BEFORE THE INDEPENDENT COMMISSIONERS

UNDER	the Resource Management Act 1991
AND	
IN THE MATTER	of the proposed Canterbury Land and Water Regional Plan

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STATEMENT OF EVIDENCE OF BRENT COWIE ON BEHALF OF NGĀ RŪNANGA OF CANTERBURY, TE RŪNANGA O NGĀI TAHU AND NGĀI TAHU PROPERTY LIMITED

4 February 2013

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1. HE KUPU WHAKATAKI – INTRODUCTION

1.1 My full name is Brent Cowie. I hold the degrees of Bachelor of Science with Honours and a Doctorate of Philosophy in Zoology from the University of Canterbury, where I specialised in freshwater biology.

1.2 My doctorate thesis was on the ecology of stream invertebrate communities in a West Coast beech forest ecosystem. I studied both fresh water quality and fisheries while at university. I have authored or co-authored seven publications in peer reviewed scientific journals.

1.3 I have 30 years experience in resource management in New Zealand. I have worked as a private consultant, as a Fisheries and Wildlife Consultant for the former North Canterbury Catchment Board, as a scientist for the Water and Soil Directorate of the former Ministry of Works and Development, and as a Senior Analyst for the Ministry for the Environment. I was Group Manager Resources at the Manawatu-Wanganui Regional Council from September 1989 to June 2001. In this role I was responsible for all the resource management functions of the Regional Council.

1.4 In 1997 I was the New Zealand representative on an International OECD team that undertook an Environmental Performance Review of Australia. Such reviews are undertaken of each OECD country about every 5-10 years. I was responsible for reporting on land, water and coastal management.

1.5 Since 2001 I have been a resource management consultant. In that role I have undertaken numerous technical tasks and hearing commissioner roles.

1.6 The technical roles have included: preparing a monitoring and reporting strategy for the Dairying and Clean Streams Accord; carrying out a review of the hearing process for the proposed TrustPower hydro scheme on the Wairau River; carrying out work on how central government, local government and industry viewed decision-making on science priorities, reviewing consents processes in each of Auckland and Hawke's Bay regional councils, and being one of two reviewers of the consents processing performance of the Far North District Council.

1.7 The hearing commissioner roles have included applications for three hydro power schemes (Arnold River, Matiri River, a small scheme in

Golden Bay), two water conservation order applications or variations (Oreti River, Te Waihora/Lake Ellesmere), two major air discharges (Ravensdown Fertiliser at Hornby and Awatoto), a medium sized irrigation scheme (Rangitata South), numerous wastewater discharges (e.g. Westland Milk to the Hokitika River, Fonterra marine discharge at Clandeboye; Rangiora sewage, Kaikoura sewage) and other large scale developments (e.g Stage 2 of the new Fonterra factory at Darfield). I have written or co-written all of the decisions on these applications.

1.8 I chaired the panel and wrote all decisions (about 6,000 of them) on Chapters 4-8 of the Canterbury Natural Resources Regional Plan (NRRP). The matters covered were water quality, water quantity, beds of lakes and rivers, wetlands and soil conservation. Accordingly I am very familiar with the current regulatory framework for resource management in the Canterbury region.

1.9 I prepared Ngāi Tahu Property Ltd's (NTPL) submission on the proposed Land and Water Regional Plan (pLWRP).

1.10 I have read the code of conduct for expert witnesses set out in Environment Court practice note, and confirm that I have complied with the code in the preparation of my evidence. This evidence is within my area of expertise except where I state that I am relying on information provided by another party. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope of Evidence

1.11 My evidence covers:

a. NTPL's forestry, farming and hydro-electric power (HEP) interests in the Canterbury Region; and

b. How these interests are affected by the pLWRP and hence the reason for submissions.

