

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications submitted by New Zealand Energy Limited for a change or cancellation of conditions to existing resource consents 101987/1, 101990/1, 101991/1, 101992/2, 101993/1, 102264/1 and for new Land Use Consents 104088 and 104089, new Water Permits 104090 and 104091 and new Discharge Permits 106031, 106032 and 106033, all relating to the Raetihi Hydro Electric Power Scheme, Raetihi.

Evidence of HANNAH RAINFORTH, MSC, NGĀTI RANGI TRUST

Date: 4 November 2013

BRIEF OF EVIDENCE OF HANNAH JANE RAINFORTH

Qualifications and Experience

- 1 My full name is Hannah Jane Rainforth.
- 2 I whakapapa to Te Āti Haunui-a-Pāpārangī, Ngāti Rangi and Ngāti Hauiti.
- 3 I have a Master's degree in Ecological Restoration from Victoria University of Wellington, focusing on matauranga Māori and freshwater mussels in the Whanganui River. I worked for the Department of Conservation from 2008-2012 as a community relations and freshwater ranger, acting Technical Support Officer for Freshwater and finally a biodiversity ranger. Since February 2012 I have been employed by Ngāti Rangi Trust as the Pou Taiao, or Environmental Manager. My role at the Trust is heavily focused on freshwater matters.
- 4 I am a member of the New Zealand Freshwater Sciences Society and currently stand as the Māori representative to the Executive Committee of that society.
- 5 I participated in the Land and Water Forum from 2012-2013 to provide a Whanganui iwi perspective to the Forum discussions. I am a member of the Technical Advisors Group for the Iwi Leaders Group for Freshwater and in that role I have participated in the Reference Group and the Iwi Science Panel for the National Objective Framework¹.
- 6 In my role as Environmental Manager, myself and my team undertake surveys of the rivers in question for this hearing, as part of our general iwi-based environmental monitoring.
- 7 In all my work I am guided by the advice of my elders and of my iwi.

Recommendation to decline

- 8 Ngāti Rangi Trust supports the recommendation outlined in Ms Morton's planning evidence that this **application should be declined**. We agree with the summary of issues outlined in paragraph 154, and concur that the Applicant has failed to meet their obligations under Section 8 in respect of the Treaty of Waitangi. We also submit that the rivers are over-allocated and that the percentage of take currently abstracted, as well as that proposed to be abstracted, is excessive. This impacts on the health and well-being of the rivers, and on te mana o te wai.

Flows

Iwi definition of minimum flows

- 9 The concept of minimum flows has been extant for a number of decades now within Western science and Western-based planning frameworks. While this concept has been helpful in ensuring or returning basic flows to some rivers (as opposed to nil flow), its widely accepted definition as a set flow at which the river must be maintained (unless natural flows drop beneath this) does not align with an iwi-based concept of minimum flows.

¹ It must be noted that involvement does not necessarily equate to support of the final format of the National Objectives Framework.

- 10 For iwi (at least in this rohe), the concept of a minimum flow is that of a flow that enables whānau, hapū and iwi to fulfil their obligations and responsibilities to our local waterbodies. Those obligations include ensuring that the health and wellbeing, and te mana o te wai, is protected. The health and wellbeing of our local rivers is inextricably linked to the health of our people, and underpins our connections to those waterways. If we, as a community, are over-abstracting then the health and well-being of the river is impacted upon, and our ability to fulfil our obligations is affected.
- 11 Cultural connections are related to season; there is an innate expectation that one will experience different river flows at different times. For example, if one goes to the river to ceremonially welcome the return of a species but the flow is unsuitable for that species, we are unable to fulfil our relationship responsibilities to the river and the species. The prime fishery in our rohe is long-fin eels. Elvers of this species prefer fast-flowing, well oxygenated waters. They migrate upstream in December. Our rivers (particularly the Mākōtuku) include snow melt and therefore often still experience high flows in December, yet the proposed takes would reduce the stream to a slow minimum flow.
- 12 Furthermore, our cultural connections rely on our rivers and streams being able to provide for us, not merely as a food source, but for our whole way of being – from language, to how we engage socially, to our cultural world view. These connections become interrupted when our awa are altered so dramatically they no longer sing to us – rather when they can only whisper in a restricted monotone that remains the same day after day.
- 13 We would, in consequence, look for a ‘minimum flow’ that allows the river to continue to behave as a river does, with regular fluctuations in its levels according to rainfall and snow melt – not one where it is confined to a restricted base flow for a large amount of the time. A minimum flow would, in this case, require that most water is left in the river, with only a certain percentage removed for use out of the stream. As such, the concepts of ecological flows and a (small) percentage allocation sit much more comfortably with us than that of a minimum flow.
- 14 **Outcome sought:** That the implementation of any ‘minimum flow’ regime allows for regular variation in the flow, and does not result in the ‘flat-lining’ or restricting of the river to a low flow for long, unnatural periods.

