of this resource consent: <ul style="list-style-type: none"> i. A total discharge of hydrogen sulphide of 250 grams per hour; ii. A total discharge of heat of 83 GJ/hour; iii. A total discharge of arsenic of 1000 grams per hour; iv. A total discharge of boron of 23200 grams per hour; v. A total discharge of lithium of 2650 grams per hour; vi. A total discharge of ammonia - nitrogen of 630 grams per hour; and vii. A total discharge of mercury of 150 milligrams per hour.
11.0	<p><u>No later than 31 August 2021, the consent holder shall submit for technical certification to the Bay of Plenty Regional Council a monitoring programme that:</u></p> <ul style="list-style-type: none"> <u>a. provides for additional algal toxicity testing to be undertaken on both the East Bank and West Bank discharges or a combined discharge sample;</u> <u>b. provides for 5 yearly multispecies toxicity testing to be undertaken on a representative combined sample of the East Bank and West Bank geothermal discharges;</u> <u>c. provides for 5 yearly multisite eel and marine shellfish monitoring;</u> <u>d. provides for additional eel monitoring sites in the regions of diffuse geothermal input and downstream of the reasonable mixing zone of the NTGA discharges;</u> <u>e. provides for additional sediment monitoring sites to be included with 5 yearly eel monitoring to include sites immediately upstream and below the reasonable mixing zone;</u> <u>f. provides for obtaining additional information on harvest quantities and locations (both commercial and recreational)</u>

	<p><u>on eels from the Tarawera River (and the Rangitaiki River as a local reference river);</u></p> <p><u>g. provides for a health risk assessment, using the data obtained from the next 5 yearly eel survey, for recreational consumers of species harvested from the Tarawera River - particularly focusing on local Māori populations and their consumption of mahinga kai species;</u></p> <p><u>h. provides for baseline monitoring of geothermal contaminants to obtain reference data for the river both upstream of Kawerau and immediately upstream of the discharges; and</u></p> <p><u>i. sets out the proposed methods to be used for the testing, monitoring; assessment, and obtaining of information referred to above; and</u></p> <p><u>j. sets out the frequency of proposed reporting to the Bay of Plenty Regional Council.</u></p>
<u>11.1</u>	<u>The purpose of the monitoring programme is to provide additional information on the matters listed above and provide the basis for analysis and reporting to the Bay of Plenty Regional Council in relation to the above matters.</u>
<u>11.2</u>	<u>In the event that the Bay of Plenty Regional Council has not advised the consent holder within one month of receiving the proposed monitoring programme that is has been certified, it shall be deemed to have been certified.</u>
<u>11.3</u>	<u>In the event that any monitoring programme report provided to the Bay of Plenty Regional Council includes an assessment that any adverse effects are more than minor, then the report shall be accompanied by advice from the consent holder regarding the management proposals the consent holder intends to take to ensure that an such effects are reduced so that they are no more than minor.</u>
<u>11.4</u>	<u>All monitoring programme reports provided to the Bay of Plenty Regional Council shall be provided to the Chief Executive Officer of Te Rūnanga o Ngāti Awa within one month of the date they are provided to the Bay of Plenty Regional Council.</u>
18.1	<p>The Bay of Plenty Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent under section 128 of the Resource Management Act 1991 in all or any of the following circumstances:</p> <p>a. Once every year from the commencement of this consent, for all or any of the following purposes:</p> <p>i. To deal with any unanticipated adverse effects resulting from changes to the Umapokapoka Lagoon (including the geothermal vegetation within and in the immediate vicinity of the Lagoon) and/or the adjacent pools which may arise from the exercise of this consent; and</p>