1.12 As will be outlined by Ms Crawford in legal submissions, Te Rūnanga o Ngāi Tahu (Te Rūnanga) made separate submissions on the pLWRP. Both submissions are incorporated in this Ngāi Tahu case. Therefore, in my evidence when I refer to Te Rūnanga I am referring to the submission made by Te Rūnanga o Ngāi Tahu on behalf of Ngā Rūnanga of

Canterbury, when I refer to NTPL I am referring to the submission made by Ngāi Tahu Property Ltd and when I refer to Ngāi Tahu I am referring to the joint position and case of both parties.

1.13 My understanding is that the issues raised in both submissions are complementary, though the relief sought may vary. As part of her planning evidence Sandra McIntyre assesses the merits of NTPL's submission as well as Te Rūnanga's and reconciles any variations in the relief sought between the two submissions to offer the Commissioners one solution. In most cases, the relief sought in Te Rūnanga's submission appropriately addresses the concerns raised in NTPL's submission.

2. NTPL ASSETS IN CANTERBURY

2.1 NTPL has a number of assets and interests in the Canterbury region covered by the pLWRP. In my evidence, I refer only to those assets owned by Ngāi Tahu Forest Estates (NTFE), which is a subsidiary of NTPL. This essentially covers four forests: Eyrewell, Balmoral, part of Hanmer and part of Mt Thomas forest. In addition, NTLP manages on behalf of Corisol New Zealand Limited, interests in Ashley, Okuku, Mt Thomas, Oxford and Hamner forests. I shall describe each property below.

Balmoral Forest

2.2 NTPL owns the land in Balmoral Forest. This comprises 8,569ha of land on the immediate north bank of the Hurunui River, and a further 783ha on the south bank of the river. This forest is being converted to agriculture. Resource consents and Certificates of Compliance granted by Environment Canterbury in early 2012 enable dairy and dairy support conversions to take place. Irrigation is essential to allow this development to occur.

2.3 Further consent applications have been lodged to take water from the Waiau River for irrigation, and to use land that is being irrigated. Initially, it was my understanding that Balmoral Forest was subject to the provisions of the proposed Hurunui and Waiau River Regional Plan (and the NRRP), and as such all present resource consent applications have been made under those documents. However, I have since been advised by

Environment Canterbury's resource consents section that resource consents may also be required under this proposed LWRP. I discuss this matter further in paragraphs 7.5-7.7of my evidence, but raise it here so Commissioners may understand why I am discussing the Balmoral Forest as part of this hearing.

Eyrewell Forest

2.4 NTPL has owned the land in Eyrewell Forest since 2000. This forest comprises some 6,700ha of land on the immediate north east bank of the Waimakariri River. This land is being converted to agriculture, including dairy platforms and dairy support. The total cost of this investment will be in excess of $300 million dollars. This conversion is authorised by resource consents granted by Environment Canterbury in 2005. The use of nitrogenous fertiliser is an essential part of the change of land use from forestry to agriculture.

2.5 At present, 3 dairy farms covering 1,200ha have commenced milking in 2012 using water sourced from NTPL's shareholding in Waimakariri Irrigation Limited.

2.6 Further resource consents granted by Environment Canterbury in 2007 enable up to 2.6 m^3/s to be taken from the Waimakariri River for irrigation of about 5,500ha within the Eyrewell property. An irrigation intake and fish screen are currently being constructed at Brown's Rock, and additional irrigation on another 400 hectares is scheduled to start in the 2013/2014 irrigation season. In addition, NTPL has been converting another 1,500ha from trees to pasture to enable further irrigation development beyond 2014. All of the property is planned to be irrigated by 2030. NTPL is currently joint applicants for the transfer of consented surface and ground water takes (and variations to existing consents to allow for the storage of water) to ensure the water takes have the required reliability to allow efficient irrigation while minimising loss to groundwater.

2.7 Importantly for consideration against the pLWRP, conversion of this land to agriculture will take place incrementally over about the next 15 years. It is usual practice for farms to be developed and redeveloped over some years; and in this case the timeframe is also influenced by funding streams and the Emission Trading Scheme and the rate of growth and harvest of the maturing pine forests.

2.8 NTPL owns and/or manages land under plantation forests in Canterbury owned by Matariki Forests. These include Ashley, Hamner, Mt Thomas Okuku, Omihi and Oxford forests. NTPL has read the submission prepared by Matariki Forests and fully supports those submissions.