Sustained periods at minimum flows

- 15 Both Mr Brown and Ms Glackin have discussed the importance of flow variability and ensuring a waterbody does not remain at minimum flow for a prolonged period. Ngāti Rangi Trust supports this. However, the proposed flow regime does not safeguard the waterbodies in question from sustained periods at the minimum flow. We commend Ms Glackin and Ms Morton for attempting to design a flow regime that provides for variability; however, they were constrained by the current policies of the One Plan (see Core Allocation discussion below) and therefore unable to propose suitable safeguards

for variability. To illustrate, I refer the Commissioner to Table 1 below. Under no circumstances can it be justifiably argued that forcing a river to sit at minimum flows for 81% of summer equates to a suitable range of variability.

- 16 We suggest that a minimum flow regime should be tied to annual exceedence period tables and the amount of time a waterbody would naturally remain at low flows. The amount of time spent at low flow, we suggest, should be a percentage increase of the natural percentage time at low flow, and tied to ecological thresholds, (such as temperature, periphyton, or dissolved oxygen). Research would need to be conducted as to the percentage increase that is ecologically acceptable, but as an example a 30% increase in the period spent at minimum flow would, on the Mākotuku, mean minimum flows were sustained for 3% of the time in winter and 40% in summer (being 30% of 2.5% and 31% time at min flow naturally, respectively). This is in contrast with the 55% and 81% respectively currently proposed. Beyond this, flows would need to be released above and beyond the minimum flow in ecologically relevant amount. Alternatively, sustained periods at low flows could be avoided if the core allocation were reset at 5-30% of MALF, as discussed below.
- 17 **Outcome sought:** As above, Ngāti Rangi Trust seeks a flow regime that adequately provides for variability and does not result in prolonged periods at low flow.

Median flows and food productivity

- 18 Furthermore, the IFIM analysis produced by Joe Hay (2007) illustrates that the food productivity in the Mākōtuku and Mākara increases with flow. This relationship did not level off in the modelling graphed in that paper (figs. 2-4, pages 13-14 of that document), demonstrating that (at least up to 0.5 m³/s) larger flows result in more food for eels (and trout). This is also discussed by Mr Brown, who illustrates in his evidence the importance of median flows for food production. Furthermore, Mr Hay states that, “any reduction in flow would be expected to cause a reduction in habitat, at least below the median flow (446 L/s), for trout and eels” (page 12).
- 19 Ngāti Rangi Trust reiterates that it is opposed to such a large take of water as that currently abstracted by New Zealand Energy Limited, and as that proposed to be abstracted. We reinforce that we would like to see flows that provide variability, that let the river behave as a river does naturally, and that do not amount to a large percentage of MALF being removed from the river. This aligns with Mr Brown’s demonstration of the importance of median flows, and Mr Hay’s findings that less flow will cause a reduction in habitat and more water will result in a greater food supply.
- 20 If this consent is granted, which we remain opposed to, we seek an abstraction regime that will only allow for a small percentage of MALF to be taken, thereby allowing variability and the retention of median, food-producing flows. We believe that the suite of measures proposed in this evidence could facilitate this – ie minimum flow in the Mākōtuku of 110.2 L/s and the Mākara of 108.3 L/s, an allocation of between 5 and 30%

of MALF, and supplementary flows where appropriate. See below for details of these proposals.

- 21 **Outcome sought:** Ngāti Rangi seeks a flow regime that adequately provides for median flows and food-producing flows.

Table 1: Percentage of time flows would equal or exceed minimum flow. Data from Mr Brown's evidence, and Hewitt and Stebbings 2013.