	<ul style="list-style-type: none"> ii. To deal with any unanticipated adverse effect on the water quality and ecology of the Tarawera which may arise from the exercise of this resource consent; and iii. To deal with any unacceptable adverse ecological and/or water quality effects that arise from the exercise of a longer contingency discharge authorised under condition 7.4; and iv. To amend or add discharge management strategy, modelling, monitoring, and reporting conditions, and conditions implementing additional measures to avoid, remedy or mitigate adverse environmental effects, in order to enable the Council to better manage any unanticipated adverse effects that may arise from the exercise of this resource consent; <p>b. At any time, where compliance or impact monitoring undertaken by the Bay of Plenty Regional Council and/or the Consent Holder shows an unacceptable adverse effect (or effects) on the environment and/or that the Consent Holder is not complying with the obligations set out in this resource consent. The purpose of such a review is to ensure that the Consent Holder's actions under this resource consent are appropriate to avoid, remedy, or mitigate any adverse effects on the environment;</p> <p>c. At any time to meet the requirements of the final version of a Kawerau Single System Management Plan created under the Bay of Plenty Regional Policy Statement. The purpose of such a review is to consider whether any conditions are required to be changed or added to give effect to the Kawerau Single System Management Plan; and</p> <p>d. At any time, for purposes of considering if the conditions of this resource consent need to be amended <u>(including, for the avoidance of doubt, Conditions 2.0; 2.0A; 3.1; 3.2; and 6.1)</u> to reflect:</p> <ul style="list-style-type: none"> i. Any water quality standards and/or discharge limits set in a relevant operative regional plan that has been publicly notified after the date of commencement of this resource consent to be met; and/or ii. Any relevant national environmental standard; and/or- iii. <u>Any decisions about the restoration of the Tarawera Awa made by Tarawera Awa Restoration Strategy Group under the Ngāti Rangitihi Claims Settlement Act.</u> <p>e. <u>Within 6 months of receiving any report in accordance with conditions 11.0(i)&(j), and 11.3 that shows that adverse effects are more than minor. This is for the purpose of assessing whether changes to the conditions of consent, (including changes to the discharge volume and/or contaminant limits from the East Bank), are required to reduce the adverse effects so that they are no more than minor.</u></p>
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Annexure C - Part 2 of the Act

1.0 Part Two of the Act

1.1 Should the Commissioners conclude that Part 2 needs to be considered, I have addressed sections 6, 7, 8 (contained within section 7 discussion) and 5, as follows. For completeness, this assessment links to section 12 of the planning evidence.

2.0 Sections 6, 7 & 8

2.1 Section 6 lists seven matters of national importance that the Council has an obligation to recognise and provide for. I now address those sub-sections of section 6 that I consider to be relevant to the Proposal.

2.2 Section 6(a) states that the preservation of the natural character of, amongst other things, wetlands, lakes and rivers and their protection from inappropriate subdivision, use and development, is a matter of national importance.

2.3 Natural Character is not defined in the Act. However, Policy 13(2) of the New Zealand Coastal Policy Statement 2010 provides further direction on the meaning of the term natural character, which finds that it is distinct from natural features and landscapes or amenity values. It may include matters such as: *natural elements, processes and patterns; biophysical, ecological, geological and geomorphological aspects; natural landforms; the natural movement of water and sediment; places or areas that are wild or scenic; a range of natural character from pristine to modified; and experiential attributes.*

2.4 With regard to the degree of preservation of natural character of the Tarawera River offered by the Proposal, Dr Hickey's evidence provides a discussion centred around the effects of the discharge on water quality and capacity of the river to sustain life. Having considered all of the expert evidence and advice that has been presented by NTGA and the BoPRC, I am satisfied that the Proposal will maintain the level of natural character for a further 15 years, which I understand to be appropriate; both in environmental and commercial terms. The removal of the discharge in 14 years from now will ultimately see the level of natural character enhanced, albeit only in a very minor way. The maintenance and then enhancement of the level of natural character is, in my opinion, appropriate, and it offers the level of preservation and protection that seems to be warranted in this instance.

2.5 Section 6(b) of the Act relates to the protection of outstanding natural landscapes and outstanding natural features. I understand that the Tarawera River has not been classified as an outstanding natural landscape or outstanding natural feature in the RPS. Section 6(b) is therefore irrelevant.

2.6 The protection of significant indigenous vegetation and significant habitats of indigenous fauna is provided for as a matter of national importance in section 6(c). In a similar vein, the protection of the habitat of trout and salmon is highlighted under section 7(h) of the Act. No significant indigenous vegetation is affected by the Proposal. Dr Hickey's evidence has also addressed the effect on tuna and other indigenous fish species. His evidence is that the Proposal is not expected to impact on these species, nor on the habitat of trout¹¹⁹.

2.7 The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga is a matter of national significance under section 6(e). Furthermore, sections 7(a) and 7(aa) highlight the importance of kaitiakitanga and the ethic of stewardship to sustainable management in New Zealand. Thirdly, Section 8 of the Act states that the Council shall take the principles of the Treaty of Waitangi into account when considering the resource consent applications lodged by NTGA. I now address each of these considerations.

