

Proposed Waikato Regional Plan Change 1: Waikato and Waipā River Catchments

Te Panonitanga 1 i te Mahere Ā-Rohe a
Waikato e Marohitia Nei: Ngā Riu o Ngā Awa o
Waikato me Waipā

The Hearing Panel's Recommendation Report

Te Pūrongo Tūtohunga a Te Rōpū Whakawā

Volume 1 of 2

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WAIKATO PLAN CHANGE BLOCK 1 HEARINGS:

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WAIKATO PLAN CHANGE BLOCK 1 HEARINGS:

1. EXECUTIVE SUMMARY

1. This section provides an executive summary of the plan change, its process and a 'high level' summary of some of the more significant amendments we have recommended from that notified in PC1 and Variation 1 (which we have referred to collectively as PC1)¹.

Overview

2. The Waikato and Waipā Awa are degraded. Some parts of the Awa are more degraded than others, particularly a number of the lakes and tributaries, and the lower reaches of the Waikato River. The degradation has occurred over a long period of time.
3. The Awa have been degraded due to human activity; from the discharges of contaminants directly and diffusely into the rivers, including by urban stormwater and wastewater discharges as well as agricultural and horticultural land use activities. Some degradation is the result of wildlife (including pest fish).
4. Plan Change 1 (PC1), notified in October 2016, is the response from the Waikato Regional Council (WRC) and the Iwi Co-Governors to restoring and protecting the Awa, as required by Te Ture Whaimana o Te Awa o Waikato / Vision and Strategy for the Waikato River (Te Ture Whaimana). Te Ture Whaimana sets out the following Vision:

"For a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come".
5. Point source contaminant discharges have been the focus of regulation for a number of years and considerable progress has been made in their management. By comparison, up until now, little regulatory emphasis has been put on diffuse non-point source discharges to land, largely the result of rural land use activities, and as a result, they comprise a significant risk to water quality. Management of that risk is the primary focus of PC1.
6. Through that management, PC1 seeks to give effect to Te Ture Whaimana, the National Policy Statement for Freshwater Management 2014 (NPS-FM) and the Waikato Regional Policy Statement (WRPS).

¹ We refer to Variation 1 when making specific reference to that Variation.

7. In terms of PC1, the degraded nature of the Awa is accepted by the WRC, the Iwi Co-Governors, and the vast majority of submitters. What is at issue is the actions needed to remedy the degradation, and the timeframe for those actions. While PC1 seeks to reduce the contaminant load entering the rivers from the Waikato and Waipā catchments, it was generally accepted that significant improvements will be needed to give effect to Te Ture Whaimana, and that PC1 is a first step in the planning framework required to achieve Te Ture Whaimana for the Waikato and Waipā Awa.

Process

8. The Hearing Panel (Panel) heard from the WRC and a significant number of submitters over the course of 59 days of hearings (March to September 2019). The Panel's recommendations are contained in this report, as well as a revised PC1 (attached as a separate document).

PC1 as notified

9. PC1 as notified addressed four contaminants: nitrogen, phosphorus, sediment and microbial pathogens (with *E. coli* as the proxy for microbial pathogens). This was a significant area of contention between submitters. Many were of the view that Te Ture Whaimana, the NPS-FM and the WRPS, could not be given effect to due to the limited approach of PC1, and that accordingly, the focus of PC1 needed to be broadened beyond the four contaminants.
10. We address the scope to expand the ambit of PC1 in more detail in section 4 of this report. In summary, we have found that we have scope to include additional water quality attributes where they are sufficiently closely connected with the content of PC1 as notified, subject to there being a sufficient evidential basis (including for the purposes of section 32 of the RMA) to support such attributes. We found, however, that most of the suggested additional attributes failed to meet those preconditions.
11. As regards our giving effect to Te Ture Whaimana, the NPS-FM and the WRPS, we record our view that PC1 does not give full effect to them. It was not designed to do so; rather, it is intended to be a first step in the restoration and protection of the rivers.
12. Giving effect to Te Ture Whaimana will require more than RMA plan changes, although they are an important component. A range of land use changes and restoration efforts will be needed. There is nothing in the NPS-FM requiring full effect to be given to it in one plan change. In our view, the recommendations in this report, if accepted by the Council, will give effect to Te Ture Whaimana, the NPS-FM and the WRPS to the extent

that is possible within the ambit of PC1. Future regulatory and non-regulatory processes will also be needed.

13. The 80-year timeframe proposed to fully achieve Te Ture Whaimana (and the long-term water quality objectives) recognises that it will be inter-generational, requiring farming practices and systems to change and improve over time, and to avoid or significantly reduce diffuse contaminant discharges. Further improvements or alternatives to point source discharges may require technologies or practices that are not yet available or economically feasible.
14. The representatives of all five Iwi Co-Governors, giving evidence at the Block 1 hearing, reluctantly accepted the 80-year time frame. However, all were clear that the timeframe should not be extended. While they accepted that PC1 was the 'first step in the journey' to achieve the restoration and protection of the Awa, their view was that real and sustained improvements need to be made to meet the 80-year (and preferably earlier) timeframe.
15. The Panel accepts that the current understanding of the extent of changes needed to achieve complete water quality restoration is that significant changes in land use farming practices will be required, as well as land use change over time. Because of this, PC1, as notified, sought to introduce controls to require better management of farming/horticulture to reduce contaminant loss, and to halt further land use change (such as to more intensive farming) until the PC1 policy and rule frameworks were in place and monitoring results of the effectiveness of PC1 known.
16. Due to the extent of changes required to restore and protect the rivers in the 80-year timeframe, the Collaborative Stakeholder Group (CSG), and subsequently the Council in notifying PC1, adopted a staged approach. This approach required improvements in a number of steps, the first being to put in place and implement a range of actions for an initial 10-year period to achieve 10 percent of the required change between current water quality and the long-term water quality in 2096. We recommend that a staged approach be retained.
17. Staging recognises that immediate large-scale land use changes would likely be socially and economically disruptive, and even if the staging required to reduce that disruption were implemented, considerable effort and cost would still be required for resource users, industry and WRC to set up the changes required in the first stage. A staged approach allows time for the gathering of additional information, and innovation in technology and practices to meet the targets and limits in subsequent regional plans.

18. However, achieving the 10-year 'targets' by year 2026 (ten years since PC1 was first notified) is no longer viable given the delays in the First Schedule process to date and the likely delays before PC1 becomes operative. We recommend the 'first 10 years' commence when PC1 is made operative and that the delay in getting substantive progress underway be recognised by increasing the improvement required in the first stage to 20% of the long-term goals.

Major policy issues and summary of relevant recommendations

19. The section in the report entitled 'Major Policy Issues' addresses a combination of issues fundamental to the 'function and operation' of PC1 as notified, which were addressed in the section 42A reports, legal submissions, evidence and in the closing statements. In summary, they include:

- Having to establish the Nitrogen Reference Point (NRP) using Overseer as the decision support tool (DST) (unless approval of the WRC CEO is obtained to use an alternative DST), despite the well-documented shortcomings of Overseer;
- The lack of certainty other DSTs could be used where they were 'fit for purpose';
- Having to establish the NRP over the specified reference years;
- Once the NRP is established, having to farm either at or below that NRP, which 'penalises' low emitter farms (and those early adopters of good farm practices to reduce diffuse contaminant leaching) and 'rewards' higher emitter farms. This was seen as inequitable and would severely impact the ability of many farmers to remain economically viable. It was referred to as 'grandparenting';
- The perverse incentive PC1 creates to establish and retain a higher NRP, as this enables greater farm intensity and flexibility, translating to a higher capital value for the farm;
- The focus on nitrogen as the 'key contaminant' in PC1, when in many cases nitrogen is not the most significant contaminant;
- Flaws in the 75th percentile nitrogen leaching rate rule as it is based on an entire FMU, and logistical issues because it could not be calculated until all the dairy NRPs had been established for the FMU.

20. In summary, the Panel's recommendations on these issues are:

- The need to establish an NRP be removed, replaced with a set of actual nitrogen leaching numbers for each Freshwater Management Unit (FMU). This also

removes the need to rely on the 'reference years' as the basis for establishing the NRP;

- The nitrogen leaching numbers form activity status triggers (permitted activity or requiring a consent) rather than fixing the level at or below which farming must occur.
- Improvements in farming practices (to reduce the diffuse discharge of contaminants) should largely be achieved through the FEPs;
- Deletion of the 75th percentile provisions in their current form;
- Higher emitters of diffuse discharges will be under greater scrutiny as to whether they should be required to do proportionally more to reduce the level of their discharges through resource consents and their FEPs;
- The 'grandparenting' aspect of PC1 is removed as there is no longer a need to establish an NRP;
- The rule regime will incentivise farming activities to have a lower nitrogen leaching rate to be a permitted activity;
- Overseer is not the only DST able to be used. The provisions will enable any 'fit for purpose' DST 'certified' by a 'suitably qualified person'.

21. Other significant 'policy' issues, and changes addressed from the notified PC1, as addressed in detail in the report, include:

- Greater recognition of the lakes and wetlands in the PC1 catchment from an objective, policy and rules perspective;
- Acknowledgment of the Whangamarino Wetland as an outstanding waterbody;
- Deletion of Table 3.11-2 – List of Sub-catchments showing Priority, 2 and 3 sub-catchments, and its replacement with Table 3.11-3: Sub-catchment Application Date. The 'Application date' in this case is the date PC1 is made operative, plus the number of years shown in the 'year' column of the table. This table prioritises those sub-catchments which in our view require action more quickly than others;
- Adding a new Table 3.11-2 to assist prioritisation of contaminant reduction actions in particular sub-catchments;
- Linking the stock exclusion rules from waterbodies to slope and the number of stock units;
- Making greater use of stock unit tests to provide for low intensity drystock farming, including flexibility to 'follow the grass curve';

- Provision for the expansion of Commercial Vegetable Production (CVP) as a discretionary activity in some (limited in number and areal extent) identified sub-catchments;
- FEPs remain as a key tool in reducing the diffuse discharge of contaminants, but two FEP schedules are provided: one as a permitted activity standards-based FEP for 'low intensity farming', and the second based on goals and principles for all other farming activities, including CVP, that require a resource consent;
- Provision for Certified Sector Schemes (CSS; previously Certified Industry Schemes) is retained, but membership of a CSS does not give rise, of itself, to different activity status. A CSS can prepare and review FEPs; and
- Not including LUC-based allocation or foreshadowing its adoption in the next Plan Change, but acknowledging the potential for an allocation framework to be put in place and ensuring decisions made under PC1 do not compromise the Council's future flexibility in that regard.

Values

22. Section 3.11.1 of the notified version of PC1 stated a number of community values and uses. These were described in terms of Te Mana o te Wai (integrated and holistic well-being of a waterbody) and represented by Mana Atua (the intrinsic values of water) and Mana Tangata (the value of water arising from use by people).
23. It became clear through the evidence and the hearing that the Values and Uses set out in PC1 were problematic: they could mean all things to all people, appeared internally contradictory and, if translated into the objectives, implied a continuation of the existing degradation of the Waikato and Waipā Awa and, potentially, acceptance of further degradation, contrary to the objectives of Te Ture Whaimana.
24. Having considered all of the evidence, and the Officers' recommendation (to delete the Values), we recommend deleting the Values and uses section from PC1.

Objectives, Policies and Rules, including table 3.11.1

25. We recommend substantial changes to the Objectives, Policies and Rules from those notified in PC1. Those changes reflect the major policy issues summarised above and give better effect to Te Ture Whaimana, the NPS-FM and the WRPS, within the ambit of PC1.

26. A summary of the rule framework (based on the revised objective and policy framework) is:

- Permitted Activity rule 3.11.4.1 – Small and Very Low Intensity farming, subject to conditions, with no FEP required;
- Interim Permitted Activity rule 3.11.4.2 – Farming prior to obtaining consent rule, to enable the required resource consent applications to be staged over a five-year period as set out in Table 3.11-3;
- Permitted Activity rule 3.11.4.3 – Low Intensity farming (including horticulture), subject to conditions, for farming with a low Nitrogen Leaching Loss Rate as set out in Table 1 in Schedule B and for drystock farming operating at less than 18 stock units per hectare. An FEP is required that shows how any actions and mitigations will achieve the minimum standards set out in Schedule D1. The FEP is not required to be certified by a Certified Farm Environment Planner;
- Controlled Activity rule 3.11.4.4 – Medium Intensity Farming, subject to conditions, for farming with a Moderate Nitrogen Leaching Loss Rate as set out in Table 1 in Schedule B, and drystock farming operating at greater than 18 stock units per hectare, where not located in sub-catchments of the Whangamarino Wetland Catchment. It specifically addresses farming activities that potentially affect the peat and riverine lake FMUs. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner
- Controlled Activity rule 3.11.4.5 – Existing Commercial Vegetable Production (CVP), subject to conditions. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner
- Restricted Discretionary Activity rule 3.11.4.6 – Farming in the Whangamarino Wetland Catchment as shown on Map 3.11-3. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner
- Discretionary Activity rule 3.11.4.7 – Farming in a Collective, High Intensity Farming (high Nitrogen Leaching Loss Rate as set out in Table 1 in Schedule B), and Farming not otherwise authorised, subject to conditions. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner

- Discretionary Activity rule 3.11.4.8 – Commercial Vegetable Production: Expansion within certain specified sub-catchments shown in Table 1: Sub-catchments with CVP growth areas; and
 - Non-Complying Activity rule 3.11.4.9 – Land Use Change and CVP that does not meet the conditions in rule 3.11.4.8.
27. Stock exclusion was a major issue raised by a number of submitters. The requirements for stock exclusion are set out in the revised *Schedule C— Minimum Farming Standards*. This, among other things, requires stock exclusion from waterbodies in specified circumstances and restrictions on the use of sacrifice paddocks and winter forage crop grazing.
 28. In summary, stock are to be excluded from waterbodies on land:
 - (a) With a slope of up to 15 degrees; or
 - (b) With a slope over 15 degrees where the stocking rate in any paddock adjoining a water body exceeds 18 stock units.
 29. The result is that farmers running fewer than 18 stock units in paddocks adjoining a waterbody on land over 15 degrees, will not need to fence those waterbodies.
 30. Certified Sector Schemes (CSS) were recognised in the notified PC1 as a means by which a farming activity could be permitted if ‘*registered to a Certified Industry Scheme*’. We accept there are benefits from CSSs, and while we have retained them, we have not provided for them *per se* as a permitted activity as notified in PC1. We propose that a CSS will be able to, among other things, prepare and review FEPs.
 31. Recognising that not all farming activities can give immediate effect to all the requirements of PC1 (such as stock exclusion and producing FEPs), we have recommended time frames to comply with the PC1 rules for identified sub-catchments. The sub-catchments and dates are set out in Table 3.11-3: Sub-catchment Application Date. The ‘Application date’ is the date PC1 is made operative, plus the number of years shown in the ‘year’ column of the table.
 32. We have clarified that the rules do not preclude the ability to apply for a resource consent, including for land use, at any time, notwithstanding the particular dates by which certain applications must be applied for.

Table 3.11.1

33. Objectives 1 and 3 of PC1 as notified refer to specified 'water quality attribute targets' in Table 3.11-1. Table 3.11-1 set short-term and long-term (numerical) water quality targets to be achieved for the Waikato and Waipā river mainstem and their tributaries, and long term (again numerical) water quality targets for four lake FMUs.
34. Given the significance of Table 3.11-1 (referred to as a cornerstone of PC1) and the level of concern expressed about its content and meaning from a wide range of submitters and planning and water quality experts, we requested early in the hearing process that expert conferencing take place in relation to Table 3.11-1.
35. The experts at the expert conferencing sessions and who had input into the associated Joint Witness Statement were unable to reach a unified consensus on what attributes were to be recommended for inclusion in Table 3.11-1. There were also considerable differences in opinion as to the appropriate numerical values for the attributes specified.
36. It was clear to us, however, both from the evidence of experts called by WRC, and from the Joint Witness Statement, that Table 3.11-1 could not remain as notified. WRC's evidence identified errors in the notified table, and there were attributes (e.g. water clarity) where there was a clear consensus of expert opinion that the existing approach was unsatisfactory. The Joint Witness Statement also emphasised the uncertainty in specifying long-term numerical goals, recommending that those values be regarded as interim.
37. As a result, we have recommended significant amendments to the way the long-term values are referred to and used in the objectives and policies; to focus Objective 1 in particular on the narrative objectives of Te Ture Whaimana rather than on Table 3.11-1, and to amend the description of those long-term numerical values so that they are no longer characterised as 'targets' for the purposes of the NPS-FM.
38. By contrast, we have recommended greater clarity that Objective 2 (notified Objective 3) is a Freshwater Objective in terms of the NPS-FM, designed to be achieved by the specified short-term values, which are therefore appropriately characterised as 'limits' and 'targets'. As above, we have recalculated those short-term limits and targets to be 20% of the improvement required to meet the long-term goal in each case.
39. As regards the appearance of the Table, we accept the Officers' recommendation that it be sub-divided to aid understanding of the information it provides.

40. In relation to the content of Table 3.11-1:

- We accept the recommendations of the majority of experts regarding amendments to the TN and TP values for the Waikato River mainstem;
- We find that although it is desirable to specify nutrient values for the tributaries, the various options recommended by the experts are all flawed in concept or lacking a sufficient evidential foundation (in particular, sufficient information to enable us to undertake the evaluation required under section 32AA) for us to recommend. We therefore recommend that current state nitrate, ammonia and DRP values be specified in the interim pending further data and analysis that would enable development of tailored targets for individual sub-catchments. We emphasise that those current state placeholders, where met, do not imply that the current state is acceptable at all sites;
- We recommend revised water clarity values based on a long-term goal of 90% of samples being greater than 1 metre in the absence of clear evidence that a lower standard provides for the objectives of Te Ture Whaimana relating to safe swimming;
- We recommend an enlarged set of *E. coli* metrics in line with the 2017 revision of the NPS-FM, adopting Band A (from the NPS-FM) as the basis for the long-term values specified;
- Although desirable in principle, we have not recommended short-term limits and targets for lakes, finding the evidential basis for specifying such values to be insufficient;
- We have recommended inclusion of TN and TP values for Whangamarino Wetland, relying on Dr Robertson's evidence for DoC, which we found both convincing and largely uncontradicted;
- We have not recommended narrative attribute targets for other wetlands, finding the suggested targets both vague and lacking adequate analysis of potential costs to enable evaluation under section 32AA.

41. We have reviewed the various additional attributes suggested for inclusion in Table 3.11-1. We found that temperature, heavy metals and hydrological attributes were out of scope- not being 'on' the Plan Change. Of the balance of attributes, we have tested the evidence, concluding that in each case, there was an insufficient evidential basis to justify their inclusion.

42. We have, however, recommended non-regulatory methods focused on creating a feedback loop between measurements of ecological health (through WRC's REMS ecological monitoring) and the monitoring of water quality in terms of Table 3.11-1.
43. We considered, but have not recommended, further divisions of the existing Freshwater Management Units.

Implementation Methods

44. PC1, as notified, included 12 non-regulatory "Implementation Methods", which the section 42A report recommended deleting. We recommend deleting a number of these Methods, retaining others and adding two new methods.
45. The Methods we recommend retaining (with some modifications) include those addressing:
 - Lakes and Whangamarino Wetland;
 - Sub-catchment scale planning;
 - Accounting system and monitoring;
 - Monitoring and evaluation of the implementation of Chapter 3.11;
 - Support, research and dissemination of best practice guidelines to reduce diffuse discharges.
46. In response to the extensive submissions and evidence we heard (primarily from individual farmers and community collectives) regarding the impact of koi carp and Canada geese on waterways within the Catchment, we have included Implementation Methods for these pest species.

Additional Issues for Council to Consider

47. In the course of our report, we have recommended that WRC consider instituting variations in respect of two issues. The first is to address a cross-boundary issue highlighted in the appeals related to Bay of Plenty Plan Change 10. Officers suggested a policy to address the point, but we found the recommended relief unsatisfactory for a range of reasons. In our view a variation is required to adequately address it once those appeals are resolved.
48. The second area relates to groundwater quality, which we found to be something of a 'hole' in the Plan Change, given the evidence we had of degraded groundwater quality in certain areas of the Catchment. However, we lacked both clear jurisdiction and a sufficient evidential base to recommend an appropriate response.

2. INTRODUCTION AND OVERVIEW

The Plan Change

49. PC1 addresses the degraded nature of the Waikato and Waipā Awa. Some parts of the Awa are more degraded than others, particularly a number of the lakes and tributaries, and the lower reaches of the Waikato River. That the Awa are degraded was not in dispute; and accepted by the WRC, the River (and other) Iwi, and the vast majority of submitters. What was at issue is what actions need to be taken and the timeframe over which these actions are taken, to address the degradation.
50. PC1 is the WRC and their Iwi Co-Governors' response - to restore and protect the Awa as required by Te Ture Whaimana o Te Awa o Waikato/Vision and Strategy for the Waikato River (Te Ture Whaimana)², as well as giving effect to the National Policy Statement for Freshwater Management 2014 (NPS-FM), to the extent possible in terms of the provisions of PC1³.
51. The rivers have been degraded due to, among other things, discharges of contaminant directly and diffusely onto the rivers. Much of this is from human activity, with some as the result of wildlife (including pest fish). We accept that over time there has been a significant improvement in the way urban and industrial wastewater has been treated in the Waikato and Waipā catchments. However, greater improvements will need to be made to give effect to Te Ture Whaimana. This plan change addresses objectives and policies relating to point source discharges, with the rules being in the operative Waikato Regional Plan (WRP).
52. The greater risk to water quality today is from non-point source discharges to land, or contaminants over a wide area, if only because, to date, these discharges have been the subject of limited regulation. PC1 seeks to reduce the contaminant load entering the rivers from the Waikato and Waipā catchments and, as mentioned above, has been developed to achieve, to the extent possible, Te Ture Whaimana and give effect to the NPS-FM.

² We discuss Te Ture Whaimana in greater detail later in this report.

³ We discuss the extent to which PC1, as notified, can give effect to Te Ture Whaimana and the NPS-FM later in this report.

53. PC1, as notified and as set out in the section 32 report is a first step in the planning framework required to achieve Te Ture Whaimana for the Waikato and Waipā Rivers.

The Hearing Panel and its Delegated Authority

54. The Hearing Panel comprised five independent hearing commissioners:
- Mr Greg Hill – Chairman;
 - Mr Basil Morrison;
 - Mr Trevor Robinson;
 - Dr Greg Ryder; and
 - Ms Sheena Tepania;
55. The Hearing Panel was delegated the responsibility by WRC to hear and make recommendations on the plan change pursuant to section 34A of the RMA. This report, and the attached revised recommended plan provisions, forms our recommendations to the WRC.
56. The Hearing Panel heard from the WRC and a significant number of submitters over the course of 59 days of hearings (March to September 2019). The Panel wishes to record its appreciation to all of those people and parties who lodged submissions and presented before the Panel, often on a number of occasions. The Panel was impressed by the commitment of the submitters, particularly lay submitters in terms of their efforts to understand PC1 and its implication for them; to coordinate with other submitters to present cogent and fulsome cases and to offer 'solutions' of how to make PC1 'work' while still giving effect to Te Ture Whaimana and the NPS-FM. The Panel wishes to acknowledge their time and commitment to the PC1 submission and hearing process.
57. The Panel also wishes to acknowledge and thank the section 42A authors, and in particular Mr McCallum-Clark, for their comprehensive reporting addressing the wide range of issues and views raised in the submissions. We also appreciated their assistance and responses to questions posed by the Panel throughout the hearing process.
58. We also wish to record our sincere thanks to the Rice Resources team, and in particular Mr S Rice, for their excellent management and administration of the entire hearing process. The smooth and efficient running of the hearing process was largely due to their skills, patience and understanding of the complex nature of the RMA hearing process.

Structure of the Recommendation Report

59. The structure of this report is as follows:

- (a) Section 1 provides an executive summary of our recommendations;
- (b) Section 2 covers the procedural and substantive background to PC1 and the hearing process. That includes a discussion of the current state of the Waikato and Waipā Rivers;
- (c) In section 3, we discuss the statutory framework underpinning our recommendations, focusing on the various higher order documents feeding into the conclusions we have reached;
- (d) Section 4 covers key legal issues that are relevant to our recommendations;
- (e) In section 5, we discuss key policy issues that underpin PC1. That includes the issue of 'grandparenting' that occupied so much of our hearing;
- (f) Section 6 discusses the values and uses covered in notified section 3.11.1;
- (g) Section 7 addresses the objectives of PC1;
- (h) In section 8, we discuss Table 3.11.-1, which contains the short and long-term numerical water quality values we recommend for the catchment;
- (i) Section 9 addresses the policies of PC1, broken down into policies specific to diffuse discharges, policies specific to point source discharges and policies common to them both;
- (j) Section 10 relates to the non-regulatory implementation methods in notified section 3.11.4;
- (k) Section 11 addresses the rules, and the schedules supporting those rules;
- (l) Section 12 covers the prioritisation of sub-catchments in (now) Table 3.11-3;
- (m) Section 13 addresses Part B of PC1 and the extent to which PC1 should regulate plantation forestry;
- (n) Section 14 addresses Part D of PC1, which contains a series of consequential changes to the WRP;

(o) Section 15 addresses the terms to be added to the Glossary of the WRP in order to assist implementation of what will be Chapter 3.11.

60. There are two appendices to our report. The first is a table of abbreviations and acronyms we have used throughout our report to assist its readability. The second is our recommended revised PC1.

Notification of Plan Change 1 and Variation 1

61. PC1 was publicly notified on 16 October 2016. At the close of submissions, over 1000 submissions had been lodged, many of which are substantial. A wide range of views were expressed, with many submitters seeking the abandonment of regulatory control over farming; a significant proportion supporting the 'direction of travel', but seeking different ways or timeframes to get there; and a number of other submitters seeking that more be achieved sooner. It appeared to us, as acknowledged in the Block 1 section 42A report, that practically every provision of PC1 had been submitted on, seeking their retention, deletion or amendment. Additional provisions have also been sought.

62. Following notification of PC1, Pare Hauraki raised concerns with WRC that it had not been consulted with in the manner required by the RMA. WRC withdrew part of PC1 on 3 December 2016 in order for consultation to take place, with the result that PC1 did not apply in an identified section of the Waikato catchment. Most provisions of PC1 remained unchanged other than those applying specifically to the withdrawn areas.

63. On 10 April 2018, WRC notified Variation 1 (Var1) to PC1 for public submissions. In summary, Var1 made the following amendments to PC1:

- Amendments to reinstate the previously withdrawn provisions and areas;
- Amendments to key dates for landowners, including dates for Registration and providing a NRP, as well as dates for FEPs and stock exclusion; and
- Amendments arising from consultation with Pare Hauraki.

64. While Var1 followed a separate submission process to the rest of PC1, further submissions were called for at the same time, so that these two processes could be brought together before the section 42A reporting and hearing process. Clause 16B of the First Schedule provides that from the point when Var1 caught up with PC1 procedurally, the two documents merged with the result that Var1 has the effect of

changing PC1 from that point. In addition, submissions on those parts of PC1 that were changed by Var1 are now considered to be submissions on Var1.

65. 71 further submissions were received.

Consideration of Submissions

66. Under Clause 10 of the First Schedule of the RMA we are required (as is the Council) to set out: the reasons for accepting or rejecting submissions and, for this purpose, may address the submissions by grouping them according to— (i) the provisions of the proposed plan to which they relate; or (ii) the matters to which they relate.

67. We have grouped the submissions in terms of both (i) and (ii) above. While individual submissions are addressed in this report, given the significant number of submissions, the breadth of outcomes sought, as well as the number of overlapping submissions that seek similar outcomes (but pose different wording as the solution), it is neither practical nor possible to specifically reference all submissions in the text of the report. Given this, and that our recommendations are based on all of the submissions, as well as the extensive evidence we received and heard, we have determined, in the main, not to make extensive reference to any one submitter.

68. We have, for efficiency reasons, largely relied on the summary of submissions set out in the Officers' 3 section 42A reports. However, we note that these were prepared prior to the evidence being lodged and heard. Our recommendations have been based on all of the submissions and the evidence received and heard. We record that while many of the submissions may not be expressly referred to, nevertheless all have been taken into account when making our recommendations.

69. In relation to the further submissions, they can only support or oppose an original submission. Therefore, if we have accepted the original submission, then a supporting further submission is also accepted. Conversely, if the further submission is an opposing one, then it is rejected. If we have rejected an original submission, then a supporting further submission is also rejected, and any opposing further submission is accepted. Where we have accepted in part an original submission, then any further submission (supporting or opposing) is also accepted in part.

Evaluation reports - section 32 and 32AA of the Resource Management Act 1991

70. Before notifying a Regional Plan or plan change (as in this case), the Council is required to prepare an evaluation report(s) in accordance with section 32 of the RMA. Such an

evaluation report must, generally, examine whether the proposed objectives of the policy statement or plan are the most appropriate way to achieve the purpose of the RMA, and whether the policies, rules and other methods of the policy statement or plan are the most appropriate way to achieve the objectives. The Council did this as part of its plan change preparation process.

71. The Hearing Panel is required to include in its recommendations a further evaluation of any proposed plan changes in accordance with section 32AA of the RMA. This evaluation is only for the changes that we recommend be made and is undertaken at a level of detail that corresponds to the scale and significance of the changes. The entire hearing process and the Hearing Panel's deliberations have constituted its review for the purposes of section 32AA of the RMA. The hearing sessions for each topic enabled the Hearing Panel to test possible amendments to the provisions of PC1 as notified.
72. The Hearing Panel's evaluation is based primarily on the Council's original section 32A report, any section 32AA evaluation provided by Council or other submitters during the course of the hearings, and the information and analysis contained in submissions, questions and responses, and supporting evidence presented to the hearings. In summary, this Recommendation Report and the Revised PC1 provisions constitute our section 32AA evaluation.

Te Ture Whaimana and Co-Governance/Co-Management

73. PC1 differs from other regional plan changes under the RMA in (at least) two important respects.
 - Te Ture Whaimana o Te Awa o Waikato - The Vision and Strategy for the Waikato River, is unique to the Waikato and Waipā catchments. As will be discussed in more detail later, PC1 is required to give effect to it. The WRC and many submitters noted that will be challenging due to what Te Ture Whaimana requires and the current state of much of the Awa.
 - The cultural and legislative context that underpins Te Ture Whaimana also needs to be understood.
74. There are three Acts that relate specifically to the Waikato and Waipā Rivers:
 - Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010;

- Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010; and
 - Ngā Wai o Maniapoto (Waipā River) Act 2012.
75. These three Acts establish co-governance arrangements for the Waikato and Waipā Rivers and their catchments. The iwi partners in the development of PC1 are Ngāti Maniapoto, Raukawa, Ngāti Tūwharetoa, Te Arawa River Iwi and Waikato-Tainui. All are submitters to PC1 and presented evidence to the Hearing Panel as part of a joint case.
76. We note that the background discussion of the co-governance arrangements in Part A of PC1 describes the iwi partners as 'River Iwi'. While each of the iwi partners is undoubtedly a River Iwi, describing them collectively as "*the River Iwi*" implies that there are no other River Iwi, which is not correct. In particular, it was pointed out to us by representatives of Ngāti Koroki Kahukura Trust that section 70 of the Ngāti Koroki Kahukura Claims Settlement Act 2012 records the Crown's acknowledgement that Ngāti Koroki Kahukura "*are a river iwi*". We have therefore clarified the references in the background discussion to be clear which iwi are being referred to. For the same reason, when we refer to Ngāti Maniapoto, Raukawa, Ngāti Tūwharetoa, Te Arawa River Iwi and Waikato-Tainui collectively in this report, we have described them as the Iwi Co-Governors.
77. The process for preparing, reviewing, changing or varying the WRP is set out in the legislation. This includes a requirement for the Council to establish a Joint Working Party with each of the Iwi Co-Governors, for the purposes of making joint recommendations to the Council on the following aspects of the plan change:
- The process to be adopted for the preparation of the plan change;
 - The general form and content of any document to be drafted for the purposes of consultation or notification; and
 - The content of a planning document to be notified.
78. It was through these mechanisms that the scope of PC1 was agreed (see the discussion later in this section of our report, under the heading Overview of the Plan Change and its development).
79. A single joint working party, Te Rōpū Hautū (TRH), comprising representatives from the Iwi Co-Governors and the Council was established to fulfil the legislative requirements (set out above) and to provide management oversight of the PC1 project.

The WRC and TRH later established a co-governance committee referred to as the Healthy Rivers Wai Ora (HRWO) Committee, comprising equal number of representatives from iwi and the regional council (councillors). The purpose of the HRWO Committee was to make recommendations to the WRC on the content of PC1.

80. We discuss Te Ture Whaimana in much greater detail in the next section of our report. For present purposes, it is sufficient to record that Te Ture Whaimana states that the Waikato and Waipā Rivers are degraded and require, among other things, restoration and protection. The Vision is

"For a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come".

81. Te Ture Whaimana was developed to respond to four fundamental issues:

- The degradation of the Waikato River and its catchment has severely compromised Waikato River iwi in their ability to exercise mana whakahaere or conduct their tikanga and kawa;
- Over time, human activities along the Waikato River and land uses through its catchments have degraded the Waikato River and reduced the relationships and aspirations of communities with the Waikato River;
- The natural processes of the Waikato River have been altered over time by physical intervention, land use and subsurface hydrological changes. The cumulative effects of these uses have degraded the Waikato River; and
- It will take commitment and time to restore and protect the health and wellbeing of the Waikato River.

82. It is acknowledged that the full achievement of the Vision, and a number of the objectives, will require non-RMA processes and activities in parallel to PC1, as well as future plan changes.

Overview of the Plan Change and its Development

83. PC1 was developed in partnership with iwi as a co-management project, and alongside the community as a collaborative planning project. One of the main strategies for working alongside those with an interest in PC1 was to establish the Collaborative Stakeholder Group (CSG).

84. The purpose of the CSG was to bring stakeholders together to act as a central conduit for stakeholder and broader community involvement, where the members represented Māori interests, local communities and agricultural sectors. The CSG reviewed extensive technical information (environmental, cultural, social and economic) and used this information to inform recommendations regarding the content of PC1.
85. A Technical Alliance was also established for PC1, comprising a Technical Leaders Group (TLG) and a wider Technical Support Group. These groups were established to provide technical support to the CSG. The CSG and TLG process is outlined in sections B.2 and C.1 (respectively) of the section 32 report.
86. As part of the plan change development, the CSG proposed a policy mix to initiate improved water quality in the catchment, with most actions tied to reducing contaminant loss by the rural sector. Four scenarios were developed and included:
- Scenario 1: Substantial improvement in water quality for swimming, taking food, and healthy biodiversity. This involved an improvement in water quality everywhere, even if it is already meeting the minimum acceptable state;
 - Scenario 2: No further degradation in water quality, and improvements to at least minimum acceptable state;
 - Scenario 3: Some general improvement in water quality for swimming, taking food, and healthy biodiversity, even though this may not reach the minimum acceptable state everywhere; and
 - Scenario 4: No further degradation in current water quality, despite projected extra contaminant loads (the nitrogen load-to-come) emerging from groundwater (These scenarios are described in detail on pages 5-6 of Doole et al. (2015a)).
87. The CSG adopted Scenario 1. Scenario 1, a key output of the HRWO process, defined goals of substantial improvement in water quality for swimming, taking food, and healthy biodiversity. As above, it involved an improvement in water quality at all sites in the catchment, even if that site was already meeting the minimum acceptable state. The timeframe for meeting the ultimate set of targets defined in Scenario 1 was 80 years, with PC1 aiming to take actions over a 10-year period that will make a 10% improvement towards achieving the target states.

88. As we address later, there was considerable disquiet from a number of submitters about the HRWO modelling, its outputs, the basis on which the CSG adopted Scenario 1, and ultimately the provisions of PC1 as notified.
89. The final suite of provisions for PC1 developed by the CSG was presented to the HRWO Committee for its approval, prior to WRC making a final decision on the proposed plan change. WRC then publicly notified PC1.
90. As a high-level overview, the CSG (and ultimately WRC) determined PC1 should only address four contaminants - nitrogen, phosphorus, sediment and pathogens (with *E. coli* as the proxy for pathogens). An 80-year timeframe to achieve the water quality objectives of Te Ture Whaimana was also agreed, which, among other things, requires the rivers to be safe for swimming and taking food from. This is addressed in the section 32 report.
91. A number of parties, in their submissions and evidence, questioned the robustness and appropriateness of the CSG process, and the extent to which the Hearing Panel was 'bound' by the process and outcome. While a number of parties supported the CSG process and outcome, a significant number of other submitters did not. We heard evidence both from submitters who felt that their interests had not been represented in the CSG process, and from submitters whose representatives had found themselves in a minority (and were aggrieved about the way in which that situation came about).
92. While we do not need to dwell on the CSG process (for the reasons set out in the following paragraph), we think Mr Salmon's evidence for Oji,⁴ sums up the views of most of the people we heard from on this matter:⁵

"I regard Waikato's Healthy Rivers Wai Ora collaborative process as an important and genuine attempt by the regional council to engage effectively with its stakeholders on a long-standing environmental issue with big policy and stakeholder implications. In a comparative perspective, Healthy Rivers is of high interest for three reasons, in particular. First, for the way the process design fully recognised and accommodated the co-governance arrangements that, at the time, were unique to the Waikato. Second, for its constitution of a separate Technical Leadership Group (TLG), to facilitate participants' and Council's access to information that was independent and of high quality and credibility. TLG members responded to requests for information and technical judgments but were excluded from the formal consensus-forming and voting

⁴ Mr Salmon was asked by WRC to provide input on the design of the collaborative process.

⁵ Mr Salmon, Block 1 evidence in chief - paragraphs 3.1 and 3.7.

processes. Third, for the way the CSG departed from the prevailing consensus-based model, by allowing voting; and how in the end this may have hampered the ability of the region to find a shared solution to what is widely accepted as a major environmental issue.

The conclusion I have reached in my draft report comparing ten collaborative processes is that in the Waikato case, the design of the process, and especially its provision for voting, appears to have contributed to enhancing rather than resolving community divisions. [Underlining added].

93. On the opening day of the hearings, we asked Mr Milne for his view as to the extent to which the Hearing Panel was bound by the CSG process and outcome. His submission (and that of a number of other legal counsel) was that the Hearing Panel was not bound by the process and outcome, and that the Hearing Panel was required to make its recommendation based on the submissions and evidence it heard, and any changes made supported by the requirements of section 32AA of the RMA. He said, in short, that the CSG's process and outcome was an "*historical explanation*". We agree with Mr Milne's description of the position.
94. Given our views expressed above, we have deleted the section entitled – "*Background and Explanation - Collaborative Process*", from Part A of Chapter 3.11, as well as references elsewhere to the CSG its process and the opinions the CSG had on aspects of PC1. This is because the CSG process simply provides an explanation of how the Plan Change was developed. It is unnecessary to record this background in the final plan change document. We have also deleted the section titled "*Consultation*". This for the same reason as above; it provides an explanation of how the Plan Change was developed, and is not required in the final plan change document.
95. The limitation of PC1 to the four contaminants was a significant area of contention between submitters. Many argued that Te Ture Whaimana, the NPS-FM and the RPS, could not be given effect to due to the limited approach of PC1, and that accordingly, the focus of PC1 needed to be broadened beyond the four contaminants. We address the issue of scope from a legal perspective in more detail in section 4 of this report. Policy and science issues around enlarging the focus of PC1 to include additional attributes are discussed in section 8.
96. However, we emphasise that in our view PC1 does not give full effect to Te Ture Whaimana, the NPS-FM and the RPS, and importantly it was not designed to do so; but rather to be a first step in the restoration and protection of the Awa.

97. As has been set out, giving effect to Te Ture Whaimana will require more than RMA plan changes (albeit that they are an important component). A whole range of land use changes and restoration efforts will be required. It will be also be inter-generational, requiring a number of subsequent regulatory and non-regulatory processes. Moreover, there is nothing in the NPS-FM requiring full effect to be given to it in one plan change.⁶ It is our view, that the recommendations made by us, and if accepted by the Council, will give effect to Te Ture Whaimana, the NPS-FM and the RPS to the 'extent that it is able' in terms of the scope of PC1.
98. The 80-year timeframe proposed to fully achieve the Vision and Strategy (and the long-term water quality objectives) recognises that it would be inter-generational, requiring farming practices and systems to change and improve over time (in terms of land management practices to avoid or significantly reduce diffuse contaminant discharges), require further improvements or alternatives to point discharges - with an acknowledgment that this may require technologies or practices that are not yet available or economically feasible.
99. Evidence from witnesses⁷ appearing on behalf of the Iwi Co-Governors at the Block1 hearing was that the 80-year timeframe was accepted (albeit reluctantly) by all of the five iwi partners for the reasons set out above. However, all of the iwi were clear that the timeframe should not be extended. While they accepted that PC1 was the 'first step in the journey' to achieve the restoration and protection of the rivers, real and sustained improvements needed to be made so as to meet the 80-year (though preferably earlier) timeframe.
100. We accept that the current understanding of the extent of changes needed to achieve complete water quality restoration is that significant changes in land use farming practices will be required, as well as land use change over time. Because of this, PC1, as notified, sought to introduce controls to require the 'better management' of farms/horticulture to reduce contaminant loss, and to halt further land use change (such as to more intensive farming) until the PC1 policy and rule frameworks was in place and monitoring results of the effectiveness of PC1 were known.

⁶ Section E - Progressive Implementation Programme - policy E1(c) provides that December 2030 is the final deadline for full implementation of the policies of the NPS-FM. Full implementation, however, does not mean that the timeline for meeting the targets that have been specified cannot extend beyond that deadline.

⁷ Ms Schaafhausen (Waikato-Tainui), Mr Kaati (Ngāti Maniapoto), Ms Eparaima (Raukawa), Ms Forrest (Te Arawa) and Mr Rameka (Ngāti Tūwharetoa).

101. Due to the extent of changes required to restore and protect the rivers in the 80-year timeframe, the CSG, and subsequently the Council in notifying PC1, adopted a staged approach. This approach required improvements in a number of steps - the first of which is to put in place and implement the range of actions for an initial 10-year period that will be required to achieve 10 percent of the required change between current water quality and the long-term water quality in 2096.
102. We address the "initial 10-year period" in more detail later, but note that the reference to achieving the 10-year 'targets' by year 2026 (ten years since PC1 was first notified) is no longer viable given the delays in the First Schedule process to date and the likely delays before when PC1 will become operative.
103. The staged approach recognised that immediate large-scale land use changes would likely be socially and economically disruptive, and even if the staging required to reduce that disruption were implemented, considerable effort and cost would still be required for resource users, industry and WRC to set up the changes required in the first stage. The staged approach also allows time for the gathering of additional information, and innovation in technology and practices that will be needed to meet the targets and limits in subsequent regional plans.
104. The approach to reducing contaminant losses from farm land in PC1 as notified included:
- Requiring farms to be registered with the Council, so that it understands the magnitude of the diffuse discharge issue, and as the basis to regulate each farming activity;
 - Stock exclusion from water bodies as a priority mitigation action;
 - Farm Environment Plans (FEPs), including for commercial vegetable producers, to show how contaminant leaching loss would be reduced by good farming practices, as well as identifying additional mitigation actions to reduce diffuse discharges by specified dates;
 - A property scale nitrogen reference point (NRP) to be established by modelling current nutrient losses from each property over defined reference years, with no property being allowed to exceed its reference point in the future and higher dischargers being required to reduce their nutrient losses;⁸ and

⁸ This is what many submitters referred to as "grandparenting". The issue they raised is that this approach rewards those who have a higher N leaching rate and penalises those who had a low N leaching rate (as they lose the flexibility to farm at a higher intensity and increase their N leaching).

- Restricting or preventing land use change from tree cover to animal grazing, or any livestock grazing other than dairy or arable cropping to dairy, or any land use to commercial vegetable production.
105. With respect to point source discharges, PC1 includes objectives and policies that apply to these discharges. The existing provisions, including rules, in the WRP will continue to apply. However, municipal and industrial point source dischargers will be required to review their discharges in light of PC1 (and Te Ture Whaimana) and the water quality objectives, and sub-catchment limits and targets that have been set.⁹
106. The NPS-FM includes a requirement to define the waterbodies to be managed, and set outcomes, limits, targets and other measures to achieve those outcomes. In accordance with this framework, a Waikato and Waipā River catchment boundary was established and divided into eight Freshwater Management Units (FMUs). These are:
- River FMUs
 - The Lower Waikato River FMU
 - The Middle Waikato River FMU
 - The Upper Waikato River FMU
 - The Waipā River FMU
 - Lake FMUs
 - Dune lakes
 - Riverine lakes
 - Volcanic lakes
 - Peat lakes.
107. A number of submitters (e.g. Fish and Game, DoC, WPL and Miraka) suggested that the scale of the FMUs was inappropriate (mostly stating they were too large) for any meaningful community value setting and management approach. A small number of submitters (e.g. WPL and Miraka) sought additional FMUs be included. We address this issue later in section 8 of our report below.

⁹ As part of the discussion of the inter-generational nature of full achievement of Te Ture Whaimana, PC1 implied that section 128 reviews would not be used for this purpose. We discuss further below what direction we recommend PC1 provide in this regard.

Overview of the Waikato and Waipā River Catchments

The Waikato River

108. The Waikato River's catchment covers 14,260 square km, 12 percent of the area of the North Island. It is New Zealand's longest river. The headwaters start in the central North Island volcanic zone (Mt Ruapehu), 2,797 metres above sea level, in the form of several tributaries of Lake Taupō, including the Tongariro River. Additional water is diverted from the headwaters of the Whanganui, Whangaehu and Moawhanga Rivers into the catchment through the operation of the Tongariro Power Development. From the boundary of the area the subject of PC1 at the outlet from Lake Taupō, the Waikato River flows north across the volcanic plateau, passing through eight hydro-electric dams, and onto the lowlands from Cambridge to Mercer. The river finally flows into the Tasman Sea at Port Waikato after a journey of 425 km from Lake Taupō.
109. While the Waikato River is fed by more than 17,000km of tributary streams, it is considered to be a lake-fed river. As we have noted, PC1 separated the Waikato River into three FMUs: Upper Waikato River; Middle Waikato River and Lower Waikato River. In broad terms, the Upper Waikato FMU covers the Waikato mainstem and tributaries from the Lake Taupō Outlet to Karapiro Dam. Middle Waikato FMU ends at the Waipā River confluence at Ngāruawāhia. The Lower Waikato FMU ends at the landward boundary of the coastal marine area.
110. The Waikato River provides a habitat for a variety of freshwater flora and fauna, with at least 21 species of native fish and crustaceans (including Nationally Vulnerable Shortjaw kōkopu and Lamprey) and 13 species of introduced fish, including trout and salmon. Some introduced fish, such as koi carp and gambusia, are pest species.
111. The Waikato River is a tupuna (ancestor), a taonga (treasure), and the mauri (life force) of Tainui Waka and Ngāti Tūwharetoa. The river has significant cultural, environmental, economic and social/recreational values both locally and nationally. These values (both intrinsic values and use values) have been articulated through the process outlined in the NPS-FM and formed part of PC1 as notified.
112. The Block 1 section 42A report records that the predominant land uses in the Upper Waikato River FMU are pasture and cropping (49%) and exotic forest (39%). The remaining area is covered with indigenous vegetation (13%) and very small areas of lakes, wetlands and urban areas. Significant areas of the Upper Waikato FMU have been converted from exotic forestry to dairy since 2000. Based on information supplied

to us by WRC under cover of a memorandum dated 27 March 2019, most of those conversions by land area occurred between 2010 and 2016. The land use in the Middle Waikato FMU is predominantly pasture and cropping (74%), with indigenous vegetation covering 19%. The remaining area is exotic forest (5%), with small amounts of urban and lake and wetlands area, less than 2%. The Lower Waikato FMU land use is also dominated by pasture and cropping (75%) with 12% indigenous vegetation. The remainder is made up of urban environments (3%), with exotic forest and lakes and wetland areas making up the final 10%.¹⁰ Commercial vegetable production makes up a small percentage of the area, but is a 'high value use' of this FMU.

The Waipā River

113. The Waipā Catchment covers 306,569 ha and is dominated by the Waipā River mainstem and associated tributaries. The Waipā River is the single largest tributary of the Waikato River. The Waipā River starts at the Pekepeke wetland adjacent to the Rangitoto Range in the southern King Country, southeast of Te Kuiti. From there it flows through land that was once native bush, wetlands and peat bogs, but is now mostly farmland and steep hill country. The Waipā River flows northwards through rolling lowland areas to the towns and villages of Ōtorohanga, Pirongia and Whatawhata, before meeting the Waikato River at its confluence in Ngāruawāhia, 115km from its headwaters in Pekepeke.
114. The Waipā River is a tupuna (ancestor), a taonga (treasure), and the mauri (life force) of Ngāti Maniapoto.¹¹ The Waipā River catchment is represented by a diverse array of ecosystem types and associated aquatic flora and fauna. A unique aspect of this system is the lack of any major mainstem barriers to migratory fish passage. Together with a relatively flat gradient, this enables non-climbing migratory species such as common smelt and mullet to reach significant distances inland. These same aspects have also enabled access for numerous non-migratory invasive species including koi carp, brown bullhead catfish and gambusia. Recreational (e.g. trout angling), commercial and customary harvest (e.g. tuna (eels), kōura (crayfish)) is common in the wider system.
115. In terms of vegetative cover, 78% of the catchment area is in pasture, 21% is native vegetation, scrub and other land uses, and 1% is production forestry.

¹⁰ Block 1 Section 42A report – paragraph 67.

¹¹ Block 1 Section 42A report – paragraph 66.

Lakes

116. There are more than 60 named lakes in the Waikato-Waipā catchment. PC1 classifies lakes into four types – volcanic, peat, riverine and dune.
117. Peat lakes are the most numerous of the remaining lake types. Peat lakes tend to be small, with two-thirds having an area less than 10 ha. All 35 peat lakes have catchments dominated by non-native vegetation. Eight of these lakes are currently monitored by WRC.
118. The peat lakes within the catchment are valued for their unique genetic diversity, scientific interest and recreational opportunities. They are also valued for their cultural and spiritual values. Peat lakes are a valuable habitat for many unique animals and plants, but are under threat due to drainage, nutrients and plant and animal pests.
119. There are four named dune lakes, all less than 10 ha in size and all with nearly 100% non-native vegetation. None are currently monitored by WRC, but three have historic data available.
120. The 15 riverine lakes include the largest shallow lakes in the catchment (Waikare, Whangape, Waahi). Four of the lakes are currently monitored.
121. Of the five volcanic lakes in the catchment, only two have any scientific data available. Dr Phillips, appearing for DoC, advised us that some of the volcanic lakes at least are geothermal in character.¹² This is consistent with WRC having listed two of those lakes (Rotokawa and Orotu) in its inventory of geothermal habitats. We note that Lake Rotokawa is also classified as a Significant Geothermal Feature in Chapter 7 of the WRP. The definition of lakes under the RMA is of a body of fresh water. Although PC1 appears to have mapped the two geothermal lakes as being within the Lake FMU, our interpretation is that they are outside the scope of PC1.

Wetlands

122. There are approximately 140 wetlands in the PC1 geographical area (mean area = 93ha, median area = 13 ha),¹³ with the total area of natural freshwater wetlands in this area of 15,817 ha, with the Lower Waikato FMU having the largest extent of wetlands.¹⁴ Approximately 41% (by area) of wetlands in the PC1 geographical area are

¹² Dr Phillips, Block 1 evidence in chief – Table 4.

¹³ Dr Robertson, Block 1 evidence in chief, paragraph 43.

¹⁴ Dr Robertson, Block 1 evidence in chief, paragraph 41.

administered by DoC as public conservation land.¹⁵ While these wetlands are legally protected as part of the public conservation estate, they are often situated within catchments where land use is predominantly agriculture, or forestry, with the wetland areas subject to high risk of degradation from inputs of nitrogen, phosphorus and sediment, in addition to drainage and altered flood frequency.

123. Whangamarino Wetland is a 7,000 ha wetland complex situated on the floodplain of the Lower Waikato River. It comprises extensive freshwater wetlands (bog, fen, swamp, marsh) and is fed by the Pungarehu Stream, Whangamarino River and Maramarua River. In addition to the natural rivers that flow into Whangamarino, the wetland receives inflows from Lake Waikare via the Pungarehu Canal.
124. The Whangamarino Wetland is a Ramsar site (wetland of international importance) and was officially designated in 1989. The Ramsar site encapsulates both the public conservation land administered by the Department of Conservation (Approximately 5,000 ha) and Fish and Game owned land. Some of the wetland is in private ownership.
125. As set out in Dr Robertson's evidence (for DoC) –“*Protecting the significant values and uses of Whangamarino is a national priority for the Department of Conservation. One of the main objectives of the Arawai Kākāriki wetland restoration programme at Whangamarino is to maintain or enhance water regimes, water quality and the condition of wetland habitat. Whangamarino is also a priority site in the Waikato Conservation Management Strategy 2014-2024 (DoC 2014).*”¹⁶

State of the Awa

Background

126. As discussed in section 3 of this report, Te Ture Whaimana is the key direction-setting instrument for PC1. Objective h of Te Ture Whaimana recognises that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities. Objective 1 of the notified version of PC1 refers to long-term restoration and protection of water quality while Objective 3 refers to short-term improvements in water quality.
127. Clearly, the signal sent both by Te Ture Whaimana and the notified version of PC1 is that water quality in the Waikato and Waipā River catchments has degraded and is

¹⁵ Dr Robertson, Block 1 evidence in chief, paragraph 42.

¹⁶ Dr Robertson, Block 1 evidence in chief, paragraph 59.

now poor to varying degrees. However, it is apparent to us that the degree of degradation is influenced by a range of factors, including the type of water body (i.e., river, lake or wetland), its geographic location within the catchment, underlying geology, surrounding land use type and the period of time over which water quality has been assessed.

Current state water quality

128. Describing current state is important for several reasons. First, Te Ture Whaimana requires the water quality of the Waikato-Waipā River catchments to be restored to a better state, and that requires an understanding of the Awa's current water quality state. Secondly, the NPS-FM requires freshwater quality within a Freshwater Management Unit (or FMU) to be maintained at its current level where community values are currently supported, or improved where community values are not currently supported. Thirdly, understanding current state water quality enables appropriate water quality limits or targets to be set, a priority or ranking system for sites or sub-catchments based on the degree of departure between current state and desired future state to be established, and provides a benchmark against which to track change over time via monitoring.
129. In PC1, water quality limits or targets were contained within Table 3.11-1, for four attributes¹⁷; clarity, *E. coli*, N and P, and expressed as attribute states¹⁸. While this description of Table 3.11-1 appears relatively straightforward, there was considerable debate amongst witnesses as to what exactly the content of Table 3.11-1 was meant to represent (we discuss this in section 8 of this report including the relationship between current state and Table 3.11-1). Notwithstanding issues around the content of Table 3.11-1, which we will come to, defining current state water quality in the Waikato-Waipā catchment was key to the formulation of the water quality limits and targets contained in Table 3.11-1.
130. Throughout the hearing, we sought clarification from experts about the state of water quality in the Waikato-Waipā River catchments, where it differed throughout the catchment and in what way. In Block 1, we posed questions to WRC water quality experts about Table 3.11-1; in particular, where some long-term water quality targets

¹⁷ “**Attribute**” is defined in the NPS-FM as a measurable characteristic of fresh water, including physical, chemical and biological properties, which supports particular values.

¹⁸ “**Attribute state**” is defined in the NPS-FM as the level to which an attribute is to be managed for those attributes specified in Appendix 2 of the NPS-FM.

for some sub-catchments appeared to be met already, did this imply that in those sub-catchments at least, water quality was not degraded?

131. We understand that, as part of the development process for PC1, information was provided to the CSG on the current state of each water quality attribute at each monitoring site in the Waikato-Waipā River catchments. Current states were based on data derived from WRC's routine monitoring programme over a five-year period from 2010 to 2014 (except *E. coli*, for which a six-year period of 2009 to 2014 was used¹⁹), and presented as annual median or 95th percentile values,²⁰ and as bands using the NPS-FM National Objectives Framework (NOF) guidelines, or as catchment-specific bands in the case of water clarity.²¹
132. Current state water quality data for the Waikato-Waipā catchment was attached to Appendix 1 of section D.4 of the Section 32 Evaluation Report. These data were subsequently reviewed by WRC water quality scientists as a part of information requests from the Panel. Dr Scarsbrook noted in his Block 1 evidence for WRC that WRC staff had become aware of some minor errors and potentially ambiguous interpretations of the information contained in Appendix 1 of the Section 32 Evaluation report. As a result, Dr Scarsbrook presented a revised version of the 2010-2014 current state Table at the Block 1 hearing.
133. A further and final update to current state water quality was presented in Appendix C of the WRC's Closing Planning Statement. This update added current state data (2010-2014) to a revised Table 3.11-1 and was considered by the authors²² to be consistent with and largely unchanged from the corrected 2010-14 current state dataset presented in Attachment 1 of Dr Scarsbrook's Block 1 Statement of Evidence. The authors also noted that WRC staff had retained the 2010-14 period used by the CSG as the reference point for determining current state water quality, as they considered that it was consistent with the period used to calculate short-term target values and long-term 'maintain' values in the notified version of PC1.²³ We should also note at this point that, at the request of the Hearing Panel, Dr Scarsbrook presented us with current state data for the period 2014 to 2018, together with the relevant NOF bands.²⁴

¹⁹ For statistical purposes, analysis of *E. coli* data are recommended using a data set with at least 60 data points.

²⁰ TLG 2015 Document#8389150.

²¹ TLG 2015 Document#3597165.

²² Appendix A of the Closing Planning Statement – Waikato Regional Council Revision of Table 3.11-1 (Plan Change 1). Prepared by Mike Scarsbrook, Bill Vant, Bevan Jenkins and Bryce Cooper.

²³ Page 24 of Appendix A of the Closing Planning Statement.

²⁴ Tables 3A and 3B, Dr Scarsbrook Block 1 evidence in chief.

134. We note that of the 74 sub-catchments contained within the Waikato-Waipā River catchment FMUs, only 62 are listed in Table 3.11-1 as notified (all 74 sub-catchments were listed in Table 3.11-2). We were told by Ms May (Director of the Science and Strategy directorate of the Waikato Regional Council) that a further 10 sites had been added to the monitoring network to ensure that there is monitoring undertaken in each of the 74 sub-catchments of the Waikato and Waipā River catchments.²⁵ The WRC commenced routine monitoring for the other 10 sub-catchments in September 2018. Water quality is monitored in a further two sub-catchments by NIWA.²⁶

Concerns regarding how current state was defined/assessed

135. Before moving on to describe current state, we note that some submitters expressed concern regarding the appropriateness of the 2010-2014 period used to define current state. Dr Ausseil on behalf of the Iwi Co-Governors stated it was critically important that the current state is robustly defined, the calculated statistics are representative of the actual/true existing state, and the methodology and process used to estimate the current state are well documented and able to be replicated, now and in the future.²⁷ He noted that the data management and analysis methods used to define the “current state” were not documented.
136. Dr Ausseil also made a number of observations about current state and technical issues relating to how water quality is measured, and concluded by recommending some form of ‘uncertainty margin’ be placed around the short and long-term targets, based on estimates of current state, to account for uncertainty of measurement and the potential influence of climatic patterns.²⁸
137. In Appendix A of the WRC Closing Planning Statement, WRC water quality scientists noted that WRC is currently working to complete a full current state report that includes the methods used to generate the current state information and procedures for any future ‘current’ state assessments. The scientists stated that this will ensure that water quality state can be tracked through time in a consistent manner.²⁹ We expect that such a document should satisfy some of the concerns raised by Dr Ausseil regarding how current state water quality is determined now and into the future.

²⁵ Ms May, Block 1 evidence in chief – paragraph 53.

²⁶ Memo - Response to Hearing Panel questions from Waikato Regional Council Officers, 5 July 2019 – para 8.

²⁷ Dr Ausseil, Block 1 evidence in chief – paragraph 60.

²⁸ Dr Ausseil, Block 1 evidence in chief – paragraph 76.

²⁹ WRC Closing Planning Statement, Appendix A – Waikato Regional Council Revision of Table 3.11-1 (Plan Change 1) – page 24.

138. With respect to the recommendation for an ‘uncertainty margin’ to be placed around the short- and long-term targets, Dr Ausseil did not provide us with this additional data or any guidance on how it might be derived, nor did any other witness. Even if we had the material on which to base such margins, we consider that adopting Dr Ausseil’s recommendation would further complicate Table 3.11-1.
139. Federated Farmer’s North Island Regional Policy Manager, Dr le Miere, noted that the s32 report presents ‘current state’ only up to 2014 (five-year medians over the period 2010-2014) and that by the hearing, this data was four years out of date. He expressed the view that the PC1 hearing should be informed by the most recent data available. We note that that data was supplied to us by WRC scientists at the commencement of the hearing. Dr le Miere went on to assess and discuss some WRC Waikato catchment water quality data for the period 2012-2016.
140. We agree that an understanding of the most recent water data is necessary in order to assess current state, then compare it against some historic (former) current state in order to determine whether limits are being maintained and targets are getting closer to being met, or whether ground is being lost. However, a line in the sand has to be drawn when determining current state at the time, and the CSG elected to use a five-year period that was as recent as could be expected at the time given constraints around the release of processed data, sufficient years of data to perform appropriate statistical analyses consistent with the NOF approach to assess attribute state, and the need to move on with the development of recommendations for PC1.
141. The current state period of 2010-2014 used in developing PC1 will undoubtedly become a former current state, and perhaps become more of a benchmark against which to assess progress towards meeting the objectives of Te Ture Whaimana. As noted above, Dr le Miere elected to analyse another ‘current state’ period using the most recent available WRC monitoring data (five year median data for the period 2012-2016). We will revisit Dr le Miere’s analysis of this dataset further on in this sub-section of our report.
142. WPL’s water quality expert, Dr Neale, generally agreed with the description of the current state of the catchments presented in the Section 42A Report, but noted some inconsistencies around the description of current state used in PC1 and subsequently used to inform the freshwater objectives of Table 3.11-1.³⁰ As noted above, WRC

³⁰ Dr Neale, Block 1 evidence in chief – paragraphs 44-60.

scientists re-visited the data used to determine current state and produced an updated summary of water quality current state in the Closing Planning Statement.

143. While Dr Neale was generally comfortable with the approach used to adopt the 2010-2014 period to define current state, he noted that it was a particularly dry period and included the two driest years since 1991, at least in the upper catchment.³¹ He recommended that the current state assessments be re-assessed with reference to rainfall variability to reduce any bias that may be introduced by unusually dry or wet periods, and suggested extending the period used to determine current state to ten years.
144. Our finding on Dr Neale's assessment is that while we accept that there may be a certain element of subjectivity in defining the period over which to assess current state, that fact that the 2010-2014 period included some dry years may reflect a more typical situation moving forward, given predictions about climate change. When we asked Dr Neale about the potential influence of climate change in the Block 1 hearing, he said that it was entirely possible that the dryness recorded in the period to 2014 represented the new norm. It follows that we do not support extending the date range and reassessing the Table 3.11-1 values on the basis of an enlarged dataset.
145. Dr Robertson took issue with the section 42A comments regarding insufficient monitoring data available to determine the current state of Whangamarino Wetland in his evidence for DoC,³² and hence the recommendation not to include numerical limits or targets for it. Dr Robertson presented what he labelled 'Current' nutrient concentration and sediment load data for the wetland in Appendix 6 of his Block 1 evidence, although we do not understand this to be current state as defined by the CSG process (i.e., 2010-2014). His Appendix 6 also included recommended 80-year targets (along with 10% and 20% reductions over 10 and 20 years, respectively) for P and N concentrations, and sediment load. We address Whangamarino Wetland separately in this report, but note here that we have some sympathy with Dr Robertson's call for specific water quality targets for the Whangamarino wetland, which we consider has been somewhat 'under-cooked' in PC1 as notified.
146. The issue of how to define current state water quality also raises the issue of where to monitor and whether existing monitoring sites fairly represent water quality within the wider sub-catchments they are associated with. Farmers provided us with several

³¹ Dr Neale, Block 1 evidence in chief – paragraphs 63-64.

³² Dr Robertson, Block 1 evidence in chief – paragraph 28.

examples of what they considered were sub-catchment monitoring sites that did not reflect water quality in the upstream (farming) catchment. For example, Mr Buist from Te Kuiti considered the Mangaokewa Stream monitoring site at the Lawrence Street bridge, located within the Te Kuiti township, was strongly influenced by potential point source discharges from industries located immediately upstream of the site, and so did not necessarily reflect the non-point runoff from rural land. He produced *E. coli* data collected by the WRC at the Lawrence Street bridge and results of his own one-off sampling at this site and at a site approximately 1.5-2 km upstream of Te Kuiti where the stream enters the Mangaokewa Gorge Scenic Reserve. The *E. coli* result from this site was an order of magnitude lower than that at the Lawrence Street bridge site for samples collected on the same day by Mr Buist.³³

147. Mr Clarke likewise told us that he had the stream on his property tested for *E. coli* and had found it clear for the first time in 15 years- a fact he attributed to having recently shot large numbers of goats on the property.
148. Mr Barrier, a sheep and beef farmer in the Waerenga sub-catchment and member of the Hill Country Farmers Group, drew our attention to monitoring points being located at the bottom of sub catchments, where he considered they were being influenced by more intensive flat-land farming, point sources and koi carp, and were not accurately reflecting hill-country water quality.
149. Mr Leigh appeared for the Upper Maire Catchment Group, and he also described an instream hill country environment both suitable and frequently used for swimming, albeit not supported by qualitative *E. coli* monitoring.³⁴
150. We asked WRC staff what the evidence base was for there being an *E. coli* problem in hill country streams, noting that hill country farmers had made the point to us that almost all monitoring points are in effect down on flats and aren't actually measuring hill country water quality.³⁵ The response, prepared by Dr Scarsbrook, acknowledged that many of WRC's monitoring sites are in the lower parts of catchments and that these do not necessarily reflect water quality in the hill country. However, Dr Scarsbrook's response also stated that there was considerable evidence to suggest that run-off from hill country and direct stock access are important sources of *E. coli* in

³³ Mr Paul Buist, Attachment to his Block 1 submission, 21 May 2019.

³⁴ Mr Leigh did however tell us that his group had tested N and P, and found concentrations leaving their valley to be lower than those entering it. Mr Macnab similarly produced measured low concentrations of N in the streams on Lochiel Farm that are in contrast to measured levels many kilometres downstream at the WRC monitoring point (at Mercer).

³⁵ Question 13, Memo - Response to Hearing Panel questions, 5 July 2019.

hill country streams. In support of this statement, Dr Scarsbrook cited research carried out at the Whatawhata Research Station in the mid-1990s to mid-2000s.

151. Dr Scarsbrook's response to our query noted that farmers may wish to undertake their own sampling at what they consider to be more representative sites, but in his view, the results were likely to show similar patterns to those identified in the Whatawhata work.
152. The messages we were getting from hill country farmers (as above) cast doubt on Dr Scarsbrook's view. This may be because the Whatawhata work on which Dr Scarsbrook relied is now more than 10 years old and there is a general lack of recent information on the sources of contamination across the wider catchment, as noted in the *E. coli* section of the JWS on Table 3.11-1³⁶. Indeed, in responding to questions from the Panel at the Block 1 hearing, Dr Scarsbrook made the comment to us that he did not believe they (WRC) have good information yet on sources of contaminants or the downstream effects of those contaminants.³⁷
153. We have some sympathy for hill country farmers with respect to the location of monitoring sites in this regard and urge WRC to ensure monitoring accurately reflects the wider land use within the relevant sub-catchment. It is unrealistic to expect WRC to sample at multiple locations within all the sub-catchments within PC1,³⁸ however we would expect WRC to encourage and assist farmers and sub-catchment groups to undertake complementary water quality monitoring.
154. In the meantime, given the conflicting evidence before us, we do not consider there is a strong evidence base for concluding that *E. coli* sourced from hill country areas is a material contributor to poor water quality trends measured in the lowlands.

What is the current state of water quality?

155. Having dealt with some of the issues raised around the concept of current state, we now turn to describing the current state of the Awa.
156. Scientists frequently assess the health of waterways using water quality numeric guidelines. We acknowledge that a purely scientific focus does not include consideration of mātauranga Māori, as Te Ture Whaimana instructs. However, the

³⁶ PC1: Joint Witness Statement – Expert Conferencing - Table 3.11-1, Attachment 3 *E. coli* Attribute for PC1, page 50.

³⁷ Dr Scarsbrook, Block1, Day 1 audio.

³⁸ Ms May told us that the cost to WRC of establishing an additional 10 permanent monitoring positions was \$240,000 per annum.

science approach does provide a way to quantify current state of water quality and to measure its change over time. This is the approach used by WRC in monitoring the state of the environment for freshwater across the Waikato Region. We consider these methods are an important factor in planning instruments in that they enable targets for improvement to be set and for those targets to be assessed to see whether they are getting closer to being met over time.

157. Ms May provided a brief overview of the current state of water quality in the Waikato-Waipā catchments, based on a document prepared for the CSG in 2014 titled *“Overview of water quality monitoring trends in Waikato and Waipā Rivers, Excerpt taken from E. coli, nitrogen, phosphorus and sediment in the Waikato and Waipā rivers”*³⁹. Ms May told us that, in summary, WRC monitoring showed that N levels in both the Waikato and Waipā Rivers have been slowly, but steadily rising over the last 20 plus years. Sediment levels in the lower reaches of both Rivers were high, and had also risen over the last 20 plus years. Bacteria levels were high in the Waipā River, and moderate from below Karapiro to the mouth of the Waikato River, but “excellent” in the upper Waikato River.⁴⁰ The 2014 report noted that from 2008 to 2012, 85% of Waipā River and 84% of lower Waikato River water samples were unsatisfactory for swimming (based on bacteria and sediment levels for the five sites on each stretch).
158. Ms May also noted that there had been some positive aspects associated with Waikato River water quality. Namely, chlorophyll-a levels had decreased, dissolved oxygen concentrations were mostly “excellent”, and levels of toxicants such as ammonia, heavy metals and pesticides were low.⁴¹
159. We note at this point that the current state referred to in the report cited by Ms May was for the period reported as a 5-year median over monitoring sites, for the period 2008-2012 and so differs slightly from the current state period of 2010-2014 presented by Dr Scarsbrook in his Block 1 evidence and in the reporting Officers’ Closing Planning Statement.
160. The current state of water quality presented to us clearly shows that many sub-catchments in the Waikato-Waipā River catchments have high levels of *E. coli*, N and P, and low water clarity. Dr Cooper’s Block 1 evidence on behalf of WRC provided a link to a table showing the associated National Objectives Framework (NOF) band for each contaminant’s current state for each monitoring site in the catchment. This table

³⁹ WRC Doc #2728663/v10.

⁴⁰ Ms May, Block 1 evidence in chief – Appendix 5.

⁴¹ Ms May, Block 1 evidence in chief – paragraph 57.

presents a picture of widespread and unacceptable *E. coli* contamination (52 out of 64 monitoring sites were below the NOF Minimum Acceptable State for *E. coli*) and almost equally widespread low water clarity (32 sites or half ranked in Band D and 17 sites in Band C). By comparison, chlorophyll-*a*, TN and TP levels in the upper Waikato River ranked relatively highly (A or B bands), but all three contaminants deteriorate with distance downstream, particularly from the Narrows down with monitoring sites ranking Band C for median chlorophyll-*a* and TN levels. The Waikato River at the two most downstream monitoring sites (Mercer and Tuakau) rank in Band D for TP (i.e., below the national bottom line).

161. All Waikato and Waipā River monitoring sites rank in Band A for ammonia and nitrate toxicity levels, as do most sub-catchment monitoring sites. Only seven sites have a ranking of Band C for one or the other ammonia and nitrate toxicity attribute states, and no sites have a Band D ranking.
162. We note that, other than for sites on the Waikato River mainstem, no N and P attribute bands for managing algae and plant growth were included in the table referred to us in the evidence of Dr Cooper. However, in the Closing Planning Statement, WRC water quality scientists included current state data for DRP and recommended that it be included in a revised Table 3.11-1 on the grounds that its omission was possibly an oversight and not consistent with the scope of PC1.
163. WRC water quality scientist Mr Vant presented a table in his evidence which highlighted to us the size of the gap between current state water quality in the lower Waikato River and 80-year water quality targets. His table, using the Tuakau Bridge site as an example, showed that in order to meet the 80-year targets, a reduction of 41% is required for TN (current median level 595 mg/m³ vs 350 in 80 years), 62% for TP (current median level 53 mg/m³ vs 20 in 80 years) and 68% for *E. coli* (current 95th percentile level 1700 No./100mL vs 540 in 80 years).⁴²

Current state water quality versus water quality trends over time

164. We posed specific questions to WRC staff regarding current state water quality, bearing in mind that water quality current state as defined by WRC was, at the start of the hearing at least, more than four years old. Ms May and other WRC witnesses brought to our attention a recently released WRC report on water quality trends in the region

⁴² Mr Vant, Block 1 evidence in chief – paragraph 11.

over the period 1993 to 2017.⁴³ We note that this report assessed water quality trends in two time periods: 25-years (1993–2017) and the most recent ten-year period (2008-2017).

165. In our questioning to WRC witnesses, we observed that 80-year targets in Table 3.11.1 of PC1 as notified were already met in some sub-catchments. We further observed that, in the recently released WRC report on water quality trends described above, for the period 1993 to 2017, all the reported water quality trends were either neutral or positive, except N, and in relation to the latter, chlorophyll-a in the Waikato River mainstem was improving and so not likely to be an issue.
166. Dr le Miere for Federated Farmers also summarised trends in PC1 water quality attributes, comparing trends over the longer 25-year period with those occurring in the shorter, but more recent 2008-2017 period as reported by WRC. He observed that significantly more (76) trends were improving and less (25) were deteriorating in the more recent 10-year period. Improvements were particularly common for water clarity (26 sites) and TP (32 sites). Deterioration in TN was more common than improvements (14 and 7 respectively).⁴⁴ He noted that across the entire Waikato-Waipā River catchments, there were only three sites with deteriorating trends for clarity and three sites for *E. coli*. Dr le Miere also noted no improvement in chlorophyll-a levels in the Waikato mainstem over the recent 10-year period and no deterioration at any site.
167. These observations and the associated questions they raised were addressed in the evidence of Mr Vant, who is the author of many WRC reports on water quality trends in the region, including the most recent one referred to above. He noted that the results were mixed, with some water quality records having remained broadly stable, others had improved and some had deteriorated. In response to questions from the Panel about trends in the Waikato River mainstem over the last reported 10-year monitoring period (2008-2017), Mr Vant agreed that TP concentrations and visual clarity were improving (i.e., reducing in the case of TP and increasing in the case of visual clarity). For TN over the same period, two out of ten sites were deteriorating (i.e., concentrations increasing), and the remainder showed no clear trend.
168. A similar lack of clear pattern was observed for *E. coli*. These results suggested to us that, at least for the Waikato River mainstem, water quality in the last reported decade of monitoring was generally improving or remaining stable. Mr Vant acknowledged this

⁴³ Waikato Regional Council technical report 2018/30. Trends in river water quality in the Waikato region, 1993-2017.

⁴⁴ Dr le Miere, Block 1 evidence in chief – paragraph 123.

state, but noted that N had levelled off after deterioration over the entire 25-year monitoring period. He also cautioned us about the P monitoring record, which he considered to be somewhat questionable due to some of the analytical methods employed on occasions, which have since been addressed.⁴⁵ With respect to clarity, Mr Vant referred us to the full 25-year period, where there has been no change in clarity, but observed there had been an improvement over the past 10 years of analysis, which he considered may be cyclic in nature and not necessarily land use related.

169. Dr Cox, in his Block 2 evidence on behalf of Beef and Lamb, painted a slightly different picture regarding TN trends in the Waikato River mainstem. Using data supplied by WRC, he examined TN at three sites (Ōhākuri, Narrows and Tuakau) for a more recent period of time (2013 through to 2018) and concluded that all three sites showed statistically significant increasing trends in concentration.⁴⁶
170. To complicate matters further, Dr Depree in his Block 2 rebuttal evidence on behalf of DairyNZ, questioned Dr Cox's current state data for TN and presented a table comparing his data with current state TN median concentration data for Waikato River mainstem sites for three 5-year periods (2010-2014, 2012-2016 and 2014-2018).⁴⁷
171. While the information presented to us by Mr Vant, Dr Cox and Dr Depree highlights to us that using different time periods to assess concentrations and trends in water quality can produce different outcomes with respect to median concentrations and the significance of trends over time, the general picture for the Waikato River remains one of increasing TN concentrations over time, and with distance downstream, whichever dataset is examined. Regardless of trends in concentration, current levels remain unacceptable, particularly in the mid and lower sections of the River. Dr Depree's Table 1 succinctly indicates that, from the Narrows down to the Tuakau Bridge, median TN concentrations in the River have progressively increased over each successive 5-year period. Further, at two out of three monitoring sites above the Narrows, median TN concentrations for the most recent period assessed (2014-2018) are higher than those for the current state period used by the CSG (2010-2014).
172. Turning to Waikato River tributaries, we asked Mr Vant for his assessment of water quality patterns in the tributaries relative to observed water quality patterns in the Waikato River mainstem. The upper catchment tributaries data in his trends report for TN and nitrate-nitrogen over the 25-year monitoring period showed deterioration at all

⁴⁵ Mr Vant, audio, Day 2.

⁴⁶ Dr Cox, Block 2 evidence in chief – paragraph 12 and Figure 1.

⁴⁷ Dr Depree, Block 2 evidence in chief – paragraph 13 and Table 1.

12 monitoring sites, while deterioration was evident at eight of the 12 sites over the 2008-2017 ten-year monitoring period. Mr Vant considered that these trends reflected the geology of the upper area and the underground storage of “*unimpacted storage that was slowly being replaced*”. Mr Vant described this as the “*load to come*”. He speculated that the load to come may be levelling off, hence deterioration was occurring at less sites in the upper catchment over the 2008-2017 period. However, he emphasised the groundwater system is likely to be complex and the so-called load to come would be influenced by combinations of old and new water, and anything in between (i.e., a many component system). We will return to this issue of the load to come, as it was a matter that was strongly debated by experts on behalf of WPL in particular.

173. Mr Vant also stated that his report findings suggest there are “*promising signs that concentrations of some contaminants have reduced as a result of management of the catchment*”.⁴⁸ He speculated that improvements in concentrations of both ammonia and *E. coli* at a number of sites may well reflect the improved management of wastewaters (including farm dairy effluent) that has occurred in recent decades.

Evaluation

174. It is apparent that the number of monitoring sites in the Waikato-Waipā River catchments showing continuing deterioration in the last decade of analysis are fewer than over the longer 25-year monitoring period. However, in many instances, the water quality state was very poor to start with and hence the benchmark for improvement was not high. Accordingly, while significant trends showing deterioration may currently be fewer than historically, elevated *E. coli* levels and low water clarity remain widespread across the entire Waikato-Waipā catchment, while N and P are also elevated and at levels that are likely to be affecting the natural character of freshwater ecosystems.
175. We conclude that it is appropriate to characterise the surface water quality of the Waikato-Waipā River catchments as generally degraded. However, the degree of degradation and type of degradation varies throughout the catchment. For example, the Waipā catchment is a significant contributor of sediment to the lower Waikato River, while the hydro lakes of the mid and upper Waikato River act as significant sediment traps.⁴⁹ For N, a significant number of sub-catchments in the Upper Waikato FMU have high N concentrations with many continuing to trend upwards. We believe that it is no

⁴⁸ Mr Vant, Block 1 evidence in chief – paragraph 10.

⁴⁹ Waikato River suspended sediment: loads, sources & sinks. Waikato Regional Council Technical Report 2018/65.

coincidence that these sub-catchments coincide with areas of large-scale conversion to more intensive land use practices.

Overview of the Four Contaminants

176. PC1 focuses on four contaminants as the largest contributors to poor water quality in the Waikato region. The contaminants of primary concern within the PC1 area are nitrogen (N), phosphorus (P), sediment and microbial pathogens. The main pathway for nitrogen losses is via leaching from the root zone of plants. P and microbial pathogens are principally lost to rivers and lakes via overland flow or artificial drainage. Sediment discharges result from a combination of overland flows and river and stream bank erosion.

Nutrients – Nitrogen and Phosphorus

177. Nutrients are essential for the growth of aquatic plants (algae and macrophytes) that are an important food source for invertebrates and fish. The main nutrients in waterways come in the form of inorganic N and P.⁵⁰Increases in nutrients are nearly always the result either of agricultural land use activities or point source discharges from urban areas and industry. An increase in the available nutrients in waterways (i.e. an increase beyond what is required for normal functioning of aquatic ecosystems) is called eutrophication, and the increase in algal and plant growth accompanying it can have adverse environmental effects. Such effects include loss of species, loss of habitat, increased turbidity and decreased visibility. The latter effects also reduce suitability of the relevant waterways for recreation. At more elevated levels, inorganic N can render waterways toxic to aquatic life and unsafe for human drinking.

178. P is a highly reactive chemical nutrient, and is typically used on agricultural land as a P-based fertiliser. P readily binds to soil particles, and is typically lost to rivers via overland flow or artificial drainage, particularly if cultivation and stocking of animals occurs close to the river margins, or there is reduced riparian planting.

179. N is an important nutrient for plant growth, and consequently, an important nutrient for agricultural land uses in New Zealand. N is introduced into a farming system via N-fixing plants (such as clover), feed imported from off-site or as N-based fertiliser. N is also reintroduced to the soil in the form of urine, dung and leaf litter. A small proportion of N is converted to milk, meat and wool or harvested plants. Pasture typically contains

⁵⁰ Inorganic N takes different forms. Most inorganic N is in the form of nitrate-nitrogen (NO₃). We refer to N generally unless the form it takes is relevant to the context.

a much higher level of N than livestock can use, so excess N is returned to the soil in a concentrated form as urine. Any excess N that cannot be taken up by plant roots can flow across land or be leached through the soil to groundwater, and from there into surface water bodies that groundwater flows into.

Sediment

180. Sediments are a natural part of a stream, lake, or river, and the type and amount found is influenced by the geology of the surrounding area. However, human activities around a waterway such as deforestation, farming and land use change can greatly increase the amount of sediment that enters the system. We also heard a lot of evidence regarding the effect of koi carp exacerbating sediment effects on lowland streams and lakes. Mr Weake told us for instance that carp had eroded the bank of his stream by more than 1 metre. Significant damage to ecosystems can occur by large amounts of suspended sediment clogging the gills of fish, reducing the amount of light penetrating into the water, which affects plant and algae growth and the ability of fish to locate and capture prey. In addition, freshwater habitats can be degraded by siltation. Sedimentation can reduce water clarity and increase water turbidity, impacting on recreational and cultural uses of the rivers, especially swimming.

Microbial pathogens

181. Microbial pathogens can have a significant impact on water quality and mahinga kai. In particular, contaminated water can make mahinga kai unsuitable for harvesting and water becomes unsafe for swimming, recreational use and for drinking. Contamination of freshwater may occur when the faeces of animals are deposited near or in a waterway, for example when a cow enters a stream, or when cattle and sheep graze alongside waterways. Similarly, microbial pathogens can come from birds and other non-farmed animals that are in or near water bodies. Although an imperfect indicator, the evidence we heard was that *E. coli* was suitable for cautious use as an indicator of health risk.⁵¹The evidence of Dr Dada⁵² for Beef and Lamb was that most *E. coli* enters waterways as a result of overland run off and that the number of *E. coli* entering waterways increases significantly during surface run off effects, especially after periods of heavy rain.

⁵¹ Joint Expert Report, Pages 50-51.

⁵² Dr Dada, Block 1 evidence in chief paragraphs 59-65.

What some farmers are already doing on a 'voluntary' basis to address the outcomes sought by PC1

182. Characterisation of the Awa as being degraded might imply that nothing positive is being done to improve the position. That is not correct. The Panel heard from a number of submitters who discussed what they were already doing to support the PC1 outcomes. These were either voluntary initiatives or those undertaken to meet 'industry standards' or 'industry expectations'. The Panel wanted to set those out, and acknowledge the good work and initiatives that a number of parties were doing.
183. The following discussion therefore sets out some of the efforts that individuals and farming groups including dairy, horticulture, deer, beef and lamb, equine, commercial vegetable production and special interest groups are making to meet the sustainability and quality of care for the land, and eventually the health of the Waikato and Waipā Rivers.
184. Farmers for Positive Change (F4PC)⁵³ – who had a mandate to represent in excess of 1,000 farmers from the sheep and beef, deer and dairy sectors⁵⁴ described:
- Fencing off streams and springs where practicable
 - Retiring critical source areas, e.g. land which is steep and of poor soils
 - Putting land into QE II Covenants
 - Moving stock off higher country, e.g. above 20degree slopes
 - Establishing wetlands at the bottom of smaller and larger sub-catchments
 - Putting in stock water reticulation systems
 - Building handling yards and hard stand areas, such as feedbins away from waterways
 - Fertiliser applications being applied in controlled manners using more specific calibration and more precise spreading
 - Planting stream and river banks with recognised native vegetation
 - Small plantation blocks of trees, e.g. native, or exotic
 - Farming to the Grass Curve – following the seasons for grass production and stocking rates
 - Reducing stock units to around 9 to 12 per hectare

⁵³ Represented before us by Rick Burke, Rob Macnab, Robyn Williamson, Graeme Gleeson, James Bailey, Leveson Gower, Heather Gilbert, Bill Garland, David Gow, Steve Borland, Leith Chick, Andrew Jolly, Neil Aitken, Reon Verry, Bob Thompson.

⁵⁴ Mr Burke, Block 1 evidence, paragraph 11.

- Co-operating either formally or informally with neighbours in similar sub-catchments for good farming practices, such as communal planting, monitoring, mentoring, support etc. This in turn has significant benefits on the neighbouring farming communities in terms of rural infrastructure, non-isolation for those farmers isolated in terms of location for mental health and the stronger bonds for communities etc.
- A common thread throughout the evidence of good farming practices.

185. The Panel also heard from Mr and Mrs Bill Garland in relation to their own farming operation, which was considered an exemplar as regards:

- QEII covenanting
- Critical source area retirement
- Planting both production forest and natives
- Developed designated wetland areas
- Sheep only on slopes over 20degrees
- Monitoring of water quality in waterways within their land.

186. Mr and Mrs Garland were by no means the only individual farmers who gave evidence. We heard from many farmers who shared their experience of life on the land and their vision for the future. While, as we will discuss later in this report, it is difficult to describe Good Farming Practice, we received a lot of evidence indicating that most farmers know what 'good' farming is. We were shown many photographs of productive farms that have obviously been well run. And to be fair, we were also shown photographic examples of unsatisfactory practices 'over the fence'. Farmers seemed to us to have no difficulty identifying 'bad' farming as well.

187. Nor was 'good' farming practice limited to individual farmers. The evidence for WPL, in particular, showed what well-directed corporate farming could do with extensive planted riparian margins, engineer-designed sediment traps and the like.