Other NTPL Projects

2.9 NTPL are joint applicants with Meridian Energy Limited for the Amuri Hydro Project, which proposes to take up to 50 m^3/s from the Waiau River at the Leslie Hills Bridge, and discharge it back to the river up to 29km downstream. The primary consent applications to authorise this activity were lodged in October 2011.

2.10 NTPL are also joint venture partners with Meridian for the Balmoral Hydro Project, which would take up to 15 m^3/s from the Hurunui River just downstream of the Mandamus River confluence and discharge this water back to the river up to 28km downstream of the intake, about 8.2 km downstream of the SH7 bridge. The primary consent applications to authorise this activity were lodged in December 2012.

2.11 Both the hydro take applications will be on hold until the provisions of the proposed Hurunui and Waiau River Regional Plan are decided.

3. EFFECTS OF THE PLWRP ON NTPL PROJECTS

3.1 The pLWRP has the potential to impact significantly on the ability of NTPL to progress with several of its proposed developments in Canterbury, especially the conversion of the Eyrewell and Balmoral forests to agriculture. It also impacts on the ability to undertake other resource uses. As a result NTPL made submissions on the following matters.

4. OBJECTIVES

4.1 NTPL opposed or sought changes to a number of objectives in the pLWRP. The first of these sought the deletion of Objectives 3.1, 3.2 and 3.22 and 3.23 as they are not outcomes, and section 2.1 of the pLWRP states that “the objectives form a comprehensive suite of outcomes to be achieved”. This implies that all the Objectives should be outcomes.

4.2 I also note that Te Rūnanga have sought a complete new suite of objectives, which I support in so far that there is no coherence or logic apparent in the objectives of the plan as notified. As an alternative to deleting Objectives 3.1 and 3.2, I support the specific changes sought by Te Rūnanga to these objectives, which I would be comfortable with. I note that Ngāi Tahu has also requested the deletion of Objectives 3.22 and 3.23. In her evidence Sandra McIntyre has incorporated the relief sought by NTPL into the suite of objectives requested in Te Rūnanga's submission.

4.3 NTPL opposed Objective 3.9, and sought that it either be deleted or amended to limit its scope to headwater reaches. This is because section 6 of the RMA requires that natural character of rivers be preserved and rivers and their margins be protected from inappropriate subdivision, use and development. However Objective 3.9 of the pLWRP implies that existing natural character will be protected along the full length of these rivers, which would make it difficult to build a new irrigation or HEP intake, as these will affect natural character. I note that Te Rūnanga have sought a new Objective 3.5, and NTPL would be entirely comfortable with this as an alternative to existing Objective 3.9. This is because the objective proposed by Te Rūnanga recognises that many reaches of alpine rivers are already significantly modified by structures such as stopbanks, bridges and intakes.

4.4 NTPL also sought changes to each of Objectives 3.12, 3.15 and 3.16. The main concerns with these objectives were:

a. 3.12 has very mixed outcomes and infers that groundwater quality is currently high in all cases, which is not true;

b. 3.15 uses words such as "wise", which are not embodied in the RMA or associated case law; and

c. 3.16 should refer to all infrastructure, not just infrastructure of regional significance.

4.5 The proposed Te Rūnanga amendments which seeks deletion and replacement of many objectives solves most of NTPL's concerns. I note that that there is no specific objective proposed by Te Rūnanga to replace Objective 3.16. In my view Objective 3.16 should recognise existing investment in infrastructure in appropriate circumstances. This matter is addressed by Sandra McIntyre in her evidence for Ngāi Tahu.

4.6 Finally NTPL sought the deletion of Objective 3.20. The only reason for this is that NTPL considered this objective to be out of place, and that gravel management is more properly provided for in an activity or outcomes-based policy than an objective. This objective has little effect on NTPL's core functions. Te Rūnanga has sought that the objective be rewritten to focus on much wider issues than just gravel management, and as an alternative I am entirely comfortable with that.