¹¹⁹ Dr Hickey Evidence, paragraph 6.8

2.8 I am of the opinion that the Proposal has appropriately considered, and is consistent with these provisions, for the following reasons:

- a. The difference between Ngāti Tūwharetoa and TRoNA has been addressed in detail. NTGA's position is that Ngāti Tūwharetoa's relationship with the river and the geothermal system, and its responsibilities as kaitiaki are met by granting the extension of time sought. Ngāti Rangitihi has given its written approval to the Proposal, which leads me to the opinion that the Proposal must be acceptable to it, and enable it to continue its relationship with the river. While TRoNA oppose the Proposal, and highlight a number of actual and potential adverse effects, I find the evidence of Dr Hickey and Mr Milner to be compelling. In this regard, while acknowledging the values that TRoNA has with the river, Dr Hickey set out a series of measures that he considers could be employed to reduce those effects to the point that are acceptable with respect to water quality and mahinga kai. Mr Milner has recommended that engagement continue in a tikanga based framework which may lead to a mutual agreement on how to resolve outstanding issues. NTGA has advised, via Mr McClintock's evidence, that it will implement Dr Hickey's recommendations. NTST will continue ongoing engagement with TRoNA and may consider the recommendations included in Mr Milner's cultural evidence if they are appropriate or necessary following the hui on the 8th of June 2021. In doing so, I am of the opinion that NTGA has sought to recognise and provide for TRoNA's relationship with the river;
- b. By providing opportunities for Tangata Whenua to become involved in, and to contribute to the Proposal, NTGA has sought, in my opinion, to act in accordance with section 7(a). In that regard, I note that a CEA was obtained from TRoNA. Given the mechanisms embodied within the proposed conditions of consent¹²⁰ which are designed to supplement Dr Hickey's conclusions and resolve any uncertainties; and the proposed Tarawera Awa Restoration Strategy Group that is to be established under the Ngāti Rangitihi Claims Settlement Bill, Although not required by conditions of consent, I am confident that on-going engagement with Tangata Whenua will occur as the project advances, and that the applicable iwi and hapu will continue to influence the Proposal. I accept, as I have already noted, the frustration that is apparent in the submissions as to the impacts of the principle of discharging contaminants into the river on the exercise of kaitiakitanga from TRoNA's perspective, and the concern that the Proposal continues that and does not improve the situation. I am confident, however, that NTST and TRoNA will continue engagement which will hopefully go towards resolving differences in their respective positions.
- c. These efforts similarly apply to section 7(aa) of the Act (the ethic of stewardship). NTGA's proposed continued engagement with TRoNA (regarding the Proposal as it advances, cultural monitoring framework, a 'relationship agreement', and the potential project for geothermal terraces in place of the serpentine channel) reflects, in my opinion, the stewardship role that other parties have to play when dealing with taonga such as rivers and geothermal fields.
- d. Section 8 of the Act states that the Council shall take the principles of the Treaty of Waitangi into account when considering the resource consent applications lodged by NTGA. Mr Milner has set out what those principles are in his evidence, and discussed them in terms of how the Proposal is giving effect to the respective tikanga of NTST and TRoNA¹²¹. I rely on that evidence. As a consequence, I am of the opinion that the Proposal can be advanced so as to be consistent with principles of the Treaty of Waitangi.

¹²⁰ Condition 11.0, 11.1, and 11.4

¹²¹ Milner evidence, paragraph 3.7

Section 7

- 2.9 The section 7 matters that I consider to be of relevance to the Proposal and that I have not already addressed are:

- a. Section 7(d) - intrinsic values of ecosystems;
- b. Section 7(f) - maintenance and enhancement of the quality of the environment;
- c. Section 7(j) - the benefits to be derived from the use and development of renewable energy.

I now discuss each of these matters.