188. The Panel also noted the significant evidence provided by Sub-Catchment Groups and this is discussed further in section 5 of this report, below. We were impressed by both the organisation of the sub-catchment groups we heard from, and the steps they had already collectively taken to improve water quality in their respective areas.

189. While much of this good work was being undertaken at the farmer's own initiative, we should also acknowledge the contribution of sector organisations like Beef and Lamb,

DairyNZ and HortNZ in promoting improved practice. Fonterra and Miraka also provided us with impressive evidence of their promotion of 'practice change' among their farmer suppliers.

Submissions opposing the Plan Change as a Whole

190. Before addressing the issues and submissions in more detail, we address those submissions to PC1 which oppose it in its entirety and request that it be withdrawn, or those seeking a fundamental change. There were a range of reasons cited for this, including:

- PC1 does not give effect to the NPS-FM, RMA or Te Ture Whaimana.
- The process of developing PC1 via the CSG was inappropriate, and did not reflect community values, but those sectors dominant in the CSG.
- The science and economic modelling (HWRO) developed for PC1 was not 'fit for purpose' and therefore the basis on which PC1 had been developed was flawed.
- A more thorough cost/benefit analysis is needed to determine the actual effects of PC1, and if the approach selected is the most appropriate.
- Concerns about the cost of implementing PC1 and the impact it will have on rural communities, farmers and businesses.
- The focus on N and the establishment of a NRP as a key management tool is flawed as it essentially 'grandparents' or locks-in current farming practices - rewarding high N leachers and penalising low N leachers.
- There is no certainty after PC1 - i.e. from the first 10 years to the 80-year target, and if the mitigations completed now will be sufficient in the future.
- PC1 should not be a one size fits all approach - i.e. need to better understand and reflect the difference between different farming types - dairying and drystock farming.
- PC1 does not take into account topography, climate, soil structure, farming practices and systems.
- A Land Use Capability approach to managing N losses should be used.
- That PC1 is too regulatory focused and should instead rely on best management practices, best practicable option (BPO) or other methods.
- That instead of regulation, use more consultation and education on water quality and alternatives to PC1.

191. The issues raised above are all addressed elsewhere in this report. While the Hearing Panel acknowledges the submitters' concerns, we have not rejected PC1 in its entirety. We have recommended substantial changes to it; with many of those changes addressing the matters raised above. A summary/overview of those changes is set out in the Executive Summary, and in the sections that follow in this report.
192. As the Hearing Panel has not recommended PC1 be withdrawn, we recommend that those submissions seeking PC1 be withdrawn be rejected. The reasons for this are those contained in the rest of this report, where we set out our recommendations on the other submissions and provide a revised set of planning provisions.

3. STATUTORY FRAMEWORK

Introduction:

193. The starting point of any legal process is to identify the legal framework within which one is operating. As above, PC1 was publicly notified on 22 October 2016. It appeared to be common ground that the version of the RMA relevant to our consideration of submissions and further submissions is that in place as at 3 March 2015, that is to say without regard to the subsequent amendments that formed part of the Resource Legislation Amendment Act 2017.
194. Consideration of submissions and further submissions on PC1 needs to occur against the statutory instruction⁵⁵ that its purpose is “*to assist a Regional Council to carry out any of its functions in order to achieve the purpose of this Act*”.
195. The Supreme Court’s decision in *Environmental Defence Society Inc v The New Zealand King Salmon Company Limited*⁵⁶ tells us that save in certain identified situations that we will discuss further below, where higher order documents have been prepared under the RMA and must be given effect to in the formulation of (in this case) PC1, those higher order documents need to be given effect without reference back to the purpose of the RMA, or to the balance of Part 2 of that Act. In this case, there are a number of higher order documents in this category.
196. Specifically, section 67(3) of the Act instructs us that PC1 must give effect to any NPS, any New Zealand Coastal Policy Statement and any Regional Policy Statement. The Supreme Court tells us also that the obligation in the RMA to “*give effect to*” higher order documents is a “*strong directive*” that creates a firm obligation on the part of those subject to it. As the Supreme Court observed, it simply means “*implement*”⁵⁷.
197. Accordingly, the NPS-FM, the NZCPS, the NPS-UDC, the NPS-REG, and the WRPS all need to be considered in that light.
198. The four national instruments do not give any direction as to how they relate one to the other. Accordingly, applying the guidance provided by the Supreme Court in its *King Salmon* decision, we must endeavour to read them together and give effect to them all, having particular regard to the way in which each is expressed. As the Supreme Court

⁵⁵ RMA section 63(1).

⁵⁶ [2014] 1 NZLR 593 (“*King Salmon*”).

⁵⁷ *Ibid* at [77].

noted, we should not assume that different provisions are in conflict without having appropriate regard to the way in which they are expressed.

199. The WRPS was made operative in December 2018 and in terms of the statutory framework described by the Supreme Court in *King Salmon*, would normally be interpreted to give effect to the national policy instruments that pre-dated it. In this case, however, the WRPS has embedded within it Te Ture Whaimana. Te Ture Whaimana is the product of the Treaty Settlement arrived at between the Crown and Waikato-Tainui. It is deemed to be part of the WRPS by virtue of section 11 of the Waikato-Tainui Act.
200. Section 17(3) of the Waikato-Tainui Act requires that persons carrying out functions or exercising powers under the RMA must also have particular regard to Te Ture Whaimana. We regard this obligation as effectively subsumed within the direction that PC1 must give effect to Te Ture Whaimana (arising from it being deemed to be part of the WRPS). Nevertheless, it does tend to emphasise the central role played by Te Ture Whaimana in our deliberations.
201. Section 5(1) of the Waikato-Tainui Act states:

“The vision and strategy is intended by Parliament to be the primary direction-setting document for the Waikato River and activities within its catchment affecting the Waikato River.”
202. Consistent with that direction, section 12(1) of the 2010 Act directs that Te Ture Whaimana prevails over any inconsistent provision in any NPS or New Zealand Coastal Policy Statement. The Waikato-Tainui Act was followed by the Upper Waikato Act and the Upper Waipā Act, that reinforced the role of Te Ture Whaimana as above, and collectively established a scheme of co-governance over the Waikato River and its tributaries involving WRC, Waikato-Tainui, Raukawa, Te Arawa River Iwi, Ngāti Tūwharetoa and Ngāti Maniapoto. The Upper Waipā Act provided a process⁵⁸ for extending the ambit of Te Ture Whaimana to the Upper Waipā River. The three statutes also established the WRA that has a key role in implementation of Te Ture Whaimana.
203. In the only case referred to us applying Te Ture Whaimana in a First Schedule Plan Process,⁵⁹ the Environment Court described the end result as follows:

⁵⁸ Refer section 36.

⁵⁹ *Carter Holt Harvey Ltd et al v Waikato Regional Council* [2011] NZEnvC 380.

"[100] The co-management regime established by the Settlement Act and the River Iwi Act is radically different to what hitherto existed under the Resource Management Act and what currently exists elsewhere in New Zealand. Parliament has accorded great weight and importance to the Vision and Strategy as the primary direction-setting document for the Waikato River catchment."

204. Counsel for WPL submitted that we need to integrate Te Ture Whaimana into the RMA planning process. We agree with that submission in principle. We do not consider, however, that the integration counsel referred to means that we should use Te Ture Whaimana as a cross check on the application of the NPS-FM.⁶⁰
205. On the contrary, while nominally being part of the WRPS, the pre-eminent status of Te Ture Whaimana within the Waikato and Waipā Catchments⁶¹ means that our analysis should start with the direction it provides before considering what additional direction the relevant NPSs (including the NZCPS) provide.
206. The three situations where the Supreme Court in *King Salmon* suggested that reference might be had to Part 2 of the RMA notwithstanding the statutory direction to give effect to higher order documents, are in cases of invalidity, incomplete coverage or uncertainty of meaning.⁶² We discussed with a number of parties whether it was open to argue that Te Ture Whaimana was invalid in the sense that the Supreme Court was referring to, given that its contents are specifically mandated by separate statutes. No counsel suggested to us that it might be possible to contend that the invalidity exception might be available. We agree with that view. Consistent with that position, the Environment Court has described Te Ture Whaimana as having "*led to a change in the interpretation of the provisions of Part 2 for the purposes of the Waikato region.*"⁶³
207. During the hearings, our attention was drawn by a number of parties to public statements indicating Central Government's intention to promulgate a further iteration of the NPS-FM. Shortly before the conclusion of hearings, a draft National Policy Statement for Freshwater Management was released for public input, together with a draft NES and draft regulations. That package of draft documents related to freshwater was accompanied virtually contemporaneously by Governmental Discussion

⁶⁰ The way counsel for WPL's submissions were structured.

⁶¹ Refer section 5(1) of the Waikato-Tainui Act quoted above. We also note that the Environment Court described Te Ture Whaimana as having the status of a national policy statement in *Minister of Corrections v Otorohanga DC* [2017] NZEnvC 213 at [118].

⁶² *Ibid* at [90].

⁶³ *Puke Coal Limited v Waikato Regional Council* [2014] NZEnvC 223 at [133].

Documents foreshadowing a new National Policy Statement for Highly Productive Soils and a replacement for the NPS-UDC.⁶⁴

208. Although these developments occurred late in the hearing process, we had the opportunity to discuss with counsel for the parties who had yet to be heard in Block 3 what weight we should give to them. We were also assisted by the Closing Submissions filed by counsel on the point. The views we had regarding the relevance of the freshwater package were sharply contrasting. Counsel for Miraka submitted to us that we should place no weight on the draft documents.⁶⁵ Counsel for WPL, however, submitted that they were a “*material consideration*” (supporting the changes that party sought be made to PC1).⁶⁶
209. The RMA identifies some situations where ‘*Proposed*’ Policy Statements and Plans are relevant to decision-makers.⁶⁷ This is not one of those situations. The RMA does not explicitly recognise draft NPSs (or draft NESs or regulations for that matter) as relevant documents.
210. In *Carter Holt Harvey Ltd et al. v Waikato Regional Council*, the Environment Court accepted as a general principle that:
- “...only national policy statements that have been approved and issued under section 52 of the Act are relevant considerations. Proposed national policy statements should not be afforded any weight.”⁶⁸
211. The recent decision of the Environment Court in *Lindis Catchment Group Inc v Otago Regional Council*⁶⁹ is an example of the Court similarly declining to place any weight on a draft NES.
212. Counsel for WPL cited a later discussion in the *Carter Holt* decision regarding the relevance of the National Policy Statement for Freshwater Management 2011 to the finalisation of the plan provisions before the Court to support the contrary view. However, that discussion⁷⁰ reflected the fact that the NPS-FM had been approved and issued during the course of the Environment Court hearing. It therefore provides no support for the proposition counsel has advanced.

⁶⁴ In late November, these developments were followed by release of a draft National Policy Statement on Indigenous Biodiversity.

⁶⁵ Miraka Closing Submissions at 4.2.

⁶⁶ WPL Closing Submissions at 42.

⁶⁷ See e.g. section 66(2)(a).

⁶⁸ [2011] NZEnvC 380 at [51].

⁶⁹ [2019] NZEnvC 166 at [209]-[212].

⁷⁰ *Ibid* at [68] and [70].

213. The other authority relied on was the Environment Court's decision in *Environmental Defence Society v Auckland Regional Council*.⁷¹ Counsel directed us to two parts of that decision.⁷² The first related to the relevance of international obligations New Zealand had entered into related to climate change. The Court cited well accepted public law authorities to the effect that the Courts would endeavour to interpret domestic legislation consistently with such obligations and found them to be relevant considerations under the then equivalent of section 104(1)(c) of the RMA (the subject matter of the appeal was the appeal of the grant of a resource consent). We are not considering the relevance of international treaty obligations in a resource consent setting and so we do not find this aspect of the *EDS* decision of any assistance.
214. The second part of the *EDS* decision relied upon is where the Court placed some reliance on Government policy related to climate change that had not found its way either into statute or national policy guidance at that point.⁷³ This scenario is much closer to the one we are dealing with. However, we note that the Court observed that the Government "*Policy*" in question had been endorsed by both the relevant regional policy statement and the proposed regional plan. We do not know what view the Court would have taken in the absence of such 'endorsement'. We tend to put it in the same category as the Environment Court's decision in *Day v Manawatu-Wanganui Regional Council*,⁷⁴ where in the course of its consideration of provisions related to biodiversity offsets, the Court said:
- "[3-59] We also note that the Proposed National Policy Statement on Indigenous Biodiversity, on which the POP approach is modelled, reflects BBOP principles. Notwithstanding that it has no statutory effect, and the number of submissions made on it, we consider the document is worthy of respect as a reflection of considered opinion, particularly as it reflects international best practice."*
215. In both cases, the Court has considered Government policy that has not crystallised in a statutory instrument relevant not so much in its own right, but rather because of its consistency with other material that the Court can properly have regard to.⁷⁵

⁷¹ [2002] NZRMA 441.

⁷² *Ibid* at [28] and [88].

⁷³ Subsequently it did so in the form of a package of legislative amendments including section 104E of the RMA.

⁷⁴ [2012] NZEnvC 182.

⁷⁵ As counsel for WRC notes in his closing submissions (at paragraph 12.5), the *EDS* decision can also be distinguished because it was a resource consent appeal to which the equivalent of s104(1)(c) applied.

216. We also need to be wary about putting weight on documents that as at the date of our report being prepared were still the subject of public feedback and consideration by a specially convened expert panel under the chairmanship of Retired Principal Judge Sheppard. There is considerable potential for the shape of the Government's freshwater package to change materially from its current form.
217. It follows that we agree with the submission of counsel for WRC that we should “*box on*” without reference to the likelihood that the goal posts are about to shift. We are fortified in that view because of the pre-eminent status of Te Ture Whaimana, which we can be confident will endure notwithstanding any changes to national direction that may occur.
218. Section 66(1) requires that PC1 be in accordance with any regulations. Relevantly, that includes the NES-DW and the NES-PF.
219. Section 66(2) of the Act requires that we also have regard to management plans and strategies prepared under other Acts. The section 32 analysis for PC1 refers to the Waikato Conservation Management Strategy 2014 prepared under the Conservation Act 1987 as being in this category. Dr Daniel, giving evidence for Fish and Game, also drew our attention to the plans prepared under the Conservation Act for management of sports fish and game birds which we need to have regard to on the same basis.
220. Section 66(2)(d) requires that we take account of regional policy statements and regional plans (both operative and proposed documents in each case) applying in adjacent regions. In WRC's closing planning statement, our attention was drawn to the regional provisions relating to nutrient management in the Lake Rotorua catchment. We discuss their relevance further below.
221. Section 66(2A) requires that we take into account any relevant planning documents recognised by an iwi authority. The section 32 evaluation noted 9 plans lodged with WRC on behalf of iwi authorities⁷⁶. This did not appear to us to be a complete list (it does not include, for instance, the Hauraki Iwi Environmental Management Plan) and we requested the authors of the section 42A Report provide us with further input as to the relevant provisions of all relevant iwi management plans. We were provided with a high-level review of the matters raised in the relevant iwi management plans and we outline the key points in our discussion below.

⁷⁶ Refer section A.2.3.5.

222. Section 67(4) requires that PC1 not be inconsistent with any Water Conservation Order or any other Regional Plan for the region. We were not advised of any relevant Water Conservation Order in place affecting PC1. When finally confirmed, PC1 will form part of the Waikato Regional Plan. We do not therefore consider the latter an “*other*” Regional Plan for this purpose.⁷⁷ However, we need to ensure that PC1 is not inconsistent with the Waikato Regional Coastal Plan.
223. We have referred to the section 32 evaluation underpinning PC1 already. A separate evaluation was prepared for Var1. Section 66(1)(e) requires that particular regard be given to those evaluation reports.
224. We also note the obligation set out in section 32AA of the RMA to undertake a further evaluation of any changes proposed to PC1. That further evaluation has to comply with the requirements of section 32(1)-(4) and must be undertaken at the level of detail corresponding to the scale and significance of the change(s) proposed. We record that of the two options available to us under section 32AA(1)(d), we have chosen to incorporate the further evaluations we are required to undertake within our Report, rather than publishing it separately. We also record that a number of parties made suggestions as to how PC1 might be amended without providing us with the information necessary to undertake the further evaluation that section 32AA requires of us. Counsel for the WRC was of the view that submitters who failed to provide sufficient material for the Panel to undertake the required further evaluation took the risk that the Panel might refuse the relief sought because there was insufficient information to support it. We concur with that view and have approached consideration of the submissions we heard on that basis.
225. The following sections of our Report discuss the substantive elements of each of the documents we have referenced above in order to provide a basis for the discussion of submissions and further submissions seeking changes to PC1. Because of its pre-eminent status, it is appropriate that we commence that review with a review of Te Ture Whaimana.

Te Ture Whaimana

226. Te Ture Whaimana is a relatively short document. It is divided into two parts, the first being the “*Vision*” and the second the “*Strategy*”.

⁷⁷ Given the purpose of PC1 is to change the Waikato Regional Plan, requiring the two to be consistent would be self-defeating.

227. The Vision is in turn in three parts. The first element is a description of the river that Ms Rukumoana Schaafhausen⁷⁸ explained to us was a vision that the second Māori King, Taawhiao left for the iwi:

“Tooku awa koiora me oona pikonga he kura tangihia o te maataamuri.

The River of Life, each curve more beautiful than the last.”

228. Ms Schaafhausen told us that that vision describes the late King’s admiration and respect for the Waikato River.

229. The second element of the Vision states:

“Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.”

230. It is followed by 13 separate “objectives” that Te Ture Whaimana says will be “pursued” in order to realise the vision:

“(a)the restoration and protection of the health and wellbeing of the Waikato River:

(b) the restoration and protection of the relationships of Waikato-Tainui with the Waikato River, including their economic, social, cultural, and spiritual relationships:

(c) the restoration and protection of the relationships of Waikato River iwi according to their tikanga and kawa with the Waikato River, including their economic, social, cultural, and spiritual relationships:

(d) the restoration and protection of the relationships of the Waikato Region’s communities with the Waikato River, including their economic, social, cultural, and spiritual relationships:

(e) the integrated, holistic, and co-ordinated approach to management of the natural, physical, cultural, and historic resources of the Waikato River:

(f) the adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River and, in particular, those effects that threaten serious or irreversible damage to the Waikato River:

(g) the recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within the catchment on the health and wellbeing of the Waikato River:

⁷⁸ The representative of Waikato-Tainui at the Block 1 Hearing.

(h) the recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities:

(i) the protection and enhancement of significant sites, fisheries, flora, and fauna:

(j) the recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental, and economic wellbeing requires the restoration and protection of the health and wellbeing of the Waikato River:

(k) the restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length:

(l) the promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities:

(m) the application to the above of both maatauranga Maaori and the latest available scientific methods.”

231. The second section of Te Ture Whaimana contains some 12 “Strategies” that the document states will be “followed” to achieve the vision, as follows:

“(a) ensure that the highest level of recognition is given to the restoration and protection of the Waikato River:

(b) establish what the current health status of the Waikato River is by utilising maatauranga Maaori and the latest available scientific methods:

(c) develop targets for improving the health and wellbeing of the Waikato River by utilising maatauranga Maaori and the latest available scientific methods:

(d) develop and implement a programme of action to achieve the targets for improving the health and wellbeing of the Waikato River:

(e) develop and share local, national, and international expertise, including indigenous expertise, on rivers and activities within their catchments that may be applied to the restoration and protection of the health and wellbeing of the Waikato River:

(f) recognise and protect waahi tapu and sites of significance to Waikato-Tainui and other Waikato River iwi (where they do decide) to promote their cultural, spiritual, and historic relationship with the Waikato River:

(g) recognise and protect appropriate sites associated with the Waikato River that are of significance to the Waikato regional community:

(h) actively promote and foster public knowledge and understanding of the health and wellbeing of the Waikato River among all sectors of the Waikato regional community:

(i) encourage and foster a “whole of river” approach to the restoration and protection of the Waikato River, including the development, recognition, and promotion of best

practice methods for restoring and protecting the health and wellbeing of the Waikato River:

(j) establish new, and enhance existing, relationships between Waikato-Tainui, other Waikato River iwi (where they so decide), and stakeholders with an interest in advancing, restoring, and protecting the health and wellbeing of the Waikato River:

(k) ensure that cumulative adverse effects on the Waikato River of activities are appropriately managed in statutory planning documents at the time of their review:

(l) ensure appropriate public access to the Waikato River while protecting and enhancing the health and wellbeing of the Waikato River.”

232. The provisions of Te Ture Whaimana do not neatly line up with the normal structure of a regional policy statement as set out in section 62 of the RMA, and therefore present interesting issues of interpretation as to the status each of the elements we have described above is intended to have. Indeed, it was issues such as this that prompted the Planning Tribunal to decide in the early years of the RMA that regional policy statements ought not to have separate sections purporting to describe the “*vision*” of the document.⁷⁹ Be that as it may, section 11 of the Waikato-Tainui Act deems Te Ture Whaimana to be part of the WRPS and requires WRC to insert it into the policy statement without using the First Schedule process. We must accordingly interpret it in a way which fulfils the statutory intention set out in section 5 of the Waikato-Tainui Act, namely that it operates as the primary direction-setting document for the Waikato River.
233. Having said that, no party suggested to us that on its own, the quotation of King Taawhiao in section 1(1) of Te Ture Whaimana has a substantive effect, in the sense of directing any particular outcome. We see it as setting the scene for the substantive provisions that follow, and in a document that needs to be read holistically (something we discuss further below), it needs to be kept in mind.
234. We consider, however, the vision of a healthy Waikato River sustaining abundant life and prosperous communities describes the ultimate outcome Te Ture Whaimana seeks to facilitate. It might be considered by some to be aspirational, but the Environment Court has told us that a regional policy statement can have aspirational objectives.⁸⁰ This then raises the question to the status of the so called “*objectives*”:

⁷⁹ *St Columba's Environmental House Group v Hawkes Bay Regional Council* [1994] NZRMA 560.

⁸⁰ See *Ngāti Kahungunu Iwi Inc v Hawkes Bay Regional Council* [2015] NZEnvC 50.

Are they truly objectives, albeit subsidiary to the super objective contained within the stated vision, or should they more properly be considered to be akin to policies?

235. The introductory language to the third subsection of Te Ture Whaimana, talking about objectives that “*will be pursued*” implies the latter. One would normally think of pursuing policies (and achieving objectives).
236. That might in turn suggest that it would be appropriate to classify the strategies set out in the second section of Te Ture Whaimana as methods. When we asked Mr Berry, counsel for Watercare, about a possible classification along these lines, he considered (albeit without time for any reflection) that one could easily regard the vision as an objective, the objectives as policies, and the strategies as methods. Mr Scrafton, who gave expert planning evidence for Watercare, disagreed with counsel. Having had the opportunity (unlike Mr Berry), to reflect on our question, he considered that both the vision and the objectives might properly be classified as “*objectives*” because both set out outcomes. He was similarly of the view that the strategies were better regarded as policies in an RMA sense, namely as courses of action to be pursued.
237. We think that there is merit in Mr Scrafton’s view. Both the vision and the objectives do appear to be expressed as outcomes, albeit that the vision is expressed at a higher level of generality, and the strategies might appropriately be classified as akin to policies.
238. Turning to the substantive content of Te Ture Whaimana, if one categorises the objectives in section 1(3) as subsidiary objectives that must be given effect to, that raises some important issues of interpretation. Prior to the Block 1 hearing commencing, we asked that counsel for WRC comment on the implications of references in Te Ture Whaimana to the Waikato River sustaining prosperous communities and protecting economic relationships of people with the river, and whether such references might be seen to conflict with references to restoring the health and wellbeing of the river. That in turn raises questions as to how such conflicts might be resolved.
239. Mr Milne’s response was that the protection and restoration of the Waikato River were a consistent theme in Te Ture Whaimana and that the document could not credibly be interpreted to give priority to economic considerations. In his submission, the reverse was the case; the obligation to restore and protect the river prevails over any economic considerations.

240. We also discussed with Mr Milne a somewhat disconcerting inconsistency between the text of Te Ture Whaimana that is set out in the schedules to the Waikato-Tainui Act (copied above) and the online version of the WRPS(which is very similar but not identical to the statutory version) on the one hand, and the version that is separately available on the Council's website; Objective 1(3)(j) has different wording in the latter that would provide clear support to Mr Milne's submission. Having investigated the matter, Mr Milne advised us that the version on the Council's website was in fact a link to the website of the WRA which had incorrectly reproduced the text of Te Ture Whaimana. The CEO of the WRA, Mr Bob Penter, confirmed that an error had been made by the Authority when he gave evidence. We need therefore not consider it further.
241. Counsel for the Iwi Co-Governors, Mr Ferguson addressed the interpretation of Te Ture Whaimana at some length. He drew our attention to section 5 of the Upper Waikato River Act which directs that that Act must be interpreted in a manner that best furthers, among other things, its over-arching purpose, namely to restore and protect the health and wellbeing of the Waikato River for present and future generations. As Mr Ferguson noted, there are similar but more extensive provisions related to interpretation in the Upper Waipā River Act. Mr Ferguson analysed Te Ture Whaimana in detail, pointing out to us that the references to prosperous communities in the vision are expressed as the consequences of a healthy river rather than an outcome in itself. He also noted that Objective 1(3)(d) seeks to restore and protect economic relationships, suggesting that the focus is on relationships that formerly existed, rather than those which are enjoyed now.
242. We queried with Mr Ferguson whether it was appropriate to undertake a forensic legal analysis of this kind of the wording of Te Ture Whaimana, or whether the document should be viewed more holistically. Mr Ferguson's submission was that it was not appropriate to deconstruct the objectives of Te Ture Whaimana word by word, so as to lose sight of the overall resonance of the vision. He submitted that one should come back to the overall purpose.
243. We put that same question to a number of other counsel. We did not note any counsel as disagreeing with Mr Ferguson's submission in this regard. We therefore accept that Te Ture Whaimana should be read holistically, without undue legality or over analysis. We do not think that is the same thing as saying, however, that one can ignore the clear words of Te Ture Whaimana in terms of the aspirations that it promotes.

244. By way of example, Objective 1(3)(k) seeks the restoration of water quality within the Waikato River “so that it is safe for people to swim in and take food from over its entire length”.
245. We inquired of counsel for WRC whether this objective called into question the appropriateness of mixing zones associated with large point source discharges, within which, water quality might not be safe for swimming and/or food gathering. Mr Milne’s immediate reaction was that such mixing zones were contrary to Te Ture Whaimana. It is fair to say that this line of thinking provoked some consternation on the part of the local authorities currently discharging wastewater to the Waikato River who sought to draw our attention to the economic implications for their respective communities were they required to meet the water quality standards in PC1 without the ability to rely on a reasonable mixing zone.
246. Appearing for the Waikato Region Territorial Authorities collectively, their counsel Mr Berry submitted that “*due consideration of [the] real world consequences is needed to temper the zeal with which WRC seems to want to implement the Vision and Strategy*”.
247. We thought that a little unfair to WRC given that its counsel, Mr Milne, had only sought to assist us by responding to our query. He did not purport to express either a considered view or a view representing Regional Council policy.
248. Be that as it may, Mr Berry argued strongly that the vision of Te Ture Whaimana would not be achieved if the prosperity of the river communities was destroyed along the way to a healthy river.
249. Discussing the broader question with Mr Berry, he sought to emphasise to us the need to think about achievement of the vision in Te Ture Whaimana on a timeline and not be over-zealous when determining what has to be achieved on the first step towards the vision.
250. When Mr Berry reappeared as counsel for Watercare, we discussed the point further with him. We queried in particular, whether a clear signal that local authorities needed to transition to a position where they were not degrading the Waikato River could be regarded as absurd. His response was that if the indication was that that was the end point of a 25-30 year transition, it could not be seen to be absurd against the background of Te Ture Whaimana.

251. Mr Berry also submitted to us that Te Ture Whaimana should not be read literally, particularly in situations where water quality meets the prescribed standards. He emphasised, in particular, the aspirational language it uses.
252. We discussed with Mr Ferguson, just how literally we ought to take Te Ture Whaimana. Mr Ferguson accepted that some aspects of the Waikato River have physically changed raising questions as to how, in any real sense, those aspects might now be “restored”. The most obvious example is provided by the structures forming part of the Waikato Hydro Scheme operated by Mercury Energy, including the lakes that have formed behind the succession of hydro dams located on the river. Mr Ferguson’s response was that the iwi realise that there are obstacles to restoration of the health and wellbeing of the Waikato River. He advised that they take a long-term view and seek to take small steps towards the ultimate goal. He emphasised however that progress needs to be made. In his submission, it was not acceptable to put off action until more information is available to enable better informed decisions to be made.
253. Our discussion with Mr Ferguson highlighted the fact that PC1 is a single element in a necessarily wide-ranging series of regulatory responses to the direction that Te Ture Whaimana provides. The focus of PC1 is on management of N, P, microbial pathogens and sediment. We will discuss shortly whether that is its sole focus, but irrespective of the view that one takes to that question, it is clear that restoration of the health and wellbeing of the Waikato River extends well beyond water quality matters, and indeed, well beyond matters that respond to the levers provided by the RMA. PC1 is also necessarily limited as to the extent to which it can map out all the steps that will be required to give effect to Te Ture Whaimana, even as regards matters within its scope, because it only projects forward a nominal period of ten years, following which further regional plan reviews will need to take those matters forward.
254. PC1 is premised on the vision of Te Ture Whaimana being achieved by 2096 (80 years from notification). Some parties argued that that would not be long enough. Others sought a shorter timeframe. As we have already noted, the representatives of the Iwi Co-Governors who gave evidence made it clear that from their point of view, 80 years was “non-negotiable”. It was clear from their evidence that some iwi would have preferred a shorter period, but had come around to the view that 80 years was an appropriate compromise position. Mr Rameka pointed out to us that the 80-year timeframe for PC1 is very similar to that applying to the Lake Taupō catchment.

255. We will return to the question of what timeframe is appropriate in our discussion of the objectives of PC1. However, no party contended that the objectives of Te Ture Whaimana could be achieved within the ten-year life of PC1.
256. It therefore follows that we need to determine just how far down the road towards giving effect to Te Ture Whaimana the first stage represented by PC1 should aim to get. We discussed with a number of parties the fact that notified Objective 3 is unlikely to be able to be achieved by 2026 as a result of the delays in the First Schedule process to date, the probability of appeals to the Environment Court, and progressive roll out of the actions that PC1 requires. We will discuss that objective in much greater detail later in this report.
257. For our part, though, we accept Mr Ferguson’s underlying point; that it would be unacceptable to sit still and not make meaningful progress towards giving effect to Te Ture Whaimana. While, to use Mr Berry’s description, we should not be “zealous” in the steps we recommend, equally, marking time while acquiring more information is not acceptable given the recognition Te Ture Whaimana requires of the existing degraded state of the Waikato River.⁸¹ We therefore agree with an observation counsel for Beef and Lamb made in the Block 1 hearing that “*business as usual*” is not an option. PC1 needs to do as much as it reasonably can towards giving effect to Te Ture Whaimana, while acknowledging that the integrated, holistic and coordinated approach required by Objective 1(3)(e) will demand further actions by relevant stakeholders over time.
258. In our view, the discipline of the section 32 tests and their requirement that we weigh both costs and benefits in order to determine the most appropriate way to achieve the objectives of PC1 is a key consideration. It follows that we agree with the view of the planning witness for Fonterra, Mr Willis that we should not be blind to the costs of the provisions we recommend. However, with Te Ture Whaimana setting the ultimate end goal of restoration and protection of the health and wellbeing of the Waikato River, recognition of adverse economic implications of the changes required in the catchment to achieve that goal is necessarily limited to the mechanisms put in place for its achievement. As Mr Willis suggested, we should seek to identify the rate and way change occurs that minimises costs to the community, that is to say, allowing an appropriate transition over time. Second-guessing the ultimate goal is not, however, an option available to us.

⁸¹ Refer Objective 1(3)(j).

259. We also need to bear in mind other important aspects of Te Ture Whaimana, including its mandating of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River,⁸² avoidance of adverse cumulative effects on the health and wellbeing of the Waikato River,⁸³ and recognition that the Waikato River should not be required to absorb further degradation as a result of human activities.⁸⁴
260. For present purposes, a key issue is to identify the extent to which the river must be restored and the situation(s) when protection, rather than restoration, is an appropriate management response.
261. There are two ways in which one can look at this question. As part of the preparatory work for PC1, the TLG commissioned a report seeking to establish water quality within the Waikato and Waipā River catchments in 1863 (when the New Zealand Settlements Act 1863 was passed and substantial tracts of land confiscated from iwi). This led a number of submitters to presume that the long-term goal was to return the catchment to the position it was in over 150 years ago. Many submissions commented on the impracticability of such a goal. Among other things, large-scale urbanisation of the population has occurred in the interim, along with irreversible physical changes to the catchment, including but not limited to drainage of the swamps and wetlands that formerly represented a substantial part of the Lower Waikato River catchment.
262. We think that such studies are useful because they provide a reference point for improvements in water quality that might be sought; if water quality did not naturally reach a certain level, then logically, restoration of the Waikato River would not be required to that level either. However, we do not think that that is the primary focus of Te Ture Whaimana. Rather, we read the intention is to improve water quality to a nominated state rather than to some arbitrary historical position. We discussed this point with Mr Bob Penter, CEO of the WRA, and he agreed with that proposition.
263. We need to identify what the required state is. Counsel for Beef and Lamb, Mr Thomsen, drew on the wording of the Vision quoted above. He submitted that the point to which the river must be restored is one *“that restores the ecological health of the River to sustain abundant life and has resilience to change, and that once achieved provides for prosperous communities.”*⁸⁵

⁸² Objective 1(3)(f).

⁸³ Objective 1(3)(g).

⁸⁴ Objective 1(3).

⁸⁵ Block 2 Legal Submissions for Beef and Lamb at 26.

264. While we have characterised the Vision as a super-objective, the way Te Ture Whaimana is structured is that it states that to realise the Vision, the specified objectives will be pursued. There is only one objective that specifically states the standard of restoration required, objective k: *“the restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.”*
265. The Environment Court’s decision in *Puke Coal Limited v Waikato Regional Council*⁸⁶ has a number of helpful comments regarding the implications of Te Ture Whaimana for management of water quality. It describes it as having led *“to a stepwise change in the approach to consents affecting the catchment of the Waikato River”*⁸⁷ and relevant to the current question, that:
- “... the only reasonable conclusion that can be reached is that there is an intention to improve the catchment of the river itself within a reasonable period of time (several decades) to a condition where it is safe for swimming and food gathering over its entire length.”*⁸⁸
266. In summary, while clearly there is an inter-relationship between safe swimming and safe food gathering on the one hand, and ecological health on the other, to the extent that objective k sets a different water quality standard from that which counsel for Beef and Lamb suggested, we consider the former to be the appropriate reference point to give effect to Te Ture Whaimana.
267. We should not be taken to be suggesting that ecological health is not a relevant consideration in finalisation of PC1. Objective (i) of Te Ture Whaimana requires a focus on protecting and enhancing significant fisheries, flora and fauna, and as we will discuss shortly, the NPS-FM also provides important direction in that regard. However, as we read the situation, Beef and Lamb were seeking to shift the focus of PC1 to ecological health to justify different (and weaker) controls over the level of TN in the river than those that a focus on safe swimming and safe food gathering would indicate to be appropriate. We think that given the pre-eminence of Te Ture Whaimana, we are on surer ground relying on the direction it provides on this critical issue.
268. Although perhaps not strictly necessary for our report, we should also observe that we tend to agree with Mr Berry that Objective 1(3)(k) should not be read so literally that it

⁸⁶ [2014] NZEnvC 223.

⁸⁷ *Ibid* at [86].

⁸⁸ *Ibid* at [87].

would require water quality that is safe for swimming and for food gathering at every point along the entire length of the catchment. Quite apart from the fact that there were areas that were not safe either for swimming or for food gathering historically, for a range of reasons, we think that there is force in the submission made by counsel for Fonterra, Mr Matheson, that the test of whether water quality needs to be safe for swimming and food gathering turns on the relationships of people, and in particular the people of the river iwi, with the river. The fact that short river reaches might not meet that standard might not impinge on restoration of those relationships. That will be an issue of fact to be determined on a case by case basis. Such reaches might not therefore necessarily coincide with the areas where point source discharges, including those of the local authorities whose interests Mr Berry was representing, occur.

269. Some submitters sought clarity that the water quality values specified in PC1 bite only at the nominated monitoring points. As far as we can gather, those monitoring points were established for technical and practical reasons, and did not have regard to the relationships of people and communities with the river. They are also far more sparsely distributed than we think could possibly adequately reflect those relationships.
270. In summary, Te Ture Whaimana may not require that every metre of the length of the Waikato River be safe for swimming and safe for food gathering, but our view is that those reaches where that standard of water quality does not apply should very much be the exception rather than the rule if Te Ture Whaimana is to be given appropriate effect.

NPS-FM

271. PC1 was drafted, evaluated (pursuant to section 32 of the RMA) and notified with reference to the NPS-FM as it stood in 2016. The NPS was substantively amended in 2017, that is to say, after PC1 was publicly notified.
272. There was no savings provision in the 2017 revision. The NPS-FM was varied with immediate effect (from 2 August 2017).
273. This situation has occurred before. In *Horticulture New Zealand v Manawatu Wanganui Regional Council*⁸⁹ the High Court held that in a situation where a NPS (in that case the predecessor of the NPS-FM 2014) was issued after appeals on a combined regional policy statement and regional plan⁹⁰ were lodged with the Environment Court,

⁸⁹ [2013] NZHC 2492.

⁹⁰ The Horizons' 'One Plan'.

neither the Council nor the Court were obliged to attempt to give effect to the NPS in the course of the appellate process.⁹¹

274. That decision contrasts with the approach taken in relation to Plan Change 6 affecting the Tukituki Catchment.⁹² There, a Board of Inquiry decision had been released and appealed to the High Court. The NPS-FM 2014 was issued while the matter was before the High Court. The High Court found the Board of Inquiry decision to contain material errors of law (unrelated to the NPS-FM 2014) and directed that the Board of Inquiry reconsider its decision on the specific matter the subject of error in light of the changed NPS-FM. The Court specifically acknowledged that the effect of its direction would be that the Board of Inquiry would have given effect to the National Policy Statement for Freshwater Management 2011 in relation to most of the Plan Change, and to the NPS-FM 2014 in relation to the specific issue referred back to it.⁹³
275. The Court observed that this was an inevitable consequence of the jurisdictional limitations created by the scope of the appeal to the High Court, and of its consequent directions. The key reasons given for this direction were that the NPS-FM 2014 stated (in its implementation provisions) that it was to be implemented as promptly as possible. Second, the Court found that that approach best reflected the requirements of section 67(3)(a) of the RMA that required the Board to give effect to “*any National Policy Statement*”.
276. We find that the case for our seeking to give effect to the revised NPS-FM is, if anything, stronger than that which Collins J considered in his Tukituki decision. The revised NPS-FM contains the same emphasis on prompt implementation as its predecessor and is of course at an earlier stage of the process for hearing and determining submissions. In his decision on the Horizons One Plan, Kos J emphasised the limited jurisdiction of the Environment Court and the fact that it does not sit in an executive plan-making and plan-changing role.⁹⁴
277. We are making recommendations to WRC, which is, however, in that role.
278. Accordingly, we find that we should strive to give effect to the revised (2017) version of the NPS-FM, subject to any contrary direction from Te Ture Whaimana and to our having jurisdiction to do so. The latter qualification is partly dependent on the scope of

⁹¹ At [100].

⁹² *Hawke’s Bay and Eastern Fish and Game Councils v Hawke’s Bay Regional Council* [2014] NZHC 3191.

⁹³ *Ibid* at [184].

⁹⁴ (2013) NZHC 2492 at [99].

the Plan Change, that we will discuss shortly, and partly a question of whether submissions on PC1 give us jurisdiction to make any changes necessary to give effect to the revised NPS-FM. The number and breadth of submissions before us, however, mean that the last point is unlikely to arise as a constraint in practice.

279. Starting therefore with a summary of the content of the 2014 version of the NPS-FM, its preamble identified the importance of fresh water to economic, cultural and social wellbeing, and the need for national direction regarding management of the freshwater resource. It described the NPS-FM as setting out objectives and policies that direct local government to manage water in an integrated and sustainable way, while providing for economic growth within set water quantity and quality limits. The NPS-FM was also described as a first step to improve management of fresh water at a national level.
280. The preamble emphasised the need to manage land use and development activities affecting fresh water so that growth is achieved with a lower environmental footprint.
281. The preamble also introduced the concept of Te Mana o te Wai, stating that freshwater objectives for a range of tangata whenua values were intended to recognise it.
282. The 2014 version of the NPS-FM set objectives for both water quality and water quantity. Focusing on the former as the primary subject matter of PC1,⁹⁵ Objective A1 sought to safeguard the life-supporting capacity of fresh water and the health of people and communities in sustainably managing the use and development of land and discharges of contaminants. Objective A2 sought the maintenance or improvement of the overall quality of fresh water while protecting significant values of outstanding freshwater bodies, and improving the quality in water bodies degraded to the point of over-allocation. These objectives were supported by four policies.
283. Policy A1 directed regional councils to make or change regional plans to the extent necessary to ensure the plans establish objectives and set limits to give effect to the NPS-FM objectives having regard to impacts of climate change, connections between water bodies, and with coastal water; and establish methods to avoid over-allocation.
284. Policy A2 applied where freshwater management units do not meet the freshwater objective of Policy A1. It directed regional councils to specify targets and implement

⁹⁵ We discuss in the section on the scope of PC1 following, whether it has any role in the management of water quantity.

methods considering recorded sources of contaminants, for improvement of water quality to meet the targets in a defined time.

285. Policy A3 directed that where permissible, regional councils make rules requiring adoption of the BPO to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant into fresh water or onto or into land that may result in the contaminant entering fresh water.
286. Policy A4 provided interim guidance for resource consent applications and so is not relevant in this context.
287. Objective C1 was focused on improvement in integrated management of fresh water and use and development of land in whole catchments, including interactions between fresh water, land, associated ecosystems, and the coastal environment.
288. To achieve that objective, Policy C1 directed regional councils to manage fresh water, land use and development in an integrated and sustainable way so as to avoid, remedy or mitigate adverse effects, including cumulative effects.
289. Objective CA1 sought a nationally consistent approach to establishing fresh water objectives for national values that recognise regional and local circumstances. To that end, Policies CA1 to CA4 prescribed a detailed process for a national objectives framework.
290. Policy CA1 was that all regional councils are to identify freshwater management units for all freshwater bodies in every region.
291. Policy CA2 provided a stepped process for development of freshwater objectives, including consideration of specified national values and how they apply to local and regional circumstances, identification of values for each freshwater management unit, identification of attributes for each value and, in cases where attributes were specified in the NPS-FM, assignment of an attribute state at or above the minimum acceptable state for that attribute and formulating freshwater objectives in numeric terms with reference to the attribute states specified in the NPS-FM or, where practicable, and otherwise in narrative terms with adoption of the most stringent attribute where any one attribute applies to more than one value.
292. Policy CA3 required regional councils to ensure that freshwater objectives for the compulsory values specified in the NPS-FM were set at or above the national bottom lines for all freshwater management units, unless the existing fresh water quality was

already below that line because of naturally occurring processes or the operation of existing infrastructure and the Council considered it appropriate to set the objective below the line.

293. Policy CA4 provided for setting a freshwater objective below a national bottom line on a transitional basis in certain circumstances set out in an appendix. That appendix has yet to be populated and accordingly, the policy is so far of no effect.
294. Part CB of the NPS-FM related to monitoring progress towards and achievement of freshwater objectives. Part CC directed all regional councils to establish and operate systems for accounting for quality and quantity of fresh water and publishing the information gathered.
295. Part D of the NPS-FM related to tangata whenua roles and interests. Objective D1 sought provision for the involvement of iwi and hapū, ensuring that tangata whenua values and interests are identified and reflected in the management of fresh water and associated ecosystems and decision-making regarding planning of fresh water.
296. Policy D1 was for local authorities to take reasonable steps to involve iwi and hapū in management of fresh water and ecosystems, to work with them to identify values and interests, and reflect them in management and decision-making.
297. Policy E1 of the NPS-FM prescribed that a regional council's implementation of its policies was to be fully completed by 31 December 2025 subject to potential extension on specified conditions to 31 December 2030.
298. The listed compulsory values were:
 - Te Hauora o te Wai/the health and mauri of water;
 - Te Hauora o te Tangata/the health and mauri of the people.
299. Additional national values specified were:
 - Te Hauora o te Taiao/the health and mauri of the environment;
 - Mahinga kai/food gathering/places of food;
 - Mahi māra/cultivation;
 - Wai Tapu/sacred waters;
 - Wai Māori/municipal and domestic water supply;
 - Āu Putea/economic or commercial development;
 - He ara haere/navigation.

300. Specified attributes related to:

- Ecosystem health in lakes:
 - Phytoplankton;
 - TN;
 - TP;
- Ecosystem health in rivers:
 - Periphyton;
 - Nitrate (toxicity);
- Ecosystem health for lakes and rivers:
 - Ammonia (toxicity);
- Ecosystem health for rivers (below point sources):
 - DO;
- Human health for recreation in lakes and rivers:
 - *E. coli*;
- Human health for recreation in lakes and lake fed rivers:
 - Cyanobacteria – planktonic.

301. The attribute tables in Appendix 2 of the NPS-FM include a range of water quality and ecosystem parameters or attributes set within three, four or five attribute states or 'bands' (A, B, C, D and E). Each attribute has a 'National Bottom Line' value, with the bottom of the C band representing the national bottom lines. As above, Policy CA3 requires where waterways are below bottom lines, they are to be improved to at least the national bottom line over time.

302. Key changes to the 2014 version of the NPS-FM made in 2017 included changes to the preamble to place greater emphasis on Te Mana o te Wai, and on the need for water quality improvement specifically in the area of safety of lakes and rivers for primary contact. The latter includes a specific direction that just maintaining freshwater quality is not an option for the human health value unless regional targets have been achieved or nationally occurring processes mean further improvement is not possible. Reference to variability in water quality is amended so as to remove the previous inference that such variability might include between FMUs. A statement is added that monitoring must include use of the MCI, as well as measures of indigenous flora and fauna and Mātauranga Māori. Lastly, text has been added to state that the preamble to the NPS-FM might assist its interpretation.

303. In the body of the NPS-FM, the matter of national significance to which the NPS-FM applies is redefined to integrate Te Mana o te Wai into freshwater management more generally and to emphasise the importance of the health and wellbeing of freshwater bodies.
304. A new Objective AA1 is added seeking consideration and recognition of Te Mana o te Wai in the management of fresh water.
305. New Policy AA1 is added requiring regional councils to consider and recognise Te Mana o te Wai, noting in turn that:
- (a) Te Mana o te Wai recognises the connection between water and the broader environment – Te Hauora o te Taiao (the health of the environment), Te Hauora o te Wai (the health of the waterbody) and Te Hauora o te Tangata (the health of the people); and
 - (b) Values identified through engagement in discussion with the community, including tangata whenua, must inform the setting of freshwater objectives and limits.
306. Objective A1 is amended so the description of the health of people and communities that must be safeguarded is no longer limited to secondary contact with fresh water.
307. Objective A2 is amended to focus maintenance and improvement of water quality on FMUs.
308. Objective A3 has been added seeking improvement in the quality of fresh water within FMUs be improved so that it is suitable for primary contact more often, unless regional targets have been achieved or naturally occurring processes mean further improvement is not possible.
309. Objective A4 has been added seeking that communities be enabled to provide for their economic wellbeing in sustainably managing freshwater quality, within limits.
310. Policy A5 has been added to require regional councils to make or change regional plans to the extent needed to ensure that a contribution is made to achieving regional targets for improvement to water quality through identification of specified rivers and lakes and primary contact sites, and to state what improvement to water quality will be made and over what timeframe so that those rivers, lakes and primary contact sites are suitable for primary contact more often or how those rivers, lakes and primary contact sites will be maintained if the regional targets have been achieved.

311. New Policy A6 provides a timeframe for development of the regional targets for water quality improvement with draft targets available by 31 March 2018 and final targets available 31 December 2018.
312. New Policy A7 responds to new Objective A4, and requires regional councils to consider, when giving effect to the NPS-FM, how to enable communities to provide for their economic wellbeing while managing within limits.
313. Parallel amendments to Objective A4 and Policy A7 are made to Part B – water quantity.
314. Policy C1 is amended to add reference to the need for regional councils to recognise the interactions between fresh water, land, associated ecosystems and the coastal environment on a ki uta ki tai (from the mountains to the sea) basis.
315. Policy CA2 has been amended to better define the concept of maintenance of overall water quality – for listed attributes, maintenance requires freshwater objectives to be set at least within the same attribute state as existing freshwater quality and for those attributes not listed, relevant values will not be worse off when compared to existing freshwater quality. Consequential amendments are also made to the matters for consideration reflecting the emphasis, as above, on suitability of fresh water for primary contact and enabling communities to provide for their economic wellbeing.
316. Policy CA3 has been amended to provide greater specificity for recognition of listed infrastructure. However, given that no infrastructure has been listed, the provisions have no substantive effect as yet.
317. Objective CB1 has been amended to expand the scope of monitoring sought to be put in place, so that it includes both freshwater objectives and identified values.
318. As foreshadowed in the preamble, Policy CB1 now includes a requirement for methods for monitoring the extent to which relevant values are being provided for, including surveillance monitoring of microbial health risks to people at primary contact sites, monitoring of macroinvertebrate communities, measures of the health of indigenous flora and fauna and mātauranga Māori. Emphasis is also given to the relationship between monitoring results and the overall state of fresh water in an FMU.
319. New Policy CB2 requires regional councils to establish methods such as action plans for responding to adverse monitoring trends.

320. New Policy CB3 provides specifically for a response being required when MCI is below 80 or exhibits a declining trend, so as to ensure that the causes of those changes are investigated and methods employed seeking to halt declining trends and to improve MCI scores (as applicable).
321. Policy CB4 also emphasises the need to communicate monitoring information to the public.
322. Policy E1 has been augmented by a requirement for regional councils to review their programme for staged implementation of the NPS-FM and to adopt a revised version within a specified timeframe and thereafter undertake five yearly reviews of water quality improvements that are communicated to the public.
323. Consistent with the above changes, the appendices include:
- Amendments to the description of human health values to focus on primary contact with fresh water and to identify relevant matters to take into account in that context as including pathogens, clarity, deposited sediment, plant growth, cyanobacteria and other toxicants;
 - Expanding criteria for natural form and character values to include biological characteristics that are valued by the community and to provide an expanded list of matters that contribute to that value;
 - Amendment to the description of Mahinga kai values so that it includes both places food species are found, and the act of catching them;
 - Expanding Wai tapu to include where places are of special significance to iwi and hapū. Greater emphasis is also given to protection of valued features and unique properties of the wai when providing for this value;
 - Adding detail to existing narrative states;
 - Adding reference to the need for setting of appropriate instream concentrations and exceedance criteria for DIN and DRP to achieve periphyton objectives, with guidance as to how such criteria should be established. Reference is also made to the need for nitrogen and phosphorus criteria where they are a nutrient sensitive downstream receiving environment;
 - Significantly revising the detail of the attribute state and related material relevant to *E. coli* – among other things, establishing a four-fold set of criteria to be applied in relation to each attribute state, to replace the existing focus on annual medians and 95th percentiles. Notes are also added to guide application of the attribute states. Among other things, regional councils are directed that attribute

states should be determined on samples collected regularly, “*regardless of weather and flow conditions*”. We will discuss that aspect later in our report;

- The cyanobacteria attribute is expanded to provide additional levels and attribute state descriptions;
- A new Appendix 5 is added providing detailed direction for surveillance monitoring of *E. coli*;
- A new Appendix 6 is added providing national targets for water quality improvement, as regards its suitability for primary contact activities.

324. There are obvious overlaps between the NPS-FM (both 2014 and 2017 versions) and Te Ture Whaimana. We note, for instance, submissions for both the Iwi Co-Governors and for WRC in closing⁹⁶ that there is a broad symmetry as between the policy intent of the Te Mana o te Wai provisions of the NPS-FM and Te Ture Whaimana. The focus of Objective A2 of the NPS-FM on maintaining or improving overall quality of fresh water within FMUs also has obvious parallels with restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers.

325. We had a lengthy discussion with counsel for WPL as to whether they were synonymous and whether, as counsel submitted, we should prefer the NPS-FM terminology. In that regard, having initially submitted it was important that RMA decision-makers see language aligning with the NPS-FM rather than the language of the various Settlement Acts, having reflected on the discussion, Dr Somerville QC considered it preferable to leave the language as “restore and protect”, but accompanied by a definition to make it clear that to the extent there is a difference between that and “maintained and improve” there was no intention to lower the bar: it contains both. Subsequently, the planning witness for WPL, Mr Connell-Mckay tabled a suggested definition:

“Restore and protect: For the purposes of Chapter 3.11 includes ‘maintained or improved’.”

326. Putting aside the mix of tenses that would need to be corrected if we accepted in principle the desirability of such a definition, we think there are important differences between these terms. As counsel for WRC observed in his closing submissions, “improve” is not the equivalent of “restore”. An objective or policy focusing on improvement in water quality gives no sense as to the extent of improvement, unless

⁹⁶ Paragraphs 79 and 2.18 respectively.

that is specifically stated. Restoration, however, does give a sense of extent. We have discussed already in the context of our review of Te Ture Whaimana, just what that extent is.

327. Taking an ordinary and natural meaning, “maintain” is much closer to “protect” and there is authority suggesting that the former may well in fact be a more stringent test.⁹⁷ However, the 2017 amendment to the NPS-FM to clarify that “*maintenance*” might involve movement downward within an attribute state/band would seem to alter the natural meaning in a manner which would not be consistent with Objective (h) of Te Ture Whaimana (no further degradation).
328. Accordingly, we do not think it is helpful to insert a definition of the kind suggested by counsel for WPL. The concept of restoration and protection introduced by Te Ture Whaimana needs to direct future action without the complication of trying to capture how that might relate to maintenance and improvement in terms of the NPS-FM.
329. We also note that new Objective A4 and Policy A7 have the potential to give greater weight to providing for economic wellbeing than would be consistent with Te Ture Whaimana.
330. In contrast to the aspects of the NPS-FM that we have drawn attention to above, where it might be seen to be directing more lenient outcomes than those that would be required by Te Ture Whaimana, new Objective A3 and new Policies A5 and A6, related to improving the quality of fresh water so that it is suitable for primary contact more often might be seen to be more demanding (they are certainly more specific) than Te Ture Whaimana because of the staged improvement specified in Appendix 6. We do not consider such provisions inconsistent with Te Ture Whaimana. Rather, they flesh out Te Ture Whaimana in a manner that in our view is consistent with the latter’s overall direction.
331. There are other elements of the NPS-FM that expand on Te Ture Whaimana. We refer, in particular, to the emphasis on monitoring MCI, as a measure of river ecological health. Other compulsory attributes in the NPS-FM flesh out more narrative instructions contained in Te Ture Whaimana.

⁹⁷ See *Port Otago Limited v Dunedin City Council* C4/2002 at [41]-[42].

332. The NPS-FM also provides guidance as to process, but again, we think that this needs to be applied with some care to avoid introducing inconsistencies with Te Ture Whaimana.
333. In particular, the NPS-FM directs a process of ascertaining values in consultation with community, and a translation of those values into the freshwater objectives, which in turn drive the specification of limits and targets. Section 3.11.1 of the notified version of PC1 reflected that starting point. The difficulty is that, as that section demonstrates, community values encompass use values that if translated into the objectives would imply a continuation of the existing degradation of the Waikato and Waipā Rivers, and potentially, an acceptance of further degradation, contrary to the objectives of Te Ture Whaimana. Clearly that would not be acceptable, which produces the situation, highlighted by Mr Scrafton, the planning witness for Watercare, in his Block 2 and Block 3 evidence, of a disconnect between the identified values on the one hand, and the objectives and policies, on the other.
334. In Section 8 of our Report, reviewing the submissions on 3.11.1 of PC1, we discuss how this disconnect might best be remedied.
335. In summary, our view is that the best approach to the NPS-FM is to consider provisions purporting to give effect to it one by one to ensure they are not inconsistent with Te Ture Whaimana. As we have previously noted, it is clear that in the event of such conflict, Te Ture Whaimana must prevail.

New Zealand Coastal Policy Statement

336. The New Zealand Coastal Policy Statement (NZCPS) provides direction regarding the use, development and protection of natural physical resources in the coastal environment. While the area covered by PC1 does not include the coastal marine area, the coastal environment extends inland of the coastal marine area. We were advised, for instance, that the zone of tidal influence extends upstream of the bridge at Tuakau. In addition, water and, consequently, water borne contaminants flowing down the Waikato River flow into the coastal environment, including the coastal marine area. The preamble of the NPS-FM notes in this regard that the management of coastal water and fresh water requires an integrated and consistent approach. We have already noted the amendment in the 2017 revision of the NPS-FM to Policy C1 requiring recognition of interactions between fresh water and the coastal environment.

337. Ms Kissick, the planning witness for DoC, drew our attention to Objective 1 of the NZCPS, directing a focus on the safeguarding of the integrity, form, functioning and resilience of the coastal environment and sustaining its ecosystems including by maintaining coastal water quality and enhancing it where it has deteriorated from what would otherwise be its natural condition, and to Policies 4, 21-23 inclusive. As she noted, Policy 4 relates to the integrated management of natural and physical resources in the coastal environment, recognising a range of matters that need to be provided for to achieve that integrated management including (at (c)(iv)) that land use activities affect, or are likely to affect, water quality in the coastal environment and marine ecosystems through increased sedimentation.
338. Ms Kissick described Policies 21-23 as providing policy guidance on the management of water quality in the coastal environment including requirements to enhance water quality where it has degraded, manage sedimentation, and manage the discharges to water in the coastal environment.
339. We accept in principle that these matters are all relevant to our deliberations and direct focus, among other things, on improving water quality in the coastal environment where it is adversely affected by activities within the area covered by PC1. Less clear is the extent to which the direction in the NZCPS should prompt action that would not otherwise be required by Te Ture Whaimana and/or the NPS-FM, given the former's focus (in particular) on halting degradation of the Waikato and Waipā Rivers and restoring the health and wellbeing of those rivers.
340. We will discuss the evidence produced by DoC on effects in the coastal environment and the management measures necessary to give effect to the NZCPS later in this report.

National Policy Statement-Renewable Electricity Generation

341. This NPS contains an objective and policies to enable the sustainable management of renewable electricity generation under the RMA. Renewable electricity generation is defined to include the hydro and geothermal electricity generation facilities that are within the PC1 area. It does not include the Huntly Power Station in respect of which we had submissions and evidence from its owner operator, Genesis Energy.
342. The objective is:

"To recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and

existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable electricity sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation."

343. Relevantly, Policy E2 is that Regional Plans are to include objectives, policies and methods, including rules and plans to provide for the development, operation, maintenance, and upgrading of new and existing hydro-electricity generation activities to the extent applicable to the region.
344. Policy E4 has a similar direction in relation to use of geothermal resources for electricity generation activities.
345. We observe that if and to the extent that development, operation, maintenance, and upgrading of new and existing renewable electricity generation activities is inconsistent with restoration and protection of the health and wellbeing of the Waikato River, still more so if it were to result in further degradation of the Waikato River, the enabling provisions noted would necessarily give way to the contrary direction provided by Te Ture Whaimana.

National Policy Statement-Urban Development Capacity

346. This NPS is about recognising the national significance of urban environments, the need to enable such environments to develop and change, and providing sufficient development capacity to meet the needs of people and communities and future generations in urban environments.
347. It has a series of objectives (OA1-OA3) prescribing outcomes desired from planning decisions affecting an urban environment that include a focus on efficient urban environments, urban environments with sufficient opportunities for development to meet demand and that develop and change in response to the changing needs of people, communities and future generations.
348. A second set of objectives (OC1-OC2) focus on planning decisions enabling urban development that provides for the social, economic, cultural and environmental wellbeing of people and communities and future generations over all timeframes, and on adaptation by local authorities to evidence about trends in urban development, market activity and the social, economic, cultural and environmental wellbeing of people and communities.

349. Objective OD1 focuses on integration of land use and land use development with infrastructure. Objective OD2 seeks coordinated and aligned planning decisions across local authority boundaries.
350. For the purposes of these objectives, WRC is a local authority and Hamilton City qualifies as an urban environment. In addition, although the urban area of Pukekohe is outside the PC1 area, wastewater discharges from it occur within the Waikato Catchment and a significant proportion of the drinking water for the Auckland urban area is taken from the Waikato River.
351. A number of policies are designed to achieve these objectives. We note in particular Policy PA3 directing that decision-makers making planning decisions affecting the way and rate at which development capacity is provided shall have particular regard to providing for choices meeting the needs of people and communities for a range of dwelling types and locations, work environments and places to locate business, among other things.
352. Policy PA4 also directs decision-makers to take into account the benefits that urban development will provide when considering its effects.
353. This NPS was the subject of submissions and evidence seeking to persuade us that PC1 did not give effect to it, largely because of the constraining effect the Objectives and Policies of PC1 would have on expansion of wastewater discharges from Hamilton City necessary to facilitate urban growth, capacity for which the NPS directs be ensured.
354. We discussed with both Ms MacIntosh, counsel for Hamilton City, and its planning witness, Mr Ryan, the apparent conflict between the interpretation the City Council was seeking to derive from the NPS-UDC and Objective (h) of Te Ture Whaimana:
- “The recognition that the Waikato River is degraded and should not be required to absorb further degradation as the result of human activities.”*
355. Ms MacIntosh’s initial submission (at Block 1) was that it was possible to read the two as being consistent. It is fair to say that we had some difficulty understanding how the two documents could be read together consistently if, as the representatives of Hamilton City appeared to be saying in Block 1, provision for further urban development of Hamilton would necessarily involve additional degradation of the Waikato River.

356. We note that the NPS-UDC is non-specific about how additional urban capacity is to be provided. One way in which the two documents could be read consistently together would therefore be to interpret the NPS-UDC as requiring provision for additional urban development capacity that does not result in further degrading the Waikato River.
357. From Mr Ryan’s Block 2 evidence, we understand that this is practically possible, provided PC1 gives sufficient leeway for employment of offset measures to address residual adverse effects from the City Council’s wastewater discharges that cannot practically be avoided, remedied or mitigated.
358. Ms MacIntosh submitted also that to the extent that there might be tension or conflict in reconciling the directives of Te Ture Whaimana with those of the NPS-UDC, two of the caveats provided by the Supreme Court in *Environmental Defence Society v New Zealand King Salmon Company Limited*⁹⁸ applied, namely “incompleteness and/or uncertainty”. She also argued that Te Ture Whaimana has not set “environmental bottom lines” in the sense that the NZCPS was held by the Supreme Court to do.
359. We do not regard Objective (h) of Te Ture Whaimana as being either incomplete or uncertain. It seems to us to be quite clear what it is saying – namely, that the Waikato River should not be further degraded.
360. Further, while the wording used (in particular framing it in terms of “recognition”) might be considered less prescriptive than the policies of the NZCPS that the Supreme Court addressed in its King Salmon decision,⁹⁹ it still provides “something in the nature of an environmental bottom line”, to use the language of the Supreme Court.¹⁰⁰
361. It follows that we do not accept counsel’s submissions in that regard.
362. We prefer to place reliance on Mr Ryan’s evidence that there is scope to reconcile the two documents in a way that does not result in further degradation of the Waikato River.

Waikato Regional Policy Statement

363. Section 67(3) of the Act requires that PC1 must give effect to the WRPS. Putting aside the provisions of Te Ture Whaimana that are deemed to form part of the WRPS and which we have already discussed, the balance of the WRPS comprises a comprehensive set of objectives, policies and methods guiding the use, development

⁹⁸ [2014] NZSC 38.

⁹⁹ Refer the discussion in *Environmental Defence Society Inc v Otago Regional Council* [2019] NZHC 2278 at [84]-[96] contrasting the language of Policy 9 of the NZCPS with that of Policies 11, 13, 15, and 16.

¹⁰⁰ [2014] NZSC 38 at [103].

and protection of the natural and physical resources of the Waikato region. Having said that, having been made operative in May 2016, the WRPS predates both the 2017 revision of the NPS-FM and the NPS-UDC. It does not, therefore, pick up on the provisions in those documents other than to the limited extent the NPS-UDC directed immediate inclusion of an objective setting out minimum housing targets.

364. The WRPS was, however, written round the NPSs that predated it along with Te Ture Whaimana. As such, there is a significant degree of overlap with the objectives and policies we have already discussed above.

365. The section 32 Report underpinning PC1 noted the following WRPS objectives as being of particular relevance to PC1:

- 3.1 Integrated Management: which emphasises the need to recognise (among other matters), the inter-relationships between water body catchments, riparian areas, wetlands and coastal environments, as well as the relationships between environmental, social, economic and cultural wellbeing.
- 3.3 Decision making: which sets out underlying principles for decision making including the adoption of appropriate planning timeframes, adaptive management, mātauranga Māori and flexible solutions for local variations.
- 3.4 Health and wellbeing of the Waikato River: which recognises the Vision and Strategy.
- 3.5 Energy: which recognises (among other matters) the national significance and regional benefits of electricity generation.
- 3.8 Ecosystem services: which recognises the need to maintain and enhance these services, and their importance to regional wellbeing.
- 3.9 Relationship of tangata whenua with the environment: which recognises the need to provide for this relationship.
- 3.10 Sustainable and efficient use of resources: which requires that use and development of resources is sustainable and efficient.
- 3.14 Mauri and values of freshwater bodies: which requires that the mauri and identified values of freshwater bodies are maintained or enhanced.
- 3.16 Riparian areas and wetlands: which requires (among other matters) that water quality and wetland quality and extent is maintained or enhanced.
- 3.25 Values of soil: which recognises the importance of safeguarding the life supporting capacity of soils.

366. The section 32 Report also noted the following policies specific to freshwater management in the WRPS:

- Policy 8.1: Approach to identifying freshwater body values and managing freshwater bodies: which addresses the development of freshwater objectives, limits and targets.
- Policy 8.2: Outstanding freshwater bodies and significant values of wetlands: which requires protection or where appropriate enhancement of outstanding water bodies. We note that the WRPS does not actually identify what those outstanding freshwater bodies and significant values are. Rather, it specifies a method for identification of same (Implementation Method 8.2.1, cross referencing in turn Sections 8A and 8B, which identify, in turn, modified freshwater bodies utilised for hydro electric generation and domestic and municipal water supplies and freshwater bodies with high water quality based on a range of parameters (Whangamarino wetland is specifically identified as being of international importance in section 8B)).
- Policy 8.3: All freshwater bodies: which requires the maintenance or enhancement of freshwater bodies by (among other matters) reducing sediment and contaminants entering water bodies and protecting and enhancing riparian and wetland habitat.
- Policy 8.4: Catchment based intervention: which establishes criteria for catchments, including the Waikato River, for managing the adverse effects of activities and land use change.
- Policy 8.5: Waikato River Catchment: which recognises Te Ture Whaimana as the primary direction-setting document for the Waikato River.

367. The provisions of the WRPS which were the subject of most comment were those related to regionally significant industry and regionally significant infrastructure.

368. We were referred to Policy 4.4 by a number of parties. It reads:

“Regionally significant industry and primary production:

The management of natural and physical resources provides for the continued operation and development of regionally significant industry and primary production activities by:

- (a) *Recognising the value and long term benefits of regionally significant industry to economic, social and cultural wellbeing;*

- (b) *Recognising the value and long term benefits of primary production activities which support regionally significant industry;*
- (c) *Ensuring the adverse effects of regionally significant industry and primary production are avoided, remedied or mitigated;*
- (d) *Co-ordinating infrastructure and service provision at a scale appropriate to the activities likely to be undertaken;*
- (e) *Maintaining and where appropriate enhancing access to natural and physical resources, while balancing the competing demand for these resources;*
- (f) *Avoiding or minimising the potential for reverse sensitivity; and*
- (g) *Promoting positive environmental outcomes.”*

369. Policy 4.4(e) is specifically identified as something that regional plans should provide for in Implementation Method 4.4.1(c).

370. We will return to discuss in greater detail the application of Policy 4.4 and the related implementation method in the context of our consideration of submissions on Policies 10-13 of PC1.

371. The representatives of infrastructure providers whom we heard from suggested to us that the WRPS provides a similar level of recognition for regionally significant infrastructure which ought to be recognised in the form Policies 10-13 take. We do not consider that to be correct, or not wholly so. The principal recognition of regionally significant infrastructure is in the context of Policy 6.6, which relates to management of the built environment. It directs that such management ensure that particular regard is given to protection of the effectiveness and efficiency of existing and planned regionally significant infrastructure and the benefits that can be gained from its development and use. The implementation methods have a similar focus on management of the built environment. We would characterise these provisions as focusing on the effects **on** regionally significant infrastructure rather than the effects **of** regionally significant infrastructure (and the desirability of providing for it, notwithstanding those effects). While we do not suggest regionally significant infrastructure is unimportant, we do not consider it can derive the same level of support from the WRPS that the latter provides to significant industry (and primary production).

National Environmental Standard for Sources of Human Drinking Water

372. The NES-DW puts in place requirements for protecting community drinking water supplies from being contaminated. Different controls are applied depending on whether the community supplied with water is one of more than 500 people, or alternatively more than 25 people.
373. For the larger communities as above, the standards apply both to the grant of discharge permits potentially affecting the safety of drinking water, and to specification of permitted activities that might similarly affect drinking water.
374. The exact obligation varies according to whether the drinking water supply meets the relevant health criteria, whether the drinking water supply is tested or whether the drinking water supply does not meet the relevant health criteria.
375. Relevant criteria include the MAVs for *E. coli*, nitrate (short term values) and nitrite (both short and long term values) and ammonia. Accordingly, these standards are relevant to finalisation of Block 3 and cannot in our view be left (as the Block 3 section 42A report suggests)¹⁰¹ for a subsequent review of the WRP.
376. For the smaller community drinking water supplies, the standards require conditions to be placed on discharge permits upstream of the abstraction point, requiring notification of the drinking water supplier if significant unintended events such as contaminant spills occur that may adversely affect sources of human drinking water.
377. To provide us with a basis to assess what is required to comply with the NES-DW, we asked WRC to advise us where community drinking water supplies for more than 500 people are located, the extent of contaminant monitoring for each, whether the NES's requirements are currently being made, and with that margin of safety. The answer to each of these questions was contained in a memorandum dated 25 November 2019.
378. In summary:
- There are 23 community water suppliers drawing on water within the PC1 area from a mix of sources – groundwater wells, springs, dammed lakes and rivers and streams;
 - All water supplies are treated for *E. coli*;
 - All water supplies are well within the MAV for nitrate;

¹⁰¹ At paragraph 648.

- Ammonia and nitrate are tested less frequently, but ammonia concentrations are characteristically low and nitrate is typically not a significant component of natural fresh waters.
379. If those are all generally satisfactory, more concerning is the advice that two sites (Waikato River at Taupiri and Mangaokewa Stream in Waitomo District) are currently non-compliant for bacterial compliance. While the latter case is noted as a technical non-compliance on the basis that the supply is not tested in accordance with monitoring procedures, implementation of the NES requires in both of those cases that bacterial concentrations not increase by more than a minor amount.
380. We were also advised that almost a third of drinking water sites are currently non-compliant for protozoa. Protozoa are single-celled micro-organisms. Dr Dada told us that giardia and cryptosporidium are protozoa,¹⁰² and that they are among the microbial pathogens for which *E. coli* is used as an imperfect proxy.¹⁰³
381. The link Dr Dada identified for us between animal waste and potential exacerbation of currently non-compliant drinking water supplies that are spread widely across the catchments supports in our view a cautious approach to land use changes involving any material intensification of existing livestock stocking rates and/or access of livestock to water, at least in the vicinity of those drinking water supplies.

National Environmental Standard-Production Forestry

382. The regulations incorporating these national standards were put in place after notification of PC1. They came into force on 1 May 2018. Part 1 of Schedule 1 to the regulations states that there are no transitional, savings or related provisions relating to these regulations. Accordingly, we must ensure that PC1 accords with them.¹⁰⁴
383. The NES-PF prescribes a code for plantation forestry activities. Relevantly in that regard, Regulation 6(1) states that a rule in a plan may be more stringent than the NES Regulations, if the rule gives effect to an objective developed to give effect to the NPS-FM. Regulation 6(3) further provides that a rule or plan may be more stringent than the NES regulations if the rule manages any activities within one kilometre upstream of the abstraction point of the drinking water supply for more than 25 people or involves forestry quarrying activities over a shallow water table that is above an aquifer used for human drinking water supply. It follows that if our recommended version of PC1

¹⁰² Dr Dada, Block 1 evidence in chief – paragraphs 26-27.

¹⁰³ Ibid – paragraph 29.

¹⁰⁴ Refer section 66(1) RMA.

contains rules that are more stringent than the NES, for all or any of the above reasons, that would still be in accordance with the regulations for the purposes of section 66(1). However, any rule that is less stringent than the NES would not meet this test.

384. The only rules in the notified PC1 related to production forestry were related to conditions on permitted activity and controlled activity rules which were proposed to be amended to require the provision of a harvest plan. We will discuss the relevance of the NES to those provisions, and to submissions seeking additional (more stringent) controls on plantation forestry later in this report.¹⁰⁵

National Planning Standards

385. National Planning Standards are provided for in section 58B and following of the RMA, as amended in 2017. National Planning Standards are a category of legislation that have significant legislative effect, but they are not regulations (or legislative instruments) in terms of the Legislation Act 2012.¹⁰⁶ They therefore fall outside the ambit of instruments we have to ensure PC1 is in accordance with, pursuant to section 66.

386. The first set of national standards were promulgated in 2019 and sought to direct changes in the structuring and content of (among other things), regional plans. Unsurprisingly, the version of the RMA that we have to apply makes no reference to national planning standards. Accordingly, we find that we are under no legal obligation to recommend amendments to PC1 to align it with the National Planning Standards.

387. In addition, the character of PC1, as a component of the WRP, means that if we were to attempt to align PC1 with the National Planning Standards, that would potentially conflict with the way in which the broader Regional Plan is structured. We find it would be more efficient to consider alignment with the National Planning Standards in the context of the overall review of the WRP and we note that the National Planning Standards prescribe a period of ten years within which this can occur.¹⁰⁷

Other Regional Plans

388. As above, the only “*other*” Regional Plan that we consider might be of relevance and need to be considered to ensure that PC1 is not inconsistent with it¹⁰⁸ is the Waikato Regional Coastal Plan 2014. The section 32 evaluation supporting PC1 notes that the

¹⁰⁵ See sections 4 and 13.

¹⁰⁶ RMA, as amended in 2017, section 58E(4) and section 38 of The Legislation Act 2012.

¹⁰⁷ National Planning Standards 2019 – Implementation Standard 17(3).

¹⁰⁸ In accordance with section 67(4).

Regional Coastal Plan is the subject of review in the relatively near future, but does not discuss its substantive content. Similarly, while the representatives of DoC emphasised to us the need for an integrated approach, incorporating consideration of effects on the coastal environment, their evidence and submissions focused on the relevance of the NZCPS, which we have already discussed.

389. Like the NZCPS, the Regional Coastal Plan has (as Objective 4.1), a focus on maintaining or enhancing water quality in the CMA. In relation to non-point source discharges of contaminants in the CMA, Policy 4.1.4 is to promote riparian and land management practices in order to reduce the cumulative effects of such discharges.
390. Policy 4.1.3, dealing with point source discharges, has a similar focus on maintenance of existing water quality, identification of areas where water quality has been adversely affected and seeking to enhance those areas.
391. Objective 3.1 relates to preservation of the natural character of the coastal environment from inappropriate subdivision, use and development and restoring it where appropriate. The policy supporting that objective indicates a particular focus on identifying and protecting regionally significant and/or representative landscapes and geological features, among other things, and avoiding or remedying adverse effects on other natural features defining natural character. We note also Policy 3.1.6 directing promotion of integrated and consistent management between land and water "*in order to preserve the natural character of the coastal environment*".
392. Objective 3.2 has a focus on protecting areas of significant indigenous vegetation and significant habitat of indigenous fauna, with a series of policies supporting that outcome. We note that the issue statement for this objective acknowledges the potential for land uses above mean high water springs to have adverse effects within the coastal marine area.
393. Overall, the clear focus of PC1 on avoiding further degradation of fresh water quality and directing restoration of the health and wellbeing of the Waikato and Waipā Rivers will assist achievement of the objectives and policies of the Regional Coastal Plan and we did not identify any aspect of the Regional Coastal Plan that would do more than give greater specificity to the obligations contained in the NZCPS. We do not consider therefore that there is any risk that PC1 will be inconsistent with the Regional Coastal Plan.

Cross Boundary Issues

394. In terms of our taking account of the policy statements and plans of adjacent Regional Councils¹⁰⁹ a number of witnesses before us referred in a general way to Plan Change 10 to the Bay of Plenty Regional National Resources Plan, related to management of agricultural nutrients in the catchment of Lake Rotorua. This was brought rather more clearly into focus with the release of the interim decision of the Environment Court in relation to appeals on Plan Change 10.¹¹⁰ The Court drew attention to the fact that groundwater within the boundary of the Waikato region (and we observe, the area covered by PC1) forms part of the catchment of Lake Rotorua, but is not subject to the objectives, policies and rules it was considering. The Court specifically directed BOPRC to report back to it on progress on an agreement with WRC as to how cross boundary issues that arise as a result will be addressed.
395. In the closing planning statement for WRC, Officers suggested a new policy be inserted into PC1 to cover off the point highlighted by the Environment Court, but expressed more generally. We will discuss the suggested policy in the context of our review of the objectives and policies.
396. We were not made aware of any other cross boundary issues that would require consideration under section 66(1)(d).

Instruments Under Other Statutes:

397. As above, we are required to have regard to management plans and strategies prepared under other Acts.¹¹¹ The Waikato Conservation Management Strategy 2014, prepared under the Conservation Act 1987, is in this category. The section 32 evaluation described this document as providing a framework for the integrated management of natural and historical resources, including any species, in Waikato over the ten years from 2014. It further described the strategy as identifying outcomes for the areas managed by the Department of Conservation as well as showing how the Department will contribute to conservation objectives by working with tangata whenua, communities, local and regional authorities, statutory agencies and business in Waikato.
398. As we will discuss further below, in relation to the need for active measures to control the proliferation of koi carp and other pest fish species in the Lower Waikato

¹⁰⁹ Pursuant to section 66(2)(d).

¹¹⁰ *Federated Farmers of New Zealand Inc & Ors v Bay of Plenty Regional Council*[2019] NZEnvC 136.

¹¹¹ Pursuant to section 66(2)(c).

Catchment, the last aspect of the Conservation Management Strategy is of particular importance given the Department's role in managing pest species under the Biosecurity Act 1993.

399. As far as we can identify, the representatives of the DoC did not identify any other aspects of the Conservation Management Strategy of particular relevance to us.
400. Also, as noted above, Sports Fish and Game Management Plans prepared under the Conservation Act 1987 are also a relevant consideration to which we should have regard. The section 32 evaluation did not consider these plans, but Dr Daniel, a technical witness for Fish and Game, helpfully advised us that the objectives of the relevant Sports Fish and Game Management Plans include objectives related to protection and increase in habitat for sports fishing and game birds.¹¹²
401. Dr Daniel also noted¹¹³ that the relevant plans identify the Waikato River and Lake Arapuni as sites of national significance for recreational fishing and the Waipā River, Waipapa River and Mangatutu Stream as being of regional significance for recreational fishing. His evidence provided greater detail on those areas, including evidence of declining water quality and ecosystem health.
402. Dr Daniel drew our attention to a number of other provisions in the relevant plans, but they related more to the role of Fish and Game, and the steps those Councils would take in the exercise of their statutory responsibilities. As such, they are less relevant to us.

Iwi Management Plans

403. As above, we are required to take into account any relevant planning document recognised by an iwi authority and lodged with the Council, to the extent that it bears on the matters contained within PC1.¹¹⁴ Council Officers provided us with a high level review of relevant matters in the available Iwi Management Plans under cover of a Memorandum dated 5 July 2019. It was evident from that review that the Iwi Management Plans exhibit significant overlaps with Te Ture Whaimana. It is useful, nevertheless, to summarise the key matters raised in each Plan (as identified by Council Officers). This is particularly the case in relation to the Hauraki Iwi who did not

¹¹² Dr Daniel, Block 1 evidence at 4.1.7.

¹¹³ Ibid at 4.1.9.

¹¹⁴ Refer section 66(2A).

appear and give evidence to flesh out their particular perspective on management of the water resources of the Waikato and Waipā River catchments.¹¹⁵

404. We divide the Plan points by iwi, set out in alphabetical order, as follows:

Hauraki:

- Kaitiakitanga is important to achieve actions valued by Hauraki Whānui;
- Protect and restore wetland habitats and ecosystems;
- Riparian margins of rivers and streams are restored and protected;
- Ancestral taonga are protected from the impacts of growth;
- Sustainable land use and energy efficiency practices is [sic] standard practice;
- Promote and encourage sustainable water use practices;
- Restore and increase īnanga spawning. Increase populations of fisheries, birds and plant resources. Tuna is an important food source for Hauraki Whānui;
- It is important to have places for the gathering of food, collection and preparation of rongoā and weaving materials;
- Monitor fisheries health and recovery and ensure improved water quality;
- Wāhi tapu and cultural heritage sites are being protected from use and development.

Ngāti Maniapoto:

- Freshwater (Wai ora, wai Māori, wai kino, wai mate);
- Restoration of mauri and protection of te mana o te wai;
- Restoration and maintenance of healthy populations of indigenous aquatic life;
- Management of allocation ensures restoration and protection of the water quality;
- Healthy ecosystems, management of sediment, natural form and character are restored and protected;
- The relationship between Maniapoto and the water is enhanced and protected;
- The mauri and mana of the water provides sustenance, including physical and spiritual nourishment;
- Recognise and protect Maniapoto access to and ability to undertake traditional activities and uses;
- Wetland restoration and protection.

¹¹⁵ Ngāti Hauā did not formally appear before us, but the substantive elements of its submission were identical to those of a number of iwi who did appear and we noted that Ms Schaafhansen, who gave evidence for Waikato-Tainui, described her home marae as being located in the heart of the tribal boundary of Ngāti Hauā.

Ngāti Hauā:

- A more integrated holistic and collective approach to sustainable land use development and management;
- The health and wellbeing of freshwater resources is inherently connected to the health of the whenua and the health and wellbeing of the community;
- Ensure the mauri of freshwater is restored and protected. Ensure water is plentiful and clean enough for drinking, swimming and sustaining mahinga kai;
- Water allocation is sustainable and consistent with the natural limits of the rivers, streams and aquifers. Water should be allocated fairly and used efficiently and responsibly;
- Waterways are accessible for customary use;
- Recognition of Ngāti Hauā values, interests and mātauranga in relation to fresh water planning and management;
- Protection and revitalisation of traditional knowledge and practices, regarding rivers, streams, aquifers and freshwater fisheries;
- Work collaboratively to ensure a holistic and integrated approach is taken to restoring the mauri of freshwater;
- Protect, restore and enhance the mauri of wetlands;
- Ensure freshwater fisheries are restored, sustainably managed and enhanced;
- Restore and protect identified/mapped sites and areas of cultural significance;
- Recognition of culture and traditions associated with ancestral lands, water, sites, wāhi tapu and other taonga.

Ngati Tahu-Ngati Whaoa

- Iwi have rights to/over water including groundwater, rivers, lakes, tributaries and beds of waterways;
- The Waikato River should not be expected to absorb any further degradation and it should be swimmable and support healthy kai along its whole length;
- Ensure iwi involvement in monitoring, consents, plans and restoration projects, including rangatahi wherever possible. Management should be integrated and reflect the Māori world-view;
- Protect headwater and strengthen linkages to the Waikato River;
 - Reinstate ecosystems and natural processes, protect sites of significance and traditional activity as well as enhancing water quality. Waterways

each have their own mauri and should not be mixed, human sewage should not enter waterways;

- Vegetated riparian margins should be reinstated;
- Wetland restoration and protection. Access and harvesting rights are important to enable iwi to make use of wetland and freshwater resources;
- Ensure involvement in managing commercial fishing and customary takes, to ensure the sustainable kai resources are available.

Ngāti Tūwharetoa:

- Assert and exercise rangatiratanga and kaitiakitanga over waters within the Tūwharetoa rohe;
- Protect and enhance the mauri for future generations;
- Advocate the protection of mauri of water through effective policy and planning instruments;
- Prohibit all discharge of human waste directly into waterways and promote effluent treatment acceptable to ngā hapū;
- Encourage the implementation of land-based disposal systems e.g. dairy farm effluent;
- Support proposals that seek hapū involvement to improve water quality and promote efficient use of water quantity;
- Protection and enhancement of fisheries in accordance with tikanga and kawa;
- The ability to swim safely is important.

Raukawa:

- Water is not separate from people, it is not separate from its surrounds and therefore cannot be separated, or assessed in isolation, from the environment as a total entity;
- Regard all water as a connected and living entity, such as constituent parts, intrinsic values and meta-physical being;
- All water bodies are significant within the Raukawa Takiwa, and the mauri and mana of our water bodies and all catchments are sustained and enhanced for present and future generations;
- Ecosystems and riparian margins are healthy, diverse and resilient;
- Water bodies are accessible and safe to swim in, and take food from, all year round. Identification of mahinga kai species.

Te Arawa:

- Rejuvenate and restore the mauri of the Waikato River, to be progressive and innovative in our approach, to work collaboratively, and hold steadfast to those things that are important and make us unique;
- Support Te Arawa collectively and individually to assert mana awa and improve the health and wellbeing of the Waikato River, tributaries and environments;
- Enable participation in the restoration and protection of the water and implement measures to restore and protect the water;
- Interests and values of the Waikato River to Te Arawa are recognised;
- Ensure the health and wellbeing of the Waikato River provides for mahinga kai, freshwater fisheries and customary resources, access for customary use, protection of riparian margins, wetlands, lakes and mahinga kai resources;
- Identification of customary taonga species, non-taonga species and unwanted fish in the Waikato River, between Atiamuri Dam and Huka Falls including all tributaries;
- Swimming is regarded as part of re-invigorating the relationship between the iwi and the streams and rivers.

Waikato-Tainui:

- Te Ture Whaimana prevails in any resource management, use and activity within the Waikato River catchment in the Waikato-Tainui rohe;
- Freshwater (Wai ora, wai Māori, wai kino, wai mate);
- The relationship between Waikato-Tainui and the water;
- Water quality;
- Wetland restoration and protection;
- Historical significance of fisheries taonga to Waikato-Tainui;
- The importance of Tuna to Waikato-Tainui;
- Waikato-Tainui aspires to have waters that are drinkable, swimmable, and fishable with the water quality at least at the level Kiingi Taawhiao would have expected in his time.

Section 32 Evaluation

405. As already noted, we are required by section 66(1)(e) to give particular regard to the section 32 evaluations prepared to support PC1. These are substantial documents that extensively cross reference the voluminous bundle material prepared to support

the CSG process. Rather than seeking to summarise the section 32 evaluations, therefore, we refer to relevant aspects in the course of our reports.