5. STRATEGIC POLICIES

5.1 Section 2.2 of the pLWRP states that the strategic policies "provide an overall direction for the integrated management of land and water".

5.2 NTPL opposed or partly opposed 4 of these policies. These policies relate mainly to managing water quality, and severely impact on the ability to convert NTPL's forest lands to agriculture. This is not to say that NTPL are suggesting impacts on water quality are an inevitable price to pay for agriculture, but rather our concern is that the approach taken in the plan to managing the issue is not the most appropriate. The concerns of NTPL mirror those of Te Rūnanga. Our particular concerns are outlined below, though I note Te Rūnanga has asked for a comprehensive review of the approach to managing land uses and water quality in the plan which I support. I believe that the specific amendments sought in NTPL's submission would sit under the umbrella of the review of the plan's approach to land use and water quality requested by Te Rūnanga.

5.3 Policy 4.1 refers to Tables 1a to 1c. The first two tables are generally based on Objectives WQL1.1 and 1.2, and associated Tables WQL5 and WQL6 of the operative NRRP, while Table 1c is based on Objective WQL2.1. NTPL has sought changes to Table 1a and Table 1c.

5.4 NTPL has sought that in relation to the water quality outcomes in Table 1c, the words "if, during the life of the pLWRP, the overall maximum nitrate-nitrogen concentration exceeds 5.6 milligrams per litre in any aquifer, any increase in nitrate-nitrogen concentration shall not exceed a rate of 1.5 milligrams per litre every ten years" after the words "in the three years prior to 1 November 2010".

5.5 This wording is directly from Objective WQL2.1.2(a) of the NRRP. It recognises that there is often a substantial lag time between the effects of land use and elevated nitrate-nitrogen concentrations in shallow aquifers.

It also partly recognises that there are seasonal effects, with recorded nitrate-nitrogen concentrations generally being highest in spring following winter rainfall and low evaporation transpiration leading to drainage losses to groundwater.

5.6 NTPL opposed Policy 4.2 because of its direct relationship with the outcomes proposed in Policy 4.1. NTPL opposed Policy 4.6. because the policy means that in those large parts of Canterbury where groundwater nitrate-nitrogen exceeds the "limits" set in Sections 6-15 (which are presently not included), consent would not be granted to continue existing farming operations, and new consents could not be granted for some types of farming. This is a very large and uncertain economic and social cost for a council to impose on its region, without evaluating the associated benefits. Indeed the costs themselves cannot be evaluated yet, as we have no way of knowing what those limits will be in sections 6-15, how they will be calculated and whether they can be met. I struggle with how such a policy position can be justified as achieving the purpose of the Act.

5.7 Te Rūnanga have suggested an alternative wording for Policy 4.6 in their submission. In my view this is a major improvement over the policy as drafted for two reasons: first, it makes certain which outcomes consent applications are to be assessed against; and second, it does not direct that consent applications be generally declined. Along with the changes sought by NTPL to Tables 1a and 1c, such a drafting would, in my view, make Policy 4.6 far more aligned with achieving the purpose of the Act.

5.8 NTPL did not submit on Policy 4.8 but strongly support Te Rūnanga's submission. The current wording of the policy gives too much directive authority to unelected Zone Committees. In my view the proposed Te Rūnanga amendment strikes a much more balanced approach.

6. ACTIVITY AND RESOURCE POLICIES

Nutrient Discharges

6.1 This matter is covered by Policies 4.28 to 4.38 in the pLWRP. NTPL acknowledges that nutrient discharges are a difficult matter to address via equitable and effective policies and rules. It considers however that Environment Canterbury's attempts to do so will result in very large social

and economic costs without necessarily resulting in any improvements in water quality.