Stream	Horizons' proposed min flow					Applicant's proposed min flow				
	Proposed minimum flow	Winter		Summer		Proposed minimum flow	Winter		Summer	
		% of time flow would be at min	% of time flow would be at min proposed naturally	% of time flow would be at min	% of time flow would be at min proposed naturally		% of time flow would be at min	% of time flow would be at min proposed naturally	% of time flow would be at min	% of time flow would be at min proposed naturally
Makotuku	95 L/s	55%	7% (this should read 2-3%)	81%	40% (this should read 31%)	80 L/s	33% (with flows remaining at 84 L/s 55% of the time because of takes)	1-2%	30% (but remaining at 84 L/s 80% of the time because of takes)	23%
Makara	45 L/s	n/a – applicant's proposed min flow is higher				50 L/s	63%	0%	81%	0%
Makaraiti	10 L/s	93%	0%	93%	0%	10 L/s	93%	0%	93%	0%

Sustained periods at minimum flows from an iwi perspective

- 22 It is the iwi view that a river should function as closely to its natural state as possible. This reflects te mana o te wai, in that the river has its own personality, moods, voice, song, and intrinsic right to be. A river, by nature, should have different flows at different times. Reducing the river to one set flow for roughly 80% of the time removes an unacceptably large portion of its moods and voices. Again, sustained periods at low flows could be avoided if the core allocation were reset at 5% of MALF, as discussed below.

Review of Minimum Flow

- 23 MALF in the Mākōtuku is 116 L/s². If the minimum flow was calculated utilising scenario 5a in the One Plan (Hurdell, 2009), the minimum flow would be 110.2, or 95% of MALF, given that the MALF is less than 460 L/s. This is greater than the 95 L/s in Schedule B of the Proposed One Plan 2013. The One Plan minimum flow is based on an IFIM assessment that allows for the retention of 70% of habitat, or a 30% loss of habitat. While the data and modelling that is used for IFIM is robust (for trout at least), the cut-off point of 70% habitat retention is a value judgement. The One Plan ranks the IFIM higher than a calculated percentage of MALF as a method for determining minimum flows, given that the IFIM is more robust in its *data*. It is not, however, necessarily more robust in its *environmental outcomes*, given the value judgement of a 30% loss of habitat. That there is an arbitrary value judgement underlying the IFIM-recommended minimum flows is supported by statements in Mr Hay's 2007 report *Instream Flow Assessment for the Mākōtuku and Mākara Rivers*, page iii. At 95 L/s (ie the IFIM recommended minimum flow), there is an 18% reduction in the MALF, yet the less data-intensive calculation of Scenario 5a results in only a 5% loss. We suggest that in determining environmental outcomes, the more conservative method should apply. In this instance that would result in a minimum flow of 110.2 L/s, not 95.
- 24 Undertaking the same calculations for the Mākara would result in a minimum flow of 108.3 L/s, as opposed to the 45 L/s currently suggested in the One Plan.
- 25 **Outcome sought:** Increase the minimum flow in the Mākōtuku to 110.2 L/s and the Mākara to 108.3 L/s (notwithstanding the outcome sought above in paragraph 14 for a more holistic reckoning on minimum flow).

Clarity required

- 26 Please note, Ngāti Rangi Trust would also like clarity on where the figure of 45 L/s for the Mākara arose from, considering Mr Hay's report recommends 86 L/s to support a 70% retention of habitat at low flows³.

Core allocation and over-allocation

² Henderson and Diettrich, 2007

³ Hay 2007, page 20.

