IN THE MATTER **of the Resource Management Act 1991**

AND

IN THE MATTER **of the hearing of submissions on Proposed Plan Change 1 (and Variation 1) to the Waikato Regional Plan**

TOPIC 3

BY **FEDERATED FARMERS OF NEW ZEALAND INC, FEDERATED FARMERS OF NEW ZEALAND (WAIKATO REGION) 1999 INCORPORATED, FEDERATED FARMERS OF NEW ZEALAND – ROTORUA TAUPO PROVINCE INCORPORATED, FEDERATED FARMERS OF NEW ZEALAND (AUCKLAND PROVINCE) INCORPORATED**

("FEDERATED FARMERS")

Submitter with ID: 74191

To **WAIKATO REGIONAL COUNCIL**

("WRC")

STATEMENT OF EVIDENCE OF GRANT ROBERT ECCLES FOR FEDERATED FARMERS ON SCIENCE JWS

12 July 2019

FEDERATED FARMERS OF NEW ZEALAND

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1. INTRODUCTION

1.1 My full name is Grant Robert Eccles. I am a principal planner for Tonkin and Taylor based in Hamilton.

1.2 My qualifications and experience as a planning expert is set out in my statement of evidence for Hearing Topic 1 dated 15 February 2019.

1.3 I confirm that I have read the Environment Court's Code of Conduct for Expert Witnesses as set out in the Environment Court's Practice Note 2014, and I agree to comply with it. I confirm that the issues addressed in this brief of evidence are within my area of expertise, except where I state I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

1.4 This planning evidence relates to the science joint witness statement dated 17 June 2019 in respect of expert conferencing on Table 3.11-1 ("JWS").

2. SCIENCE JWS

2.1 The JWS is written by various science experts, with each section having different authors. From my reading of the JWS it is evident that it was prepared over a very short time period.[1] The Hearing Panel and parties have not yet had the benefit of hearing the science experts present a summary of what is contained in the JWS.

2.2 Also relevant is the context of the assessment by the science experts or the views they express. The directions from the Hearing Panel were to consider Table 3.11-1 and to clarify issues relating to its robustness, uncertainty and completeness. In doing this they were to:[2]

a. Give effect to the NPS-FM and the V&S.

b. Use best scientific methods.

c. Proceed on the basis that plan and submission scope do not constrain their recommendations.

[1] For example, the caucusing spanned four days with new potential attributes discussed on days 1 and 2, draft discussion papers circulated on day 3 and finalised on day 4.
[2] Page 3 of the JWS.

d. At a minimum, provide one set of numeric values for safe swimming and safe food gathering along the entire length of the Waikato and Waipa Rivers, including their tributaries.

2.3 Table 2 of the JWS (page 12), sets out a summary of the positions of each expert on 15 attributes that could potentially be included in PC1. It is clear that unanimous agreement was not reached on any one of the attributes and, where there is agreement by some experts, it is not clear whether what (if any) amendments ought to be made to Table 3.11-1.

2.4 In all of these circumstances, I consider that the recommendations in the JWS should be treated with caution. As I explain below, the Hearing Panel is constrained by issues of scope, and by the need to give effect to the NPS-FM.

2.5 I did consider setting out my views on each of the 15 potential attributes or other potential amendments to Table 3.11-1 (or other provisions in PC1). However, there were several difficulties with such an approach, including that it is not entirely clear what the experts' recommendations are (particularly in respect of how Table 3.11-1 should be changed). This might be clarified when the experts present on 18 July 2019. A further obvious issue is that I am not a water quality scientist and I would need to be involved in an iterative process with the water quality scientists to properly understand their recommendations and how to appropriately incorporate them in PC1 (noting that many of their recommendations come with qualifications that would likely need to be addressed in policies and methods[3]).

2.6 Accordingly, this evidence sets out my views on the context within which the Hearing Panel should consider the recommendations and information contained in the JWS.

3. DEVELOPMENT OF ATTRIBUTES IN TABLE 3.11-1

3.1 At the risk of stating the obvious to a very experienced hearing panel, the process for the development of the attributes and numeric attribute states in Table 3.11-1 is in my view important context for the Hearing Panel's consideration of the JWS. This is described in a TLG report dated 20 June 2016.[4] This report describes the process

[3] One example of this is the "important notes" listed at paragraph 6 of 35 of the JWS. These relate to concerns the experts have with uncertainties regarding long term TN and TP targets and the inability to consider TN and TP targets for estuarine and coastal areas. They identify a need to review the long term targets at the next planning stage and to carry out further monitoring and investigation. They suggest that these issue could be addressed through a method in PC1. It may be that amendments are needed to objectives or policies and methods, to reflect the need for ongoing and improved information gathering, monitoring and review.