6.2 NTPL opposed Policies 4.29, 4.31, 4.32, 4.34, 4.37 and 4.38.

6.3 Te Rūnanga opposed all of Policies 4.28 to 4.38, and submitted new policies to replace these. NTPL considers that the new policies suggested by Te Rūnanga are a major improvement over the policies covering nutrient discharges in the pLWRP. and it commends these amended policies to the hearing committee. NTPL also notes there is a strong rationale for these new policies in Te Rūnanga submission, something that is almost entirely lacking from the pLWRP. As with the strategic policies discussed above, the specific amendments sought by NTPL would sit underneath the general review of the approach to plan provisions requested by Te Rūnanga in its submission.

6.4 In relation to Policy 4.29, NTPL sought the deletion of the words “or, in the absence of any such articulation (of industry best practice), granting, subject to conditions, or refusing applications for resource consents”. NTPL sought this because the words “industry articulated best practice” are not defined in the pLWRP, and so it is entirely at Environment Canterbury’s discretion whether such practice exists or will exist in the future.

6.5 NTPL opposed Policies 4.31 and 4.34, (which essentially say the same thing but Policy 4.34 is drafted in a way that is more specific). These policies would likely mean that in Eyrewell Forest, which is being converted gradually to irrigated dairy farms and dairy support, resource consent would be refused to continue this conversion under Rule 5.45. This is because the forest is a zone labelled red for water quality outcomes in the Nutrient Zones on p. 4.8, so any change in land use would require consent as a non-complying activity. The nitrogen discharges from the property cannot have any “significant and enduring reduction from present levels”, as required by the policies, as nitrogen leaching rates from forested land on shallow gravels are typically about 2.5kg/N/ha/y whereas from irrigated agriculture they are in the order of 30-35 kg/N/ha/y.

6.6 I also record my concern at the lack of information in the pLWRP and Section 32 Report on how these zones were derived.

6.7 Part of the difficulty of the policy and rule approach discussed above, comes from the definition of "change' in relation to land uses in the pLWRP. As NTPL said in its submission:

> *"NTPL **opposes** the definition of "changed" in terms of Rules 5.42 to 5.45. The second limb of this definition would mean that in Eyrewell Forest, every time a new part of the property is converted to dairying and irrigated after 30 June 2013, a new resource consent would need to be sought for a non-complying activity under Rule 5.45. This is not practical or sensible, and introduces far too much uncertainty for future investment.*
>
> *NTPL considers that the trigger threshold of a 10% change is too low, and that this does not take sufficient account of common farm practice, including annual changes in cropping regimes and use of a farm for seasonal dairy support*
>
> *NTPL would much prefer to be able to seek consent (if required) for irrigated land use on the balance of the property in one application.*
>
> *There is also a need to exclude small properties from this onerous requirement."*

6.8 The plan provisions do not take account of gradual changes in land use of large blocks of land, such as is presently occurring at Eyrewell and is commencing at Balmoral Forest on the north bank of the Hurunui River. In my view, they must be changed to provide a much more practical and sensible framework. NTPL's submission offers some relief as does Te Rūnanga's submission and either or a combination of these positions would, in my view, be more appropriate than what is in the proposed LWRP.

6.9 NTPL also opposes Policy 4.32. This Policy requires resource consents be sought where good practice is not specified by the industry. As with Policy 4.28 it is ambiguous what "industry articulated good industry practice nitrate discharge limit for a particular industry sector" means. Nor is it clear what "significant and enduring" means. These terms are not defined in the pLWRP.

6.10 NTPL also opposes Policies 4.37 and 4.38. These policy positions relate to compliance with nutrient limits set in Sections 6-15 of the pLWRP, but none of these limits have yet been set. Accordingly no party has any way

of knowing what the costs and benefits of compliance with this policy position will be. This matter is also raised in Te Rūnanga's submission.

Unallocated Water

6.11 NTPL continues to oppose Policy 4.68. If water is allocated and not used, then it should be available to another user until such time as the original consent is exercised. Such use by another user would have to be consistent with an environmental flow regime, or a groundwater allocation regime, and would need written approval from the current consent holder.

6.12 A good example is the Hurunui Water Project, which seeks to take large amounts of water from the Hurunui Catchment and store that water in the Waitohi catchment for irrigation. The infrastructure necessary to implement even Stage 1 of this scheme will be costly. If consents are granted construction may take some years, and there is absolutely no good environmental reason why water allocated to that user could not be used by another party in the interim.