- 27 Ngāti Rangi Trust supports the concept of a core allocation. A core allocation, particularly when tied to a (small) percentage of the flow or a (small) percentage of MALF, allows the river to retain different voices and flow variability, and is consistent with an iwi perspective of a 'minimum' flow as discussed above. Core allocations are also consistent with the model proposed by the Land and Water Forum (LAWF), which the wider Whanganui confederate participated in and continues to support. This LAWF model determines that there are ecological needs inherent in the waterbodies that must be accounted for first and foremost, after which any remaining water can be utilised for human values.
- 28 Unfortunately, core allocation for the rivers in question were not set according to ecological parameters, but on existing uses – specifically hydroelectricity (excluded from the calculations), the Raetihi water supply, and two agricultural consents.
- 29 If core allocation was calculated according to One Plan policies for rivers that are not subject to a hydroelectric take (ie purely according to the inherent ecological needs of the river), the core allocation would be set between 5 and 30% of MALF (with a minimum flow retained). Current core allocation for the Mākōtuku is 29 L/s (set for Ruapehu District Council water take), but with the 300 L/s for Raetihi hydro, the *effective* core allocation is 329 L/s. With a MALF of 116 L/s for this stream, this equates to **284%** of MALF. This is in stark contrast to the 5-30% recommended when allocations are calculated on ecological needs and environmental impacts.
- 30 As evidenced by Ms Glackin, the Mākara is over-allocated by 6 L/s, and this is with the NZEL takes already having been discounted from the calculations. If the 300 L/s currently consented to NZEL is factored in, the *effective* allocation is 306 L/s. With a MALF of 114 L/s, this equates to **213%** of MALF.
- 31 Due to the One Plan Policy 6-16, which excludes existing hydro takes, the Mākōtuku is not defined by Horizons as over-allocated, and the Mākara is only defined as over-allocated by 6 L/s, despite the large effective allocation in proportion to MALF. Ngāti Rangi Trust asserts that while core allocations are generally supported and have been well-calculated by Horizons in other waterbodies, they have failed to avoid over-allocation in a real sense in the rivers in question in this application.
- 32 In addition, the National Policy Statement for Freshwater Management requires that over-allocation be phased out:
Objective B2 (water quantity): "To avoid any further over-allocation of fresh water and phase out existing over-allocation."
- 33 We contend that the core allocations should be re-calculated to account for ecological needs, not existing uses. See below for more on this.

Opportunity to review core allocations

34 The applicant is applying for a new consent for a water take, as opposed to a straight renewal of their existing consents. The current core allocations in the One Plan are calculated excluding hydroelectricity consents that were operating at the time. This results in a situation where the core allocations for these rivers are not based on ecological considerations, but on existing use. By way of this approach, New Zealand Energy is effectively giving up their existing use rights by applying for new water take consents, rather than seeking renewal of their existing consent. This presents an opportunity for the Regional Council to review the core allocations for these rivers. Such a review could align the core allocations here with One Plan rules and policies for other rivers in the region, which have been designed around ecological needs. A review could result in more robust core allocations for these rivers, and also one that is more in line with iwi concerns.

Equity issues

35 There are equity issues in how the core allocations were determined for waterbodies with existing hydroelectricity takes. Effectively, the hydroelectricity users had their water allocation ‘grandparented’⁴ – they were allocated a very large proportion of water based on existing use rights, which in turn were obtained on a “first in, first serve” basis. This represents a substantial transfer of wealth to one user. To illustrate, at the time core allocations were set, the effective distribution of flow was: 29 L/sec for Raetihi water supply, 50 L/sec for the river, and 300 L/sec for NZEL, albeit that this was excluded from actual calculations (Hurndell, 2009). One does not need to be particularly adept at mathematics to grasp that a single user was, in this instance, awarded with a substantial water right, at the expense of both the river and other potential users. This is unjust not only in a socio-economic sense, but also in an ecological sense.

36 **Outcome sought:** Review the core allocations for the rivers subject to this consent application to align with ecological needs and One Plan policies for waterbodies that are not subject to hydroelectric takes, ie so that allocation is set within 5-30% of MALF.

Supplementary Allocation

37 We have advocated above that the effective core allocation be reviewed to align with ecological needs and One Plan policies for rivers not subject to hydroelectricity takes. We note that this would result in a substantial reduction in the amount of water New Zealand Energy is able to abstract. However, we consider that some of this reduction might be mitigated through use of the Supplementary Allocation policy in the One Plan. This policy states:

Policy 6-18: Supplementary water[^] allocation

In addition to the core allocations set out in Policy 6-16, a supplementary allocation from rivers[^] may be provided:

(a) in circumstances where water[^] is only taken when the river[^] flow is greater than the median flow, and the total amount of water[^] taken by way of

⁴ For clarity, Hawke (2006) defines the process of grandparenting as a mechanism where “the initial allocation would be carried out on the basis of current existing water rights and that existing rights holders receive a considerable transfer of wealth (the actual allocation can be either on the existing consented amount or a function of historic use or some combination)

a supplementary allocation does not exceed 10% of the actual flow in the river[^] at the time of abstraction, and
(b) in circumstances where it can be shown that the supplementary allocation will not:
(i) increase the frequency or duration of minimum flows
(ia) lead to a significant departure from the natural flow regime, including the magnitude of the median flow and the frequency of flushing flows
(ii) cause any adverse effects[^] that are more than minor on the Schedule AB Values of the water body[^] or its bed[^]
(iii) limit the ability of anyone to take water[^] under a core allocation
(iv) Derogate from water[^] allocated to hydroelectricity generation.