406. We should record at this point, however, that the content of section 32 evaluations was the subject of significant criticism in the hearing of PC1. Mr Okell, for instance, described the principal report as more of an index than an evaluation.
407. While we consider that description a little harsh, the principal section 32 evaluation suffered from being written after all the key decisions as to Plan content had been made in the CSG process. That reflected, in particular, in the limited consideration of alternatives that was the subject of criticism from a number of submitters. Mr Reeves provided us with a critique of the section 32 evaluation in this and a number of other respects.¹¹⁶
408. Both the technical and economic analysis underpinning the section 32 analysis were also the subject of criticism by a number of expert witnesses, many of whom presented competing opinions. While Dr Cooper provided us with an overview of the TLG process in his Block 1 evidence, as he noted, over 40 reports were prepared by more than 20 organisations and 75 experts. It was unreasonable to expect Dr Cooper to cover the entire range of issues canvassed in the background reports in any detail. The reports necessarily have to speak for themselves in that regard. We did, however, have the benefit of input from a wide range of technical experts both in their evidence, and in their Joint Witness Statement that we discuss in greater detail in section 8 of our report.
409. We also heard from Dr Doole, the principal author of the economic reports underpinning the section 32 evaluation, who gave evidence for DairyNZ. This assisted our understanding of the basis of those reports, better enabling us to assess their robustness in the light of evidence from the other economic experts we heard from.
410. Ultimately, while having particular regard to the section 32 evaluations as instructed by section 66(1)(e), we have given them such weight on specific aspects as we considered they deserved, having regard to the evidence we heard.

¹¹⁶ Mr James Reeves, Block 1 Statement of evidence on behalf of Mr J. Reeves and Ms A. Taylor, paragraphs 91-111.

4. PRELIMINARY LEGAL ISSUES

Land Use Controls or Discharge Controls or Both?

411. The focus of the notified objectives and (in particular) the policies of PC1 is on diffuse discharges of N, P, sediment and microbial pathogens. The rules seeking to implement those policies focus on the use of land for farming activities (or a subset thereof) “and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water”.
412. In RMA terms, the objectives and policies appear to be written in terms that respond to section 15 of the Act. The Rules, however, are written as a hybrid incorporating the land use components in terms of section 9(3) and discharge components in terms of section 15.
413. These differences give rise to a number of related legal questions:
- What exactly is PC1 trying to manage – land uses or discharges?
 - Is the apparent inconsistency between the objectives and policies on the one hand, and the rules on the other, an issue?
 - For the rules specifying a consent status other than permitted, what sort of consent do the rules envisage being granted - is it a land use consent, a discharge permit, or both?
 - Is it legally appropriate to have hybrid rules of this kind?
 - Does the application of section 70 of the RMA have a bearing on any of the above?
414. In addition to the above questions, we also note the submission of HortNZ that it is desirable to provide separate discharge rules in order to provide a mechanism for the transfer of resource consents from site to site necessary to enable the rotation of CVP. We were told by a number of CVP growers that such rotations are essential to optimise production and minimise disease. Transfer of land use consents is not possible as, pursuant to section 134 of the RMA, such consents attach to and run with the land to which they relate.
415. Having recommended in the Block 2, section 42A Report¹¹⁷ that all the current rules be section 9 “land use” rules with a separate rule for the associated section 15 ‘discharges’

¹¹⁷ At paragraph 299.

(i.e. accepting the HortNZ submission), the Officers' final recommendation was essentially to revert to the approach of the notified Plan.

416. A contrary position was put to us by counsel for WPL who submitted to us¹¹⁸ that diffuse discharges from farming activities cannot be addressed by a rule under section 15 of the RMA. Counsel relied on the decision of the Board of Inquiry into the Tukituki Catchment Proposal¹¹⁹ for this proposition.
417. We do not find the paragraph of the Tukituki Board of Inquiry Decision relied upon to be authority for the proposition advanced. It appeared to us, as we think Dr Somerville QC acknowledged, that the Board of Inquiry was not saying that diffuse discharges from farming activities **could not** be addressed by a section 15 Rule. Rather, the Board of Inquiry was setting out its view as to the reasons why individual farmers **should not** be required to obtain consents to meet an instream DIN concentration limit, by reason principally of the difficulty in establishing the inter-relationship between whatever the individual farmer was doing and instream DIN concentrations. In other words, it was expressing a view on the merits of having such a rule.
418. Counsel for WPL sought also to rely on the fact that Tukituki Plan Change 6 does not include express provision for diffuse discharges. It imposes regional rules governing production land use activities. Again, we do not find this particularly helpful, because the Board of Inquiry did not, as far as we can see, discuss whether framing the rules in this manner authorised any associated diffuse discharges. Certainly, the rules do not say they do so. As such, if such diffuse discharges are correctly classified as the discharge by a person of a contaminant into water or of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water, it is questionable whether such discharges would be considered to be "*expressly allowed*" by those rules, as required by section 15(1).
419. PC1 defines "*diffuse discharges*" to mean "*the discharge of contaminants that results from land use activities including cropping and the grazing of livestock and includes non-point source discharges*". It would appear from the way this definition is framed that the authors of PC1 considered (or perhaps assumed) that cropping and the grazing of livestock at least involves discharges in terms of section 15(1).

¹¹⁸ WPL Block 2 legal submissions at [39].

¹¹⁹ Final Report and Decisions of the Board of Inquiry into the Tukituki Catchment Proposal, June 2014 at [449].

420. It is not clear that this is the case. Taking grazing of livestock, Dr Somerville QC, counsel for WPL, submitted to us that the act of cattle defecating or urinating on farm paddocks is not a discharge for the purposes of section 15. That view is supported by the Environment Court's decision in *Marlborough District Council v Awarua Farm (Marlborough) Limited*.¹²⁰ The Court there described defecation or urinating by stock on paddocks as a natural occurrence that is neither intended nor permitted by the landowner.¹²¹
421. We note that in that case, the Court went on to say that if stock effluent is concentrated or ponded, either intentionally or by failing to maintain adequate feed pads, stock races and the like, that can lead to an accumulation of material which constitutes a contaminant discharge for the purposes of section 15 of the RMA.
422. A different division of the Environment Court doubted whether even the general proposition set out above was correct in *P&E Limited v Canterbury Regional Council*.¹²² The Environment Court described the High Court's decision as obiter and "*possibly.... per incuriam*."¹²³ Given both Courts in the *Awarua Farm* case found the RMA to have been breached, we agree with the first observation. We express no opinion on the second. The Environment Court in *P&E Limited* stopped short of making a definitive finding on the basis that given the terms of the then proposed Land and Water Regional Plan for Canterbury, the point was not necessary to decide.
423. The Environment Court similarly declined to make a definitive finding in its decision on Variation 5 to the Proposed Waikato Regional Plan, governing nutrients within the Lake Taupō Catchment.¹²⁴ The Court noted that a finding that non-point source discharges arising from pastoral farming are discharges under section 15(1)(b) would have significant implications both for farmers and regional councils throughout New Zealand. It therefore needed to have been raised squarely by way of an application for a declaration in order that it might properly be considered.¹²⁵
424. As far as we are aware, there is no more recent case authoritatively determining the point. Although the Environment Court's decision in *P&E Limited* noted advice from counsel for Royal Forest and Bird Protection Society that it was applying to the High Court for a declaration that would resolve the issue, this does not appear to have been

¹²⁰ [2013] NZEnvC.

¹²¹ Upheld in the High Court – [2014] NZHC 2264 at [50].

¹²² [2015] NZEnvC 106.

¹²³ *Ibid* at [38].

¹²⁴ *Carter Holt Harvey Limited v Waikato Regional Council* Environment Court Decision A123/2008.

¹²⁵ *Ibid* at [175].

done, or at least, if proceedings were filed, they did not reach the stage of a decision having been released.

425. We take the view that if the Environment Court was reluctant to determine this issue in the context of a Plan Change, because of its significance to the farming community generally, and New Zealand as a whole, that means that we likewise should proceed with caution. We think a cautious approach must necessarily take account of the possibility that stock ‘discharges’ are discharges by the stock owner for the purposes of section 15. That means, in our view, that they should desirably be expressly allowed by a rule in a Regional Plan or a resource consent to remove the possibility that they might subsequently be held to be illegal under the RMA.
426. There were two options as to how this might be done. The first is the “hybrid” approach in the notified PC1, and supported ultimately in the Officers’ closing statement, whereby rules relate both to farming land uses and any associated discharges. The second is the approach favoured in Variation 5, whereby there is a separate discharge rule, linked to the grant of a land use consent.
427. As already noted, the latter approach was supported by HortNZ. However, the reason for that support appears to be so that CVP growers might have greater leverage when negotiating lease arrangements with landowners to permit rotational CVP growing.
428. We put such considerations to one side. While we accept there are practical implications for the commercial arrangements CVP growers make with landowners, we do not regard them as RMA issues. We are also conscious that we have only heard from the CVP growers and not from the landowners who lease them their land.
429. Lastly, we note that HortNZ appears to have resiled from the point because the marked up version of PC1 provided in HortNZ’s closing statement contained hybrid land use/discharge rules. The only separate diffuse discharge rule proposed related to catchment collectives.
430. Less easily put to one side, however, the Environment Court’s Variation 5 decision considered this specific issue and made a clear finding that discharge rules should be clearly differentiated from land use rules in the context of its Variation 5 decision.
431. The reasons given by the Court¹²⁶ stemmed from a view that combining discharge permits and land use rules within the same rule could create administrative difficulties

¹²⁶ A123/2008 at [196].

for processing of and decisions on resource consent applications. The Court specifically noted administrative provisions extinguishing land use consents from discharge permits, including:

- (i) Section 9(3) creates a presumption that the land may be used unless a Regional Plan provides otherwise. By contrast, section 15(1) prohibits discharges unless allowed by a Regional Plan or resource consent;
- (ii) Sections 105, 107 and 108(8) describe matters relevant to discharge applications and restrictions on their grant. These sections do not apply to land use consents;
- (iii) Section 108(2)(e) specifically allows the imposition of a condition on a discharge permit requiring the holder to adopt the best practicable option, no corresponding provision exists for land use consents;
- (iv) The default duration for land use consents is unlimited, whereas the default duration for a discharge permit is 5 years (for the maximum duration of 35 years);
- (v) Land use consents are attached to the land, whereas discharge permits may be transferred in certain circumstances;
- (vi) section 128(1)(b) enables the review of a discharge permit to meet, among other things, the standards of water quality promulgated in an operative Regional Plan. No such review applies to a land use consent.

432. While we of course respect the authority of the Environment Court, we wonder just how relevant the supposed administrative hurdles actually are to the formulation of rules. Thus, commenting on the specific points that that Environment Court accepted were relevant, we note:

- (i) We do not see what ongoing relevance the different presumptions between section 9(3) and section 15 have once land use rules have been promulgated;
- (ii) Insofar as hybrid rule contains discharge elements, the requirements of sections 105, 107 and 108 would still have to be met;
- (iii) While section 108(2)(e) specifically allows the imposition of a BPO condition on a discharge permit, the rationale for land use rules for production land use activities is to prevent or minimise adverse effects on water quality. Accordingly, conditions on the land use consent might be very similar to a BPO condition;

- (iv) While the duration provision is different, as we will discuss, the policy regime in PC1 specifically envisages land use consents granted under it being subject to a finite duration substantially less than 35 years;
 - (v) While the provisions regarding transfer are different for land use consents and discharge permits, the regime put in place by PC1 necessarily requires integrated management of both land use and diffuse discharges. Whatever form the rules take, a landowner will need both land use consents and consent for any diffuse discharges falling within section 15;
 - (vi) While section 128(1)(b) does not apply to land use consents, section 128(1)(bb), inserted in 2017, enables consent condition reviews in the case of a land use consent in relation to a relevant regional rule. Accordingly, PC1 will be implemented in an environment where consent condition reviews of both the land use and discharge component of any hybrid rule would potentially be the subject of review in the case of subsequently imposed regional rules.
433. In addition, if hybrid rules would truly propose an administrative problem for the Council, we would have expected the Officers to have drawn those issues to our attention at the very least before recommending such rules in closing. We note also that Counsel for Fish and Game, Ms Ongley, submitted¹²⁷ that a hybrid rule reflected practical reality and advised that Fish and Game did not accept they create particular administrative or practical problems.
434. Consistent with that view, we note that most other parties who presented closing submissions including marked up versions of PC1 adopted the hybrid model.
435. We also think it needs to be borne in mind that whatever view one might take of stock-related contaminants, there are clearly other land use activities that occur on farms that impact water quality, which one would not normally classify as involving a “*discharge*”.
436. Thus, at Block 1 we asked Mr Keenan, who gave evidence for HortNZ, exactly what the sources of nitrogen were from a CVP operation. Putting aside the application of nitrogenous fertiliser, which might reasonably be regarded as a discharge,¹²⁸ Mr Keenan identified mineralisation of nitrogen in the soil that results from cultivation. We have difficulty classifying that as a discharge.

¹²⁷ Ms Ongley, Block 2 legal submissions -paragraph 6.5.

¹²⁸ Although query whether it is a diffuse discharge as defined, given the evidence we heard as to the precision with which CVP growers apply nitrogen to the land.

437. Similarly, there are many pathways by which sediment reaches water courses that we struggle to classify as “*discharges*”. Erosion of hillsides may be associated with farming uses, but it seems a stretch to describe the farmer as allowing the sediment to escape. Still more so if the erosion occurs on riverbanks (and is contributed to by the actions of koi carp).
438. Te Ture Whaimana directs the integrated, holistic and co-ordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River.¹²⁹ We consider it artificial to separate land uses from associated diffuse discharges. We therefore agree with the submission for Fish and Game in that regard.
439. Last, but not least, we consider that separating discharges into a separate rule introduces problems of its own that the Environment Court did not appear to consider in its Variation 5 decision. The key consideration in any consent process is identification and evaluation of the effects of the activity. The Tukituki Board of Inquiry decision identified some of the problems trying to assess the effects of diffuse discharges associated with a single farm property.¹³⁰ We do not consider that those problems are assisted by separating diffuse discharges from the land uses to which they relate, particularly given the uncertainty as to what might be considered a “*discharge*” in this context.
440. Nor is this clearly required in our view. Counsel for Federated Farmers, Mr Meier, drew the decision of the Court of Appeal in *Brook Valley Community Group Inc v Brook Waimarama Sanctuary Trust*¹³¹ to our attention. That case involved discharge of contaminants to land, and the question before the Court was whether consent was required under both section 9 and section 13. The Court found that other than in the case where there are relevant overlapping functions of different consent authorities, there was no legislative intention to require the same action to be considered twice.¹³²
441. Taking contamination of waterways as a result of stock grazing as an example, we see any resulting “*discharge*” as being part of the activity of bringing stock onto the land and allowing them to graze thereon. The same local authority is managing both aspects in this case. *Brook Valley* is therefore authority that it does not have to be consented twice, under different rules.

¹²⁹ Objective (e).

¹³⁰ Counsel for WPL drew to our attention the decision in *Mawhinney v Auckland Council* [2017] NZEnvC 162 at [158], where the Court noted a general preference to control non-point discharges (in that case of sediment) through land use rules, for similar reasons.

¹³¹ [2018] NZCA 573.

¹³² *Ibid* at [79].

442. Mr Meier submitted that the safest course is to have a hybrid rule clearly capturing both elements. Counsel for Beef and Lamb, Mr Thomsen, made a similar submission – that while the primary focus should be on the use of land, the defined activity needs to clearly include associated diffuse discharges.
443. In summary, we consider that there is merit in a hybrid approach, ensuring that land uses and any associated diffuse discharges are considered together in one rule.
444. Having reached that conclusion, and for much the same reasons, we think it important to reshape the objectives and policies so that they are consistent with this approach, namely that they focus on land uses, including any associated diffuse discharges.
445. Lastly, we should discuss the potential relevance of section 70. Section 70 precludes permitted activities allowing discharges that have certain effects, either by themselves or in combination with the same, similar or other contaminants. We note in particular (g), “*any significant adverse effects on aquatic life*”.
446. Dr Somerville QC suggested for WPL that utilising land use rules would avoid the need to consider the potential implication of section 70. If the land use rules solely governed land uses and did not authorise discharges, we would be inclined to agree with Dr Somerville. As it is, however, having decided that it is necessary to specifically refer to associated discharges in order to avoid creating a hole in the regulatory coverage provided by PC1, which might leave farmers either operating illegally or needing to apply for discharge permits that PC1 does not have rules for (i.e. innominate activities), we think it must follow that section 70 applies. This then raises the question as to whether any diffuse discharges, properly so called, may have the prescribed effect “*in the receiving waters, after reasonable mixing, as a result of the discharge of contaminant (either by itself or in combination with the same, similar or other contaminants)*”.
447. Mr Matheson, counsel for Fonterra, suggested to us that section 70 did not contemplate diffuse discharges.¹³³ He may well be correct that the drafters of the RMA did not have such discharges in their contemplation, but if diffuse discharges fall properly within section 15 (which we have concluded is a possibility we need to take account of, notwithstanding the *Awarua Farm* decisions to the contrary), section 70 will nevertheless apply.

¹³³ Counsel for Forest and Bird, Mr Anderson, expressed a similar view.

448. This raises further the question of what might be considered the “*receiving waters*” for the purposes of section 70 and what evidence we might have of the potential for any significant adverse effects on aquatic life occurring in those waters.¹³⁴
449. Taking the position as at the date of hearing and looking forward, we had evidence from expert witnesses appearing on behalf of the DoC, of the potential for such significant adverse effects, particularly in riverine and peat lakes that were described as close to “flipping” into an unsatisfactory state, dominated by phytoplankton¹³⁵.
450. If those lakes were the “receiving waters” for diffuse discharges upstream, then section 70 would preclude any permitted activities allowing such discharges.
451. Mr Matheson, however, submitted that the “*receiving waters*” did not extend downstream from a diffuse discharge. He referred us to the Board of Inquiry decision on the King Salmon applications in which the Board stated that “*receiving waters*” are “*well understood to be the waters at the point of discharge.*”¹³⁶ While Mr Matheson could not refer us to any other authorities demonstrating the extent of this understanding, we are not aware of any authority holding to the contrary, and that Board was chaired by Retired Judge Whiting who was eminently well qualified to speak authoritatively as to the understanding of the application of the RMA.
452. Ms Chappell, counsel for Oji and Hancock, took issue with Mr Matheson on this point. She noted that the Board of Inquiry’s decision related to the application of section 107 in the marine environment. Both points are correct. We do not agree with Ms Chappell, however, that the Board of Inquiry’s observation does not assist. The wording of section 107 is identical to that of section 70 in this regard and it serves a similar purpose, namely to constrain discharges with unacceptable effects. Similarly, the fact that the decision related to the marine environment does not appear to us to be a material distinction.
453. Lastly, while the Board of Inquiry could have expressed itself more narrowly, and said just that receiving waters do not include the seabed, it did not do so. Observing that receiving waters are at the point of discharge was part of its reasoning. It was clearly carefully considered and not, as Ms Chappell implied, a throwaway obiter comment.

¹³⁴ Together with the other four elements of section 70: being the production of conspicuous oil or grease films, scums or foams, or floatable suspended materials, any conspicuous change in the colour or visual clarity, any emission of objectionable odour and the rendering of fresh water unsuitable for consumption by farm animals.

¹³⁵ E.g. Dr Phillips presentation on 18 July 2019.

¹³⁶ Board of Inquiry Final Report and Decision New Zealand King Salmon Request for Plan Changes and Applications for Resource Consents 22 February 2013 at [1307].

454. Ms Chappell referred us also to a decision of the High Court, in *Taranaki Regional Council v Works Infrastructure Limited*,¹³⁷ where the Court was considering a discharge alleged to be from industrial and trade premises. The discharge occurred at a distance from those premises and the Court referred to the location of the discharge as being “*the receiving land*”, holding that the two need not be contiguous.
455. As Ms Chappell noted, the word “*receiving*” was not used in this section and was not being interpreted by the Court. The Court referred to it as a shorthand description of the location of the discharge. For the purposes of the offence, the focus was on where the discharge was “*from*” not where it was “*to*”.
456. Accordingly, we do not regard the High Court’s decision as casting doubt on the King Salmon Board of Inquiry’s interpretation of “receiving waters”.
457. Nor do we think that the interpretation is unreasonable or contrary to the purpose of the section. As soon as one moves beyond the point of discharge, the question is how far you go from there. Is a farm contributing a small volume of N into Lake Aratiatia, at the upstream end of the catchment area covered by PC1, unable to be considered as a permitted activity because of adverse effects that N may have in combination with N contributed by thousands of other farms to the catchment at the mouth of the Waikato River several hundred kilometres away?
458. As Mr Meier submitted for Federated Farmers, we do not see that water quality so far away should matter.
459. Moreover, if this were not correct, we tend to agree with Mr Anderson, counsel for Forest and Bird, who told us the section would be almost unworkable when applied to diffuse discharges.
460. In summary, we accept Mr Matheson’s submission and will apply section 70 on that basis.

Scope of PC1 – Additional Attributes

461. Objectives 1 and 3 of the notified PC1 refer to reductions in N and P sediment and *E. coli* to achieve targets in Table 3.11-1. That table lists numerical values described as attributes across a range of parameters:

- Chlorophyll-a (annual median and maximum);

¹³⁷ (2002) 8 ELRNZ 75.

- TN (annual median);
- TP (annual median);
- Nitrate (annual median and 95th percentile);
- Ammonia (annual median and maximum);
- *E. coli* (95th percentile);
- Clarity.

462. Most of those parameters apply at all identified monitoring points. The exceptions are chlorophyll-a, TN and TP values that apply only in the Waikato River mainstem.
463. A number of submissions sought to expand the range of attributes specified in PC1. DoC, for instance, sought the addition of targets for suspended sediment and deposited fine sediment. Forest and Bird's submission sought addition of attributes for natural character, DO, Te Hauora o te Taiao/the health and mauri of the environment, MCI, periphyton, cyanobacteria, benthic cyanobacteria, DIN, temperature, pH, toxic heavy metals, barriers to fish migration, and water flows and levels. Forest and Bird also sought TN and TP values in the tributaries/sub-catchments (that is to say an expansion of coverage beyond the Waikato mainstem). WPL sought specification of contaminant loads at sub-catchment level.¹³⁸
464. In the Block 2 hearings, Counsel for Mercury NZ Limited, Ms Lampitt submitted that any submissions seeking expansion of the attributes specified in Table 3.11-1 were beyond the scope of PC1 and, accordingly, could not be considered.
465. Counsel for a number of parties joined issue on the argument put to us by Ms Lampitt, some in support and some in opposition. It is accordingly important that we form a clear view on what exactly is the scope of PC1, in order that we can put to one side any submissions not able to be considered because they fall outside that scope.
466. The starting point is to review the relevant cases which should guide our examination of this issue. There are a series of cases examining the limits of submissions that may be made on a Plan Change. The two leading cases are decisions of the High Court, the first in *Clearwater Resort Limited v Christchurch City Council*¹³⁹ and the second, *Palmerston North City Council v Motor Machinists Limited*.¹⁴⁰

¹³⁸ When WPL appeared, we were told that it was seeking specification of contaminant loads as well as, not instead of contaminant concentrations.

¹³⁹ AP34/02 (William Young J).

¹⁴⁰ 2013] NZHC 1290 (Kos J).

467. In *Clearwater*, William Young J posed the question as being whether a submission is “on” a variation.¹⁴¹ He rejected an argument that a submission might raise points that were “in connection with” a variation and instead imposed a twofold test¹⁴² as follows:
- “1. A submission can only fairly be regarded as “on” a variation if it is addressed to the extent to which the variation changes the pre-existing status quo.
 2. But if the effect of regarding a submission as “on” a variation would be to permit a planning instrument to be appreciably amended without real opportunity for participation by those potentially affected, this is a powerful consideration against any argument that the submission is truly “on” the variation.”
468. His Honour described the first test as being in conformity of the scheme of the RMA insofar as it contemplates a progressive and orderly resolution to issues associated with the development of proposed plans.
469. William Young J described the second test as designed to catch situations where the process of submissions and cross-submissions is not sufficient to ensure that all those likely to be affected by or interested in an alternative method suggested in a submission have had an opportunity to participate. He described, for instance, the situation where a proposition advanced by a submitter can be regarded as coming out of “left field”, so that there is little or no real scope for public participation. In that case, William Young J was of the view that it was appropriate to be cautious before concluding that the submission is truly “on” the variation.
470. The subject matter of *Clearwater* was noise contour lines around Christchurch Airport. The variation did not change the location of the noise contour lines from that in the Proposed Plan. It did, however, change the function of one of the contour lines in a manner that enlarged the class of people with an interest in that line. Accordingly, William Young J held that submissions related to the first noise contour were “on” the variation. The same was not the case for the second contour line and William Young J ruled that submissions related to it could not be pursued in the Environment Court.
471. The second decision related to a Plan Change of the Palmerston North City Plan. It was proposed to rezone an area in the central city. The submitter sought rezoning of a site outside the identified area.

¹⁴¹ *Clearwater* involved a variation to the Proposed Christchurch City Plan.
¹⁴² AP34/02 at [66].

472. Kos J expressed disapproval of an intervening Environment Court decision purporting to place a gloss on the *Clearwater* decision (and accepting fair and reasonable extensions to a notified variation or plan change) that would, in his words, have departed from the approach approved by William Young J “*towards the second of the three constructions considered by him, but which he expressly disapproved*”. Kos J confirmed that the correct position remains as stated in *Clearwater*, but also provided some helpful guidance as to how that test might be applied. His Honour drew attention, in particular, to the importance of the section 32 evaluation as something that persons affected by a Proposed Plan Change are entitled to have resort to, to see the justification of it for the change having regard to all feasible alternatives. In His Honour’s view:¹⁴³

“Further variations advanced by way of submission, to be “on” the Proposed Change, should be adequately assessed already in that evaluation. If not, then they are unlikely to meet the first limb in Clearwater.”

473. Discussing the second limb, Kos J emphasised the procedural and substantive safeguards contained in the requirements for preparation of plan changes, contrasting them with the First Schedule submission process, which in his view lacked those procedural and substantive safeguards. He agreed with counsel for the City Council in particular that a submission on a Plan Change “*is not designed as a vehicle to make significant changes to the management regime applying to a resource not already addressed by the Plan Change.*”¹⁴⁴

474. Kos J further described the first limb in *Clearwater* as a filter based on direct connection between the submission and the degree of notified change proposed to the extant plan. He said it was the dominant consideration involving two aspects:

*“The breadth of alteration to the status quo entailed in the Proposed Plan Change, and whether the submission then addresses that alteration.”*¹⁴⁵

475. In the following paragraph, His Honour stated:

“One way of analysing that is to ask whether the submission raises matters that should have been addressed in the s32 evaluation and report. If so, the submission is unlikely to fall within the ambit of the plan change. Another is to ask whether the management regime in a district plan for a particular resource (such as a particular lot) is altered by

¹⁴³ At [76].

¹⁴⁴ At [79].

¹⁴⁵ At [80].

the plan change. If it is not then a submission seeking a new management regime for that resource is unlikely to be “on” the Plan Change.... Yet the Clearwater approach does not exclude altogether the zoning extension by submission. Incidental or consequential extensions of zoning changes proposed in a plan change are permissible, provided that no substantial further s32 analysis is required to inform affected persons of the comparative merits of that change. Such consequential modifications are permitted to be made by decisionmakers under schedule 1, clause 10(2). Logically they may also be the subject of submission.”

476. Addressing the second limb in *Clearwater*, Kos J was of the view that overriding “the reasonable interests of people and communities by a submissional side-wind would not be robust, sustainable management of natural resources.”¹⁴⁶
477. Kos J observed that there is less risk of offending the second limb in the event of consequential or incidental zoning changes that are adequately assessed in the existing section 32 analysis.
478. The suggested rezoning failed these tests. It was disconnected from the primary focus of the Plan Change and there was a real risk, in Kos J’s view, that adjacent landowners might have been “*left out in the cold*”. Using the language of *Clearwater*, rezoning of two isolated lots in a separate street could be said to “*come from left field*”.
479. We note also the helpful discussion of these tests in *Bluehaven Management Limited v Western Bay of Plenty District Council*,¹⁴⁷ as follows:
- “...one might also ask, in the context of the first limb of the Clearwater test, whether the submission under consideration seeks to substantially alter or add to the relevant objective(s) of the plan change, or whether it only proposes an alternative policy or method to achieve any relevant objective in a way that is not radically different from what could be contemplated as resulting from the notified plan change. The principles established by the decisions of the High Court discussed above would suggest that submissions seeking some major alterations to the objectives of a proposed plan change would likely not be “on” that proposal, while alterations to policies and methods within the framework of the objectives may be within the scope of the proposal.”*
480. The Environment Court considered these issues also in *Hawke’s Bay Fish and Game Council v Hawkes Bay Regional Council*.¹⁴⁸ In that case, the Court found that neither

¹⁴⁶ Ibid at [82].

¹⁴⁷ [2016] NZEnvC 191 at [37].

¹⁴⁸ [2017] NZEnvC 187.

the section 32 Report nor the public notice of a Plan Change are determinative of scope, but each is a document that can assist interpretation of the intention of the notified Plan Change.¹⁴⁹

481. As regards the section 32 Report specifically, the Court found, having referred to Kos J's decision in *Motor Machinists*, that the section 32 Report does not purport to fix the final frame of an instrument as a whole, nor any individual provision. Accordingly, it can be an indicator of the scope of the notified instrument where it is ambiguous or unclear on its face, but it is not determinative of what the instrument intends.¹⁵⁰ The decision in *Mackenzie v Tasman District Council*¹⁵¹ is to similar effect: there the High Court approved a statement in the decision under appeal to the effect that the s32 evaluation is not a test in its own right, but rather a means of analysing the status quo at issue.
482. Returning to the *Hawke's Bay* case, the Court found also that "*the public notice is a document directly relevant to the procedural fairness dimension of the test in Clearwater and, therefore, to determining whether a submission is "on" a Plan Change.*"¹⁵²
483. Once again, however, the Environment Court stated that the public notice cannot change the plain ordinary meaning of a notified change.
484. Lastly, we should record that we asked Ms Lampitt whether the decision of Whata J in *Albany North Landowners v Auckland Council*¹⁵³ sheds any light on the scope issues she was pursuing. In Counsel's Memorandum dated 2 April 2019, our attention was drawn to a paragraph in Whata J's decision noting the breadth of the Auckland Unitary Plan that was the subject of appeals compared to the relatively discrete variations or plan changes in *Clearwater* and *Motor Machinists* and observing that the scope for a coherent submission being on the Unitary Plan was therefore very wide.¹⁵⁴
485. We accept Counsel's point, that Whata J's decision is therefore of limited assistance, but we consider the description of PC1 in counsel's memorandum as being relatively discrete and subject-specific as somewhat questionable. We think it lies somewhere between the all-encompassing Auckland Unitary Plan and the very narrow land use

¹⁴⁹ Ibid at [42].

¹⁵⁰ Ibid at [44].

¹⁵¹ [2018] NZHC 2304 at [100].

¹⁵² Ibid at [46].

¹⁵³ [2017] NZHC 138.

¹⁵⁴ Ibid at [129].

planning issues that the High Court was considering in *Clearwater* and *Motor Machinists*.

486. Applying the relevant principles, Ms Lampitt submitted that the water quality attributes proposed in PC1 were identified through a robust and iterative process that considered the NPS-FM (2014 version) and resulted in the attributes sought to be added by submitters not forming part of PC1 as notified.
487. Counsel further drew our attention to the absence of any in-depth assessment of the potential for those attributes to be added to PC1 through the section 32 Report which, for example, did not consider DIN, DRP, fine deposited sediment, pH range and toxins/metals, considered that MCI was not an appropriate attribute, and recorded that DO was only indirectly related to the four contaminants (i.e. N, P, sediment and microbial pathogens) and was considered out of scope.
488. Addressing the second limb of *Clearwater*, counsel emphasised the absence of any indication in PC1 as notified that additional attributes might be added. In her submission, seeking to incorporate further attributes via the submission process would mean that there is limited opportunity for all but the most well-resourced parties to consider and respond to those proposals. We observe that of all the parties we heard from, Mercury NZ Limited would be among the most well-resourced.
489. When counsel for Mercury NZ Limited reappeared in the Block 3 hearing, we took the opportunity to discuss with her the significance of the statement in *Motor Machinists* that incidental or consequential extensions of zoning changes are permissible. Ms Lampitt accepted that this was a broadening of the strict legal position as she had put it to us in Block 1, but fairly (in our view) emphasised the fact that Kos J's acceptance of such an expansion needed to be read alongside his rejection of a test that would enable amendments to be considered that were fair and reasonable extensions to a variation. Counsel for Federated Farmers, Mr Meier, also noted in his Block 3 submissions that Kos J's acceptance of consequential and incidental changes was qualified by a reference back to the section 32 evaluation: such changes could not require substantial further section 32 analysis. We agree that that too is a fair point.
490. We should also note other aspects of Mr Meier's submissions at this point. He emphasised the explanatory note to PC1 that specifically references N, P, sediment and microbial pathogens as the focus of the Plan Change.

491. In terms of the reference in *Motor Machinists* to the management regime altered. Mr Meier's submission was that the four contaminants noted in the explanatory note are the relevant management regime for this purpose.¹⁵⁵ In his submission, a submission that addresses the use of land in a way that directly relates to the four contaminants and/or a discharge of the four contaminants will be "on" PC1.¹⁵⁶
492. Mr Meier also directed our attention to the public notice of PC1 which, as he noted, was limited to the four contaminants. He submitted that was significant. However, as we pointed out to him, the letter WRC sent to affected parties was not framed in the same terms as the public notice. We were provided with a copy of both by WRC.
493. Comparing the two, the public notice stated:
- "Plan Change 1 aims to address nitrogen, phosphorus, sediment and bacteria that affect the water quality in the Waikato and Waipā River Catchments."*
494. The letter WRC sent out said:
- "The purpose of the Proposed Plan Change is to protect and restore water quality in the Waikato and Waipā River Catchments."*
495. The Officers advised us that that letter went to all WRC ratepayers and consent holders, among others.
496. When we pointed out the difference, Mr Meier observed that some people would not look at the letter and would go straight to the Council website. While we consider that a dubious proposition in point of fact, Mr Meier submitted that, in any event, such notices could only be indicators. We agree with that view, and with his further submission that the content of PC1 is the key consideration.
497. We should also note the evidence of Mr Eccles for Federated Farmers on this point. Mr Eccles drew our attention to a 2014 paper that had been prepared as part of the CSG process discussing the scope of PC1. He advised that this report had been prepared in consultation with the Iwi Co-Governors and was approved by resolution of the Council.

¹⁵⁵ Mr Meier, Block 3 Legal Submissions – paragraph 23.

¹⁵⁶ Ibid at [24].

498. This Report¹⁵⁷, describes a process starting with an initial focus on the effects of discharges to land and water in the Waikato and Waipā River catchments and then focusing on the biggest contributors to water quality decline, being nutrients, bacteria and sediment.
499. It defined the ‘content scope’ of the Project to be:
- *Promote the reduction, overtime, of sediment, bacteria and nutrients (nitrogen and phosphorus) entering waterways (and groundwater) in the Waikato and Waipā River Catchments.*
 - *This includes measures that do not specifically control discharges, but aim to mitigate the effects of discharges (i.e. riparian and wetland management).*
 - *To play a part in restoring and protecting the health and wellbeing of the rivers for current and future generations. Note that this project in itself is not aiming to ensure the regional plan in its entirety gives effect to the Vision and Strategy. Additionally, this project is only one of many measures WRC and other agencies are providing to give effect to the Vision and Strategy.”*
500. The Report noted further that reductions of the listed contaminants would improve habitat quality thereby going some way to enhancing ecology.
501. However, it stated that measures that might improve the amount of habitat available, but are not related to mitigating effects of the four key contaminants, measures aimed at habitat but unrelated to discharges, and water takes and use were specifically not included in the Project scope.
502. Mr Eccles characterised the section 32 assessment as being consistent with this approach in that there was no consideration of other water quality attributes or management actions other than on farm actions to reduce the four contaminants.
503. The submissions for Mercury NZ Limited and Federated Farmers were supported, in particular, by the submissions and evidence for Genesis Energy Limited and the Block 3 legal submissions for Fonterra. The principal concern for both of those parties was the suggested inclusion of a temperature attribute in PC1.

¹⁵⁷ Scope, goals and drivers of the Healthy Rivers: Plan for Change/Wai Ora: He Rautaki Whakapaipai Project prepared for collaborative Stakeholder Group Workshop 26-7 May 2014, WRC Document No. 30337840.

504. Putting the contrary argument, counsel for DoC, Ms Tumai, addressed the issue at some length.
505. In the Block 1 hearing, she submitted to us that the Mercury NZ Limited argument flies in the face of Parliament, because Te Ture Whaimana is the directing document.
506. When we queried where the line might be drawn given the broad ambit of Te Ture Whaimana, she suggested to us that PC1 relates to attributes that have a close connection, alternatively a direct link, to the contaminants that were notified.
507. These arguments were developed in Ms Tumai's Block 2 submissions. She drew out elements of PC1 supporting a submission that the Plan Change is concerned with implementation of Te Ture Whaimana, and is about the restoration and protection of the health and wellbeing of the rivers.¹⁵⁸
508. Addressing the leading cases, Ms Tumai noted that the High Court decision in *Clearwater* involved a variation rather than a plan change. While Ms Tumai did not seek to make anything of this fact, we should record that we do not accept it is of any relevance given Kos J's confirmation and application of the *Clearwater* tests in a plan change context.
509. Addressing the first consideration identified in *Clearwater* and confirmed in *Motor Machinists*, Ms Tumai submitted that this must be applied on the basis that PC1 encapsulates the objective of pursuing the restoration and protection of the health and wellbeing of the rivers.¹⁵⁹ Ms Tumai referred specifically to the Waikato-Tainui Act, submitting that:
- "....Plan Change 1 is not only about the restoration and protection of water quality in the Rivers by managing the discharge of the four identified contaminants, but because it must also, by virtue of the statutory obligations under the River Act [i.e. the Waikato-Tainui Act], pursue the objective to restore and protect the health and wellbeing of the Rivers."*¹⁶⁰
510. Turning to the second limb of *Clearwater*, Ms Tumai emphasised the length of time interested parties had to review relevant submissions, including those of DoC, and the opportunities to participate in the PC1 process. She emphasised that any interested

¹⁵⁸ Ms Tumai, Block 2 Legal Submissions at paragraph 9.

¹⁵⁹ Ibid at paragraph 15.

¹⁶⁰ Ibid at paragraph 22.

party would or should have been alerted to the fact that PC1 seeks to achieve Te Ture Whaimana.

511. Discussing these points with her, Ms Tumai emphasised that the obligation on us to give effect to Te Ture Whaimana means that anything that would advance Te Ture Whaimana was within scope, certainly unless it was quite remote, because that is what PC1 is seeking to do.
512. In response to our query, she confirmed that the link between temperature and heavy metals on the one hand, and N, P, sediment and microbial pathogens on the other is indirect. Temperature and heavy metals relate to ecosystem health, as do the four contaminants.
513. Counsel for Beef and Lamb, Mr Thomsen, made submissions supporting DoC's position, both at the Block 3 hearing, and in his Closing Submissions. In Block 3, he described the ambit of PC1 as being the reimagining of the management framework to provide for the health and wellbeing of the Waikato River, which suggested, in turn, a very broad scope.¹⁶¹
514. In his Closing Submissions, Mr Thomsen suggested to us that it was artificial to constrain the attributes identified in PC1 to the four contaminants in the notified document.
515. Responding to our previously having queried parties where the line might be drawn, and in particular, whether, if accepted, utilisation of Te Ture Whaimana as the benchmark for scope would include water quantity issues, Mr Thomsen emphasised that different sections of Part 3 of the RMA address water quantity and water quality, meaning that quantity and quality might be regulated separately. He accepted that it was clear that WRC had no intention of dealing with water quantity in PC1, but in his submission, PC1 clearly has addressed water quality through diffuse discharges under section 15.¹⁶²
516. In the Closing Submissions for WRC, counsel effectively supported the strict reading of the meaning and application of the tests in *Clearwater* and *Motor Machinists* contained in the Mercury NZ Ltd legal submissions, arguing that the lawful scope of submissions on PC1 is limited to seeking changes to the targets for attributes contained in PC1 as notified and changes to objectives, policies and rules in PC1 seeking to

¹⁶¹ Mr Thomsen, Block 3 Legal Submissions at paragraph 13.

¹⁶² Mr Thomsen, Closing Legal Submissions – paragraph 6-8.

ensure the relevant states for those attributes are achieved.¹⁶³ We observe that Mr Lanning did not explain how the legal position he was advancing could be reconciled with the Officers' recommendation that additional DRP attributes applying at all monitoring sites be added to PC1.

517. Counsel for WRC confirmed Mr Eccles' evidence regarding WRC resolving with the agreement of the Iwi Co-Governors that PC1 would be focused on the four main contaminants as the largest contributors to water quality decline.

518. Responding directly to Ms Tumai's submissions, Mr Lanning submitted that Te Ture Whaimana cannot create scope. He argued that changes to introduce new attributes had to go through the Schedule 1 RMA process.

519. Mr Lanning contended that there was a real potential for parties to be denied the opportunity to be heard because, while in a general sense PC1 relates to improving water quality of the Waikato and Waipā Rivers, the notified document was clearly "*ring fenced*" to the management of N, P, sediment and microbial contaminants. In Mr Lanning's words:

*"There was no notice to potentially affected parties considering making a submission on PC1 that the management of other attributes was also potentially in play."*¹⁶⁴

520. Lastly, Mr Lanning submitted that adding additional attributes at this point would be inconsistent with the NPS-FM policies directing development of freshwater values, attributes, attribute states, objectives etc through a community discussion process.¹⁶⁵

521. To determine our position on the competing arguments put to us, and that we have summarised above, we start, as the Environment Court instructed in the *Hawkes Bay Fish and Game Council* case, with what the document says.

522. In its initial explanation, it contains the following statement:

"This document is a change to the Operative Waikato Regional Plan (WRP) to restore and protect water quality in the Waikato and Waipā Rivers by managing discharges of nitrogen, phosphorus, sediment and microbial pathogens to land in the Catchment, where it may enter surface water or groundwater and subsequently enter the rivers, or directly into a water body."

¹⁶³ Mr Lanning, Closing Legal Submissions – paragraph 3.5.

¹⁶⁴ Mr Lanning, Closing Legal Submissions – paragraph 3.7.

¹⁶⁵ Ibid at paragraph 3.8.

523. Notified Objectives 1 and 3 relate specifically to reductions in discharges of N, P, sediment and microbial pathogens, cross referencing water quality attribute targets in Table 3.11-1. Table 3.11-1 in turn consists of several different types of attributes all directly linked to those four contaminants. Thus, as we understand it, chlorophyll-a measures phytoplankton levels in the Waikato River mainstem that are directly influenced by N and P inputs to the Catchment. TN speaks for itself as does TP. Nitrate and ammonia are forms of N. *E. coli* is a proxy or indicator for microbial pathogens. Clarity is a measure of the effect of suspended sediment and phytoplankton, together with material in the water column that affects transmission of light through water (e.g. yellow substance).
524. Notified Objective 6 particularises the other two objectives, to provide emphasis in relation to management of Whangamarino Wetland. We did not read it to expand attention beyond the same four contaminants as Objectives 1 and 3. The three remaining notified objectives seek to integrate additional considerations into PC1. Again, we did not read them as expanding the contaminants potentially managed by PC1.
525. Unsurprisingly, given the above, the 17 policies seeking to achieve those objectives are likewise focused on N, P, sediment and microbial pathogens. Policies 10-13 are solely directed at those four contaminants in the context of point source discharges.
526. Policies potentially extending beyond the four contaminants are Policy 9, related to sub-catchment management, Policy 14, related to restoration and protection of lakes and Policy 17, related to the “*wider context of the Vision and Strategy*”.
527. The first two policies are non-specific as to what they might apply to and, in our view, would necessarily be read with reference to the objectives.
528. Policy 17 as notified is framed more broadly, as follows:
- “When applying policies and methods in Chapter 3.11, seek opportunities to advance those matters in the Vision and Strategy and the values for the Waikato and Waipā Rivers that fall outside the scope of Chapter 3.11, but could be considered secondary benefits of methods carried out under this Chapter, including, but not limited to:*
- (a) Opportunities to enhance biodiversity, wetland values and the functioning of ecosystems;*

(b) *Opportunities to enhance access and recreational values associated with the rivers.*”

529. As we will discuss further in our review of submissions on the objectives and policies, Policy 17 appears at first sight to be internally contradictory. The whole point of identifying the scope of an RMA document is to ensure that the document addresses matters within that scope (and does not address matters outside it).
530. We think that what Policy 17 is endeavouring to say is that, in line with the scope paper to the CSG that we have summarised above, reducing N, P, sediment and microbial pathogen inputs to the catchment will have collateral benefits on the health and wellbeing of the Waikato River. We did not read it as providing any basis for expanding the scope of PC1 beyond those contaminants.
531. Lastly, in terms of the rules as we have already observed, their focus is on the use of land for farming activities (or CVP as a subset of farming activities), or changes to those uses, and the associated discharge of N, P, sediment and microbial pathogens.
532. While the focus of the rules is expressed broadly and (applying the guidance in the *Brook Valley* decision already noted) will encompass all discharges that are an intrinsic part of the land use activity, reference back to the objectives and policies indicates that diffuse discharges of N, P, sediment and microbial pathogens are the reason for regional land use rules being promulgated. We do not, however, read the rules as limited to discharges of the four specified contaminants.
533. Applying what Kos J in *Motor Machinists* said was the dominant test, the changes PC1 makes to the status quo are:
- (i) To institute controls over the use of land for farming within the area it covers with a particular focus on diffuse discharges of N, P, sediment and microbial pathogens; and
 - (ii) To overlay existing policies governing point source discharges with more specific guidance in relation to discharges of those contaminants.
534. In relation to the first point, the WRP does not contain any controls over the use of land for farming. To the extent that diffuse discharges are properly regarded as discharges of contaminants in terms of section 15, WRP already contains objectives, policies and rules governing those discharges, albeit at a general level. We note in particular the

catchall discretionary activity Rule 3.5.4.5 governing discharges not specifically provided for by any rule.

535. We also note that section 3.9.3 of the WRP has existing policies relating to non-point source discharges.

536. Policy 1 for instance directs reduction of the adverse effects of non-point source discharges arising from land use practices and activities. Policy 2 relates to promotion of streamside (riparian) management and Policy 3 directs use of a mixture of non-regulatory methods and a permitted activity rule to manage the adverse effects of livestock access to water bodies. We also note that the explanation for these policies states:

“Apart from within the Lake Taupo Catchment, Waikato Regional Council is taking a non-regulatory approach to management of non-point source discharges as it considers this is the most effective method for changing behaviour in the long term.”

537. PC1 is clearly intended to change that position, but only as regards non-point source discharges associated with the use of land for farming.

538. In summary, applying the first limb in *Clearwater*, we think that to be “on” PC1 a submission needs to be:

- (i) Directed at the use of land for farming; and/or
- (ii) Directed at diffuse discharges of N, P, sediment or microbial pathogens; and/or
- (iii) Directed at policies governing point source discharges of N, P, sediment or microbial pathogens.

539. That would suggest that control of point sources influencing temperature falls outside PC1. Likewise point source discharges of heavy metals.

540. That initial filter would also exclude, in our view, submissions seeking control over water takes and diversions. Unlike stock-related discharges, they are not generally¹⁶⁶ an intrinsic part of farming land uses, but rather a separate activity, and we see nothing in PC1 (or the extrinsic documents we have reviewed) that would indicate an intention to manage them.

¹⁶⁶ While a plantation forestry block might conceivably have an effect on the water table and by analogy with the reasoning regarding grazing stock ‘discharges’ might be considered a ‘take’ or ‘diversion’ of water, plantation forestry is not a farming activity, as defined.

541. For much the same reasons, we find that consideration of temperature and heavy metals in the context of point source discharges would fail the second limb of *Clearwater*. We regard these as “*left field*” considerations in the sense that Kos J used that term in *Motor Machinists*.¹⁶⁷ It follows that we concur with the submissions and evidence for Genesis Energy Limited in that regard.¹⁶⁸
542. More generally, while giving effect to Te Ture Whaimana is part of the rationale for PC1, we agree with counsel for WRC that it does not follow that anything that might be considered to give effect to Te Ture Whaimana is necessarily within the scope of PC1.
543. Ms Tumai did not shrink from the logical consequences of the argument she was running: that if Te Ture Whaimana sets the limits of scope, it would include water takes and diversions, and structures in waterbodies for that matter. The latter of course range from culverts in small streams to the hydro dams operated by Mercury NZ Ltd. However, we regard the fact that scope would stretch into matters that in our view were never contemplated by WRC is a clear indication that the argument is unsound.
544. As we have noted, Mr Thomsen for Beef and Lamb accepted water takes and diversions were never intended to form part of PC1, but sought to separate water quantity from water quality, with Te Ture Whaimana justifying a broad view of what water quality issues are within scope.
545. While Mr Thomsen is of course correct that water quantity issues are the subject of section 14, whereas the discharge of contaminants are within section 15, whether the two are addressed in the same regional plan (or plan change) is up to the regional council. Similarly, the extent to which water quantity issues are separated from water quality issues (e.g. in separate chapters) is a matter of convenience and clarity of application. The integrated holistic view Te Ture Whaimana directs would also call such separation into question.

¹⁶⁷ The only link identified between heavy metals and the four contaminants was the suggestion by Dr Phillips at the hearing of experts on the Joint Witness Statement that mercury bioavailability is linked to nutrient status. We regard that, at best, as an indirect connection. It also relates to one contaminant only.

¹⁶⁸ Although we note that at the hearing of experts in relation to the Joint Witness Statement, Ms McArthur (who supported inclusion of a temperature attribute) agreed that it should be limited to tributaries. If we had accepted the principle of a temperature attribute limited to tributaries that would in practice have solved the problems Genesis Energy Ltd identified regarding its application to Huntly Power Station. However, Mr Matheson identified that one at least of Fonterra’s dairy factories discharges into a tributary and adopted the submissions and evidence for Genesis Energy Limited.

546. It follows that we do not regard the distinction Mr Thomsen sought to draw as persuasive in this context. We do not therefore agree that Te Ture Whaimana can be used to expand the scope of PC1 beyond what its terms would support.
547. Turning to other considerations, while the letter WRC sent out to regional stakeholders suggested a broad focus on water quality, we apply the *Hawkes Bay Fish and Game* decision: that indication must give way to the clear terms of the document itself, which we have already discussed.
548. Looking at the section 32 evaluation of point source discharges, it is another indication that PC1 is more limited in scope than Ms Tumai and Mr Thomsen suggested, although possibly not as limited as Ms Lampitt and Mr Lanning contended.
549. Kos J identified in *Machinery Movers* that the section 32 report should have discussed a matter put in issue in a submission, and if it does not, this is a strong indication it is not in scope. However, we think the weight that can be put on this indication should take account of the reasons why the section 32 evaluation does not consider the point. The section 32 report on PC1 was heavily criticised for its failure to adequately consider alternatives. Putting aside the cogency of those criticisms, we struggle with the concept that a local authority might artificially limit consideration of alternatives and extensions in the First Schedule process by producing an inadequate section 32 evaluation. We consider that is it not as simple as identifying whether or not a particular point is addressed in the section 32 evaluation, and we do not think Kos J would have expected his words to be taken so literally; to mean any consideration of a point that is not discussed is thereafter precluded.¹⁶⁹
550. Importantly, as the High Court confirmed in the *Mackenzie* decision, the section 32 evaluation is not a test in its own right.
551. We also found it difficult to apply Kos J's indicative test turning on the particular resource affected. As we discussed with Mr Meier, counsel for Federated Farmers, there is an argument that the resource that is affected is the Waikato and Waipā Rivers. On the other hand, there is merit in Mr Meier's submission that the way PC1 is drafted, the "*resource*" that is affected might be considered to be N, P, sediment and microbial pathogens. Part of the problem is that the test was clearly drawn around the fact situation in *Motor Machinists*: zoning applied within a defined area. Given the

¹⁶⁹ We read the Environment Court's decision in *Bluehaven Management Ltd v Western Bay of Plenty District Council* [2016] NZEnvC 191 at [39] as supporting that view, while acknowledging, as noted by the Court in *Tussock Rise Ltd v Queenstown-Lakes District Council* [2019] NZEnvC 111 at [60], the potential prejudice to submitters if this approach is adopted.

uncertainty as to how it would properly be applied in the situation we face, we do not rely on that test for a finding either way on scope.

552. In summary, we find temperature and heavy metal attributes out of scope, at least as they would apply to point source discharges, and that water quantity issues (i.e. water takes, damming and diversion) are likewise out of scope.
553. The position is less clear, in our view, in relation to other attributes sought to be added. Rounding out our discussion of temperature, there is a potential link between clearance of riparian vegetation as part of farming activities and temperature in small streams. We discussed that link with Ms McArthur, who gave expert evidence for DoC, at the hearing of experts on their Joint Witness Statement on 18 July 2019. We think, accordingly, that limited in that way temperature might possibly satisfy the first limb in *Clearwater*. However, the combination of the clear focus of PC1 on N, P, sediment and microbial pathogens that we have already discussed, the lack of any consideration of temperature in the section 32 evaluation, and the absence of any particularisation of submissions seeking addition of a temperature attribute to highlight this connection all tell against it, applying the second limb. We find that temperature is out of scope.
554. Some of the other attributes sought to be added in submissions were not the subject of evidence and so we had no basis to consider them further. Of those remaining attributes that were the subject of evidence, all are related to some greater or lesser extent to one or more of the four contaminants clearly addressed in PC1:
- (i) Deposited fine sediment is a component of sediment;
 - (ii) DIN is a component of TN. It is principally comprised of nitrate, which is an existing limit in Table 3.11-1;
 - (iii) DRP is likewise a component of TP;
 - (iv) Contaminant loads are the product of contaminant concentrations and flow;
 - (v) DO can be influenced by nutrients, but to varying degrees depending on a range of other factors;
 - (vi) Periphyton is directly influenced by N and P;
 - (vii) Other biological indicators such as invertebrate (e.g. MCI) and fish indices can reflect levels of N, P and sediment, again depending on a range of other factors.
555. We do not consider that such attributes can be discarded on the grounds that Table 3.11-1 did not identify them as relevant tests of water quality. There are enough indications in PC1 that its focus is on N, P, sediment and microbial pathogens, together

with the farming land uses that generate those contaminants that we do not consider attributes that are closely linked to those contaminants to be out of scope.

556. For the reasons set out above, we do not regard the absence of a detailed examination of them as alternative approaches in the section 32 evaluation as being decisive. In any event, for attributes that are the equivalent of values that are specified - most obviously sub-catchment N, P and sediment loads - they might be regarded as incidental or consequential additions that do not raise the need for additional section 32 evaluation.
557. The same might equally be said for deposited fine sediment, DIN, DRP and periphyton attributes, although that would require further analysis to ensure the values specified are actually the equivalent of existing attributes. Depending on how it was used, MCI could also properly be classified as an incidental change- if, for instance, it were framed as an indicator of the need for further investigation, rather than as a limit or target.
558. Similarly, we do not consider, for the purposes of the second limb in *Clearwater*, these to be “*left field*” considerations. As Ms Lampitt observed, that is not determinative: something that is not left field may nevertheless be out of scope. More importantly, however, we think that attributes that are closely connected to the specified four contaminants would reasonably have been in the contemplation of stakeholders as potentially able to be added to PC1.
559. It follows that we think that Ms Tumai’s initial response to us at Block 1, when we enquired where the line should be drawn, was sound. Mr Meier likewise posed the test in his Block 3 submissions¹⁷⁰ as turning on whether additional attributes were directly connected to existing attributes.
560. We discount the issue Mr Meier raised with us regarding specification of sub-catchment loads, limits or concentrations: that it had the potential to have effects on the people and communities of those sub-catchments that would require s32 evaluation. Discussing it with him, his concern was that such sub-catchment loads, limits or concentrations might form the basis of a future allocation regime. In other words, this would be the ‘thin end of the wedge’. This is not like the situation he described in the Bay of Plenty Region, where a provision in the Regional Policy Statement fixing a limit on N inputs to Lake Rotorua constrains the scope of Plan Changes giving effect to that provision. Any future allocation regime will require a Plan Change process. If the

¹⁷⁰ Mr Meier, Block 3 legal submissions- paragraph 34.

function of any load or limit we recommended changed because of the addition of an allocation overlaid on it, then *Clearwater* is clear authority that a challenge to the sub-catchment load or limit would be in scope.

561. Obviously, connection is an issue of degree. The attributes at the more questionable end of the spectrum are DO and fish indices: DO because the interrelationship with nutrients is indirect and fish indices because fish populations are affected by other factors, like physical obstructions to free migration of those species that depend on the ability to migrate, and physical habitat. But we find that they are sufficiently closely linked to the four contaminants that we ought not to discard them at the outset as being beyond scope.
562. Finding that those additional attributes are sufficiently closely connected with the content of PC1, to be within scope is not, of course, the end of the story. As Mr Eccles noted in his evidence on the outcome of the expert caucusing, any new attribute must be evaluated under s32AA. If the evidence is not available to us to undertake that evaluation, for whatever reason, it is difficult to see how we could recommend acceptance of that attribute. We discuss the merits of the additional attributes we have found to be within scope in the context of our recommended changes to Table 3.11-1 in section 8 below.

Scope of PC1 – Forestry

563. WRC's closing legal submissions include a section on forestry. Counsel submitted that we have no jurisdiction to make the changes sought by Fish and Game and DoC, including the introduction of rules regulating clearance of plantation forestry, providing setbacks, restrictions on clearance and timeframes for replanting¹⁷¹ and rules requiring 20 metre setbacks for plantation forestry from water bodies.¹⁷²
564. The argument made by Counsel for WRC is that these submissions are not “on” PC1 because PC1 is primarily focused on the control of farming to manage diffuse discharges of the four contaminants and there are no proposed rules related to forestry in PC1, except for a reference to a requirement for harvesting plans.¹⁷³
565. The Block 3 section 42A Report discusses the 20 submissions on the harvesting provision referred to in counsel's legal submissions¹⁷⁴ in light of the NES-PF, which as

¹⁷¹ In the submission of Fish and Game.

¹⁷² Referring to the Block 3 evidence for DoC while posing a question as to whether relief in that form is within the scope of the DoC submission.

¹⁷³ WRC Closing legal submissions at paragraph 9.2.

¹⁷⁴ New Condition 5.1.5(q).

already noted, was promulgated after notification of PC1. The section 42A Report also reaches conclusions in relation to scope, but ultimately, recommends that Part B of PC1 be deleted in toto, leaving no provisions governing plantation forestry in PC1.

566. Insofar as the section 42A Report reaches conclusions on the basis that the existing and/or suggested amended PC1 provisions are less stringent than the provisions of the NES-PF, we agree with Council Officers that that would be out of scope, if accepted. Whether that is in fact the case is another matter. We discuss that, when we discuss the submissions on forestry issues on their merits.
567. Turning to counsel's legal submissions, we think that it is correct to describe PC1 as primarily focused on the control of farming for the purposes described. Importantly, the definition of farming activities in the notified PC1 expressly excluded "*planted production forest*". None of the rules in the notified Plan Change governing the use of land for farming activities therefore apply. The only rule not related to the use of land for farming activities in the notified PC1 was Rule 3.11.5.5, which relates to the use of land for commercial vegetable production. Unsurprisingly, the definition of commercial vegetable production does not extend to include planted production forestry.
568. As we have noted in our discussion of hybrid land use/discharge controls earlier in this section, the objections and policies are not referenced to land uses and the definition of "*diffuse discharge*" that they reference is non-specific as to the nature of land uses from which such discharges result.
569. As counsel for WRC noted, PC1 specifically included (in Part B) an amended rule provision requiring submission to Council of a forest harvest plan. The new provision specifies what a harvest plan is required to include, defines when it must be provided, and requires specification of how identified risks to water bodies from the harvesting operations including sediment discharges, slash management, operating restrictions and areas of existing riparian vegetation to be protected are addressed.
570. Applying the first limb in *Clearwater*, it therefore seems to us that the changes to the status quo management of plantation forestry activities from the notified PC1 were:
- (i) The requirement to provide WRC with a harvest plan complying with the provisions set out in Part B;
 - (ii) A series of objectives and policies overlaid on the existing policy direction in the WRP, related to diffuse discharges of N, P, sediment and microbial pathogens from forestry activities.

571. In terms of the second *Clearwater* limb, we find that submissions seeking amended rules governing harvesting are likely to be within scope. Given the breadth of the harvest plan required in the new Rule 5.1.5(q), it provides ample scope for amendments related to control of sediment discharges to water, slash management (as part of harvesting), restricting harvesting operations around water bodies and specifying areas of existing riparian vegetation to be protected from harvesting.
572. However, harvesting is quite a discrete operation. In the definition in the NES-PF, it includes the felling, extracting and processing of trees into logs and loading them for removal. It does not include replanting. We find that the submissions referenced above seeking rules restricting where new forest is planted would be an appreciable amendment to the existing provisions, as well as not addressing the changes to the status quo, as above.
573. The scope for new and amended objectives and policies governing plantation forestry, although not unlimited, is wider than those just relating to harvesting, because the notified objectives and policies were expressed in a way that already applies to plantation forestry.
574. We therefore agree with counsel for WRC only in part. To the extent that Fish and Game's submission seeks rules truly related to harvesting of plantation forestry, we find that they are in scope. That is not to say we accept that the suggested amendments should be made. That requires a consideration of their merits, including confirmation that they are more stringent than the NES-PF and a discussion of the extent to which we have evidence to undertake a section 32AA evaluation of any such changes. We undertake that consideration in section 13, below.

5. MAJOR POLICY ISSUES

Overview

575. This section of the Recommendation Report addresses a combination of issues which were fundamental to the 'function and operation' of PC1 as notified, and were addressed in the section 42A reports, legal submissions, evidence and in the closing statement. These include establishing the Nitrogen Reference Point (NRP), the use of Overseer as the decision support tool (DST) to establish the NRP (unless the approval of the WRC CEO was obtained for a different DST),¹⁷⁵ what was frequently referred to as 'Grandparenting' and the 75th percentile nitrogen leaching rate provisions.
576. The pros and cons of these issues were debated consistently throughout the hearing process. For many submitters these were the issues of greatest concern as they underpinned the entire basis of PC1 and impacted (negatively) on existing and future farming operations. The other issue of general concern related to stock exclusion, and this is addressed elsewhere in this report.
577. While these matters were more broadly addressed across all three section 42A reports, sections B1, B4 and B5 of the Block 1 report, section C1 of the Block 2 section 42A Report and section C1 - 4 of the Block 3 section 42A Report contain a comprehensive review of submissions on these matters, with detailed recommendations. We adopt and rely on those summaries. In this section, we address submissions on these matters generally, and then our recommendations in terms of revised or amended objectives, policies and rules are addressed in more detail in other sections of this report.
578. In summary, the issues were:
- Having to establish the Nitrogen Reference Point (NRP) using Overseer as the decision support tool (DST) (unless approval of the WRC CEO is obtained to use an alternative DST), despite the well-documented shortcomings of Overseer;
 - The lack of certainty other DSTs could be used where they were 'fit for purpose';
 - Having to establish the NRP over the specified reference years;
 - Once the NRP is established, having to farm either at or below that NRP, which 'penalises' low emitter farms (and those early adopters of good farm practices to reduce diffuse contaminant leaching) and 'rewards' higher emitter farms. This was seen as inequitable and would severely impact the ability of many famers to remain economically viable. It was referred to as 'grandparenting';

¹⁷⁵ We address this issue below.

- The perverse incentive PC1 creates to establish and retain a higher NRP, as this enables greater farm intensity and flexibility, translating to a higher capital value for the farm;
- The focus on nitrogen as the 'key contaminant' in PC1, when in many cases nitrogen is not the most significant contaminant;
- Flaws in the 75th percentile nitrogen leaching rate rule as it is based on an entire FMU, and logistical issues because it could not be calculated until all the dairy NRPs had been established for the FMU.

579. In summary, the Panel's recommendations on these issues are (and explained in more detail below):

- The need to establish an NRP be removed, replaced with a set of actual nitrogen leaching numbers for each Freshwater Management Unit (FMU). This also removes the need to rely on the 'reference years' as the basis for establishing the NRP;
- The nitrogen leaching numbers form activity status triggers (permitted activity or requiring a consent) rather than fixing the level at or below which farming must occur.
- Improvements in farming practices (to reduce the diffuse discharge of contaminants) should largely be achieved through the FEPs;
- Deletion of the 75th percentile provisions in their current form;
- Higher emitters of diffuse discharges will be under greater scrutiny as to whether they should be required to do proportionally more to reduce the level of their discharges through resource consents and their FEPs;
- The 'grandparenting' aspect of PC1 is removed as there is no longer a need to establish an NRP;
- The rule regime will incentivise farming activities to have a lower nitrogen leaching rate to be a permitted activity;
- Overseer is not the only DST able to be used. The provisions will enable any 'fit for purpose' DST 'certified' by a 'suitably qualified person'.

Establishing the NRP, and using Overseer.

580. The Section 32 Evaluation stated that:¹⁷⁶

¹⁷⁶ Section 32 Evaluation - Part E.3 Making reductions: Catchment wide rules and Nitrogen Reference Point, pages 156 and 157.

“For Plan Change 1, Overseer is recognised as an appropriate tool to undertake the process of establishing the Nitrogen Reference Point, whilst recognising that for some types of primary production industries there has been less development and validation of this model to date. Processes will be developed in the implementation of Plan Change 1 to fill some of these gaps.”

And that:

“To manage any uncertainty around approval of alternative models, a process of approval by the Chief Executive Officer of Waikato Regional Council for each alternative model has been inserted into ... schedule [B].”

581. The Officers acknowledged¹⁷⁷ the limitations of Overseer stating both the TLG and the CSG determined that it was appropriate for use in the modelling undertaken and for establishing the NRP.¹⁷⁸ Officers also noted that:¹⁷⁹

“Overseer is the best tool we have for managing nitrogen leaching from most farms.”

582. In the Planning Closing Statement, the Officers maintained their support for the use of Overseer in establishing the NRP. They stated:¹⁸⁰

“There was considerable evidence presented in relation to the nitrogen reference point and the use of Overseer. These issues were fully addressed in the Block 2 Section 42A Report.¹⁸¹ While the recommendations of the Officers have been further adjusted, Officers still fundamentally support the use of a nitrogen reference point and Overseer but continue to have reservations about its use within an enforcement context or ‘farming to a number.’”

583. The Officers addressed the use of Overseer¹⁸² and it being the DST to determine the NRP, at length in their Block 2 Report¹⁸³. As set out in that report, and by many of the submitters who appeared before the Panel, the main issue raised was whether Overseer should be used in PC1, and if so, how and whether it should be the sole DST.

584. We received considerable evidence as to how Overseer should or should not be used in regulation. Two reports were often cited. Many parties referred us to the Parliamentary Commissioner for the Environment’s “Overseer and Regulatory

¹⁷⁷ Block 1 section 42A Report.

¹⁷⁸ Block 1 section 42A report - paragraph 298.

¹⁷⁹ Block 2 section 42A report, Key Recommendations - paragraph 21.

¹⁸⁰ Closing Planning Statement - paragraph 40.

¹⁸¹ Section 42A Block 2 Report - section C.1.1, pages 8 to 38.

¹⁸² Section 42A Block 2 Report- Parts C1-C6: Policies, Rules and Schedules (most).

¹⁸³ Section 42A Block 2 Report- Parts C1: Diffuse discharge management.

Oversight” (2018) report where one of the key findings was “a significant amount of information needed to confirm Overseer’s use in a regulatory setting is lacking”.¹⁸⁴ An Enfocus report, “Using Overseer in Water Management Planning” (2018) was also cited as pointing out the deficiencies of Overseer as a regulatory tool.

585. How Overseer was to be used in the notified version of PC1 was extensively set out in the section 42A report.¹⁸⁵ It is not set out in any detail here, as the issues were well canvassed in the evidence before the Panel, with most parties having a common understanding of its deficiencies. However, an overview, and some criticisms, of Overseer are set out below.
586. Overseer is a model that describes nutrient flows on farms. It takes nutrients that are present or introduced to the farm, models how they are used by plants and animals on the farm, and then estimates how they leave the farm and in what form. Overseer estimates nutrient flows and provides a ‘nutrient budget’ for seven nutrients: nitrogen, phosphorus, potassium, sulphur, calcium, magnesium, and sodium, but is limited to the root zone of plants. It also estimates soil acidity for paddocks under pasture. Sediment and pathogens, such as *E. coli*, fall outside the model’s scope.
587. By modelling nutrient flows, Overseer can provide a farmer with estimates of what nutrients are in deficit and could be supplemented through fertiliser to maintain plant growth and production. As addressed in evidence (set out below), this was the job Overseer was originally designed to do; improve the efficiency of fertiliser applications.
588. Our understanding is that Overseer models dairy systems best as this is what it was designed for. It was expanded for use in drystock sheep and beef systems and we were told by Dr Chrystal¹⁸⁶ (for Beef and Lamb) that it does not represent sheep and beef as well as dairy. The evidence we heard is that model outputs for other land uses, such as CVP, are progressively more uncertain. Mr Palmer (for WRC), for instance, described Overseer as not working well for anything other than traditional sheep and beef and dairy when he presented his Block 2 evidence for WRC. Although we also record his point that those ‘traditional’ uses make up the vast majority of farming activities in the catchment.
589. Critically, Overseer cannot estimate the environmental impacts of nutrient losses, because these often occur beyond the farm boundary and to receiving waterbodies

¹⁸⁴ Page 118.

¹⁸⁵ Section C.1 of the Block 2 Section 42A Report.

¹⁸⁶ Giving evidence for Beef and Lamb in Block 1.

some distance from the farm. In this respect, Overseer was clearly designed as a farm support tool and not a regulatory decision tool.

590. We heard a significant amount of evidence in relation to Overseer, and how it had been used (inappropriately in most cases) in PC1. Also why Overseer should not be the sole model and why others should be enabled without the approval of the CEO. Representative of the array of views and opinion was that of Mr Ford, for HortNZ and WPL, Dr Chrystal for Beef and Lamb (as well as others).

591. Mr Ford noted that he has had extensive experience in the use of Overseer in the pastoral, arable, horticultural, including the commercial vegetable production (CVP), sectors across New Zealand. It was his view that:¹⁸⁷

"The OVERSEER model is not appropriate (as the sole) decision support tool for use under PC1. In my view, it is more effective and efficient to allow for the adoption of a suite of more inclusive and complete alternative decision support tools in PC1 than to prescribe the use of what has been well described as a particularly crude and uncertain modelling tool."

592. In his evidence for WPL and HortNZ, Mr Ford made the following points as to why he questioned the choice of Overseer and its use in a regulatory context:¹⁸⁸

"OVERSEER is a "black box" piece of software that means that its operation is not open sourced therefore it cannot be reviewed as to the accuracy of what it is modelling. It has not been externally reviewed in any form.

OVERSEER uses monthly time steps in the majority of its inputs so it is not able to accurately portray various operations, including a range of available mitigations that are subtler in their timing.

OVERSEER uses a long-term average climatic record therefore it is only able to report average data, it is not able to report the plumes of contaminant emissions, and it does not accurately report the actual nature of emissions or the timing of them.

OVERSEER only models to the end of the root zone and does not allow for more detailed reporting of the transport of nutrients through the total soil profile.

¹⁸⁷ Mr Ford, evidence in chief - Block 2 for WPL, paragraph 8 (noting his evidence for HortNZ was similar).

¹⁸⁸ Mr Ford, evidence in chief -Block 2 for WPL, paragraph 33.1-5 (noting his evidence for HortNZ was similar).

The modelling of P is crude in the way that OVERSEER analyses and reports the transfer of P across the surface of the ground.”

593. Dr Chrystal stated in her evidence that Overseer can be a useful tool when it is used with an understanding of its purpose, strengths and weaknesses. She said:¹⁸⁹

“Overseer was originally designed as a fertiliser support tool to help farmers understand the implications of applying nutrients to land at different times of the year, in different forms, and at different rates. Overseer was never designed to be an integral part of catchment modelling in relation to determining the allocable load within a catchment or water quality outcomes.”

594. Dr Chrystal also stated:¹⁹⁰

"One metric commonly used is an error of \pm 25-30% for N loss"

595. The metric of the error of \pm 25-30% for N loss was a consistent message we heard from a range of farmers who used Overseer and 'technical experts'. Dr Chrystal agreed with our impression that it was not much more than a “*well-educated guess*”. We also asked Dr Edmeades about the basis for it. He advised that the figure of plus or minus 30% was a measured variation taken from field tests, but he noted that there were other sources of potential error that might cause the margin of error to be significantly greater than that.

596. Dr Chrystal discussed four key application issues with the use of Overseer in regulation, as itemised by the Parliamentary Commissioner for the Environment (in the report referenced above):¹⁹¹

- (a) data input uncertainty;
- (b) version change;
- (c) the inability of Overseer to represent farm systems in particular regions; and
- (d) uncertainty in a compliance setting.

597. She also noted that there were further criticisms, including that some areas are not currently captured at all by Overseer. These are¹⁹²:

- (a) Sediment loss;

¹⁸⁹ Dr Chrystal for Beef and Lamb, Block 1 evidence in chief, paragraph 23.

¹⁹⁰ Dr Chrystal for Beef and Lamb, Block 1 evidence in chief, paragraph 91.

¹⁹¹ Dr Chrystal for Beef and Lamb, Block 1 evidence in chief, paragraph 24.

¹⁹² Dr Chrystal for Beef and Lamb, Block 1 evidence in chief, paragraph 96.

- (b) *E. coli* or other microbe losses;
- (c) Attenuation of nitrogen below the root zone;
- (d) Spatial variability;¹⁹³
- (e) Temporal variability;
- (f) Within-stream processes occurring on the farm e.g. in-stream attenuation or stream bed erosion;
- (g) Transition periods from one farm system to another;
- (h) Not all management activities (including some mitigations) that impact nutrient losses are captured by Overseer – an example given of this was sediment traps; and
- (i) Components of the model have not been calibrated against measured data from every combination of farm system and environment that Overseer is intended to cover.

598. A number of submitters echoed Dr Chrystal's point that Overseer does not take into account the fate of nitrogen below the root zone and any attenuation that may occur.¹⁹⁴ That is - the boundary of the Overseer model is the farm gate and the plant root zone (for N loss) and not the volumes of N in the water leaching from the farm.

599. Of particular significance to PC1, Overseer was to be used to identify each farm's NRP, and this linked to/formed part of the requirements for the development of FEPs. Schedule 1 (Subsection 2(e)) stated that a FEP must include a description of nutrient management practices including a nutrient budget for the farm, calculated using the Overseer model (or another model or method approved by the CEO). Subsection 5(a) stated that the FEP must include:

"Actions, timeframes and other measures to ensure that the diffuse discharge of nitrogen from the property or enterprise, as measured by the five-year rolling average annual nitrogen loss as determined by the use of the current version of Overseer®, does not increase beyond the property or enterprise's Nitrogen Reference Point, unless other suitable mitigations are specified."(Underlining added)

600. As alluded to above, the establishment of the NRP using Overseer (with its acknowledged deficiencies) 'locks in' that NRP, and as nitrogen leaching cannot *"increase beyond the property or enterprise's Nitrogen Reference Point"* created

¹⁹³ As set out by Dr Chrystal - It is widely acknowledged that P loss from farming systems is variable in both space and time with the majority of P losses coming from a small area of the farm, Overseer does not work at a spatial level (beyond the level of defining blocks).

¹⁹⁴ Dr Chrystal for Beef and Lamb, Block 1 evidence in chief, paragraph 75.

'grandparenting' according to many submitters. We address this issue in more detail below.

601. While we accept Overseer seeks to model a very complex 'real-world' situation, it was primarily developed as a management decision support tool. It was not designed to precisely predict how much nitrogen is leaching from a particular farm. However, Overseer is a useful tool to gain an understanding of the potential N and P losses for a farm. It can be used to:
- Highlight areas of the farming system that pose the greatest nutrient loss risk; and
 - Investigate the implications on nutrient flows of different scenarios, including in particular, whether changes in nutrient inputs or farming intensity will cause an increase in nutrients leaving the farm property.
602. Given the evidence, and reasons set out above, we find that there are significant risks associated with utilisation of the model to establish whether farming practices are giving rise to a particular N leaching number at a particular point in time. We accept Overseer can be a useful method, but as part of a suite of other potential tools to assist farmers to manage risk appropriate to their individual farm, and in its sub catchment/ catchment context.
603. Accordingly, while we agree Overseer may be appropriate in some circumstances, we agree with other submitters that Overseer is not the appropriate sole DST for use under PC1. In the Panel's view, it is more effective and efficient to allow for the adoption of a suite of more inclusive and complete alternative DSTs in PC1 than to prescribe the use of Overseer.
604. A number of alternative models were suggested by various submitters. These included Agricultural Production Systems Simulator (APSIM), Land Utilisation and Capability Indicator (LUCI), Soil Plant Atmosphere System Model (SPASMO), AgInform® and MitAgator (Ballance AgriNutrients). WPL presented significant evidence on its Ruahawai Decision Support Tool (RDST)¹⁹⁵ to inform decision-making about ongoing farming activities and land use change both on its land holding and within a broader group of sub-catchments within the Upper Waikato FMU.¹⁹⁶

¹⁹⁵ As provided by WPL - The RDST is a paddock to stream calculator of hydrological flow and constituent mass, and therefore considers attenuation that occurs between the paddock and the stream. The RDST computations are performed on a daily basis, which permits analysis of effects from both storm events and seasonal responses.

¹⁹⁶ Mr Conland, Block1 evidence in chief paragraphs 57-70.

605. We accept that Overseer has been approved for regulatory use in the WRP (Variation 5 in relation to Lake Taupō), Horizons' One Plan and Plan Change 6 to the Hawke's Bay Regional Resource Management Plan - Tukituki Catchment, as well as other Regional Plans. We also note the recent Environment Court Interim Decision on Bay of Plenty PC 10 (Rotorua Lakes)¹⁹⁷ also addressed this issue stating:¹⁹⁸

"It is important to note that Overseer is a long-term prediction model of nitrogen outputs and cannot be used to predict short-term management outcomes or changes that may be required to day-to-day farm operations.

...

Overseer has notable limitations in a regulatory context. One of the main limitations is that different versions of Overseer may give materially different predicted nitrogen losses.

...

This assessment of uncertainty is consistent with the Court's own experience and understanding gained from evidence presented in a number of other cases over several years, including this one, and we are satisfied that it represents the current state of knowledge...

Notwithstanding those concerns, we have no evidence that there is any realistic alternative method presently available to the Regional Council or to farmers to obtain the necessary information about nitrogen loads in order to manage them." (Underlining is our emphasis)

606. Overseer has, even as recently as the Environment Court's decision above, been cited as 'the best we have' despite the evidence identifying its (accepted) deficiencies. We also consider that its core use in PC1, for establishing an N leaching benchmark that each farm can reference back to in order to determine if N leaching is increasing or decreasing is a legitimate and acceptable use for dairy farms and many drystock farms. However, the evidence we have heard indicates to us that Overseer cannot be relied upon in all cases, and that there are other models that will do as good, if not a better job in specific situations.

¹⁹⁷ [2019] NZEnvC 136.

¹⁹⁸ Ibid - paragraphs 109, 111, 114 and 115.

607. We understand the desire on Council's part to endorse one model in order to facilitate uniformity and comparability of results, but it seems to us that this desire assumes Overseer will operate outside its proper role; into a position of benchmarking farms against each other, rather than against themselves. We will have more to say about this aspect in the context of the '75th percentile' rule. For present purposes, it is sufficient to record that the Hearing Panel has determined that it should recommend enabling alternative models, as well as providing for some farming activities based on stocking rates.¹⁹⁹

CEO Approval of Alternative Models

608. PC1 as notified provides that models other than Overseer may be used, but must be approved by the CEO of WRC. No criteria are included in PC1 to guide such decision-making. In essence the CEO is given an unfettered discretion to oppose (or accept with conditions); with any decision made only able to be challenged outside of the RMA (by judicial review).

609. A number of parties, including WPL, Mr Boom, Ms Mayne, Ms Hoe and a range of others requested that Schedule B (as notified) be amended to provide for other models to be used without requiring approval by the WRC CEO.

610. Dr Somerville QC, legal counsel for WPL, submitted that:²⁰⁰

"From a legal perspective, the unfettered discretion given to the WRC CEO is not appropriate or practicable (and is likely unlawful) because it is difficult to predict whether any other DSTs or models could be used, and it is not consistent with general resource management practice where DSTs or models used to assess environmental effects under sch 4 of the RMA are normally selected by the applicant based on advice from an appropriately qualified and experienced resource management consultant (e.g. CFEPs and CFNAs). Regulations do not usually dictate that only one particular DST or model should be used in all cases."

611. While it may not be usual, we note that the Tukituki Plan Change 6 on which WPL relied for other purposes, had a similar provision. It referred in a number of places to nutrient budgets calculated "*using Overseer (or an alternative model approved by Hawkes Bay Regional Council)*".²⁰¹

¹⁹⁹ This is set out in more detail in the Rules section of this report.

²⁰⁰ WPL Legal submissions for Block 2, paragraph 177.

²⁰¹ See e.g. Policy TT4 (1)(a)(i).

612. It seemed to us that the principal cause for complaint (and any possible legal issues) lay in the lack of criteria for the exercise of the discretion invested in the CEO. Tukituki Plan Change 6 provided for a Procedural Guideline “*to be developed*” by Council, which would at least make the process more transparent.

613. Mr Connell-McKay, in his planning evidence for WPL²⁰² and marked up version of PC1, proposed that the CEO approval be deleted and amendments be made to Schedule B to insert criteria that any alternative DST must be able to meet the following:

“a. Any Decision Support Tool shall be prepared by, or under the supervision of a suitably qualified person and meet the criteria in paragraph (b) below.

b. Decision support tool criteria:

i. The model is based on sound science, including:

- Scientific basis*
- Computational infrastructure*
- Assumptions and limitations*
- Peer review*

ii. The model is managed to ensure quality, including

- Quality assurance and quality control*
- Data availability and quality*
- Test cases*

iii. The model’s behaviour approximates to the real system being modelled including the tools and procedures necessary to make this judgment), including:

- Sensitivity and uncertainty analysis*
- Corroboration of model results with observations*
- Benchmarking against other models*

iv. The model is appropriate for a specific regulatory application under Chapter 3.11, including:

- Model resolution*
- Transparency.”*

614. The Panel agrees that a general discretion to the CEO is unsatisfactory, essentially for the reasons put to us by WPL. Mr Connell-McKay’s formulation has merit, but it rather begs the question as to who determines whether the suggested criteria are satisfied. It also leaves open the question as to who is a “*suitably qualified*” person in this context.

²⁰² Mr Connell-McKay- Block 2 evidence in chief, paragraphs 36.1 - 36.3.

615. We do not consider a CFEP or CFNA are the right people to make the decision on the appropriate model to be used (as Dr Somerville QC suggested). From our discussions with Mr Lee Matheson, who appeared for the local branch of New Zealand Institute of Primary Industry Management and gave evidence regarding their desired qualifications, it appeared to us that these are professionals with experience in running nutrient models (particularly Overseer). Determining whether a model is appropriate for a particular task is a different skill. That person needs experience in the development and assessment of nutrient loss models, who needs to certify to WRC that the model satisfies some essential criteria. We also consider that the criteria can be simplified from those Mr Connell-McKay suggested, given the interpolation of an expert into the approval process.

Having to establish the NRP over specified reference years

616. PC1 (Schedule B (f)) as notified required the NRP to be calculated by using *the "two financial years covering 2014/2015 and 2015/2016, except for commercial vegetable production in which case the reference period is 1 July 2006 to 30 June 2016"*.²⁰³ There was major opposition to the reference years from many of the pastoral farmers. Many said these reference years coincided with drought years where they had de-stocked (or had not farmed as intensively as they had previously), that due to family circumstances the land had not been farmed optimally, and/or farms had been purchased since those reference years and farming records from that time were either incomplete or non-existent.

617. The drystock farmers in particular said that having to establish the NRP over those reference years (given the factors we have just discussed) was inequitable as it invariably meant their NRP would be lower than would have been the case if the reference years were different. Also, that this exacerbated the 'so-called' grandparenting (addressed below) issue; that farmers would end up with low NRPs thereby unreasonably restricting their farming operations (and reducing the capital values of their farms) due to the need to have to farm at or below the established NRP.

618. It appeared to us that using reference years for CVP was less of an issue. That was partly because a wider range of years was specified (giving a more representative database) and partly because CVP producers are a relatively small number of generally

²⁰³ CVP is dealt with separately in another section of this report.

well-established businesses with (it appeared to us) good records of their past operations.

619. It was clearly not a viable option to adopt a similar approach to pastoral farmers given the number of farms and the information issues that reaching back even two years had given rise to.
620. Accordingly, the Panel was persuaded by the evidence of the inherent unfairness and difficulty of specifying reference years as in the notified PC1 Schedule B. As addressed below, using nitrogen leaching rate numbers where required (as the basis of consent triggers) avoids both the need to establish an NRP ahead of time, and to base that on the reference years. Any calculation of a nitrogen leaching rate will be done based on the current year on which it is calculated, and only used to determine what rules apply (either permitted activity or if a consent is required).

The 75th percentile provisions

621. As set out in the Block 2 Section 42A report, a key mechanism of PC1 to achieve the objectives, particularly Objective 3, was the requirement for determining the 75th percentile nitrogen leaching value based on the NRPs from dairy farms in each FMU and for those farmers (all farmers, except CVP) above this value to reduce their discharges to below the 75th percentile value by 1 July 2026.

622. The Glossary of Terms defines the 75th percentile nitrogen leaching value as:

“The 75th percentile value (units of kg N/ha/year) of all of the Nitrogen Reference Point values for dairy farming properties and enterprises within each Freshwater Management Unit[^] and which are received by the Waikato Regional Council by 31 March 2019.”

623. The Section 42A report stated:²⁰⁴

“The 75th percentile nitrogen leaching value is currently not known and will be calculated following the submission of NRPs to Council as required by Schedule B.”

624. PC1 describes the required 75th percentile reductions in Policy 8, Rules 3.11.5.3 and 3.11.5.4 and Schedule 1 (as notified). Policy 8 set out the prioritised implementation of PC1 and requires that those farmers with nitrogen leaching losses greater than the 75th percentile nitrogen leaching value will be prioritised for submitting their FEP. For

²⁰⁴ Block 2 Section 42A report - paragraph 373.

dischargers with nitrogen losses above the 75th percentile nitrogen leaching value, PC1 required FEPs to contain actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026.