7. RULES

7.1 NTPL opposed or sought changes to 4 rules in the pLWRP. These were Rule 5.4, Rules 5.44 and 5.45 and Rule 5.107.

7.2 Rule 5.4 (which in my view is an advisory note) should be deleted. Many controlled and restricted discretionary activities should not be subject to any financial contribution or bond. If these are to be considered, they should be explicitly listed in the matters for control or discretion, not left open in all cases.

7.3 NTPL continues to oppose Rules 5.44 and 5.45 for the reasons outlined in paragraphs6.3-6.9 above. I note again my comment that NTPL's specific submissions in this regard sit under the umbrella request by Te Rūnanga to review the entire approach to managing land use and water quality in the plan. At the very least the rules should be combined and such activities made discretionary.

7.4 I am also concerned about what appears to be a lack of clarity and transparency about the relationship between the pLWRP and the other regional plans or indeed the sub-regional sections of this plan. As

discussed in paragraph 2.3, it was my understanding that the Hurunui and Waiau catchments were not subject to the pLWRP – at least not in relation to land use and water quality.

7.5 When NTPL lodged applications under Rule 2.3 of the proposed Hurunui and Waiau River Regional Plan to take water from the Waiau River and use that water for irrigation in Balmoral Forest (i.e. Section 14 RMA consent applications) it received the following advice from an Environment Canterbury consents officer on further consent applications that would be necessary:

> *"A land use and discharge consent for the use of land under the proposed Land and Water Regional Plan (pLWRP)…Under the pLWRP unless an applicant can meet the conditions of rule 5.42 a discharge consent is required for the change in land use under rule 5.50. In addition if the conditions of rule 5.42 are not meet, then in the Hurunui/Waiau catchments an applicant will require a land use consent as an innominate activity, as they contravene a rule in a regional plan and no other rule applies. The land use rules in the pHWRRP plan do not take effect until 2017 and there are no rules covering S15 activities (other than the discharge of water to water) under the pHWRRP. However I acknowledge that planning framework may change before we beginning processing (if you agree to the above request) and will not be formally requesting these applications at this stage."*

7.6 The map on pp 4.8 of the pLWRP which shows nutrient management zones, says that for the Hurunui and Waiau Zones reference should be made to "the Hurunui Waiau River Regional Plan".

7.7 I noted concerns in my evidence for Ngāi Tahu on the proposed Hurunui and Waiau River Regional Plan, that two consents would potentially be required for the same activity on the same land. However the advice from Environment Canterbury is that potentially 3 or even 4 consents (under sections 9, 14 and 15 of the Act) and under two separate regional plans – which are intended to be bought together at some stage- may be required for the same activity (use of land for irrigation) on the same land.

Water Transfers

7.8 NTPL opposes Condition 5 of Rule 5.107. The issue of the transfer of water permits is complex and Ngāi Tahu has clear positions on when,