- 38 Ngāti Rangi believes that when choosing between coal and hydroelectricity for energy generation, hydroelectricity *can*, if well managed, be a better option ecologically. To date, however, this has not been the case, and our rivers continue to be deeply impacted by hydroelectricity schemes. We state the following with some trepidation, with concerns that the statements might be misused. However, we trust that other parties in this particular resource consent hearing will not abuse this attempt at finding a reasonable solution in difficult circumstances. Furthermore, we note that the following suggestions do nothing to mitigate our continuing concerns around the mixing of the mouri of different river groupings. However, if the scheme is to be granted regardless of these concerns, we wish to see it operating with as few impacts as possible. The use of a supplementary allocation could aid this, while allowing NZEL to have at least some water with which to run the Raetihi Hydro Scheme. We are proposing that, if the allocation for these rivers were brought within the 5-30% of MALF suggested with a minimum flow of 110.2 L/s in the Mākōtuku and 108.3 L/s in the Mākara, a supplementary allocation aligned with Policy 6-18 might be acceptable, and might allow some compromise between parties.
- 39 In practice, this could result in an allowable take of 5-30% of MALF when flows are below median flow, with an additional take up to 10% of actual flow when flows are above this. This would mean NZEL were abstracting more only at times when the river has the ability to provide more, which is consistent with iwi philosophy around only taking what nature is able to give without her being hurt.
- 40 30% of MALF in the Mākōtuku would be 34.6 and in the Mākara would be 34.2. With winter flows exceeding 595 L/s in the Mākōtuku 50% of the time, this would equate to more than 59.5 L/s able to be abstracted more than half the time, equalling and exceeding 94.1 L/s in total take through half of winter. Ngāti Rangi Trust does not consider this amount too great a reduction on the current allocation, and also contends that this type of allocation regime could allow the power scheme to continue operating without impacting too greatly on river flows. The current power scheme plant is extremely old and replacement of the turbines could potentially allow the scheme to utilise any allocated water more efficiently. Such an upgrade could potentially offset the reduction in water take proposed here, so that the reduction could be effected without too great an impact on current generation capacity.

Flow sharing proposal

- 41 While the flow sharing proposal goes some way to increasing variability, we oppose this regime based on the following:
- The flow would continue to be held at minimum for extended periods, in the same manner as it is currently, up to the initial 300 L/s NZEL is proposing to take;
 - The extra 300 L/s requested is well beyond both the current core allocation (as stipulated in the One Plan), and core allocations set according to the ecological needs of the river;
 - In any calculation, taking $\frac{3}{4}$ of the water and leaving $\frac{1}{4}$ represents an inequitable share to the river itself, and fails to protect te mana o te wai;
 - The extra 300 L/s requested is inequitable in terms of a just allocation between potential users, and would result in one user holding not only the vast majority of water allocated, but also a large proportion of what naturally occurs within the rivers; and
 - The total of 600 L/s equates to **517%** of MALF.

Mākaraiti

- 42 Throughout this evidence we have been unable to comment greatly on the abstraction proposed in the Mākaraiti. I do not believe I have sufficient information to suggest a safe minimum flow or abstraction amount for the Mākaraiti. However, given that it is a small stream whose flow only exceeds 69 L/s 50% of the time, I feel confident asserting that an abstraction of 150 L/s is too much, and that any system that forces a stream to sit at minimum flow for 93% of the time is not providing for life-supporting capacity.

Sediment

Erosion and Sediment Control Plan

- 43 Ngāti Rangī Trust agrees that there is a need for an Erosion and Sediment Control Plan (as detailed by Ms Morton in her evidence). However, we contend that this plan should not only be *provided* to Horizons, but ought to be *approved* by Horizons before works can commence. We also contend that the mitigation measures identified in the plan need to be monitored once works start. Furthermore, Ngāti Rangī would also like to view the sediment control plan.
- 44 **Outcome sought:** Change the suggested conditions to state that works are not to commence until Horizons has viewed *and approved* the Erosion and Sediment Control Plan, and that a copy must be supplied to Ngāti Rangī Trust.