[4] https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf

used to assess each attribute and the reason it was included in or excluded from Table 3.11-1.

3.2 My understanding is that TLG followed the process contained in the NPS-FM at the time (prior to the 2017 amendments) and used the attributes in the National Objectives Framework ("NOF") as the starting point. That process included starting with the three core values identified through the community (CSG) process (human health or "swimmable", ecosystem health or "healthy biodiversity" and mahinga kai or "fishable"). TLG then set about identifying potential attributes for each value and considering numeric and narrative attribute states for each.

3.3 TLG then assessed each attribute in the context of the following assessment criteria:

a. Does the attribute provide a measure of value?

b. Measurement and band thresholds. Essentially this related to questions about whether the experts agreed with the technical approach for measuring the statistic, the time period and the thresholds for numeric bands.

c. Management and limits. Essentially this related to whether there were management actions associated with each attribute and whether the actions or the attributes related to the four contaminants (nitrogen, phosphorous, sediment and microbial pathogens).

d. Evaluation of current state – is there data of sufficient quality, quantity and representativeness to assess the current state of each attribute at each site?

e. Implications. Essentially this related to whether the social, cultural, economic and environmental implications of setting the limits could be assessed and modelled.

3.4 In my opinion, this is an appropriate process that appropriately gives effect to the NPS-FM, meets the scope of PC1 and addresses the requirements of s32 assessment of costs, benefits and risks. I note that this process was considered prior to the 2017 amendments to the NPS-FM and that there have been specific amendments to some of the NOF attribute states that may have implications (such as changes to the assessment criteria for E coli).

3.5 As I explain below, PC1 is not intended to give effect to the NPS-FM (or the V&S) in full. If the Hearing Panel is minded to make changes to Table 3.11-1 (or elsewhere to PC1) to reflect the 2017 amendments to the NPS-FM, an issue the Hearing Panel will need to consider is whether it has sufficient information regarding the

management actions that would be associated with any such changes and the environmental, social, cultural and economic costs, benefits and risks associated with those. If it does not, then my view is that the Hearing Panel is not in a position to make those changes and any changes needed to give effect to the NPS-FM amendments can be made at a later date (noting that further changes are already anticipated to implement the NPS-FM in full).

3.6 Importantly, the assessment process described in the TLG report is not the process undertaken to produce the Science JWS and, in my view, this is an issue that the Hearing Panel needs to bear in mind when considering the contents of the Science JWS.

4. SCOPE OF PC1

4.1 The science experts were directed to "proceed on the basis that plan and scope issues do not constrain the recommendations the experts make."[5] In my view, scope is an important consideration for assessing the Science JWS that I am sure will be at the forefront on the Hearing Panel's mind.

4.2 In my analysis I have focused on the scope of PC1 (as opposed to scope that was obtained through submissions). I have done this because I consider that the scope of PC1 is reasonably definitive on this issue but if the Panel were to decide otherwise, then scope in terms of submissions would need to be considered.

4.3 In my opinion, the scope of PC1 is restricted to reducing diffuse discharges of nitrogen, phosphorous, sediment and microbial pathogens from farming activities in the Waikato and Waipa River catchments. The extent of reductions are limited to those necessary to achieve the short term attribute states in Table 3.11-1, with a focus on 10% improvement in the first 10 years. I set out my reasons for this opinion below.

4.4 My review of the introductory sections of PC1 is that the focus of PC1 is squarely on reducing the diffuse discharges of four contaminants (nitrogen, phosphorous, sediment and microbial pathogens) in the Waikato and Waipa River catchments. The purpose of this is to assist with giving effect to the V&S, particularly Objective K, and to achieve water quality attribute states for the four contaminants over an 80 year period. This is to be achieved on a transitional basis, with PC1 (and the short term attribute states in Table 3.11-1) representing the first 10 years of the journey.

[5] Page 3 of JWS.

4.5 This is reinforced by the objectives,[6] which focus squarely on the four contaminants and achieving the 80 year targets by 2096, with ten year targets to be achieved in the timeframe of PC1.

4.6 From my review of the s32 assessment, there is nothing to suggest that opening the scope of PC1 up beyond this was considered e.g. there is no consideration of other water quality attributes or management actions other than on farm actions to reduce the four contaminants. Alternatives to seven key policy areas were considered.[7] By way of illustration of my point, alternatives to a staged approach were considered but alternatives to managing more than four contaminants were not considered. Alternatives for managing point source discharges or managing farming activities were considered, but all in the context of reductions of the four contaminants (and not in the context of managing other water quality issues).

4.7 If the intention of PC1 was to contemplate other water quality or biodiversity improvements, then my view is that management actions associated with those (or those alternative scenarios) would have been considered in the s32 assessment.