625. There were a significant number of submissions received regarding the nitrogen reductions required by PC1, with many submissions seeking its deletion, extension or amendment. Section C.1.4.3 of the section 42A report provided a detailed analysis of the submissions. We rely on that analysis and do not repeat it in any detail in this report. In summary, however, the reasons those submitters sought the deletion of the 75th percentile nitrogen leaching value from PC1 include:

- Actions to reduce contaminant losses should be borne by all dischargers across the region by undertaking Good Management Practice;²⁰⁵
- Specified nitrogen targets and timeframes for different sub-catchments should replace the 75th percentile nitrogen leaching value and reductions;²⁰⁶
- The calculation penalises farmers due to physical characteristics of properties such as where there is high rainfall or leaky soils;²⁰⁷
- The 75th percentile nitrogen leaching value is arbitrary. Those farmers who are required to reduce losses should be determined once FEPs and catchment data is available to enable a more accurate statistical assessment;²⁰⁸
- The reductions required will affect farm profitability, restrict productivity and impact farming systems adopted;²⁰⁹
- The timeframes are too short to allow farmers to identify whether they need to reduce and engage a consultant to prepare an FEP and actions to be undertaken to reduce losses;²¹⁰ and
- The 75th percentile nitrogen leaching value is uncertain and unreasonable as it is not possible for a farmer to ascertain if they require consent until it is calculated.²¹¹

626. The Hearing Panel has formed the view that the 75th percentile rule is too flawed to retain.

²⁰⁵ Miraka Limited, Pouakani Trust, Wairarapa Moana Incorporated.

²⁰⁶ Fish and Game.

²⁰⁷ Wairarapa Moana Incorporated, Perrin Ag Consultants Ltd, M Parker.

²⁰⁸ H Clarke.

²⁰⁹ D Dixon, J and M Hodge, N and C Prendergast, C and J Rombouts, B Hathaway, J Hathaway, Win Dee Farms (2007) Ltd.

²¹⁰ N and C Prendergast.

²¹¹ Oji.

627. The first problem is that identified in the section 42A report. We don't know what the 75th percentile is in each FMU and will not know that for a considerable time. This in turn creates issues for farmers within the 75th percentile who will not know that they are within this category and how much they have to reduce their N leaching by until that information is published. As submitters observed, for those with significant reductions, this makes compliance with a 2026 deadline problematic.
628. Officers sought to clarify how the 75th percentile would be calculated in the Block 2 section 42A report, but from our observation, the suggested amendment only introduced confusion by implying that WRC's CEO has a discretion as to what figure is identified as the 75th percentile, rather than it being a strictly numerical calculation. If that was the intention, we do not agree with such an approach.²¹²
629. Even more importantly, the basis for comparing NRPs in different parts of each FMU is questionable, to say the least. As above, it seems to be generally accepted (including by the Environment Court in its recent Bay of Plenty PC10 decision) that Overseer should not be used to assess whether a particular numerical N leaching rate is being achieved, and that seems to us to be exactly what the 75th percentile rule does.
630. We asked Mr Van Duivenboden, when he gave evidence for Pāmu Farms in Block 1, whether it was appropriate to use Overseer to compare farms that were side by side. His answer was that if it were a localised area with the same rainfall and soils, that would be appropriate, but even next door, there would be variations. He thought though that even a few kilometres separation would throw the comparisons out. Mr Palmer from WRC answered the same question slightly differently in the Block 2 hearing. He said that the logic of the FMUs was that they had similar characteristics. However, he observed that the Upper Waikato FMU was too broad to make that assumption. The area upstream of Tokoroa for instance is dominated by pumice soils. The balance of the FMU has a different soil profile.
631. Given this evidence, we were left with little confidence in the robustness of the methodology being employed.
632. Last but not least, WPL's evidence satisfied us that N attenuation between the root zone (that Overseer predicts) and surface waterways varies spatially.²¹³ In other words, two properties with the same Overseer predicted NRP can be contributing quite

²¹² Among other things, it has similarities to the 'factual deeming' that the High Court disapproved in *Hawke's Bay and Eastern Fish and Game Councils v Hawke's Bay Regional Council* [2014] NZHC 3191 at [193]-[196].

²¹³ Dr Cooper made the same point when he appeared in the Block 1 hearing.

different N loads to the river system. Even more troubling, the 80th percentile N leacher, who is subject to the rule and required to reduce their N leaching, could be having less effect on the river system than the 70th percentile N leacher, who is under no specific obligation to reduce their N leaching. This is inherently unsupportable.²¹⁴

633. We were also concerned that while the notified version of PC1 had a focus on those higher emitters (above the 75th percentile) and the need for them to make significant reductions, it was likely that many of those farmers could alter their farm management systems so that they were marginally below the 75th percentile, thereby not achieving significant, or even meaningful, reductions. In this respect we agree with Mr J Allen (for Fonterra) who stated:²¹⁵

“Without the 75th percentile rule there is no immediate need for those who have a relatively high level of nitrogen leaching to make any reductions in their nitrogen leaching beyond the efficiency actions that might be identified in the FEP.”

634. He went on to state:²¹⁶

“I would also like to comment on the ability of farmers to reduce their nitrogen leaching to at or below the 75th percentile. Some indicative information provided by Fonterra indicates that many dairy farms who are above the 75th percentile are actually farming close to the 75th percentile rather than being at the extreme end (i.e. upper end of the percentile range). In my experience many farmers should be able to make relatively minor changes to their farm system which will enable them to farm at or below the 75th percentile. For example, this could involve changes to timing of nitrogen applications, changes to effluent management, changes in stocking rate, manipulation of the diet, change in cultivation and cropping programmes, and possibly some infrastructure changes.”

635. We have considered whether deletion of the 75th percentile rule will result in a significant shortfall in water quality improvements and therefore towards progress in achieving the objectives of PC1. We do not think it will, because in our view, any farmer operating a material distance above the 75th percentile was always likely to apply for consent, seeking some relief from the effect of the rule. We consider it better to

²¹⁴ Mr McCallum-Clark described attenuation differences as a subtlety the 75th percentile rule doesn't address. We regard that as something of an under-statement.

²¹⁵ Mr James Allen, Block 2 evidence in chief, paragraph 7.1.

²¹⁶ Mr James Allen Block 2 evidence in chief, paragraph 7.4.

acknowledge that practical reality and give greater policy guidance as to how those resource consent applications should be addressed.

636. For the reasons set out above, and for those that follow, the Panel does not find that the 75th percentile provisions are either effective or efficient in achieving the outcomes sought in PC1. We recommend that they be deleted.

Grandparenting

637. Of greatest concern to many of the farmers, mainly drystock farmers, was what was referred to as 'grandparenting'; they saw this as the most significant aspect that needed to be removed from PC1. Virtually without exception all of the drystock farmers we heard from raised this as an issue and explained why it was inequitable and would make continuing to farm far more difficult.
638. In RMA terms, the concept of grandparenting is normally about specifically recognising or providing for activities that already exist to continue producing their existing level of effects either permanently or for a defined period, but imposing immediate obligations on new entrants. As the Environment Court observed in its decision on the Horizons One Plan, it is understandably favoured by existing operators who rationalise it by reference to their prior investment.²¹⁷ PC1 does not grandparent existing operations in a strict sense, and we had a sense that the term 'grandparenting' captures a deep-seated sense of grievance drystock farmers (in particular) had about a number of aspects of PC1. A number of farmers used it in the context of having to establish an NRP (over the reference years cited above) and then having to farm to or under that nitrogen leaching rate, irrespective of whether nitrogen was a major contaminant in the particular sub-catchment.²¹⁸
639. Many farmers told us that the 'grandparenting' provisions in PC1 'penalised' those farmers who had already taken voluntary actions to reduce contaminants as it would result in a lower NRP. This included those who had voluntarily fenced off waterways, retired steeper erosion prone land, placed covenants over part of the land and or had changed farming practices such as identifying and fencing off critical source areas, installing water reticulation so stock avoided water bodies and farming with different or fewer stock on steeper land - i.e. what was referred to by F4PC as 'farming fitting the

²¹⁷ See *Day v Manawatu-Wanganui Regional Council* [2012] NZEnvC 182 at 5-128

²¹⁸ A related grievance was that the NRP would be calculated using Overseer, which as already noted, was developed as a fertiliser management tool, and not for measuring nitrogen leaching from a farm - i.e. it was less relevant to drystock farmers, who often used little, if any nitrogen fertiliser, and would not routinely model their nutrient leaching rate.

land'. It was the farmers' view that no 'credit' or acknowledgement (in fact a penalty) was given for undertaking more responsible and better farming practices to reduce diffuse contaminant discharges.

640. Furthermore, farmers told us that PC1 'rewarded' poor farming practice and those with higher emissions of contaminants. This is because (other than those above the 75th percentile) farmers either did not need to make any improvements if they continued to farm at or below their NRP (irrespective of how high it was), or had more time in which to reduce their NRP. That is, farmers with higher NRPs had greater flexibility in how they farmed. This 'flexibility' had had an impact on the value of the farm - in short, for those with a higher NRP, that translated into a higher land value as there was greater flexibility in how the land could be farmed, with an ability to continue with higher rate of diffuse discharges.²¹⁹
641. There was also an inter-sector dimension to the criticism, fuelled by the perception that the increase in the area and intensity of dairy farming in PC1 was the source of the water quality problems in the catchment, but drystock farmers were taking the biggest 'hit'.
642. Dr Dewes provided us with an extensive analysis of the trends in dairy farming over the last 20 years, with an array of different statistical measures in her Block 2 evidence for Beef and Lamb to support the first proposition. We were not assisted, however, by her presentation of whole-of-country statistics that exhibited trends that were not evident in the Waikato-specific statistics that Dr Chrystal produced (also for Beef and Lamb). Having enquired about the difference, it appeared to us that the NZ-wide statistics are skewed by the growth in irrigated dairying in Canterbury (in particular).
643. We find nevertheless that dairying in the PC1 area is responsible for proportionately more N leaching than drystock farming on a per hectare basis, and that it is a reasonable inference that the trend of increasing TN at WRC monitoring sites over the last 20 years that Mr Vant and Dr Cox reported to us, is probably due to the increase in dairy areas and intensity. Having said that, the evidence we received was much less conclusive regarding the relative contributions of P, sediment, and microbial pathogens (*E. coli*) made by different farming sectors. The drystock sector appears to be making a significant contribution of these contaminants.

²¹⁹ Dr Chrystal, when she presented to the Panel at the Block 2 hearings produced some real estate advertising for farms for sale with explicit reference to the high NRP number, apparently as a selling point.

644. We also find that drystock farmers have a legitimate concern that the effective cap on N leaching PC1 imposes (relative to the NRP) has a disproportionately onerous effect on them. This is because, once established at a particular level, dairy farming tends to operate reasonably consistently (this appears to be one of the reasons Overseer works comparatively well estimating N leaching from dairy farms). As it was described to us, however, drystock farms fluctuate in output (i.e. stock numbers and type) according to climatic and economic conditions. Climatic conditions affect grass growth; the more grass on the farm, the more stock the farm can carry and vice versa. Economic conditions dictate the balance between sheep and cattle. As previously noted, the NRP reference years were comparatively dry meaning that drystock farmers cannot “*follow the grass curve*” in subsequent years, and increase their stock numbers. Reducing sheep and increasing cattle numbers in response to economic signals is also likely to be problematic.
645. In her executive summary to her Block 2 evidence, Dr Chrystal encapsulated the problem by stating:²²⁰
- “The key point I want to get across is that extensive farmers with low inputs of supplementary feed and/or nitrogen fertiliser who farm to the grass curve and have fluctuating stock numbers require a Nitrogen Reference Range rather than a Nitrogen Reference Point. They require headroom to allow them to survive into the future. Their stock numbers will fluctuate year-by-year in response to the climate and they will be disadvantaged by having their system constrained to an, already low, N leaching value.”*
646. While drystock farmers accepted that dairy farmers would have a specific obligation if they fell within the 75th percentile rule, there was general cynicism as to whether the FEP provisions had any teeth, so as to require anything other than a ‘business as usual’ approach for the balance of dairy farmers. We observe that there was some cause for that cynicism. We discuss in our review of the policies how we propose that be addressed.
647. Mr Ford, for WPL, also addressed this point from an economic perspective. He told us that:²²¹

²²⁰ Dr Chrystal, executive summary (27 June 2019), paragraph 29.

²²¹ Mr Ford, Block 2 evidence in chief for WPL, paragraphs 83, 84, 86 and 87.

“The impact of the NRP on land values

Although PC1 avoids the question of allocation (in terms of assimilative capacity) the reality of the situation is that the calculation of a N leaching number or NRP, will likely be perceived as the creation of a quasi-allocation of leaching rights regardless of whether this is actually the legal position under the RMA. The number is one that the property or enterprise is able to farm up to, but it is not allowed to exceed for at least the life of PC1 (2016- 2026).

This is effectively a form of allocation called “grand parenting”. Under grand parenting of leaching rights landowners are given a nutrient discharge allowance based on their land use and nitrate leaching rates during a benchmarking or baseline period.

The disadvantages that come with grand parenting are that:

In terms of equity, the grand parenting approach can be considered inequitable, as it may be unfair to reward historic polluters since they may also be best situated to reduce pollution at lower costs.

The high opportunity costs for landowners who have not yet developed land or have low N discharges, because it may artificially constrain land use change.

It potentially rewards current inefficiencies by allocating a higher number of discharge allowances to operations on lower class or high leaching land.

These perceptions about allocation are already being factored into land valuations within the Waikato Region and are now generally a requirement of any sale and purchase agreement (particularly, from a purchasers or bank lending perspective).”

648. Mr Mowbray's view of 'grandparenting' was typical of a number of farmers who appeared before us. The NRP for his organic farm²²² was 19kg/ha/year and phosphate leachate 1.5kg/ha/year; which he described as significantly lower than most conventional dairy farming operations.²²³ He told us that the farm was for sale (and at the time of giving his evidence it had been on the market for 18 months) with limited interest being shown. In this respect he stated:²²⁴

“I am advised that this is because of the farm’s low NRP relative to conventional dairy farms in the same area. There is little incentive to purchase a farm with a low NRP. The

²²² An organic dairy farm on approximately 875 hectares located South of Tokoroa.

²²³ Mr Mowbray, Block 1 evidence in chief, paragraph 4.17.

²²⁴ Mr Mowbray, Block 1 evidence in chief, paragraphs 5.1 - 5.3.

ability to achieve high returns (inclusive of capital gain) from organically managed farming properties is, comparatively, less certain than with conventional agricultural practices. Additionally, the ability to secure bank finance for a less conventionally managed farm due to it being seen as a constrained set of property rights, may be at issue.

It appears highly likely that the proposed regulatory framework has reduced the value of the farm to prospective purchasers because our management and innovation has reduced the environmental impact of our operations. Much of a farm's value appears to be dependent on the ability to provide leeway within which the farm can alter its stocking rates or fertiliser application.

The converse argument also applies. The proposed regulatory framework which is designed to improve the region's water quality principally benefits those farms operated with high farming inputs and high levels of off-site pollution. PC1 serves as a stark warning to those contemplating voluntary and innovative methods to improve local and regional water quality, or even innovation for business reasons. [Underlining is our emphasis].

649. We agree with the submitters (as described above) that PC1 as notified is likely to be inequitable, as it 'rewards' those who are high N emitters and penalises lower emitters such as the likes of Mr Mowbray, Mr Garland (mentioned earlier in this report) and many other farmers who have adopted good farming practices or changed the way they farm with the result of reducing diffuse runoff of contaminants.
650. Importantly, the effect of the notified provisions is likely to result in farmers not 'buying-into' the provisions of PC1 due to the perverse outcome of farming well to reduce N as well as the other three contaminants. As we heard, grandparenting will incentivise 'gaming of the system' (Overseer) to keep the NRP as high as possible to retain farming flexibility. This will not assist in achieving the PC1 outcomes of better water quality.
651. Before removing the need to establish an NRP, which sits at the heart of the regulatory framework of the notified version of PC1, and is recommended to remain in the Section 42A reports and the Closing Planning Statement, we need to determine if there is a more efficient method (in section 32 terms) and to evaluate that method such that it would result in more efficiently and effectively achieving the outcomes sought by PC1.
652. As we have previously set out, section 32 of the RMA prescribes the requirements for preparing and publishing evaluation reports on proposed plan provisions for achieving

relevant objectives. An evaluation report is to examine whether the proposed provisions, which in this case includes the establishment of an NRP, is the most appropriate way to achieve the purpose the Act and the relevant objectives of the PC1 (as we have recommended them). Section 32(1)(b) required:

- (a) identifying other reasonably practicable options;
- (b) assessing the efficiency and effectiveness of the provisions in doing so; and
- (c) summarising the reasons for deciding on the better provisions.

Alternatives to Grandparenting – LUC – Based Allocation

653. Beef and Lamb presented a significant alternative to the notified PC1 approach. Key elements of that approach, as set out in the amended Policy 1 tabled by Ms Jordan were:

- Retaining the obligation for all properties requiring consent to provide an NRP;
- Enabling activities which do not exceed 30% more than either a tabulated list of N leaching “*Limits/Targets*” varying by LUC classification and FMU or a tabulated list of stocking rates varying by LUC classification and FMU;
- Requiring farming activities in excess of the tabulated N leaching and stock unit “*limits/targets*” to progressively reduce their discharges “*proportionate to the water quality improvements required in the sub-catchment as set out in the Table 3.11-1 and proportionate to the discharge level of the activity*”.
- Retaining a revised version of the 75th percentile rule, but using Fonterra data to identify the 75th percentile of its suppliers;
- Using the Fonterra N Risk Scorecard as the basis for requiring continued N leaching reductions for those requiring consent below the ‘75th percentile’;
- Providing for grant of consents for activities operating within the freshwater objectives;
- Using FEPs as a management mechanism for those requiring consent.

654. The philosophical basis for Beef and Lamb’s approach leans heavily on the evidence of Dr Mackay that LUC is a proxy for natural capital of the land. Dr Mackay’s views on this subject also formed the basis of the LUC-based N limits in the Horizons OnePlan and Tukituki Plan Change 6. Counsel for Beef and Lamb, Mr Thomsen, quoted extensively from both the Environment Court and High Court decisions on the One Plan

in his Block 2 legal submissions to support basing N allocation on natural capital of the land rather than grandparenting.

655. Dr Mackay noted that Beef and Lamb had used his work in a different manner to that in the One Plan and Tukituki Plan Change; utilising the relativity between different LUC classes, but basing the actual limits and targets on the output achieved by “*Top Farmers*”.
656. The 30% uplift from LUC based N leaching and stocking rates was explained by Ms Jordan as being based on Dr Chrystal’s evidence as the Overseer error margin. Ms Jordan also pointed to Tukituki Plan Change 10 as using a similar approach.
657. The Beef and Lamb approach attracted significant support (generally, but not solely from drystock interests) and significant opposition (generally, but not solely from dairy interests).
658. DoC supported development of an allocation regime, but considered²²⁵ it premature to put it in place in advance of more information about allocatable levels of N and P in each catchment. DoC also considered a suitable allocation regime might not necessarily be based on LUC.
659. Officers²²⁶ opposed acceptance of the Beef and Lamb approach on three broad grounds:
- (a) It would enable considerable increases in stocking rates in many areas of the catchment;
 - (b) The demands on high emitters are unclear;
 - (c) Both elements of the approach are proposed to be implemented at the same time, meaning that water quality can be expected to decline, rather than improve, contrary to Te Ture Whaimana.
660. We have concluded that we cannot recommend the Beef and Lamb proposal be accepted for a number of reasons.
661. First, we agree with DoC. As we will discuss further in section 7 (in the context of Objective 1) and section 8 below, Table 3.11-1 cannot yet be relied upon as the basis for allocation of nutrients. It is, in summary, a work in progress.

²²⁵ See Ms Tumai, Block 3 legal submissions – paragraph 18.

²²⁶ Closing Planning Statement – paragraph 55.

662. Dr Cox sought to demonstrate to us how N might be allocated, consistent with Te Ture Whaimana, but we have not accepted his reference point (of ecological health)²²⁷ and he appeared to assume a current state of TN that represents a deterioration in water quality since notification of PC1 (contrary to section 69 of the RMA). Counsel for Beef and Lamb, Mr Thomsen, argued that for the areas the subject of Variation 1, April 2018 data is the relevant reference point, and for the balance of the catchment, it is October 2016. The significant point he made was that both are higher than the 2010-2014 data Dr Scarsbrook provided as “*current state*”.
663. Mr Thomsen may well be correct in terms of strict compliance with section 69, but we have to apply Te Ture Whaimana, which emphasises the need for no further degradation in water quality. Te Ture Whaimana was operative when the Waikato-Tainui Act took effect (late 2010). We do not consider it consistent with Te Ture Whaimana to base allocation on the deterioration in water quality that has actually occurred since then. Put simply, it should not have occurred, and needs to be reversed.
664. We also noted flaws in Dr Cox’s assumed water flows in the lower Waikato River that appeared significantly higher than actual.
665. On a related point, Mr Thomsen described²²⁸ a characterisation of the Beef and Lamb proposal as enabling low intensity N leaching operations to increase their N discharges as being “*unfortunate*”. However, when we asked him whether this was factually correct, he said that was the case in some locations. Ms Jordan likewise agreed that the Beef and Lamb approach would enable intensification (but to more efficient land uses).
666. We do not regard that fact as fatal. In that respect, we differ from the CSG. What is important, however, is that any increases in the discharge of contaminants are modest, are occurring in locations that are not sensitive to those contaminants, and most of all, are consistent with the overall direction of travel directed by Te Ture Whaimana. Taking account of the 30% margin for modelling uncertainty, the permitted stocking rates appear to allow a significant increase in the stocking intensity for land currently used for drystock farming LUC 4 and above (compared to the evidence we heard that 18 stock units per hectare was the upper limit of non-intensive sheep and beef operations), with no effective controls ensuring diffuse discharges are minimised.

²²⁷ See our discussion in Section 3 above.
²²⁸ Mr Thomsen, Block 2 legal submissions – paragraph 58.

667. We note in passing that the concept of a limit/target that has a 30% margin above it, does not appear consistent with the NPS-FM definition of what is a limit or a target. While Ms Jordan is correct that Tukituki PC6 used a 30% margin, that was in the context of a shift in consent status from Restricted Discretionary to Non-Complying. It did not mean that the specified limit was of no practical effect.
668. We also have concerns regarding the contaminant reductions required of those farming above the allocation limits. While adoption of the Fonterra data to fix the 75th percentile N leaching figures for each FMU overcomes some of the logistical issues with the existing 75th percentile rule (we will have more to say about that shortly), the way in which Ms Jordan proposes that data be used means that Overseer is being used to assess compliance relative to an absolute number. As above, there appears to be a clear consensus that this is not appropriate. For those below the 75th percentile, as Officers observe, we have no clear evidence as to the extent of contaminant reductions required, or the economic implications of doing so to the affected farmers.
669. Dr Dewes told us both that dairy farmers would start from a favourable position (because one of the reference years was the highest milk price year and therefore likely to be the year representing the highest intensification of dairy systems)²²⁹ and that there are studies indicating capacity for dairy systems to reduce N leaching by 40-50%.
670. The first point appears to be based on an incorrect factual premise. The reference years were not the highest on record, but rather represented a sharp correction for most farmers from previously high milk prices.²³⁰
671. On the second point, Dr Thorrold for DairyNZ, cautioned against assuming study results could be replicated on the ground, certainly in the short-term.²³¹
672. Be that as it may, Dr Dewes herself noted²³² that “*the debt and vulnerability of the dairy sector may hamper rapid response times to environmental compliance by the industry, in the absence of regulatory imperative*”. We are unclear how a regulatory imperative can overcome debt and vulnerability. Ms Jordan agreed that the ability of a landowner to change land uses would depend on the cost and level of existing indebtedness.
673. Dr Dewes also acknowledged the potential for “*stranded capital*” in her Block 2 evidence, but said it may be the most “*sensible*” pathway to take.

²²⁹ Dr Dewes, Block 2 evidence in chief – paragraph 167.

²³⁰ www.interest.co.nz/rural-data/dairy-industry-payout-history.

²³¹ Dr Thorrold, Block 2 evidence in chief.

²³² Dr Dewes, Block 2 evidence in chief – paragraph 147.

674. In a situation of high debt levels, we consider the economic and social implications of “*stranded capital*” needed careful and thorough evaluation before we could conclude they were the most appropriate option for us to adopt (in a section 32 sense). However, we did not have evidence on those matters.
675. Lastly, we heard evidence that an LUC-based system of allocation is potentially flawed, because LUC is not directly linked to instream effects.
676. In its decision on Bay of Plenty Plan Change 10, the Environment Court noted its view that LUC is not, on its own, able to be relied upon as a proxy for natural capital; additional factors including rainfall and attenuation require consideration.²³³ Mr Thomsen sought to emphasise in his closing submissions for Beef and Lamb the Environment Court’s clear message that considerable caution should be exercised before relying on the Court’s decision to conclude a natural capital based allocation is unsuitable.²³⁴ The circumstances of the region and water body need thorough evaluation.
677. Mr Thomsen’s point is a fair one. However, in this case, we had the evidence of WPL addressing this specific point. Mr Williamson described to us the concept of ‘*vulnerability*’, drawing on his modelling of N leaching in the Upper Waikato area above Lake Ōhākuri. His evidence was that the vulnerability of land to N inputs vary spatially, depending on a range of factors that are not, as far as we can tell, captured by LUC. He identified the more vulnerable land as being on river flats, close to the surface waterways. Our observation is that that flat land is often more fertile adaptable land, with a higher LUC. Mr Williamson’s evidence suggests it should have a lower allocation of N (i.e. the opposite to an LUC-based approach). Mr Williamson’s evidence was largely uncontradicted at a technical level.²³⁵ Mr Willis made a similar point for Fonterra from a planning perspective, observing that LUC does not address spatial differences in attenuation.
678. Mr Ford presented an economic analysis, suggesting that a focus on vulnerability, in the sense Mr Williamson described it, was more efficient than an LUC-based allocation mechanism.

²³³ [2019] NZEnvC 136 at [364].

²³⁴ Mr Thomsen, Closing legal submissions – paragraph 16.

²³⁵ As we have noted above, Dr Cooper agreed with the underlying point Mr Williamson was making. The difference between them was that Mr Williamson said he could model the spatial differences.

679. Be that as it may, we think the larger significance of Mr Williamson's evidence is to cast significant doubt on the underlying premise of Beef and Lamb's approach; that natural capital, as identified by LUC, can provide an acceptable basis for allocation of nutrients.
680. For all of these reasons, we do not recommend the Beef and Lamb approach be adopted.
681. As we have noted, WPL presented a potential alternative based on 'vulnerability' that in our view had considerable merit. The problem with it, however, is that Mr Williamson's modelling domain is limited in scale. It covers part of the Upper Waikato FMU only and the descriptions of vulnerability it provides are too general to be applied across the catchment.
682. We discussed with WPL's modelling witnesses, the scope to expand Mr Williamson's model to cover the whole catchment. Although the message we got was that it would not be a particularly challenging exercise from a technical perspective (assuming data availability), it was clear that it would take time and a not inconsiderable amount of money. Mr Green (one of WPL's owners) told us WPL had spent \$750,000 on the model to date. While one would expect that a proportion of that cost went into initial research and development, the expansion of the model to cover the entire catchment would clearly be no small exercise. Supporting that, Dr Jordan estimated that it would take 6-12 months.
683. We consider the WPL approach offers promise for the future, but it is not an option we can use as the basis for an allocation regime at present. It would also be inappropriate for us to commit WRC to expenditure of the order required, but we recommend WRC at least consider it as a possible future approach.
684. We have therefore considered what other options might be open to us.

Establishing the Nitrogen leaching rate numbers

685. Due to the issues raised above with respect to establishing an NRP, the use of Overseer, the 75th percentile provisions, grandparenting and the inequities this created in terms of the notified PC1, the Panel considered (and determined) that an alternative approach to the notified version of PC1 should be evaluated to address these concerns. We have explained above why we did not consider the options suggested by Beef and Lamb and WPL to be viable. We have, however, taken on board Ms Jordan's concept for a revised 75th percentile rule based on the evidence of Fonterra, as to actual N leaching numbers. While we do not recommend the revised

rule Ms Jordan suggested, we consider the actual N leaching numbers Fonterra provided more compelling as a basis for management of N leaching from farming activities than the notified plan change.

686. More specifically, Mr James Allen - Block 2, and Mr Richard Allen –in his supplementary evidence as requested by the Panel²³⁶ and presented at the Block 3 hearings provided evidence setting out nitrogen leaching numbers.

687. Mr James Allen, recorded in his Block 2 evidence:²³⁷

An indication of the 75th percentile figures for the FMUs, and the number of dairy farms above this level are shown in the following figures (Figures 2 – 5), based on Fonterra data.

688. Figures 2 to 5 in his evidence set out the 75th percentile number expressed as kgN/ha, and the number of dairy farms above the 75th percentile for the four FMUs (based on Fonterra supplier farms). That is; Fonterra had calculated the average 75th percentile nitrogen leaching rate across Fonterra supplier farms.

689. Having reviewed Mr James Allen's evidence and questioned him about these numbers, the Panel subsequently requested Fonterra to provide the same metrics, but expressed as the 25th percentile, 30th percentile, 50th percentile and 60th percentile figures. These were provided by Mr Richard Allen as supplementary evidence (dated 10 September 2019) and presented at the Block 3 hearing.

690. Mr Richard Allen told us in his supplementary evidence that the percentile Nitrogen leaching numbers were from the Overseer modelling exercise carried out by Fonterra at the end of the 2015/2016 dairy season. He confirmed that the tables in his evidence used the same 2015/2016 farm dataset as the FMU 75th percentile information presented in Mr James Allen's evidence (Block 2).

691. Those numbers (from both sets of evidence) are:

²³⁶ Hearing Panel Minute dated 14 August 2019.
²³⁷ Mr J Allen, Block 2 evidence in chief - paragraph 7.5.

FMU	25 th %	30 th %	50 th %	60 th %	75 th %
Upper Waikato	31	35	41	47	57
Central Waikato	19	21	26	28	33
Waipā	28	30	36	38	43
Lower Waikato	19	21	24	27	29

692. We accept the data limitations as set out in Mr Richard Allen's supplementary evidence, namely:²³⁸

- *The Fonterra nitrogen data provides an indication of the average N loss from Waikato / Waipā dairy farms as modelled by Overseer in the 2015 / 2016 season as they relate to Fonterra farms only. As Mr Allen noted it is likely that a full dairy dataset would result in slightly different averages as the various dairy companies are not uniformly represented across farm systems type, soil type or climate bands that exist in the Waikato / Waipā.*
- *The data used to populate the individual Overseer files was collected from farmers in a non-regulatory context.*
- *The farm level data was not audited, although the Overseer processes applied to the data were (i.e. the development of the Overseer files was externally audited against the Best Practice Data Input Standards).*
- *The data was entered into Overseer in line with the Best Practice Data Input Standards as they were in 2016, and therefore the outputs from that process do not incorporate any variations to that protocol that WRC intend to apply in the future.*
- *All Overseer files used to generate the leaching numbers in the graphs have been created with S-map data where available, with soil order only used where S-map coverage is not available.*
- *The data presented was from files originally processed using Overseer version 6.2.3 but to generate these graphs the original files have been rerun in version 6.3.*

693. Notwithstanding these limitations, the data provided is the most comprehensive presented to us. It includes a large number of dairy farms within the catchment using Overseer and it is likely to represent the most comprehensive and up to date

²³⁸ Mr R Allen, Supplementary Block 2 evidence, paragraphs 4.1 - 4.5.

technology/systems approach that there is. As acknowledged by Mr Richard Allen, a full dairy dataset (including all other dairy farms in the catchment) would be likely to only result in slightly different nitrogen leaching averages. Presumably, it is for similar reasons that Ms Jordan used the same data in her suggested rule.

694. Having considered the evidence of Fonterra, we are persuaded that the nitrogen leaching numbers can be used as an alternative to the notified PC1 provisions that require an NRP to be established. Those numbers are not to be used to establish a NRP for each property, but as activity status triggers, where farmers who are farming at or below the nominated nitrogen leaching number (the 25th percentile in the Upper Waikato FMU and the 30th percentile in other FMUs, based on Mr Richard Allen's evidence) are a PA with an FEP, while those farming above that number require a consent - either a controlled, restricted discretionary or a discretionary activity, depending on the FMU. This is addressed in more detail in the Rules section of this report.
695. The benefits and/or efficiencies of specifying actual N leaching numbers include: it removes the need for each farm to individually establish its NRP as set out in Schedule B (as notified); it removes the reliance on/need for the reference years (as addressed above) to calculate the NRP; and importantly it removes the 'incentives' to have a higher NRP number (but below the 75th percentile) so as to retain greater farming flexibility as already addressed i.e. - it removes the 'grandparenting' aspect of PC1.
696. The downside of specifying N leaching numbers as proposed is that those numbers have been identified using a version of Overseer that has now been superseded by Overseer FM, and that means that there will be something of a mismatch between future modelled N leaching numbers and the trigger values we recommend. However, we will address that to some extent by the policies we will recommend, and the significance of any mismatch is reduced by the fact that the significance of the nominated values is that they determine consent status, rather than acting as hard limits.
697. In section 32AA terms, we find that the approach we have recommended (as set out above and taking into account the detailed policies and rules we will discuss in the following sections of our report) is more efficient than PC1 as notified. Importantly it will be more effective than the notified PC1 and make it more likely that recommended Objective 2 will be achieved, as well as the longer term PC1 outcomes of better water quality, and better assist in achieving Te Ture Whaimana.

Collective /Sub-Catchment Approach

698. The Panel received a significant amount of evidence from a number of Sub-Catchment Groups as well as others, including WPL (regarding “*consenting at scale*”) and those who supported PC1 to enable a more collective approach.
699. The Panel accepts that PC1 should provide for collective and collaborative action where that action would ‘better enable’ the outcomes sought by PC1. To this end, we have provided a specific policy encouraging collective groups of property owners and other stakeholders to work together on measures to improve water quality in their sub-catchment, thereby contributing positively to PC1’s objectives by providing opportunities to manage diffuse discharges from multiple properties more efficiently, including through enabling proposals that ensure that:
- (a) Overall there is a reduction in diffuse discharges to at least the same extent that would be required if all the properties were managed individually;
 - (b) The resource consent application responds to the water quality improvements required in each sub-catchment;
 - (c) Where the properties are in separate ownership, conditions are imposed or a legally binding instrument is in place between the consent holder and each property, to ensure (a) above is achieved.
700. The policy we have recommended is addressed in some detail in the section of this reporting addressing the policies.
701. We have also provided a specific ‘consenting pathway’ for ‘Collectives’; as a discretionary activity. The discretionary activity is considered by us to be necessary to address the issues in preceding paragraphs with respect to the policy matters. This is addressed again in some detail in the section of this reporting addressing the rules.
702. We have not repeated the reasons for providing for collectives/sub-catchment approaches here, and refer to the reasons in the policy and rule sections of this report. However, we wanted to set out some of evidence we heard on the benefits of providing for a collective/sub-catchment approach, and the extensive work that a number of catchment/care groups are doing to address a number of issues raised by PC1.
703. We were told that the Upper Maire Group for instance was formed to share best practice (good farming practices) including:
- Collective support

- Collective pole planting in shared areas
 - Fencing off sensitive lands
 - Mentoring and encouraging each group member to meet good farming practices.
704. By contrast, the King Country River Care is an Incorporated Society operating in seven sub-catchments covering the entire Mokau and Awakino Rivers. KCRC is a community group and was set up as an umbrella organisation to co-ordinate sub-catchment activity and is comprised of representatives from each sub-catchment. The KCRC has two primary interconnected objectives – to promote ‘on-farm good practice’ of sustainable land management principles (including identifying good management practice already being done on farms and highlighting this to external stakeholders) and the Region’s farmers have a voice and representation in the development of policy. It has employed a co-ordinator to ensure that momentum is maintained towards the objectives, etc., of prepared strategic and action plans developed by the group.
705. The group expressed its passion for protecting its communities and improving water quality. Their Strategy and Action Plan covers:
- Retirement of land
 - Critical source area retirement
 - Stream plantings
 - Fencing off sensitive areas, water ways, etc
 - Collective support
 - On-farm good practice systems
 - Education
 - Supportive of Farm Environment Plans (FEPs)
706. In relation to the above, the Panel heard from Dr Whatley, the Sub-catchment Co-ordinator in the Waikato for the Mid-Northern North Island Farmer Council of Beef and Lamb NZ. Dr Whatley is an independent environmental consultant with a focus on freshwater ecology and sustainable rural land management services. She outlined the benefits of sub-catchment approaches in line with those covered above.²³⁹
707. Of particular note is that if the approaches are developed to be truly collaborative, participants are more likely to have improved access to human, natural, financial/physical and social capital. Dr Whatley identified the potential benefits of

²³⁹ We also heard from the Matira Sub-Catchment Group, the Franklin/Waikato Drainage Subcommittee and the Mapara River Group which provided other examples of farmers working together advantageously.

community led sub-catchment planning and approaches including collaboration which strengthens social ties and networks, encourages the development and uptake of new technologies encompassing nutrient budgets, deferred grazing, land use capability, farm environment planning, and farm ecosystem processes which enable both farmers and other stakeholders to reach their goals and are associated with the emergence of new opportunities, including conflict resolution.

708. F4PC strongly advocated sub-catchment initiatives as the vehicle to accelerate the process for improvement of fresh water. Mr Macnab outlined in his Block 3 evidence the benefits of community inspired involvement and participation and confirmed that the most successful learnings and practice change comes from providing situations where farmers learn from other farmers.²⁴⁰
709. The banding together of farmers also provides the opportunity to resolve conflict and achieve constructive outcomes. It gives farmers a united voice which can provide greater access to information and knowledge and foster the development of alternative and effective solutions.
710. Other advantages that the Groups highlighted include:
- Having a sense of community;
 - Feeling empowered through learning;
 - Access to support and information;
 - Stories to showcase the good work of farmers;
 - Access to funding;
 - Learning more about being prepared for PC1; and
 - Improving farmer input into decisions.
711. The Panel wishes to acknowledge the work, much of it on a voluntary basis, undertaken on an on-going basis by a number of individuals and groups to advance better environmental, social and cultural outcomes which support the objectives of PC1.

²⁴⁰ Mr Macnab. Hearing Statement, September 2019. Mr Macnab is a member of FP4C and an Agribusiness Consultant and has conducted numerous FEP workshops for Total Ag Ltd.

6. VALUES

712. Section 3.11.1 of the notified version of PC1 sets out the community values and uses as developed by the CSG. These were described in terms of Te Mana o te Wai (integrated and holistic wellbeing of a waterbody) and represented by Mana Atua (the intrinsic values of water) and Mana Tangata (the value of water arising from use by people).
713. The submissions on the Values and Uses for the Waikato and Waipā Rivers, are summarised in section B2 of the Officers' Block 1 section 42A Report. We adopt and rely on their summary.
714. Officers noted that the values were used to set the fundamental direction of PC1 through the freshwater objectives, attributes and attribute states and as such would be considered through the objectives, policies and rules that apply when assessing a resource consent application.
715. What quickly became apparent through the evidence and the hearing, was that the values and uses as set out in PC1 could mean all things to all people, could potentially be internally contradictory and as previously noted in section 3 of our report, if translated into the objectives would imply a continuation of the existing degradation of the Waikato and Waipā Rivers, and potentially, an acceptance of further degradation contrary to the objectives of Te Ture Whaimana.
716. We discussed that proposition with a number of parties, many of whom agreed that the values and uses are a 'grab bag' of different considerations, that there is a disconnect between the identified values on the one hand, and the objectives and policies, on the other and that PC1 appeared to lack prioritisation between competing values and uses. In contrast, other submitters requested further additions to the lists of values and uses.
717. DoC for instance sought the inclusion of the values of wetlands and the coastal environment. Ms Kissick acknowledged that while the First Schedule process provided another opportunity to add values, but said it was not, in her view, what the NPS-FM intended. However, she preferred that to the values being entirely omitted.
718. Ms Ongley then took the position in her legal submissions for Fish and Game that if parties are able to submit that certain values should be modified/added, it followed that there may be other water quality contaminants or attributes that are required to be

addressed for managing the additional or altered values.²⁴¹ We have already addressed the scope to add additional attributes in section 4 of our report. Suffice it to say that we consider the scope to add new values is not infinite. It is subject to the same constraints as are discussed in section 4.

719. We observe that while submissions such as those of DoC, Hamilton City Council (seeking recognition of drainage values) and Watercare (seeking express recognition of existing and future municipal wastewater discharges) are not without merit (because they do point out relevant additional values), if accepted, they would only accentuate the problems created by the breadth of the existing values.
720. While recognising that the values and uses are a part of the NPS-FM process, Mr McCallum-Clark agreed when we asked him about the internal contradictions/tensions between values that this was a possible reason to delete the values from PC1.
721. Ms Marr confirmed in her evidence for Fish and Game that there is no requirement to have values in the plan. However, she considered the internal contradiction was reason to provide more precision, not reason to delete the values. Ms McArthur (giving expert evidence for DoC) was of a similar view, acknowledging that while it was not mandatory to include values in the plan, it was still best practice to have the values stated up front where people can understand why the plan has the direction it has.
722. We were assisted by the Closing Submissions filed by counsel for WRC on this point, who submitted that identifying the "uses" of water is not expressly required by the NPS-FM, but it is part of the process of identifying freshwater values, which is a fundamental part of the national objectives framework under the NPS-FM.²⁴² However, in counsel's submission, neither the RMA nor the NPS-FM require inclusion of the uses and values in PC1. We accept that submission.
723. Under section 67(1) of the RMA a regional plan must state:
- The objectives for the region; and
 - The policies to implement the policies; and
 - The rules (if any) to implement the policies.
724. Counsel for WRC noted that a regional plan "may" include other information including "the issues the plan seeks to address" and "the principal reasons for adopting the

²⁴¹ Ms Ongley, Block 1 legal submissions, para 75.

²⁴² Policy CA2(b).

policies and methods"²⁴³ and submitted that this could potentially allow the uses and values to be included. However, Counsel further submitted that this is not required and should only be included if the Panel considers it useful to do so, and that it is "*relevant to the purpose of [the RMA]*".²⁴⁴ We also agree with that submission and turn our minds now to consider the description of values and uses against those tests.

725. The views we had as to whether or not the values and uses should be retained were contrasting. Some parties suggested the values should be retained as they provided a context, and explanation as to where objectives and policies have come from.
726. While Ms Jordan (for Beef and Lamb) was extremely concerned at the prospect of the values being deleted as it would not in her view, assist the workability of PC1, she recognised that the document is inherently values driven and accepted that a separate discussion of the values is not required, provided they are contained within the objectives.
727. Counsel for Fonterra, Mr Matheson, submitted that while identifying the values was part of the process contributing to the development of the objectives, once that process is done, it is complete. He did not consider adding values would be helpful and instead, supported the values and uses being deleted from the Plan.
728. When questioned on the merits of deleting the values and locating them in a section 32AA assessment, Mr McCallum-Clark considered that while there is benefit in being able to show linkages, PC1 as notified sat "*in a half-way house*" because there were insufficient linkages. That issue was also noted by WPL and Beef & Lamb, who requested express links between the particular values and uses, freshwater objectives, attributes and other related provisions (i.e. policies and rules).²⁴⁵
729. While Ms Jordan's opinion was that the values identified in section 3.11.1 are appropriate and recognise and provide for sustainable management, she also took the view that the plan objectives needed to be amended to reflect the values, so that there is a better "*line of sight*" between them. Mr Thomsen advised that Beef and Lamb's ultimate position is that there needs to be new freshwater objectives to better reflect the values, supported by an amended policy framework.

²⁴³ Section 67(2)(a) and (c).

²⁴⁴ Section 18A(b)(i) RMA.

²⁴⁵ Dr Somerville QC, Block 1 legal submissions, para 129; Mr Thomsen, Block 1 legal submissions, para 60. Refer also Appendix A of Mr Scrafton's Block 3 evidence in chief.

730. Answering our question about the relevance of values, Mr Willis (for Fonterra) considered that the risk was that parties involved in resource consent applications in future would then re-litigate what an objective is which would be unhelpful. That view was shared by Ms O'Callahan (planning witness for WARTA) who noted that the confused way in which the values were worded, with some of them being framed as objectives and others being more policy like, would result in the values becoming the focus of consents leading to a large amount of tension in relation to objectives and policies.
731. Mr McCallum-Clark expressed the view when we asked him about it at the commencement of the Block 1 hearing, that the fact values point in different directions is the reality of water management. He expressed some caution about saying that some of the values and uses are more important than others. He did not consider it would be possible to get agreement about them, and that that might be one reason not to have them in the Plan.
732. Ms Crowcroft (for Mercury Energy) accepted that some of the values as expressed did not, on their face, reflect Te Ture Whaimana. When asked whether, given the pre-eminence of Te Ture Whaimana as the direction-setting document in this catchment, the use and development values should be subject to those values that crystallise Te Ture Whaimana, Ms Crowcroft acknowledged that from a water management point of view, restoration and protection is challenging; it meant in her view something higher than is coming through in this Plan Change, and it was a matter of balancing the values in Te Ture Whaimana with the use values for social and cultural wellbeing. She noted that she could not see how Te Ture Whaimana could be achieved with an equal balance of values in the Plan Change- with everything being given equal weight- and conceded that potentially, any weight ascribed to those values should be subject to Te Ture Whaimana.
733. Counsel for WARTA, Mr Berry, agreed that the vision in Te Ture Whaimana is the reference point for the objectives.
734. Counsel for the Iwi Co-Governors, Mr Ferguson noted that while the NPS required values to be identified, the interplay with Te Ture Whaimana was not considered. He submitted that these matters are all subject to Te Ture Whaimana, to the extent that they have legal effectiveness. We observe that the issue arises precisely because the description of values and uses is likely to have some legal effectiveness.

735. In the Closing Planning Statement, Officers confirmed their opinion that while the NPS-FM sets values and uses as the starting point for then assigning freshwater objectives and limits on targets, PC1 is slightly different in that Te Ture Whaimana provides an overall, and overriding, commentary on the values and uses and some elements of the freshwater objectives. Officers stated their firm view that the values and uses, while an important part of the NPS-FM process, are somewhat less important for PC1 and should be considered to be secondary to Te Ture Whaimana in relation to the subsequent plan provisions. Officers therefore recommended that the values and uses be deleted in their entirety from PC1, and recorded within the section 32AA Report, if that was considered necessary.
736. In his closing submissions, Dr Somerville QC observed that there were a number of submissions that objectives needed to be all embracing, reflecting the values and direction in both Te Ture Whaimana and the NPS-FM. He cautioned that at no stage can there be an inability to meet Te Ture Whaimana through the way PC1 is structured.
737. We agree with that submission and note that if objectives say what they mean and mean what they say, it is inconsistent to specify values in the chapter which cast doubt on the outcomes sought in objectives and risk compromising implementation of Te Ture Whaimana. We do not find it either necessary or useful to include the values and uses either in PC1 or recorded within the section 32AA Report. Nor do we find that it is relevant to the purpose of the Act to do so.
738. It follows that we agree with the Officers' recommendation, in the Closing Planning Statement, that the best course (more specifically, the most appropriate option to achieve the objectives that we discuss in the next section) is to delete the values and uses section from PC1.
739. While we have not canvassed every submission on the Values and Uses in this section of our report, our recommendations as to whether those submissions should variously be accepted, accepted in part or rejected are reflected in the overall recommendation that notified Part A of PC1, Section 3.11.1 - Values and uses for the Waikato and Waipā Rivers, be deleted.

7. OBJECTIVES

General Approach to Objectives:

740. Section B4 of the Block 1 section 42A Report contains a comprehensive review of submissions on the objectives of PC1, with detailed recommendations. We will follow the same format as the section 42A Report. In this section, we will therefore address submissions on the objectives generally, followed by a review of the submissions on each of the notified objectives. Lastly, we will address submissions seeking insertion of entirely new objectives.
741. Submissions on the objectives generally are summarised at section B4.2.1 of the Block 1 section 42A Report. We adopt and rely on that summary.
742. We agree with the Officers' recommendation that submissions seeking deletion of all objectives be rejected. As the section 42A Report notes, statement of the objectives of PC1 is a requirement of section 67(1)(a) of the RMA. Having said that, we agree that there is scope to prune the notified objectives, so as to achieve a more effective and efficient document and thereby better serve the purpose of the RMA. We will come to that in due course. As regards submissions seeking limits or targets for additional freshwater attributes, we have addressed some attributes and found them to be beyond the scope of PC1 in section 4 of our report above. For those attributes within scope, we discuss their merits in the section following specifically addressing the content of Table 3.11-1.
743. The section 42A Report notes submissions seeking amendments to objectives to enable sub-catchment groups to manage their land resources. We heard evidence from a number of sub-catchment groups that have already established with varying degrees of formality. While we accept, in principle, that such groups have the potential to materially assist achievement of the objectives of PC1, provision for them does not in our view require amendments to the objectives: it falls more naturally into the categorisation of policies (being courses of action,²⁴⁶ in this case to achieve the objectives) and/or implementation methods (to achieve the policies). We also addressed sub-catchment groups/planning more specifically in section 5 of this report above.
744. The section 42A Report notes a number of submitters who sought amendments to the timeframes referred to in the objectives. This was part of a broader request for relief

²⁴⁶ Refer *Auckland Regional Council v North Shore City Council* (1995) ELRNZ 426, 433 (CA).

from a large number of submitters seeking that objectives be achievable and provide certainty to farmers. We heard from a number of farming witnesses who gave evidence along these lines.

745. In our discussion of Te Ture Whaimana we have already addressed the extent to which social and economic effects can be taken into account when giving effect to the direction contained within that document. We have found that Te Ture Whaimana leaves scope to adjust the timeframes within which its objectives may be achieved, but not the ultimate outcome.
746. PC1 identifies the long-term objective as being met by 2096. Our reading of the materials produced in the CSG process is that it was felt such a long lead time was required because new methods and technologies for land management would be required if achievement of that long term objective were not to have disastrous effects on the social and economic fabric of the region.
747. Counsel for Forest and Bird, Mr Anderson, submitted that the 80-year timeframe of the long-term objective was premised on long lag times between changes to farming practice and improvements in water quality, and that the technical evidence in particular for WPL had disproved that as a factor. We will address the significance of WPL's evidence on lag times in due course. For present purposes, it is sufficient to record that Mr Anderson's submission did not accord with our reading of the CSG materials. We heard from Mr George Moss, who was a member of the CSG, shortly after Mr Anderson appeared. Mr Moss confirmed that issues around the contaminant load to come did not drive the decision to provide an 80-year timeframe, that being more about the adverse economic impacts of trying to achieve it any faster.
748. That timeframe was also the subject of criticism by some parties on the basis that it was so far out into the future as to be meaningless. We heard no evidence, however, to identify how the long-term objectives of PC1 could be met in any shorter time with an acceptable level of effect on the people and communities of the Waikato and Waipā River catchments.
749. The downside of having a long range out into the future with no clear path by which they will be achieved is a lack of certainty. We have looked for ways in which we might provide greater certainty to the farming community in particular, but ultimately, PC1 is the first step in a journey to achievement of the objectives of Te Ture Whaimana. It will be followed by many other steps specified in subsequent regional plan processes, the shape of which we cannot forecast, much less constrain. We can only identify the

ultimate outcome and the steps required to make progress towards that outcome over the life of PC1.

750. The influence of lag times was also raised by Mr Cuttance in his submission. He requested that the objectives be amended to acknowledge the uncertainty in predicting how water quality attributes will change over time due to the influence of such lag times. While the evidence of Mr Williamson, for WPL, in particular, suggested that time lags between actions on farm and reactions within the waterways of the catchment may not be as long as previously projected, he did not suggest that there would be no time lags and thus Mr Cuttance raises a valid point that we need to consider in the framing of objectives 1 and 3 in particular. WRC's corporate submission likewise raises a valid point when noting the need to take account of climate change effects when projecting forward as far ahead as 80 years. We will return to these points in our discussion of Objective 1.
751. The section 42A Report notes a submission on the part of Mangakotukutuku Stream Care Group Inc seeking amendments to objectives to protect remaining wetlands and gully seeps and create new incentives to encourage the creation or reinstatement of wetland areas. While the Officers recommended rejection of the suggested amendments as not adding materially to the provisions of the WRP, we find that there is a general need to provide greater direction around outcomes sought for wetlands generally and the Whangamarino wetland in particular (due to its international significance). We will return to the point in our discussion of the detailed wording of objectives.
752. We should note also the general submissions of a number of iwi parties including Maungatautari Marae, seeking that PC1 be strengthened and enhanced, among other things, to better achieve Te Ture Whaimana and to align with the Waikato-Tainui Iwi Management Plan. The submissions are non-specific as to how the document should be strengthened and enhanced, but we will bear the general point in mind when we review the objectives in the next section of our Report.
753. DoC's submission identified a lack of clarity as to what the "*freshwater objectives*" are for the FMUs within the Waikato and Waipā River Catchments. We observe that the concept of "*freshwater objectives*" is of particular significance under the NPS-FM. As our review of that document indicates, Part CA of the NPS-FM requires identification of freshwater objectives for all FMUs by employing the process set out in Policy CA2.

754. The NPS-FM states that a freshwater objective “*describes an intended environmental outcome in a freshwater management unit*”.
755. Policy A2 further requires that where FMUs do not meet the freshwater objectives specified in a plan, regional councils must specify targets and implement methods in order to meet those targets within a defined timeframe.
756. It is our view that the DoC submission makes a valid point. We asked a number of parties, including the Officers, what the freshwater objective(s) were in PC1. We received a variety of answers. It was suggested to us that some or all of Objective 1, Objective 3 and the numerical values in Table 3.11-1 cross referred in those objectives were freshwater objectives. The absence of consensus rather tended to confirm DoC’s point.
757. For present purposes it is sufficient to record that we accept DoC’s fundamental point. We recommend in the section following how PC1 might more clearly identify freshwater objectives.
758. Lastly, at a general level, the section 42A Report highlighted a submission by Forest and Bird identifying a disconnect between the body of Objective 2 and the expressed reasons for that objective. Forest and Bird sought that the Objective 2 be amended to bring it into line with the expressed reasons. Officers suggested that the submission highlighted a more general issue and that the better course was to delete the reasons, ensuring that any key points from them not already captured in the objectives should prompt reconsideration of how the objectives are framed.
759. While we consider the Forest and Bird submission a somewhat dubious jurisdictional basis for deletion of the reasons, we consider that jurisdiction can be found in the submissions seeking deletion of the objectives entirely (noted above) or even more general submissions seeking withdrawal of PC1 as a whole.
760. Withdrawal of the whole Plan Change must necessarily include withdrawal of every element thereof.
761. Addressing the substantive point, we think the Officers’ recommendation is well founded. The increasing trend of RMA plans is to slim them down so that they are easier to comprehend. While the RMA provides that reasons may be given, our view is that the objectives (in this case) should speak for themselves, and if they don’t, they require amendment.

762. Accordingly, we recommend that the stated reasons for adopting each objective be deleted. We will consider whether there are any elements of the reasons that need to be incorporated in the objectives in our review of each objective.

Objective 1:

763. As notified, the text of Objective 1 read:

'Long-term restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 1: Te whakaoranga tauroa me te tiakanga tauroa o te kounga wai ki ia riu kōawaawa me te Wae Whakahaere i te Wai Māori

By 2096, discharges of nitrogen, phosphorus, sediment and microbial pathogens to land and water result in achievement of the restoration and protection of the 80-year water quality attribute targets in Table 3.11-1."

764. Section B4.3.1.1 of the Block 1 section 42A Report summarises the 261 submissions specifically related to Objective 1. Once again, we adopt and rely upon that summary.

765. Many of the submissions overlap with more general submissions on the objectives discussed in the previous section.

766. A number of submissions also raise points that overlap with our discussion of higher-level issues around grandparenting of resource use and the nitrogen reference point that are likewise discussed in section 5 of our report above.

767. The section 42A Report notes a large number of submitters who seek that all sources of contamination, including that resulting from koi carp, Canada geese and urban land uses be the subject of PC1. As regards urban discharges at least, Objective 1 is non-specific as to the source of contamination. We consider such issues, accordingly, in relation to the policies seeking to achieve the objectives.

768. This is also the answer to the submission of Federated Farmers seeking clarification that the discharges referred to in Objective 1 include both diffuse and point source discharges.

769. The contribution of pest fish and birds are not readily categorised as 'discharges' controlled by section 15. While the scope of PC1 to manage pest fish and birds is therefore limited, we recommend rewording of the objective for other reasons, discussed below, and this will provide a basis for a new provision that we will recommend.

770. The section 42A Report notes Beef and Lamb’s submission seeking greater linkage between the values, objectives, Table 3.11-1, policies, methods and rules. In Ms Jordan’s Block 2 evidence, for Beef and Lamb, she suggested substitution of Objective 1 by two new objectives that would cross reference the values in section 3.11.1. In section 6 above, we have recommended that the values set out in section 3.11.1 of the notified PC1 be deleted, among other reasons, because of the internal conflicts between the specified values and the inconsistency of some values with achievement of the objectives of Te Ture Whaimana. For present purposes, the important point is that if accepted, that recommendation would necessarily require rejection of the suggested amendments to Objective 1 suggested by Beef and Lamb.
771. The section 42A Report records that Federated Farmers seek that the 80-year numeric targets be deleted on the basis that the targets reflect one interpretation of Te Ture Whaimana, and that a more appropriate approach would be to set progression towards the outcomes that Te Ture Whaimana anticipates as the long-term goal. Federated Farmers are also recorded as having sought that the objective be amended to state that the management of discharges of contaminants will assist to achieve the water quality outcomes, but will not be the only actions required to meet Te Ture Whaimana.
772. Lastly, the section 42A Report notes Federated Farmers as seeking that the objective only applies to discharges to and where they may enter water (as opposed to general discharges to land). We consider the last point implicit in a focus on water quality attribute targets measured at nominated sites along the Waikato and Waipā Rivers and their tributaries, but will consider the point further in our discussion of how the objective is framed.
773. Officers’ recommendations on Objective 1 included:
- Delete the heading as being potentially confusing by reason of the differences between it and the text of the objective;
 - Identify 2096 as the latest date for achievement of the objective;
 - Shift the focus of restoration and protection to the Waikato and Waipā Rivers;
 - Refer to that being achieved by a reduction in discharges;
 - Describe the end result in terms of 80-year water quality “*attribute states*” rather than “*targets*”.
774. By WRC’s closing, this was expressed as follows:

“By 2096 at the latest, the Waikato and Waipā Rivers are restored and protected, which is enabled by a reduction in the discharges of nitrogen, phosphorus, sediment and microbial pathogens to land and water, such that the 80-year water quality attribute states in Table 3.11-1 are met.”

775. We agree with the suggested deletion of headings throughout this section of PC1. As with reasons, the objective needs to speak for itself. Some of the headings are so long as to be almost quasi objectives in their own right, increasing the potential for confusion in the application of PC1.
776. The Officers’ recommendation that Objective 1 refer to attribute states, rather than targets, is linked to the issue canvassed in the previous section around identification of freshwater objectives. In our view, Objective 1 cannot be a freshwater objective because, while Table 3.11-1 purports to identify the intended environmental outcome, PC1 does not contain, and nor are we in a position to specify, methods by which that outcome is to be achieved.
777. It follows that we agree that the terminology of the NPS-FM, speaking in terms of “*targets*”, is likewise inappropriate.
778. We likewise agree with the recommended shift in focus to restoration and protection of the Waikato and Waipā Rivers. To us, the notified wording, talking about restoration and protection of a series of instream water quality values, reads somewhat oddly. This was reinforced by the uncertainties around those values highlighted in the experts’ joint witness statement.
779. We also agree with the Officers’ recommendation that 2096 should be the outer limits of the objective, with it being achieved earlier if possible. As above, we heard no evidence that would indicate that any particular earlier date is practicable. We also recommend rejection of submissions suggesting that the emphasis be in the opposite direction: suggesting that 80 years is the earliest possible date for achievement. While there is no doubt that achievement of Te Ture Whaimana will be a challenging objective requiring effort over intergenerational timescales, in our view, PC1 needs to put a line in the sand representing the current best estimate as to when it will be achieved. If experience indicates that 80 years is too optimistic, that can be addressed in future regional plans. Pushing the projected time horizon any further out at this point would send entirely the wrong message regarding the regional commitment to implement Te Ture Whaimana.

780. Officers recommended rejection of Federated Farmers submission, saying that numerical limits and targets send a clear signal of likely changes that would be required to restore water quality, deletion of these would remove an integral part of PC1, and could constitute a weakening of its direction.²⁴⁷

781. We agree with the Officers' desire not to weaken the direction set by PC1, but we do not agree that direct reference to the 80-year values in Table 3.11-1 is helpful in this context for a number of reasons:

- (a) There are a number of sub-catchments not yet incorporated into Table 3.11-1, because monitoring points have only recently been established for them;
- (b) There is clearly significant room for expert debate around the 80-year values. The absence of any clear consensus on virtually every potential numerical value in the context of the joint witness caucus demonstrated that. In addition, we note the following statement in Attachment 2 to the Joint Witness Statement, related to nutrient attributes:

“The relatively high degree of uncertainty and the determination of TN/TP long-term thresholds should be acknowledged. These thresholds should be considered interim values for the duration [sic] PC1 and should be reviewed before the next Plan Change and amended if necessary to reflect contemporary knowledge.”

The same paper noted that there was insufficient data and information about the state and processes of estuarine and coastal areas to identify appropriate TN/TP thresholds²⁴⁸;

- (c) As will be clear from our discussion of Table 3.11-1, both nitrate and DRP values have been set at the current state, not because that represents a satisfactory environmental outcome, but rather because of the absence of sufficient information to set more appropriate values;
- (d) Table 3.11-1 values were identified through a process considering the position at each monitoring point. Dr Cooper confirmed to us in the Block 1 hearing that the Table 3.11-1 values were accordingly not constructed with reference to the proportional contribution each sub-catchment makes to downstream water

²⁴⁷ Block 1 section 42A Report at paragraph 344.

²⁴⁸ The submissions of Mr Cuttance (based on lag times) and WRC (noting the effects of climate change) Discussed above provide additional reasons for caution about the robustness of the 80-year values.

quality when deciding that sub-catchments' water quality targets. While the recommendations in the Joint Witness Conferencing Statement on Table 3.11-1 would address many of the anomalies identified in the Table, they would not alter that position. Thus, if TN and TP values are amended to adopt Options 1C and 2C respectively, as preferred by the majority of experts involved in joint witness conferencing (and as we recommend in section 8 following), that would have the result that the upper part of the Upper Waikato FMU (from Ōhakuri upstream for TN and from Waipapa upstream for TP) would not need to make a contribution to over-allocation of N and P further downstream. We agree with the expert evidence of Dr Ausseil for the Iwi Co-Governors that upstream landowners should make a contribution to downstream water quality improvements based on their "*fair share*" of the improvement required.²⁴⁹ However, we do not have the information to make the necessary amendments to identify what in this case would be a fair share;

- (e) Last but not least, while Table 3.11-1 may have been developed with input on mātauranga Māori, the recommendations we have received as to how it might be amended have largely been a 'science-based' exercise. Te Ture Whaimana directs that mātauranga Māori be utilised as well as the latest scientific methods.²⁵⁰ We discussed this issue with counsel for the Iwi Co-Governors in the Block 2 hearing. Mr Ferguson agreed that this is a necessary step, but suggested that it needs to be addressed by degrees.

782. For all of these reasons, while Table 3.11-1, is the best current assessment of long-term water quality goals in the Waikato and Waipā Rivers, we consider that the guidance it provides is potentially misleading in the context of Objective 1.

783. Illustrating the point, we heard from a number of farmers in the Waipā River sub-catchments that N in their particular sub-catchment was already at the 80-year values specified. Understandably, they asked why they were then required to take steps to reduce N in their sub-catchments still further.

784. It follows that we recommend that Federated Farmers' submission be accepted and that reference to Table 3.11-1 be removed from this first critical objective. However, we are alive to the Officers' concern that this should not be seen as a weakening of resolve, or a watering down of the long-term objective.

²⁴⁹ Dr Ausseil, Block 1 evidence in chief at paragraph 83.

²⁵⁰ Te Ture Whaimana at Objective (m).

785. Before discussing how this might be done, we should address another problem we identified in the Officers' recommendation. In section 3 of our report, we observed that the restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers required by Te Ture Whaimana will encompass a series of actions, some lying outside the scope of the RMA, and some within the scope of the RMA. For those within the scope of the RMA, action will be required to address physical structures within river and stream beds, water quantity and water quality. We have found the first two areas to be outside the scope of PC1. Even in the sphere of water quality, while PC1 targets the four principal contaminants impacting on water quality, we have found in section 4 above that there are contaminants that sit outside the scope of PC1.
786. It follows, in our view, that while reference to restoration and protection of the Waikato and Waipā Rivers is appropriate in this objective, that needs to be placed firmly in the context of management of N,P, sediment and microbial pathogens, so as to avoid implying a broader perspective on their restoration and protection than PC1 can deliver.
787. Nor do we agree with the Officers' recommendation that the focus should solely be on "*discharges*" of those contaminants, essentially for the reasons set out in section 4 above, but also so that the objective might provide a platform for policies regarding pest species, as above.
788. While specification of a 2096 target date already implies it, we also think it is helpful if the objectives state specifically that restoration and protection, to the extent that management of the four contaminants can assist its achievement, will occur "*over time*".
789. Returning to the extent to which the objective might seek restoration and protection of the Waikato and Waipā Rivers, we think that the appropriate reference point is that provided by Objective (k) of Te Ture Whaimana, namely that the water is safe for people to swim in and to take food from.
790. We consider this approach responds to the iwi parties who submitted that Objective 1 needed to be more closely linked to Te Ture Whaimana and be aligned with the Waikato-Tainui Iwi Management Plan.
791. Having said that, while safe swimming and safe food gathering is the primary long-term goal the wording of Objective 1 needs to address, it would not be correct to suggest that it is the only long-term test as to whether health and wellbeing has been restored. Te Ture Whaimana has a number of other objectives that bear upon the ultimate

outcome that will need to be factored in over the long-term restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers. Objective (i) for instance requires protection and enhancement, among other things, of significant fisheries, flora and fauna.

792. We do not, however, agree with the suggestion on the part of a number of submitters that Objective 2 might be amalgamated into Objective 1. We think that this would potentially elevate economic and social considerations, in particular, in a way that is not mandated by Te Ture Whaimana.
793. Lastly, responding to DoC's submissions, we think that this Objective should make it clear that when reference is made to the health and wellbeing of the Waikato and Waipā Rivers, that includes springs, lakes and wetlands within those catchments.
794. Our recommended wording, to achieve these various points is set out in the revised version of PC1 appended to our report. [See Waikato Regional Council Policy Series 2020/02 DOC#15708291]

Objective 2:

795. As notified, this Objective read:

“Social, economic and cultural wellbeing is maintained in the long-term/Te Whāinga 2: Ka whakaūngia te oranga ā-pāpori, ā-ōhanga, ā-ahurea hoki i ngā tauroa.

Waikato and Waipā communities and their economy benefit from the restoration and protection of water quality in the Waikato River catchment, which enables the people and communities to continue to provide for their social, economic and cultural wellbeing.”

796. The 190 submissions specifically on Objective 2 are summarised in section B4.3.2.1 of the Block 1 section 42A Report. Once again, we adopt and rely on that summary.
797. Initially, the Officers' only recommendation was that reference be added to the Waipā River Catchment. However, by closing, the Officers' recommendation was that:
- Reference to the economy be deleted;
 - Reference to the Waipā River Catchment be added (as above);
 - Reference to provision for wellbeing being continued be deleted, substituted for by a focus on such provision being “*over the long-term*”.

798. It seemed to us that the drafting of this objective suffered from a lack of clarity as to its role in the suite of objectives. In particular, the statement that restoration and protection of water quality would enable people and communities “to *continue*” to provide for their wellbeing clearly introduces confusion as to whether this was in fact, as the title suggested, an outcome to be reached in the long term (and therefore linked to Objective 1), or whether it is focusing on the journey towards restoration and protection and the social, economic and cultural conditions that exist during the journey.
799. We asked a number of planning witnesses how they interpreted Objective 2, and we got a variety of answers.
800. Mr Kivell, the planning witness for South Waikato and Matamata-Piako District Councils, said he thought that social, economic and cultural wellbeing had to be achieved during restoration and protection of water quality.
801. Mr Hodgson, the planning witness for HortNZ thought that consistently with Te Ture Whaimana, social, economic and cultural wellbeing had to be provided for through restoration and protection of water quality, not while it occurred.
802. Lastly, Mr Eccles, the planning witness for Federated Farmers, suggested that wellbeing needed to be provided for both at the end of the restoration and protection process and during it.
803. Although the Officers’ closing version of Objective 2 suggests deletion of any reference to “*continuing*”, we do not regard the suggested alternative (i.e. talking about social, economic and cultural wellbeing being provided for over the long term) as being a lot better, because it does not clearly answer the question that we got diverse answers to: when exactly in the process of restoration and protection is social, economic and cultural wellbeing provided for?
804. For the reasons set out in greater detail in section 3 of our report, we agree with Mr Hodgson that if this objective is to remain, to make it consistent with Te Ture Whaimana, it needs to address the situation once the health and wellbeing of the Waikato and Waipā Rivers has been restored. As above, this is projected to be as far away as 2096. While we consider Objective 1 has value in stating the long-term environmental goal, we do not consider that projecting forward so far is of any assistance in any other respect. Unlike Objective 1, an objective focusing on the extent to which restoration and protection of water quality will ultimately provide for social,

economic and cultural wellbeing will not materially contribute to management of the natural and physical resources of the Waikato and Waipā Rivers over the life of PC1.

805. Before moving on to Objective 3, we note at this point that Officers recommended that Objective 4 be deleted. We will address Objective 4 shortly, but that objective more clearly addresses what will occur in the short-term. It follows from our discussion of Objective 2 above that we consider the Officers' recommendation is the wrong way around. We recommend that Objective 2 be deleted and that Objective 4, suitably amended, be retained, in order that it might provide greater clarity of focus regarding the outcomes sought during the life of PC1 in relation to social, economic and cultural wellbeing.

Objective 3:

806. As notified, this Objective read as follows:

“Short-term improvements in water quality in the first stage of restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 3: Ngā whakapainga taupoto o te kounga wai i te wāhanga tuatahi o te whakaoranga me te tiakanga o te kounga wai i ia riu kōawāwa me te Wae Whakahaere Wai Māori.

Actions put in place and implemented by 2026 to reduce discharges of nitrogen, phosphorus, sediment and microbial pathogens, are sufficient to achieve 10% of the required change between current water quality and the 80-year water quality attribute targets in Table 3.11-1. A 10% change towards the long-term water quality improvements is indicated by the short-term water quality attribute targets in Table 3.11-1.”

807. Section B4.3.3.1 of the Block 1 section 42A report summarises the 210 submissions specifically on Objective 3. Once again, we adopt and rely upon that summary.
808. As the section 42A Report notes, submissions on this objective run the gamut from seeking its deletion, to retaining it as notified.
809. By closing, the Officers' recommendations for this objective incorporated the following elements:
- Delete the heading;
 - Identify the objective as a “*freshwater objective*”;
 - Alter the timeframe so that the focus is on actions put in place and implemented over the ten years from the Chapter becoming operative;

- Refer to both diffuse and point source discharges;
 - Just refer to short term water quality attribute states in Table 3.11-1, rather than drawing out the relationship between those attribute states and the 80-year water quality attribute states.
810. We agree with deletion of the heading for the same reasons as in relation to Objective 1.
811. We agree with the suggested trimming down of the objective to remove what is essentially an explanation as to how the short-term water quality attribute states were arrived at. The notified wording is unnecessary in this context. The purpose of the objective is to set out the desired end state of affairs.²⁵¹ The short-term water quality attributes sufficiently identify the outcome sought.
812. As the section 42A Report records, there were a large number of submissions seeking both shorter and longer timeframes for taking action to improve water quality. Some submitters sought that any timeframes be deleted.
813. We discussed with a number of parties, and their representatives, whether 2026 remains a viable and sensible reference point. The Officers' initial view was that 2026 represented a line in the sand and there should be no resiling from it.
814. A 2026 reference point would have seemed a viable option in 2016, when PC1 was publicly notified. As we discussed with a succession of parties during the course of our hearings, projecting forward from 2019 and taking account of the likelihood of multiple appeals to the Environment Court, there is a very real potential that PC1 might not be operative until mid to late 2022, with a further 6 months running under section 20A thereafter before it would actually 'bite' on existing farming enterprises. It became increasingly obvious as the hearing proceeded into the second half of 2019, to us at least, that 2026 was an untenable date by which material steps towards improvement in water quality will have been implemented across the catchment.
815. While we detected a degree of agreement, albeit reluctant in some cases with that view²⁵², we should note that in the marked up provisions provided by the parties in closing, DoC appeared to be the only party to have materially shifted on this point, suggesting substitution of 2030 as the relevant date.

²⁵¹ See *Ngati Kahungunu Iwi Inc v Hawke's Bay Regional Council* [2015] NZEnvC 50 at [42].

²⁵² Among those who put it more strongly, Mr Anderson submitted to us on behalf of Forest and Bird that there was no merit in keeping the short-term targets at 2026.

816. Having identified the need to shift from 2026, we prefer the Officers' recommendation of specifying 10 years from PC1 becoming operative rather than a hard date that unforeseen events might again overtake.
817. We agree also with the recommendation of Officers that Objective 3 be specifically identified as a "*freshwater objective*". As above, the NPS-FM requires identification of freshwater objectives and given our conclusion in relation to the long-term water quality objective, it follows that Objective 3 is effectively the only candidate. We are less sure about the reasoning in the Officers' closing statement, where it is stated²⁵³ that the short-term attribute state columns represent the numeric freshwater objectives.
818. Given the reasoning in the Joint Witness Conferencing Statement, it appears to us that at least some of the short-term numeric water quality values are intended to be limits or targets giving effect to numeric freshwater objectives. The most obvious example is TP where the reasoning for fixing particular values that we have accepted is based on achieving the specified chlorophyll-a values.
819. That then raises the issue as to what it is that has to be achieved by the point in time that is ten years after the chapter becomes operative. The notified objective used the phraseology "*actions put in place and implemented*". Officers continue to recommend that phraseology. In the Closing Planning Statement, they suggest that the end result is that actions will be put in place that will eventually achieve the desired outcome, rather than that the outcome will be achieved.
820. We observe that were this to be the case, that would seem to be inconsistent with identification of the short-term attribute states in Table 3.11-1 as being numeric freshwater objectives.
821. More substantively, while it may have been a necessary corollary to Objective 3 focusing on the position at 2026, to accept that actions might be put in place and implemented by then, but improvement in water quality would take some time thereafter to result, the same considerations do not arise with nearly the same cogency looking out ten years from PC1 being operative. While we accept that the actions of PC1 will be put in place over time, it is much more difficult to accept that if this occurs, they will not have a materially positive effect on water quality over that ten year period. We also bear in mind the evidence of Mr Williamson suggesting that to the extent the CSG may have been contemplating a time lag of decades before N leaching mitigation measures

²⁵³ Officers' Closing Planning Statement at paragraph 16.

would finally play out in instream nitrate and TN concentrations, a more realistic timeframe would be 10-15 years. Mr Williamson's evidence also suggests that the distribution of improvement will likely be weighted towards the present, rather than occurring in an evenly spread manner.

822. We consider, therefore, in principle, that Objective 3 should be framed in terms of the improvements in water quality required over the period from ten years after PC1 is operative.
823. The second point is whether, given the enlargement of the timeframe, the extent of improvement should be correspondingly increased.
824. As the notified version of Objective 3 makes clear, the logic of the short-term water quality values, as notified, was that they represented 10% of the improvement over the 80-year period to 2096.
825. If the timeframe for Objective 3 is pushed out to around 2033 (as above, our best estimate as to when ten years post PC1 becoming operative would actually be) that approximates to 20% of the time period between 2016 and 2096. If the catchment is to stay on track towards achieving the long-term objective by 2096, we consider that this first stage needs to be a 20% improvement compared with the 80-year outcomes, rather than 10%.
826. Clearly such an increase might have significant implications for stakeholders that would need careful consideration in terms of the section 32 tests. However, Dr Doole's economic modelling²⁵⁴ projected a significant 'overshoot' resulting from application of the notified PC1 policy mix, that is to say, the policy mix would achieve a water quality improvement significantly in excess of the 10% required to meet the notified short-term water quality attribute values.
827. Clearly, we are not recommending exactly what Dr Doole modelled. Among other things, we are recommending a rather more nuanced approach to those farms with high N leaching rates which may result in reducing the gains projected from application of the notified 75th percentile rule. On the other hand, we consider that the changes we are recommending to the rules, and in particular the standards around FEPs, will drive greater improvements (and greater certainty of those improvements occurring), than would the notified provisions. We also note that one of Dr Doole's assumptions

²⁵⁴ See in particular Doole et al, simulation of the proposed policy mix for the Healthy Rivers Wai Ora Process, 6 June 2016.

was that there would be no improvement in point source discharges over the life of PC1. We think that is a conservative assumption given the evidence we heard of continuing improvements being made,²⁵⁵ and the amendments to policy provisions we have recommended to “*sharpen*” them up.

828. In short, we consider that Dr Doole’s modelling, including his assessments of costs to the region, remain reasonably applicable to a 20% water quality improvement required in the period from now until ten years after PC1 is operative. We will address the acceptability (or otherwise) of those costs later in this section of our report.
829. As with Objective 1, we think that the focus of Objective 3 needs to be shifted from reductions in discharges to restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers in relation to N, P, sediment and microbial pathogens. This addresses, in a different way, the concern of submitters seeking confirmation that the objective applies both to diffuse and point source discharges.
830. We find the existing wording “*actions put in place and implemented*” somewhat repetitive – if actions have been “*put in place*”, that implies implementation has already occurred. We think that that could be expressed more simply by talking about progress towards that ultimate goal. That will also have the benefit of emphasising the character of PC1 as the first step required to achieve that ultimate outcome.
831. We agree, however, with the Officers’ recommendation that the emphasis needs to be on steps being taken over the life of PC1.
832. The end result is as shown in our recommended revised PC1. Because of the recommended deletion of Objective 2, as above, Objective 3 is renumbered accordingly. We think that a more natural ordering in any event is from long-term goal to short-term freshwater objective.

Objective 4:

833. As notified, Objective 4 read:

“People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hāpori

²⁵⁵ Refer for example the Mr Goldschmidt, Block 2 evidence in chief for Fonterra discussing the ongoing improvements in discharges from Fonterra’s manufacturing plants.

A stated approach to change enables people and communities to undertake adaptive management to continue to provide for their social, economic and cultural wellbeing in the short-term while:

- a. considering the values and uses when taking action to achieve the attribute targets for the Waikato and Waipā Rivers in Table 3.11-1; and*
- b. Recognising that further contaminant reductions will be required by subsequent regional plans and signalling anticipated future management approaches that will be needed to meet Objective 1.”*

834. Section B4.3.4.1 of the Block 1 section 42A Report summarises the 217 submissions specifically on Objective 4. We adopt and rely on that summary. Once again, those submissions cover the ground between deletion and retention as notified.

835. As the section 42A Report notes, many of the submissions on this objective focus on the lack of clarity as to what it actually means: e.g. what consideration of values and uses involves. A number of submissions also focus on the uncertainty this objective creates for farming enterprises by signalling a future requirement for further contaminant reductions without identifying what that might entail.

836. Reference to adaptive management in this context is also queried.

837. Beef and Lamb submit that Objective 4 fails to recognise sub-catchment specific conditions (including that some are not over-allocated). It suggests that Objective 4 be amended to provide a pathway for individuals and communities to work together to achieve Te Ture Whaimana over the long-term. The latter is a common theme among a number of submissions.

838. The Officers' recommendation is to delete Objective 4 on the basis that it does not describe an outcome or future state, but rather identifies implementation methods and identifies the potential for future intervention. To assist the Hearing Panel, the Block 1 section 42A Report nevertheless identified how Objective 4 might be amended, should the Panel feel it has value as an objective. The suggested alternative would incorporate the following elements:

- Delete the heading;
- Refer to reduction of contaminant losses rather than “*change*”;
- Delete reference to adaptive management;
- Delete reference to values and uses;

- Substitute reference to “*attribute states*” for “*attribute targets*”;
- Delete reference to future management approaches.

839. We agree that Objective 4 contains a number of flaws and requires significant amendment. However, as we noted in our discussion of Objective 2, there is a need for PC1 to set out what outcome is sought in relation to the provision of social, economic and cultural wellbeing over its life. We take on board the concern in DoC’s submission that reference to people and communities continuing to provide for their social, economic and cultural wellbeing suggests a “*business as usual*” approach, which is clearly contrary to Te Ture Whaimana. Having said that, in section 3 of our report above, we discuss how social and economic wellbeing, in particular, can be assisted by staging the water quality improvements necessary to achieve the objectives of Te Ture Whaimana. The key word is “*assist*” - there is no ‘silver bullet’. As Mr Thomsen, counsel for Beef and Lamb put it in his Block 2 legal submissions, there will be “*pain*” in order to get the catchment back on track.²⁵⁶
840. Just how much pain was a matter of contention. The section 32 evaluation relied on a series of economic analyses primarily authored by Dr Doole. Dr Doole gave evidence for DairyNZ, initially (in Block 1) explaining his modelling of the economic effects of PC1, and subsequently discussing the apportionment of costs between different sectors of the regional economy.
841. It is fair to say, we believe, that Dr Doole’s cost predictions provoked a degree of alarm on the part of Mayor Shattock of South Waikato District in relation to the implications for her community. The Mayor emphasised to us the vulnerability of the South Waikato economy and its people to external economic shocks.
842. We heard from a number of economists critiquing Dr Doole’s work. Dr Denne appeared for Fish and Game and sought to persuade us that Dr Doole’s work was flawed in ways that meant that the net cost to the economy was significantly overstated.
843. Dr Denne contended, in particular, that Dr Doole’s analysis:
- (a) Failed to have regard to dynamic factors that would reduce costs over time; e.g. that those that lose their jobs would find alternative employment;
 - (b) Inappropriately assumed that the ability to alter land uses was constrained;

²⁵⁶ Mr Thomsen, Block 2 Legal Submissions at [58].

- (c) Failed to take account of positive effects on the economy from an improved quality of the environment. He considered the benefits from a 10-25% improvement as being in the same order of magnitude as the costs.
844. When we discussed Dr Denne's first point with Dr Doole, he noted that over 95% of economic models are static in nature because of the complexities and uncertainties inherent in endeavouring to construct a dynamic model.
845. Dr Doole explained the assumption that land use change is constrained as seeking to replicate a more realistic scenario where considerable inertia applies at an individual farmer level, before the farmer will undertake significant land use change.
846. If Dr Denne thought the costs predicted by Dr Doole were overstated, the input from Dr Wheeler, who gave evidence at Block 1 for WARTA, was that the estimated economic costs were "*negative, material, and unacceptable*".²⁵⁷ Dr Wheeler's principal criticism of PC1 was that it was input related regulation, rather than outcome based and failed to appropriately take account of significant intra-regional differences both in sensitivity to environmental effects and to economic costs. He supported Mayor Shattock's evidence that the specific social profile of the South Waikato District in particular meant that adaptation to PC1 "*would be unduly burdensome, particularly in some already stressed communities*".²⁵⁸
847. Dr Wheeler also emphasised that Dr Doole's modelling of economic costs provides a flavour of the likely outcomes. In his view, it was spurious to break down the model outputs with any precision. His view was also that it was extraordinarily difficult to attempt to quantify the benefits of environmental improvements.
848. We also heard from Dr Scrimgeour, who gave evidence for Oji. His focus at Block 1 was on the inefficiency and lack of equity of PC1 insofar as it grandparented nitrogen emission rights. In Block 2, Dr Scrimgeour presented more of a critique of Dr Doole's evidence. He expressed the view, in particular, that the nature of the modelling undertaken by Dr Doole means that its value progressively declines as the scale of analysis reduces. Dr Scrimgeour also critiqued the absence of analysis of alternatives in Dr Doole's modelling, something that Mr James Reeves also discussed with us. Mr Reeves gave evidence in respect of his own submission rather than as an independent expert, but his background in economics meant that we were able to test a number of

²⁵⁷ Dr Wheeler, Block 1 evidence in chief – paragraph 3.2.

²⁵⁸ Ibid – paragraph 9.29.

relevant propositions with him. His readiness to provide feedback in that kind of dialogue was particularly appreciated by the Hearing Panel.

849. We note that Mr Ford also provided economic analysis of various alternatives on behalf of WPL. We have already discussed his evidence on the relative efficiency of LUC based allocation and the 'vulnerability' focus that WPL advanced.
850. We do not think that Dr Doole disagreed with the criticism that his modelling could have been extended to examine a much greater range of alternatives. His frank response was that he modelled what he had been asked to model, and that while to some degree it had been an iterative process, he was very much providing a service to the CSG rather than developing and testing scenarios himself.
851. We consider that Dr Doole's economic analysis is useful as a high-level assessment of economic costs. We take on board, in particular, a verbal comment that he made in the Block 1 hearing that, he had assessed the loss of profit resulting from the regulation imposed by PC1 as being meaningful but tolerable at 4% of total profit. As he observed, it was well within the margin of error and looked at over time, it would be swamped by other variables like the movement in milk price.
852. We take Dr Denne's point that Dr Doole has not sought to analyse the dynamic shifts that will occur over time. However, we are concerned that Dr Denne himself failed to factor in the implications of unskilled and semi-skilled workers losing their jobs in areas of existing high unemployment and social deprivation. As he acknowledged, there is a social cost that he had not factored in (he admitted frankly that social costs had to be considered "*over the top*" of the cost benefit analysis he had undertaken) both to the individuals concerned and to the communities if the ultimate end result is if those people have to move, for example, to South Auckland to gain employment.
853. We agree with Dr Doole that it is unrealistic to assume that farmers will fundamentally change their land use based on the basis of marginal costs and benefits at any given point in time. As we have already referred to, Dr Dewes told us that the dairy sector, in particular, has high debt levels that need to be factored into any assessment of this kind. We also agree with Dr Doole's observation to us that there are very real social costs to individuals where they cannot handle the speed of any transition.
854. Lastly, we share Dr Wheeler's scepticism of the value of undertaking economic analysis of environmental benefits. We observe that Dr Denne's conclusion that assessed benefits are within a factor of magnitude of assessed costs does not particularly assist;

saying that something is within a factor of magnitude means that it is anywhere within 1/10th and ten times the relevant value. We also observe that there is an issue of distribution. Dr Denne predicted significant economic benefits to those out of the region (principally in Auckland) from improved water quality, whereas the economic costs will principally be borne by those within the region.