- 2.10 Having regard to the evidence that has been presented, particularly that of Dr Hickey, and also the Council's experts¹²², I consider that the Proposal is not resulting in marked changes to the ecosystems¹²³ that are present within and adjacent to the Tarawera River (including the various values they support). The Proposal can therefore be managed to generate limited adverse effects. These conclusions, when coupled with the various mitigation responses that are recommended by all experts¹²⁴ (and which have all been incorporated into the proposed conditions of consent, particularly that of the effect on algal biomass), lead me to the opinion that the Proposal accords with the direction that is advanced by sections 7(d) and (f) of the Act. When I consider the effects of the Proposal as a whole, I am of the opinion that the quality of the environment will both be maintained and, in some instances, improved over the term of resource consent RC67151. Indeed, the small environmental improvement sought by the resource consent as it stands will continue to be achieved in the life of the existing consent. It will just be delayed in a manner that will not generate more than minor adverse effects, but will preserve a number of positive benefits that the discharge enables. These considerations accord, in my opinion, with section 7(f) of the Act.
- 2.11 Ngāti Tūwharetoa and Ngāti Rangitihi have both given their written approval to the Proposal. While TRoNA has recorded concerns, Mr Milner has advised that, in his expert opinion, the pathway forward which will see ongoing engagement is a good foundation to resolve these issues. Additionally, there are mechanisms available to be used should they be considered appropriate and necessary.
- 2.13 Lastly, Section 7(j) requires that particular regard be given to the benefits derived from the use and development of renewable energy. The Proposal is enabling of this provision for the following reasons:
- a. The Proposal relates to the continued use of the geothermal field, both commercially from the perspective of NTGA, but also culturally from the perspective of NTST as a connection with the Ngawha is enabled.
 - b. Equally, I note the evidence of Mr McClintock and Mr Osborne¹²⁵ as to the strategic benefit of NTGA continuing to operate, and, more specifically, the significance of the operations to Kawerau and the Eastern Bay of Plenty. In my opinion, these factors weigh in favour of the Proposal.

3.0 Section 5

- 3.1 Section 5(1) states that the Act's purpose is "*to promote the sustainable management of natural and physical resources*". Section 5(2) defines the term sustainable management as meaning:

¹²² Pappon, M. Officer's Report, sections 9.1.1 and 9.1.2

¹²³ Hickey evidence, paragraph 7.12

¹²⁴ Dr Hickey, Dr Suren, and Dr Phillips

¹²⁵ Osborne evidence, paragraph 5.11

“managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

- a. sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- b. safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
- c. avoiding, remedying, or mitigating any adverse effects of activities on the environment.”*

People and Communities and their Reasonably Foreseeable Needs

- 3.2 I consider that the Proposal is an important part of the ongoing operation and competitiveness of a wider activity, being the abstraction of geothermal energy and water by NTGA. This wider activity is also, I understand from Mr McClintock’s evidence, of importance to the social and economic wellbeing of many within Kawerau, Eastern Bay of Plenty and New Zealand in general. More particularly, Mr McClintock’s evidence highlights the importance of the geothermal resource to the Mill and industrial facilities at Kawerau and its benefit to the communities at local and regional levels. It also highlights the challenges that NTGA could face were the change to conditions not granted. Given this, I am of the opinion that should the Proposal proceed, it is likely to benefit many people and communities.
- 3.3 In my opinion, social and economic wellbeing is broader than the benefits that a proposal may bring. In that regard, it requires an environment (including all of its component parts, biophysical and metaphysical) that enables people to function as they would normally, in a safe, enjoyable and fulfilling way. In my experience with this project, considerable care has been taken by NTGA to understand the environment that exists, to retain credible experts to predict and describe the environmental effects that could arise, and to develop appropriate avoidance, remediation and mitigation measures to ensure that environmental quality is maintained, if not enhanced as a consequence of the Proposal and all of its component parts. With these measures in place, I am of the opinion that the Proposal can be advanced so as to enable people and communities to provide for their social and economic wellbeing. I note that Mr Osborne offers the same expert opinion in his evidence in that the Proposal will enable NTGA to weather the significant financial and operational risks facing the Company in the short-term¹²⁶, and provide continued financial assistance to NTST beneficiaries through grants¹²⁷.
- 3.4 An assessment of cultural wellbeing in this instance can be informed by a number of considerations, including the CEA and submission received from TRoNA, and the evidence from Amorangi Te Rire, Mrs Adlam and Mr Milner. The CEA and some of the submission points raise a number of cultural effects and broader concerns that are at issue. Indeed, the advice embodied within the CEA is that there are a number of adverse cultural effects that cannot (and should not) be remedied or mitigated. Rather, avoidance is advanced. The evidence of Amorangi Te Rire and Mrs Adlam is also notable, in my opinion, as it concludes that the cultural health and mauri of the river is in fact sustained by the geothermal discharge¹²⁸. Further, the written approvals received lead me to the opinion that the Proposal provides for the cultural wellbeing of Ngāti Tūwharetoa and Ngāti Rangitihi.
- 3.5 The issue appears to be whether the cultural wellbeing of TRoNA can be recognised and provided for. From TRoNA’s submission, it appears that it cannot be. That said, I take

¹²⁶ Osborne evidence, 5.14 and 6.6

¹²⁷ Osborne evidence, 5.12

¹²⁸ Te Rire evidence, paragraph 4.4

comfort from the evidence of Mr Milner that measures exist to provide for the cultural wellbeing of TRoNA.