4.8 My views on scope are further confirmed by a 2014 CSG report regarding the scope of PC1.[8] This report was prepared in consultation with Waikato and Waipa river iwi partners and was approved by resolution of Council. It states that the scope of the preparation of PC1 is limited as follows:

a. PC1 is not intended to ensure that the regional plan in its entirety gives effect to the V&S. PC1 is only one of many measures WRC and other agencies are providing to give effect to the V&S.[9]

b. PC1 is intended to manage diffuse and point source discharges to land and water in the Waikato and Waipa River catchments.[10]

c. The discharges to be managed have been specifically limited to nitrogen, phosphorous, sediment and microbial pathogens. In the context of limited timeframes, resources and budgets, these contaminants were prioritised as the contaminants that will make the biggest difference to achieving the V&S (as identified through the PCE report, OAG report on freshwater quality, a policy

[6] Primarily Objectives 1, 3 and 4.
[7] Page 128 of s32 report.
[8] http://waikatoregion.govt.nz/assets/PageFiles/28959/2/40%20-%203037840.pdf
[9] Page 4.
[10] Page 4.

review on the effectiveness of the WRP, water quality monitoring results and a survey of the Waikato community).[11]

d. Scope expressly does not include matters such as measures to improve habitat available to kai species that do not relate to mitigating the effects of the four contaminants, water takes and use, management of whitebait stands in the lower Waikato River and implementing the biodiversity provisions of the RPS. [12]

4.9 Accordingly, my opinion is that the Panel does not have scope (in terms of the extent to which PC1 changes the status quo) to consider attribute states, mitigations or other methods, beyond those that relate to the four contaminants.

4.10 By way of example of the application of this to the attributes, the TLG concluded that temperature was an important attribute for the ecosystem health value but it was outside the scope of PC1 because it did not relate to the four contaminants.[13] There has been no modelling of the potential management actions associated with temperature (which I assume would include things like planting large trees along stream banks to provide shading) or linking changes in temperature with management actions (as opposed to arising from point source discharges, for example). In addition, there has been no assessment of the associated costs, benefits and risks. In light of my assessment above, my opinion is that TLG's conclusion is appropriate from a planning perspective.

5. Table 3.11-1

5.1 As explained above, the attribute states in Table 3.11-1 were identified by TLG through an assessment of attribute states for each of the three core values, and then refining those attributes to those that were within scope, for which there were management actions and for which there was sufficient data available.

5.2 An important consideration for the Hearing Panel in considering the Science JWS, and any potential changes to Table 3.11-1 or PC1, is the purpose or role of Table 3.11-1 in PC1.

5.3 Table 3.11-1 is referred to in Objective 1 of PC1 as containing the 80 year targets and in Objective 3 as containing the short term water quality targets. It is clear from Objective 4 that a staged approach is intended when taking actions to achieve the

[11] Page 5.
[12] Page 4.
[13] Page 12 of 20 June 2016 TLG report - https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf

targets in Table 3.11-1. My review of the policies is that Table 3.11-1 is intended to set targets against which progress can be measured. It is not intended to provide for allocation of loads, limits or concentrations to particular sub-catchments or to a property scale.

5.4 A potential exception to this is Objective 6, which does refer to management of contaminant loads entering Whangamarino wetland but this is to be consistent with the achievement of the water quality targets in Table 3.11-1. While my view is that the wording could be tidied up to clarify intention (and noting that this was a Block 1 hearing topic), I do not consider that this indicates that Table 3.11-1 was intended to set load limits for sub-catchments or the Whangamarino wetland.

5.5 My views on the objectives are consistent with my review of the policies. The policies focus on tailored and risk based approaches to reducing the four contaminants, but without reference to Objective 1 or 3 or to Table 3.11-1 (see for example Policy 2). Objective 1 is referred to in the policies in the context of statements that further reductions or mitigations may be required in the future to achieve the long term targets (see for example Policy 4). Table 3.11-1 is used in Policy 8 to assess the prioritisation of sub-catchments with the intention of prioritising those furthest from water quality targets.

5.6 This all suggests to me that Table 3.11-1 is intended as a means of tracking water quality improvements and targeting actions to areas where water quality is poorest. This is consistent with the methods (for example, Method 3.11.4.10 refers to using information collected to monitor progress towards achieving the water quality targets in Table 3.11-1).

5.7 This is also consistent with the explanation of Table 3.11-1 on page 63 of Variation 1. In particular, the statement that the targets are to be used to guide decisions and monitor changes in water quality in the sub-catchments. Important, in my view, is the statement that:

> *With regard to consent applications for diffuse discharges or point source discharges of nitrogen, phosphorous, sediment and microbial pathogens, it is not intended, nor is in the nature of the water quality targets, that they be used directly as receiving water compliance limits/standards.*

5.8 In my view, there are potential scope issues as to whether the Hearing Panel can make amendments to Table 3.11-1 that would change its application. At the very least, any changes to Table 3.11-1 to include load limits would require careful

consideration of and amendment to the objectives and policies that refer to PC1 (and could entail some more fundamental consideration of the purpose of PC1).