855. We asked Counsel for Fish and Game, Ms Ongley, whether, in the context of a Regional Plan, costs to residents of the region were of greater significance than benefits to those outside the region, and she was inclined to agree. Dr Scrimgeour also proffered the view in response to our question that allocation of costs and benefits is important and needs to be factored into any economic analysis. Dr Wheeler made a similar comment when we asked him the same question.
856. Having said that, we agree with the submission of Ms Ongley that a forensic weighing of costs and benefits is not required. We have to make our best assessment of the 'value' of non-monetary benefits, guided by the higher order documents including, in particular, Te Ture Whaimana.
857. Ultimately, therefore, we come back to the fact that we are required to give effect to Te Ture Whaimana. We have concluded that we can respond to economic and social costs by seeking to achieve the environmental objectives of Te Ture Whaimana over time and in the manner that has the least economic cost. We do not, however, have a choice as to whether to give effect to Te Ture Whaimana. Hence, while important to our analysis of submissions, the economic evidence influences more how we recommend the desired environmental improvements be achieved, than whether the outcome sought should change.
858. The key message we take from it is the need to be alive to localised economic (and consequential social) impacts and to look for ways in which to minimise those impacts.
859. We do not agree, however, with the Beef and Lamb submission seeking, in effect, to reverse the instruction contained in Te Ture Whaimana, by putting the initial emphasis on protecting existing water quality (and biodiversity) and only restoring it where they are degraded. Such an approach treats Table 3.11-1 as the last word on what water quality improvements are required where. As we have noted in our discussion of Objective 1, Table 3.11-1 cannot be relied upon for this purpose. In particular, sub-catchments currently meeting their respective Table 3.11-1 short and long-term values may not be over-allocated in an NPS-FM sense, but are not immune from the need to make contributions to water quality improvements downstream.

860. We approach this objective on the basis that at least in the short-term, whatever improvements can reasonably be made in water quality through management of N, P, sediment and microbial pathogens, should be made over the life of PC1 in order to give effect to Te Ture Whaimana.
861. We do, however, agree with the suggestion of Beef and Lamb, along with a number of other parties, that there is room for encouragement of sub-catchment management mechanisms as a means to assist the provision of social, economic and cultural wellbeing.
862. The Iwi Co-Governing parties had a particular concern that reference should be made to spiritual wellbeing. While, as their planning witness, Ms Kydd-Smith accepted, there is an argument that cultural wellbeing incorporates spiritual wellbeing, we see no harm in drawing out that element of wellbeing.
863. We agree with the Officers that the term “*adaptive management*” has a particular meaning in the RMA context (related to management of adverse environmental effects) and that this is not what Objective 4 is referring to.
864. As with other objectives, we also agree with the Officers’ recommendation that the heading should be deleted.
865. In summary, we recommend that Objective 4 be retained in order to provide guidance as to how social, economic, spiritual and cultural wellbeing are provided for in PC1, but significantly amended along the lines that we have discussed above. Our recommended revised objective (renumbered Objective 3), is in the revised PC1 at Appendix 2 to our report . [See Waikato Regional Council Policy Series 2020/02 DOC#15708291]

Objective 5:

866. As notified, this Objective read:

“Mana Tangata – protecting and restoring tangata whenua values/ Te Whāinga 5: Te Mana Tangata – te tiaki me te whakaora i ngā uara o te tangata whenua

Tangata whenua values are integrated into the co-management of the rivers and other water bodies within the catchment. Such that:

- a. Tangata whenua have the ability to:*
- i. manage their own lands and resources, by exercising mana whakahaere, for the benefit of their people; and*

- ii. *actively sustain a relationship with ancestral land and with the rivers and other water bodies in the catchment; and*
- b. *New impediments to the flexibility of the use of tangata whenua ancestral lands are minimised; and*
- c. *Improvements in the rivers' water quality and the exercise of kaitiakitanga increase the spiritual and physical wellbeing of iwi and their tribal and cultural identity."*

867. The section 42A Report notes that there were 96 submissions on Objective 5. Those submissions are summarised at section B4.3.5.1 and, once again, we adopt and rely upon that summary.
868. Again, in common with other objectives, there are submissions seeking retention of this objective and submissions seeking its deletion. A number of submitters focus in particular on Objective 5(b), either seeking deletion of that element or more general application of the same principle. Both DoC and Forest and Bird queried what the objective means in terms of restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers: in particular, whether it signals an acceptance of actions that might result in degradation of the river.
869. Hauraki Iwi made a number of requests for amendments to this objective in their submission on Variation 1, including a greater focus on the ability to develop tangata whenua ancestral lands.
870. It would have been desirable to discuss these issues with the representatives of Hauraki Iwi, in order that we might better understand the amendments they suggested to Objective 5, but we did not hear from the iwi in person and are therefore left to make our own best assessment of the issues their submission raises.
871. Many of the submissions on this objective formed part of a broader opposition to provisions in PC1 that appear to provide a route for development of Māori land not available to others. This was approached as an issue of equity as much as one of resource management planning.
872. We observe at the outset that the window provided for iwi development in PC1 is not a wide one. Changes in land use on tangata whenua ancestral lands remain non-complying. What is different is the policy provision applying to those lands.
873. We regard a policy provision facilitating iwi development, of ancestral lands, particularly in cases where land has only recently been returned to iwi control through the

mechanism of Treaty settlements or otherwise, or where the practical ability to develop the land has been constrained by the historic limitations applying to multiple owned Māori land, as being consistent in principle with section 6(e) of the RMA.

874. In the context of the use and development of land in the Waikato and Waipā Catchments, however, any such provision must necessarily be subject to Te Ture Whaimana.
875. We discussed that point with counsel for the Iwi Co-Governors, Mr Ferguson, in the Block 1 hearing. Mr Ferguson's position was that it was implicit in any provisions PC1 might make for iwi development that such development would be subject to Te Ture Whaimana. He emphasised the support of the iwi co-governing partners for non-complying status applying to any land use change, including that promoted by iwi.
876. While it may be implicit, as Mr Ferguson suggests, we think there is merit in being more explicit that provision for iwi development must be consistent with Te Ture Whaimana. In particular, it must be consistent with putting the Waikato and Waipā catchments on a track towards restoration and protection of their health and wellbeing and keeping them on that track.
877. For their part, the Officers recommended Objective 5 be retained as notified, save that the heading be removed.
878. We identify four issues with the notified wording of Objective 5 that in our view, require attention. The first is the reference in the first line to "*co-management*". While, in point of fact, the Waikato and Waipā Rivers are the subject of co-management arrangements with iwi, reference to that fact is unnecessary in this context (the objective directs the results of management, not who is doing the managing) and raises questions of consistency given that where other provisions refer to management of the catchment (e.g. notified policies 1-4) this has not been the approach. Introducing reference to co-management in this context could be interpreted as implying that co-management is only relevant to tangata whenua values whereas our understanding is that it applies to all aspects of the management of the Waikato and Waipā Rivers. We recommend that the objective talk about "*management of the rivers and other water bodies.*"
879. The second point is that the initial statement refers to the rivers and other water bodies "*within the catchment*". Throughout PC1, reference is made to both the Waikato and Waipā Rivers rather than suggesting they constitute one catchment. While the latter might be considered geographically correct, we consider that Objective 5 should do the

same. The same change should also be made to a later reference to catchment singular in the objective

880. Lastly, we think that the reference in 5(b) to impediments being “*minimised*” has an unsatisfactory ambiguity. As we have discussed, it needs to be clear in any provision for development of ancestral lands by tangata whenua that it must proceed consistently with Te Ture Whaimana.
881. In addition, an objective of minimising impediments is not, in our view, consistent with non-complying activity status. The submission of Tuaropaki Trust seeking a consequential controlled activity rule illustrates the point.
882. We are not suggesting that rule status should drive the formulation of objectives. It should be the other way around. However, the inconsistency between the two must be addressed. In our view, Objective 5(b) suggests a freedom of action that is not consistent with Te Ture Whaimana.
883. Accordingly, we recommend that Objective 5(b) be amended to refer to new impediments being limited to “*those necessary to give effect to Te Ture Whaimana.*”
884. We also consider that the Hauraki Iwi submission has a point when it suggests that Objective 5(b) not be restricted to “*new*” impediments. We fail to see why existing impediments should not be minimised, subject to clarifying what “*minimised*” means in this context.²⁵⁹
885. Our recommended revised Objective 5 (renumbered Objective 4) reflects these changes.

Objective 6:

886. Notified Objective 6 read as follows:

“Objective 6: Whangamarino Wetland/ Te Whāinga 6: Ngā Repo o Whangamarino

- a. Nitrogen, phosphorus, sediment and microbial pathogen loads in the catchment of Whangamarino Wetland are reduced in the short-term, to make progress towards the long-term restoration of Whangamarino Wetland; and*

²⁵⁹ Compare *Royal Forest and Bird Protection Society of New Zealand Inc v Whakatane District Council* [2017] NZEnvC 051 at [59] in which the Environment Court held that the application of section 32 requires an examination of the reasonably practical options to identify the least restrictive regime that meets the purpose of the Act and (in that case) the objectives of the Plan – on one view, that suggests a general approach of ‘minimising’ restrictions on flexibility of use and development is appropriate.

b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute targets in Table 3.11-1.”

887. Section B4.3.6.1 of the Block 1 section 42A Report summarises the 38 submissions specifically on Objective 6. We adopt and rely on that summary.
888. Both Fish and Game and DoC suggest a greater focus in this objective to restoration and protection of Whangamarino Wetland and an integrated approach to its management that includes both water quality and water quantity issues.
889. As with Objective 1, Federated Farmers sought deletion of the 80-year numerical targets.
890. Balle Bros Group focused on the need for control of pest species such as koi carp in order to achieve the Table 3.11-1 targets.
891. DoC also sought recognition of the value and significance of the Whangamarino Wetland as a whole wetland system comprising marsh, swamp, fen and bog wetland types.
892. We should also note DoC's broader submission seeking identification of Whangamarino Wetland as an outstanding waterbody for the purposes of the NPS-FM. To the extent that DoC sought identification of a number of other water bodies as outstanding, we will return to that issue in due course.
893. The Officers' analysis of submissions confirmed agreement with the status of Whangamarino Wetland as being of regional, national and international significance. Officers, however, felt that the outcomes sought in this objective are already included within Objectives 1 and 3. Officers further considered that expansion of the objective to focus on water quantity would be out of scope and that the Regional Plan is not able to control the proliferation of aquatic pest species.
894. The Officers' recommendation was, accordingly, that the objective be deleted as serving no useful purpose or, in the alternative, that it be retained as notified (but minus the heading).
895. While we understand the Officers' point of view and agree that there is a significant degree of overlap between the notified Objective 6 and notified Objectives 1 and 3, we disagree that an objective specific to Whangamarino Wetland is without value. We agree with the Officers' assessment that Whangamarino Wetland is of regional,

national and international significance. The evidence of Dr Roberson for DoC supports that view, as does the WRPS.²⁶⁰ Policy 8.2 of the WRPS directs that the outstanding values of a freshwater body that result in that water body being identified as outstanding be protected and where appropriate enhanced.

896. This suggests to us that Objective 6 (renumbered 5 to fit in with our revised recommended set of objectives) should confirm that status of Whangamarino as an outstanding waterbody and identify its significant values, which we take from Dr Robertson's evidence to be its provision of habitat for a threatened species and the existence of sensitive raised bog ecosystems.
897. We also agree with the DoC submission to the extent that the focus of a Whangamarino objective should be on restoration and protection of the wetland. However, we take on board the Officers' point that water quantity issues are outside the scope of PC1 and therefore the objective needs to be clear that restoration and protection relates to N, P, sediment and microbial pathogens.
898. In addition, as an important component of the Waikato River Catchment, Te Ture Whaimana directs that restoration and protection of Whangamarino Wetland not be focused solely on the tangible characteristics of the wetland, but on its overall health and wellbeing. We consider that restoring and protecting the health and wellbeing of the Whangamarino Wetland necessarily involves protection of its significant values, as directed by Policy 8.2 of the WRPS.
899. Lastly, the reference in the notified objective to "*long-term*" requires clarification as to what is meant; for the same reasons as in relation to Objective 1, that is, at the latest by 2096.
900. Our recommended objective, incorporating the above elements is as appended to our report. [See Waikato Regional Council Policy Series 2020/02 DOC#15708291]

Potential Additional Objectives:

901. The Block 1 section 42A Report discusses the 31 submissions that requested new objectives in section B4.3.7.1. Once again, we adopt and rely upon that summary.
902. The Officers' recommendation is that no additional objectives be added to PC1. The Officers categorise the suggested objectives as more properly being considered in the context of implementation methods. As regards the balance of submissions, the

²⁶⁰ Refer Table 8-6.

Officers' view is that the new objectives are either already provided for within PC1 or within the WRP.

903. As regards the range of submissions seeking recognition in various ways of economic wellbeing, we have addressed the extent to which such provision might be provided for consistently with Te Ture Whaimana, both in section 3 and earlier in this section of our report, and have recommended amendments to now Objective 3 to more clearly capture that. We do not see room for further objectives on that topic.
904. We likewise concur with the Officers that submissions by DoC and Fish and Game seeking objectives related to restoration and protection of ecological health and the significant values of wetlands are not required. We would have thought that reference to the Waikato and Waipā River Catchments would necessarily have included water bodies within those catchments, but to put it beyond doubt, we have recommended that Objective 1 specifically reference restoration and protection of the health and wellbeing of wetlands. Clarification that the broad reference to the Waikato and Waipā River Catchments includes lakes within those catchments also addresses the Tangata Whenua submissions summarised in the section 42A report.
905. More generally, we think that there is a danger in trying to list all aspects of the health and wellbeing of water bodies in the Waikato and Waipā River catchments at an objective level that relevant aspects are inadvertently omitted.
906. We agree also with the Officers that a number of the suggested objectives are in fact more properly considered as policies or implementation methods. Suggested new objectives in the evidence for DoC focusing on integration and connectedness, life supporting capacity and indigenous biodiversity are in this category since all are referenced back to restoring and protecting the health and wellbeing of the Waikato and Waipā River Catchments (which is already addressed in the recommended objectives).
907. We record our view that the suggestion by DoC of a new objective focusing on restoration and protection of the health and wellbeing of the coastal marine area is inappropriate. Management of the natural and physical resources within the scope of PC1 may contribute to the health and wellbeing of the coastal marine area, but given the much more direct drivers on conditions in the coastal marine area that occur outside the boundaries of PC1, restoring and protecting its health and wellbeing is not an outcome PC1 can realistically seek.

908. We have reviewed all of the objectives recommended, both individually and collectively having appropriate regard to the statutory framework within which we are operating, and in particular the need to give effect to Te Ture Whaimana as the primary direction-setting document applying to PC1. We have satisfied ourselves that the package of objectives recommended in the appended revised PC1 [*See Waikato Regional Council Policy Series 2020/02 DOC#15708291*] is the most appropriate way to achieve the purpose of the RMA given the content of the various relevant higher order documents.
909. While we have not canvassed every submission on the objectives in this section of our report, our recommendations as to whether those submissions should variously be accepted, accepted in part or rejected are reflected in the amendments we have recommended (or not recommended) in our revised version of PC1.

8. TABLE 3.11-1

Background

910. Objectives 1 and 3 of PC1 as notified both refer to ‘water quality attribute targets’ specified in Table 3.11-1. Table 3.11-1 sets short-term and long-term (numerical) water quality targets to be achieved for the Waikato and Waipā river mainstem and their tributaries, and long term (again numerical) water quality targets for four lake FMUs. This approach is consistent with that required under the 2014 version of the NPS-FM, which was the operative version of that national policy statement at the time of PC1 notification.²⁶¹
911. We have summarised the NPS-FM in section 3 of our report above. Repeating for convenience the key elements of the NOF approach, the steps required are:
- Identification of FMUs;
 - Identification of Values associated with freshwater bodies within each FMU;
 - Identification of Attributes²⁶² relevant to those values;
 - Freshwater Objectives²⁶³ for each Attribute to be formulated.
912. Ms May stated that proposed PC1, in giving effect to Te Ture Whaimana, sets water quality outcomes for the Waikato and Waipā catchment in exceedance of NPS-FM requirements.²⁶⁴ She noted that in no other catchment in the country is there the requirement to go beyond the NPS-FM.
913. Table 3.11-1 also refers to water quality ‘limits’ and ‘targets’. Both of these terms are also used throughout the NPS-FM and it was generally agreed amongst expert witnesses that the definitions of these terms in the NPS-FM applied to Table 3.11-1. ‘Limit’ is defined as the maximum amount of resource use available, which allows a freshwater objective to be met; while a ‘Target’ is a limit which must be met at a defined time in the future (this meaning only applies in the context of over-allocation).
914. As noted in our discussion of Objective 1, there was considerable discussion at the hearing as to what the content of Table 3.11-1 represented. Mr McCallum-Clark stated that Plan Change 1 did not specifically identify what the “freshwater objectives” are. He considered this is understandable, given that PC1 is what he described as a

²⁶¹ As discussed in section 3 of our report, we need now to assess PC1 against the 2017 version of the NPS-FM. We discuss the implications of this elsewhere in this section.

²⁶² Defined as a measurable characteristic of fresh water.

²⁶³ Defined as an intended environmental outcome in a freshwater management unit.

²⁶⁴ Ms May, Block 1 evidence in chief - paragraph 106.

“traditional RMA plan, with issues statements, objectives, policies, methods, rules and associated appendices, definitions and maps, overlaid with the requirements of the NPS-FM”²⁶⁵. It was his opinion that Objectives 1 and 3 are “freshwater objectives” in terms of the NPS-FM, “given their reference to the short and long term water quality states in Table 3.11-1”.

915. Ms Kydd-Smith on behalf of the Iwi Co-Governors considered that freshwater objectives, limits, targets were all present in Table 3.11-1, but did not differentiate the objectives from the limits and targets.²⁶⁶
916. Dr Ausseil also on behalf of the Iwi Co-Governors, was of the opinion that the short-term ‘thresholds’ (as he described them) in Table 3.11-1 can be considered freshwater objectives in an NPS-FM sense. However, it was his view that the long-term thresholds should have a different status, and thus be called something different. He suggested “*long-term water quality states*”.
917. As above, we have accepted Dr Ausseil’s reasoning and classified our recommended Objective 2 (but not Objective 1) as a Freshwater Objective.

Populating Table 3.11-1

918. Dr Cooper in his Block 1 evidence for WRC summarised how water quality data from the WRC’s monitoring network was used to provide the CSG with an analysis of current water quality (2010-2014) within the Waikato-Waipā FMUs compared to the compulsory attribute bands found within the NPS-FM. Where not found in the NPS-FM, attribute bands were specifically developed by a group of experts convened by the TLG.
919. Having noted that the scope of PC1 was restricted to managing four contaminants: N, P, sediment and microbial pathogens (using the faecal indicator bacteria *Escherichia coli*, more commonly referred to as *E. coli*), Dr Cooper described how the CSG used the technical information from the TLG to set water quality attribute states for these contaminants that were consistent with desired values (or movement towards them) using the NOF within the NPS-FM, existing science and expert input.²⁶⁷ The process involved a series of meetings to define desired water quality bands and the CSG providing instructions to the TLG on a range of ‘future state’ scenarios (Scenarios 1, 2,

²⁶⁵ Mr McCallum-Clark, Block 1 Supplementary Evidence – Responding to Hearings Panel questions to Council, Dated 11 March 2019 - paragraph 22.

²⁶⁶ Ms Kydd-Smith, Block 1 rebuttal evidence – paragraph 19.

²⁶⁷ Dr Cooper, Block 1 evidence in chief – paragraph 10.

3, 4) representing aspirational and less aspirational attribute bands to be achieved in each part of the Rivers.²⁶⁸ The scenarios were:

- 1st scenario – Restore to a high level;
- 2nd scenario - Protect and restore to at least reach minimum acceptable standard (above national bottom lines) for all attributes;
- 3rd scenario - Protect and some restoration, but not fully swimmable;
- 4th scenario - Protect but not restore (aka “*hold the line*”).

920. Dr Cooper stated that the CSG’s final position was to remain with an “improve everywhere” approach as they felt this best reflected what they had heard from the Iwi Co-Governors about Te Ture Whaimana.²⁶⁹ He said this led to the CSG committed to achieving the water quality defined in Scenario 1, but that they requested the TLG model the steps of 10%, 25%, 50% and 75% of the way from the current situation to achievement of Scenario 1. Scenario 1 attribute bands are presented in the table below.²⁷⁰

Narrative description	Attributes			
	<i>E. coli</i>	Clarity	Algae (Chlorophyll)	Nutrients
<p>Substantial improvement in water quality for swimming, taking food and healthy biodiversity</p> <p>Means: Swimmable in all seasons for microbes and clarity. Water quality supports ecological health. Some improvement in all parameters.</p> <p>[Represents CSG suggestion of <i>E. coli</i> to B, TP to minimum B, all others up one band – “Restore”]</p>	<p>Upper Main stem remains A. Tributaries min B at 95%ile</p>	<p>Upper Main stem A to Waipapa, tributaries go up 1 band</p>	<p>Upper A sites improve. B sites to A, C sites to B.</p>	<p>TP Maintain where already A, raise to B for rest of river.</p>
	<p>Middle Main stem A at Narrows at 95%ile; Horotiu and tributaries B</p>	<p>Middle Main stem B, tributaries go up 1 band</p>	<p>Middle B for median, A for max.</p>	<p>TN Improve where already A, all sites to Waipapa to A, rest of river to B.</p>
	<p>Lower and Waipā Main stem and tributaries B at 95%ile</p>	<p>Waipā Upper stem B, lower stem C, tributaries go up 1 band</p> <p>Lower Waikato C in main stem and tributaries</p>	<p>Lower B for median and max; Huntly moves to B for med and A for max.</p>	<p>Ammonium and nitrate Improve where already A, other sites go up 1 band.</p>

921. We note from Report 3351821/v21 that the CSG had also received information from the TLG on nutrient dynamics in the river. It was reported that this led to a request that the TLG explore the option of “*smart scenarios*” that would target certain contaminants earlier than others, rather than the stepped percentage approach described above. It

²⁶⁸ Dr Cooper, Block 1 evidence in chief.

²⁶⁹ Dr Cooper, Block 1 evidence in chief – paragraph 14.

²⁷⁰ Adapted from Table 7: (CSG agreed scenarios for the first round of modelling (CSG12)), from report 3351821/v21 (Overview of Collaborative Stakeholder’s Group Recommendations for Waikato Regional Plan Change 1 – Waikato and Waipā River Catchments).

is stated in Report 3351821/v21 that this modelling indicated that no particular advantage was gained through the smart scenarios, as mitigations to address one contaminant tended to also achieve gains with the others.²⁷¹

922. The process for the development of the attributes and numeric attribute states in Table 3.11-1 can be found in TLG Report 2018/66,²⁷² and is summarised in the evidence of Mr Grant Eccles.²⁷³ A suite of relevant attributes were derived for three core values (i.e. human health for recreation, ecosystem health and mahinga kai) in lakes and rivers within the Waikato-Waipā catchment FMUs, as identified by the CSG. Wetlands and groundwater were out of scope of the work brief.
923. An expert panel group with specific expertise and experience in aquatic ecology, mātauranga Māori, ecotoxicology and native biodiversity was assembled by the TLG. The Expert Panel identified a set of attributes that were considered relevant to the different values in the Waikato-Waipā catchment, recognising that some attributes would need further development before inclusion.
924. The TLG then followed a modified version of the Ministry for the Environment's guiding principles for NOF Attribute Development (that were used by the NOF Reference Group to assess potential attributes) to assess the expert panel's attribute set. Modifications to guiding principles were made to reflect the scope of PC1 being restricted to improving the management of N, P, sediment and faecal bacteria.
925. The TLG generally recommended adopting existing attributes from the (2014) NPS-FM with the exception of periphyton in rivers, and DO in rivers (below point sources). As described in the report, the rationale for excluding DO was due to the indirect relationship between it and the four contaminants (Scarsbrook, 2016). The report stated that the periphyton attribute was also excluded due to a lack of relevance in many Waikato streams (i.e. many Waikato streams have soft bottoms and therefore do not provide a suitable habitat for conspicuous periphyton growth) and that the available WRC monitoring data showing limited periphyton issues in small, hard-bottomed streams (Scarsbrook 2016).
926. Some modification of existing NPS-FM attributes was recommended to increase relevance to Waikato-Waipā catchment conditions.

²⁷¹ Report 3351821/v21 (Overview of Collaborative Stakeholder's Group Recommendations for Waikato Regional Plan Change 1 – Waikato and Waipā River Catchments) – page 28.

²⁷² Water Quality Attributes for Healthy Rivers: Wai Ora Plan Change. Waikato Regional Council Technical Report 2018/66 ("Scarsbrook, 2016").

²⁷³ Mr Eccles, Statement of Evidence on behalf of Federated Farmers on the Science JWS, 12 July 2019.

927. Of the additional attributes recommended by the original expert panel, it was considered that only water clarity had been developed to the point where it was able to be applied to the Waikato-Waipā River catchments. Other attributes were considered to be either out of scope (the example given was heavy metals), or had not yet been developed to the point where they met criteria for inclusion (the example given was deposited sediment).
928. The TLG also modelled both an 1863 scenario to ascertain what water quality might have been like in 1863, and a baseline scenario ('business as usual'). In light of the modelling results from the 1863 scenario modelling, the TLG recommended that the chlorophyll-a bands be more aligned with the P bands for the Upper Waikato (i.e. a 'B' band for chlorophyll unless the site is already an 'A'). The CSG made adjustments to the chlorophyll-a bands for the Upper Waikato River sites accordingly.
929. When setting desired bands, the instruction from the CSG did not vary according to where a monitoring site value currently sat within a band (i.e. was it at the top (lowest concentration) or bottom (highest concentration) of the band range). 'Up a band' could therefore be a large change or a small change depending upon where the site currently sat within the band. In his Block 1 evidence,²⁷⁴ Dr Ausseil drew our attention to substantial variations in contaminant improvements required at different points in the catchment as a result of what he described as the "*mechanical*" application of this approach. It appears that the TLG understood that their instructions from the CSG to move values 'up a band' did not allow for just an improvement within a band.
930. The 80-year targets are either the current state where already within the desired band (i.e. water quality to be maintained and not decline), or the threshold between bands. That is, the highest concentration allowed within the band to be achieved.

Our view on the attributes

931. Throughout the development of the notified version of PC1, the scope for development of limits and targets for water quality attributes was very much linked to the four contaminants already discussed (namely *E. coli*, the nutrients N and P, and sediment). We have discussed the scope of PC1 from a legal perspective in section 3 above. Looking at the question from a scientific/ policy perspective, we agree that it is appropriate that PC1 and Table 3.11-1 focuses on these contaminants, given; (i) they are known to have wide-ranging effects on water quality, (ii) evidence that freshwater

274 Dr Ausseil, Block 1 evidence in chief – paragraphs 85-93.

ecosystems of the Waikato-Waipā River catchments are exhibiting elevated levels of all four contaminants, depending on location, and (iii) Te Ture Whaimana requires management of contaminants with the objective of ensuring (over time) that the Awa is safe for people to swim in and take food from, and (amongst other matters) significant fisheries, flora, and fauna are protected and enhanced.

932. We consider the linkages between *E. coli* and water clarity state, and the ability to swim safely and gather mahinga kai, are fairly obvious and make the inclusion of these attributes in Table 3.11-1 a logical and necessary one. The nutrients, N and P, have less direct relevance to swimmability and food gathering. However, they have potential to indirectly affect swimming and food gathering through promoting nuisance algae and plant growths, including the likes of toxic cyanobacteria. Hence the inclusion of chlorophyll-*a* (as an indicator of phytoplankton biomass) in Table 3.11-1 for the Waikato River mainstem, which contains a series of hydro lakes that support phytoplankton populations, and chlorophyll-*a* contributions to the lower river from the hydro lakes and riverine lakes within the middle and lower sections of the Waikato-Waipā River catchments.
933. Furthermore, excess nutrient levels can alter the biological composition of freshwater environments, often to the detriment of native flora and fauna. N and P levels are elevated in many parts of the Waikato-Waipā River catchments, adversely affecting a range of freshwater environments including rivers, lakes and wetlands. Consequently, we consider it appropriate that N and P are appropriate water quality attributes for inclusion in Table 3.11-1.
934. There are three issues that require further consideration of Table 3.11-1:
- The appropriate form or forms that each attribute should take;
 - Where within the Waikato-Waipā River catchments they should apply; and
 - Whether additional attributes should be included.
935. Given the level of concern expressed about the content and meaning of Table 3.11-1 from a wide range of submitters, and planning and water quality experts, we requested early in the hearing that expert conferencing take place in relation to Table 3.11-1. The three issues in the bullet points above were considered at the conferencing.

Expert conferencing

936. We directed that the conferencing brief be developed by a Facilitator in conjunction with the experts, but noting we expected it be developed to be able to:

- Give effect to the NPS-FM and Te Ture Whaimana;
- Use best scientific methods throughout the conferencing process;
- Proceed on the basis that plan and submission scope issues do not constrain the recommendations the experts make;
- Identify the competing positions and provide recommendations in the alternative; and
- At minimum, provide one set of numeric values for:
 - (i) safe swimming, and
 - (ii) safe food gathering

along the entire length of both rivers (Waikato and Waipā), including their tributaries.

937. Conferencing took place over four days and was attended by 21 experts, although not all experts attended all four days. The experts were asked to prepare a joint witness statement (JWS) summarising the outcomes of conferencing.
938. The final JWS was 202 pages long. Attribute statements were presented, including the outcome of discussions for each attribute and the options and/or recommendation to the Panel. The JWS ended with an extensive section in which individual experts had an opportunity to express their views on individual attributes and whether they agreed or disagreed with them.
939. It is fair to summarise the expert conferencing and associated JWS as having conspicuously failed to reach a unified consensus on what attributes are recommended for inclusion in Table 3.11-1, and perhaps we were overly optimistic that such an outcome could be achieved. The timeframe available was tight and because we did not limit the scope, the number of attributes canvassed by the experts was large. However, we acknowledge the effort put in by the experts on getting as far as they did.
940. Notwithstanding the above comments, there were some attributes that gained support for inclusion by a majority of experts, and we note these below.
941. All experts agreed that nutrients were an important measure of value and should be represented by numeric values in Table 3.11-1. The experts referred to these numeric values in the JWS as 'thresholds'. With respect to the Waikato River mainstem, the majority of experts opted for management of total nitrogen and total phosphorus using Approach 1C for TN and Approach 2C for TP for long-term (80-years) thresholds. Approach 1C (for TN) includes data corrected from the notified Table 3.11-1, with all

sites upstream of Waipapa set to maintain current state (essentially Band A), Band B for the Middle and Lower Waikato FMUs and Band B for chlorophyll-*a*. This approach was considered by the majority of the experts as the best available approach, and it provided the same “*state*” or level of protection as anticipated in the original Table 3.11-1.²⁷⁵

942. For TP, Approach 2C was recommended by the experts because it utilised revised empirical models linking the outcome sought (i.e., planktonic algae biomass, measured as chlorophyll-*a*) and the means by which it will be achieved (setting thresholds for TP concentrations). The approach also provided a correction for ‘exogenous’ chlorophyll-*a* entering the lower Waikato River from downstream sub-catchments with lakes (e.g., Waikare and Whangape) which had not been considered as part of the development of PC1. We understand that 13 of 16 experts at conferencing agreed that nutrient thresholds for Waikato River at Mercer and Tuakau should exclude these external lake inputs.
943. Ms McArthur opposed exclusion of lake inputs of TP on the basis that it should not be assumed they will be addressed separately.²⁷⁶ We agree that Ms McArthur has a point. However, some of the lowland lakes make such a large contribution of P to the mainstem that if included, they would skew the outcome to the point that downstream sub-catchments would bear an unjustified contamination reduction burden. Ideally, we would ensure the relative burdens were correctly apportioned, but we lack the information to do that. In a situation where it is clear that the values are interim pending further information and analysis, and there is an expectation that lake catchment plans will be developed, we consider that the recommendation of the majority of experts represents the best course of action.
944. In the Closing Planning Statement of the section 42A reporting Officers, it was stated that WRC scientists recommended an option for the Waikato River mainstem which reflected the majority viewpoint on TN and TP from the JWS (i.e., Approach 1C for TN and Approach 2C for TP, as described above). The rationale for this was set out in Appendix A of the closing statement. However, while the Approach 1C values for TN have been included in the final 42A marked up version of PC1, the Approach 2C values for TP have not, and the original, and more conservative (lower) TP concentrations for the mainstem monitoring sites have been retained. WRC’s scientists provide no clear

²⁷⁵ JWS on water quality, page 35.

²⁷⁶ JWS on water quality, page 177.

explanation for retaining these more conservative thresholds for TP, and given a large majority of experts recommended they be amended, we do not accept it.

945. Given the weight of expert opinion in relation to the recommended thresholds for TN and TP in the Waikato River mainstem, we see no compelling reason why we should depart from the recommendations of the large majority of experts in the JWS.
946. Mr Thomsen's Block 3 legal submissions for Beef and Lamb took issue with the JWS recommendation to adopt Approach 1C for TN and Approach 2C for TP.²⁷⁷ His argument was essentially that the lower Waikato River should not be managed for nutrients as if it were a lake. With that in mind, Beef and Lamb's position was that a higher TN threshold could be adopted (up to 0.8 mg/L²⁷⁸) rather than that under Approach 1C (0.5 mg/L), and questioned the appropriateness of the proposed chlorophyll-a concentration threshold of 0.005 mg/L (5 mg/m³) for the water column of the river, given this was derived for managing lake trophic state. Mr Thomsen also raised concern regarding what he submitted were inconsistent approaches to setting thresholds for TN and TP to manage chlorophyll-a concentration (i.e., phytoplankton biomass).
947. We accept that the derivation of nutrient thresholds for the Waikato River is far from perfect and we think it fair to say that the experts acknowledged this situation also. In Appendix A of the Closing Planning Statement, WRC scientists stated: "*We recognise that on-going monitoring and further research into phytoplankton and nutrient dynamics along the Waikato River will almost certainly result in further refinements of the nutrient thresholds recommendations for the river. In particular, we endorse the recommendations of the TLG and others that a dynamic river model be developed.*"²⁷⁹ The fact that the science behind setting nutrient thresholds in the river may currently be imprecise should not, in our view, be reason to depart from a position of seeking to reduce both N and P in the lower Waikato River. Beef and Lamb's suggestion that the lower Waikato River could support a TN concentration threshold up to around 0.8 mg/L would, if adopted, allow TN concentration to increase above the current state median concentration, which we consider would be a degradation of water quality contrary to Te Ture Whaimana. We also note that while Approach 1C for TN management is more 'lenient' than the concentrations thresholds for the lower River in Table 3.11-1 of notified PC1, it is more conservative than those that Beef and Lamb suggested may be

²⁷⁷ Mr Thomsen, Block 3 legal submissions – paragraph 33.

²⁷⁸ Mr Thomsen, Block 3 legal submissions – paragraph 34.

²⁷⁹ Officers' Closing Planning Statement, Appendix A – page 17.

appropriate, and requires a reduction in N levels relative to current state concentrations.

948. Turning now to ammonia and nitrate as potential toxicants, this issue applies to both the Waikato River mainstem and the tributaries (and indeed lakes and wetlands). Table 3.11-1 as notified included numeric 'thresholds' for ammonia and nitrate for all mainstem and sub-catchment monitoring sites (and ammonia for the lake FMUs). These thresholds were expressed as median and 95th percentile concentrations for nitrate and median and maximum concentrations for ammonia. The long-term objective was to at least maintain (no degradation) for those sites currently at Band A, improve sites currently at Band B to band A, and improve sites currently at Band C to band B.
949. This approach was largely endorsed at expert conferencing. Experts recommended a 'no degradation' approach. The thresholds in Table 3.11-1 for ammonia and nitrate have been corrected for some sites to account for anomalies raised by some experts and also by WRC scientists upon close scrutiny of the dataset. Given these corrections, we regard the approach already adopted in Table 3.11-1 and recommended by the majority of experts as consistent with the NPS-FM.
950. Turning to N and P in the tributaries, particularly bioavailable forms of N and P that stimulate algae and plant growth (DIN, made up of ammonia, nitrate and nitrite, and DRP, a soluble form of phosphorus) the experts raised a number of potential approaches including:
- The adoption of nutrient load thresholds for the sub-catchments, with the view that loads would provide a basis for managing the sub-catchment contributions to achieve the desired state (chlorophyll-a concentrations) in the mainstem;
 - Defining nutrient concentration thresholds for sub-catchment/tributaries based on correlations between nutrient concentrations and macroinvertebrate and fish community indicators;
 - Concentration thresholds for dissolved (or bioavailable) forms of N and P (DIN and DRP) for sub-catchment/tributaries, based on concentrations considered generally appropriate to meet periphyton biomass/cover "thresholds"; and
 - Applying nitrate and ammonia toxicity concentrations on the basis of protecting an 'ecosystem state' rather than as discrete concentrations.
951. We have already dealt with the last bullet point in the previous paragraphs above and will put that to one side.

952. It was acknowledged by the expert witnesses at conferencing that achieving nutrient reductions in the mainstem of the Waikato River will require reductions in all sub-catchments of the Waikato-Waipā River catchment. Three approaches were suggested by experts, including a load-based approach, a concentration-based approach for bioavailable nutrients (DIN and DRP) that was linked to other ecosystem health metrics (fish, macroinvertebrates and periphyton), and an approach that focused just on managing the risk of excessive periphyton growth.
953. The first approach involved modelling to distribute the mainstem instream nutrient load reductions in the sub-catchments, in order to provide an indication of how these load reductions compare with those envisaged under PC1.²⁸⁰ This approach was based on modelling of the short-term (first 10-years) PC1 mitigation package. The majority of experts supported this approach for the tributary sub-catchments as a means of achieving short-term reductions of N and P throughout all tributary sub-catchments of the Waikato-Waipā River catchments.
954. WRC scientists did not support the above approach. Dr Cooper was of the view that inserting the policy mix simulation results into Table 3.11.1 would set much higher short-term targets than the 10% step determine by the CSG and adopted in notified PC1. He stated that changing the magnitude of this reduction was not an appropriate role for technical experts.²⁸¹ Dr Scarsbrook expressed a similar view.²⁸² Dr Depree (for DairyNZ) also considered that the above approach would result in significantly greater reductions than the 10% progress required in the first years under notified PC1, and for that reason he did not support its introduction into Table 3.11-1.²⁸³
955. Having considered the arguments for and against the inclusion of a nutrient load reduction approach for tributary sub-catchments in Table 3.11-1, we have decided against it. First, the approach does not relate the nutrient targets to managing any instream effect or response. Secondly, it is unclear as to how the approach factors in modelling of FEP requirements. Thirdly, we have altered the policy mix of PC1 with respect to FEPs and the 75th percentile rule for N leaching, which means the policy mix adopted by the CSG and used in the modelling approach above now has less relevance.

²⁸⁰ JWS on water quality - page 31.

²⁸¹ Dr Cooper, JWS on water quality - page 141.

²⁸² Dr Scarsbrook, JWS on water quality - page 195.

²⁸³ Dr Depree, JWS on water quality - page 157.

956. A second approach proposed by Dr Canning (for Fish and Game) involved the use of DRP and nitrate bands that were correlated with ecosystem health metrics for macroinvertebrates, fish and periphyton.²⁸⁴ The approach would follow the general goal of adopting a B-grade level of health, with any tributary sub-catchment below a B-band needing to improve to the bottom of the B band and any river above this threshold would need to at least maintain its position.
957. It is fair to say that Dr Canning's approach received limited support from the other experts. Dr Cooper stated that the ecosystem health metrics that Dr Canning considered were linked to DRP and nitrate concentrations were also influenced by other 'drivers' of ecosystem health. Dr Depree noted that the approach forwarded by Dr Canning used large national datasets and was not based on Waikato data, a view echoed by Dr Scarsbrook. Dr Scarsbrook noted that WRC's own research (using data from the REMS monitoring programme) had 'clearly identified' the management actions needed to reduce extent of poor ecosystem health. That research identified that nutrients are of secondary importance compared to sediments, riparian condition and in-stream habitat.²⁸⁵ In response to questions at the presentation of the JWS on Table 3.11-1, Dr Scarsbrook stated that "*nutrients, in particular nitrogen, was[sic] a very poor predictor*".²⁸⁶
958. In Block 1 of the hearing, Dr Ausseil produced detailed rebuttal evidence on the relationships, or lack thereof, between nutrients and river ecosystem health. He concluded that, aside from when ammonia and nitrate reach levels capable of exerting toxic effects, there is no direct causative relationship between nutrient concentrations and macroinvertebrate health indices (in particular MCI).²⁸⁷ He went to state that that any evidence of statistical correlations between TN and MCI, and TP and MCI, were non-causative relationships.
959. We conclude that Dr Canning's recommended approach to DRP and nitrate thresholds in tributary sub-catchments based on relationships with ecosystem health metrics lacks sufficient scientific verification and peer support for inclusion in Table 3.11-1. The strength of the relationship between nutrient concentrations and particular river ecosystem health indices, such as the MCI, appears questionable for the Waikato

²⁸⁴ Dr Canning, JWS on water quality – page 31.

²⁸⁵ Dr Scarsbrook, JWS on water quality – page 195.

²⁸⁶ Dr Scarsbrook, JWS on water quality presentation, 18 July 2019 – audio.

²⁸⁷ Dr Ausseil, Block 1 rebuttal evidence – paragraph 25.

region. It may be appropriate to revisit the inclusion in Table 3.11-1 of such an attribute, or its equivalent, in future plan changes, once further research has been undertaken.

960. A third approach suggested by the experts was one that set nutrient thresholds to manage the risk of excessive periphyton growth in the tributaries. As stated in the JWS,²⁸⁸ under this approach, dissolved nutrient thresholds would apply to all hard-bottomed, wadeable sites and their contributing catchments in order to manage the risk of nuisance periphyton growth and subsequent effects on ecosystem health and recreational/cultural use of water in wadeable tributaries of the PC1 sub-catchments.
961. This approach had two options for setting nutrient concentration thresholds: one based on that presented in the Block 1 evidence of Ms McArthur (on behalf of DoC), and the other based on information contained within a recent review of nutrient criteria for New Zealand rivers.²⁸⁹
962. Many of the experts agreed that periphyton proliferation is an important issue in rivers. However, a number questioned the significance of this issue in the Waikato-Waipā River catchments. For example, while Dr Ausseil supported the setting of nutrient thresholds for managing periphyton, he was of the opinion that there was a general lack of information the state of periphyton issues in the Waikato catchment and “*virtually no information*” on periphyton/nutrient relationships in the catchment.²⁹⁰ He went to state that significant periphyton issues have not, to date, been identified in the Waikato catchment. Dr Cooper did not support this approach either, but supported a periphyton attribute for hard-bottomed streams where a periphyton issue had been identified.
963. We received no monitoring data to demonstrate that nuisance periphyton growth is a significant issue in the Waikato-Waipā River catchments. WRC scientists at the hearing were of the opinion that nuisance periphyton growths were not a significant issue, whereas experts on behalf of DoC and Fish and Game were of the view that it could be. This general lack of definitive information does not provide us with the necessary level of confidence to include nutrient thresholds for tributary sub-catchments in Table 3.11-1 based on the management of periphyton.
964. To wrap up, no consensus could be reached on long-term N and P thresholds for tributaries for the management of ecological health, including periphyton management.

²⁸⁸ JWS on water quality – page 35.

²⁸⁹ Matheson F., Quinn, J.M., and Unwin, M. 2016. Instream plant and nutrient guidelines. Review and development of an extended decision-making framework Phase 3, HAM2015-064: 118.

²⁹⁰ Dr Ausseil, JWS on water quality - page 123.

Individual experts had an opportunity to record their reasons for recommending that such thresholds be adopted or rejected.

965. We are aware that at the time of writing this report, a draft National Policy Statement for Freshwater Management was the subject of consultation, and that that document includes proposed ecological health attributes for DIN and DRP that are different again to any of the options suggested to us by experts. We place no weight on that document, for the reasons set out in section 3 above.
966. On the basis of a lack of a clear preference from the experts, we find that we are unable to recommend any particular option be included in Table 3.11-1 for N and P thresholds that relate to ecosystem health management in the tributaries (i.e., the sub-catchments). However, as we have previously noted, water quality scientists for WRC included current state data for DRP in the Closing Planning Statement and recommended that it be included in Table 3.11-1 with short and long-term target states also set at current state (i.e. maintain). We accept this recommendation on the basis that the inclusion of current state data for short and long-term target states should be viewed as 'place holders' pending the development of tailored targets for the management of ecosystem health in individual sub-catchments, and should not be construed as implying that the current state DRP concentrations are acceptable at all sites.
967. Table 3.11-1 as notified included an attribute for water clarity. Apart from a few exceptions, the clarity attribute applied to all monitoring sites in the Waikato-Waipā River catchment. Experts expressed concern that the clarity threshold in Table 3.11-1 was in relation to median clarity values for each site. As pointed out in the JWS, grading a site against a median would mean that the value is only met 50% of the time, and for the other 50% of the time, the clarity could be markedly less than the median. By implication, if the median value was regarded as an acceptable level of water clarity for swimming, then 50% of the time the clarity would be unsuitable for swimming. We do not think this reflects the objectives of Te Ture Whaimana relating to swimming and swimmability.
968. All experts participating in conferencing agreed that clarity was an important attribute to measure, and a large majority agreed that it should be the subject of a numeric attribute in Table 3.11-1. The first was closely aligned with the TLG approach. The difference was that the reporting statistic was the 10th percentile (i.e. 90% of samples are greater than the threshold value) rather than the median. The experts characterised this alternative as more aligned to the principles of the *E. coli* attribute

that we will discuss shortly, as it is based on the proportion of samples exceeding the median. Both clarity options adopted 1 metre as an acceptable minimum level of water clarity for swimming. The key difference between the options was the percentage of occasions this threshold was met.

969. The option that adopted a 10th percentile as the reporting statistic for meeting the minimum swimming suitability threshold was deemed more stringent than the alternative option and that in Table 3.11-1 as notified, and would 'grade' more sites as failing to achieve the Minimum Acceptable State (53 sites would fail under Option 2 versus 33 sites under the alternative option). Another way to characterise the difference is that Band A of Option 2 equates to Band C of the alternative.
970. The preferred option at expert conferencing was not clear-cut. The only clear consensus is that the status quo is not satisfactory. The position is complicated because water clarity has aesthetic connotations. Clearer water appears 'cleaner' and more attractive for swimming, without making any material difference to its safety for swimmers (once above a minimum threshold).
971. Water clarity was identified by River iwi members as a potential attribute for swimming and members expressed a need to see the bottom of a swimming place to be reassured it is safe and is familiar (inter-generational). This could be at the bank of the river or lake and/or in the water and is likely to be at a human scale, that is shoulder to feet (approx. 155cm vertical).²⁹¹
972. It is clear to us that the long-term option requiring that 90% of samples are greater than the threshold value (1.0 metre clarity) is the more conservative approach to providing safe swimming. In the absence of clear evidence that a lower standard provides for safe swimming, in our view, Te Ture Whaimana directs us towards that outcome.
973. Table 3.11-1 as notified included an *E. coli* attribute for all sites, but the only statistic included was the 95th percentile value. It is unclear to us why this was the case as the 2014 version of the NPS-FM included both medians and 95th percentiles. The amended (2017) NPS-FM includes, for *E. coli* (human health for recreation), a combination of four metrics to be used to determine attribute state as follows:
- Exceedance of the 260 CFU/100mL threshold;
 - Exceedance of the 540 CFU/100mL threshold;

²⁹¹ TLG Report 2018/42. Mātauranga Māori Knowledge Networks: Wai Ora Plan Change. Waikato Regional Council Technical Report 2018/42 (Coffin, A., 2015).

- Median; and
- 95th percentile.

974. At conferencing, the expert witnesses reached consensus on adopting the application of the above four NPS-FM metrics for Table 3.11-1. Appendix A of the Officers' Closing Planning Statement notes that WRC water quality scientists have aligned the values in Table 3.11-1 with the *E. coli* attribute table in 2017 revision of the NPS-FM. The scientists stated that their recommended amendments have the net effect of long-term targets attribute state for all PC1 monitoring sites that equate to Band A from the NPS-FM (2014, amended 2017). We agree with these amendments as they are consistent with the NPS-FM and give effect to Te Ture Whaimana.
975. Dr Dada (for Beef and Lamb) raised the issue of the WRC's approach to *E. coli* levels, and associated infection risk, under high (i.e., flood) river flow conditions when, arguably, bathing and other contact recreation activities are typically not undertaken, and so less relevant as a health risk. He stated that 95th percentile *E. coli* concentrations are "*rare events that are associated with storm flows and will only reflect in 5% of the observed data used to make this judgement*".²⁹² That may well be the case. We were nevertheless inclined to adopt the approach used in the NPS-FM, where attribute states are based on the assumption that infection risk ignores the possibility of not swimming during high flows.²⁹³ The NPS-FM approach acknowledges that 'actual risk' will generally be less if a person does not swim during high flows, which we interpret to mean it is conservative, and as such is consistent with Te Ture Whaimana.
976. To check the end result, the panel asked WRC scientists for current state data on *E. coli* statistics that included 'filtered' datasets that excluded when river flows were lower than three times the median flow for the relevant monitoring site (i.e., data when river flows were high) so that these could be compared with the complete monitoring data set. That information was supplied to us in the Closing Planning Statement.²⁹⁴ Contrary to our expectation, exclusion of flood flows does not systematically reduce the 95th percentile concentration, and in many cases, has the opposite effect. Consequently, we do not accept Dr Dada's concerns regarding the relationship between flow and *E. coli* concentrations for the Waikato-Waipā catchment.

²⁹² Dr Dada, Block 1 evidence in chief – paragraphs 10 and paragraphs 35-16.

²⁹³ NPS-FM – page 40.

²⁹⁴ Closing Planning Statement, Appendix C, Table 3 – page 38.

977. A number of other attributes were considered and discussed at conferencing, namely:

- sediment;
- DO;
- Temperature;
- toxicants (other than ammonia and nitrate);
- benthic macroinvertebrates;
- nuisance macrophytes (aquatic plants);
- periphyton (benthic algae);
- fish;
- riparian cover;
- attributes specific to lakes;
- attributes specific to wetlands, particularly Whangamarino wetland.

978. WRC scientists summarised the support for including some of these additional attributes into Table 3.11-1 as follows:

- support for two additional numeric attributes:
 - macroinvertebrates (10 in support for inclusion: 4 against); and
 - Whangamarino wetland (6 in support, 5 against);
- support for additional narrative objectives:
 - deposited sediment (unanimous support for inclusion as narrative objective);
 - DO (unanimous support for inclusion as narrative objective);
 - benthic macroinvertebrates (10 for inclusion, 4 against);
 - periphyton (unanimous support for inclusion as narrative objective)
 - Whangamarino wetland (majority support (6 for, 2 against) for inclusion as narrative objective);
 - other wetlands (majority support (8 versus 2) for inclusion as narrative objective);

979. The WRC scientists considered that any proposed narrative attributes would sit outside of Table 3.11-1, and did not consider them further in their revision of the table. We agree with this approach. There was considerable debate about the appropriateness of these attributes, including whether they were in scope of PC1, and in particular how they related to the four contaminants at the heart of PC1.

980. WRC scientists were of the view that nuisance periphyton was not a significant issue in the Waikato-Waipā River catchment, due largely to the majority of tributaries having soft-bottom habitat not suitable for the establishment of periphyton.
981. Dr Canning did not agree with this assessment and produced a map of the Waikato-Waipā River catchments that modelled the predicted extent of streams and rivers with hard- versus soft-bottomed substrate.²⁹⁵ According to Dr Canning, the map indicated that at least 80% of the river and stream reaches were hard-bottomed and, by inference, were capable of supporting periphyton growths. Ms McArthur in her Block 1 evidence in chief for DoC listed a number of tributaries which she stated were not naturally soft-bottomed systems.²⁹⁶ In the Closing Planning Statement, WRC water quality scientists acknowledged that the exclusion of periphyton from PC1, despite it being a compulsory attribute under the NPS-FM, will need to be addressed.²⁹⁷ They identified an option of adopting a risk-based monitoring requirement and a narrative objective identifying targets for periphyton, particularly in any high-risk sites that might breach the national bottom line periphyton biomass value.
982. Although we note that periphyton is a compulsory attribute under the NPS-FM, we do not see the point in managing for it in systems that do not support its accrual. There are also practical issues to consider before including a periphyton attribute in Table 3.11-1, not least is the lack of WRC monitoring data to compare the state of streams and rivers in the Waikato-Waipā River catchments against the NOF periphyton biomass attribute bands (as noted in the JWS.²⁹⁸ We heard that WRC monitors periphyton at hard-bottomed sites only annually, whereas NPS-FM attribute bands are based on a monthly monitoring regime with a minimum record length for grading a site of 3 years.
983. We have elected not to include a periphyton numeric attribute for Table 3.11-1 given the issues identified above. In our view, the WRC scientist's suggested option noted above does not lend itself to inclusion either. However, the inclusion of a periphyton attribute will need to be revisited in subsequent plan changes when more detailed information is available on factors affecting nuisance periphyton growths in the Waikato-Waipā River catchments, including geographical distribution and the relationship between low water clarity and low periphyton biomass.

²⁹⁵ Dr Canning, 16 July 2019 Fish and Game responses to Block 1 questions (attachment to Memorandum of Counsel).

²⁹⁶ Ms McArthur, Block 1 evidence in chief – paragraph 90.

²⁹⁷ Closing Planning Statement, Appendix A – page 24.

²⁹⁸ JWS on Table 3.11-1 – page 80.

984. We discussed the issue of scope in section 4 of our report, concluding that temperature and heavy metals²⁹⁹ are out of scope. We note also the finding that scope for including biological tests like fish and MCI indices depends on the way they are used in PC1.
985. The experts considered whether or not a DO attribute should be included in Table 3.11-1. In the JWS, the experts acknowledged the importance of DO in maintaining aquatic ecosystem health, however they also noted that there is an indirect relationship only between it and the four contaminants of concern.³⁰⁰ The JWS section on DO recommended it be implemented as a monitoring requirement, with the bottom-line set as a trigger value for management intervention.
986. Mr Vant and Ms McArthur pointed out to us at the JWS presentation that the Water Module of the operative Waikato Regional Plan includes Policy 7 relating to the maintenance and enhancement of water bodies that support indigenous and trout fisheries. Policy 7(d) requires consideration of the need to maintain water temperatures and dissolved oxygen levels that are suitable for aquatic habitat and spawning.³⁰¹ For significant trout fisheries and trout habitat, discharges shall not cause dissolved oxygen to fall below 80 percent of saturation concentration. If the concentration of dissolved oxygen in the receiving environment is below 80 percent saturation concentration, any discharge into the water shall not lower it further. There is no specific equivalent DO standard for significant indigenous fisheries and fish habitat.
987. While DO is an important water quality attribute, its direct relationship with the four contaminants is limited, and therefore it is of low value in assisting their management. On that basis, we have not included it as an attribute in Table 3.11-1.
988. The inclusion of a macroinvertebrate community health indicator (e.g., MCI or QMCI) as an attribute for inclusion in Table 3.11-1 was considered by the water quality experts at conferencing. While all experts agreed that macroinvertebrate communities are an important measure of value, there was quite a divergence of opinion as to whether that should require a numeric attribute state for inclusion in Table 3.11-1. There was even considerable disagreement as to whether it was appropriate to have a narrative attribute.

²⁹⁹ Section 4 of our report addressed heavy metals because that was what submissions (e.g. of Forest and Bird) referred to. We consider the same conclusion would follow for other toxicants not associated with N, P, sediment and microbial pathogens.

³⁰⁰ JWS on water quality – page 70.

³⁰¹ Policy 7 Fish Class, Waikato Regional Plan – Reprinted April 2012 – page 3-17.

989. There are some practical difficulties associated with including a macroinvertebrate attribute in Table 3.11-1. First, we heard that WRC's ecology monitoring programme for macroinvertebrates samples only wadeable streams. The JWS notes that sites listed in Table 3.11-1 are based on the WRC's water quality monitoring network and many are non-wadeable. Only ten of these sites have macroinvertebrate sampling data associated with them.³⁰² Dr Depree noted that this 'mis-alignment' of monitoring sites meant that there may be no relevant water quality data to respond to decreasing or impoverished macroinvertebrate communities at a site.³⁰³
990. Secondly, MCI and QMCI indices are related to hard-bottomed streams and rivers, although variants exist for soft-bottomed streams. We heard that many of the streams in the Waikato-Waipā River catchments are soft-bottomed. We consider this situation would pose difficulties with data interpretation.
991. The experts could not agree on a regional bottom-line for an MCI or QMCI attribute. Dr Canning preferred bottom lines of 90 and 4.5 for MCI and QMCI respectively. Dr Mueller also preferred an MCI bottom-line of 90 rather than the 80 presented in the recommendation of the sub-group on macroinvertebrates.
992. Finally, the macroinvertebrate attribute as recommended in the JWS (Table 3 – page 77) used QMCI scores described at the FMU scale and assessed as the percentage of stream length in 'Poor' condition. The WRC water quality scientists in the Closing Planning Statement pointed out that this approach does not lend itself to inclusion in Table 3.11-1. WRC scientists also noted that the main 'drivers' of macroinvertebrate community health in Waikato streams are riparian and habitat condition and levels of fine sediment, and therefore the relationship between the four contaminants of concern and a macroinvertebrate attribute was 'debatable'.³⁰⁴ We agree with the WRC scientists and on that basis have not included a macroinvertebrate attribute in Table 3.11-1.
993. A number of experts were not in favour of the Fish IBI index being included as an attribute with thresholds in Table 3.11-1. Dr Ausseil considered that the index did not reflect fish community composition or structure, nor take in account the likes of barriers to fish migration, suspended and deposited sediment, and that the relationships between nutrients and fish may be due to other factors other than a direct cause and effect relationship. Dr Cooper was of the opinion that the index is useful to monitor,

³⁰² JWS on water quality – page 76.

³⁰³ Dr Depree, JWS on water quality - page 161.

³⁰⁴ Officers' Closing Planning Statement, Appendix A – page 23.

and could be a monitoring recommendation, but inappropriate as an attribute for setting targets and limits in Table 3.11.1 for determining the effectiveness of PC1.³⁰⁵ Dr Scarsbrook did not support the inclusion of a fish index in Table 3.11-1 either. He stated that the relevant paper on the subject (Pingram *et al.* 2019³⁰⁶) indicated it was poor at discriminating stressor effects in Waikato. He went on to state that the fish index is heavily influenced by barriers to access and this limits its utility as a water quality indicator.

994. Ms McArthur agreed with the recommendation for inclusion of the index, but gave no reason in the JWS statement.
995. We support the monitoring of fish populations within the Waikato-Waipā River catchments and assessments to determine their abundance and health. However, we do not find the relationships between the Fish IBI and the four contaminants to be sufficiently well understood for it to be included as an ecosystem health attribute in Table 3.11-1.
996. As for remaining attribute candidates, the inclusion of macrophytes had clear support of only one of the experts at conferencing. We consider deposited sediment is within scope and clearly affects freshwater habitat. However, only two of the experts wanted it included as a numeric attribute and, on balance, we do not consider it has sufficient refinement as a numerical attribute for inclusion in Table 3.11-1 in this plan change.
997. Riparian cover also had little support from the experts as an attribute and in any event we consider that it is not a freshwater attribute. Further, the attribute states presented by Dr Mueller do not appear to have been tested for the Waikato-Waipā River catchment.
998. We also note that the riparian vegetation widths within the proposed attribute bands (up to 25 metres) would have economic implications to affected landowners that had not been taken into consideration. Dr le Miere gave us an idea of the potential costs in his Block 3 evidence for Federated Farmers, suggesting that planting and maintaining a 20 metre riparian margin would cost in the order of \$2b, with the value of the land lost over \$900 million. To state the obvious, these are not inconsiderable sums. They

³⁰⁵ Dr Cooper, JWS on water quality - page 143.

³⁰⁶ Pingram, M.A., Collier, K.J., Hamer, M.P., David, B.O., Catlin, A.K. & Smith, J.P. 2019. Improving region-wide ecological condition of Wadeable streams: risk analyses highlight key stressors for policy and management. *Environmental Science and Policy* 92 (170-181).

certainly suggest a need to proceed with a much greater level of evidence and analysis than we had before us.

999. In relation to the lakes and the Whangamarino wetland, we consider that PC1 has not adequately addressed these water bodies, particularly given the ecological state that some of them are in. Whangamarino is essentially being used as a sink for contaminants prior to its water discharging to the lower Waikato River. Given our finding that Whangamarino is an outstanding waterbody in the context of Objective 5, this is obviously not a satisfactory situation.
1000. Dr Robertson presented proposed numeric TN and TP attribute targets for Whangamarino Wetland in the JWS. While some experts expressed doubts about the concept of fixing TN and TP targets, we had no contrary evidence as to what targets were appropriate if we determined they were required (which is the case). Dr Robertson also presented narrative targets for TN, TP, sedimentation and the hydrological regime.
1001. We consider that a precautionary approach is required for this wetland given its outstanding status, and as such, that there is merit in at least adopting the narrative targets for TN and TP that we had evidence on. In section 4 of our report, we found that water quantity is outside the scope of PC1. While we accept that hydrology can affect wetland ecosystem health, we consider, we have no ability to recommend regulation of hydrological drivers for wetlands in this plan change.
1002. In the JWS, Dr Robertson presented narrative attribute targets for other wetlands based on wetland type (bog, fen, swamp, marsh).³⁰⁷ We found these proposed narrative states to be extremely vague and were also concerned about the absence of any assessment of resulting costs. Consequently, we have not included these in Table 3.11-1.
1003. Lakes received relatively little attention in notified PC1. The evidence we received at the hearing indicated that many were in a much degraded state with respect to water quality and ecosystem health. As notified, Table 3.11-1 set out lake 80-year concentration targets for chlorophyll-a, cyanobacteria, TN and TP, and a minimum visual distance for water clarity. These targets were grouped by lake FMU (dune, riverine, volcanic and peat) and individual lakes were not identified. There were no short-term targets.

³⁰⁷ JWS on water quality – pages 108-109.

1004. DoC's submission sought the inclusion of short-term targets for lakes that required a 20% improvement in water quality within the first 10 years of the plan. Dr Phillips gave evidence on lakes in Block 1 for DoC and supported her submission on short-term targets, stating that lakes have a longer response time to management actions within lakes and lake catchments.³⁰⁸
1005. DoC also sought that a greater number of FMUs be established for lakes in the Waikato-Waipā River catchments, and Dr Phillips provided an example of one approach to achieve this. This approach was presented in the JWS (Attachment 12, Table 2, page 98) and included ten lake FMUs along with short-term and long-term concentrations targets for chlorophyll-a, TN and TP.
1006. At the JWS presentation, Dr Scarsbrook stated that within the lake FMUs, there are lakes with varying current state water quality, including some in a very poor state (in particular the riverine lakes). He said that because of the varying nature of water quality between lakes, each lake will need to be managed in its own right, and WRC would be developing management plans on a lake-by-lake basis to address specific issues.
1007. We asked Dr Scarsbrook whether WRC scientists agreed or disagreed with the need for changes to the lake attributes states in Table 3.11-1 as notified. He did not respond, citing a concern that deciding what the magnitude of short-term targets should be is a value judgement and was not one for scientists to determine. Dr Cooper expressed a similar opinion. He also considered there had not been the opportunity to properly caucus the proposed lake attributes and questioned how the short-term targets would be interpreted for individual lakes when applied at the FMU scale as proposed in Attachment 12 of the JWS³⁰⁹.
1008. In the Closing Planning Statement, the Officers elected not to change Table 3.11-1 with respect to lakes (aside from adding an attribute state for ammonia). However, they provided an alternative Table 3.11-2 ranking which prioritised Whangamarino and lower Waikato lakes sub-catchments ahead of other previously higher priority sub-catchments.
1009. We find that a single short-term target for all lakes within an FMU is not appropriate. While we consider short-term targets for lakes have merit, we received no recommendations for individual lakes. Further, and linked to the absence of individual lake values, the short-term targets presented in the JWS had an insufficient analysis of

³⁰⁸ Dr Phillips, Block 1 evidence in chief – paragraphs 124 – 125.
³⁰⁹ JWS – page 143.

costs (in particular) to enable us to undertake a section 32AA evaluation supporting their inclusion. This is not a criticism of Dr Phillips. Because the required degree of improvement for each lake is not known, it is not possible to assess those costs.

1010. Given the above, we have decided to adopt the Closing Planning Statement's recommended Table 3.11-1 with respect to lakes. As we discuss in section 12 of our report below, we also agree with the suggestion to elevate sub-catchments with lakes higher up the priority order in Table 3.11-2. Finally, we accept that there will be a need for non-regulatory methods for management plans for individual lakes. We expect that water quality targets for individual lakes will form part of future plan changes.
1011. At a more minor level, we have amended the description of the sub-catchments to align with notified Table 3.11-2 and inserted a footnote to link the table to Map 3.11-2, showing their areal extent.

FMUs and Sub-catchments

1012. Table 3.11-1 breaks the catchments up into FMUs. Of the river-based FMUs, each one is comprised of several sub-catchments. Map 3.11-1 showed the FMUs. Map 3.11-2 showed the sub-catchments.
1013. Several submitters sought amendments to FMU and sub-catchment boundaries. DoC and Fish and Game asked for a separate FMU for Whangamarino Wetland in recognition of the significant values associated with this wetland complex. Dr Robertson provided largely uncontested evidence for DoC as to those values, which we addressed in section 9 following (in the context of (now) Policy 16). While we have not elected to carve out a separate and new FMU for the Whangamarino Wetland catchment, we have made provision for TN and TP attributes specific to it and increased the priority rankings in (now) Table 3.11-3 for all sub-catchments that drain into it. We regard these changes as providing the appropriate recognition of the wetland within the broader catchment.
1014. DoC also sought FMUs for individual lakes, as we discussed above. We do not think this is necessary as we do not see how this would better achieve the outcomes sought in Te Ture Whaimana. As WRC intensifies its lake monitoring programme, future data may assist in refining the lake FMU groupings.
1015. A number of submitters sought greater division of the riverine FMUs. There was a general view that the Upper Waikato FMU was too large and might be divided perhaps into as many as 4 FMUs. Ms Addenbrooke provided evidence for Miraka at Block 1

analysing the rationale for different FMU boundaries and suggesting possible alternative divisions, based on a range of criteria. Her view was that the existing FMUs, and the Upper Waikato FMU in particular were too large and homogeneous in terms of their biophysical attributes and will fail to identify priority contaminants.³¹⁰ She also drew attention to the link between the FMU boundaries and the practical application of the 75th percentile rule, which Miraka opposed on a range of grounds.

1016. In our view, if the value-setting exercise undertaken by the CSG and documented in notified section 3.11.1 had identified clearly different values for sub-sets of the defined FMUs, there would have been a better case for dividing those FMUs. However, that was not the case. Looking afresh at the Upper Waikato FMU, as the FMU whose boundaries were the principal issue, its defining feature is the string of hydro lakes ending at Karapiro. To us, that is a logical division of the catchment. It is by no means the only possible division, but it is a logical division.
1017. Moreover, as was noted in the course of the hearing, with water quality values mostly³¹¹ defined at the sub-catchment level by Table 3.11-1, the principal (perhaps the sole) significance of the FMU boundary is to the application of the 75th percentile rule. As discussed in section 5 of our report, we have recommended what we believe to be a more policy-based approach to higher N leaching enterprises than the notified PC1, but it retains the essential feature of fixing an N leaching value across each FMU as a trigger for a different approach under the policies and rules.
1018. It seemed to us that what Miraka was seeking to achieve by redrawing the FMU boundaries was to increase that trigger value in the upper part of the Upper Waikato FMU, and thereby to make the rule less onerous for Miraka's suppliers.
1019. We consider that were the FMU boundaries to be redrawn in the manner Miraka proposed, it would merely accentuate the differences in N leaching rates as between different FMUs, and probably necessitate a different approach to fixing the trigger values in the FMUs that were 'out of kilter' with the rest of the sub-catchment in order to preserve reasonable equity as between different enterprises. Miraka would accordingly not achieve its strategic objective either way.

³¹⁰ Ms Addenbrooke, Block 1 evidence in chief, paragraph 4.9.

³¹¹ The exception being for the relatively small number of sub-catchments for which no water quality values have yet been defined.

1020. We have suggested a new Table 3.11-2 in combination with amendments to Policy 1 to provide a mechanism for localised contamination to be prioritised, thereby addressing Ms Addenbrooke's point in that regard.
1021. We also take on board the Officers' concern regarding increased reporting requirements on WRC if the number of FMUs multiplies.
1022. In summary, we do not support dividing up the existing FMUs.
1023. WPL sought the division of sub-catchment 66 (Waikato at Ōhakuri) into sub-catchments 66A (Tāhorakuri) and 66B (Ōhakuri), as one is more riverine and the other more lacustrine. The Officers recommended that the WPL submission is not adopted, noting that differences similar to those raised by WPL exist within many of the sub-catchments.³¹² However, the Officers considered that, with improvement in monitoring data and information into the future, there may be an opportunity to divide catchments in future planning processes. While we have some sympathy for WPL's argument around splitting sub-catchment 66, we agree with the Officers that this is a matter better dealt with in future plan changes. This same line of thought also applies to WRC's submission requesting that sub-catchments 52 (Waitomo at SH31 Ōtorohanga) and 46 (Waitomo at Tumutumu Rd.) be combined.

Non-regulatory Approaches

1024. While we have declined to include a large number of potential numeric attributes discussed at conferencing, we agree that a number of them should be monitored as indicators of ecosystem health and potentially for inclusion as attributes in future plan changes. Indeed, we were made aware at the hearing by WRC staff that the Council already includes a number of these parameters in its regular monitoring programmes.
1025. Specifically, we consider that macroinvertebrate, fish and periphyton monitoring is necessary to provide that essential information feedback loop between the four contaminants of concern, land management practices associated with the policies and rules associated with this plan change and aquatic ecosystem health. We acknowledge that periphyton and macroinvertebrate monitoring will be limited to wadeable streams and rivers, and periphyton monitoring limited to hard-bottomed streams.

³¹² S42A Block 1 report – paragraph 506.

1026. We encourage WRC to determine more rigorously how it will marry its REMS ecological monitoring programme with the Waikato-Waipā River catchments sub-catchment water quality monitoring programme. Ecological monitoring (e.g., periphyton, macroinvertebrate and fish) will provide an important feedback to regulators and stakeholders on the effectiveness of the policies and rules of the plan change.
1027. We heard how WRC has already added ten relatively new monitoring sites to sub-catchments within the Waikato-Waipā River catchments. Several submitters sought even more sites be added. We also received information from WRC regarding its lakes' monitoring programme and proposals to increase the number of lakes being monitored to provide representativeness within each of the four Lake FMUs.
1028. We encourage WRC to work with landowners and sub-catchment/collective groups to establish complementary monitoring programmes that are relevant to their operations and sub-catchment.
1029. We address non-regulatory Implementation Methods in more detail at Section 10 of this report. However, we record that the matters of: encouraging WRC to determine more rigorously how it will marry its REMS ecological monitoring programme with the Waikato-Waipā River catchments sub-catchment water quality monitoring programme, and working with landowners and sub-catchment/collective groups to establish complimentary monitoring programmes; have been included in the Implementation Methods that we have recommended.

9. POLICIES

General Approach to Policies:

1030. The Block 2 section 42A Report addresses most of the policies in PC1, and the rule framework supporting those policies. There are major themes running through the policies, and the submissions on them. Like our report, the Block 2 section 42A Report is structured with a preliminary discussion of these major issues before reviewing submissions on specific policies. We have, however, come to some positions on those general issues that differ materially from those recommended by Officers, which flow through into the content of the policies. We summarise our recommendations on those “*big*” issues in section 5 of our report. Nevertheless, we think it is useful to follow the structure of the Block 2, section 42A Report and work through the policies, largely in the order in which they appeared in the notified PC1.
1031. In our discussion of the objectives in section 7 of our report, we recommended deleting both the heading of each objective and the reasons for that adoption; essentially because the objectives should speak for themselves.
1032. We consider that the same logic applies to the policies. While generally less fulsome than the headings on the objectives, the policy headings provide grounds for argument about their implications for interpretation of the policies because they necessarily do not capture the nuances of each policy.
1033. Unlike objectives, with some 17 policies (growing to 19 with our recommendations), we think some division between policies on different subjects is required. We therefore suggest a three-fold division, as follows:
- (a) Diffuse Discharges;
 - (b) Point Source Discharges;
 - (c) Diffuse and Point Source Discharges.
1034. This reflects the fact that there is an initial group of policies specific to diffuse charges, another group specific to point source discharges, and a final group common to both.

Management of Diffuse Discharges

1035. As notified, Policy 1 read as follows:

“Policy 1: Manage diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens / Te Kaupapa Here 1: Te whakahaere i ngā rukenga roha o te hauota, o te pūtūtae-whetū, o te waipārapara me te tukumate ora poto

Manage and require reductions in sub-catchment-wide discharges of nitrogen, phosphorus, sediment and microbial pathogens, by:

- a. Enabling activities with a low level of contaminant discharge to water bodies provided those discharges do not increase; and*
- b. Requiring farming activities with moderate to high levels of contaminant discharged to water bodies to reduce their discharges; and*
- c. Progressively excluding cattle, horses, deer and pigs from rivers, streams, drains, wetlands and lakes.”*

1036. The Block 2, section 42A Report noted several hundred submissions specifically on Policy 1 in section C1.2.4.2 and seeks to summarise key points raised by submitters. We adopt and rely upon that summary.

1037. The initial point made by Officers when seeking to analyse those submissions is to discuss a theme running through many submissions, suggesting that there is an excessive focus on N in PC1. The Officers do not comment on whether they agree or not that there is an excessive focus on N, but do agree that the way in which the policies, rules and schedules of PC1 are presented makes this an easy assumption.

1038. For ourselves, we think that this is more than just an issue of presentation. In our discussion of (now) Table 3.11-3 in section 12 of our report below, we conclude that when ranking relative priorities, microbial pathogens are in fact the largest single issue for the catchment, especially in terms of swimmability and gathering food. It is in our view certainly the issue that requires most urgent action to address. While N cannot be ignored, particularly given the data we received indicating that it is steadily increasing, we do not regard it as being as significant an issue, at least in the short term.

1039. Having said that, we think that there is merit in the Officers' observation that there is a lack of clarity in the policy, rule and FEP framework as to what is expected and that this would be improved if the policy directions currently split between Policies 1, 2 and 6 were rationalised. The way in which the Officers recommend this be done is through

focusing Policy 2 more tightly on FEPs and merging the common elements of Policies 1, 2 and 6. Consequently, it is recommended that Policy 6 be deleted.

1040. To understand the point Officers are making, it is necessary to bring Policy 2 and Policy 6 more clearly into focus. As notified, Policy 2 read:

“Policy 2: Tailored approach to reducing diffuse discharges from farming activities/ Te Kaupapa Here 2: He huarahi ka āta whakahāngaihia hei whakaiti i ngā rukenga roha i ngā mahinga pāmu

Manage and require reductions in sub-catchment-wide diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens from farming activities on properties and enterprises by:

- a. Taking a tailored, risk based approach to define mitigation actions on the land that will reduce diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens, with mitigation actions to be specified in a Farm Environment Plan either associated with a resource consent, or in specific requirements established by participation in a Certified Industry Scheme; and*
- b. Requiring the same level of rigour in developing, monitoring and auditing of mitigation actions on the land that is set out in a Farm Environment Plan, whether it is established with a resource consent or through Certified Industry Schemes; and*
- c. Establishing a Nitrogen Reference Point for the property or enterprise; and*
- d. Requiring the degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens to be proportionate to the amount of current discharge (those discharging more are expected to make greater reductions), and proportionate to the scale of water quality improvement required in the sub-catchment; and*
- e. Requiring stock exclusion to be completed within three years following the dates by which a Farm Environment Plan must be provided to the Council, or in any case no later than 1 July 2026.”*

1041. As notified, Policy 6 read:

“Policy 6: Restricting Land Use Change / Te Kaupapa Here 6: Te here i te panonitanga ā-whakamahinga whenua

Except as provided for in Policy 16, land use change consent applications that demonstrate an increase in the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens will generally not be granted.

Land use change consent applications that demonstrate clear and enduring decreases in existing diffuse discharges of nitrogen, phosphorus, sediment or microbial pathogens will generally be granted.”

1042. We find the logic of the divisions between these three policies difficult to follow. In particular, the establishment of an NRP for each property (provided for in Policy 2) is critical to the operation of notified Policy 1, because it provides the baseline against which judgments are made about the level of contaminant discharge for the purposes of Policy 1(a) and (b). Similarly, we heard a lot of evidence about the need to accommodate land use change within the normal operating parameters of a drystock farming operation if it is to remain viable.
1043. We also heard extensive evidence from HortNZ and PVGA (and their respective members) regarding both the desirability of providing for additional CVP growing capacity and the terms on which that might appropriately be considered. That would suggest a CVP specific regime both for continuation of existing CVP and new CVP, rather than providing for new CVP in common with other potential land use changes. However, both Policies 1 and 2 are expressed in terms that would appear to apply to CVP.
1044. In summary, we agree in principle with what the Officers have sought to do, but we do not think it goes far enough. The policies need to make clear which provisions apply to CVP and which do not. We will examine the elements of these three policies together, taking account of the submissions on them too, as summarised in sections C1.2.4.3 and C1.5.3, from this perspective.
1045. We start with the opening words of Policy 1, which are repeated in Policy 2. In section 4 of our report above, we noted the mismatch between the policies generally, which focus on discharges of N, P, sediment and microbial pathogens, and the rules that seek to manage land. Our recommendation was that the primary focus of PC1 be on land uses, while making clear that that includes associated diffuse discharges. Consequent on that finding, we recommend that Policy 1 take the same approach.
1046. The next question is; which land uses? The rules all relate to farming activities or to CVP, which is a subset of farming, as defined. It follows that the policy should refer to

farming land uses, but with a separate policy to include provisions related to farming activities other than CVP. As we work through the content of Notified Policies 1, 2 and 6, we will allocate provisions on that basis.

1047. Management of farming land uses as a policy directive, however, does not provide substantive guidance as to the course of action proposed. The starting point is the notified wording which refers to requiring reductions in sub-catchment-wide discharges. That in turn raises a number of questions. Is that all discharges? Or is the policy directed, as its heading would suggest, towards diffuse discharges? And is the focus solely at the sub-catchment level, which would not appear consistent with identification of FMUs, each incorporating a number of sub-catchments.
1048. The Officers sought to address these issues by recommending amendments to the opening words of Policy 1 so that they would refer to both “*catchment wide*” and “*sub-catchment diffuse discharges*”.
1049. In our discussion of Objective 1 above, we have already drawn attention to the need not to be restricted to a sub-catchment focus. Put simply, water flows downhill, and so too does a significant proportion of N, P, sediment, and to a lesser extent³¹³*E. coli*. Accordingly, the impact of contaminant discharges of all kinds is not necessarily limited to the boundaries of any single sub-catchment. It follows that we accept the intent of the Officers’ suggested amendment is sound, but we think it could be expressed much more clearly by omitting any geographical description, and just referring to reduction in diffuse discharges.
1050. To understand the significance of the suggested amendment to qualify Policy 1 so it just refers to diffuse discharges, it is necessary to refer to the definition of “*diffuse discharge/s*”. As notified, this term was defined as follows:
- “For the purposes of Chapter 3.11, means the discharge of contaminants that results from land use activities including cropping and the grazing of livestock and includes non-point source discharges.”*
1051. The Block 2 section 42A Report notes one submission opposing this definition, that of FANZ. The submitter suggested that the definition is ambiguous and at face value applies to all discharges. It suggested a revised definition, posing two options. One

³¹³ Dr Dada described the processes leading to instream attenuation of *E. coli* in his Block 1 evidence in chief for Beef and Lamb – paragraph 23(b).

option would apply outside Chapter 3.11, which we think would necessarily be out of scope. The suggested more specific definition is:

“For the purposes of Chapter 3.11, it means the losses that result from land use activities, including cropping, forestry and the grazing of livestock, which are not from point source discharges and have potential to contribute to a cumulative impact on the receiving environment.”

1052. The Officers response³¹⁴ refers to the distinction drawn in the WRP between point source discharges (*“a stationary or fixed facility from which contaminants are discharged or emitted”*) and non-point source discharges (*“contamination sources which are diffuse and do not have a single point of origin or are not introduced into the receiving environment from a specific outlet”*). We note that PC1 draws the same distinction with a separate set of policies governing point source discharges. The Officers’ view is that the important distinction between the existing WRP discharge definitions and the diffuse discharge *“is that the latter is specifically for discharges resulting from farming land use activities covered within Chapter 3.11”*.³¹⁵
1053. The Officers describe the suggested alternative from FANZ as being subjective and not improving clarity or certainty, and on that basis recommend no change to the definition.
1054. It seems to us that FANZ has a point. Putting aside the fact that the definition is not in fact limited to discharges resulting from farming land use activities, it would, on the face of the matter include both point source and non-point source discharges that are the result of land use activities. The discharge of contaminants from a dairy manufacturing plant would, for instance, fall within that definition. The plant is a use of land and a discharge of wastewater to the Waikato River (or any of its tributaries) is a result of that use of land (among other things). That would not be consistent with the distinctions drawn in both the WRP and PC1, and we do not consider would be intended.
1055. That’s not to say that FANZ’s alternative is satisfactory either. We agree with the Officers’ point that a definition based on the potential for activities to contribute to a cumulative impact on the receiving environment introduces an unsatisfactory level of subjectivity. Focusing on *“losses”* from a property would also have unsatisfactory consequences. It would include, for instance, losses of contaminants that are outside

³¹⁴ Block 2 section 42A Report at paragraph 661.

³¹⁵ Ibid at paragraph 662.

the landowner's control. However, we agree with FANZ that point source discharges should be excluded from the ambit of diffuse discharges.

1056. As a result, we recommend that the definition of diffuse discharge/s be amended to read:

"...the grazing of livestock, but excluding point source discharges."

1057. Returning to Policy 1, Officers recommend that the first way in which diffuse discharges of the four contaminants specified might be reduced is by *"requiring all farming to operate at good farming practice, or better"*.

1058. We heard a lot about GFP and similar descriptions such as *"best farming practice"* and *"good management practice"*. There appeared very little consensus as to what GFP actually means, other than that it is constantly changing (and improving).³¹⁶ It seemed to us very much to be something that an experienced farm advisor would know when they saw it.³¹⁷

1059. During the course of the hearing, we heard from many *"good"* farmers. It was our impression that what marked them out was as much a state of mind as any particular action they might or might not have taken. We refer, for instance to the evidence of Mr Garland, who gave evidence both on his own submission and for F4PC, and who described a process of continuous improvement over several decades of farming, albeit with some false steps along the way - things that seemed like a good idea at the time, but did not work as planned.

1060. The evidence of Mr Dragten for WRC in both the Block 2 and Block 3 hearings illustrated that while current good farming practice could be converted to a series of principles, assessing a farm and a farmer against those principles requires expert judgement in many cases.

1061. Accordingly, while the term has acquired some currency in the farming industry, we consider it too imprecise and uncertain to provide adequate policy direction.

1062. Dr Scarsbrook, who gave expert evidence for WRC, told us on the first day of the Block 1 hearing that he was confident that every farmer in the Waikato and Waipā River Catchments could improve, certainly in the short-term.

³¹⁶ Mr Lowe for instance observed in the course of the presentation of his Block 2 evidence for the Iwi Co-Governors that GFP today was best farming practice 5 years ago.

³¹⁷ Compare *Jacobellis v Ohio* (1964) 378 US 184 per Justice Potter Stewart at 197.

1063. Picking up on that, and rather than fix such a fluid benchmark as GFP, we recommend an approach of requiring a general improvement in farming practice.
1064. That might be considered as uncertain as GFP, but we consider at least that it sends the right message - that no one can rest on their laurels - and we propose to provide more direction in the balance of the policy (and those that accompany it). This general direction applies equally to CVP and so it should sit in Policy 1.
1065. The second means to reduce diffuse discharges recommended by Officers is establishment of an NRP for all properties. In section 5 of our report above, we discussed the issues around NRPs for all properties and concluded that there were other mechanisms to more efficiently and effectively manage diffuse discharges. Consequently, we do not recommend that amendment.
1066. The third sub-policy recommended by Officers is an amendment to notified Policy 1(a), providing for enabling of activities “*with a low level of contaminant discharge to water bodies*”. The amendment from the notified version is to remove the requirement that discharges do not increase, but a subsequent recommended addition would have the same effect and so the end result is essentially the same as was notified.
1067. We agree in principle with enabling farming activities with low levels of environmental effects. We think it would be helpful to be clear about how activities are enabled. This is through specification of permitted activity status, with activities with greater potential effects requiring resource consents. More substantively, we think a test for enabling such activities based on the level of contaminant discharge is problematic.
1068. We have no reliable way to measure contaminant discharges from individual farms. N leaching from properties is modelled through Overseer, but as already discussed, that has a material margin of error and, in any event, Overseer models N losses from the root zone only. Mr Williamson’s evidence for WPL satisfied us that there is significant variation in attenuation rates between the root zone and nearby surface water ways depending on location. In addition, given that only N can be measured (and then only imperfectly as above), talking about low levels of contaminant discharge conveys the N-centric message that Officers recommended needed to be addressed.
1069. The reality is that what we can measure is the intensity of farming operations (principally through stocking rate limits) and use that measure as a proxy for the risk of diffuse contaminant discharges. We emphasise the focus is on risk. For sediment, P and microbial pathogens, where the principal contamination is the result of episodic

overland flow, even where they are available, actual measurements may give the wrong message unless they are long term averages.

1070. The evidence for HortNZ³¹⁸ satisfied us that horticultural activities other than CVP can be added to lower intensity farming operations, with an equally low risk of diffuse contaminant discharges. Our revised sub-policy (and rules) reflects this altered focus. Although CVP does not qualify as low intensity/low risk, the express exclusion of CVP means that this provision properly belongs in the general Policy 1.
1071. The fourth sub-policy recommended by Officers builds on notified Policy 1(b) and seeks to quantify the level of discharge reduction as being that “*proportionate to the amount of (2016) discharge and the water quality improvements required in the sub-catchment*”. This test draws on what was notified Policy 2(d). We identify a number of problems with this suggested approach. The first is that it focuses on levels of contaminant discharge to water bodies from individual farms. That has the same problems as discussed above in relation to the previous sub-policy.
1072. Policy 2(d) suggested that contaminant reductions be proportionate to the amount of “*current*” discharge without identifying clearly what current meant in practice. Officers have sought to clarify that by referencing back to 2016. The difficulty with that is that an individual farmer will not have records of their discharge levels for contaminants other than N (or in the case of P, not accurate records). The NRP is defined as being the greater of two reference years, both ending 30 June, and so the reference point suggested by Officers is apparently not the NRP. Lastly, making the requirement that proportionality be established with reference to water quality improvements required in the relevant sub-catchment raises questions as to what degree of reduction is required, if any, in sub-catchments where Table 3.11-1 does not identify improvements being required.
1073. On the face of the matter, no improvement is required but, as discussed in relation to Objective 1, that fails to take account of the contribution upstream contaminant sources make to downstream over-allocation.
1074. While we agree that the principle of proportionality is a good one, it needs to be clear how the relevant proportions will be established.

³¹⁸ Mr Keenan, Block 2 evidence in chief – paragraphs 48-52; Mr Barber, Block 2 evidence in chief – paragraphs 58-59.