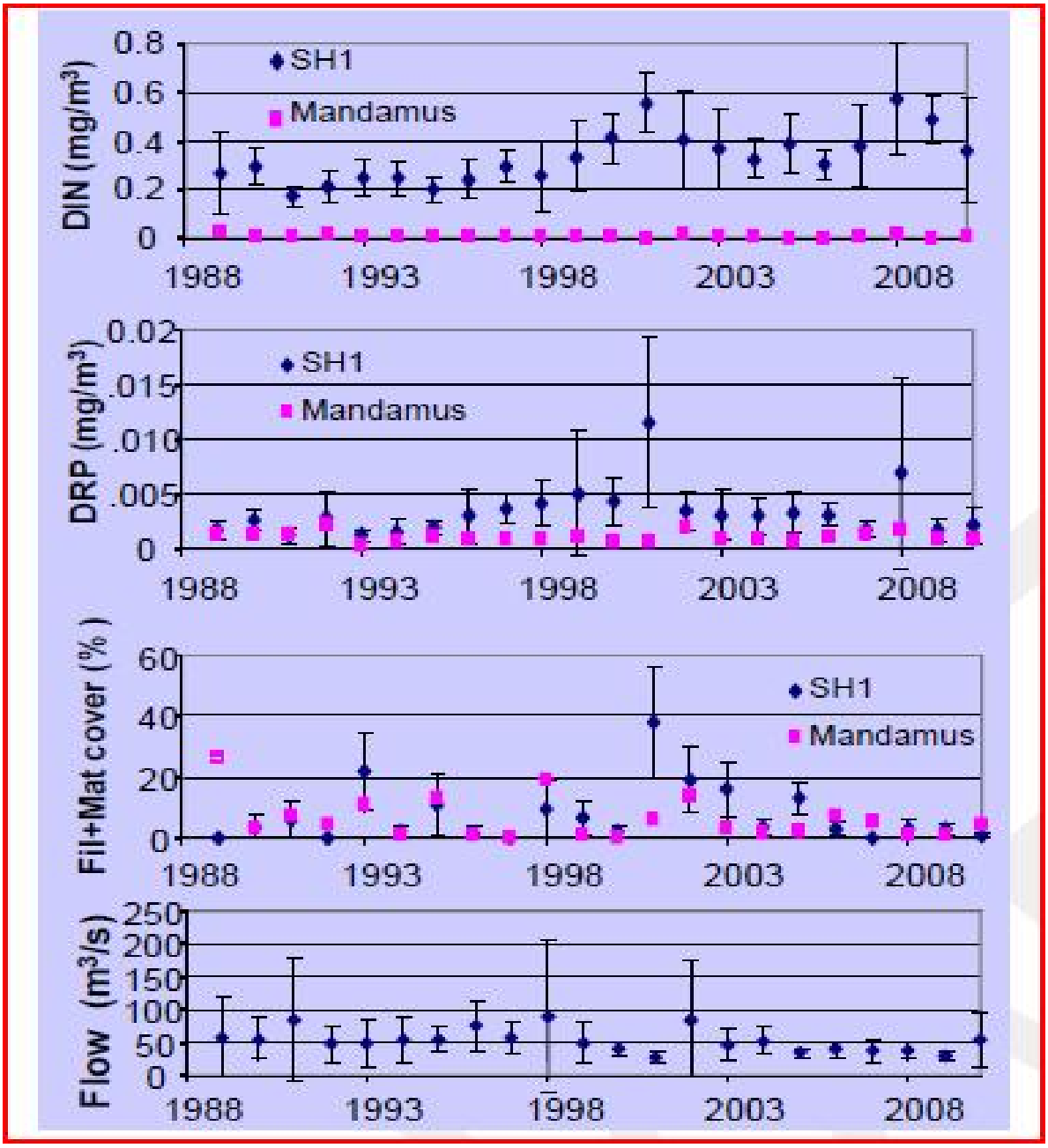
generally, water permit transfers are and are not appropriate. NTPL's submission on this rule sits within the context of that general position. Neither Te Rūnanga nor NTPL's submissions support the approach in the pLWRP, which we agree dis-incentivises the transfer of part of a water permit to a more efficient use, particularly for a temporary transfer. There is no good resource management reason for such a condition which will not, in itself, address issues of over-allocation.

7.9 Accordingly NTPL sought that this condition be deleted and a new restriction of discretion be added to read "In an overallocated surface or groundwater zone, if and to what extent any water should be surrendered by the consent holder from whom water is being transferred'. This relief sought is not dissimilar to that sought by Te Rūnanga seeking that in over-allocated catchments the transfer of water results in net environmental benefits. I understand Sandra McIntyre will present evidence further reconciling the submissions to offer one set of relief for the Hearing Commissioners.

Dr Brent Cowie

4 February 2013

Figure 1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.010
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1993
1998
2003
2008
Fil+Mat cover (%)
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40
20
0
SH1
Mandamus
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1993
1998
2003
2008
Flow (m³/s)
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150
100
50
0
1988
1993
1998
2003
2008