- 3.6 Given the evidence of the experts assisting NTGA¹²⁹ (all of whom have considered and (as needed) responded to the submissions and addressed Mrs Pappon's report in their evidence), I am of the opinion that the Proposal can be advanced in a manner that maintains the natural values that are presently supported by and in close proximity to the area of the EBDP (including both the Kawerau Geothermal Field and the Tarawera River). This in turn, I consider, should enable people and communities to provide for their social, economic and cultural wellbeing and for their health and safety¹³⁰.
- 3.7 It follows that I am also of the opinion the Proposal can be advanced so as to achieve section 5(2)(a) of the Act.

Safeguarding Life Supporting Capacity

- 3.8 Section 5(2)(b) requires that in achieving the purpose of the Act "*the life-supporting capacity of air, water, soil and ecosystems*" are to be safeguarded.
- 3.9 Having considered the evidence of Dr Hickey, I am of the opinion that the Proposal will not cause a significant reduction in (or loss of) the life-supporting capacity of the Tarawera River, within or adjacent to the area that is disturbed by the EBDP. In a similar vein, Mr Chilton's evidence leads me to the opinion that the air in the vicinity of the EBDP will not be unacceptably affected by the Proposal. Lastly, the evidence of Dr Burnell leads me to the opinion that the Geothermal Field will not be impacted to any more than a very minor degree should the Proposal be approved. I note that all of these opinions have been supported, substantively at least, by the experts assisting the Bay of Plenty Regional Council. In this regard, I note Ms Pappon's conclusion that "*the discharge is likely to have effects that are 'no more than minor'*"¹³¹, and that "*From an effects perspective the discharge is not likely to cause or induce significant adverse effects on instream ecology or ecotoxicology*"¹³² although she also noted that there is some uncertainty regarding effects on algae and invertebrate communities which are able to be addressed post granting of consent.
- 3.10 As a consequence, it follows that I am also of the opinion that the Proposal can be advanced so as to accord with section 5(2)(b) of the Act.

Avoidance, Remediation or Mitigation Adverse Effects

- 3.11 The evidence of the experts called by NTGA, Mrs Pappon in her report to the Commissioners, and section 3.0 of the AEE all set out the various adverse effects that a body of experts advise could occur as a consequence of the Proposal. The evidence of the independent experts then goes on to make a number of recommendations, all of which have been accepted by, and thus define the approach that NTGA is proposing to ensure that all adverse effects are avoided, remedied or mitigated to the extent that is needed to achieve the Act's purpose. I understand that that this approach will neither eliminate all adverse effects nor result in a 'no net effect' outcome. Rather it will reduce the effects to a level considered by a number of experts to be appropriate, while maintaining the Proposal in a form where it will be able to occur.
- 3.12 The only effect that appears to be unresolved in terms of the Proposal's actual and potential effects, appears to be the potential for the Proposal to impact on the cultural values that TRoNA holds. TRoNA's opposition to the Proposal requires very careful consideration. In this respect, it is not, in my opinion, a matter of simply seeking to

¹²⁹ NTGA's experts being Dr Hickey, Dr Burnell, Mr Chilton

¹³⁰ This demonstrated by the evidence of Mr McClintock and Mr Osborne

¹³¹ Pappon, M. Officer's Report, section 10.8

¹³² Pappon, M. Officer's Report, section 10.5 - Table 13

balance the positive effects of the Proposal against TRoNA's adverse effects. Rather it is a case of understanding TRoNA's cultural values, what effects could arise on those values, and if those effects can be avoided, remedied or mitigated. I am of the opinion, given Mr Milner's expert evidence, that there is a pathway to resolve the adverse effects of the Proposal on TRoNA in a concurrent tikanga based process. I rely on that evidence to reach an ultimate opinion that it is therefore possible for the Proposal to achieve the direction sought by section 5(2)(c) of the Act.