1075. The notified PC1 identified priority catchments in Map 3.11-2 based, as we understand it³¹⁹ principally on the extent to which current contaminant values in sub-catchments required improvement in order to meet the desired values specified in Table 3.11-1. The purpose of prioritisation was to determine the timeframe within which FEPs must be provided to WRC, pursuant to notified Rules 3.11.5.3-3.11.5.4. The prioritisation shown in Map 3.11-2 did not distinguish between contaminants.
1076. As we discuss in section 12 below, we think that distinctions can be made between contaminants, and that some contaminants are more equal than others. It follows in our view that such distinctions might provide a basis for prioritisation of actions.
1077. We note in this regard a comment by Dr Scarsbrook on the hearing day when we heard from the participants in Joint Witness Conferencing³²⁰ to the effect that the distribution of key areas of contamination is a very valuable means to identify and prioritise landowner actions. We agree with that sentiment, and to provide a basis of such prioritisation, we have reviewed the current state water quality data (as at 2010 – 2014) supplied to us by WRC staff for 62 sub-catchment monitoring sites. We note that the 11 new sites established by WRC for PC1 and for which monitoring did not commence until October 2019 (as noted in 2 of our report) have not been assessed, with the exception on the Waikare sub-catchment, which is dominated by Lake Waikare, as discussed below.
1078. Any rankings with respect to the level of priority for each contaminant, and whether or not they made it on to the list, has an element of subjectivity associated with it. Our recommended prioritisation is shown in new Table 3.11-2 that we have inserted into our recommended revised PC1.
1079. In general, *E. coli* has been included where the median concentration exceeds 130 CFU/100mL, on the basis that this level of contamination represents Band D of the *E. coli* attribute state in the NPS-FM (amended 2017). Sediment is included if the 10th percentile of water clarity samples at a site is less than 0.5 metre, on the basis that this represents Band E of the water clarity attribute (Option 1) presented in the JWS for water quality and in Appendix A of the Closing Planning Statement. Band E has the narrative attribute “*Very likely unsuitable for swimming*”. N and P are included based on their median concentrations relative to other sites, but also bearing in mind the NPS-FM attribute bands we were provided with at the hearing. Sites with what appeared to

³¹⁹ See Section 32 Evaluation Report at C2.2.11.5.
³²⁰ 18 July 2019.

be relatively low levels of contamination have no contaminants listed against them. Where this occurs, it means that they rank lower in priority relative to other sites, rather than implying that water quality issues do not exist. We have added a note to the Table to make that clear.

1080. While there is an element of subjectivity associated with this approach, we consider it addresses some of the concerns expressed to us by submitters relating to what they considered were inconsistencies and unfairness, and a general lack of direction associated with the PC1 approach to managing contaminants in sub-catchments.
1081. With respect to the Waikare sub-catchment, although no current state water quality data is available for the 2010-2014, there was sufficient information presented to us at the hearing and in PC1 documents supporting indicating that it has significant nutrient and sediment issues. This sub-catchment is relatively small and dominated by Lake Waikare. Lake Waikare is fed primarily by the Matahuru Stream, which has its own PC1 sub-catchment (Matahuru, sub-catchment number 14). The water quality of Matahuru Stream is monitored by WRC at a site approximately 2 km upstream of its confluence with Lake Waikare (at Waiterimu Road). Current state water quality data for that site indicates significant issues with all four contaminants.
1082. The section 32 evaluation report set out current state water quality for monitored lakes in the Waikato-Waipā catchment, including Lake Waikare.³²¹ The data presented for Lake Waikare supports our recommendation to include N, P and sediment on the list of prioritisation for the Waikare sub-catchment. Further, it supports our view that the Matahuru and Waikare sub-catchments should be well up the priority list set out in Table 3.11-2.
1083. To give the recommended prioritisation some force, we recommend inclusion of a sub-policy directing that farming practices that reduce the identified contaminants be prioritised for action instead of the suggested approach by Officers. This also is a general provision that should sit in Policy 1.
1084. Policy 1(b)(i) suggested by Officers relates to establishing the 75th percentile N leaching value. As discussed in section 5 of our report above, we have recommended that

³²¹ Waikato Regional Council Section 32. D.4.1 Appendix 1. Current state and long term desired water quality targets for the Waikato and Waipā River catchment. Pages 124-125.

reliance on the 75th percentile N leaching value be removed. It follows that the recommended sub-policy is no longer required.

1085. The following recommended sub-policy 1(b)(i)(a) has two elements. The first is a restatement of the 75th percentile rule. This requires those farming properties found to be leaching more than the 75th percentile N leaching value to reduce their N discharge to below that value. The second recommended element is a requirement that those farming properties with N leaching lower than the 75th percentile N leaching value not exceed their NRP.
1086. Addressing the first element, as set out in section 5 above, we have recommended using the best evidence we have as the basis for management of farming activities. The Fonterra evidence discussed in section 5 provides us with a proxy for the 75th percentile in each FMU. In the absence of an NRP, our suggested approach requires an alternative mechanism by which each property ascertains their N leaching rate. We recommend that this be addressed as part of the process of preparing an FEP. We will return to it in that context.
1087. In a policy context, while we have rejected the concept that those above an arbitrary trigger level should be required to reduce below that level,³²² we accept the principle previously underlying notified Policy 2(d) that those discharging more should be under the greatest scrutiny. In a rule context, the greater scrutiny we have in mind translates to a more onerous activity classification (full discretionary). The need for greater scrutiny is partly because those discharging the most generally have the potential to reduce their discharges to the greatest extent, and partly because they will also generally be having the greatest adverse effects.
1088. We emphasise the word generally in each case. The case for Miraka was that some properties have high N leaching values because of the inherent characteristics of the property, principally soil and slope characteristics and rainfall levels. This is evident in the statistics Mr Allen³²³ provided to us showing the distribution of N leaching values from Fonterra suppliers across each FMU.
1089. Miraka accepted that some of its suppliers in the Upper Waikato FMU might need to make more fundamental changes to the nature of their activities because they had established intensive dairy farms at locations where the characteristics of the land were

³²² This means that we also necessarily reject using the same method pitched at lower percentile in lake catchments and those draining into Whangamarino Wetland, as suggested by DoC in its closing submissions mark up of Policy 1.

³²³ Mr Richard Allen, Block 3 Supplementary Evidence for Fonterra.

driving high N leaching values and where, in practice, the means to mitigate that N load were limited. Miraka emphasised to us the importance of having the ability to make such fundamental changes over an appropriate transition period.

1090. We agree that if individual landowners are to be required to make fundamental changes to their farm systems, then this should not be required ‘overnight’. An appropriate transition is required to recognise the investment in existing farm systems and the likely social and economic costs if immediate and drastic changes to those systems are required.
1091. We do not, however, agree with the submission³²⁴ that such changes should be part of a later Plan Change. It seems to us that that is just putting off the ‘evil day’ when landowners have to confront the fact that they have established land uses on land that is inappropriate for those uses. As Ms Ongley observed in the Block 2 hearing, delay and further investment on mitigation might just exacerbate the standing of capital involved in such cases.
1092. The generalisation that high N leaching values equates to high levels of adverse effects also needs in our view to be tested. Quite apart from the margin of error in Overseer modelling that we have noted, we heard evidence that Overseer does not capture the beneficial effects of some large-scale mitigation actions and in others, such as constructed wetlands, modelling of their effectiveness is not regarded as sufficiently robust to be relied on.³²⁵
1093. In addition, Mr Williamson satisfied us that the vulnerability of land to nitrogen leaching varies from site to site. He identified a range of inputs that require consideration. First, there were those that Overseer already takes into account. As above, the significant drivers of modelled high N leaching are rainfall, topography and soil characteristics. Mr Williamson, however, identified also that the distance of a property to surface waterbodies is a relevant factor along with the characteristics of the groundwater mechanisms by which N travels from the root zone to a surface waterbody. In Mr Connell-McKay’s revised PC1, he drew on Mr Williamson’s evidence to identify the high N risk areas as being those located on land in close proximity to water bodies with high soil permeability, rapid groundwater travel or high connectivity between shallow ground water and surface water.³²⁶

³²⁴ Ms Caldwell, Block 2 legal submissions for Miraka at 2.1(i).

³²⁵ Mr Wright-Stow, Block 2 evidence in chief.

³²⁶ Refer WPL Closing submissions, Attachment 3, revised Schedule 1, Part B(3)(a).

1094. While we found Mr Williamson's evidence useful, it seemed to us that applied on a catchment-wide basis, data availability to undertake the kind of analysis that Mr Williamson had done on his Ruahuwai modelling domain may not always be available. In particular, data is required as to the depth of groundwater (which along with the soil characteristics controls the time lapse between N leaving the root zone and entering groundwater), the chemical characteristics of that groundwater (specifically the oxygen content, which influences the extent of de-nitrification before N reaches a surface waterbody) and the transmissivity within groundwater aquifers (i.e. the speed groundwater moves laterally and therefore the amount of time available for de-nitrification before reaching surface water).³²⁷ Accordingly, the policy direction needs to be qualified as being subject to data availability. However, Mr Williamson's evidence points to the need for expert analysis of whatever data there is available to quantify the level of relative vulnerability of land to N leaching.
1095. We also consider that some test of proportionality is required. This must necessarily be limited to N loading; N loading rather than N leaching, because of the potential variation in attenuation rates, and N rather than all four contaminants because of the current inability to measure or model the other contaminants at a farm scale. In addition, we think that the focus should not solely be on the sub-catchment within which land is located. For the reasons discussed above, it should include consideration of the contribution to downstream sub-catchments.
1096. We also think that the focus should not solely be on proportionality. The Fonterra supplier statistics suggest that the largest contribution to N loading on a per farm basis at least, is in the Upper Waikato FMU. We therefore consider that some test of absolute contribution is desirable.
1097. In summary, we have identified that policy direction is required for high N leaching properties requiring that they should demonstrate why significant reductions to their N leaching should either not be required or only be required after a transition period to enable them to convert to lower N leaching land uses, having regard to these considerations.
1098. Lastly, this sub-policy does not apply to CVP. It therefore has to be located in a new Policy 2 that provides for farming activities other than CVP that require a resource consent.

³²⁷ See Mr Williamson, Block 1 evidence in chief, at paragraphs 14-29 for a discussion of these processes.

1099. Turning to the second element in the Officers' proposed sub-policy, namely that for those below the high N leaching trigger, that their NRP not be exceeded, this raises the broader question of the role of the NRP.
1100. As discussed in section 5 of our report above, we have recommended that the requirement to establish an NRP be deleted, for a range of reasons. In relation to the underlying principle of effectively capping every landowner at their existing N leaching value, we heard a vast amount of evidence from participants in the drystock industry that this would hamstring normal operation of sheep and beef farms, which are constantly cycling their production levels up and down to reflect climatic and market signals. The way it was described to us³²⁸ is that drystock farmers farm to the grass curve. If climatic conditions are favourable for grass growth, stock numbers will increase, and vice versa. Similarly, if market prices for sheep deteriorate, a drystock farmer will typically look to reduce the number of sheep on the property and increase cattle numbers.
1101. However, the shifts operate within a band because, as Mr Gleeson described it in his evidence for F4PC,³²⁹ "*farming fits the land*".³³⁰
1102. The NRP reference years were described to us as 'dry' years³³¹ suggesting that they are likely to have been at the lower point of the cycle described above.
1103. The notified PC1 addressed similarly cyclical pattern of operation by CVP growers by lengthening the period over which the CVP is assessed to ten years. While, in theory, we could take a similar approach to sheep and beef farmers, we do not know if they would have the records that would support such an approach³³² and the nature of the farming operations that were described to us does not suggest that that level of verification is necessary.
1104. As above, what was described to us was an operation that already operates within natural limits. We foresee that there are likely to be exceptions. Drystock farms with

³²⁸ Dr Chrystal, Block 2 evidence in chief – paragraph 18.

³²⁹ G Gleeson, Block 2 hearing statement – e.g. paragraph 2.

³³⁰ Mr Malcolm Harding told us that the flux in production levels was in the order of plus or minus 10%. He thought it would certainly be less than 20%. Dr Chrystal provided us with a case study in the Block 2 evidence for Beef and Lamb that suggested a 10-15% range but she thought that drystock farming to the grass curve might have a greater range than that.

³³¹ The lay evidence of submitters was confirmed by Dr Neale's evidence for WPL (Block 1, evidence in chief, paragraphs 63-64).

³³² A number of submissions identified issues with data availability for the two NRP reference years as it was, particularly for those who have purchased properties in the intervening period, and dissatisfaction with the default values applied in that situation which were seen as disadvantaging landowners for a situation they had no control over.

a higher proportion of land in crops than the norm are one such exception. In the Block 2 hearing, Dr Fung presented evidence for Waikato and Waipā Branches of the New Zealand Deer Farmers Association of example deer farms. We queried the reason why one of those deer farms had a much higher N leaching rate than the others and Dr Fung advised us³³³ that the key influences on the higher N leaching rate for that property were areas in cropping (variously maize and swedes), that skewed the overall N leaching rate for the property. For that reason, our recommended rules have a cap of 5% of the farm property in crops. Similarly, some drystock farms are run more intensively and operate in a manner more akin to a dairy farm. For that reason, we have recommended a cap of 18 stock units per hectare over the winter period,³³⁴ above which a resource consent application is required. A winter stocking rate test cannot be applied to dairying operations as many dairy farms winter their stock off farm and so we need a different lower level trigger for them.

1105. Below 18 stock units per hectare, we categorise drystock farming as falling within our recommended low risk policy, as above, and therefore able to be permitted. As we discuss further below in the context of the rules, we draw a further distinction between those drystock farms operating at a stocking rate of less than 12 stock units per hectare and those operating at between 12 and 18 stock units per hectare. The former are the true hard hill country farms running extensive sheep and beef operations on larger farm areas in steeper country.³³⁵
1106. To the extent that Officers recommended a greater level of regulation, we consider that the evidence to justify that was dubious. In section 1 of this report, in our discussion of the Awa, we discussed the paucity of WRC monitoring data actually collected in hill country areas, and the evidence the Hill Country witnesses provided to us of good water quality in those areas. We consider that provided certain basic minimum standards are adhered to, these farms can appropriately be permitted. While it would be desirable that such properties complete an FEP, and they should certainly be encouraged to do so, we do not consider that the additional costs are sufficiently justified by the benefits in terms of the section 32 tests.
1107. For farms operating at between 12 and 18 stock units per hectare, we have recommended a permitted activity rule that incorporates the requirement to prepare an

³³³ In an email letter dated 7 June to the Hearing Administrator.

³³⁴ See Mr Gleeson's discussion of the logic of 18 stock units/ha as a cap in his Block 2 Hearing Statement for F4PC – paragraphs 85-100.

³³⁵ Their mode of operation was described to us by a number of witnesses including the Hill Country Farmers Group, the King Country River Care Group and Messes Macnab and Robinson for Lochiel Farms.

FEP. As we will discuss below, the corollary of a permitted activity status is that the FEP needs to be heavily standards-driven.

1108. We consider that the dairy farmers leaching low levels of N can similarly be accommodated within a permitted activity/standards-based FEP regime with a low risk of untoward environmental outcomes. Although necessarily somewhat arbitrary, we have recommended use of the 30th percentile in each FMU derived from the Fonterra supplier information provided by Mr Allen for this purpose. Dairy farms in this category will likely either be organic, System 1 and 2 farms, or farms like WPL that have highly developed farming systems incorporating effective mitigation measures. The Upper Waikato FMU leaching rates provided by Mr Allen are demonstrably higher across the range compared to the other FMUs. We consider a lower band is required in that FMU and we have adopted the 25th percentile for that purpose.

1109. In the middle band, representing 45-50% of the dairy farmers in the catchments, we consider a greater level of control is required in order to be satisfied the risk to the rivers is appropriately managed. Mr Matheson,³³⁶ in particular, endeavoured to convince us that a strongly systems-based FEP approach would justify permitted activity status. As against that view, we weigh the firm opposition expressed on behalf of the Iwi Co-Governors in Mr Ferguson's closing submissions³³⁷, as follows:

“A permissive framework for farm regulation is the status quo, and has contributed to the degradation of water quality in the Waikato and Waipā Rivers. The River Iwi consider that no amount of direction will change farming behaviour if the rules remain the same. For this reason, the River Iwi support the Block 2 Section 42A staged approach to farm regulation that requires consents for medium (Rule 3.11.5.2A) and high intensity (Rule 3.11.5.3) farms, while also providing permitted activity status for low intensity farms (Rule 3.11.5.2) and interim permitted activity status for other farming activities on a staged basis (Rule 3.11.5.1A).”

1110. While we have recommended a broader scope for permitted activities than the Officers, we agree in principle with Mr Ferguson's submission. The evidence we heard of unsatisfactory levels of compliance with the existing permitted activity rule governing effluent irrigation³³⁸ gave us particular cause for concern that the significantly more

³³⁶ Counsel for Fonterra.

³³⁷ Mr Ferguson, closing legal submissions – paragraph 30.

³³⁸ C Carter, Block 2 Hearing Statement (heard 8 July 2019).

wide-ranging standards that would apply within a permitted activity regime governing diffuse discharges are even less likely to be complied with.

1111. We foresaw a very real danger that rather than a positive contribution toward restoring and protecting the health and wellbeing of the Waikato and Waipā Rivers, the end result might in practice be much closer to business as usual, which is clearly unacceptable. The greater level of control we have in mind manifests in a requirement to obtain a resource consent, albeit as a controlled activity, and a policy direction that those farmers need to demonstrate that their nitrogen leaching rate is as low as practicable and reducing. It needs to be clear that practicability is assessed on the basis of a continuation of the existing land use. Unlike the high emitters, we do not imply that significant changes in land use are 'on the table'. By contrast, for those who need to reduce their N leaching, the timeframe within which this occurs does need to be 'on the table' as a consenting issue. As with the higher emitting farmers, reductions are assessed relative to an N budget provided as part of the preparation of their FEP.
1112. Put in section 32 terms, the additional cost to farmers within the scope of this sub-policy is out-weighed by the need to better assure positive environmental outcomes.
1113. As with the previous sub-policy, the provisions we have described do not apply to CVP and therefore sit in our recommended Policy 2.
1114. The Officers' recommended Policy 1(b)(ii) suggests specification of controls on a resource consent that ensure diffuse discharges of contaminants will be reducing "*if a farming activity fails to progress to good farming practices in a timely manner*". As above, we have rejected explicit reference to GFP. However, we consider that we have captured the intent of this provision with the requirements already discussed.
1115. Having deleted any reference to GFP, our recommended policy requires a provision to link to the policy devoted to FEPs. This appears at Policy 1(e) of our recommended revised Policy 1 as it relates to all farming activities, including CVP.
1116. The other aspect of Policy 1 that we consider requires recognition is specific direction for farming activities in sub-catchments that include riverine or peat lakes.
1117. As we will discuss below, we accept the case of DoC, in particular, that the notified PC1 does not deal adequately with riverine and peat lakes, whose management requires greater emphasis in this context. In our discussion of Policy 14 recommended by Officers, we recommend amended provisions. In the context of Policy 1, we consider a linking provision is required directing greater scrutiny through the

mechanism of resource consents of farming activities that diffusely discharge into sub-catchments including riverine or peat lakes and cross-referencing Policy 14 (renumbered Policy 15).

1118. Officers recommend a new Policy 1(b)(iv) (incorporating what was formerly in Policy 6) and reading as follows:

“Except as provided for in Policy 16, generally not granting applications that involve a change in the use of land, or an increase in the intensity of the use of land, unless the application demonstrates clear and enduring reductions in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens.”

1119. We have a number of issues with the suggested Officers’ formulation. First, we fail to see why a change in the use of land not involving an increase in the intensity of that use needs to be the subject of policy direction in this context. Secondly, the concept of a “*clear and enduring reduction*” does not convey to us a particularly onerous standard. A minor reduction in contaminant discharges that lasts a long time would be both “*clear and enduring*”. For this reason, we also think that Officers were on sound ground recommending deletion of that part of notified Policy 6 providing that applications demonstrating a clear and enduring decrease in diffuse discharges would generally be granted.

1120. Returning to what the Officers have recommended, we had a lengthy discussion with a number of parties regarding the merits of off-setting and compensation arrangements, both in the context of CVP, and for point source discharges. It seemed to us that there was merit in making provision for such arrangements, provided we could be sure that the end result was giving effect to Te Ture Whaimana. Accordingly, we have recommended a new Policy 5 on this subject. For present purposes, the important point is that our suggested revision of Policy 1(b)(iv) needs to cross-refer to the new Policy 5.

1121. We consider that there needs to be a materiality test applied. Immaterial increases in land use intensity should not generate the need to generally reject an application.

1122. We also think that a reference point needs to be inserted – a change in the use of land compared to what? Ms Chappell submitted for Oji and Hancock that the notified plan provisions were detrimental to farm forestry, because farmers would not plant out wood lots if they could not be sure that if, when the wood lot was harvested and economic conditions had changed, they would be able to revert to their pre-existing (generally

drystock) farming use.³³⁹ We agree that this is undesirable. Accordingly, we think that this policy needs to clearly state that the reference point is as at date of notification of PC1.

1123. Lastly, this provision does not apply to CVP. As we will discuss shortly, we propose specific provisions for expansion of CVP in the catchment. This sub-policy therefore sits in our recommended Policy 2.

1124. Officers' recommended Policy 1(c) reads:

"Progressively excluding cattle, horses, deer and pigs from rivers, streams, drains, wetlands and lakes."

1125. We have a number of issues with the formulation of this policy as well. The detail of the extent to which livestock is excluded from waterways is contained in Schedule C. The notified version of Schedule C excluded consideration of feral animals. The Officers' recommendation does not do so, but clearly it should. Of the animals required to be excluded, the prospect of feral cattle and horses seems remote in the Waikato, but feral deer and pigs are not in the same category. The Policy should refer to "*farmed*" animals. We address this point further when we discuss the rules.

1126. Further, the Officers' recommended version of Schedule C suggests a much more nuanced approach to stock exclusion than this policy wording would suggest, with a different test depending on the slope of the adjacent land. We have recommendations as to how that recommended regime may be further amended. For present purposes it is sufficient to say that the existing provision should be qualified to make it clear stock exclusion is not required in every situation, and that a separate sub-policy should address the situation where farmed livestock are not excluded from waterways. To us, the key considerations are that adverse effects must be minimised through identified minimum requirements. We have drawn on the Closing Submission mark up for Fish and Game for some of those standards. By definition, stock exclusion is not relevant to CVP, and thus these provisions sit in recommended Policy 2.

1127. Lastly, we consider that this policy should address (and encourage) riparian buffers to reduce overland flow of contaminants and improve the habitat quality of rivers and streams. Ms McArthur, for DoC, suggested that this should be a specified attribute required throughout the catchments. As we discuss in the context of Table 3.11-1, we

³³⁹ Ms Chappell, Block 2 legal submissions - paragraphs 6.4; Ms Robson put the same point to us verbally in her presentation of her Block 2 evidence for Timberlands.

do not consider that appropriate, but we accept Ms McArthur's underlying point that riparian buffers with appropriate riparian vegetation can make a valuable contribution, in the manner described above. For the same reason as in relation to Table 3.11-1, it would go too far to require such buffers, but we think the policy of encouraging their creation is appropriate. We recommend this provision sits in our new Policy 2 as the evidence of Mr Barber was that sediment traps are generally the most effective mitigation for overland flow from CVP.³⁴⁰

1128. A number of parties had additional suggestions for Policy 1. Ms Jordan, for Beef and Lamb, recommended a number of changes consequent on Beef and Lamb's advocacy for an LUC-based allocation regime. We have not accepted the desirability of that change to the approach taken in PC1, and therefore we need not consider the consequential changes to Policy 1 that it would require.
1129. Fish and Game suggested another sub-policy referring to allocation of diffuse discharges. For the reasons set out in section 6 of our report, we consider that premature at this point.
1130. Mr Connell-McKay suggested a more comprehensive revision of Policy 1 in his evidence for WPL. We do not consider it helpful to separate the policy directions applying in the short and long term, as he suggested. In our view, his suggested provisions also place too much weight on compliance with the Table 3.11-1 values given the evidence of the experts as to the interim nature of those values and the issue we identified above around the contribution upstream land uses make to downstream over-allocation (and the failure of Table 3.11-1 to recognise that contribution).
1131. Turning to Policy 2, as above, the Officers have recommended that this policy be directed much more clearly at FEPs. Thus, to the extent that Officers have recommended that provisions not specifically related to FEPs be stripped out of the policy, we agree with that approach. The Officers' final version of Policy 2 commences with a simple statement that FEPs are required and need to meet the requirements specified in a number of sub-policies. While we agree with the desirability of not duplicating the opening words of Policy 1 (which is what the notified version of this policy did) we think that this is a little too direct. There are situations where FEPs are not required. We also consider that it is helpful to draw a link back to Policy 1 (as well as our new Policy 2, and to Policy 3, governing CVP). Lastly, it was apparent to us that

³⁴⁰ A Barber, Block 2 evidence in chief – paragraphs 31-33, 48-57.

farm environment planning occurs through a number of stages and that each stage is critical to its success.

1132. In summary, we recommend that the opening words of Policy 2 (which we have renumbered Policy 4):

- (a) Clarify the link to Policies 1-3 (namely that FEPs assist in their achievement); and
- (b) Refer to the preparation, monitoring and reviewing of FEPs.

1133. The first sub-policy in our recommended Policy 4 is a consequential change resulting from our deletion of the requirement to establish the NRP for each property. For properties whose generation of N is not managed through stock unit or cropping area controls, and for CVP, their N leaching rate has to be established. As discussed in section 5 of our report above, we do not consider that this must necessarily be done by use of Overseer, although we anticipate that this will be the means of choice for the vast majority of farms. For those who choose not to use Overseer, we consider that the choice of decision support tool should be left in the hands of an appropriately qualified expert who has certified that it meets specified minimum standards.

1134. The first sub-policy recommended by Officers is that FEPs set out “*clear, specific and time-bound actions to achieve and maintain Good Farming Practice*”.

1135. As above, we do not believe that referencing FEPs to GFP is helpful. We do agree, however, that this policy needs to specify that FEPs contain clear, specific, and time-bound actions. Some of the specimen FEPs we saw did not identify clear actions or qualify any commitment to action so much as to be essentially no more than a statement of good intentions. Deleting reference to GFP means though that we need to ensure that the policy is clear as to what FEPs do need to focus on in lieu of seeking to achieve GFP.

1136. The Officers version of Policy 4 contains a variation on notified Policy 2(a), directing a “*tailored, risk based approach to define mitigation actions that will reduce diffuse discharges in accordance with Policy 1*”. We had a lot of evidence regarding the desirability of tailoring FEPs to particular properties. This was one of the criticisms of the notified Schedule 1 (that it was a one size fits all approach³⁴¹ Consideration of this point is closely linked to rule status. We asked Ms Jordan³⁴² in Block 1, whether the

³⁴¹ See e.g. Mr Gleeson Block 1 Hearing Statement for F4PC.

³⁴² The planning witness for Beef and Lamb.

corollary of a tailored FEP approach was that it would necessarily have to occur within the framework of a resource consent and she tended to agree with that proposition. The planners for a number of other parties (Mr Eccles for Federated Farmers, Ms Hardy for Miraka and Mr Willis for Fonterra in particular) put a lot of effort into progressively revising the requirements for FEPs to an approach that was much more standards-based, in order that it might fit within a permitted activity rule.

1137. We have recommended an approach whereby some land uses operating at relatively low intensity might fit within a permitted activity rule including a strongly standards-based FEP. With the balance of land uses operating at a greater intensity needing to obtain a resource consent that provides scope to tailor their FEPs to their properties. It follows that we do not consider this policy should assume that the FEP is tailored. We do agree, however, it needs to be risk-based. We consider that there is scope to provide more direction in this regard. We have already discussed the WPL evidence regarding the fact that the vulnerability of land to diffuse nitrogen discharges varies according to a range of characteristics. We also heard about the necessity of identifying and managing critical source areas for overland flow paths of P, sediment and microbial pathogens. We think that part of the FEP process is to identify the most vulnerable land (in the sense that WPL's witnesses were using that term), therefore including such critical source areas.
1138. Having identified such land, a risk-based approach can then be taken to its management. Another theme to WPL's evidence was the need to link a risk-based approach to adaptive management. Mr Connell-McKay's recommended Policy 2(a) in the WPL closing statement drew that link and we agree that this is a helpful addition.
1139. While we do not think that a cross-reference to Policy 1 is required, we agree with the Officers, however, that the overall focus of the actions defined in the FEP is to reduce diffuse discharges of the specified contaminants. Some submitters sought that FEPs be clearly linked to the Table 3.11-1 water quality 'targets'. Ms Jordan, for instance, for Beef and Lamb suggested an approach to FEPs that would effectively make each farm proportionately responsible for meeting those targets. We agree that it is desirable to link on-farm actions with broader freshwater objectives (and the limits and targets specified to achieve those objectives), but we think the level of specificity in Ms Jordan's suggested revised Policy 2 would impose significant costs of individual farmers given the difficulty in linking on-farm actions with any particular water quality outcome.

1140. We therefore recommend a more generalised policy direction to ensure that FEPs identify suitable mitigating actions appropriate to the circumstances. Those circumstances will include the characteristics of the land, the nature of the land use, the risk assessment that has been undertaken and the relevant freshwater objectives.
1141. Ms Jordan suggested that the relevant freshwater objectives, limits and targets are those of the sub-catchment within which the land is located. As we have already discussed, we do not agree that it can be so limited. The inquiry needs to take into account the freshwater objectives, limits and targets of sub-catchments further downstream, to the extent that the upstream catchment is making a contribution to downstream over-allocation.
1142. Ms Jordan suggested also that FEPs should identify actions to address particular discharges of concern from a property. We think it is not so much an issue of identifying actions by reference to contaminants of particular concern (actions are likely to be required in respect of all contaminants), but rather one of prioritising actions by reference to contaminants of particular concern in a sub-catchment. This is effectively translating our recommended Policy 1(b) into the FEP process. However, we think any prioritisation needs to take account of other steps that are being taken, particularly in sub-catchments where groups of properties have banded together to come up with a collective approach to contaminant management.
1143. For the same reason, we think that the FEP needs to take account of any off-property mitigation. We heard evidence of the efficacy of constructed wetlands and we discussed with a number of witnesses who appeared for sub-catchment collectives, whether there might be scope for landowners to band together, for example, to construct a wetland for contaminant mitigation on one property at the bottom of the sub-catchment. From the evidence we heard, while this may be difficult to achieve in practice, PC1 should encourage such steps. We suggest a specific policy (and rule) on that below.
1144. The Officers suggested a further sub-policy providing for flexibility in FEPs to enable continuous improvement, new technologies and mitigation practices to be adopted *“provided that diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens further reduce over time”*. We accept the principle underlying this policy. We think that a reference to flexibility gives the wrong message. There is an obvious tension between any desire for flexibility and the requirement to set out clear, specific and time bound actions and practices (that we agree with). We do think, however, that provision needs to be made for updating FEPs. We also consider that the nature and

scale of the reduction referred to needs to be clarified – these are reductions in diffuse discharges to assist in meeting the objectives of PC1.

1145. Our recommended Policy 4(h) is accordingly framed slightly differently to the Officers recommended Policy 2(b2), but to much the same effect.

1146. Notified Policy 3 relates to CVP. As notified, it read:

“Policy 3: Tailored approach to reducing diffuse discharges from commercial vegetable production systems/ Te Kaupapa Here 3: He huarahi ka āta whakahāngaihia hei whakaiti i ngā rukenga roha i ngā pūnaha arumoni hei whakatupu hua whenua

Manage and require reductions in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens from commercial vegetable production through a tailored, property or enterprise-specific approach where:

- a. Flexibility is provided to undertake crop rotations on changing parcels of land for commercial vegetable production, while reducing average contaminant discharges over time; and*
- b. The maximum area in production for a property or enterprise is established and capped utilising commercial vegetable production data for the 10 years up to 2016; and*
- c. Establishing a nitrogen reference point for each property or enterprise; and*
- d. A 10% decrease in the diffuse discharge of nitrogen and a tailored reduction in the diffuse discharge of phosphorus, sediment and microbial pathogens is achieved across the sector through the implementation of best or good management practices; and*
- e. Identified mitigation actions as set out and implemented within timeframes specified in either Farm Environment Plan and associate resource consent, or in specific requirements established by participation in a certified industry scheme;*
- f. Commercial vegetable production enterprises that reduce nitrogen, phosphorus, sediment and microbial pathogens are enabled; and*
- g. The degree of reduction and diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens is proportionate to the amount of current discharge (those discharging more are expected to make greater reductions, and the scale of water quality improvements required in the sub-catchment.”*

1147. CVP has a number of unique characteristics that justify the separate policy treatment of it in PC1.
1148. In Block 1, Ms Deverall described the Waikato Region as playing an important role in local and national food supply due to “*a unique supply of high class soil (land use capability 1-3...), large areas of unfragmented rural land and proximity to markets and key transport routes including export ports in Auckland and Bay of Plenty.*”³⁴³
1149. She advised us further that the Region contributes 32% of the domestic supply of onions, 28% of tomatoes and 19% of potatoes.
1150. Ms Sands expanded on this in her Block 3 evidence for HortNZ, advising us of the health benefits of fresh fruit and vegetables.³⁴⁴
1151. Ms Deverall further advised us of a progressive loss of vegetable cropping land across New Zealand and in the South Auckland/North Waikato areas in particular. In the latter case, in her words, “*changes to land use in Auckland have seen some of the country’s most highly productive land lost to urbanisation.*”³⁴⁵
1152. HortNZ also made the case for provision for new CVP based on a growing population in the upper half of the North Island generating increased demand for fresh vegetables against a background where regional plan controls elsewhere in the country effectively preclude new CVP.³⁴⁶
1153. Also unique among pastoral enterprises, CVP needs to constantly rotate crops between different properties to minimise disease and optimise production levels.
1154. We heard from a number of CVP growers who described the level of planning that goes into CVP rotations with every CVP block allocated a particular crop well into the future. The growers also confirmed their reliance on leasing blocks of land to enable CVP rotations to occur, a process that Mr Chris Keenan had given evidence on for HortNZ.³⁴⁷ This has implications for the policy and rule framework applying to CVP.
1155. It was clear from the evidence we heard that CVP is in the hands of a limited number of family owned enterprises, many of which have operated inter-generationally, commencing in the Pukekohe area, but now expanding to the areas around Pukekawa

³⁴³ Ms Deverall, Block 1 evidence in chief – paragraph 30.

³⁴⁴ Ms Sands, Block 3 evidence in chief – paragraphs 56-71.

³⁴⁵ Ms Deverall, Block 1 evidence in chief at paragraph 39.

³⁴⁶ Mr Keenan, Block 3 evidence in chief – paragraph 57 referencing specifically Horizons Region and Canterbury Region.

³⁴⁷ Mr Keenan, Block 1 – paragraphs 31-32.

and Matamata (the latter outside the PC1 area). As a result, the witnesses were able to tell us of improvements in nutrient and sediment management compared to the way their fathers and grandfathers had operated the business. As we noted earlier in this report, the precision with which N fertiliser is applied, as described to us by growers, could arguably come within the definition of a point source discharge.

1156. Mr Keenan also emphasised in his Block 1 evidence the fact that although CVP is well known for its high N footprint, the small areas of land utilised for CVP means that its contribution to total catchment load is small (2.6%) and it contributes virtually no bacterial load to the Waikato River.³⁴⁸

1157. Land cultivation associated with CVP has significant potential for sediment discharges. We were advised of extensive work being undertaken by the industry to manage sediment, in the form of its 'Don't Muddy the Water' Programme. We refer in particular to the evidence of Mr Barber in Block 3, who stated:³⁴⁹

"...industry has done considerable research into mitigating sediment loss, both for the environmental benefits and that soil is their main resource. The most recent MPI SFF Project Don't Muddy the Water has quantified erosion and sediment control measures through trials conducted by Agrilink, NIWA, and Landcare Research.

An outcome from the DMTW project was an app which is used to prepare E&S Control Plans as the first step in a paddock risk assessment. Trial evidence has shown 80% reductions in sediment loss following the implementation of erosion control measures and vegetated buffer strips as the sediment control measure. This increases to over 98% reduction, and well below the equivalent pasture paddock, when buffer strips are replaced with sediment retention ponds.

E&S Control Plans have been shown to lead to significant change. Implementation of these plans can be assured through the audited NZ GAP programme."

1158. The suggestions from HortNZ as to how these various characteristics of CVP might be accommodated within PC1 shifted over the course of the hearing. In Block 1, Mr Keenan emphasised the role of collective sub-catchment management based on sub-catchment load limits.³⁵⁰ By Block 3, the HortNZ case had shifted to one advocating

³⁴⁸ Mr Keenan, Block 1 evidence in chief – paragraph 53; See also Ms Sands, Block 3 evidence in chief describing the modelling of contaminant losses from CVP – paragraphs 18-38.

³⁴⁹ Mr Barber, Block 3 evidence in chief, paragraphs 7-9.

³⁵⁰ Mr Keenan, Block 1 evidence in chief – paragraphs 63-77.

the ability to rotate CVP within FMUs based on baselines for each property or enterprise and enabling (through a consent process) increased areas of CVP subject to limitations based on exclusion of some sub-catchments (based in turn on existing N concentrations and loads), limitations on the maximum area in nominated sub-catchments potentially suitable for CVP, and limitations in location (to the most fertile soils).

1159. In his evidence for HortNZ, Mr Easton estimated that 15% more CVP area would be required to meet the growing population of Auckland and Waikato.³⁵¹

1160. HortNZ did not shy away from the fact that increased CVP areas would result in an increase to N concentrations and loads in the relevant sub-catchments (and downstream from them). In her Block 2 legal submissions, counsel for HortNZ, Ms Atkins submitted that the exceptions that had been recommended by Officers both in relation to ancestral Māori land and point source discharges associated with regionally significant industries meant that an exception was also justified for increased CVP, both because CVP is a regionally significant industry and because of the health benefits described above.

1161. Ms Atkins also emphasised the comparatively small-scale of any N increase by reason of the limited area involved and the scale of the catchment as a whole. Mr Easton quantified the projected N increase in his Block 3 evidence, projecting a 1% increase in N load from the Lower Waikato, Central Waikato and Waipā FMUs to meet increased Auckland and Waikato demand.³⁵²

1162. Before addressing the policy framework for CVP, we should record:

- We accept that CVP makes a valuable contribution to community health and wellbeing, and that it is desirable that it be provided for in PC1;
- We accept that CVP is generally well managed with growers making extensive efforts to minimise their use of additional nutrients and to mitigate sediment run off. The evidence we heard on the practical application of the NZGAP Programme was impressive;
- We also accept that CVP is under pressure due to competing land use demands reducing availability of prime land in traditional CVP areas around Pukekohe.

³⁵¹ Mr Easton, Block 3 evidence in chief – paragraph 30.

³⁵² Ibid – paragraph 39.

1163. Having said that, it is also clear that the sector's N footprint is high and although its contribution to total N load is modest, in the sub-catchments where there is a substantial proportion of CVP occurring, there are marked adverse effects on the quality of groundwater.³⁵³
1164. It is fair to say that HortNZ recognised this fact in its proposal to exclude nominated sub-catchments from the ambit of any provision providing a pathway for new CVP. We also record that HortNZ accepted that CVP had to be managed within a consent process.
1165. However, we do not accept HortNZ's position that CVP expansion can be justified on an 'exceptions' basis as set out in the legal submissions and by some of HortNZ's witnesses.
1166. We note also that we will recommend amendments to PC1 to limit if not eliminate the scope for increasing contaminant levels to result in the cases Ms Atkins suggested were 'exceptions'.
1167. We have set out our reasons why CVP expansion, in a limited number of sub-catchments as a discretionary activity, can be accommodated in this section of the report as well in Section 11 in relation to Rule 3.11.4.8 (Commercial Vegetable Production Expansion – Discretionary Activity).
1168. With that introduction, we now move into potential amendments to Policy 3. We use Mr Hodgson's closing statement version of PC1 as a reference point, comparing it with the Officers' closing version. In relation to the introductory words, both Mr Hodgson and the Officers' version suggest a broadening of focus to specifically provide for CVP rather than solely directing management and reduction diffuse discharges. Given the health benefits that we have found as above, we agree with this suggested amendment.
1169. Mr Hodgson suggests that the opening words also reference the flexibility to undertake crop rotations as an aspect of such provision. The Officers would make such provision the first sub-policy. Given the importance of crop rotations to CVP, we tend to agree with Mr Hodgson that the policy should refer specifically to them in its opening words. While that is more a drafting point, there is a substantive difference between the extent of such provision recommended by Officers, compared to that in Mr Hodgson's version.

³⁵³ Refer Dr Hadfield's Memorandum dated 26 March 2019 supplied to us by the Officers, highlighting elevated nitrate N concentrations in those areas, some exceeding the Drinking Water Standard.

Officers suggest that provision for crop rotations be made within sub-catchments. Mr Hodgson suggests such provision be made “*across sub-catchments and within freshwater management units*”.

1170. The evidence we heard from growers is that in point of fact, crop rotations occur across sub-catchment boundaries. As we have noted above, HortNZ started with a sub-catchment focus, but broadened that focus during the course of the hearing. As we have recorded above, in part this has been prompted by competing land uses pushing CVP out of its traditional Pukekohe base.
1171. While we can therefore understand the desire of CVP growers not to be restricted to individual sub-catchments, we find that to allow rotation across sub-catchment boundaries without constraint is inconsistent with HortNZ’s acceptance (in the context of new CVP) that some sub-catchments are already overloaded with N and in those sub-catchments, no increase in N should be provided for. So far as the sub-catchment into which CVP is rotating is concerned, the fact that N is being shifted from a different sub-catchment (which may or may not be overloaded in N itself) does not alter that position. We therefore prefer the position recommended by Officers.
1172. Mr Hodgson also recommended that the qualification of this policy’s initial provision for CVP to refer to diffuse discharges should differentiate between existing CVP (whose diffuse discharges should be required to reduce) and new CVP (whose diffuse discharges should be managed).
1173. We accept in principle that this policy should govern both existing and new CVP. Given the need for existing CVP to rotate to new properties, any distinction between the two is one of definition. We do not, however, agree with policy wording that would ‘water down’ the message at the outset, in the manner that Mr Hodgson suggests. The consistent message needs to be one of provision for CVP while reducing diffuse discharges. The Officers suggest that this be amplified in their suggested sub-policy by referring to reductions by the sector as a whole and each individual applicant. We consider the additional emphasis is unnecessary.
1174. Both the Officers and Mr Hodgson’s recommended Revised Policy 3 suggest a sub-policy specifically enabling CVP. The two versions differ on the conditions to which such enabling is subject. The Officers recommend it be subject to diffuse discharges progressively reducing. Mr Hodgson recommends a condition requiring diffuse discharges be managed “*within baselines and through adherence to good farming practice, farm environment plans and relevant minimum standards*”.

1175. Given that the Officers separately recommend establishment of baselines, we do not find the absence of a cross reference to that a material difference between the two versions.
1176. We think it follows from our discussion of the opening words of the policy that the conditions should relate to reducing diffuse discharges, but we also consider there is value in Mr Hodgson's suggestion that reference be made to operating within baselines, pursuant to an FEP and subject to any minimum standards (in the rules).
1177. We do not recommend a specific reference to GFP, for the same reasons as we have set out above in relation to our recommended Policy 4.
1178. In summary, our recommended Policy 3(a) is a combination of the two options we have before us.
1179. Mr Hodgson recommended a second sub-policy (b) worded as follows:
- “Adopting sector-based initiatives and other mitigation measures to progressively reduce losses of nitrogen, phosphorus, sediment and microbial pathogens.”*
1180. The Officers' closing statement did not reference this suggestion, but the concept of a progressive reduction is contained in the Officers' recommended sub-policy (a). For ourselves, we think that Mr Hodgson's suggestions are helpful. We heard enough evidence of sector-based initiatives such as the 'Don't Muddy the Water' programme already mentioned to suggest that they are of value in this context.
1181. Sub-policy (c) in each of the drafts before us relates to establishment of baselines. Mr Hodgson's recommended version relates to establishing baselines for each *“property or enterprise”*. The Officers' recommended version relates to each property.
1182. It seems to us that this policy needs to focus on the commercial vegetable grower given that the purpose of the baseline is to establish how much land that grower is able to use for production. Focusing on individual properties fails to take account of the rotating nature of the crops.
1183. The second difference is that Mr Hodgson recommends the baseline be established with reference to *“the maximum area of land in commercial vegetable production based on a representative sample of data over the ten years prior to 2016; allowing for the maximum area in any one year over the period”* whereas the Officers recommend use of *“commercial vegetable production data from each of the five years up to 30 June 2016, for ... the maximum area of land in commercial vegetable production”*.

1184. We find Mr Hodgson's description of the process clearer than that of the Officers, but there is a substantive issue as to whether the reference point is a five or ten year period, and whether it is an average or the maximum of any year. The notified Policy 3 specified the average over a ten-year reference framework. In the Block 3 section 42A Report,³⁵⁴ Officers summarised the submissions on the point. Most of the submissions relate to (and oppose) the principle of capping CVP based on historical reference data, as opposed to what the reference period is. Many submissions sought deletion of Schedule 3 in its entirety or removal of the NRP. That included PVGA, whose focus is naturally on CVP.
1185. The Officers appear to have drawn the need to reduce the reference period from submissions on a related point, the period over which the NRP is calculated. Section C.1.5.2 of the section 42A Report notes a submission from Ravensdown that it may be difficult to obtain and verify data over a ten-year period, seeking instead that the reference period be the average loss over a three-year period. When Ravensdown appeared in Block 3, Ms Wilkes supported the Officers' recommendation,³⁵⁵ but did not amplify her reasons for doing so. We did not identify any commentary on the reference period in the evidence for HortNZ.
1186. While we note that, from the evidence we heard from growers, they seemed to have reasonably good information of what they were doing where, and when, we can understand the logic of reducing the reference period if the objective remains to identify an average. In that case, good quality data is required of each and every year. If, however, the objective is to identify the maximum area of land in any one year, we think the availability of data is less significant. If data is not available for a particular year, it can just be ignored. That is a more enabling approach than the notified provision, but with CVP being based on a continually changing balance of different crops, each with its own N footprint, this is appropriate in our view given the evidence we heard of the precision with which N fertiliser is applied to CVP crops.
1187. We therefore recommend acceptance of a ten-year reference period as Mr Hodgson proposed with the baseline set on the basis of the maximum. However, it needs to be clear that rather than one baseline area calculation, what is required is one calculation per sub-catchment, for the reasons discussed above.

³⁵⁴ At section C1.6.2.

³⁵⁵ Ms Wilkes, Block 3 evidence in chief – paragraph 3.2.

1188. The Officers' recommendation also refers to establishing an NRP. By comparison, Mr Hodgson suggested definition of an NRP or proxy nitrogen leaching load associated with a CVP rotation.
1189. HortNZ's evidence addressed the potential to use nitrogen leaching proxies in this context. We understand this has been done in the Canterbury Region. Ultimately, however, Ms Atkins advised that HortNZ preferred a "*simpler approach than using the NRP and the use of proxies.*"³⁵⁶
1190. As Ms Atkins observed, nutrient budgeting and accounting could still be undertaken. We agree with that approach. What is required is an assessment of the nitrogen leaching load associated with each CVP rotation that can then be linked to the maximum area derived from the reference period.
1191. The section 42A Report discusses the controversy surrounding use of Overseer for modelling CVP systems. The Officers' review is consistent with Mr Ford's evidence that neither the full array of CVP crops nor the range of mitigation options employed can be properly modelled in Overseer, because of the monthly time steps on which Overseer operates.³⁵⁷ Whatever might be said to be the merits of Overseer as a tool for modelling dairy and drystock systems, it seems there are very real issues with its use in the horticultural sector, and CVP in particular. Our recommended Policy 2 provides for the nitrogen leaching rate to be determined by a Certified Nutrient Farm Advisor.
1192. The notified policy had two sub-policies that we should discuss at this point. The first was sub-policy (d), requiring a 10% decrease in diffuse discharges of N and an unspecified but tailored reduction in diffuse discharges of other contaminants through implementation of best or good management practice. The Officers recommended deletion of specific reference to a 10% reduction in N leaching. In the Block 3 section 42A Report,³⁵⁸ Officers identified a number of issues with such a requirement including "*how it is to be apportioned across individuals, what the timeframe is to achieve it, what the start-point is (and whether that is known with any precision) and whether it is realistic in the face of pressure for additional CVP in the Waikato Region*".
1193. We agree with these concerns. We have not identified where the notified figure of 10% came from and it appears to be entirely arbitrary to us. We also noted the evidence of

³⁵⁶ Ms Atkins, Block 3 legal submissions – paragraph 6.

³⁵⁷ Mr Ford, Block 1 evidence in chief – paragraph 53.

³⁵⁸ Section C1.4.3.

growers regarding the care with which nitrogenous fertiliser is used in CVP which supported the evidence of the expert witnesses for HortNZ that a blanket 10% reduction is unlikely to be achievable without a reduction in the area occupied by a CVP.

1194. While we agree with the Officers in that regard, we disagree with the suggested alternative of requiring CVP to operate at GFP or better, demonstrated through FEPs, essentially for the same reasons as we have expressed in relation to references to GFP in other farming contexts. Having said that, we think that rather more is required than Mr Hodgson suggested in his sub-policy (a). For that reason, we have recommended amendments to ensure that renumbered Policy 4 clearly applies to CVP.
1195. The notified version of Policy 3 also had a sub-policy (g) requiring proportionate reduction in diffuse contaminants very much along the same lines as notified Policy 2(d). As we have discussed in the context of the earlier policies, proportionality is a sound idea in principle, but it requires good data as to the level of discharges relative to the total sub-catchment load. We simply do not think the information is available to apply such a policy to CVP and we therefore agree with the Officers' recommendation that that sub-policy be deleted.
1196. The Officers recommend a further sub-policy specifically providing for resource consents to encompass multiple properties within a single sub-catchment. Among other things the suggested sub-policy requires clear accounting against baselines across multiple properties "*including on any land that is no longer used for commercial vegetable production*".
1197. We consider that the corollary of establishing a sub-catchment baseline for each commercial vegetable grower is that the suggested sub-policy is not required. The RMA enables applications to be made on an 'envelope' basis without specific policy endorsement and in such cases a CVP baseline will apply to any land within a sub-catchment on which the grower is growing vegetables. There is a potential issue if a commercial vegetable grower terminates a lease with a view to rotating crops elsewhere and the landowner seeks to continue CVP production on the property as the resource consent will run with the land. However, we consider risk can be managed through the wording of the FEP, to which the consent will be subject, and/or through the terms of the Lease.
1198. The final issue that we need to address in relation to CVP is the requested provision for increased areas of CVP.

1199. The Officers recommended a sub-policy providing for an increase in land area used for CVP *“only where the applicant can demonstrate a net reduction in diffuse discharges of each of nitrogen, phosphorus, sediment and microbial pathogens”*. Mr Hodgson’s suggested formulation was expressed as follows:

“Recognise the inter-regional domestic food supply values associated with commercial vegetable production by provisioning a maximum area of land available to support commercial vegetable food supply needs for population growth during the anticipated life of the plan subject to controls to ensure:

- (i) The location is within the LUC I and II;*
- (ii) Sub-catchments identified as appropriate for CVP in Table 1;*
- (iii) The area associated with the CVP is less than the FMU area limit accounting for any consents that have already been granted.”*

1200. Mr Hodgson also proposed specific provision for offsetting above the specified maximum areas *“provided that the outcome achieved are losses of all four contaminants within sub-catchments that are equal to or greater than the increase from the commercial vegetable production activity”*.

1201. We consider that there is merit in providing some recognition in the opening words of this sub-policy to the positive contribution CVP makes to people and communities but, equally, in the context of PC1, that recognition needs to be subject to Te Ture Whaimana. We also consider that specification of the constraints proffered by HortNZ is a positive addition to the policy since they limit the scope for adverse effects. However, we consider that the relevant area limit needs to be that applying in each sub-catchment, for the reasons set out above. In addition, we have reviewed the list of sub-catchments HortNZ identified as appropriate for CVP in its table. In part, this is a matter peculiarly within the knowledge of the CVP industry, identifying areas suitable for CVP by reason of their soils and climatic conditions. In part, however, this is a process of excluding sub-catchments that are already overloaded with N.

1202. The logic of the proposed list was explained by Mr Baker, for HortNZ in his Block 3 evidence. In summary, he proposed to exclude sub-catchments in/or below the C band for nitrate and sub-catchments containing what he described as *“sensitive lake environments”*. This included Lake Waikare, Lake Whangape and the Whangamarino

Wetland.³⁵⁹ We have reviewed the suggested list of sub-catchments and as discussed in greater detail in section 11 following in relation to Rule 3.11.4.8, have determined that another 11 sub-catchments should be excluded. In addition, parts of the Waikato at Mercer sub-catchment need to be excluded. That leaves 12 sub-catchments, plus the balance of the Waikato at Mercer sub-catchment available for additional CVP.

1203. We are much less sure about the merits of Mr Hodgson's proposed additional provision.

1204. Part of the problem we identify is that having specified well-reasoned controls on the circumstances where increased CVP might be permissible, the suggested discretion is overlaid as an exception to those controls.

1205. The argument for HortNZ was, in effect, that any increase in N generated by increased CVP would be minor in terms of the N reductions being made by other farming sectors.³⁶⁰ Officers appeared at least open to this policy approach.³⁶¹ The Iwi Co-Governors, however, were firmly opposed to it saying:³⁶²

"The HortNZ framework therefore does not result in "improvements to water quality" as stated. Rather, it undermines PC1 Objectives 1 and 3 by extending deleterious CVP activities and eroding the effectiveness of contaminant reductions made by other land uses. This fundamentally affects a critical aspect of achieving Te Ture Whaimana – namely, the trajectory of change and the requirement for further contaminant reductions to meet the 80-year long term targets. For these reasons, the HortNZ framework cannot be supported by the River Iwi."

1206. Taken to its logical conclusion, the iwi position would preclude any increases in contaminant loading at any location in the catchment. We think that would go too far, certainly at this point. We consider that circumstances might potentially arise in which the objectives of Te Ture Whaimana are better achieved by allowing a controlled increase in one contaminant. We will come back to the circumstances in which that might be the case shortly. For present purposes, it is sufficient to say that the open-ended nature of Mr Hodgson's proposed wording is in our view inconsistent with Te Ture Whaimana and we agree with Mr Ferguson's submission that it should not be accepted.

³⁵⁹ Mr Baker, Block 3 evidence in chief – paragraph 59.

³⁶⁰ Refer Mr Easton, Block 3 evidence in chief – paragraphs 36-44.

³⁶¹ Refer Officers' Closing Planning Statement – paragraph 61.

³⁶² Mr Ferguson, closing legal submissions – paragraph 15.

1207. The concept that the ‘gains’ to the health and wellbeing of the Waikato and Waipā Rivers from the actions of one sector might be offset by ‘losses’ resulting from the actions of a different sector is also inherently problematic. If it should be permitted at all, it is clearly only acceptable in narrow, carefully controlled circumstances.
1208. We therefore recommend the acceptance of the limitations proffered by Mr Hodgson, amended as above, but overlaid with an additional requirement that any increased CVP occur consistently with a new policy that we will now discuss, providing for offsetting and compensation.
1209. The first thing to note about our proposed offsetting and compensation policy is that it arises in circumstances where the end result better achieves the objectives of Te Ture Whaimana than the alternative.
1210. The first set of circumstances in which we think that this could reasonably be the case is where there is an overall reduction in the diffuse discharge of each of the relevant contaminants. This is effectively the situation Officers recommended be provided for in their recommended Policy 3(c)(i).
1211. The second situation is essentially a broader version of the position that HortNZ mapped out to us, particularly in its Block 1 case: where reductions in diffuse contaminant discharges more than outweigh the adverse effect from any minor increases. In terms of the distinctions that have been drawn in the caselaw, we think this is more correctly termed ‘compensation’ rather than ‘offsetting’, but different cases have applied different tests and so we prefer to be inclusive rather than definitive in that regard.
1212. The difficulty with a proposal of this kind is the lack of value equivalence that enables an objective weighing of benefits and detriments. Given the direction from Te Ture Whaimana, we think that if a proposal of this kind is to be acceptable, there has to be a sufficient reduction in contaminant loading such that the positive benefits to restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers “*demonstrably exceed*” any adverse effects. In other words, ‘there or thereabouts’ is not good enough.
1213. Drawing on our discussion of potential conditions for new CVP, we also think that it is helpful to preclude increases in contaminants whose reduction is identified as a priority in that sub-catchment. The example we discussed above was one where even minor

increases in N should not be provided for, irrespective of countervailing benefits, in sub-catchments that are already over-loaded with N.

1214. Our proposed Policy 5 reflects these considerations. Although its genesis was in the provisions governing CVP, it is expressed generally, because we think that the concepts in it are equally applicable to other land uses.
1215. The next policy in our recommended revised Plan chapter relates to sector schemes. The notified PC1 had an implementation method related to certified industry schemes, indicating that WRC would develop a certification process for industry bodies based on specified standards. The notified rules gave favourable recognition to farming activities operating under such a scheme. We will discuss the merits of industry/sector schemes³⁶³ in greater detail in terms of the rules. Suffice it to say, we spent considerable time in the hearing endeavouring to understand what exactly such schemes would be doing and whether, as WPL contended might well be the case,³⁶⁴ both the process for approving sector schemes and the rules related to it are unlawful.
1216. As we will discuss further in relation to the rules, we have formed the view that rule status should not depend on whether or not a particular farming operation is within a Sector Scheme. Among other reasons, if that were not the case, that would imply a degree of delegation of the Council's functions that, in our view, would be ultra vires.
1217. It is fair to say that as the hearing proceeded, the role of such schemes was clarified as being more of a co-ordination and assistance to farmers to meet the requirements of PC1 than some sort of standalone consenting process.
1218. We do not know whether such schemes will in fact proceed. It was clearly put to us for both Fonterra and Miraka that their support for Sector Schemes and their readiness to set one up for their suppliers was dependent on Scheme members having the benefit of a permitted activity rule. While we have recommended a permitted activity for some dairy farmers, it is not as wide ranging as those companies sought.
1219. Be that as it may, we think that there is a role for Sector Schemes should that option be taken up by industry participants. The focus of Sector Schemes clearly needs to be on assisting farmers to comply with PC1. So limited, we consider that Sector Schemes can promote greater efficiency and effectiveness in PC1's implementation. On that

³⁶³ We think "*Sector Scheme*" a more appropriate description.

³⁶⁴ Dr Somerville QC, Block 1 supplementary legal submissions for WPL at paragraphs 62-65.

basis, we recommend a policy encouraging Sector Schemes. Our recommended Policy 6 is framed on this basis.

1220. Notified Policy 4 of PC1 read as follows:

“Policy 4: Enabling activities with lower discharges to continue or to be established while signalling further change may be required in future/ Te Kaupapa Here 4: Te tuku kia haere tonu, kia whakatūria rānei ngā tūmahi he iti iho ngā rukenga, me te tohu ake ākuanei pea me panoni anō hei ngā tau e heke mai ana.

Manage sub-catchment-wide diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens, and enable existing and new low discharging activities to continue provided that cumulatively the achievement of Objective 3 is not compromised. Activities and uses currently defined as low discharges may in the future need to take mitigation actions that will reduce diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens in order for Objective 1 to be met.”

1221. Officers summarise submissions on Policy 4 in the Block 2 section 42A Report at section C1.6.1.2. We adopt and rely on their summary.

1222. The Officers' view was that the first part of the Policy duplicates the recognition given to low discharge activities in Policy 1. They recommend that it be deleted and that the policy be restricted to one recognising that future regional plan provisions are likely to require further reductions in diffuse discharges.

1223. While we agree with the Officers on the first point, we see the suggested alternative policy as adding little value. Attempting to predict the outcome of future Plan Changes is a fraught business. As we will discuss shortly in relation to notified Policy 7, any certainty that it provides is misleading. In this particular case, because of the absence of specificity, it does not even purport to provide certainty. In summary, we concur with the submitters who sought that the policy be deleted.

1224. Officers suggested that a new policy be inserted specifically addressing the duration of resource consents granted for farming. The recommendation is that such consents have a duration of not more than 12 years, with the same expiry date in each sub-catchment. The Officers specifically considered the potential for the use of review of resource consents but concluded while technically available, reviews are less preferred as a mechanism to effect further change.³⁶⁵

³⁶⁵ Block 2 section 42A Report – paragraph 557.

1225. As Officers note in the section 42A Report, submissions on consent duration vary with many submissions seeking lengthy consent durations, such as 25 years. Federated Farmers was among those submissions and in his Block 2 evidence for that submitter, Mr Eccles referenced the desirability of equity between point source and non-point source discharges as to the standards utilised for determining consent duration. Mr Eccles also queried the scope to insert policies directing short duration consents.³⁶⁶
1226. We discussed the point with Mr Eccles in the Block 3 hearing where he expressed the view that a ten-year consent duration was definitely not long enough, but that duration ought to be pinned to a process rather than any absolute number in terms of years.
1227. While we understand the point Mr Eccles was making, we consider that seeking parity with the consent regime for point source discharges might be a case of “*be careful what you ask for*”. In his Block 1 evidence, Dr Mitchell for Oji also sought parity between point source and non-point source discharges. Dr Mitchell drew our attention to the fact that resource consent holders for industrial discharges have been subject to BPO requirements for decades, leading to comprehensive consent conditions requiring continuous improvement.³⁶⁷
1228. In contrast, PC1 is the first significant attempt to manage diffuse farming discharges. As we have noted in our discussion of grandparenting and allocation issues, there is an argument that the absence of regulatory controls over the last 20 years or more on dairy farming in particular, has enabled an unsatisfactory level of degradation of the health and wellbeing of the Waikato and Waipā Rivers to occur. While extensive, the controls PC1 puts in place are demonstrably not (yet) as detailed and arguably not as demanding as those Dr Mitchell described.
1229. We observe therefore that equity appears to be in the eye of the beholder.
1230. For ourselves, we think there are material differences between the position of the industrial point source discharges and the farming community of the Waikato and Waipā Catchments. Among other things, they are starting from different places and cannot be expected to move at the same speed. Equally though, the farming community in many locations has a long way to go.
1231. In relation to the issue of consent duration for diffuse discharges, we consider that this is closely tied to submissions such as those of Beef and Lamb, seeking an LUC-based

³⁶⁶ Mr Eccles, Block 2 evidence in chief – paragraphs 169-172.

³⁶⁷ Dr Mitchell, Block 1 evidence in chief at section 5.

allocation regime. We have found that it is at the very least premature to put in place such a regime and that more information is required before doing so. We note that Federated Farmers was among the parties to oppose Beef and Lamb's submissions in this regard.

1232. It seems to us that having determined that it would be inappropriate to allocate diffuse contaminants at this point in time, it would be inconsistent to facilitate grant of long-term resource consents that effectively allocate diffuse contaminants. Quite apart from the inequity to those seeking allocation via PC1, it would constrain the decisions that are made as to whether or not to put in place an allocation regime at the next Plan review, once all the information is in hand to enable that decision to be made.
1233. Given our reasoning, which is rather different to that of the Officers, we think that a policy on consent duration for farming activities involving diffuse discharges needs to specifically reference the possibility that a new Regional Plan may include new requirements for management of the resource, including an allocation regime. This also directs the outcome.
1234. Officers suggested a maximum 12-year consent term, but with each sub-catchment expiring in the same year. This reflects the recommendation that a requirement for resource consents, be staged over an eight-year timeframe commencing one year from the Plan being operative.
1235. Assuming the Plan is operative at the end of 2022, that would mean that the last applications are made in 2030, with potential for a 12-year consent to be granted from that date (i.e. expiring 2042). Even with the reduced spreading of consent applications that we recommend, 12 years from the last set of applications is too long given that we should assume the next Plan Change process commences ten years after this Plan becomes operative (i.e. 2032-2033). There is also little purpose in resource consents expiring before that assumed date, because the desirability of not constraining decisions on the new Plan will be even more pressing the closer that new Plan is to being proposed.
1236. In summary, we recommend the policy of generally not granting resource consents authorising farming and CVP beyond 2035.
1237. Our recommended Policy 7 reflects those principles.
1238. Notified Policy 5 read as follows:

“Policy 5: Staged approach/ Te Kaupapa Here 5: He huarahi wāwāhi

Recognise that achieving the water quality attribute targets set out in Table 11-1 would need to be staged over 80 years, to minimise social disruption and enable innovation and new practices to develop, while making a start on reducing discharges of nitrogen, phosphorus, sediment and microbial pathogens, and preparing for further reductions that will be required in subsequent regional plans.”

1239. The Block 2, section 42A Report summarises the 200 submissions specifically on Policy 5 at section C1.6.2.2. We adopt and rely upon that summary.
1240. We put to one side submissions focusing on the 80-year timeframe. We have already discussed that at a broad level, and in the context of Objective 1.
1241. We also put to one side submissions seeking that this policy refer to land use capability, and/or allocation as already addressed above.
1242. The Officers’ suggested reformulation of this policy is broken down into four separate elements. The first refers to the need for “*all farmers, businesses and communities*” to contribute to achieve the attribute states in Table 3.11-1. The second recognises that changes need to start immediately. The third refers to staging over the coming decades. The fourth links the potential need for different regulatory and non-regulatory responses to the reasonably foreseeable effects of climate change.
1243. Responding to each suggested point in turn, the RMA consistently uses the phrase “*people and communities*”. To refer to “*farmers, businesses and communities*” suggests an intention to draw a distinction that we do not think could be justified. The entire community (including all the people that make up that community) need to put their collective shoulder to the wheel.
1244. The Officers also recommend that the description of “*targets*” in the notified policy be substituted by a reference to “*states*”. This is obviously to remove the NPS-FM connotations from the existing wording.
1245. The Officers’ closing statement notes evidence from both Ms Kissick for DoC and Ms Marr for Fish and Game seeking alignment of consent durations with planning cycles, and expresses general agreement with that approach.³⁶⁸ As we note in our discussion of our recommended Objectives 1 and 2, Table 3.11-1 is a mixture of limits, targets and

³⁶⁸ Officers’ Closing Planning Statement – paragraph 66.

other values. Limits and targets relate to the short-term values. Accordingly, neither description is strictly correct if one is referring to the entire table.

1246. We think that the answer is to divide the policy more clearly into a short-term focus, and then the period beyond that.
1247. As regards the short term, saying that changes in practice and activities need to start immediately is good rousing stuff, but it does not reflect the necessary staging which will need to occur in the implementation of PC1.
1248. We do not agree with submissions such as those of Beef and Lamb, FANZ and Federated Farmers seeking that action be targeted at currently over allocated catchments. For the reasons discussed in relation to Objective 1, we think that there needs to be community ownership of the entire catchment, recognising the interaction between upstream catchments and downstream over-allocation (and the inadequacy of Table 3.11-1 identifying those connections at present).
1249. Saying that the rate of change will need to be staged over the decades after PC1 is replaced falls into the same trap as identified earlier: attempting to provide certainty for the community, where no certainty is possible.
1250. We agree however that reference to minimising social, economic and cultural disruption is consistent with Te Ture Whaimana and on that account alone, likely to endure.
1251. Lastly, while it is necessary to take account of the reasonably foreseeable effects of climate change, there are likely to be any number of factors that mean that different regulatory and non-regulatory responses may be needed in future.
1252. We have recommended a revised Policy 8 incorporating these various considerations.
1253. Notified Policy 6 has effectively been amalgamated into Policies 2 and 3 and we need therefore consider it no further.
1254. Notified Policy 9 relates to sub-catchment management. It indicates an intention to undertake sub-catchment planning and use this planning to support, in particular, edge of field mitigation measures. The policy makes reference to consultation, analysing water quality issues at a sub-catchment level, encouraging cost-effective mitigation and allowing apportionment of the benefits of group mitigation projects.
1255. The Block 3 section 42A Report summarises a large number of submissions on this and related issues in section C2.3. Once again, we adopt and rely upon that summary.

As recorded by Officers, a large number of submitters support a “*sub-catchment approach*” without being entirely clear about what it involves and what amendments it would require to PC1. Many of the submissions focus on the fact that although Table 3.11-1 is sub-catchment based, setting desired numerical values for each identified sub-catchment, the objectives, policies and rules are not generally focused on the sub-catchments in the sense of adopting approaches that are unique to particular sub-catchments. During the course of our hearing, it was noted that the same comment might be made about FMUs.

1256. More specifically, the Officers note submissions in a number of broad categories:

- Focusing management responses with reference to contaminants at issue in each sub-catchment;
- Better providing for collective mitigation within sub-catchment;
- Better providing for catchment groups.

1257. Addressing each in turn, we have already discussed our recommendation that PC1 give some indication of prioritisation of contaminants as between different sub-catchments. We emphasise that this is not to suggest that any of the four contaminants are irrelevant in any sub-catchment (as some of the submissions summarised by Officers would suggest), but rather that some are more relevant than others.

1258. We heard a lot of evidence from a number of existing sub-catchment groups and were impressed by the amount of work which had already gone into their formation and planning. We asked a number of the members of those groups how they envisaged moving forward (and what PC1 could do to assist their endeavours). We got a diversity of answers. However, it seemed to be a common theme that most sub-catchment groups preferred to operate relatively informally, coordinating actions with each other and using the sub-catchment group as a forum for discussion and potentially collective action.

1259. Although WPL emphasised the desirability of providing for “*consenting at scale*” it did not appear to us that many of the existing sub-catchment groups had it in mind that they would band together within some overall legal entity, to obtain a collective consent. The Officers picked up on a number of these thoughts though, recommending that Policy 9 largely be retained as notified, and be supplemented by a new Policy 9A enabling management of multiple properties.

1260. To the extent that Policy 9 currently provides for sub-catchment planning to be undertaken in future by WRC, we think this is more of an implementation method. To provide effective delivery will require a future Plan Change.
1261. We can understand the frustration evident in a number of submissions that PC1 does not already contain that level of direction, but the reality is, as far as we can see, the information required to do so is not available at that level of specificity. This is necessarily, therefore, a job for another day.
1262. Where a new policy can add value in our view is by encouraging collective action by people within sub-catchments. We do not think it is either necessary or desirable to circumscribe what legal structure that action might occur within. The people in a sub-catchment need to work out what works for them. What we think this policy needs to do is to encourage collective action in whatever form it takes, provided it is contributing positively to the overall goal contained within Objective 1, and meets some basic requirements along the lines Officers have recommended in their proposed Policy 9A. In particular, the complexities of sub-catchment management mean that an application for collective consents must be able to be declined if, for instance, lines of authority and responsibility are not adequately addressed (among other things). The overall policy message, however, has to be one of encouragement.
1263. We have therefore recommended a revised Policy 9 along these lines.
1264. Notified Policy 8 relates to prioritised implementation of PC1. It cross refers Table 3.11-2 which is a list of the 74 sub-catchments into which PC1 has been divided, putting each in one of three priority ranks. Map 3.11-2 illustrates the end result. The significance of the prioritisation in notified PC1 was that for permitted activities under Rule 3.11.5.3 it determined the timing for provision of an FEP, and for controlled activities under Rule 3.11.5.4, it determined the timing within which a consent application was required. Consequent on the delay accompanying preparation and then notification of Variation 1 was the need to adjust (and concertina) those timelines to stay within a 2026 completion date.
1265. Policy 8 noted that priority areas included sub-catchments where there is a greater gap between the 80-year water quality targets in Table 3.11-1 and current water quality, lakes, freshwater management units and Whangamarino Wetland.
1266. Through the successive section 42A Reports, there was what we would describe as a progressive erosion of the logic underpinning the prioritisation process as the Officers

identified and accepted the merit of submissions identifying why there was good reason why additional sub-catchments should be in Priority 1. In his Block 1 evidence, Mr Lee Matheson, appearing on behalf of the New Zealand Institute of Primary Industry Management – Waikato Branch, provided us with statistics of the progressive shift of sub-catchments into Priority 1, and the consequent implications of that for resourcing the preparation of FEPs and consent applications. Mr Matheson’s calculation was that between Variation 1 notification and the section 42A (Block 1) Report, the estimated number of FEPs required in the Priority 1 tranche increased 72%.

1267. In the Officers’ closing statement, two alternative ranking systems were provided. The first was on the same basis as the original, but spread out over eight years. The second prioritised Whangamarino and the Lower Waikato Lake sub-catchments ahead of other priority catchments.
1268. We accept that there is a need to prioritise implementation of PC1. We accept the legal submissions for Fonterra that our section 32 assessment of what is the most efficient and effective means to achieve the objectives needs to take into account the administrative ramifications of requiring several thousand FEPs and/or resource consent applications to be filed and processed by WRC on the same deadline.³⁶⁹ While we are entitled to expect that WRC will of course comply with its statutory obligations, a degree of pragmatism is required to ensure that we are not recommending an impossible scenario that will inevitably not be delivered, leading to confusion, dissatisfaction and probably worse environmental outcomes.
1269. Having said that, as foreshadowed above, an eight-year time period is unsatisfactory given the existing level of degradation and the need to take meaningful steps to get on the track towards the ultimate goal. We think that a five-year period is as long as can reasonably be provided.
1270. To make that work, we have reconsidered the basis for prioritisation. It seems to us that Policy 8 was flawed because it treated all contaminants as being of equal importance. As already noted, we do not think that is correct. We also agree with the submissions and evidence for DoC that threats to riverine and peat lakes and to the Whangamarino Wetland are a priority issue. We have revised the priorities set out in (now) Table 3.11-3 on that basis. In section 12 of our report, we discuss our recommended version of the priorities after that.

³⁶⁹ Mr Matheson, Block 2 legal submissions paragraph 13.4

1271. Ultimately, however, we do not consider a policy is required to put in place these priorities. The way in which the rules roll out administratively is an implementation issue. Accordingly, we recommend Policy 8 be deleted.

1272. Notified Policy 7 read as follows:

“Policy 7: Preparing for allocation in the future/ Te Kaupapa Here 7: Kia takatū ki ngā tohanga hei ngā tau e heke mai ana

Prepare for further diffuse discharge reductions and any future property or enterprise-level allocation of diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens that will be required by subsequent regional plans, by implementing the policies and methods in this chapter. To ensure this occurs, collect information and undertake research to support this, including collecting information about current discharges, developing appropriate modelling tools to estimate contaminant discharges, and researching the spatial variability of land use and contaminant losses and the effective contaminant discharges in different parts of the catchment that will assist in defining ‘land suitability’.

Any future allocation should consider the following principles:

- a. Land suitability which reflects the biophysical and climate properties, the risk of contaminant discharges from that land, and the sensitivity of the receiving water body, as a starting point (i.e. where the effect on the land and receiving waters will be the same, like land is treated the same for the purposes of allocation); and*
- b. Allowance for flexibility of development of tangata whenua ancestral land; and*
- c. Minimise social disruption and costs in the transition to the ‘land suitability’ approach; and*
- d. Future allocation decisions should take advantage of new data and knowledge.”*

1273. Importantly, “*land suitability*” in point a. is the subject of a footnote which states that future mechanisms for allocation based on land suitability “*will consider*” five listed criteria. The footnote ends with the statement:

“For the avoidance of doubt, land suitability criteria exclude current land use and current water quality, the moderating effects of potential mitigations, and non-biophysical criteria (economic, social and cultural). Instead these factors will be of importance in analysing the implications of a completed land suitability classification.”

1274. The Block 3 section 42A Report has a relatively full discussion of the submissions on and issues raised by this policy in section C4.3. Once again, we adopt and rely upon the summary of the 239 submissions on this policy.
1275. It is evident that the policy is the result of a compromise within the CSG. Those parties who pressed for allocation based on land suitability, but were persuaded there was insufficient information to put it in place in PC1, were presumably assuaged by a policy that directs an investigation in order to fill in the information gaps that have been identified and purports to commit to the principles on which a future allocation regime would be based (and those that would not be considered).
1276. Opinion on the merits of this policy divided sharply. Those parties opposed to Beef and Lamb's suggested LUC-based allocation, were similarly opposed to what they saw as a future commitment to the same thing, or something very like it. Those parties who supported Beef and Lamb saw the merits in Policy 7 as it stood.
1277. Some parties were of the view it was important to signal an intention to move to an allocation regime in future, without necessarily favouring application of the principles currently set out in Policy 7. In Ms Tumai's legal submissions for DoC in Block 3, she noted that DoC sought that "*policy 7 be amended, not deleted, to provide for an allocation regime that only permits the discharge of contaminants up to a level that ensures the limits and objectives for the FMU can be achieved*".³⁷⁰
1278. Mr Ferguson's closing legal submissions for the Iwi Co-Governors supported deletion of reference to land suitability but retention of the other principles specified in Policy 7. He said that, "*a strong signal is required to ensure, so far as possible, that the next iteration of the Plan is not delayed or diluted by arguments that 'no one was previously aware allocation was intended*".³⁷¹
1279. Officers considered that trying to predict what will be a suitable allocation mechanism in the future is challenging. They thought that Policy 7 was likely to establish a level of community expectation that was potentially unjustified.³⁷² Their initial recommendation was to delete the policy, but in their closing final statement, Officers revised that recommendation, suggesting instead that the policy be slimmed down to focus on gathering information relevant to future policy development requirements, but not

³⁷⁰ Ms Tumai, Block 3 legal submissions – paragraph 15.

³⁷¹ Mr Ferguson, closing legal submissions – paragraph 9; see also Ms Ongley's Block 3 legal submissions for Fish and Game – paragraph 11, to similar effect.

³⁷² Block 3 section 42A Report – paragraphs 479-480.

directing what the future policy direction should be.³⁷³ As they noted, this was the recommendation of Dr Mitchell for Oji, among others.

1280. We agree with the submissions, and the Officers' recommendation, that Policy 7 should not purport to foreshadow what future Plan changes might say is the best means to achieve the objectives of Te Ture Whaimana. We concur with the Officers' view that to do so, particularly at the level of specificity in the notified version of Policy 7, is likely to create expectations that may well not be borne out in practice. While we understand the desire of participants for certainty, in our view, indicating the path forward with no assurance that that will in fact be the case is potentially misleading.
1281. Having said that, we take on board the concerns that if PC1 says nothing at all about the future, people may claim to be blindsided by a future Plan Change putting in place an allocation regime. We agree with a comment Mr Ferguson made in that regard at the Block 3 hearing, to the effect that the opposition of some parties to any reference in PC1 to allocation in future was "overdone". Clearly, allocation is a potential management technique that the next Plan Change may adopt and we do not consider PC1 should shrink from noting that possibility.
1282. In summary, we recommend a revised version of the Policy 7 (renumbered Policy 10 in our amended chapter) noting the potential that a future management regime might allocate diffuse discharges. We also recommend a slight rewording from that recommended by Officers to emphasise that research needs to include the spatial variability of the effects of contaminant discharges in different parts of the catchment (picking up on WPL's evidence regarding varying vulnerability of land in different locations).

Point Source Discharges

1283. Notified PC1 had four policies (10-13 inclusive) specifically related to point source discharges. As the Block 2 section 42A Report notes, PC1 contained no rules specifically related to point source discharges. Quoting from the section 42A Report:³⁷⁴

"...PC1 is intended to provide more specific guidance, at the policy level, to guide the assessment of resource consent applications for point source discharges. It is intended that these policies assist in ensuring that such activities are managed to achieve the new objectives introduced in PC1."

³⁷³ Officers' Closing Planning Statement – paragraph 69.
³⁷⁴ Block 2 Section 42A Report at [995].

1284. As the section 42A Report also notes, most large point source discharge consents are considered under Rule 3.5.4.5 as full discretionary activities.
1285. The Block 2 section 42A Report summarises submissions on all four point source discharge policies in section C6.4.1. Once again, we rely on and adopt that summary.
1286. A number of the submissions seek equality of treatment as between diffuse discharges and point source discharges. We have already addressed similar submissions in the context of Recommended Policy 7. As we noted in that context, there are differences between diffuse discharges and point source discharges that demand a slightly different approach. We also note that the submissions from the farming community seeking equality of treatment may not have factored in that point source discharges are generally considered as full discretionary activities, which is not the case for most diffuse discharges.
1287. Having said that, to the extent our recommended approach to diffuse discharges represents our interpretation of Te Ture Whaimana, there would need to be good reasons why it did not equally apply to point source discharges. It follows that we agree with the recommendation of the Officers that submissions seeking that the point source discharge policies be qualified to relate only to farming activities should be rejected.
1288. The closing submissions for DoC suggested a consistent amendment to the point source discharge policies, to substitute reference to N, P, sediment and microbial pathogens with “*contaminants*”. This is linked no doubt to DoC’s position on Table 3.11-1. We have not accepted the latter and therefore we need consider the consequential amendments no further.
1289. As regards the specific question of whether point source discharges should be reviewed immediately, we agree with the recommendation in the section 42A Report³⁷⁵ that this is a matter that should remain within the discretion of Council as implementation of PC1 proceeds. For similar reasons, we think that too much weight was placed on a statement in the background discussion to the effect that municipal and industrial point source dischargers would only be required to revise their discharges in light of Te Ture Whaimana and the provisions of PC1 as their respective consent terms expire. This was a point that, for instance, Mr Ryan, the planning witness for Hamilton City Council drew to our attention. We observe the fact that Hamilton City sought to leverage off this general statement illustrates the danger of having such

³⁷⁵ Block 2 Section 42A Report at [1016].

detailed commentary in the Plan and as already discussed, we have recommended that it be significantly pruned.

1290. More importantly, we do not agree that all point source discharges should be immune from consent condition review until their current consent term expires. As we discussed with a number of planning witnesses, we think that at the very least, there is room to distinguish those resource consents that have been granted in the light of and fully reflecting the provisions of Te Ture Whaimana from those that predate Te Ture Whaimana.

1291. Put another way, we consider that if we sought to preclude consent condition reviews in all cases then we would not be giving effect to Te Ture Whaimana.

1292. Rather than shifting the operative text to align with the background discussion, we have therefore recommended the latter be amended to remove the statement Mr Ryan relied on.

1293. Turning to the specific policies, the first policy of relevance read as notified:

“Policy 10: Provide for point source discharges of regional significance/Te Kaupapa Here 10: Te whakatau i ngā rukenga i ngā pū tuwha e noho tāpua ana ki te rohe

When deciding resource consent applications for point source discharges of nitrogen, phosphorus, sediment and microbial pathogens to water or onto or into land, provide for the:

a. Continued operation of regionally significant infrastructure; and

b. Continued operation of regionally significant industry.”

1294. The Block 2, section 42A Report summarises the 134 submissions on Policy 10 at sections C6.5.1-8. We adopt and rely on that summary.

1295. There are two broad themes in the submissions. The first is that Policy 10 is expressed too baldly, and appears to be an unconditional endorsement of point source discharges from existing regionally significant activities. The second seeks that the policy be expanded to provide for new regionally significant activities. A number of submitters also seek clarification as to what is meant by “*regionally significant infrastructure*” and “*regionally significant industry*” in this context.

1296. In our discussion of the WRPS in section 3 of our report above, we noted the provisions governing regionally significant industry and regionally significant infrastructure, and in

particular, policy 4.4 related to the former. We concluded that regionally significant infrastructure does not derive the same level of recognition in the WRPS as does regionally significant industry.

1297. The first thing to consider in relation to the merits of this policy is to be clear what it is that it is referring to. The notified PC1 did not define either “*regionally significant infrastructure*” or “*regionally significant industry*”. Both terms are, however, defined in the WRPS. The WRPS definition of regionally significant industry is descriptive, and refers to such industry being “*identified in regional or district plans*”. This prompted a number of submitters to argue that PC1 is required to identify specific industries that qualify. Unsurprisingly, each submitter had reasons why their particular industry did so.
1298. The Officers’ recommendation is to take the same approach as the WRPS and describe what regionally significant industry is, rather than list examples of it.
1299. We agree with that approach. One of the problems with PC1 not including a definition at the outset is that submitters advocating that their particular industry be included are operating effectively on a self-selection basis. In some cases, the justification for that is obvious. No one could seriously contend that the industrial plants forming part of the Kinleith complex do not qualify as regionally significant. Likewise, Fonterra’s dairy manufacturing plants spread around the region and the hydro dams on the Waikato River are obviously regionally significant.
1300. However, a broad description of each industry captures rather too much. We discussed with Ms Dines, who gave planning evidence for Winstone Aggregates and Fulton Hogan Limited, the fact that adding “*mineral extraction activities*” to the definition would include a single gold panner. Having reflected on it, she reverted with a suggested refinement to identify aggregate extraction sites over a trigger volume. While that would solve that particular problem, it is illustrative of a broader issue. We agree that the dairy manufacturing plants operated by Fonterra and its competitors are regionally significant, but is a farm scale cheesemaking operation supplying the local farmers market? Likewise, while the Waikato dams are obviously significant, what of a single on-farm wind turbine? Ms Dines’ solution also highlights another more troubling issue with any list. This is the likelihood that even if it is expressed inclusively, any list of specific regionally significant industries puts an unfounded onus on those not listed to demonstrate that the omission is not significant.

1301. Accordingly, we prefer the Officers' suggested approach and our revised Chapter reflects that.
1302. The WRPS definition of regionally significant infrastructure is, by contrast, an inclusive list. Officers recommend that it be reproduced, and therefore that the submission of Taupō District Council seeking that it specifically include stormwater infrastructure not be accepted. We agree with the latter recommendation. While some elements of stormwater infrastructure might be considered regionally significant, Taupō District Council did not appear and provide evidence that would satisfy us that all aspects would be so, and if not, how those elements that are regionally significant might be identified.
1303. We do not, however, see there being any particular value in reproducing the WRPS definition. Quite apart from anything else, if the definition should be changed in the regional policy statement context, that would put PC1 out of alignment with the WRPS unnecessarily. We consider that all that is required is a cross reference to the WRPS definition.
1304. Returning to Policy 10, Officers recommended two amendments to this policy. The first was to refer to the consideration of resource consent applications, rather than deciding them. The second was to substitute "*recognise the benefits of*" for "*provide for*". The purpose of the suggested changes was to qualify the enabling direction provided by the notified policy. In the Block 2 section 42A Report, Officers cited a dictionary definition of "*provide for*" as meaning "*to cause something to happen in the future*". This was expanded on in the Officers' response to our written questions dated 5 July 2019. We asked the Officers if Policy 10 could be read as implying a controlled activity rule for such discharges was appropriate. The Officers' response was that while that was one possible interpretation of Policy 10, "*provide for*" does not mean "*permit*" or "*always grant*". However, having said that, they accepted that it has "*quite an enabling implication*". We agree with those observations.
1305. Against that background, although as the Block 2 section 42A Report observed, all policies have to be read together, we do not consider it desirable to leave the door open to arguments about their relative weight.
1306. As we have discussed above, in section 3 of our report, Te Ture Whaimana is the primary direction-setting document, and it in turn is primarily directed at restoring and protecting the health and wellbeing of the Waikato and Waipā Rivers. The objectives we have recommended reflect that focus. If the objectives are to be achieved, the

policies need to clearly prioritise restoration and protection of the health and wellbeing of the Waikato and Waipā Rivers. Accordingly, rather than water down the direction provided by Policy 10 to one of “*regard*”, we prefer to express the position more directly.