5.9 By way of example, the majority of the experts to the JWS recommend a definition of short term TN and TP "thresholds" in the tributaries. It is not clear whether it is intended that the numbers in Table 6 (page 37 of the Science JWS) would be included in Table 3.11-1 (i.e. to populate TN and TP targets for the sites beyond the current eight sites in the main stem that are currently included in Table 3.11-1).

5.10 If this is what is intended, and if changes were made to include TN and TP loads in each of the tributaries, it would in my view change the purpose of Table 3.11-1. It could lead to approaches to allocate those loads at sub-catchment or property scales and be contrary to objectives and policies. I note that there are other issues associated with Table 6, including that long term numeric targets are not recommended and it appears to demonstrate required improvements in excess of 10% (which in my view is contrary to the staged approach adopted by PC1).

5.11 Finally, I note that TLG recommended adopting TN and TP targets for eight sites in the main stem on the basis that these attributes relate to eutrophication in lakes and the main stem of the Waikato River is a lake fed river with hydro dams that increase residence time and therefore provide opportunity for algal growth.[14] TLG considered including TN and TP targets for the tributaries but concluded that they were less relevant for the tributaries due to the short residence times. TLG thought that it was still relevant to model the effects of the policy mix on TN and TP in the tributaries to confirm that the TN and TP targets in the main stem will be achieved.[15]

5.12 In my opinion, this was an appropriate conclusion in the context of the framework TLG used to assess attributes, the purpose of Table 3.11-1, the management actions proposed in PC1 and the assessment of costs, benefits and risks.

6. Section 32 assessment

6.1 The s32 assessment of the costs, benefits and risks from environmental, social, cultural and economic perspectives is an important part of the context within which

[14] 20 June 2016 TLG report, page 11 - https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf
[15] 20 June 2016 TLG report, page 11 - https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf

the Science JWS should be considered (noting the obligations in s32AA in respect of changes to PC1 that have not been assessed in the s32 report).

6.2 There are changes to attributes or new attributes proposed in the Science JWS for which the costs and benefits have not been and cannot be modelled. This is due to insufficient data to assess the current state (therefore it is not possible to model implications of changes) or due to the attribute not having a clear or direct relationship with management actions.

6.3 By way of illustration of this point, one of the attributes considered by TLG was invertebrates (specifically, the Macroinvertebrate Community Index or MCI). TLG concluded that it was not appropriate to include MCI as an attribute state in Table 3.11-1 because MCI may not simply occur from improvement management of contaminant levels, there are other important drivers of MCI including physical habitat structure, temperature and flow conditions and the interaction between the drivers is complex.[16] TLG's concern was that it was not possible to predict the effectiveness of controls on the four contaminants on MCI outcomes and therefore not possible to model the likely costs, benefits and risks of management actions.

6.4 A further illustration is TLG's consideration of deposited sediment and conclusion that there is insufficient monitoring data to describe current state.[17] If the Hearing Panel was minded to consider deposited sediment, an appropriate response might be to add a method (or amend method 3.11.4.10, which focuses in paragraph (a)(ii) on improving monitoring where this is poor) to require monitoring data to be gathered.

6.5 TLG's assessment of dissolved oxygen provides an example of an attribute that has issues from the perspective of monitoring, scope and implementation of the NPS-FM. TLG concludes that dissolved oxygen should not be included because monitoring is expensive and not realistic, there is no direct link with the four contaminants and point source discharges of organic material that may cause dissolved oxygen issues are controlled activities.[18]

[16] 20 June 2016 TLG report, page 13 - https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf
[17] 20 June 2016 TLG report, page 13 - https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf
[18] 20 June 2016 TLG report, page 12 - https://www.waikatoregion.govt.nz/assets/WRC/Services/publications/technical-reports/HRWO-trs/TR201866.pdf

6.6 Dissolved oxygen is addressed in the regional plan in the context of water takes (through setting of minimum flows and allocations) and in rules relating to discharges, such as Rule 3.5.10.1 (discharge of water pumped from drainage and flood control schemes). In my view, this reflects the fact that PC1 is intended to implement the NPS-FM in part, with a focus on the management of the four contaminants. It does not sit in a vacuum and therefore the recommendations in the Science JWS also cannot be considered without reference to context such as how attributes are managed in other parts of the plan.

6.7 In conclusion, my opinion is that the Hearing Panel ought to consider all of the factors or assessments set out in my evidence when considering any changes to Table 3.11-1 (or other parts of PC1) in response to the Science JWS.

G R Eccles