Importance of retaining conditions 4 and 5 of Permit 101992/1

- 45 Ngāti Rangī Trust supports Ms Morton's recommendation that conditions 4 and 5 of permit 101992 be **retained**, and that the applicant's request to delete these conditions be declined (page 18 of Appendix 3 to Ms Morton's evidence). Sediment, as the Commissioner will be well aware, is a key pollutant in New Zealand waterbodies. It is highly important that the effects of the Raetihi Hydro Scheme be avoided, especially in such a sensitive, high-value highland stream as the Orautoha. Furthermore, the RMA operates under a principle that effects be avoided in the first instance, then remedied or

mitigated if avoidance is not possible. Where an opportunity exists to avoid an effect, it is the responsibility of the applicant to take that path. Ensuring that the turbidity in the headpond is less than 10 NTU 98% of the time and less than 20 NTU all the time will achieve this, and we do not consider the deletion of this requirement appropriate or sustainable.

46 **Outcome sought:** Retain conditions 4 and 5 of Permit 101992/1.

Dredging and maintenance

47 Regarding the request to alter conditions on the current Land Use Consent 101993/1, we support the inclusion of conditions proposed by Ms Morton for sediment mitigation. However, we suggest an addition to these conditions that we believe will provide further protection against the effects of sedimentation. This is detailed below.

48 Effectively, under the proposed conditions, the applicant could cease flows into and out of the system, undertake 5 consecutive days of work involving sediment disturbance, and proceed to discharge an unlimited amount of sediment for 24 hours on completion of this work *as long as* at the end of that 24 hour period the horizontal turbidity in the river has not changed by more than 20%.

49 Under this arrangement there is a potential for an unmeasured, unlimited amount of sediment to be discharged to the Orautoha River in a short timeframe. This could be avoided if, instead of the measuring the discharge once it has already entered the streams, the NTU was measured in the canals and headpond, and diversions and discharges were only allowed to resume once sediment had settled out and the turbidity level had returned to the limits stipulated within discharge permit 101992 – ie below 20 NTU at all times and 10 NTU 98% of the time.

50 To ensure this, a condition along the lines of the following could be added:
a. “Before flows into and from the canal resume, turbidity as measured in the headpond and canals must be at or below 10 NTU.”

51 Please note that this also needs to apply to the canals themselves, otherwise the resumption of flow could result in disturbed material in the canals being released into the Mākara, the Mākaraiti, or the unnamed tributary of the Mangaone through the minimum flow releases.

52 For clarity, we request that the condition stating that the consent holder “ensure that there shall be no change in the horizontal visibility of greater than 20% 24 hours after the completion of the activity at a distance 50 metres downstream of the activity” be retained. This condition acts as a further safety net and we support its inclusion.

53 **Outcome sought:** Add a condition to the effect of: “Before flows into and from the canal resume, turbidity as measured in the headpond and canals must be at or below 10 NTU.”

Efficacy of Sediment Control Conditions

- 54 We are concerned that the conditions surrounding sediment mitigations for permit numbers 104088 and 104090 (conditions 19 and 20) and permit numbers 104089 and 104091 (conditions 21 and 22) will not adequately protect the stream from sedimentation effects. As with the arguments raised above, the conditions as proposed still allow for an unmeasured, unlimited amount of sediment to enter the streams within the 5 day (or total 24) hour period, with conditions on change in clarity only applicable from 24 hours after works have ceased. In our view there must be conditions on the change in clarity that are applicable *during* maintenance works. Such conditions would also help guide in the development of the sediment Erosion and Sediment Control Plan, as the consent holder would have known outcomes to aim for in controlling sediment during maintenance works.
- 55 **Outcome sought:** Add a condition concerning the amount of allowable change in clarity *during* maintenance works.