1307. The Officers note that the approach of the WRPS is not unqualified. The provision for regionally significant industry in Policy 4.4 is subject to ensuring adverse effects are avoided, remedied or mitigated.³⁷⁶ Mr Willis, the planning witness for Fonterra, suggested that Policy 10 might be reworded to make provision for RSI&I “*subject to*” Policy 11 and 12. We consider that provides the greatest clarity as to what is required, in a manner consistent with the WRPS.
1308. However, we consider that those policies need to be put in the broader context of the journey towards the long-term goals enunciated by Objective 1 and thus, we recommend that Policy 10 be subject to that also.
1309. We accept, however, that it is appropriate to shift the focus of this policy to the point where resource consents are being considered. That puts the policy squarely as part of the section 104 process rather than, as previously, appearing to come later in the reasoning process.
1310. We also consider that the submitters seeking recognition of new RSI&I are on reasonable ground. While we have not accepted the argument made by Hamilton City Council, in particular, that the NPS-UDC requires provision to be made for urban development if that comes at the cost of further degradation of the Waikato River, provision should be made for upgrades and expansion of existing infrastructure, and indeed to new developments.
1311. The WRPS refers to “*continued operation and development*” of regionally significant industry. We consider that this wording neatly captures the kind of provision the submitters were seeking in preference to some more expanded phrasing that will add words without materially altering the end result. We do not know why the WRPS does not have a similar provision for regionally significant infrastructure. However, the evidence of WARTA and Watercare in particular, satisfied us that infrastructure should be treated as being on a par with industry in this respect.
1312. We do not accept the reasoning of submitters such as NZTA who sought specific recognition for infrastructure that might not be considered significant. NZTA did not appear before us to provide greater detail, but it appears that its submission is based

³⁷⁶ See Implementation Method 4.4.1(h).

on the fact that the definition of regionally significant infrastructure only specifically includes defined significant transport corridors. We consider that if other parts of the State Highway network are genuinely “*significant*” NZTA can still make that argument. We consider that preferable to either a specific policy for the State Highway network or a watering down of the subject matter of the policy. The justification for having any positive recognition is that RSI&I is, by definition, significant. We do not think that element should be lost.

1313. Nor do we accept NZTA’s submission that the concept of “*continued operation*” is unduly narrow, because it fails to make specific reference to considerations of safety and efficiency. We do not consider that Policy 10 could sensibly be interpreted as providing for continued operation of RSI&I if that is unsafe or inefficient.

1314. Our recommended revised Policy, renumbered Policy 11 takes all these considerations into account.

1315. The notified version of Policy 11 read as follows:

“Policy 11: Application of Best Practicable Option and mitigation or offset of effects to point source discharges/Te Kaupapa Here 11: Te whakahāngai i te Kōwhiringa ka Tino Taea me ngā mahi whakangāwari pānga; te karo rānei i ngā pānga ki ngā rukenga i ngā pū tuwha.

Require any person undertaking a point source discharge of nitrogen, phosphorus, sediment or microbial pathogens to water or onto or into land in the Waikato and Waipā River Catchments to adopt the Best Practicable Option to avoid or mitigate the adverse effects of the discharge, at the time a resource consent application is decided. Where it is not practicable to avoid or mitigate all adverse effects, an offset measure may be proposed in an alternative location or locations to the point source discharge, for the purpose of ensuring positive effects on the environment to lessen any residual adverse effects of the discharge(s) that will or may result from allowing the activity provided that the:

- a. Primary discharge does not result in any significant toxic adverse effect at the point source discharge location; and*
- b. Offset measure is for the same contaminant; and*
- c. Offset measure occurs preferably within the same sub-catchment in which the primary discharge occurs and if this is not practicable, then within the same*

Freshwater Management Unit or a Freshwater Management Unit located upstream; and

d. Offset measure remains in place for the duration of the consent. It is secured by consent condition.”

1316. The Block 2 section 42A Report summarises the submissions on this policy at section C6.6.1. We adopt and rely on that summary. Once again, there are a number of themes in the submissions. There is general opposition, for instance, to a focus on all adverse effects and the desire for greater flexibility in the use of offsetting. As against that, some submitters suggested offsetting is not appropriate generally, or that the conditions on offsetting be tightened.
1317. For their part, the Officers note an apparent difficulty reconciling a BPO-focused approach with Te Ture Whaimana indicating a better environmental outcome may be required than application of the BPO would produce. Officers recommend that BPO therefore be the minimum standard required. Officers also identify the formatting of the policy as being confusing, starting with a BPO requirement, but then providing an alternative where there are still residual adverse effects. In the section 42A Report, Officers recommended that this be addressed by dividing the policy into separate paragraphs. By the closing planning statement, this had translated into separate policies, one relating to the application of the BPO, and the second relating to offsetting.
1318. We agree that some separation of these different concepts is required. We do not think it need go to the extent of providing separate policies. We distinguish diffuse discharges, where we have recommended a separate policy for offsetting/compensation on the basis that application of a BPO approach is very standard in the context of point source discharges. As such, all that is required is to emphasise that this is a sequential process. That is also the answer to submitters who oppose application of a BPO to point source discharges on the basis that this is supposedly a ‘soft’ option compared with that applying to diffuse discharges. It is necessary to consider the end result of all elements of the policy before forming that view.
1319. A number of submitters opposed the approach recommended on the basis that a policy direction to apply a BPO approach in respect of all contaminants as a minimum is inconsistent with the RMA. Mr Scrafton, the planning witness for Watercare Services was among those who put that position to us in his Block 2 evidence. As Mr Scrafton explained to us, his view of a BPO analysis is that it is fundamentally about assessing

options and that if it has been applied correctly, the end result will already be a minimisation of adverse effects.

1320. Other submitters put the argument on the basis that the RMA is not a “*no effects*” statute. Ms O’Callahan for WARTA advanced that position in her planning evidence and we asked her whether the effect of the Supreme Court’s decision in *Environmental Defence Society Inc v The New Zealand King Salmon Company Limited*³⁷⁷ was that protection from adverse effects might be a legitimate position in a particular case. Her response was twofold. She equated a no effect regime with no contaminants, which in turn requires that no consent be granted. Secondly, she suggested that since the *King Salmon* position related to coastal space it was not directly applicable.
1321. We do not accept either point. In this context, what we are considering is a position where if there are residual adverse effects, they may have to be offset or the subject of compensation, which is not the same as there being no contaminants discharged. Secondly, while it is correct that the Supreme Court’s decision related to coastal space, its reasoning in this regard at least reflected its analysis of the scheme of the Act and in particular, the fact that the opening words of section 5 refer to managing the “*use, development, and protection*” of natural and physical resources [emphasis added].³⁷⁸
1322. While we agree with Mr Scafton’s characterisation of BPO, we do not consider it takes us very far. As Mr Scafton suggested revised Policy 11 demonstrated, if you reframe the reference to BPO as an analysis of different options, the policy loses all direction and becomes a description of the process that has to be followed, without indicating what end result has to be achieved.
1323. Officers recommended that reference to BPO not be framed on the basis the assessment occurs at the time of consent decision, so that it might be reassessed in the context of a section 128 review.³⁷⁹ While this is true, as Mr Willis pointed out in his Block 2 planning evidence for Fonterra,³⁸⁰ in the context of a resource consent application, the BPO must necessarily be assessed at the time of application. Otherwise, an applicant would be required to speculate on what the BPO might be into the future. We agree that, to specify such an outcome would not be appropriate.

³⁷⁷ [2014] NZSC 38.

³⁷⁸ When we asked Mr Leckie, counsel for BT Mining, the same question, he agreed, based on *King Salmon*, that a Plan can provide a ‘no effects’ regime in specified situations. Ms Garvan, counsel for Genesis Energy, put the same point the other way around- you can’t say some level of adverse effects will always be acceptable. We agree with that submission also.

³⁷⁹ Block 2 Section 42A Report – paragraph 1126

³⁸⁰ Mr Willis, Block 2 evidence in chief – paragraphs 13.11-13.14.

1324. To address the Officers' point however, we consider that the policy should be aligned with Policy 10 and refer to what should be done as part of the consideration of resource consent applications. That removes any implication that reconsideration of what the BPO might require is not permissible, for example, in a section 128 review. It also requires a consequential amendment; from requiring adoption of the BPO to requiring demonstration as to what is proposed represents the BPO. Furthermore, while we tend to agree with the Officers' analysis that avoidance and mitigation are similar concepts to prevention and minimisation, to the extent that there is arguably a difference, given the definition of BPO in the RMA, we should use the latter.
1325. Lastly, we do not consider reference to the BPO being a minimum is either helpful or necessary. What might be required above and beyond BPO is addressed in the second limb of the policy.
1326. Turning then to that, this part of the policy as notified is solely focused on offsetting measures. We agree with the submission Mr Berry, counsel for WARTA, made to the effect that semantic differences between offsetting and compensation should be side-stepped. The test is not what label is applied, but rather whether the end result is a positive effect on the environment.
1327. Officers recommended that rather than commencing with a test framed around the impracticality of avoiding or mitigating all adverse effects, it was preferable to pose the precondition around adverse effects not being able to be reasonably avoided or mitigated. Both formulations essentially seek to paraphrase the concept of BPO. We consider that a simpler approach is to frame this limb of the policy around the result of adoption of the BPO; that is to say, that there remain residual adverse effects.
1328. A number of submissions sought that the offsetting provisions should only cut in where residual adverse effects are significant. The Officers recommended against that course on the basis that in a situation where cumulative effects are an issue (as here) a single discharge may not have a significant adverse effect, but offsetting may still be appropriate or necessary to address its adverse effects in order to achieve the objectives of PC1.³⁸¹ While the point the Officers make is a fair one, we consider more relevant, the direction in *Puke Coal Limited v Waikato Regional Council*³⁸² that the application of Te Ture Whaimana requires more than avoidance; "... *some element of betterment is intended.*"

³⁸¹ Block 2 section 42A Report at [1110].

³⁸² [2014] NZEnvC 223 at [92].

1329. The direction given by the *Puke Coal* decision also suggests to us that policy wording suggesting that offset measures “*may be*” proposed³⁸³ is not sufficient. We have the same view of the alternative formulation suggested by Dr Mitchell for Oji, and Mr Willis, for Fonterra, of “*encouraging*” the proposal of offset measures; it does not provide sufficient direction in the absence of a clear statement as to the consequences of not doing so if an applicant does not ‘*get the message*’.
1330. The section 32 Report records that “*offsets must be volunteered by applicants and cannot be required by a council*”. Our understanding is that that is correct in the context of a resource consent condition. We do not, however, understand it to be the case in a policy context. It seems to us that the corollary of protection (i.e. avoidance of adverse effects) being a valid policy option is that a policy might direct that without an acceptable offsetting (or compensation) arrangement addressing residual adverse effects, resource consents should not be granted.
1331. Having said that, a policy direction that offsetting/compensation must be proffered would in our view go too far. The next policy that we discuss introduces additional considerations that are relevant to that ultimate question (whether the resource consent should be granted). We consider, therefore, that the appropriate policy direction is that suggested by Fish and Game in its closing submissions; offsetting or compensation measures “*should be proposed*”.
1332. Officers suggest that the desired end result is that there is a net positive effect on the environment. For similar reasons as those discussed in relation to recommended Policy 5, we consider the concept of a “*net*” positive effect insufficiently clear. We have therefore recommended a rephrasing of the language to state that positive effects have to be sufficient to offset or compensate for residual adverse effects.
1333. The notified policy was subject to a number of preconditions, identifying (by exception) situations where offsetting was not appropriate. The recommended revised policy in the Officers’ Closing Planning Statement adopts those preconditions with two material amendments. The first relates to the scale of the residual adverse effects. The notified policy said, in essence, that the discharge must not result in any “*significant toxic adverse effect*”. The Officers note a number of submissions querying that phraseology. Forest and Bird, for instance, sought that it be replaced by a reference to significant

³⁸³ As per both the notified Policy 11 and the new Policy 11A recommended in the Officers’ Closing Planning Statement.

adverse effects. Officers recommend that the policy be amended to refer to “*significant or toxic adverse effects*”.

1334. We find that it is difficult to conceive of toxic effects that would not be considered significant unless it is at a very small scale, and/or involve species that are of no conservation significance. The converse is not, however, the case. There may be significant adverse effects that do not involve toxicity. We do consider though that some test of significance is required.
1335. The purpose of this provision is to establish when offsetting (and we recommend, compensation) should be able to be considered. If this part of the policy referred to all adverse effects, as some submitters sought, it would deprive the provision for offsetting/compensation of any meaning. We therefore agree with the Officers’ recommended approach. However, we consider that a further amendment is required to make it clear what sort of significant effects we are talking about. Mr Willis suggested in his Block 2 planning evidence for Fonterra that the focus should be on significant adverse effects on aquatic life. Both section 70 and section 107 of the RMA preclude significant adverse effects “*on aquatic life*”. We agree that that should be the reference point in this context. We also recommend a minor grammatical change.
1336. The second precondition in the notified policy specifies that the offset measure is for the same contaminant.
1337. This makes sense in terms of true offset arrangements. Having introduced the potential for compensation provisions, we consider that a consequential amendment is required to clarify that the measure must relate to the contaminant giving rise to the residual adverse effects.
1338. The third precondition likewise requires amendment in our view. The size of some of the sub-catchments specified in map 3.11-2 is such that, in our view, it is inappropriate to facilitate offsetting/compensation measures anywhere within the same sub-catchment. We prefer the view presented by Dr Neale in his Block 2 evidence for Fonterra, that upstream measures are to be preferred. While Dr Neale was of the view that there should be no constraints on how far upstream, the attenuation factors for microbial pathogens that Dr Dada discussed in his Block 1 evidence suggest to us that upstream within the same sub-catchment should be the preferred option.
1339. The final precondition relates to the duration of the offsetting/compensation measure and the method by which it is secured. Officers recommended a suggestion from Fish

and Game that measures remain in perpetuity be rejected, and that the duration remain as the duration of the consent. They recommended an amendment, however, to provide that the mechanism by which the offsetting measure is put in place be stated more flexibly, to include legally binding instruments other than consent conditions. We agree with the latter point, but it seems to us that providing that offsetting/compensation remains in place for the duration of the consent assumes that the adverse effects required to be offset/compensated cease at expiry of the consent.

1340. We heard no evidence to give us confidence that this would necessarily be the case. We therefore recommend not that the measures must remain in place in perpetuity (that would clearly go too far), but rather that they must remain in place for the duration of the adverse residual effects. In his Block 2 planning evidence for Fonterra, Mr Willis also suggested additional wording that would distinguish between the existing and new discharges when determining whether there was in fact a significant residual effect (that being the test Mr Willis suggested).

1341. Although we have not accepted his recommendation as to what the level of residual effects must be in order for offsetting/compensation to be required, we think that there is merit in the distinction that Mr Willis suggested. Referring again to the Environment Court's *Puke Coal* decision, at the same paragraph where it said that some betterment is intended, the Court noted that "*any protection or restoration must be proportionate to the impact of the application on the catchment*". That suggests to us the kind of distinction Mr Willis was drawing, where for existing discharges, the issue is whether the discharger fails to reduce their contaminant load proportionate to their effect on the rivers, and for new discharges, it is whether they add new contaminants.

1342. We think this approach is preferable to an alternative suggested by Dr Mitchell of Oji of inserting a new policy:

"Existing Environment

Applications for discharge permits are to be assessed against the existing environment as if it includes the effects of any existing authorised discharges."

1343. Dr Mitchell's reasoning was that it is clear that in considering land use applications, the relevant environment for the purposes of assessing adverse effects is that which exists at the time the application is being considered, and that it was neither equitable nor logical for discharge permits to be treated differently.

1344. We are dubious as to whether a plan can direct what the existing environment is other than, potentially, for the purposes of the application of other plan provisions. The principal purpose of identifying the so called 'existing environment' is, however, to clarify the nature of the inquiry under section 104(1)(a) of the RMA. It is accordingly a matter of statutory interpretation as to what that requires.
1345. Possibly more importantly, we think that there are potentially good reasons for treating land use resource consent applications differently to applications for discharge permits. Land use consents are generally granted in perpetuity. They run with the land. Discharge permits (along with water permits to authorise the take, damming, diversion and use of water) have a finite term. Accordingly, a facility relying on discharge or water permits needs to apply periodically to renew those permits. While the RMA provides some recognition of such applications,³⁸⁴ these are as a matter of law new resource consent applications. If the relevant plan(s) has (have) not classified them as controlled activities, consent may be rejected.
1346. If the existing environment in the case of a discharge were defined to include the effects of the discharge then, by definition, the discharge would be having no effect unless the nature and scale of the discharge is changing. It would be difficult to conceive how consent could be refused in such circumstances. It would also be difficult to justify the imposition of any conditions other than a requirement not to alter the discharge. That would appear to be inconsistent with the direction provided by Te Ture Whaimana that water quality needs to be improved.
1347. It is presumably for reasons such as this that the Environment Court (and the High Court on appeal) has not endorsed a general approach to the existing environment in cases involving water or discharge permits of the kind suggested by Dr Mitchell. While there have been cases where assessment of discharges has included consideration of the prior effects of the discharge,³⁸⁵ there are equally cases that have taken a different view³⁸⁶. Some cases have sought to steer a middle path.³⁸⁷ We interpret the cases as directing a case by case examination of the circumstances, rather than any sort of general policy such as that suggested by Dr Mitchell.

³⁸⁴ See e.g. sections 104(2A) and sections 124, 124A and 124B.

³⁸⁵ See e.g. *Tainui Hapu v Waikato Regional Council* A063/2004, *Marr v Bay of Plenty Regional Council* [2010] NZEnvC 347.

³⁸⁶ Dr Mitchell cited the decision of the High Court in *Ngati Rangī Trust v Manawatu-Wanganui Regional Council* [2016] NZHC 2949 for example.

³⁸⁷ See *Alexandra Flood Action Society Inc v Otago Regional Council* C102/2005.

1348. There is another advantage of adopting Mr Willis' approach and that is that we can utilise it as a mechanism to address an issue put to us by WRC in its capacity as operator and manager of an extensive network of flood protection and land drainage works in the Waikato and Waipā River Catchments.
1349. Mr Mayhew gave planning evidence for Council suggesting that discharges associated with a flood protection and land drainage scheme under the relevant legislation effectively be exempted from the operation of Policy 11. This was on the basis of Mr Basheer's view that such schemes convey contaminants, but do not create contamination.
1350. We are dubious as to whether the latter proposition is literally correct, or at least, is correct in all cases. It seems to us that land drainage schemes have the potential to shift contaminants to locations that they would not naturally have reached, or alternatively to alter the pattern of contamination in ways that exacerbate the effect of those contaminants. From our discussion with Mr Basheer, this may be the case in relation to the diversion operated by Council out of Lake Waikare. When we posed that possibility, Mr Mayhew agreed in principle that to the extent a drainage scheme was contributing contaminants, then it ought to be controlled.
1351. In addition, if we were minded to acknowledge the effect of land drainage and flood protection schemes in this regard, it seems to us that we should equally provide for other activities that divert and discharge water and entrained contaminants without creating the contamination. The most obvious example of what we are talking about is of course the hydro dams operated by Mercury Energy Limited on the Waikato River. Each dam impounds water and then discharges it either over or through the dam structure. Depending on the configuration of the dam, a diversion may also be involved.
1352. We do not consider that PC1 should recognise and provide for the Council's own activities, but not those of other parties with similar issues and similar effects.
1353. We therefore recommend a third limb of Policy 11 that would pose as relevant factors for establishing whether a discharge will have a residual adverse effect, consideration both of the kind suggested by Mr Willis and a more general provision testing whether discharges associated with the damming or diversion of water exacerbate the rate or location of contaminants, and if so, to what extent.

1354. Our recommended PC1 shows the end result of Policy 11 (renumbered Policy 12) taking into account all of these considerations.

1355. Policy 12 as notified was framed as follows:

“Policy 12: Additional Considerations for Point Source Discharges in relation to water quality targets/Te Kaupapa Here 12: He take anō hei whakaaro ake mō ngā rukenga i ngā pū tuwha e pā ana ki ngā whāinga ā-kounga wai.

Consider the contribution made by a point source discharge to the nitrogen, phosphorus, sediment and microbial pathogen catchment loads and the impact of that contribution on the likely achievement of the short term targets in Objective 3 or the progression towards the 80-year targets in Objective 1, taking into account:

- a. The relevant proportion of nitrogen, phosphorus, sediment or microbial pathogens that the particular point source discharge contributes to the catchment load; and*
- b. Past technology upgrades undertaken to model, monitor, and reduce the discharge of nitrogen, phosphorus, sediment or microbial pathogens within the previous consent term; and*
- c. The ability to stage future mitigation actions to allow investment costs to be spread over time and meet the water quality targets specified above; and*
- d. the diminishing return on investment in treatment plant upgrades in respect of any resultant reduction in nitrogen, phosphorus, sediment or microbial pathogens when treatment plan processes are already achieving a high level of contaminant reduction through the application of the Best Practicable Option.”*

1356. The Block 2 Section 42A Report summarises the submissions on Policy 12 in section C6.7.1. This section contains both a summary and analysis of submissions. As previously, we adopt and rely on the Officers’ summary of submissions.

1357. Officers recommend amending the opening words to the policy to refer to the consideration it requires to be made when deciding a resource consent application. The expressed reason is to be consistent with the terminology in other policies. For the same reasons, we recommend that the policy applies at the earlier point of consideration of an application.

1358. To the extent that Fonterra’s submission sought reference to assessment, rather than consideration of the matters referred to in the Policy, we note that Mr Willis did not pursue the suggested change in his planning evidence for the submitter.

1359. Oji is noted in the section 42A Report as opposing this policy insofar as it applies obligations with respect to the Table 3.11-1 values that are additional to the BPO required by Policy 11. In part, this is on the basis of there being no equivalent policy applying to diffuse discharges. Oji maintained this position, and the revised version of Policy 10 recommended by Dr Mitchell reflects that.
1360. Officers recommend rejection of Oji's submission on the basis that relying only on BPO will not always be sufficient to meet the Plan's objectives, or to give effect to Te Ture Whaimana. Officers also suggest that removing consideration of the contribution a point source discharge makes to the Table 3.11-1 values would not be consistent with the treatment of diffuse discharges.
1361. The reason diffuse discharges are not directly linked to compliance with the Table 3.11-1 values is principally because of the current inability to accurately measure contaminants reaching surface waterways from individual farms. It does not follow in our view that point source discharges should similarly not be linked to the Table 3.11-1 values as the contaminant content of the discharge in the latter case will generally be able to be measured. We emphasise that the policy does not treat the Table 3.11-1 numerical values as consent limits for point source discharges. That would be inappropriate in the context of multiple contributors of those contaminants. It does require, however, their 'contribution' to be considered, which we regard as appropriate.
1362. Mr Scrafton suggested for Watercare that the opening words of the policy should refer to contributions made by a point source discharge "*after the application of reasonable mixing in accordance with Policy 3.2.3.8*". This reflects Watercare's view discussed above that the concept of "*reasonable mixing*" is consistent with implementation of Te Ture Whaimana. In section 3 of our report above, we have concluded that that is not necessarily correct; it requires a case by case analysis and justification. We also note that at least with the four contaminants in issue in PC1, reasonable mixing is likely to involve dilution of contaminant concentrations, but limited if any reduction in contaminant loading. Thus, even if we accepted Watercare's legal argument (which we do not), the amendment suggested by Mr Scrafton would seem to us to have little practical utility. Having said that, we think that there is room to mention reasonable mixing in the context of the sub-policies, and we will come back to that.
1363. The Officers recommend consequential amendments to the description of the water quality values required to be considered. Consistent with our analysis that the short-

term numeric values in Table 3.11-1 contribute to achievement of a freshwater objective, we recommend further amendments along the same lines.

1364. Officers also discuss a submission by Fish and Game seeking to make the opening words of the policy more directive regarding the need to ensure the contaminant reductions and timeframes are met. Officers recommend rejection of that submission and we note that in the closing statement for Fish and Game, the suggested amendments have not been pursued. On that basis, we need consider it no further.
1365. Officers discuss also a submission from the Iwi Co-Governors suggesting both that the word “*likely*” be deleted and that specific reference be made to sub-catchment loads, rather than catchment loads. Officers rejected acceptance of the former but not the latter. By closing submissions, the Iwi Co-Governors’ position had shifted. The amended version of Policy 12 they suggested would refer to “*sub-catchment, catchment and Freshwater Management Unit loads*”.
1366. We agree that the word “*likely*” is unhelpful in this context, suggesting a need for a level of certainty that is potentially unrealistic. We also agree that reference to sub-catchment loads in lieu of catchment loads is undesirable. As we have noted in the context of our discussion of Objective 1, the short-term numerical water quality values do not provide for upstream catchments to contribute to water quality improvements required downstream. The amended version in the Iwi Co-Governors’ closing submissions would address that problem but we do not think that the extra detail is required. Referring to catchment loads in the context of achievement of the Table 3.11-1 values already includes the contribution at all levels.
1367. We recommend an additional amendment to the opening words of the policy insofar as it refers to the progression towards the 80-year water quality attribute states.
1368. We discussed with a number of parties the nature of that progression in the context of notified Policy 13. In summary, we consider that greater direction is required in order that stakeholders better understand what is expected of them post the “*short term*”. We recommend that Policy 12 refer to a “*steady*” progression to reflect the fact that we are not expecting an absolutely straight line progression,³⁸⁸ but neither are we seeking to give any encouragement to suggestions that the water quality improvements required

³⁸⁸ To that extent, we agree with the evidence of Mr Matthews for Genesis Energy that it is more important for an applicant to show it is on the path towards the long-term goals.

to meet the long-term goal might be weighted more towards the back end of the 80-year timeframe.

1369. While the section 42A Report notes (and recommends rejection of) Watercare's submission seeking that the listed matters following the initial part of the policy be given greater weight than suggested in the notified policy, its planning witness, Mr Scrafton, did not pursue that amendment and we therefore consider it no further.
1370. Officers did not suggest any amendments to the first point to be taken into account under the notified policy. There appeared general agreement among the planning witnesses who appeared before us regarding that wording. Mr Scrafton (for Watercare) and Ms O'Callahan (for WARTA) suggested that reference to short and long-term water quality values be shifted into this point rather than appearing in the stem of the policy. We were unclear if this was a stylistic change or was intended to have substantive effect. If the latter is the case, we think that the emphasis in the policy recommended by Officers is correct.
1371. Having said that, we think there is merit in clarifying the inter-relationship between this and the previous policy, relating to application of BPO, offsetting and compensation, for much the same reason as we identified in relation to renumbered Policy 11. It seems to us that Policy 12 (renumbered policy 13) poses a series of additional considerations, but that Policy 11 (renumbered Policy 12) provides the primary direction. On that basis, Policy 13 in our revised Chapter should be expressed to be subject to Policy 12. That also avoids the need to specifically reference consideration of the options and identification of options for reduction of contaminants and the BPO suggested by Dr Mitchell.
1372. Mr Willis suggested that the policy should specifically refer to the net change proposed in the relative proportions of each contaminant that the point source discharge contributes. We think there is merit in that suggestion. The notified policy, and the amended version recommended by Officers, were both expressed in the present tense. That could be interpreted to require an inquiry as to the position as at date of application rather than (as we believe to be required) over the life of the consent. To avoid that possible interpretation, we recommend an amendment along the lines suggested by Mr Willis.
1373. The evidence of Mr Scrafton and Ms O'Callahan also suggests to us a need to give greater direction as to the way in which the relative proportions of contaminants in a particular discharge are considered. Essentially, there are two scenarios. The first is

where consideration of Table 3.11-1 indicates that water quality is high. In that instance, we consider that the focus should be on protecting that high water quality. The second scenario is one where water quality is not high. In that case, consideration of the relative contribution a particular discharge is making is important, because, in line with *Puke Coal* and our suggested amendment to renumbered Policy 12, the discharger needs to make a proportionate contribution to improvement in water quality. We have therefore recommended an additional sub policy (b).

1374. Officers recommended two changes to notified Policy 12(b). The first is to delete reference to “*technology*” upgrades. The second is to delete reference to modelling and monitoring of discharges. We agree with both suggestions. Upgrades might not necessarily be technological in nature. It is the result (i.e. reduction in contaminants) that matters. Similarly, the purpose of this policy is to give credit to those who have undertaken a process of continuous improvement in their discharges over the life of their consent.
1375. We had evidence from both Oji and Fonterra on this approach, but we do not expect that it will have been applied universally, and we do not wish to provide a perverse incentive for consent holders, once they have their consents, to do as little as possible over the life of the consent in order that they might claim the full credit of plant upgrades when they apply for a replacement consent. By contrast, modelling and monitoring are what we would expect of every consent applicant, and we do not consider the same ‘credit’ arises.
1376. The section 42A Report notes Fish and Game as having suggested that this particular provision belongs more properly in notified Policy 13. The Officers disagreed, as do we, and we note that Fish and Game did not pursue this particular point in their closing submissions.
1377. Turning to the next sub-policy, the Officers recommended two changes. The first is to substitute a test of appropriateness, not just enquire as to “*the ability*” to stage future mitigation. The second is to alter the description of the Table 3.11-1 values in accordance with other recommended changes. We agree with the first point. From a discharger’s perspective it will almost always have the ability to stage mitigation actions (and would likely prefer to do so if only to reduce or defer its compliance costs). What needs to be considered is whether that is appropriate in the circumstances. Similarly, for the same reasons as above, it is inappropriate to refer to water quality “*targets*”. That would suggest only a proportion of the Table 3.11-1 numerical values are relevant, which would not be appropriate.

1378. Having said that, as we have already noted, the Table 3.11-1 numerical water quality values are not consent limits in the sense that each individual discharger has to meet those values. In the context of a large number of diffuse discharges and a small number of point source discharges all contributing contaminants to the catchment, the most an individual discharger can do is to contribute to achievement of those values. Mr Willis made this point in his planning evidence for Fonterra and we agree with it. We have therefore recommended an amended version of what is now Policy 13(d).
1379. It also follows from the fact that not every consent holder will have made such reductions. Accordingly, we accept a submission of Hamilton City that, at least in this context, the sub-policy should apply "*where relevant*".
1380. Responding to a submission from the Iwi Co-Governors, the Officers recommend deletion of notified Policy 12(d) on the basis that it implies that application of the BPO is sufficient, whereas, in their view, it may not be enough to achieve the objectives of PC1. The planning witnesses for WARTA, Watercare and Fonterra all recommend that this sub-policy be retained, with different amendments. Mr Willis recommends an addition so that as well as referencing diminishing returns through the application of the BPO, the policy also requires consideration of the nature and extent of any effects of off-setting proposed by an applicant. It seems to us that with this addition, and subject to a point that we will come to in a moment, the sub-policy would overcome Officers' concern that the BPO may not be enough. The qualification is that not every treatment plant upgrade will involve diminishing returns, even when a high level of contaminant reduction is being achieved. The sub-policy should refer to "*potentially*" diminishing returns. With that amendment, and a consequential amendment to refer to compensation as well as off-setting, we consider there is value in this particular sub-policy.
1381. Hamilton City Council sought greater reference in this policy to the assimilative capacity of water bodies changing in response to seasonal climatic conditions and other natural processes. Officers expressed concern that while these might be factors to be considered in particular cases, it is inappropriate to shift the focus of the policy so as to imply there may be additional flexibility to rely on these factors rather than concentrating on the achievement of the relevant targets.
1382. In the Block 2 hearing, Mr Hall raised with us the likelihood that Watercare will centralise existing wastewater treatment sites, in order to achieve greater efficiencies. He described this as a general trend throughout the country and that, if applied in the Waikato region, it may require new discharges of treated wastewater at new

locations.³⁸⁹ Mr Scrafton accordingly suggested that this might be an additional element of Policy 12, to ensure that the combined effects are considered. While we think that this would likely occur as a matter of course, we agree that it is desirable that it does occur. For that reason, we recommend a new Policy 13(f).

1383. Mr Hall also gave evidence for Watercare discussing the relevance of seasonal variations in river conditions that have a material influence on water quality. He provided the specific instance of nutrient concentrations of a given level having a greater influence on algae growth in low flow summer conditions than in winter.³⁹⁰ While we consider the Officers have a point with the amendment Mr Scrafton suggested to address the issue, we think that with a little redrafting, the point Mr Hall was raising can be addressed. Specifically, as the Officers identified, the emphasis has to go on the influence of seasonal climatic conditions and other natural processes on the ability to achieve Objectives 1 and 2 of PC1. We recommend a new Policy 13(g) that seeks to achieve this.

1384. Mr Scrafton also recommended an additional sub-policy recognising “*the beneficial social, economic and environmental effects of the point source discharge*”. We are unclear what the reference to “*environmental benefits*” means. On the face of the matter, all benefits are “*environmental*” in one way or another. In addition, the normal phraseology in an RMA setting would refer to social, cultural and economic benefits. While we are not at all sure that a point source discharge of contaminants can have cultural benefits, we would not wish to assume that is the case in the absence of evidence from iwi stakeholders. On a related point, the suggested amendment assumes that there will be benefits. That is not necessarily the case either.

1385. In summary, we think there is merit in this policy specifically referencing the relevance of any social, cultural and economic benefits, and we recommend an amendment to this effect.

1386. Mr Scrafton suggested also specific recognition be added to the potential for changing land use to result in positive effects on water quality when compared to previous land uses. We do not think a specific reference along these lines is either necessary or useful. Having recommended that renumbered Policy 12 be broadened to include both offsetting and compensation measures, in our view, specific reference to land use change in this way would not further assist achievement of the relevant objectives. In

³⁸⁹ Mr Hall, Block 2 evidence in chief – section 3.

³⁹⁰ Mr Hall, Block 2 evidence in chief – paragraph 4.3.

brief, we consider that it merely provides an explicit example of one way in which such offsetting or compensation arrangements might be structured.

1387. We discussed above the request for Watercare that reference be made to reasonable mixing. We have indicated our reasons for rejecting the precise amendment sought. We think, however, that some reference can usefully be made to reasonable mixing within the sub-policies to attempt to meet the concern expressed on behalf of Watercare, WARTA and Hamilton City. Consistent with our interpretation of Te Ture Whaimana, such a policy cannot state that reasonable mixing is appropriate in all cases, but what we think it can and should say is that reasonable mixing may be appropriate on a transitional basis. We have recommended an amended Policy 13(i) to this effect.
1388. Lastly, we note the evidence of Mr Mayhew for WRC in its submitter capacity, seeking greater provision for discharges associated with its flood protection and land drainage schemes. He suggested two additional sub-policies; one referencing specifically whether a discharge is associated with a scheme developed in accordance with relevant legislation and the second related to whether it solely transports contaminants and the practical ability to reduce contaminants in the water column.
1389. We have already discussed the substantive issues Mr Mayhew raised in the context of renumbered Policy 12 (notified Policy 11) and recommended an amendment to that policy to give broader recognition to the underlying point being made for WRC. We consider the first sub-policy suggested by Mr Mayhew to be unnecessary. Whether a discharge is associated with a scheme developed under legislation is, to us, neither here nor there. What is important is the extent to which the Scheme does or does not contribute N, P, sediment or microbial pathogens; if it does, the extent to which it does; and the practicability of reducing that contaminant loading, particularly for existing structures. Reframed and generalised along these lines, we think that there is value to a new sub-policy which we have numbered 13(j).
1390. The final policy in the notified Chapter specifically directed at point source discharges is Policy 13. This relates to consent duration and is phrased as follows:

“Policy 13: Point sources consent duration/ Te Kaupapa Here 13: Te roa o te tukanga tonu whakaaetanga mō te pū tuwha:

When determining an appropriate duration for any consent granted consider the following matters:

- a. *A consent term exceeding 25 years, where the applicant demonstrates the approaches set out in Policies 11 and 12 will be met; and*
- b. *The magnitude and significance of the investment made or proposed to be made in contaminant reduction measures and any resultant improvements in the receiving water quality; and*
- c. *The need to provide appropriate certainty of investment where contaminant reduction measures are proposed (including investment in treatment plant upgrades or land based application technology)."*

1391. The Block 2 section 42A Report summarises the submissions on this policy in section C6.8.1. We adopt and rely on that summary.

1392. Much of the commentary in submissions focused on the specific reference to a 25-year (or greater) consent term. Some submitters felt that that set the bar too low, and a 25-year timeframe is too long. Other submitters felt that it artificially constrained consent terms below the statutory maximum of 35 years.

1393. Officers note that consideration of this policy occurs against the background of an existing policy in the WRP governing consent duration³⁹¹ worded as follows:

"When determining consent duration, there will be a presumption for the duration applied for unless an analysis of the case indicates that a different duration is more appropriate having had regard to case law, good practice guidelines, the potential environmental risks and any uncertainty in granting the consent."

1394. In their analysis of submissions, Officers agreed with submissions querying specific reference to 25 years as a starting point. They recommended that reference be to a "*longer consent duration*". Other recommended changes were:

- Make it clear that the policy relates to point source discharges;
- Clarify the relationship with the existing WRP policy quoted above;
- Shift the focus from Policies 11 and 12 to consistency with the Table 3.11-1 values.

1395. We agree that Policy 13 should be referenced to point source discharges. While the additional headings we have recommended for section 3.11.3 make that obvious, we think it should also be reflected in the body of the policy. It follows that we do not agree

³⁹¹ Policy 6, section 1.2.4.

with Dr Mitchell's suggestion (for Oji) that a common policy address the duration of all discharge consents. It seems to us that diffuse discharges are starting from a different point, and that there is a stronger case for limited consent duration in that situation than for point source discharges, all other things being equal.

1396. The recommendation that policy 13 apply in priority to the existing policy in the WRP comes from the Closing Planning Statement. It is described there³⁹² as a minor adjustment. At one level, that comment is correct. In the opening section of PC1, describing the ambit of the proposed chapter, it states that where there are any inconsistencies with other parts of the WRP, Chapter 3.11 prevails. On that basis, the suggested amendment merely clarifies what would be the position in any event. However, so far as we can identify, none of the parties who provided input by way of closing submissions suggested this change and it does tend to highlight the point.
1397. Existing Policy 6 requires consideration of, among other things, caselaw, good practice guidelines and potential environmental risks. All of these matters remain relevant to point source discharge consents in the context of PC1 in our view. Put another way, we are not at all sure that the specific matters identified in Policy 13 should prevail over the caselaw for instance. We consider it would be more appropriate to regard Policy 13 as identifying additional considerations that need to be borne in mind and we have recommended an amendment to Policy 13 to make it subject to Policy 12, so as to make that clear.
1398. We agree with the Officers that the existing cross reference to Policies 11 and 12 is framed incorrectly because the policies do not set out approaches that can be 'met'. The numbering also has to be changed consequential on earlier recommendations. We disagree that those policies are not a factor to finalisation of a consent term. In addition, if the cross reference to the policies is expressed more generally, this will mean it is unnecessary to refer specifically to the short-term numeric water quality attribute states in Table 3.11-1. Revising the cross reference to (renumbered) policies 12 and 13 in this way also addresses a number of submissions that sought to incorporate elements from those policies into this policy.
1399. For much the same reason as discussed in relation to notified Policy 12, we think that greater direction is required as to the position beyond the short term. We discussed with a number of planning witnesses how this might be framed and the recommendation in the Officers' Closing Planning Statement of a reference to a

³⁹² Officers' Closing Planning Statement – paragraph 87.

'straight-line' progression towards the 80-year values may have been derived from that line of inquiry. As above, we think that a true 'straight-line' is probably unrealistic and that what is required (as above) is a steady progression. We therefore recommend alternative words to capture that.

1400. On the substantive issue as to whether the policy should refer to any particular term, we agree with the Officers' suggestion that this is unnecessary and undesirable. Put simply, any particular specified term is a 'hostage to fortune' and particularly when viewed in conjunction with the existing WRP policy 6, it is sufficient, as Officers recommend, to speak in terms of a longer consent duration.
1401. Like the Officers, we characterised the Oji submission seeking a more stand-alone policy as consequential on its opposition to elements of notified Policies 11 and 12 that we have already addressed.
1402. We likewise agree with the Officers' reasoning rejecting DoC's suggestion of a common catchment expiry date.
1403. Mr Willis suggested that the second relevant matter be amended to refer to improvements in receiving water quality "*that have been made of [sic] will be achieved*". We think that that is already implicit in the existing wording given that it focuses both on the past and proposed investments in contaminant reduction measures, but we have recommended a minor amendment to clarify what is meant by "*receiving water quality*".
1404. We agree with the Officers' reasoning also in relation to submissions such as those of Hamilton City Council seeking a standalone provision for municipal discharges. While important to the community, consistent with our view (as above) that regionally significant infrastructure should be treated as on a par with regionally significant industry, we think that such discharges should be subject to the same tests as other point source discharges.
1405. As regards to the third element of the policy, we agree with the Officers' recommendation that the policy not refer to "*substantial*" contaminant reduction measures (as sought by Fish and Game), essentially for the reasons set out in the Section 42A Report.³⁹³ Having said that, we think that the sub-policy is expressed too strongly, referring to "*need*". Forest and Bird contended that achievement of water quality targets is more important than cost and certainty in this context. While we do not agree with the relief sought in Forest and Bird's submission, we think that the

³⁹³ At paragraph 1190.

underlying point might appropriately be addressed by referring to “*desirability*” rather than “*need*”.

1406. Our amended and renumbered Policy 14 reflects these various considerations.

Diffuse and Point Source Discharges

1407. The notified policies conclude with four policies that are common to both diffuse and point source discharges. The first is policy 14 which, as notified read:

“Policy 14: Lakes Freshwater Management Units/Te Kaupapa Here 14: Ngā Wae Whakahaere Wai Māori i ngā Roto

Restore and protect lakes by 2096 through the implementation of a tailored lake-by-lake approach, guided by Lake Catchment Plans prepared over the next ten years, which will include collecting and using data and information to support the management of activities in the Lakes Freshwater Management Units.”

1408. The only substantive submission noted in the Block 1 section 42A Report regarding Policy 14 is a common submission from a number of tangata whenua parties seeking wording which would require “*improving*” the management of “*land use*” activities within the lakes FMU. Officers recommend that submission be accepted.³⁹⁴

1409. We note that there were a number of other submissions on Policy 14. We counted 32 submissions seeking its retention.

1410. A number of submissions sought more immediate action (more immediate than 2096 in particular), in some cases including specific reference to koi carp.

1411. A further group of submissions sought that the policy direct maintenance, or where they had degraded, enhancement of lakes.

1412. Fish and Game also sought amendment to apply standards and targets appropriate to lakes.

1413. We agree with the Officers’ recommendation regarding the need for emphasis on improvement to the management of land use activities.

1414. As regards the submissions more generally, we have already discussed in the context of Table 3.11-1 the need for greater emphasis on lake management. In a policy setting, we note the evidence of Doctors Phillips and Stewart for DoC emphasising the

³⁹⁴ Block 1 section 42A Report – paragraph 650.

vulnerability of some peat lakes in particular, and the degraded nature of many of the riverine lakes. Accordingly, we have considerable sympathy with the submissions pressing the need for immediate action at least as regards riverine and peat lakes and we would likely have recommended short-term numerical limits and targets for those lakes had we had the information required to set and evaluate such provisions.

1415. The evidence was less persuasive as regards dune and volcanic lakes. As regards the former, water quality appears to be high. As discussed earlier, it appears that two at least of the volcanic lakes are geothermal in nature. That would suggest they are not correctly defined as “*lakes*” in terms of the RMA definition and Dr Phillips had little information about the other volcanic lakes.

1416. While we accept that koi carp are a definite problem in the Lower Waikato FMU generally, and in the riverine lakes in particular, that clearly needs to be addressed, WRC has limited scope to do so particularly through the RMA process. We will return to discuss koi carp in the context of implementation methods, which is where we consider the issue is best addressed.

1417. Consistent with our assessment of the evidence, we consider that this policy should be focused on restoration and protection of riverine and peat lakes. Because of the influence of external factors like koi carp,³⁹⁵ the policy needs to be qualified to recognise that implementation can only “*contribute*” to positive outcomes. However, we recommend specific reference be made to reduction of both diffuse and point source discharges of the four contaminants with which PC1 is concerned entering lake catchments consistent with achievement of the long-term numerical water quality values in Table 3.11-1. Most of the existing policy, as amended to respond to the tangata whenua submissions can then operate as a second limb to the policy.

1418. Our recommended and renumbered Policy 15 shows how we propose this be expressed in order to appropriately respond to the submissions on Policy 14.

1419. As notified in Variation 1, Policy 15 read as follows:

“Policy 15: Whangamarino Wetland/ Whangamarino Wetland/Te Kaupapa Here 15: Ngā Repo o Whangamarino

³⁹⁵ In some cases, hydrological factors outside the scope of PC1 might also be playing a part. Mr Stark told us, for instance, that the deterioration in the water quality of Lake Waikare dates back to it being lowered in the 1960s for flood protection purposes.

Protect and make progress towards restoration of Whangamarino Wetland by reducing the discharge of nitrogen, phosphorus, sediment and microbial pathogens in the sub-catchments that flow into the wetland to:

- a. Reduce and minimise further loss of the bog ecosystem; and*
- b. Provide increasing availability of mahinga kai; and*
- c. Support implementation of any catchment plan prepared in future by Waikato Regional Council that covers Whangamarino Wetland.”*

1420. The Block 3 section 42A Report summarises the 45 submissions on Policy 15 at section C4.4.3.1. We adopt and rely on that summary.

1421. As noted in the Officers' report, a number of submissions seek a more holistic approach to impacts on the health and wellbeing of Whangamarino, together with greater emphasis on its restoration.

1422. DoC was one of a number of submitters seeking to tighten the policy direction in relation to the bog ecosystem. Fish and Game submitted that specific short-term and long-term targets for restoration should be included. Other submissions sought to narrow the focus to the wetland itself and not the sub-catchments which flow into it.

1423. While initially recommending no amendment to the policy, in their Closing Planning Statement, Officers recommended:

- Including reference to point source contributions;
- Substituting reference to minimising further loss of the bog ecosystem;
- Being more definite about implementation of future catchment plans and adding reference to supporting, researching and testing of restoration, tools and options;
- Committing to protection of the significant values and ecosystem health of the wetland system;
- Introducing recognition of pest fish, weed and hydrological impacts on the wetland.

1424. We heard detailed technical evidence from Dr Robertson for DoC on the existing state of Whangamarino Wetland, its international importance and steps that in his view, were required to restore and protect it. That evidence was largely uncontradicted.

1425. We have already discussed Dr Robertson's evidence in the context of identifying appropriate numerical water quality values for inclusion in Table 3.11-1.

1426. At a policy level, we commence our discussion by noting that while it would be desirable to take an integrated holistic approach to management of Whangamarino Wetland, we are constrained by the scope of PC1. For the same reasons as in relation to lakes, WRC has limited ability in the RMA space to set a clear course towards eradication of koi carp and other pest fish. We have also already addressed in section 4 of our report above the fact that management of water quantity generally and hydrological impacts on wetlands in particular, are outside the scope of PC1.
1427. We agree with the Officers' recommendation that point source discharges of the four contaminants the subject of PC1 should at least be referenced in this context. However, the very fact that we do not have control over all of the relevant levers suggests, in our view, that the wetland will not and cannot be restored and protected by those matters that we can control through the objectives, policies and rules of PC1. Accordingly, in our view, the policy needs to speak in terms of the contribution that management can make to such restoration and protection, rather than ensuring that outcome.
1428. We agree with the Officers that the source of contaminants should not be limited to those within the wetland system. Control needs to be exercised over the catchments flowing into the system.
1429. Consequent on our recommendation that numeric water quality values and attribute states should be defined for the wetland in Table 3.11-1, that should be cross-referenced.
1430. For the same reasons as above, we consider that the suggested provision related to protection of significant values and ecosystem health of the wetland system must be qualified. The most the levers available under PC1 can do is to assist that protection.
1431. Likewise, given Dr Robertson's evidence about the importance of hydrological drivers to loss of bog habitat, the most Policy 15 can do is to minimise that loss.
1432. While we regard those hydrological drivers as out of scope, for the reasons Dr Robertson identifies, it is important that they form the background to implementation of Policy 15. We therefore suggest a reframing of the cross-reference to hydrological factors to express that more clearly.
1433. Our recommended version of renumbered Policy 16 to capture these various considerations is as shown in our recommended revised version of PC1 appended to our report. *[See Waikato Regional Council Policy Series 2020/02 DOC#15708291]*

1434. Before leaving now Policy 16 we record that some of the submissions on it suggested that all wetlands be included in a schedule with appropriate criteria. Officers advised³⁹⁶ that the process of identifying wetland values, as required by the NPS-FM, is occurring through the WRP review. They recommended that these particular submissions be rejected.
1435. We regard the absence of policy direction regarding wetlands other than Whangamarino as unsatisfactory, particularly given the amendments to objectives we have recommended to incorporate reference to wetlands. We agree with the Officers that under the NPS-FM, identification of wetland values (like the values of any other water body) need to be identified in a community process.
1436. Even if we were minded to do so, we do not have the evidence to identify all other wetlands, much less their individual values. Accordingly, we do not recommend accepting the relief sought in the Lawson and Hamilton submissions on this point. We do, however, recommend acceptance of these submissions in part via a more general policy directing maintenance and where wetlands are degraded, improving their values in relation to the effects of the four contaminants the subject of PC1. As with Whangamarino, this will not ensure their restoration and protection, but it will contribute to it. Our recommended Policy 17, capturing these principles is in our revised PC1 appended to this report. [See Waikato Regional Council Policy Series 2020/02 DOC#15708291]
1437. Notified Policy 16 read as follows:

“Policy 16: Flexibility for development of land returned under Te Tiriti o Waitangi Settlements and multiple owned Māori land/Te Kaupapa Here 16: Te hangore o te tukangā mō te whakawhanaketanga o ngā whenua e whakahokia ai i raro i ngā whakataunga kokoraho o Te Tiriti o Waitangi me ngā whenua Māori kei raro i te mana whakahaere o te takitini

For the purposes of considering land use change applications under Rule 3.11.5.7, land use change that enables the development of tangata whenua ancestral lands should be managed in a way that recognises and provides for :

- a. The relationship of tangata whenua with their ancestral lands; and*
- b. The exercise of kaitiakitanga; and*
- c. The creation of positive, economic, social and cultural benefits for tangata whenua now and into the future;*

³⁹⁶ Block 3 section 42A Report – paragraph 517.

Taking into account:

- i. Best management practice actions for nitrogen, phosphorus, sediment and microbial pathogens for the proposed new type of land use; and*
- ii. The suitability of the land for development into the proposed new type of land use, reflecting the principles for future allocation as contained in Policy 7, including the risk of contaminant discharge from that land and the sensitivity of the receiving waterbody; and*
- iii. The short-term targets to be achieved in Objective 3.”*

1438. The submissions on this policy are summarised in section C5 of the Block 2 section 42A Report. Many submissions are expressed on the basis of general principles that apply to a number of PC1 provisions. The Officers characterise such submissions as saying, in summary, “*everyone should be treated the same*”.

1439. As Officers note, it is difficult to consider submissions on the policy without understanding the concept of “*tangata whenua ancestral lands*” which is defined in PC1 to mean:

“... land that has been returned through settlement processes between the Crown and tangata whenua of the catchment or is, as at the date of notification (22 October 2016), Māori freehold land under the jurisdiction of the Te Ture Whenua Maori Act 1993.”

1440. The Officers note a submission by Hauraki iwi seeking that the definition be amended in two respects: first to delete “*of the catchment*”, and second to specifically include general land within the concept of Māori freehold land.

1441. Officers recommend the first but not the second amendment be accepted. We agree with the Officers’ recommendation in both respects. We were initially troubled as to whether the reference to land being “*returned*” might inadvertently exclude the freehold land owned by Wairarapa Moana Inc given our understanding that that incorporation represented members of a Wairarapa iwi granted Waikato land as part of a Treaty settlement, but Mr Hemi from Wairarapa Moana was able to appear in the Block 3 hearing and advise us that the Incorporation’s land fell within the second limb of the definition (Māori Freehold Land under Te Ture Whenua Māori Act 1993).

1442. Be that as it may, we do not consider that restrictions should be placed around which Treaty Settlement land might be included.

1443. As the Officers identify, the second amendment sought by Hauraki iwi is more problematic. It would have been helpful to have evidence from the iwi because on its face, the suggested amendment is a contradiction in terms. Section 129(1) of Te Ture Whenua Māori Act defines Māori Freehold Land as separate and distinct from General Land owned by Māori. Hence, on the face of the matter, to say “*Māori Freehold Land (including General Land)*”, as Hauraki’s submission sought, makes no sense in terms of Te Ture Whenua Māori Act.
1444. Assuming we treat the submission as seeking amendment to refer to Māori Freehold Land and General Land under the jurisdiction of Te Ture Whenua Māori Act, that would raise the issues of principle that in our view rightly concerned the Officers.³⁹⁷
1445. In summary, we recommend that the definition of “*tangata whenua ancestral lands*” be amended as recommended by the Officers.
1446. Addressing the more general submissions on Policy 16, we agree with the Officers that the Lake Taupō Variation 5 related to Lake Taupō catchment provides a clear precedent for a policy recognising the relationship of iwi with their ancestral lands. We note that the relevant policy in Chapter 3.10 of the WRP makes that recognition subject to there being no long-term adverse effect on the water quality of Lake Taupō. This supports the view we have set out in our discussion of notified Objective 5 that recognition of the relationship river iwi have with the Waikato and Waipā Rivers is necessarily subject to Te Ture Whaimana, and that this needs to be stated expressly. At least in that respect, we agree with the submitters that everyone should be treated the same.
1447. The Officers identified the need to make consequential amendments to the second half of the policy reflecting their recommendations for amendments to notified Policy 7, in particular the deletion of principles for future allocation. It seems to us that if Policy 16(c) is amended as we propose, to introduce the need for any benefits to tangata whenua to be undertaken in a way that gives effect to Te Ture Whaimana, then the need for the second half of the policy has largely if not completely gone. That also has the benefit of overcoming the problems associated with referencing “*best management practice*” when what that requires is not at all clear to us. We are also unclear as to why the policy would reference the short-term numeric water quality values in Table 3.11-1 (via notified Objective 3), but not the long-term goals.

³⁹⁷ Block 2 section 42A Report – paragraph 953.

1448. In summary, our recommended renumbered Policy 18 capturing all of these considerations is as shown in our recommended revised version of PC1 appended to our report. [See Waikato Regional Council Policy Series 2020/02 DOC#15708291]

1449. The final policy, as notified, was framed as follows:

*“Policy 17: Considering the wider context of the Vision and Strategy/Te Kaupapa Here
17: Te whakaaro ake ki te horopaki whānui o Te Ture Whaimana*

When applying policies and methods in Chapter 3.11, seek opportunities to advance those matters in the Vision and Strategy and the values for the Waikato and Waipā Rivers that fall outside the scope of Chapter 3.11, but could be considered secondary benefits of methods carried out under this Chapter, including, but not limited to:

- a. Opportunities to enhance biodiversity, wetland values and the functioning of ecosystems; and*
- b. Opportunities to enhance access and recreational values associated with the rivers.”*

1450. Officers summarised the 78 submissions on Policy 17 in section C4.5.1 of the Block 3 section 42A Report. We adopt and rely on that summary.

1451. We agree with the Officers’ recommendation that submissions requesting reference to Te Ture Whaimana be deleted not be accepted. As we have recorded repeatedly, Te Ture Whaimana is the primary direction-setting document for the management of the Waikato and Waipā Rivers. It cannot be ignored.

1452. Officers recommend further that submissions seeking to narrow policy 17 be rejected. We agree with the Officers’ reasoning,³⁹⁸ but only to a point. There is an inherent contradiction in terms in the notified policy 17, insofar as it suggests that PC1 can advance matters falling outside its scope. We do not think that the policy was intended to mean that. However, we consider that the words “secondary” are ambiguous in this context. What we think would probably have been intended was that the policy was seeking to acknowledge that management of N, P, sediment and microbial pathogens would have collateral benefits that would advance the implementation of Te Ture Whaimana. As the Officers observe, however, the word “secondary” can be read to imply that those other matters are both different and of lesser concern. To the extent

³⁹⁸ As stated in the Block 3 section 42A Report – paragraph 537.

Policy 17 may be interpreted to imply a focus on matters that are out of scope, it should be clarified. Some might see that as narrowing its ambit.

1453. The Officers recommend that cross reference to the values of the Waikato and Waipā Rivers be deleted, consequential on their recommended deletion from PC1. We agree, for the same reasons.
1454. Officers also recommend specific reference be inserted to the four contaminants the subject of PC1. We agree that that also is a helpful clarification, although we think that it would be better expressed if put in similar language to our suggested revisions of renumbered Policies 11-13.
1455. In addition, rather than a general reference to the matters in Te Ture Whaimana relating to water quality outcomes, we recommend that the focus be on the objectives of Te Ture Whaimana for the Waikato and Waipā Rivers, since they are the means by which the document identifies that the “*Vision*” will be achieved.
1456. The only other amendment (other than consequential renumbering to Policy 19) we recommend is to delete the reference to wetland values since we have suggested that be addressed in a separate policy.
1457. We do not recommend replacing Policy 17 with a policy suggesting that nothing need be done by landowners to reduce sedimentation, microbial pathogens and improved water clarity until pest fish are eradicated from waterways, as suggested in the submission of Federated Farmers.
1458. We understand the frustration of farmers, observing on the ground the adverse effects that the proliferation of koi carp, in particular, have had on the Lower Waikato Catchment. A number of those farmers appeared and provided vivid descriptions of that to us. Some provided photographs showing the stark contrast in clarity and stream health between streams to which koi carp had access and streams that they did not have access to.³⁹⁹ Messrs Robinson and Macnab who appeared for Lochiel Farmlands Limited provided us with evidence of 34.5kg of koi carp caught in a 400 metre section of the Opuatia Stream, which is another illustration of just how prevalent these pests are, and consequently how much of a problem they pose to the water quality objectives of PC1.

³⁹⁹ See the presentation in the Block 2 hearing by Mr Cameron for PLUG.

1459. Dr Daniel, however, observed when presenting his block 2 evidence for Fish and Game that the proliferation of koi carp is linked to rising trends in nutrient concentrations. The evidence of Dr Phillips⁴⁰⁰ satisfied us that eradication of koi carp, even if it were possible, is not a silver bullet. Concerted action is required on all fronts to achieve the objectives of PC1.

Additional Policies

1460. We have already addressed, in passing, a number of submissions seeking inclusion of additional policies in PC1. Officers suggested a new policy related to cross boundary contaminant movement in WRC's closing planning statement. If accepted, this would read:

"Impose additional limitations and controls on diffuse and point-source discharges where contaminants are likely to move out of the Waikato and Waipā River Catchments and could affect other freshwater bodies, to enable the outcomes of other relevant freshwater management frameworks to be met."

1461. The closing planning statement explained⁴⁰¹ that a recent Environment Court decision on Bay of Plenty Regional Plan Change 10 had highlighted a cross boundary issue, that the two regional councils had entered into a memorandum of understanding about management of the issue, and that the new policy was recommended to enable its better management. It was suggested that WRC's own corporate submission provided jurisdiction to do so. Officers acknowledged that the matter had not been raised in evidence by any party.

1462. We have a number of concerns with this suggested new policy. The first is its jurisdictional base. The Officers did not refer us to exactly where in WRC's submission(s) this particular issue was addressed, but they appear to be relying on WRC's submission on Variation 1 (point 8) where the issue identified is one where properties straddle the boundary between areas included as part of PC1 and those not included as part of PC1. In the discussion of the issue, the submission notes that the PC1 boundary generally follows natural catchment boundaries. The boundary with BOPRC is noted as a "*minor*" exception. The concern sought to be addressed is that landowners will be subject to different regulatory requirements in respect of different parts of their property. The relief sought is to amend the description of the area covered

⁴⁰⁰ Dr Phillips, Block 1 evidence in chief paragraph 114; see also the Block 1 evidence in chief of Mr Klee and the Block 2 evidence of Dr Daniel to similar effect.

⁴⁰¹ Officers' Closing Planning Statement – paragraph 79.

by Chapter 3.11. It is suggested that “*alternatives to the current boundary approach should be considered, which avoid the implementation issues that currently arise where properties straddle the Waikato River Catchment Boundary*”: The submission does not seek insertion of a new policy, and it does not even appear targeted at the issue the Officers have now raised.

1463. We have not identified any other part of WRC’s submissions on PC1 that would provide jurisdiction for a new policy, along the lines suggested.
1464. Against a background of dubious jurisdiction (being generous), the fact that this has been raised for the first time in the Council’s Closing Planning Statement, that is to say at a point when no other party has the ability to make comment, also raises in our view, legitimate natural justice issues. We considered giving the parties the opportunity to comment on the suggested Policy 14A, but that would not solve the problem of landowners within the affected area who are not parties to the PC1 process and who would have had no inkling from the summary of submissions that a policy of this kind was a potential outcome.
1465. Last, but not least, the suggested policy does not seem to properly address the issue identified by the Environment Court. The Court has observed⁴⁰² that an area within the Waikato Region is within the groundwater catchment of Lake Rotorua. That area, which is identified in a map attached to the Court’s decision, is accordingly not subject to the rules contained in Bay of Plenty Plan Change 10, the detail of which, the Court is in the process of resolving.
1466. The suggested policy is not accompanied by suggested amended rules that would implement the additional limitations and controls the policy envisages. Nor, realistically could they be, given that the Environment Court has yet to rule on what exactly such rules would say.
1467. We had no evidence about the content of those rules at present or the potential ways they might be amended in response to the appeals currently before the Environment Court. We do not, therefore, know whether the requirements of Plan Change 10 can be accommodated within the rule framework which we have recommended. Nor do we have any evidence about the nature of the land uses within the area affected by this cross-boundary issue; whether, for instance, any of them might be permitted activities under the rule structure we are recommending.

⁴⁰² *Federated Farmers of New Zealand Inc v Bay of Plenty Regional Council* [2019] NZEnvC 136 at [76].

1468. Given the unsatisfactory jurisdictional base for a new policy together with the natural justice implications of introducing it at such a late stage in the hearing process, we recommend that WRC reflect on what is required to appropriately address this cross boundary issue. On the face of the matter, we would suggest that a variation to PC1 is required. Among other things, such a variation would insert a map of the relevant area within PC1 to which a specific package of policies and rules apply (paralleling those of Plan Change 10). Given the current state of progress in resolution of the Plan Change 10 appeals, it may be that the sensible course is to await final resolution of those appeals before promulgating such a variation.
1469. Ms Jordan, giving evidence for Beef and Lamb, suggested a new general policy 1A that would reference freshwater objectives, load limits and targets in Table 3.11-1 to freshwater ecological health and processes, primary contact recreation and the values in section 3.11-1, and confirm management of both point source and diffuse discharges with reference to Table 3.11-1. We do not recommend the suggested policy. The first part of the suggested policy does not align with the objectives we have recommended.
1470. We have already discussed the fact that diffuse discharges cannot currently be directly referenced to instream water quality values and other policies already do that for point source discharges.
1471. The closing legal submissions for DoC suggest an additional policy related to protection of indigenous fish habitat, worded as follows:
- “To contribute towards achieving ecosystem health, ensure the protection of spawning habitats of inanga and other large-bodied galaxiids from the adverse effects of land use activities and stock access.”*
1472. This policy reflects a general submission by DoC that additional policies and rules are required to protect inanga spawning habitat. Ms McArthur gave evidence providing the technical basis for such a policy.
1473. From Ms McArthur’s description of inanga spawning habitat, it appears to us that this is not something directly related to diffuse discharge of N, P, sediment and microbial pathogens, but rather that protection of inanga spawning habitat might be a collateral benefit from steps taken to manage those four contaminants. As such, we consider that the point is already addressed by notified Policy 17/revised Policy 19. We discuss the issue of inanga spawning habitat further in the context of the rules around stock assess to rivers and streams.

1474. Dr Mitchell suggested a new policy on behalf of Oji, that would “*encourage and facilitate innovation, alternative mechanisms and methods that will result in reductions of discharges of nitrogen, phosphorus, sediment and microbial pathogens*”.
1475. While we consider that there is merit in the concept underlying this policy, we think that if it has a role, it is in the implementation methods of the Plan rather than as a regulatory policy.
1476. DoC submitted that various water bodies be considered as ‘outstanding’. We have already discussed the Whangamarino Wetland and have recommended an amendment to (now) Objective 5 to recognise its status.
1477. The other water bodies the subject of DoC’s submission were:
- (a) Waikato River mouth and delta;
 - (b) Waitomo Caves and River;
 - (c) Lake Rotokotuku⁴⁰³;
 - (d) Waikato Peat Lakes.
1478. Ms Kissick addressed this point in her Block 1 evidence, providing background information and maps of the extent of each water body. Ms McArthur also provided commentary on the process of identifying outstanding water bodies.
1479. The NPS-FM directs protection of significant values of outstanding water bodies.⁴⁰⁴ Method 8.2.1 of the WRPS directs their identification “*through a value setting process*”. While Ms Kissick provided us with information on the values of different water bodies, whose recognition DoC sought, we do not consider the “*process*” the WRPS had envisaged has occurred, at least as regards the water bodies other than Whangamarino Wetland.
1480. We also note that Appendix 8B of the WRPS identifies freshwater bodies to be included in the identification of outstanding water bodies. The Waikato River mouth and delta, Waitomo Caves and River, and Lake Rotokotuku are not identified. Likewise, only two of the Waikato Peat Lakes (Serpentine and Maratoto) are identified. On the other hand, Appendix 8B identifies a number of other water bodies not the subject of DoC’s submission. We also note that the mapped area of Waikato River mouth and delta Ms

⁴⁰³ Lake Rotokotuku is a relatively small peat lake located south-east of Te Kuiti.
⁴⁰⁴ Objective A2(a).

Kissick produced appears to sit entirely outside the area of PC1 (and within the coastal marine area).

1481. In short, with the exception of Whangamarino Wetland, which we regard as something of a 'no-brainer' and about which we had comprehensive evidence from Dr Robertson to assist identification of its values, we do not consider we are in a position to implement the WRPS in this respect. It remains something that will need to be taken forward as part of the WRP review.
1482. Even if we had come to a contrary conclusion, it was unclear to us how DoC saw identification of outstanding water bodies as impacting on the content of PC1. As far as we can see, DoC's marked up plan change provided with its closing submissions makes no reference to it, either directly, or by way of policies (or other provisions) that might be seen to respond to the classification sought.
1483. However, we consider that the policies we have recommended will facilitate protection of the values of any outstanding water bodies in relation to the contaminants addressed by PC1, pending their formal identification as such.
1484. The other area where we considered that new policies might be required was in relation to groundwater quality. The focus of PC1 appears principally on surface water quality. We asked WRC to provide us with information regarding groundwater quality trends and Dr Hadfield's memorandum dated 26 March 2019 reveals both areas of concerning groundwater quality (where nitrate N concentrations are elevated, some exceeding the drinking water standard) and substantial areas where there appears to be little information.⁴⁰⁵
1485. We asked some of the parties whether groundwater was something of a 'hole' in PC1. Ms Holmes, giving evidence for HortNZ agreed that it was a possible issue and there was potential for a new policy to address it.⁴⁰⁶ Dr Somerville QC, appearing for WPL, likewise agreed that groundwater was a 'hole' in the plan, but commented that how it might be addressed was not straightforward. Dr Somerville's comment rather captured the problem we face. We think that this is a hole in PC1. However, in the absence of planning and technical evidence as to how it should be addressed (to say nothing of submissions that might provide a clear jurisdiction for doing so), we consider that all

⁴⁰⁵ We also note that in Mr Williamson's Block 2 evidence for WPL, Volume 3 of his modelling report attached (Appendix E), he graphed TN responses in groundwater to dairy conversion on the Wairakei Estate that in some cases (assuming nitrate makes up most of measured TN) would approach if not exceed the drinking water MAV.

⁴⁰⁶ Mr McCallum-Clark made a similar comment to us.

we can do at the present moment is to highlight it to Council and recommend that it be addressed by way of variation.

1486. Having reviewed each policy individually, and collectively in the light of the submissions we have received, we have concluded for the reasons set out above that our recommended policies are the most appropriate way to achieve the recommended objectives.

1487. While we have not canvassed every submission on the policies in this section of our report, our recommendations as to whether those submissions should variously be accepted, accepted in part or rejected are reflected in the amendments we have recommended (or not recommended) in our revised version of PC1.

10. IMPLEMENTATION METHODS

1488. Section C4.2 of the Block 3 section 42A Report contained a review of submissions on the implementation methods of PC1, with a recommendation to delete them. We adopt and rely on those summaries.
1489. PC1, as notified, included twelve “implementation methods”, which the section 42A report recommended deleting. The section 42A Block 3 Report clearly sets out an analysis and summary of submissions received⁴⁰⁷ and notes that Officers question the value of these methods and whether they will remain relevant and helpful through the 10-year plus life of the plan change.⁴⁰⁸ The overall view of most submitters was that the methods could be deleted, but that if any were to be retained, they required amendment.
1490. Ms Kydd-Smith’s view, for instance, was that including implementation methods that simply reflect what is already covered in the objectives, policies and rules (e.g. notified method 3.11.4.3), and methods that re-iterate Council’s statutory requirements or functions (e.g. notified method 3.11.4.6), are unnecessary and relatively meaningless.⁴⁰⁹ She considered notified implementation methods 3.11.4.2, 3.11.4.6, 3.11.4.9 and 3.11.4.11 (and potentially 3.11.4.1) should be deleted, as they are ‘business as usual’, and that the remaining methods should be retained, with some amendments.⁴¹⁰
1491. Officers noted that a number of submitters oppose the methods in general, due to the lack of certainty the methods provide, the inability for the methods to support the objectives and policies of PC1, and the general ineffectiveness of the methods without objectives, policies and rules to back them up.⁴¹¹ As Dr Mitchell noted, several of those methods reflect what should be regarded as “best practice” for policy development and / or implementation, such as working with stakeholders (notified method 3.11.4.1), working with others to develop sub-catchment plans (notified method 3.11.4.5), providing resources and leadership (notified method 3.11.4.6), and gathering information and supporting research (notified methods 3.11.4.7 and 3.11.4.12) and are arguably superfluous in a Regional Plan context.⁴¹² Dr Mitchell therefore agreed with the Officers that the methods in PC1 should be deleted entirely.

⁴⁰⁷ S42A Block 3 Report, paragraphs. 83-101.

⁴⁰⁸ S42A Block 3 Report, paragraph 333.

⁴⁰⁹ Ms Kydd-Smith, Block 3 evidence in chief, paragraph 49.

⁴¹⁰ Ms Kydd-Smith, Block 3 rebuttal evidence, paragraph 28.

⁴¹¹ S42A Block 3 Report, paragraph 322.

⁴¹² Dr Mitchell, Block 3 evidence in chief, paragraph 3.2.

1492. We generally agree with those views. Summarising the end result, we recommend deletion of the following notified methods:

- 3.11.4.1 (Working with others);
- 3.11.4.2 (Certified Industry Scheme);
- 3.11.4.3 (Farm Environment Plan);
- 3.11.4.6 (Funding and implementation);
- 3.11.4.7 (Information needs to support any future allocation);
- 3.11.4.8 (Reviewing Chapter 3.11 and developing an allocation framework for the next Regional Plan);
- 3.11.4.9 (Managing the effects of urban development).

1493. In terms of notified methods 3.11.4.1 and 3.11.4.6 in particular, we consider working with stakeholders, coordinating priorities, funding and physical works, promoting awareness and providing education, to assist in giving effect to Te Ture Whaimana, should form part of WRC's everyday functions.

1494. We emphasise that while these are not matters that need to be addressed in PC1 specifically, they certainly should not be ignored or overlooked by WRC. They must be addressed by Council through its ongoing operational planning. As Dr Mitchell highlighted in his evidence for Oji, there is clearly a need for good stakeholder engagement, collection and reporting of information relevant to managing and reducing diffuse source discharges of nitrogen and phosphorus, development of guidelines and preparation for management of future diffuse source discharges throughout the life of PC1.⁴¹³

1495. We have recommended the deletion of notified method 3.11.4.2 as it is now superfluous given we have a policy and schedule that addresses certification of Sector Schemes. As the Officers observe,⁴¹⁴ notified method 3.11.4.9 is also 'business as usual' for WRC. It also raises much wider issues than those addressed by PC1.

1496. We have recommended deletion of notified method 3.11.4.3 to reflect our approach to FEPs and with objective, policy and rules now providing for these, this method is superfluous.

1497. We heard varied and contrasting views in relation to notified method 3.11.4.7 (Information needs to support any future allocation) particularly as it related to policy

⁴¹³ Dr. Mitchell, Block 3 evidence in chief, paragraph 3.3.

⁴¹⁴ S42A Block 3 Report, paragraph 411.

7. Fish and Game sought that either policy 7 remain, along with notified methods 3.11.4.7 and 3.11.4.8 or that the content of policy 7 be incorporated into those methods,⁴¹⁵ while Ms Hardy (for Miraka) proposed rewording based on information collection and monitoring for future policy development with deletion of notified method (a) in 3.11.4.7.⁴¹⁶
1498. Ms Kydd-Smith expressed a similar view⁴¹⁷ to that of Ms Marr (for Fish and Game). In relation to Ms Marr's recommendation that notified methods 3.11.4.7 and 3.11.4.8 be retained and combined, she suggested that if the Panel were minded to delete policy 7, the combined methods should also be amended to include the principles set out under policy 7 that should be considered for any future allocation regime.⁴¹⁸
1499. As noted in our discussion above in section 9 of our report, we have amended (now) Policy 10 to focus on collecting information to prepare for a future management regime, incorporating relevant aspects of notified methods 3.11.4.7 and 3.11.4.8, and have deleted those aspects seeking to anticipate what form that regime should take. Those implementation methods are therefore no longer required.
1500. More generally, Ms Hardy considered that the methods provide an important tangible commitment to assist practice change to achieve the desired improvements in farming practice.⁴¹⁹ Both Ms Hardy (for Miraka) and Ms Young (for DairyNZ)⁴²⁰ addressed the benefit of notified method 3.1.4.10 for example, in supporting plan users in tracking implementation of PC1. We accept Ms Hardy's evidence that, *"there is considerable value in ensuring comprehensive and publicly available monitoring and auditing data on progress being achieved through PC1 and actions being undertaken by the regional farming community."*⁴²¹
1501. Ms Kydd-Smith was of the view that methods enable a plan to identify other ways to meet the plan's objectives and policies and helpfully complete the wider 'picture' of everything (both regulatory and non- regulatory) that is proposed to be done.⁴²² She noted Mr Eccles and Ms Crowcroft shared her opinion that some of the methods

⁴¹⁵ Fish and Game Closing submissions, paragraph 12 referring to the evidence of Ms Marr, Block 3 evidence in chief paragraphs 5.4-5.9.

⁴¹⁶ Ms Hardy, Block 3 rebuttal evidence, paragraphs 5.2-5.3.

⁴¹⁷ Ms Kydd-Smith, Block 3, rebuttal evidence, paragraph 11.

⁴¹⁸ Ms Kydd-Smith, Block 3, rebuttal evidence, paragraph 16.

⁴¹⁹ Ms Hardy, Block 3 rebuttal evidence, paragraph 4.1.

⁴²⁰ Ms Young, Block 3 evidence in chief, paragraphs 19-21.

⁴²¹ Ms Hardy, Block 3 rebuttal evidence, paragraph 4.3.

⁴²² Ms Kydd-Smith, Block 3 rebuttal evidence, paragraph 28.

recommended by the Officers to be deleted are matters that they considered are critical to the successful implementation of PC1.⁴²³

1502. We agree that some of the implementation methods fulfil a useful role. In summary, we recommend retention of the following notified methods:

- 3.11.4.4 (Lakes and Whangamarino Wetland);
- 3.11.4.5 (Sub-catchment scale planning);
- 3.11.4.10 (Accounting system and monitoring);
- 3.11.4.11 (Monitoring and evaluation of the implementation of Chapter 3.11)
- 3.11.4.12 (Support research and dissemination of best practice guidelines to reduce diffuse discharges).

1503. We have placed more policy and rule emphasis on Whangamarino Wetland and Lakes and Wetlands generally. We therefore consider it is important to retain notified method 3.11.4.4 (Lakes and Whangamarino Wetland), now renumbered 3.11.3.1. We have however made amendments by deleting the process set out to prepare and implement Lake Catchment Plans, thereby accepting the submission of the Iwi Co-Governors among others, that this be deleted because it pre-determines the process and outcome. Given the provisions we have added to the Plan Change to specifically address wetlands and lakes we do not agree the additional method requested by DoC, 3.11.4.4a(Benchmarking of wetland current state), is necessary.

1504. In terms of notified method 3.11.4.5 (Sub-catchment scale planning), we have recommended Policy 9 encouraging collective and collaborative action where that action would 'better enable' the outcomes sought by PC1 to improve water quality in their sub-catchment and we consider this method supports the implementation of that policy. Much of the evidence we heard from sub-catchment/collective groups supported retention of this method. However, we have recommended that this method be amended to reference the desirability of water quality data being collected at a local level to supplement the results collected via WRC's monitoring network for the reasons discussed in section 2 of our report, related to the State of the Awa.

1505. Monitoring and evaluation were key issues raised by submitters and we have determined to retain notified method 3.11.4.10 (Accounting system and monitoring) and a modified version of notified method 3.11.4.11 (Monitoring and evaluation of the implementation of Chapter 3.11), renumbered 3.11.3.3 and 4 respectively. We note

⁴²³ Ms Kydd-Smith, Block 3 rebuttal evidence, paragraph 25.

that we have, to an extent addressed the issue of monitoring in Section 8 – Table 3.11.1.

1506. While there is an element of ‘business as usual’ to these methods, we agree with Dr Mitchell that WRC has an obligation to monitor (and therefore to fund monitoring and enforcement processes including for permitted activities) activities permitted under the PC1 rules. We also accept the evidence of Ms Kydd-Smith that there is still value in retaining the method if it refers to the Council establishing and operating a publicly available freshwater accounting system that accounts for the diffuse discharges of the four contaminants at the property scale.⁴²⁴
1507. To that extent, we have also determined to retain notified method 3.11.4.12 (Support research and dissemination of best practice guidelines to reduce diffuse discharges) which has more focused and relevant priorities for budgeting purposes, renumbered 3.11.3.5. We agree with Ms Kydd-Smith’s view as to the importance of Regional Council working with industry, Central Government and other regional councils to develop and disseminate good farm practice guidelines for landowners in the Waikato and Waipā River catchments.⁴²⁵
1508. We heard extensive submissions and evidence primarily from individual farmers and community collectives regarding the impact of koi carp and Canada geese on waterways within the Catchment. We have discussed some of that evidence in earlier sections of our report, highlighting that WRC has a limited role in their management, because pest animals are controlled under the Biosecurity Act 1993.
1509. The Waikato Regional Pest Management Plan 2014 – 2024 (WRPMP) is promulgated under the Biosecurity Act and identifies koi carp as a pest fish and environmental threat. The WRPMP notes that koi carp are also unwanted organisms and noxious fish under the Freshwater Fisheries Act 1983 and the Freshwater Fisheries Regulations 1983 respectively, and that the primary responsibility for koi carp lies with DoC.⁴²⁶
1510. The WRPMP does not identify Canada Geese as a “*pest species*” but as a new “*advisory animal*” and as such, there is no requirement for the landowner to control infestations of them and no expectation on council to fund control programmes, the

⁴²⁴ Ms Kydd-Smith, Block 3 evidence in chief, paragraph 51(h).

⁴²⁵ Ms Kydd-Smith, Block 3 evidence in chief, paragraph 51(j).

⁴²⁶ Waikato Regional Pest Management Plan 2014 – 2024 (WRPMP), page 198.

objective being to raise awareness of their impacts and to encourage community-led control initiatives where relevant.⁴²⁷

1511. The WRPMP records that as Fish and Game no longer manage geese as a hunting resource, population levels are not being actively controlled and numbers are increasing in some areas of the Waikato, causing problems for landowners.⁴²⁸ Mr Klee confirmed to us in the Block 1 hearing that Fish and Game have no statutory mandate (or budget) to control Canada geese and that numbers are increasing. While WRC do not expect to carry out any large-scale control of geese, the WRPMP does allow the Council to work collaboratively with landowners, hunters and other agencies to control them in certain circumstances.⁴²⁹
1512. Considered a production and environmental threat,⁴³⁰ Canada geese further exacerbate production impacts by fouling paddocks with large aggregations of the birds likely to cause negative effects, feeding from bottom sediments and also directly on aquatic plants with defecation from large numbers becoming a threat to aquatic values and adding to *E. coli*/pathogens in the waterways.
1513. Against that background, we recommend a new implementation method numbered 3.11.3.6 to encourage a coordinated approach to the management and control of pest species and to control, as far as practicable, advisory animals with a particular emphasis on Koi Carp and Canada Geese in the context of Chapter 3.11.
1514. The Block 3 section 42A report refers to new methods that submissions seek to include such as method 3.11.4.13 - Decision support system. We have provided guidance on the use of “decision-support tools” in Schedule B of PC1 and we do not consider an additional implementation method is required.
1515. With the support of Fish and Game, DoC also proposed a new method, 3.11.4x Initiate allocation of diffuse discharges. We note our findings and earlier comments regarding allocation and therefore do not accept the proposal.
1516. In summary, having considered our recommended Implementation Methods individually and collectively, for the reasons set out above, we consider those provisions are the most appropriate option to achieve the objectives.

⁴²⁷ WRPMP, pp. 12 & 19.

⁴²⁸ WRPMP, p. 12.

⁴²⁹ WRPMP, p. 12.

⁴³⁰ WRPMP, pp. 34, 35, 186.

1517. While we have not canvassed every submission on the Implementation Methods in this section of our report, our recommendations as to whether those submissions should variously be accepted, accepted in part or rejected are reflected in the amendments we have recommended (or not recommended) in our revised version of PC1.

11. RULES

Overview - General Approach to the Rules:

1518. Sections C1 - C4 of the Block 2 section 42A Report and sections C1 and C3 of the Block 3 section 42A Report contain a comprehensive review of submissions on the rules of PC1 - including cultivation and setback slopes, Certified Sector Schemes, stock exclusion, CVP and FEPs, with detailed recommendations. We adopt and rely on those summaries. In this section of the report, we address submissions on the rules generally, and then in more detail as we address the specific rules. We note that we have recommended substantial changes to the rules, and have therefore focused on those rules, rather than those in the notified plan change.

1519. A substantial and wide-ranging amount of evidence was presented relating to farming and CVP activities in all three hearing blocks. This evidence ranged from submitters who considered that PC1 should essentially be withdrawn,⁴³¹ through to those who considered it needed considerable strengthening and change to “do more, sooner”.⁴³² These issues were traversed in detail in the three section 42A Reports, particularly Blocks 2 and 3, as well as in the legal submissions and evidence presented to the Panel.

1520. While this section of the report addresses the rules, it needs to be read in association with the other sections of this report, including section 5 addressing “*Major Policy Issues*”, section 7 addressing the Objectives and section 9 addressing the Policies. Section 5 in particular has addressed a number of fundamental and/or significant changes to the notified plan change which significantly impact on the rule framework. These are discussed further below.

Overall Rule Framework

1521. A summary of the rule framework is:

- Permitted Activity rule 3.11.4.1 – Small and Very Low Intensity farming, subject to conditions, with no FEP required;

⁴³¹ Such as F4PC (Mr Burke) Block 1 hearings evidence, paragraph 74 to 83 - but changed that position during the hearings to one of needing to provide appropriate provisions to give effect to Te Ture Whaimana, while at the same time enabling farming “*that fits the land*”.

⁴³² Ms Marr, Block 1 evidence in chief, paragraph 119, Ms Kissick, Block 1 evidence in chief, paragraph 232 to 247, Dr Mitchell, Block 1 evidence in chief paragraph 7.1 to 7.7.

- Interim Permitted Activity rule 3.11.4.2 – Farming prior to obtaining consent rule, to enable the required resource consent applications to be staged over a five-year period as set out in Table 3.11-3;
- Permitted Activity rule 3.11.4.3 – Low Intensity farming (including horticulture), subject to conditions, for farming with a low Nitrogen Leaching Loss Rate as set out in Table 1 in Schedule B and for drystock farming operating at less than 18 stock units per hectare. An FEP is required that shows how any actions and mitigations will achieve the minimum standards set out in Schedule D1. The FEP is not required to be certified by a Certified Farm Environment Planner;
- Controlled Activity rule 3.11.4.4 – Medium Intensity Farming, subject to conditions, for farming with a Moderate Nitrogen Leaching Loss Rate as set out in Table 1 in Schedule B, and drystock farming operating at greater than 18 stock units per hectare, where not located in sub-catchments of the Whangamarino Wetland Catchment. It specifically addresses farming activities that potentially affect the peat and riverine lake FMUs. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner;
- Controlled Activity rule 3.11.4.5 – Existing Commercial Vegetable Production (CVP), subject to conditions. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner;
- Restricted Discretionary Activity rule 3.11.4.6 – Farming in the Whangamarino Wetland Catchment as shown on Map 3.11-3. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner;
- Discretionary Activity rule 3.11.4.7 – Farming in a Collective, High Intensity Farming (high Nitrogen Leaching Loss Rate as set out in Table 1 in Schedule B), and Farming not otherwise authorised, subject to conditions. It requires an FEP to be:
 - a. prepared in accordance with Schedule D2; and
 - b. approved by a Certified Farm Environment Planner;

- Discretionary Activity rule 3.11.4.8 – Commercial Vegetable Production: Expansion within certain specified sub-catchments shown in Table 1: Sub-catchments with CVP growth areas; and
- Non-Complying Activity rule 3.11.4.9 – Land Use Change and CVP that does not meet the conditions in rule 3.11.4.8.

Small and Very Low Intensity Farming - Permitted Activity

1522. The Panel has recommended the retention of this rule, numbered 3.11.4.1 but has made some substantial changes to it in response to a range of evidence we heard, particularly from drystock farming, equine, deer and goat sectors, as well as horticultural growers.

1523. In respect of the low intensity/small scale pastoral farming, the Panel was persuaded by the evidence of a number of drystock farmers and Mr Palmer for WRC (as proponent of PC1) that a stocking rate of 12 SU per hectare, along with the other specified conditions, would result in farming with no more than minor adverse effects.

1524. Mr Palmer's evidence considered the use of a stock unit proxy for nitrogen leaching for potential use in Plan Change 1. He stated:⁴³³

"A strong relationship exists between stocking rate and predicted nitrogen leaching (as modelled in Overseer v6.3.0) for dry-stock farms that do not stock dairy cattle. This relationship may be able to be considered as a proxy instead of using OverseerFM for some aspects of implementation where appropriate."

1525. In questioning him, as well as a number of the drystock farmers, and adopting a precautionary approach (one of the objectives of Te Ture Whaimana), we have also determined that a permitted activity of 12 SU or less, combined with the other specified conditions, including stock exclusion, is appropriate on a section 32 basis. It will most likely result in less than 15 kg N/ha/yr nitrogen loss rate and will enable a range of low intensity/small scale pastoral farming activities that generate low levels of containments to be permitted.

1526. If the farming activity cannot meet one or more of the standards, it may still be a permitted activity under Rule 3.11.4.2, or 3.11.4.3 depending on the situation. Otherwise it would 'default', in the first instance, to controlled activity status under rule 3.11.4.4.