Effect of dredging on fauna

- 56 Dredging and channel clearance impacts on the fauna within the waterbody, not just through sediment release, but also through the direct physical removal of species from the waterway, followed by either live burial in the removed sediment, or desiccation. Dredging also directly destroys habitat by removing eel and kōura holes. These effects cannot be remedied or mitigated – they can only be avoided.
- 57 In Mr Inch's evidence (paragraph 32), he states that there are kōura, trout and eels in the canals and headpond. The exercise of Permit 101993 will, therefore, result in fauna being directly impacted upon. Given that the large majority of eels in our region are long-fin, and that both long-fins and kōura are on the Department of Conservation Threat Classification System List, this impact is unacceptable.
- 58 We suggest that a better approach would be to prevent sediment entering the system in the first place. This is a long-term strategy that would require planning, investment, and co-operation with upstream land-users who also contribute sediment to the system. However, we believe it will result in a better outcome both environmentally and for New Zealand Energy in the long run. Targeted planting of thick bands of carex species has been shown to reduce or eliminate the need for channel clearance, and also helps farm drains run more efficiently in times of high water flow. This strategy could be applied here, and reduce the need for dredging operations, which can prove expensive. This may also need to be combined with upstream areas that are specifically designed to capture sediment, for example treatment wetlands that are designed to not require dredging.
- 59 **Outcome sought:** Measures are implemented to reduce sediment inputs into the scheme canals and headpond so that dredging activities are no longer required, or are required much less often.

Surge tower discharge

- 60 The applicant has requested that the requirement to identify and implement measures to mitigate sediment discharges to the Orautoha Stream from the surge chamber (condition 4 of permit 102264) be deleted. The rationale is that it is only used intermittently for short durations, and it is too difficult to implement any mitigation measures anyhow. The applicant has not provided any information on how often the surge chamber is utilised or what the effects of its utilisation are. Therefore it is difficult to accept their argument, as it lacks validation.
- 61 On visiting the site with the operator, it did appear that discharges might be filtered through the grasses and bank vegetation. However, I have since learnt from Mr Wood that effects on the Orautoha may be visibly noticeable. Unfortunately we can't confirm this due to lack of investigation by and information from the applicant. We would like the condition retained on the basis that at the very least the effects need to be investigated, and remedied if necessary.

Notification of fish removal

- 62 Land Use Consent 101993 contains the condition that prior to the canals or settling pond being dewatered, the Consent Holder shall make arrangements with Taranaki Fish and Game Council to enable the transfer of any stranded fish. Ngāti Rangī Trust would like to be added to this condition, so that we are notified at the same time as Fish and Game and can participate in the removal work.
- 63 **Outcome sought:** Add Ngāti Rangī Trust to condition 4 of Land Use Consent 101993

Length of consent

- 64 As outlined by Keith Wood in his evidence, Ngāti Rangī has always opposed, and continues to oppose, resource consents longer than 10-15 years. In further support of this, we highlight the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 and also the new National Environmental Monitoring Standards for Open Channel Flow Measurement. These regulations and standards will mean that takes will be monitored to a higher standard, resulting in a better understanding of flows over the next decade or so.
- 65 Consistent with the consent duration proposed by Mr Wood, I consider that a 10-15 year period would allow for the collection of a more robust data set, particularly for the Mākaraiti and the Mangaone tributary, in line with the regulations and according to the new National Environmental Monitoring Standard. The end of this period would be an opportune time to reassess the takes and their impacts through a new consent application and new AEE. Although some may suggest this need could be covered by a review at 10 or 15 years, the Trust contends that a review would not be a strong enough mechanism, and that there is a need to end the consent period at this point. It is our experience to date that reviews are not often fully utilised, and it is most often only through a complete renewal process that environmental issues are dealt with.

66 **Outcome sought:** Length of consent is no more than 10-15 years in duration.

Support for matters raised in Horizons evidence

- 67 Ngāti Rangi Trust supports many of the issues raised in the evidence from Horizons staff. In particular, we support the discussion around the impact of the proposed NZ Energy Limited take on the Raetihi sewage treatment plant discharge. As it stands, this discharge is culturally offensive, with Ngāti Rangi being deeply opposed to the disposal of human waste into our waterbodies. This is a degradation of the mouri of the Mākōtuku River. Removing more water would further impact upon the waterbody and its mouri, and we remain opposed to any increase in water take, as well as the continued extraction of such a large percentage of the MALF.
- 68 We support the discussions around nutrient and sediment loading entering the Orautoha Stream, a highly valued river that is home to whio populations (which have been suffering in recent years) and subject to a Water Conservation Order.
- 69 We also support the concerns raised about the efficacy of the fish pass on the Mākara. I visited this fish pass at low flows this summer (2013) and found the main concrete face dry and that the water travelling down the true left of the structure was channelled in a way that it would likely form a velocity barrier.

References

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