⁴³³ Mr Palmer, Block 2 evidence in chief, Paragraph 50.

Equine

1527. The equine industry supported the Officers' Block 2 recommended permitted rule (rule 3.11.5.2) in that it allowed for the raising, training or housing of horses as a permitted activity. However, they opposed the recommended rule:

"The property area is greater than 20 hectares and either:.....

*The **only** farming activity occurring on the property is the raising, training or housing of horses; or..... "*

1528. The concern was whether "*other stock classes*" were allowed within the reference to "*the only farming activity allowed*". We were told that on equine properties it was common practice to use sheep or cattle within the equine operation known as "cross grazing" primarily to clean up pastures and manage the worm burden.
1529. In response to this, the Officers recommended an amended rule to require that horses be the predominant animals on the farm - the rule being 75% of the stock units on the property for most of the year are horses. The Panel agrees and accepts that there should be an allowance for other classes of stock to be permitted.
1530. Concern was also expressed regarding conditions which provide "*No feedlots or sacrifice paddocks are used on the property*" on the basis that there was no definition of these. The evidence we heard was that the racing training establishments are generally under 20ha and are intensive systems where horses will spend most if not all of their time stabled or in yards that are often sand based unless they are being exercised. It was suggested that such establishments could well fit a definition of feedlot, even if it were unintended.
1531. Feedlots or sacrifice paddocks are excluded as part of the permitted rule conditions. However, it is our view that the definitions of Feedlots and Sacrifice Paddocks do not apply to stabling or horse yards.

Low Intensity Horticulture

1532. HortNZ and PVGA raised issues in relation to fruit production and other low intensity horticulture, and suggested permitted activity status was appropriate.⁴³⁴ We note that the Officers (in the Closing Planning Statement) agreed that horticulture not being permitted was an unintended consequence of the Officers' Section 42A report rule

⁴³⁴ Mr Hodgson, Block 3 evidence in chief, Paragraphs 86 to 89.

regime. In response, Officers recommended that low intensity horticulture be a permitted activity, with an associated definition - which in the main provided for fruit productions, with other low intensity crops.

1533. In the Officers' closing version of the plan provisions, they recommended a definition that would state that low intensity horticulture means the production of apples, avocados, babacos, berry crops, casanas, cherimoyas, citrus, feijoas, figs, guavas, kiwifruit, kiwiberries, loquats, passionfruit, pears, persimmons, quinces, sapotes, summerfruit (including apricots, cherries, nectarines, peaches, and plums), and tamarillos, tree leaf crops (including tea); and any hybrids of these crops. We note that due to the structuring of the recommended rule framework, we have not included a definition of Low Intensity Horticulture. Rather, we have provided a definition of CVP, and have included as part of that "for the avoidance of doubt" what is not Commercial Vegetable Production (i.e. those crops otherwise considered as small and very low intensity farming).

1534. HortNZ largely agreed with the substance of the Officers' recommendation, as above, but sought that asparagus, legumes grown in arable or pasture rotations and crops grown under cover be either classed as low intensity horticulture, or excluded by definition. We address these matters below.

1535. Ms Sands stated in her Block 3 Evidence that:⁴³⁵

"As outlined in the Block 2 evidence of Andrew Barber, we consider a range of horticultural crops can be considered low intensity for water quality. These crops contribute little or no E. coli, are not subject to frequent cultivation so have lesser sediment risks, and have relatively low leaching risks.

The risk of leaching is also more easily managed for perennial crops such as fruit trees and asparagus, where the fertiliser needs of the crop, (the available nitrogen in soils and the fertiliser need) can be more readily matched."

1536. In this context Ms Sands sought that asparagus be categorised as low intensity. Several submitters (including HortNZ and PVGA) had suggested the deletion of asparagus from the definition, as it is understood asparagus:

⁴³⁵ Ms Sands, Block 3 evidence in chief, Paragraphs 73 ad 74.

1537. Is a non-rotational vegetable, which means it is not subject to the same degree of cultivation as other rotational vegetables. Cultivation is a primary contributor to N leaching from vegetables;

- Tends to be grown on flat reasonably free draining land meaning the risk of soil loss (and therefore P and sediment loss) is lower; and
- Is not grazed, so there is no faecal pathogen source associated with growing asparagus.

1538. In the Block 3 section 42A Report, Officers record that they had been unable to find information about typical N leaching rates from asparagus crops. They suggested that if this was able to be provided, and demonstrated that asparagus is more akin to a drystock farming operation, it may be reasonable to delete asparagus from the definition and CVP management regime.

1539. In response, Ms Sands attached to her evidence a recently published Plant and Food report which calculated N balances from a survey of asparagus growers in the Waikato. It found, using a simple N surplus, that the average surplus was 11.4kg/ha, which in Ms Sands' view, meant asparagus would better meet the definition of low intensity horticulture than the definition of CVP. The Panel agrees and has removed asparagus from the definition of CVP.

Legume crops

1540. HortNZ also sought that legume crops such as peas and beans also be included as low intensity horticulture; that is - not CVP. Ms Sands⁴³⁶ advised that in New Zealand these crops are usually grown for processing in arable rotations, and given they fix N, are associated with low fertiliser use. She also pointed out that there is currently no processor based in the Waikato and process vegetables are unlikely to be grown in the Region during the life of the Plan, but if they were, these crops would be low intensity. Again, the Panel agrees.

Growing under cover

1541. HortNZ, and others (e.g. Gourmet Mokai Ltd) sought that a definition of low intensity horticulture should include any crops grown under cover or such crops should be excluded from CVP and included in low intensity horticulture. This raised the question; what does "*under cover*" mean?

⁴³⁶ Ms Sands, Block 3 hearings, evidence in chief, Paragraph 77.

1542. In the Block 3 section 42A report⁴³⁷, Officers agreed that the definition of CVP (and low intensity horticulture) should exclude produce grown in "glasshouses" as soil, if used at all, was generally highly modified and these systems are not subject to typical rainfall and nutrient losses.

1543. In response to this the Officers recommended that the definition of Farming be modified as follows:

“Farming: *For the purposes of Chapter 3.11, the grazing of animals or the growing of produce, including grass, crops, commercial vegetable production and orchard produce but not does not include:*

- a. planted production forest; or*
- b. the growing of crops on land irrigated by consented municipal wastewater discharges; or*
- c. production or growing of produce undertaken entirely within a building; or*
- d. production or growing of produce for consumption by the occupier of the property or their family.”*

1544. The Panel is unclear what a "building" is in the context of the definition. However, the Panel accepts that crops grown in a building that has a floor or platform such that the produce is not grown directly in the soil should be exempt. The Panel has recommended an amendment to the suggested Officers' definition accordingly. We note that we have also recommended that the word "*consented*" be deleted from (b) of this definition, to address a concern that it would become circular, when read in the context of a municipal wastewater discharge consent application.

Standards related to stock exclusion on (steep) slopes, the use of sacrifice paddocks and winter forage crop grazing

1545. One of the conditions to qualify as a permitted activity under this rule is: "*Farming is undertaken in conformance with the minimum farming standards in Schedule C*". This, among other things, requires stock exclusion from waterbodies in specified circumstances and restrictions on the use of sacrifice paddocks and winter forage crop grazing. We address the provisions of Schedule C in more detail below. However, it is important to set out here (for the purpose of understanding this rule) the issues

⁴³⁷ C1.8.3 - paragraph 118.

relating to stock exclusion and slope. This was a major issue of contention with the farmers, and in particular drystock farmers, who under the notified PC1 would have been required to exclude stock (generally fencing) from all waterbodies (as defined in Schedule C), irrespective of farm topography and the nature of the waterbodies on the property, and from slopes over 15 degrees.

1546. The Panel received considerable evidence from many submitters that a more nuanced approach was required to stock exclusion from waterways, especially on steeper land (there was a general consensus that this was land greater than 15 degrees slope). We have addressed this matter in more detail elsewhere in this report. However, having taken all of the evidence into account the Officers' final recommendation was:

Schedule C – Minimum Farming Standards

Stock exclusion/Te Āpitiwhanga C – Te aukatinga o ngā kararehe

Notwithstanding any other requirements of this Plan, and except as provided by Exclusions I. and II. and III, cattle, horses, deer and pigs must be excluded from the water bodies listed in 6.

1. The water bodies on land:

- a. with a slope of up to 15 degrees; or*
- b. with a slope over 15 degrees where the stocking rate in any paddock adjoining a water body exceeds 18 stock units*

must be fenced to exclude cattle, horses, deer and pigs, unless those animals are prevented from entering the bed of the water body by a stock proof natural or constructed barrier formed by topography or vegetation.

1547. We agree in principle that this is an appropriate standard; and means that those farmers running fewer than 18 stock units in paddocks adjoining a waterbody on land over 15 degrees, will not need to fence those waterbodies. From our understanding of the evidence and presentations given at the hearings, mostly from the drystock farming sector but also the WRC, this 'standard' should address the concerns of many of the drystock farmers. We discuss issues with the detailed drafting of this condition in our review of Schedule C below.

1548. In addition to the standard set out above, standards have also been included in Schedule 3 relating to the use of sacrifice paddocks and the grazing of winter forage

crops. These include retaining a 10 metre un-grazed vegetated buffer adjacent to any waterbody where an area is to be utilised for winter forage crop grazing or as a sacrifice paddock; and that no cattle older than 2 years or greater than 400kg lwt are grazed on forage crops on LUC class 6e, 7 or 8 land from 1 June to 1 September.

1549. As above, notified Rule 3.11.5.1 had a standard precluding cultivation or grazing on slopes over 15 degrees. We heard from many Hill Country farmers whose farms are substantially or principally over 15 degrees. They told us that a general exclusion of grazing on slopes greater than 15 degrees would put them out of business.
1550. Those farmers accepted the need to manage hill country erosion, but they said they did that by retiring the steepest slopes and limiting winter grazing to sheep and young cattle.
1551. It seemed to us that the concerns we heard were partly the result of miscommunication, meaning that farmers did not appreciate that failure to meet a permitted activity condition/standard does not mean the activity is prohibited, but rather than a consent application must be made. Even so, we wondered about the efficiency (from a section 32 perspective) of requiring virtually every Hill Country drystock farmer to apply for a resource consent because they grazed their land.
1552. The general standard inserted into Schedule C related to grazing forage crops addresses the greatest risk to erosion-prone land. We also recommend an additional restriction on grazing of heavier stock on land over 25 degrees to ensure that effects of the activities authorised by Rule 3.11.4.1 are minor.
1553. We are satisfied that these standards are appropriate, ensuring that farming can continue efficiently with little if any adverse effects, and will assist in achieving the objectives of PC1 and ultimately Te Ture Whaimana.
1554. We also note that due to these standards, and other rules, definitions of the terms Slope (noting the evidence of a number of parties including WRC about needing to determine how slope was to be calculated given the rules that specify a slope measurement), Annual Stocking Rate, Winter Stocking Rate, Grazed Hectares,⁴³⁸ Sacrifice Paddock and Winter Forage Crop have been provided in the Glossary of Terms.

⁴³⁸ The definition of "Grazed Hectares", among other things, recognises those farmers who have already retired land by stating that the term "*includes, for a period of 10 years from the date the land is retired, any land previously used for grazing that has been retired from all farming or forestry activities.*" Some parties suggested that stocking rates should be assessed across the whole property. We regard that option as having too great a potential for unacceptable adverse effects if a material proportion of the

Interim Permitted Activity rule

1555. An interim permitted activity rule (3.11.4.2) has been included to enable activities to be permitted until the other rules in Chapter 3.11 apply. Given the requirements (conditions and consent requirements) of the other rules, it is not possible that they take effect immediately the plan change is operative. The 'staging' of rules, and therefore the need for the interim permitted rule will give time for the farming and horticulture community, as well as the Council, to 'gear up' to meet their obligations under PC1.
1556. The Officers set out an adjusted rule framework in their Closing Planning Statement, to include, among other things, an interim permitted activity rule to stage the required resource consents over an eight-year period with approximately 700 being required each year. This was set out in their Appendix B - Alternative Table 3.11-2 Ranking, and provided priority ranking 1 - 8, being 1 to 8 years.
1557. The Panel's finding is that eight years is too long for all farming activities to be brought within PC1 provisions, especially given we have accepted the evidence (as addressed earlier in this report) that reductions of diffuse runoff of contaminants in the first ten years will be critical. We have provided an alternative table (3.11-3) providing for a five-year interim period.
1558. WPL expressed concern that this rule would prevent farmers securing resource consents that would enable meaningful practice change. WPL submitted that applicants should be encouraged to apply for resource consent under these provisions from "2016 onwards" in order to "maximise compliance and regulatory efficiency". WPL proposed amendments to PC1 to provide for this.⁴³⁹
1559. The proposed rules, as recommended by the Panel, provide for farming as a permitted activity on an interim basis – until specified dates, after which time resource consent will be required if that activity cannot meet either PA rule 3.11.1-Small and Very Low Intensity Farming, or PA 3.11.4.3 - Low Intensity Farming. This is, in part, to address the 'administrative' issues created by bringing several thousand farms into a consenting regime.
1560. While the Panel agrees that enabling applicants to lodge their required consent applications "ahead of time" might maximise regulatory efficiency (subject to how you

property is utilised for non-grazing activities (e.g. in woodlots). We therefore prefer a modified version of the definition suggested by Officers in their Closing Planning Statement.

⁴³⁹ WPL Legal submissions, Block 1, 5 March 2019, Appendix 1, paragraph 1.10 (page 88).

define that term), in our view, this is not precluded by the wording of the rules we have recommended. That is:

- There is nothing in the drafting of the rules that prevents an applicant applying for resource consent in advance, if it chose to. Nor is there anything in the scheme of the RMA (section 87A, 104, 104A and the 4th Schedule) that precludes this; and
- Such a resource consent could be granted subject to a condition that the consent only commenced after the date on which the requirement for consent in that particular sub-catchment “came into force”.⁴⁴⁰ As recommended, the focus of applications under the Rules is on the assessment of an FEP, setting out how farming activities are to be undertaken and what measures will be put in place to manage and control discharges of sediment, N, P and microbial pathogens. An applicant preparing and putting forward such an application “*ahead of time*” is agreeing, from dates specified in the Rule, to manage its farming activities in accordance with the FEP approved by the Council. In our view, there is nothing inherent in the matters for assessment that means resource consent cannot be applied for “ahead of time”, if an applicant chose to do so⁴⁴¹.

1561. We also note that the amendment WPL sought would have significant adverse implications for the administration of PC1 from other perspectives, that we discuss further later in this section.

1562. However, for the avoidance of doubt, the rules are not intended to prevent any person from applying for a resource consent (including land use changes) at any time, including before the date specified in Chapter 3.11 for when resource consents are required.

Low Intensity Farming - Permitted Activity

1563. The Panel has recommended that part of the rule framework/consent triggers be based on specified nitrogen leaching loss rates. This is set out in Table 1 in Schedule B. The basis and reasons for this has been set out in the section 5 of this report titled Major Policy Issues. As discussed above in section 9 of this report, we have recommended

⁴⁴⁰ Section 116(1) expressly anticipates resource consents commencing when they are free of appeals “*unless the resource consent states a later date*”.

⁴⁴¹ Noting that such an application may create issues in terms of accurately assessing effects on the environment.

an alternative cap for drystock farming based on a winter stocking rate of 18 stock units per hectare.

1564. The Panel finds that farming at this low leaching loss rate or alternatively at a winter stocking rate less than or equal to 18 stock units per hectare, along with conditions attached to the permitted rule that include an FEP⁴⁴² will have a relatively low risk of more than minor discharges of the four contaminants, based on the evidence of the farming sector (such as Beef and Lamb, Fonterra, Federated Farmers, Miraka, as well as most of the drystock farmers who appeared before the Panel).
1565. We also record that a number of farmers, such as Mr Leigh (representing himself as well as the Upper Maire Sub-Catchment Group) said and/or demonstrated that they were able to prepare their own FEPs. It was their view that they should be able to prepare their own FEPs, and not to incur the expense of other professionals (including a CFEP) unless they chose to engage professionals.
1566. Given the 'lower risk' of contaminant discharges from these farming activities, we have determined that they can be prepared and 'certified' by the farmer (or the person who has prepared the FEP), rather than requiring certification by a CFEP. We consider that any residual risk is appropriately addressed by the review requirements in Schedule D1, which we discuss further below and by the requirement that for farmers relying on establishing that their nitrogen leaching loss rate is Low, have that determined by a CFNA.
1567. The issue of a 'standards' based FEP raised the question of whether a FEP was required at all. We considered whether the PA rule could simply include, or cross-reference to, the minimum standards in the same way that most PA rules contain standards that must be met, and the farmer obliged to meet them. The proposed review process could remain in place; i.e. at 12 months and at specified intervals thereafter, with every farmer required to have an independent review that assesses whether farming is occurring consistently with the standards, with that report going to the WRC, but no FEP required.
1568. We acknowledge that relying on a set of standards would be consistent with the 'standard' model of a PA rule. However, as set out earlier, the majority of submitters who appeared before the Panel accepted that FEPs were a good management tool; with many committing to doing them. It is our view that an FEP, as opposed to a set of

⁴⁴² The basis of a PA FEP is set out in the section of this report titled Farm Environment Plans.

standards, is more appropriate as it requires those who are farming to focus on the whole farming operation in terms of PC1 outcomes, and recording this in a plan would assist with this. In this context, we consider that the FEP will 'encourage' and 'drive' better farm practices, and further reduce diffuse discharges. This is consistent with the outcomes sought by PC1.

1569. This rule, which applies to low intensity farms (as defined in the rule), is also likely to incentivise farmers to farm at this scale, so as to be permitted. It will also go some way to reduce the 'consenting burden' from both the farming community and the Council. The review process of FEPs under this rule will ensure that good farming practice is maintained and/or improved, so that the farming activity remains as a permitted activity.

Medium Intensity Farming- Controlled Activity (not located in the Whangamarino sub-catchment)

1570. The Panel has recommended that farming with a Moderate nitrogen leaching loss rate (as set out in Table 1 in Schedule B) or greater than 18 stock units, not located in a Whangamarino sub-catchment, is a controlled activity. It is subject to conditions, including a requirement for a certified FEP.

1571. This rule most closely aligns to that recommended in the Officers' closing statement and marked-up set of provisions. Officers had 'shifted' their position, having considered all of the evidence provided over the three hearings blocks, to recommend that most farming activities, with an FEP, be a controlled activity. The reasons for this were set out in the Closing Legal Statement⁴⁴³ and the Closing Planning Statement, which we accept in relation to this rule.

1572. The Panel acknowledges the legal submissions from DoC, Fish and Game and Forest and Bird, and extensive expert evidence presented on the values of lakes by the witnesses for DoC and Fish and Game. We note that Mr Klee for Fish and Game and Dr Phillips for DoC, provided evidence on the deficiency of PC1 in providing for the Region's lakes. Ms Ongley, legal counsel for Fish and Game, relying on Mr Klee's evidence, submitted that PC1 was deficient, because it set:⁴⁴⁴

"Unambitious 80-year attribute states for lakes, and does not set short, or even medium, term states. Fish & Game supports the Director-General's relief seeking

⁴⁴³ Council's Closing Legal Statement at section 5.

⁴⁴⁴ Fish and Game Legal Submissions - Block 1, paragraph 80.

faster and more integrated management for lake catchments, and short and medium term desired attribute states for lakes.”

1573. The Panel has recommended additional controls in relation to the effects of farming activities (diffuse discharges) on the peat and riverine lake FMUs. The Panel considered that the values of the lakes had not been sufficiently addressed in PC1 as notified, or as recommended by the Officers, and that the suite of controls to be applied over the PC1 catchment were unlikely to result in the changes needed to restore, over time, and protect the degraded nature of the lakes.
1574. We have addressed this in part with the additional policy provision discussed in section 9 of this report.
1575. The way the rules are constructed means that aside from small scale and low intensity farming (permitted activities), most farming within a lakes FMU is regulated as a controlled activity under Rule 3.11.4.4 - Medium Intensity Farming, or as a discretionary activity. We have, however, included among the “matters of control” in Rule 3.11.4.4 the effects on lake water quality. As part of the consideration of any consent application within a peat or riverine lake FMU, the Council will need to ensure that this matter is addressed.
1576. The outstanding status of Whangamarino Wetland means, in our view, that it requires a different activity status, and therefore needs its own rule. We discuss that below.

Existing Commercial Vegetable Production - Controlled Activity

1577. A number of growers, largely represented by HortNZ and PVGA, sought a more permissive activity status and a specific inclusion of an allowance for growth in CVP in some parts of the catchment⁴⁴⁵ than had been notified and/or recommended by the Officers. The justification for this was a wider community benefit from increased availability of affordable fresh fruit and vegetables, population growth,⁴⁴⁶ that growers were being 'forced' out of their traditional growing area (Pukekohe) due to urban development; and that they had been restricted by regional plans in other Regions. These matters, combined with having specific soil and climatic condition requirements, meant there were few areas to which they could expand.

⁴⁴⁵ Mr Hodgson –Block 3 evidence in chief, paragraphs 50 to 75.

⁴⁴⁶ Ms Sands –Block 3 evidence in chief, paragraph 71.

1578. HortNZ and PVGA sought, in addition to providing for existing CVP, the expansion of CVP into certain identified sub-catchments.⁴⁴⁷ The corporate, technical and expert evidence for this approach was largely provided by HortNZ, while the actual challenges and practice of CVP were addressed by PVGA and some of its individual members.
1579. In summary, the HortNZ evidence was based around the ‘themes of Healthy water’, soil health and healthy people. In this context Ms Sands stated:⁴⁴⁸
- “The approach we have proposed seeks the same water quality outcome as PC1. We also provide for soil health through crop rotation and human health through provision of vegetables.”*
1580. In the Block 3 Section 42A Report Officers briefly discussed this issue addressed in the paragraph above, but did not support that approach.⁴⁴⁹
1581. We have discussed already the policy issues this raises in section 9 of our report and we address it further below.
1582. The notified version of PC1 (rule 3.11.5.5) specified existing CVP as a controlled activity, but the Officers at Block 3 (and in the closing version of the plan change provisions) recommended that it be changed to a Restricted Discretionary Activity.
1583. We are not clear what submissions Officers have relied on, or on what basis they have come to a rule recommendation of Restricted Discretionary Activity. Notwithstanding, we agree with the evidence of HortNZ that controlled activity status is appropriate for existing CVP. This was the evidence of Mr Hodgson and was supported by the evidence of the other experts for HortNZ.
1584. In our view, the matters of control and standards/conditions for the Rule including the ‘NZGAP’ FEP set out in the evidence of HortNZ witnesses (especially Dr Farrelly) and as demonstrated by the PVGA, will ensure that an appropriate assessment can be made in relation to existing CVP. It will, at the same time, enable crop rotation which is critically important to the CVP sector.
1585. The Panel notes and accepts HortNZ evidence (in particular Mr Ford) about the shortcomings of Overseer generally, but particularly in relation to CVP, and that other DST’s such as APSIM are likely to be more appropriate for CVP. As set out in the section 5 of this report titled Major Policy Issues we have addressed our

⁴⁴⁷ Those not ‘over-allocated’ in terms of Nitrogen.

⁴⁴⁸ Ms Sands, Block 3 evidence in chief, paragraph 15.

⁴⁴⁹ Section 42A Block 3 Report section C1. paragraphs 96 to 99.

recommendations in relation to DSTs; enabling the use of models other than Overseer where they have been certified by an appropriate expert as 'fit for purpose'.

1586. Overall, for the reasons set out in the HortNZ and PVGA evidence, and against the background of the Panel's recommended objectives and policies along with the conditions and standards that will apply, we find in section 32AA terms that providing for existing CVP as a controlled activity is more efficient and effective than requiring consent on a restricted discretionary activity basis.

Farming in the Whangamarino Wetland Catchment - Restricted Discretionary Activity

1587. The Panel has recommended specific provisions in relation to the effects of farming activities (including diffuse discharges) on the Whangamarino Wetland. As set out earlier, the Panel considered that the values of the wetlands, (and Whangamarino in particular) had not been sufficiently addressed in PC1 as notified or as recommended by the Officers.

1588. With respect to wetlands, within the PC1 area, there are approximately 16,000 ha of identified wetlands, the majority falling into the Lower Waikato FMU.⁴⁵⁰ Ms Ongley told us in her legal submissions that:⁴⁵¹

*"The Plan does not meet higher level planning direction in relation to wetlands. For the Whangamarino, which is an outstanding water body, there is insufficient confidence (or analysis) that actions in the catchments will achieve what is necessary for the Whangamarino."*⁴⁵²

1589. As has been addressed in the context of recommended Objective 5, we accept and have identified the Whangamarino wetland as an outstanding waterbody. To assist achievement of that objective (and to implement Policy 16), we have provided a specific rule (3.11.4.6) making farming and related diffuse discharges a Restricted Discretionary Activity in the Whangamarino wetland catchment. As discussed in section 8 of this report, we have not identified it as a separate FMU (as requested by DoC). However, we have provided a map showing the Whangamarino wetland and the specific sub-catchments or parts of sub-catchments that apply to this rule.

1590. The matters of discretion specified in the rule relate to the higher order provisions we have recommended (and addressed in sections 7 and 9 of this report relating to the

⁴⁵⁰ Mr Klee, Block 1 evidence in chief, paragraph 5.3.

⁴⁵¹ Fish and Game Legal Submissions - Block 1, paragraph 67.

⁴⁵² Similar positions and evidence to that provided by Fish and Game were advanced by DoC. We address that evidence elsewhere.

objectives and policies respectively) - which address the values of the Whangamarino wetland (including Lake Waikare), and the effect of diffuse discharges to them.

Farming in a Collective, High Intensity Farming, and Farming not otherwise Authorised - Discretionary Activity

Collectives

1591. The Panel heard extensive evidence from a number of sub catchment groups collectives, as well as witnesses for other submitters (e.g. WPL) about the benefits of groups of people working together/collaborating/pooling resources to produce better water quality and ecosystem outcomes. In summary, those submitters suggested that the sum of the parts would result in a better overall outcome than the parts themselves.
1592. We have separately addressed the evidence and our findings in relation to sub-catchment group collectives in section 5 of this report. That section has addressed the proposition put by a number of submitters (including WPL's planner Mr Connell-McKay) that there should be a specific 'consenting pathway' for sub-catchment groups/collectives if they choose to apply for any necessary consents. The Panel agrees.
1593. The Panel has recommended a Discretionary Activity rule for sub-catchment group collectives within the same sub-catchment. The rule is required due to the potential issues that may arise with any collective consent. These include, but are not limited to:
- Who is the applicant (an entity or a representative) - as it is that person/entity who will be the consent holder and needs to have clear accountabilities and administrative responsibility for the consent, as well demonstrating compliance with the consent;
 - The ability to fully assess and determine if the mitigation actions to reduce diffuse runoff across multiple properties is effective and will meet any consent conditions;
 - To ensure if mitigation actions to reduce diffuse runoff (eg a constructed wetland or the retirement of land) is located on one property, but for the benefit of the entire collective, that there is an appropriate (legal) mechanism to ensure that mitigation is on-going for the life of any consent; and

- Procedures for specifying how part surrenders of any consent are to be managed (e.g. if one of the property owners wishes to withdraw from the collective (and collective consent)).

High Intensity farms

1594. Where the nitrogen leaching loss rate is above the Moderate range in terms of Table 1 of Schedule B, the farming activity is a Discretionary activity. As discussed in relation to recommended Policy 2 in section 9 of this report, the emphasis is on requiring farming activities with a high nitrogen leaching loss rate to either make significant reductions to their nitrogen leaching rate, or demonstrate why significant reductions to their nitrogen leaching rate should either not be required, or demonstrate why significant reductions to their nitrogen leaching rate should only be required over an extended timeframe to provide an appropriate transition period for conversion to lower nitrogen leaching land use(s).

Farming not otherwise authorised

1595. This is simply a default rule to address any other farming activity not addressed in another rule.

Commercial Vegetation Production Expansion - Discretionary Activity

1596. As set out earlier, the CVP growers sought that PC1 provide for the expansion of CVP. It was Mr Hodgson's planning evidence for HortNZ that this should be via a Restricted Discretionary rule. As also set out earlier the Iwi Co-Governors did not support the HortNZ 'approach'; and nor did the section 42A Officers.

1597. However, the Officers, in their Closing Planning Statement, stated:⁴⁵³

".... Officers note that the growers and HortNZ did not put forward a proposal that aligns with Te Mana O Te Wai and Te Ture Whaimana. This does leave the Hearing Panel in somewhat of a binary position, where on the one hand the evidence presented suggested the rule framework would be relatively onerous for the commercial vegetable production sector, but would ensure the environment is adequately protected, or alternatively the view of the growers and HortNZ, where the Hearing Panel is invited to consider the small scale of the commercial vegetable production

⁴⁵³ Officers' Closing Planning Statement, paragraphs 60 and 61.

sector and recognise that a small amount of growth is unlikely to lead to significant consequences in the wider catchment.

An option considered by Officers is to specifically enable expansion at a policy level and possibly through a discretionary activity rule that would require offsetting of losses through reduction in other farming activities...."

1598. As foreshadowed in our discussion of recommended Policy 3 in section 9 of this report, we accept the option suggested by Officers and recommend that PC1 provide for the expansion of CVP, in identified sub-catchments, as a Discretionary Activity – so that any application can be fully assessed against the relevant objectives and policies. Specific policies relating to CVP and offsetting/compensation have been provided, as well as others relating to achieving Objective 1 and within the context of PC1 and Te Ture Whaimana.
1599. The Panel's rationale for its recommendations is that with the Panel's recommended objective, policy and rule framework, a modified version of the 'HortNZ approach' will result in the same, or better, water quality outcome than that sought by PC1. This is explained further below.

HortNZ's Estimation of Land where Vegetable growing can occur

1600. Mr Baker set out in his evidence an estimation of the additional land area required for CVP to account for population growth and current CVP land lost to urban expansion.⁴⁵⁴The resulting change in N, Sediment, P, and *E. coli* loading was also estimated for the PC1 catchments (and is addressed below).
1601. Mr Baker provided two scenarios:
- (a) Waikato, which represents an increase of CVP land of 715.5 ha to account for population growth and CVP land lost to urban expansion in the Waikato region only; and
 - (b) Auckland and Waikato, which represents an increase of CVP land of 1,473 ha to account for population growth and CVP land lost to urban expansion in the combined Auckland and Waikato regions.
1602. He advised that an initial estimate of 82,379 ha suitable for CVP had been identified. This was LUC 1 or 2 land that is currently used for dairy, forestry, miscellaneous, or

⁴⁵⁴ Provisional CVP growth area' in the Waikato.

sheep & beef (i.e. not urban or horticulture); and zoned as 'Rural' in the proposed Waikato District Plan.⁴⁵⁵

1603. Mr Baker told us that a 0.09% increase in total catchment N load is predicted for the Waikato scenario, and a 0.49% increase in N load for the Auckland & Waikato scenario with CVP good management practice. Under both scenarios, an overall decrease in total N load is predicted following mitigations on the highest N leaching Dairy land to the 75th percentile as Required by Policy 1(b1) (Block 2 section 42A report version), but not accounting for other reductions that would be achieved through the real and enduring reductions for other farms at GMP required in the same policy.⁴⁵⁶
1604. An increase in CVP area of 716 ha to provide for population growth and lost to urban development in the Waikato region decreases total catchment sediment load by 143.2 – 501.2 tonnes when best management practice are implemented and decreases total catchment *E. coli* load by 0.06%. Negligible change in P load is expected with CVP growth.⁴⁵⁷

NIWA and HortNZ Modelling

1605. To inform PC1, NIWA developed a water quality model of the Waikato catchment that enabled the link between the unattenuated discharge of N, P and *E. coli* and instream water quality, at the sub-catchment, FMU and Waikato River catchment scales. Ms Sands told us that HortNZ worked with NIWA to obtain the calculations supporting the PC1 water quality modelling. Moreover, the NIWA modelling assumed that CVP had the highest leaching rate of all land uses. This was based on three proxy rotations and on modelling undertaken by Mr Ford.⁴⁵⁸
1606. Ms Sands advised that the calculations undertaken by the Jacobs team⁴⁵⁹ had been reviewed by NIWA, and found to be consistent with the NIWA PC1 modelling. The NIWA modelling predicted nitrogen losses from land use activities and accounted for instream attenuation to predict River concentrations.
1607. We accept that the NIWA modelling can be used to calculate the load at the Waikato Catchment scale. As set out in the HortNZ evidence,⁴⁶⁰ CVP contributes less than 3% of the nitrogen load of the Waikato River, most of which is in the Lower Waikato, with

⁴⁵⁵ Mr Baker, Block 3 evidence in chief, paragraph 4.

⁴⁵⁶ Mr Baker, Block 3 evidence in chief, paragraph 5.

⁴⁵⁷ Mr Baker, Block 3 evidence in chief, paragraph 7.

⁴⁵⁸ Ford, S. (2014). Nutrient Performance and Financial Analysis of Lower Waikato Horticulture Growers.

⁴⁵⁹ The evidence of Mr Baker and Mr Easton.

⁴⁶⁰ Ms Sands, Block 3 evidence in chief, paragraph 18.

little or no impact over most of the River's length. The 3% contribution to the load is relevant when considering the effect of CVP on the estuary, where the impact of CVP on the estuaries might be regarded as minor.

1608. At the FMU scale, the NIWA modelling shows that the contribution to the load from CVP is 7% in the Lower Waikato, 1% in the Waipā, 4% in the Central Waikato, and 1% in the Upper Waikato.
1609. As addressed in the evidence of Mr Easton and Mr Baker, it was their view that CVP could expand to provide for the projected Waikato population growth and CVP land lost to urban in the Waikato (11%), and only result in increases in nitrogen load of 0.2% at the catchment scale, less than 0.5% at the FMU scale and less than 1% at the sub-catchment scale.
1610. Ms Sands' opinion was that, when the improvements associated with PC1 are accounted for, the *"small increase in nitrogen load can be accommodated within the required PC1 reductions. Improvements in nitrogen load associated with all CVP moving to GMP, is predicted to reduce the nitrogen increase to 0.09% of the Waikato River nitrogen load. When the improvements associated with reducing dairy above the 75th percentile are accounted for, the reduction in the Waikato River nitrogen load is - 2.5%".*⁴⁶¹

Phosphorus

1611. The average P loss rates assumed in the NIWA modelling were the same for CVP and dairy. Also that the P bound sediment would be removed with sediment treatment. The analysis described in the evidence of Mr Easton predicts no or very little change in phosphorus with an increase in CVP.⁴⁶²

***E. coli*/pathogens**

1612. As noted by a number of the HortNZ witnesses, vegetable growing has very little *E. coli* associated with it. In the NIWA modelling, the contribution of CVP to the Waikato River *E. coli* load is less than 3.5% in all sub-catchments, and less than 2% at FMU and Waikato River catchment scale. Therefore, increases in CVP could be expected to result in reduced *E. coli* loads when activities that generate *E. coli* are replaced with

⁴⁶¹ Ms Sands, Block 3 evidence in chief, paragraph 27.

⁴⁶² Mr Easton Block 3 evidence in chief, paragraphs 56 - 60.

CVP. This is a potentially significant benefit in terms of swimmability and food gathering.

Sediment

1613. As set out in Ms Sands' evidence,⁴⁶³ it was not possible to use the NIWA sediment modelling to assess the impact of CVP relative to other activities because the NIWA sediment modelling was based on the NZEEM model and did not differentiate bare earth from pasture. Therefore, it could not demonstrate a change in erosion from a change in the area of cultivated land.

1614. However, in the Jacobs technical report⁴⁶⁴ submitted as part of the HortNZ submission, a bare earth analysis was undertaken of the Mangaone catchment. Ms Sands told us that in that catchment:⁴⁶⁵

"...the landuse and bare soil analysis indicated that horticultural land, while likely to have a higher proportion of bare earth compared with other land uses, is likely to make up only small fraction of the bare earth on farm land within the Waikato Region, due to its small footprint. In that catchment, horticulture makes up 2% of the landuse, bare earth makes up 5% of the land within the catchment. The Jacobs estimate was that the horticultural landuse makes up approximately 30% of the bare earth within the catchment, which means that 70% of the bare earth is part of other land uses. This analysis highlights that sediment generation from cultivated land is not just an issue that is associated to the horticulture sector".

1615. To assess the impact of an increase in CVP land on sediment load discharges at different spatial scales, Mr Easton relied on the 'Don't Muddy the Water' research described in Mr Barber's evidence. That research found that with best management practice (sediment ponds/traps), the sediment losses from CVP land are less than sediment loads discharged from pasture. On this basis, increases in CVP, provided they are treated with sediment ponds/traps, can be expected to result in reduced sediment loads.

1616. Mr Barber stated in his evidence that the:⁴⁶⁶

⁴⁶³ Ms Sands, Block 3 evidence in chief, paragraph 35.

⁴⁶⁴ Jacobs. (2017). Healthy Rivers Plan Change Technical Support for Horticulture New Zealand's Submission.

⁴⁶⁵ Ms Sands, Block 3 evidence in chief, paragraph 36.

⁴⁶⁶ Mr Barber, Block 3 evidence in chief, paragraph 7, 8 and 9.

“...industry has done considerable research into mitigating sediment loss, both for the environmental benefits and that soil is their main resource. The most recent MPI SFF Project Don't Muddy the Water has quantified erosion and sediment control measures through trials conducted by Agrilink, NIWA, and Landcare Research”.

An outcome from the DMTW project was an app which is used to prepare E&S Control Plans as the first step in a paddock risk assessment. Trial evidence has shown 80% reductions in sediment loss following the implementation of erosion control measures and vegetated buffer strips as the sediment control measure. This increases to over 98% reduction, and well below the equivalent pasture paddock, when buffer strips are replaced with sediment retention ponds.

E&S Control Plans have been shown to lead to significant change. Implementation of these plans can be assured through the audited NZ GAP programme.

1617. The Panel accepts this evidence.

1618. It is our view that the assessment undertaken by HortNZ, as set out in its witnesses' evidence, is that the increase in CVP could result in improvements in water quality for P, pathogens and sediment, but that N is more of an issue.

1619. To manage the potential effects of increased N, HortNZ proposed methods to cap the increase in nitrogen at the sub-catchment and FMU scale, so the increases are negligible and exceeded by the decreases in N proposed in the other rules.

1620. Mr Baker also stated that this increase would, at the catchment scale, result in 'negligible' changes in loads of N, sediment and *E. coli* and, in the case of sediment, an improvement.⁴⁶⁷ Compared to dairy farming, he was of the view that if 716 hectares were to change to CVP, this would result in an overall reduction in N load relative to the present load.⁴⁶⁸

1621. He went on to note that some sub-catchments may not be suitable for additional CVP growth due to their existing (poor) water quality state. He recommended the following criteria for determining sub-catchment unsuitability for CVP growth:

- Any sub-catchment currently in, or below the National Objectives Framework (NOF) C band for nitrate are excluded. This would exclude: Mangaone (Central

⁴⁶⁷ Mr Barber, Block 3 evidence in chief, paragraph 57.

⁴⁶⁸ *ibid.*

Waikato), Whakapipi (Lower Waikato), Komakorau (Lower Waikato), Mangamingi (Upper Waikato), and Kawanui (Upper Waikato).

- Sub-catchments containing sensitive lake environments should be excluded. These are Waikare, Whangamarino at Island Block Rd, Whangamarino at Jefferies Rd Br and Whangape.

1622. Mr Baker identified these relevant sub-catchments in Appendix A of his Block 3 evidence, but included Waikare as a sub-catchment suitable for CVP expansion (apparently in error) along with 23 other sub-catchments. He also listed 42 sub-catchments which were deemed to be without suitable CVP land.

1623. Of the 24 sub-catchments considered by HortNZ to be suitable for CVP expansion, we note four (Waeranga, Waikare, Mangatangi and Matahuru) drain to the Whangamarino Wetland and consequently we do not consider that these are suitable for inclusion given the current water quality state of the wetland and its sensitivity to further nutrient enrichment. Part of the Waikato River at Mercer (the Maramarua River catchment) also drains to Wangamarino Wetland, and that part should be excluded for the same reason.

1624. We have identified another six sub-catchments in the HortNZ list that contain either riverine or peat lakes, or both. We consider these features require particular attention for nutrient management and so have excluded these from the list also. Part of the Waikato River at Mercer sub-catchment needs to be excluded for the same reason. A number of other sub-catchments on the list (5) contain lakes, but they appear to be very small relative to the size of the sub-catchment and we have allowed these to remain on the list, although we have elevated their priority ranking in Table 3.11-2.

1625. The sub-catchments we find suitable for inclusion in Rule 3.11.4.8 Table 1 are as follows:

Sub-Catchment Name	FMU
Waikato at Port Waikato	Lower Waikato
Waikato at Tuakau Br	Lower Waikato
Ohaeroa	Lower Waikato
Mangatawhiri	Lower Waikato
Waikato at Mercer Br (Part only)	Lower Waikato
Opuatia	Lower Waikato
Waikato at Huntly-Tainui Br	Lower Waikato
Waikato at Horotiu Br	Central Waikato

Sub-Catchment Name	FMU
Kirikiroa	Central Waikato
Waikato at Bridge St Br	Central Waikato
Mangaonua	Central Waikato
Waipā at Waingaro Rd Br	Waipā
Firewood	Waipā

1626. We find that the HortNZ approach, combined with the policies we have recommended (including offsetting/compensation) and a Discretionary Activity rule status, is consistent with recommended Objectives 1 and 2 of PC1 (in particular). This is because it seeks to achieve long-term restoration and protection as well as short-term improvement of water quality for each sub-catchment and FMU to achieve the water quality states. It is also consistent with recommended Objective 5, because it directs new CVP away from the Whangamarino wetland.
1627. In this respect, we find that giving effect to the objectives and Te Ture Whaimana may be better achieved by seeking significant reductions in (say) *E. coli* but a marginal increase in N in sub-catchments where N is not 'over-allocated'. As we have already pointed out, PC1 has an over emphasis on N reduction, even where the other contaminants are of much greater concern from a water quality and river health perspective.
1628. In support of the position set out above, the Panel accepts that vegetables are important to the health and wellbeing of people, and that land suitable for growing vegetables is limited.
1629. As set out by HortNZ and the PVGA, land suitable for vegetable growing requires a number of factors to come together, including suitable climate and soils and access to clean water, labour and infrastructure. The types and timing of crops grown will depend on the climate, so in the north of the Waikato Region, where it is frost free, vegetables can be grown year around whereas further south, the growing season will be more constrained, and the crops that can be grown will differ.

Overall Finding

1630. Having regard to the reasons above, it is the Panel's finding that providing for CVP expansion as a Discretionary Activity, to be assessed against the suite of objectives and policies recommended, can achieve the outcomes sought by PC1. To that extent

and for the reasons we have set out above, we do not agree with Mr Ferguson's Closing Legal Submissions for the Iwi Co-Governors.

Non-Complying - Land Use Change

1631. As notified, Rule 3.11.5.7 required a non-complying land use consent for any change to the existing land use as specified in the rule. However, this activity status was only until 1 July 2026. The section 32 evaluation stated, in selecting Option 2 (as the preferred option) the "*This option (Policy 6, Rule 3.11.5.7) is an interim measure to control specified land use changes in the catchment that, should they occur, are expected to result in additional diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens*" and "*The changes in land use specified under Rule 3.11.5.7 would become a non-complying activity. These particular changes in land use have been selected as they represent the highest risk of increases in discharges (see Monaghan et al., 2010).*"⁴⁶⁹ (Underlining added).
1632. As set out in the Block 2 section 42a report, rule 3.11.5.7 would cease to have effect from the date specified in the Rule, with any controls on diffuse discharges then covered by the remainder of the provisions in PC1. As stated "*The inclusion of an end date to Rule 3.11.5.7 was intended to make it clear that PC1 represents a transition to a future allocation for diffuse and point source contaminants, and to commit WRC to putting out a new plan before the 'end date'*".⁴⁷⁰ That is - the rule was to essentially function as a moratorium. We have addressed the issue of future plan changes and signalling an allocation-based approach in our earlier discussion of notified Policy 7 in section 9 of this report.
1633. A large number of submitters, including from several District Councils, WPL, Fonterra and NZ Pork questioned whether a non-complying activity status was appropriate for land use change as notified; seeking a less stringent activity status. Several submitters, including Fish and Game and Forest and Bird were supportive of the non-complying activity status.
1634. The majority of submitters who sought a change in activity status proposed a less stringent status ranging from permitted to discretionary activity (e.g. - restricted discretionary (WPL) and discretionary (Fonterra)). The reasons given included:

⁴⁶⁹ Option 2: Controls on changes in land use - page 185.
⁴⁷⁰ Block 2 section 42A report - paragraph 532.

- that a non-complying activity status is unnecessary or a discretionary activity would achieve the same outcome;
- it will be almost impossible to get a non-complying consent;
- land use change from one primary industry to another should not be considered a rare exception, but part of a viable, sustainable land use in response to market conditions;
- it will not enable new opportunities;
- all farmland should have the same ability to undertake any type of farming provided the environmental impacts can be effectively managed;
- it is a high barrier to wholesale changes and flexibility is fundamental to sustainable primary production enterprises which must be able to respond to markets.

1635. The Officers recommended, in both the Block 2 section 42A report and their final marked up version of PC1 provisions that the land use change rule remain as a non-complying activity. The end date aspect of the rule (until 1 July 2026) was recommended to be deleted.

1636. The Panel, having considered the Council's position and all of the legal submissions has 'retained' the non-complying activity for land use change (as set out in our recommended amended PC1 document). This recommendation and rule need to be read alongside this report, relating to the objectives, policies and rules, and the actual recommended rules framework.

1637. As a general proposition, we accept that the proposed land use changes set out in the non-complying rules are likely to represent the highest risk of increases in discharges, and therefore are appropriate to be non-complying in terms of the objectives of PC1. However, we also accept that some land use change proposals may potentially result in fewer discharges of contaminants or better overall environmental outcomes consistent with PC1 objectives and policies. Examples may include conversion to forms of organic farming or restorative and/or regenerative farming; noting the evidence of people such as Mr Mowbray, Mr Boom and Ms Mayne. We have recommended new Policy 5 to provide guidance as to how such proposals should be assessed. In these circumstances, those farming activities may be able to satisfy the provisions of section 104D - Non-complying activities - of the RMA.

Other Matters - Drinking Water Standards

1638. Oji submitted that PC1 had failed to consider the requirements in the NES-DW. It sought amendments to PC1 by identifying specific areas where discharges could result in community drinking supplies becoming unsafe following existing treatment. Oji also sought a new rule for all land uses, irrespective of size, so that resource consents are required for all discharges that could result in community drinking water supplies becoming unsafe for human consumption following existing treatment.
1639. In the Closing Planning Statement, the Officers noted that WRC has a current work programme that is considering the issue of the protection of Community Drinking water supplies. They advised that it was expected that the full Regional Plan review would consider the identification of drinking water protection zones. No recommendations were made to make any changes to PC1.
1640. We have discussed the requirements of the NES-DW in section 3 of this report. As noted there, the Panel considers that PC1 does need to address the National Environmental Standards and not defer consideration of their application until the WRP review. Specific provisions to address these standards have been included as matters of control and discretion for the Controlled and Restricted Discretionary activities. However, the Panel is satisfied that the permitted activity rules that we have recommended provide for farming at a scale that would 'satisfy' section 70 of the RMA, and would not render water used as a community drinking source unsafe to consume.

Schedule A-Registration with Waikato Regional Council

1641. A small number of adjustments have been made to Schedule A, which addresses the registration process. The most significant change is the deletion of the date range by which registration must be completed.
1642. Under the revised rule structure, registration will be required as a condition of the rules that require a resource consent. This means that while registration is still legally required to occur, deletion of a date range negates the risk of an unintended consequence whereby all those properties that do not comply with the date range become fully discretionary activities. We agree with the Officers, who considered that such a consequence is unlikely to increase compliance with the rule, but will lead to a significantly increased administrative burden for both applicants and the councils, with no environmental benefit.

Schedule B - Nitrogen Leaching Loss Rate and Nitrogen Loss Percentile Values for FMUs

1643. Schedule B in the notified PC1 relates to the need to establish a nitrogen reference point (NRP) and how it was to be calculated. Having to establish a NRP, and the basis on which it was to be calculated, was one of the more contentious issues before the Panel.
1644. As discussed in section 5 of this report the Panel's recommendation is that reliance be placed on actual nitrogen leaching numbers as consent triggers and that, consequently, the NRP in its original form is not required. Accordingly, Schedule B in its original and recommended amended form from the Officers is not required.
1645. However, farmers will need, in some cases, to determine actual N leaching rate numbers on an ongoing basis. Schedule B, as recommended by us, sets out how this may be done; including through use of Overseer or some alternative model, provided in the latter case, a suitably qualified and experienced nutrient loss modeller can demonstrate and certify that the model has been developed through a robust review and quality control process, has appropriate supporting documentation, user guides and input standards, and can produce comparable modelling outputs to those of Overseer. The latter aspect is also discussed in section 5 above.
1646. Schedule B also includes Table 1 setting out the low, moderate and high nitrogen leaching loss rate levels. The rationale for the choice of these levels is discussed above, in section 9 of this report, in the context of recommended Policy 2.

Schedule C - Minimum Farming Standards

1647. Schedule C, as recommended by the Officers and accepted by the Panel, continues to provide the provisions relating to stock exclusion, but has included other "minimum standards", being fertiliser application, sacrifice paddocks and winter forage crop grazing, and cultivation. These are addressed below.

Stock Exclusion

1648. The issue of stock exclusion was largely addressed in the Block 2 hearings report C4 - Stock Exclusion. Schedule C of PC1 sets out the main requirements for stock exclusion, with the exclusion of cattle, horses, pigs and deer from water bodies being one of the main PC1 responses to the high levels of microbial pathogens in large parts of the Waikato and Waipā catchments.

1649. This topic was one of the most heavily submitted on elements of PC1.⁴⁷¹ Many submissions sought the complete removal of stock exclusion requirements, while others sought substantial amendment, primarily to make the provisions more flexible and require less fencing. Other submissions sought more certainty in the provisions, and some considered the notified provisions are inadequate.

1650. We also note that the Officers' recommendation in the Block 2 hearing report introduced greater specificity to the fencing requirements; particularly different setbacks based on slope (1 metre for land with a slope less than 15 degrees, and 3 metres for land with slopes between 15 and 25 degrees). This was strongly opposed by the farming sector, particularly the hill country/drystock farmers much of whose land is sloped more than 15 degrees, and they presented a significant amount of evidence to demonstrate why fencing land over a slope of 15 degrees was inappropriate.

1651. Many of the drystock farmers who appeared before us said PC 1 should adopt the draft National Standards for Stock Exclusion (February 2017) with which they largely agreed. Accordingly, they largely accepted that slopes less than 15 degrees should be fenced, but said that this should not be required for slopes greater than 15 degrees, with other options being able to be considered on a case by case basis.

1652. Central Government published those draft national regulations addressing the issue of stock exclusion⁴⁷² and they were open for consultation until April 2017. They were not

⁴⁷¹ Overall, over 1,300 submission points were received in relation to the stock exclusion provisions. Twenty-nine submitters support them.

⁴⁷² Clean Water: 90% of Rivers and Lakes Swimmable by 2040, MfE, 2017.

adopted or gazetted, and as addressed, Central Government has recently (September 2019) released for public consultation national discussion documents on freshwater, including "Draft Stock Exclusion Section 360 Regulations. In short, there are no current national stock exclusion regulations.

1653. DoC, Fish and Game and WPL sought an increase in the setback distances as set out in the section 42A Report. DoC, in its legal submissions and evidence considered the recommendations were insufficient to address Objectives F and I of Te Ture Whaimana, which requires a precautionary approach, and to protect and enhance significant sites, fisheries and fauna.

1654. While there was considerable evidence presented to us regarding the environmental benefits of riparian buffers, we found it difficult to pin down any consensus regarding the quantitative relationships associated with reductions in the inputs of *E. coli*, nutrients and sediment to waterways relative to the width of a setback or the vegetation that it supported. Ms McArthur made the following comment in her Block 2 evidence for DoC ⁴⁷³: "*None of the slope and setback distances recommended by the s42A officers for PC1 appear to be supported by clear empirical evidence. In determining an appropriate setback width, the New Zealand literature is varied and equivocal as the width required for trapping of particulate nutrients in surface runoff through riparian buffers varies as a function of slope, soils, drainage/hydrology, vegetation and mode of contaminant transport*". We find this statement to be a fair summary of the situation regarding the effectiveness of riparian buffers.

1655. A number of witnesses considered that a wider setback is better than a more narrow one, a concept that appears intuitive at face value. For example, Ms McArthur went on to state in her Block 2 evidence that, in relation to riparian management and buffer width, "*...wider is usually better for contaminant removal*"⁴⁷⁴. In his Block 2 evidence in chief for WPL, Dr Neale considered the riparian setbacks specified in Schedule 1 were well below the distances considered to have "*meaningful effects on stream outcomes*"⁴⁷⁵. He went to cite several studies demonstrating that setbacks of between 10 and 30 metres were necessary to achieve sediment and nutrient trapping and the provision of healthy macroinvertebrate and fish communities.

⁴⁷³ Ms McArthur, Block 2 evidence in chief, paragraph 38.

⁴⁷⁴ Ms McArthur, Block 2 evidence in chief, paragraph 39.

⁴⁷⁵ Dr Neale, Block 2 evidence in chief, paragraph 22.2.

1656. A number of witnesses made reference to a technical report commissioned by the TLG for the Healthy Rivers Wai Ora Project (Doole 2015⁴⁷⁶). The Doole report, which had input from a number of scientists from NIWA and AgResearch, among others, referenced a significant amount of literature relating to the potential reductions in *E. coli*, nutrient and sediment loss that may be achieved through streambank fencing, buffer strips and riparian planting. However, the report contained only a limited amount of information on the effectiveness of differing buffer widths. The report also raised a question around the effectiveness of buffers in reducing inputs of N to waterways, noting that riparian buffers can act as a source of N if vegetation is not regularly cut and removed. In relation to P, the report noted that the effectiveness of buffers is well established, however, they were less effective at reducing inputs of dissolved forms of P.
1657. The Doole report considered that stock exclusion was a key benefit of streambank fencing as it abated the direct input of P arising from faeces deposited by livestock into water courses. The report also questioned the efficacy of riparian planting for removing microbial loadings to waterways given experimental research had shown that there is little benefit from riparian planting, compared with the presence of just pasture.
1658. Based on the information we have had presented to us, it seems that while riparian buffers have potential advantages to surface water quality and ecology, there are no clear-cut quantitative relationships we can rely on when it comes to specifying setback distances for planning purposes, other than to minimise stock access to streambanks and surface water.
1659. In addition, we note that while setting out what it considered were the benefits of the greater setbacks, DoC had not quantified the costs of the additional setbacks and stock exclusion by fencing. Ms Kissick, DoC's planning witness, acknowledged it would have a greater cost than the provisions recommended in PC 1 and the Officers' section 42A reports, but had not provided any actual quantification.
1660. In contrast to DoC, Federated Farmers, HortNZ, Beef and Lamb NZ and most of the farmers that appeared before the Panel considered that there was insufficient evidence in either the Section 42A Report or opposing submitter evidence to increase the setback distances. Dr le Miere's evidence for Federated Farmers' estimated the cost

⁴⁷⁶ Doole G 2015. Description of mitigation options defined within the economic model for Healthy Rivers Wai Ora Project, Description of options and sensitivity analysis. 28 September 2015. Commissioned by the Technical Leaders Group for the Healthy Rivers Wai Ora Project. Report No. HR/TLG/2015-2016/4.6. Document#3606268.

of different stock exclusion setback and fencing options⁴⁷⁷. Dr Eivers provided costings for Fish and Game, albeit on a less comprehensive range of options than Dr le Miere. Dr Fung also provided information on the cost of deer fences. On any view, the costs to farmers are substantial, particularly on steeper country or if deer are involved.

1661. We also note that there was substantial additional evidence before us that was not considered in the section 32 or section 42A Reports from DoC, and Fish and Game⁴⁷⁸ in relation to wetlands and riparian buffers. As outlined in the section 42A Report, riparian planting options were not represented in the model produced by Doole 2015 due to the difficulty of representing the period of transition as the introduced vegetation establishes and grows.
1662. In summary, without supporting evidence assessing the full costs and benefits of additional setbacks, the Panel has not recommended the setbacks requested, for example, by DoC. We have, however, recognised the potential benefits referred to above in the setbacks recommended in Schedule C which we note are, greater than those in the notified version of PC 1, other than for drains in which we retained the 1 metre setback for drains no more than 2 metres wide.
1663. We set out below further reasons for our recommendations.

Stock Exclusion and Slope Requirements

1664. Having regard to the reasons set out above, the Panel was persuaded by the evidence of the drystock sector (including the likes of F4PC,⁴⁷⁹ the Hill Country Farmers, a number of the 'collectives, PLUG and others) that greater recognition was required of their particular circumstances. This included that much of their land was over 15 degrees in slope and that the water bodies on their land were extensive (including intermittent stream and wetlands), often in step sided gullies or slopes - all of which made it difficult or impractical to fence; and that to require fencing of these areas would likely create greater adverse sedimentation effects due to the earthworks, benching and tracking to construct the fences. Notwithstanding these concerns, they were also concerned that the cost of such extensive fencing would be prohibitive, and questioned what economic assessment/costings had been done to justify the recommended provisions. We have addressed the cost/benefit issue earlier.

⁴⁷⁷ Dr le Miere, Block 3 hearings evidence in chief, paragraphs 8 to 40.

⁴⁷⁸ Dr Eivers Block 2 evidence in chief.

⁴⁷⁹ As well as its members who also appeared as submitters in their own right.

1665. Moreover, these farmers advised that fencing was not the most efficient or effective means of reducing contaminants (particularly sediment). They told us that other farm practices, such as identifying and fencing or removing stock from critical source areas, limiting stock adjacent to water bodies, providing reticulated water troughs away from water bodies, would be more effective.
1666. The Panel questioned many of the farmers who appeared before us as well as witnesses for Beef and Lamb about the intensity of drystock farming, where the effects from that in relation to erosion and sediment generation would be 'acceptable'. The consensus view was that up to 18 SU in a paddock adjacent to a waterbody would generate no more than minor effects in relation to contaminant loss.
1667. In terms of the evidence heard, including that of the Officers (in their Closing Planning Statement), the Panel has recommended, amongst other things⁴⁸⁰ that cattle, horses, deer and pigs be excluded from water bodies from land with a slope up to 15 degrees, or with a slope over 15 degrees where the stocking rate in any paddock adjoining a water body exceeds 18 SUs.
1668. It is the Panel's view that this will provide much greater flexibility to the majority of the drystock/hill country farmers, most of whom said typically they farm at or below 18 stock units. This will mean that those farmers who can meet the permitted activity rule conditions (Small and very low intensity farming) will be able to do so without needing to prepare an FEP or obtain a resource consent.
1669. We consistently heard that for the drystock farming sector "*farming needs to fit the land*", "*one size [rules] doesn't fit all*" and "*each farm is unique*"; which we understand and accept. However, as we pointed out, under the RMA there are limits to what can be a permitted activity.⁴⁸¹ Where farmers sought greater flexibility, and they could not and did not wish to comply with the permitted activity standards, they told us they would be prepared to obtain a resource consent, provided the plan provisions were reasonable. We note that in the rule framework we have proposed, many of these consents are likely to be a controlled activity.⁴⁸²

⁴⁸⁰ See Schedule C - for the Stock Exclusion provisions.

⁴⁸¹ Addressed in the section dealing with Farm Environment Plans following.

⁴⁸² Which is an application that **must** be granted, and may be subject to conditions.

Stock to be Excluded

1670. As notified in PC1, the stock to be excluded were cattle, horses, deer and pigs. Sheep and goats were deliberately not included, nor were feral animals. The Officers' Block 2 section 42A report (with recommended changes to the notified provisions) retained the list of stock to be excluded, but deleted the clause specifically exempting feral animals. This was opposed by a number of submitters who argued they had little or no control over feral animals on their properties, and as they were not 'farmed' animals. They requested that feral animals should be exempt. The Panel agrees and has recommended that the reference be to "*farmed*" cattle, horses, deer and pigs.
1671. Mr Hemara (CEO of Dairy Goat Co-operative) said that goats are not prone to entering waterways, dislike being wet, and that 94% of goats don't have access to waterways on supplier farms, with most goats farmed indoors and those outdoors are managed within fenced systems. Mr Hemara sought that goats (and feral goats) remain excluded from the list of stock to be excluded from waterways. We confirm that goats have not been added to the list of stock to be excluded.

Stock Crossings

1672. A number of submitters questioned the PC1 provisions that manage crossing of water bodies by farm animals. Some sought more permissive provisions as per the draft national regulations referred to earlier. Some wanted the ability to cross more often due to stock operational matters.
1673. Dr Fung, Ms Wellington and Mr Oliver on behalf of the Waikato and Waipā Branches of the New Zealand Deer Farmers' Association provided comprehensive evidence in relation to deer farming, and particularly the stock exclusion requirements. While supporting aspects of the provisions recommended in the Officers' section 42A report, one key aspect that they didn't support was the suggested recommendation of not allowing more than one crossing per week.⁴⁸³
1674. Dr Fung stated that it would be impractical for deer farming to comply with the "*not allowing more than one crossing per week*" condition as deer are moved to the deer shed for Tb testing, weighing/drenching, velvet removal and back to their paddock. He told us that for velvet removal in particular, small groups of stags are herded to the

⁴⁸³ ~~Livestock~~ Cattle, horses, deer and pigs must not be permitted to enter onto or pass across the bed of the water body, except when using a livestock crossing structure [OPTION TO ADD or when they are being supervised and actively driven across a water body in one continuous movement **provided no more than one crossing per week occurs**].

shed, and there may be three return trips each week between November and December.

1675. Other farmers also told us that while they attempt to restrict river crossings as much as possible, and a number had installed stock crossings in places that would otherwise require regular crossing, it was impractical to limit crossings to once a week. The majority of farmers did not oppose the requirement that stock could only cross water bodies when they were being supervised and actively driven across a water body in one continuous movement (i.e. not free to simply stand in the water).
1676. While the Panel accepts this rule would be difficult to enforce, and relies on the good farming practices of the farmer, a rule only permitting crossing once a week would be even more difficult to enforce. The Panel has recommended the limitation on how stock can cross a water body, but has not imposed the limitation Officers recommended of once a week. The Panel considers this is an area where education and guidance, as opposed to further regulation, is appropriate.

Intermittent and ephemeral rivers

1677. A number of parties raised issues with respect to intermittent and ephemeral rivers, particularly in relation to fencing requirements. WRC as submitter requested that the Auckland Unitary Plan definitions should be used. The Panel made a suggestion to the Officers in the Block 3 hearing that they consider these definitions and obtain advice from Council's science team in relation to this. We were advised that WRC's science team supports the use of those definitions.
1678. This has enabled Officers to further clarify the fencing requirements, which they recommended apply to intermittent, but not ephemeral water bodies. The Panel agrees with the suggested approach, which clarifies (and limits) what might be considered an intermittent water body. Due to the potential difficulties caused by introducing a definition of river and intermittent river into the WRP through this plan change process, we have recommended that the application of fencing requirements to intermittent rivers be described in the schedule, rather than by introduction of a new definition. We have provided this in the revised Schedule C.

Wetlands

1679. The protection of wetlands is addressed in the wider WRP, primarily in Chapter 3.7, and provisions of PC1 which relate to wetlands were limited to Whangamarino wetland and contained in notified Objective 6 and Policy 15.

1680. It is our view, as acknowledged by the Officers in their Closing Planning Statement, that there was a narrow focus on wetlands in the notified PC1 which does not fully recognise the important values and the complex nature of wetlands, particularly in relation to Whangamarino Wetland. This matter has been addressed in sections 7 and 9 of this report in respect of the Objectives and Policies (and their more explicit recognition of wetlands), and earlier in this section relating to the rules.
1681. We have recommended an amendment to widen setbacks for stock exclusion to improve the protection of listed wetlands in line with the operative WRP- 3.7.7 Table of Wetlands in the Waikato Region (10 metres). However, we have recommended a 3 metre setback from the outer edge of the bed for any other water bodies, which would include wetlands not in Table 3.7.7.
1682. In relation to the 3 metre setback for other wetlands, we were aware that this would pose significant issues for a number of farmers. Mr Garland, for instance, advised us he had over 40 wetlands on his 400 hectare farm, and all would likely need to be fenced if the rules applied to all wetlands. We asked a number of expert witnesses, including Ms MacArthur, Dr Robertson and Dr Phillips for DoC, if there was any accepted or scientific consensus on the minimum size of a wetland that should be protected (fenced) to ensure its ecological functioning. No expert was able to provide 'a number' as it was contextual (i.e. relied on a number of factors). We understand this.
1683. However, as there was no full section 32 cost/benefit evaluation on fencing off/excluding stock from all wetlands, the Panel was reluctant to impose a blanket rule for all wetlands, irrespective of their size. The Panel has therefore recommended in addition to the other controls in Schedule C, that the stock exclusion controls not apply to wetlands less than 50m² in area other than those identified in the WRP as being significant.

Protection of Īnanga spawning areas

1684. DoC's submission sought additional policies and rules to protect Īnanga spawning habitat. Specifically, DoC sought that the ecosystem health value recognise Īnanga spawning, native fish migration, threatened and at risk species and biodiversity hotspots, as being areas that are particularly outstanding due to their high proportion of native species and their role as native species 'refuge'.

1685. Īnanga spawning was the subject of considerable evidence from DoC,⁴⁸⁴ in the Block 2 and 3 hearings, as well as written responses by the Officers to a question from the Panel. It was DoC's view (via its expert witnesses) that Īnanga spawn in the lower Waikato River, among riparian vegetation at the upper tidal extent during high spring tides. Maintaining or restoring adequate and vegetated riparian margins was the key to enabling successful spawning and recruitment of galaxiid fish in the Waikato and Waipā catchments and thereby providing for ecosystem health.
1686. Ms Kissick, relying on the expert evidence of Dr Stewart and Ms McArthur, was of the view in her Block 2 evidence that the identification and protection of Īnanga habitat through mapping may be required. Ms McArthur confirmed in her supplementary evidence, the technical report of Jones and Hamilton (2014),⁴⁸⁵ referenced in the Officers' Erratum statement, should be used to identify the most likely areas available for Īnanga spawning habitat.⁴⁸⁶
1687. In summary, DoC sought specific set back provisions to ensure the protection of Īnanga spawning areas. Based on the recommendation of Dr Stewart and Ms McArthur, Ms Kissick recommended cultivation setbacks that would apply to Īnanga spawning habitat. This would require setbacks from water bodies in the lower parts of the catchment, so that rank grass and other vegetation is protected from grazing.
1688. The Panel supports the protection of Īnanga spawning habitat, and agrees with the Officers' closing statement that the proper protection of Īnanga spawning habitat is likely to require changes to other parts of the WRP (outside the scope of PC1), particularly in relation to protection of riparian areas from other activities. This may include things such as drain, roadside and stop-bank management, so that vegetation trimming and management is limited before and during the spawning season.
1689. DoC's submission sought to include, among other things, the mapping required. However, the Panel remains concerned that this issue has a poor nexus to PC1 which seeks to regulate the four contaminants and mainly in terms of diffuse run-off from farming activities that affects water quality, as opposed to habitat protection per se.
1690. Putting aside the scope issue alluded to in the above paragraph, the issue of protection of Īnanga spawning habitat, as proposed by DoC would require the identification

⁴⁸⁴ Ms McArthur, Block 2 hearings evidence in chief, paragraphs 22 & 23, Ms McArthur, Block 3 Further Supplementary hearings evidence, paragraphs 6 to 17.

⁴⁸⁵ The Jones and Hamilton Report carried out hydro-dynamic and inundation modelling using a high resolution digital evaluation model or DEM, clipped (or amended) to account for current stop banks and flood protection schemes.

⁴⁸⁶ Ms McArthur's supplementary evidence paragraphs 9 and 16.

(mapping) of those areas. Despite Ms Tumai's view that the technical report of Jones and Hamilton (2014), as referenced by Ms McArthur, might be used to identify the most likely areas available for īnanga spawning habitat, the Panel's view is that while it identifies areas, it is not presented at a scale enabling provision for specified setbacks.

1691. It is on this basis that the Officers 'offered' an amendment to the stock exclusion requirements⁴⁸⁷ in the tracked changes version of PC1 for the Hearing Panel with a footnote saying: *Should the Hearing Panel wish to include this restriction and associated maps, the Council can prepare maps based on the information described at the hearing.*

1692. We have not taken up that offer. While we support the protection of īnanga spawning habitat, we are concerned about the lack of a full cost/benefit analysis (as we have also addressed above) and that we had little analysis on the need for a 10 metre fenced set back from the bed of the water body. It is the Panel's finding that in view of the issues we have raised, the 3 metre set back we have recommended from the bed of most water bodies will also offer some protection of īnanga spawning habitat. As suggested by the Officers, the WRC will need to look at the protection of the īnanga spawning habitat in a more comprehensive way when the WRP is reviewed.

Extension to Minimum Standards in Schedule C

1693. At the Block 3 hearings, there was considerable discussion of "minimum standards" of environmental performance for farming, and some limited identification of what these might entail. The use of minimum standards in PC1 was seen by a number of the submitters as either an adjunct to FEPs, or in some cases, effectively an alternative to them.⁴⁸⁸ In the Closing Planning Statement, Officers considered minimum standards to be a means of balancing community desire for greater certainty and the achievement of improvements on-farm sooner, sitting alongside the more comprehensive and flexible FEP framework.

1694. While we have recognised the need for flexibility within the consenting FEP process, it is acknowledged that it will take some time to develop FEPs with the level of rigour and consistency required, and these requirements may be delayed by several years through the implementation phase. It is also acknowledged that there are some relatively common practices on-farm that are sufficiently high risk to warrant the

⁴⁸⁷ 10 metres from the outer edge of the bed for water bodies in an īnanga spawning area.
⁴⁸⁸ Mr Willis (Fonterra) Block 3 hearings evidence in chief - Attachment A.

inclusion of minimum standards that ensure a base level of practice is achieved, and as soon as possible.

1695. For clarity, a minimum standard sets the minimum acceptable baseline of operational practice. It is intended that these requirements be relatively achievable. If a farmer intends to undertake practices that did not meet these minimum standards then they would need to seek authorisation via the resource consent process, demonstrating why it is appropriate to dispense with compliance with the standard, and how any resulting adverse effects are addressed.

1696. The proposed minimum standards have been adapted from the evidence of various submitters to be more clear, objective, and enforceable. These adaptations are as follows:

Nitrogenous fertiliser application rate

1697. This standard has been adopted from Fonterra's evidence which states "*Nitrogen fertiliser application rates to pasture are no greater than 30 units of N per dressing*".⁴⁸⁹ It is well understood that the application of N fertiliser at rates which exceed plant growth increases the risk of N being made available to be lost via leaching. While some farmers may already be strategically applying fertiliser at low rates (the evidence we heard was that CVP growers had developed this to a fine art), there are those who follow a prescribed method of applying fertiliser each year or those who have no strategy in place. By generally limiting N application rates, farmers will need to consider early on whether their current fertiliser management practices are efficient, and whether a greater application rate is necessary or required.

No nitrogenous fertiliser application timing

1698. This standard has been adapted from the evidence of DairyNZ which states "*Soil temperature, moisture levels and the weather forecast are assessed before applying fertiliser. No nitrogen fertiliser is applied during [specified months, potentially May-June] no P fertiliser is applied during [specified months, potentially June-July]*".⁴⁹⁰

1699. The proposed requirement to assess soil, temperature, and moisture levels would be difficult to objectively assess and unlikely to be sufficiently certain to be a minimum standard. However, the requirement to prohibit the application of nitrogenous fertiliser during specified months can be easily understood and assessed.

⁴⁸⁹ Mr Willis, Block 3 evidence in chief - Attachment A – Part C (1)(d) pg. 17.

⁴⁹⁰ Ms Young, Block 3 evidence in chief - Attachment – Schedule 1A pg. 18.

Maintenance of a vegetated buffer/setback for the grazing of any winter fodder crop and sacrifice paddocks from Schedule C waterways or drains

1700. This minimum standard has been adapted from the evidence of Fonterra in Block 3 which states “No winter grazing of fodder crops (from June 1 to September 1) occurs within 3m of any Schedule C water body. An un-grazed, vegetated buffer of at least 3m is provided between a winter grazed block and any Schedule C water body.”⁴⁹¹
1701. The grazing of winter fodder crops is a recognised high-risk activity with respect to the loss of sediment, bacteria, P, and N to water. Historically, but less widespread, this practice has increased with off-farm dairy grazing where some instances of poor site selection has occurred.

The grazing of any winter forage crop on land with a slope greater than 15 degrees

1702. Slope is known to exacerbate the risk of contaminant run-off, particularly during periods of high rainfall and when soils are saturated and infiltration capacity is low. Given the high risk of contaminant loss associated with the grazing of winter crops, it is considered appropriate to limit the slope of the land used for this activity.

Cultivation setback to Schedule C waterbodies

1703. This minimum standard was contained in Schedule 1 as notified. Cultivation increases the risk of sediment run-off during heavy rainfall events. Therefore, it is important that a minimum setback is specified that also recognises the lower risk associated with this activity where livestock are not grazed (typically a summer cut and carry crop such as maize).
1704. We note that this standard does not apply to CVP (existing CVP being a controlled activity and expansion CVP, in some sub catchments, being discretionary), but diffuse sediment discharges are a matter of control. As has been set out earlier, the evidence of Mr Barber for HortNZ was that sediment detention ponds/traps are more effective at sediment not being released into waterways than setbacks.

⁴⁹¹ Mr Willis, Block 3 evidence in chief Attachment A – Part C (5)(c) pg. 19.

Requirements for Farm Environment Plans (schedules D1 and D2)

Introduction

1705. FEPs were (almost) universally accepted by Officers and submitters as 'the' key implementation tool in PC1 to ensure reductions in the four contaminants; to meet the objectives of PC1 and ultimately assist in achieving Te Ture Waimana. The Panel agrees.

1706. However, there were many different opinions and views on the nature and form of what FEPs should take. In summary these included:

- Should they be regulatory in character, or only provide guidance and education for on-farm management;
- Should they be aimed at achieving 'good farming practice' to assist in achieving Te Ture Whaimana, or is greater improvement in the management of diffuse discharges beyond 'good farming practice' required;
- Should they only contain 'standards' to be met, with specific actions and timeframes, and in doing so enable farming activities with a FEP to be a permitted activity;
- The degree to which the FEP should adopt a “standards” or a “goals and principles” based approach;⁴⁹²
- Should they be specifically 'tailored' to each farm, given the strong and clear evidence given that each farm is unique; with the implication being that farming activities with a FEP would require a resource consent given the level of discretion that would be required to establish the FEP for each property;
- If a consent is required, should the consent activity status be a Controlled Activity (where consent must be granted), a Restricted Discretionary Activity (where the matters of discretion are listed, with the ability to grant or refuse consent) or a Discretionary Activity (where all of the relevant effects, objectives and policies are considered with the ability to grant or refuse consent);
- If a consent was required how long would it be granted for; and
- Could farmers prepare and certify their own FEPs, or are they required to be independently certified by a Certified Farm Environment Planner (CFEP).

1707. These matters are discussed below.

⁴⁹² Mr Eccles, Block 3 evidence in chief, Annexure GE2, Mr Willis, Block 3 evidence in chief Attachment A pg. 15, Miraka Closing Statement, Appendix 1 pg. 10.

1708. The Council's reporting on FEPs spanned over Block 2⁴⁹³ and 3⁴⁹⁴ hearing reports, as well as in the Closing Planning Statement.⁴⁹⁵ The Block 2 section 42A report essentially focused on the policy and rule framework, while Block 3 section 42A was on the contents of the FEP - Schedule 1(now Schedule D).

Overview

1709. The submissions on FEPs were extensive and wide ranging, across the full spectrum from deletion of the whole framework through to substantial changes to the approach to FEPs and their content.⁴⁹⁶ However, as mentioned above, almost all submitters who appeared supported FEPs (even those initially opposed to them), and agreed they were 'the' key implementation tool. The Panel agrees that FEPs are, and will be, a fundamental part of PC1 and its 'success'. Accordingly, we only address the 'what and how' - and not 'if' there should be FEPs.

1710. Some of the general themes in submissions relevant to FEPs included the complexity of FEP requirements in notified Schedule 1, the ability of farmers to complete their own FEPs, the costs of FEP preparation and implementation, as well as the unrealistic timeframes to prepare and implement them. Others stated that there needed to be clearer direction about what FEPs are intended to achieve, and clearer guidance on how FEPs are to be audited.

1711. PC1 as notified had an emphasis on permitting farm activities with an FEP where they were part of a Certified Industry [Sector] Scheme (see the following section of this report). Controlled Activity status was proposed where the farm activities with an FEP was not part of a Certified Sector Scheme, or was for Commercial Vegetable Production (CVP). Moreover, Schedule 1 was largely based on managing and requiring reductions in sub-catchment-wide diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens from farming activities. FEPs were to incorporate a risk-based approach to defining mitigation actions relation to stock exclusion from water bodies, riparian management, critical source areas, land use and grazing, nutrient management and cultivation management.

1712. The policy basis for FEPs was primarily through Policies 1 and 2 (as notified) for farming/horticultural activities with Policy 3 specific to CVP. These policies set out the requirements for and content of FEPs and link to the rules and Schedule 1 (which

⁴⁹³ See section C1.3. Policy 2 and Farm Environment Plans.

⁴⁹⁴ See section C.3. Farm Environment Plans (Schedule 1).

⁴⁹⁵ Section 6.2 - Farm Environment Plans.

⁴⁹⁶ The section 42A reports have provided a summary and analysis of the submissions.

specified out the specific contents of the FEP). It set out the management framework including: requiring farming activities to improve farming practice to reduce diffuse discharges of the four contaminants; focusing priority action to those farming practices that reduce the contaminant(s) of greatest concern within the sub-catchment as shown in Table 3.11-1, permitting some farming activity with an FEP; and the consenting regime as described above. It also states that the higher emitters (above the average within the FMU) were expected to make greater reductions in contaminant discharges. The policy basis for the FEPs has been addressed in sections 7 and 9 of this report related to the Objectives and Policies respectively.

1713. As reported in the Block 2 section 42A report, WRC had been progressing work on how FEPs are best managed, and this led to significant changes in the Officers' recommended approach. The key 'shifts' from the notified PC1 included:⁴⁹⁷

- While maintaining and strengthening FEPs as a core methodology in PC1 to deliver reductions across all of the four contaminants, the permitted activity basis moved to a consenting regime.
- Moving away from a more 'standards' based approach to one based on a 'good farming practices' framework with a focus on 'objectives and principles' (which meant the assessment of which needed to be via a consenting regime).
- Introduction of a grading system (as part of monitoring and compliance), requiring audits of FEPs and their implementation to give confidence to the Council, the community and farmers, that improvements in farm practices were being made.

1714. The FEP approach described in the Block 3 section 42A report (Proposed Revisions to Schedule D to incorporate Good Farming Practice into Farm Environment Plans")⁴⁹⁸ also represented a significant shift in focus for PC1 from the notified plan version. This was an 'objective and principle approach' where "*The revised schedule takes an outcome-based and principle-based approach to FEPs. This revised approach is considered inherently more flexible and more able to be implemented using the "expert advisor" role of the Certified Farm Environment Planners enabled by the plan. Arguably, the approach better empowers land-owners to operate and respond to changing circumstances over time, in a way that focuses on the achievement of a desired result, as opposed to simply ticking off a fixed set of actions.*"⁴⁹⁹

⁴⁹⁷ Section 42A report - Block 2 - para 317 - page 53.

⁴⁹⁸ Block 3 section 42A report pages 52 – 77.

⁴⁹⁹ Block 3 section 42A report pages 56.

1715. It is stated⁵⁰⁰ that Schedule D (as revised in the Block 3 section 42A report):

"...creates an obligation for farmers to farm in accordance with 6 objectives, with one high level overarching objective related to the whole farm, and a further five objectives each related to a specific area of farm management. Collectively these 6 objectives apply to the management areas of the farm that contribute the four contaminants PC1 seeks to manage.

Each objective is supported by one or more principles. The principles give guidance about how the objection is to be met. Principles 1 -21 either reflect verbatim or are slightly amended versions of the principles set out in the Good Farming Action Plan for water quality 2018⁵⁰¹. The amendments were considered necessary to reflect the objectives of PC1, and/ or for clarity in a PC1 context. Principles 22 and 23 are specific to PC1 and were derived to implement minimum requirements of the policy framework of PC1."

1716. While there was some support from a number of submitters for the approach, we 'tested' this proposition with a number of parties at the Block 3 hearings. We found that many of the farmers and other submitters, including Federated Farmers, Fonterra and to an extent Miraka, were more comfortable engaging about specific actions to address a clear risk of contaminants reaching water. In this regard, we agree with Mr R Allen of Fonterra where he stated:⁵⁰²

"There is very little clarity of expected outcome for a farmer in the recommended approach. If we want farmers to engage with, and commit to their FEP, the process for developing them needs to be real and meaningful. I am concerned that a focus on "objectives and principles" will see FEPs dismissed as esoteric by many farmers. An opportunity to secure genuine buy in to secure better water quality outcomes through practical, understandable actions on farm will be missed."

1717. In the Closing Planning Statement,⁵⁰³ the Officers noted that a number of parties put forward standards-based approaches, but they were advancing material that would

⁵⁰⁰ Block 3 section 42A report pages 57.

⁵⁰¹ Good Farming Practice Action Plan for Water Quality 2018, <http://www.fedfarm.org.nz/FFPublic/Policy2/National/Good Farming Practice-Action Plan for Water Quality 2018.aspx>.

⁵⁰² Mr Allen, Block 3 evidence in chief, paragraph 2.2.

⁵⁰³ Officers' Closing Planning Statement, paragraph 44.

require considerable subjective judgement within a permitted activity framework,⁵⁰⁴ were very lengthy and complex,⁵⁰⁵ or had significant issues with certainty.⁵⁰⁶

1718. Moreover, Officers remained of the view that that the objectives (revised to be "goals") and principles approach to FEPs was:⁵⁰⁷

"...more appropriate to deliver bespoke farm environment plans on individual farms. Officers consider that using the objectives and principles as performance standards in a resource consent, supported by farm environment plans that describe the individual specific actions that will be adopted to meet those performance standards, is the best approach to achieve widespread farmer adoption. The expert-led review process, guided by Council's proposed review manual and moderation process, and the ability to review consent conditions to apply farm specific standards if required, provides sufficient certainty that improved farming practices will be adopted."

1719. As already addressed, FEPs are the key method to both improving farming practice and farmers' commitment to be on course to achieve further contaminant reductions in the medium and long term, with the FEPs needing to focus on the first 10 years of an 80-year 'journey' to achieve Te Ture Whaimana. We accept that for many farmers (but not all, as many are already operating under 'voluntary' FEPs) the introduction of greater regulation, setting how they will need to farm their land, is a significant change and imposition; but one that is necessary to improve water quality. Given this, it is our finding that the requirements of FEPs needs to be as 'simple' and efficient as possible, with the minimum amount of regulatory intervention.

1720. In summary, the Panel has recommended a two-tiered FEP approach; enabling within a Permitted Activity Low Intensity Farming rule, a "standards" based FEP (as has been outlined earlier in this section of the report); and for the other farming and CVP activities which require a consent, a FEP based on the 'goals and principles' approach. This is set out in further detail below. The role of any Certified Sector Scheme is provided for in the FEPs, and this is addressed in this report under the heading of "Certified Sector Schemes".

⁵⁰⁴ Ms Hardy, Block 3 supplementary evidence, Section 6.

⁵⁰⁵ Mr Eccles, Block 3 evidence in chief, Annexure GE1 & Annexure GE2, Miraka Closing Statement, Appendix 1 pg. 10.

⁵⁰⁶ Mr Willis, Block 3 evidence in chief, Attachment A pg. 15; Mr Eccles, Block 3 evidence in chief, Annexure GE1 & Annexure GE2; Miraka Statement, Appendix 1 pg. 10.

⁵⁰⁷ Officers' Closing Planning Statement, paragraph 45.

Farming activity with a FEP as a Permitted Activity⁵⁰⁸

1721. Before addressing the contents of FEPs (now Schedule D), we need to record why we think that farming activities with FEPs can be a Permitted Activity; and when a resource consent would be required. Determining this clearly impacted on the appropriate policy and rule framework.
1722. The Panel received substantial legal submissions and evidence (including expert farms systems and planning evidence) about whether or not a farming activity with a FEP was capable of meeting the legal 'tests' so as to be permitted activities. And whether this would be an effective means of implementing the objectives and policies of PC1. We also had significant 'discussions' with submitters and their representatives on these matters at the hearing.
1723. A number of parties, notably Fonterra, Miraka, Federated Farmers, F4PC, and various other individual farmer submitters, supported a permitted activity status for farming with a FEP (including under a CSS). The Block 2 Section 42A Report authors, various submitters⁵⁰⁹, and the Panel, raised concerns about whether a FEP permitted activity status was capable of meeting the legal principles relevant to permitted activities, and if so, whether this would be an effective means of implementing the objectives and policies of PC1.
1724. The Block 2 Section 42A report authors reached the view that the permitted activity rule 3.11.5.3 could not meet Section 70 of the RMA and so farming (under a CSS) could only be provided for as a resource consent (Controlled Activity). As part of this approach, the Section 42A Report recommended deleting the concept of CSS entirely⁵¹⁰. The report also then recommended a drafting solution to the Section 70 issue.
1725. We have already addressed the issue of section 70, and the nature of the landuse and discharge rules in this report; and we do not address it again here, other than to say that we are satisfied that under the approach we have recommended, section 70 does not preclude permitted activities, nor farming with a FEP as a permitted activity; we are satisfied in particular that the permitted activities we are recommending are not likely

⁵⁰⁸ The Commercial Vegetable Production sector accepted the CVP with a FEP would require a consent, and not be a PA. We address CVP separately in this Recommendation Report.

⁵⁰⁹ E.g. Fish and Game, Oji, Hancock and WPL.

⁵¹⁰ We address CSS's separately in this report.

to give rise to any of the effects listed in section 70(1) at the point of discharge (including as a result of cumulative effects).

1726. The fundamental issue we have focused on in this part of the report is whether the drafting of a permitted activity rule can be sufficiently clear and certain, and not reserve (significant) discretion to the person undertaking the activity (or the CFEP as a third party). We address this below.

1727. There was a significant degree of contention about this subject. We have reviewed the legal submissions on this matter, and set out what we find are the legal principles relevant to the validity of permitted activity rules that can be distilled through caselaw. In summary those principles⁵¹¹ are:

- Permitted activities must be capable of objective ascertainment; on their face they must be clear and certain to plan users. A lack of certainty may render the rule invalid for inherent vagueness;
- A permitted activity rule cannot reserve significant discretion by subjective formulation; the council cannot reserve the right to decide for itself whether an activity satisfies the requirements of the rule; and
- A permitted activity rule is not automatically invalid simply because it calls for an element of judgment or evaluation; not all rules can be defined with scientific or mathematical certainty. Some degree of flexibility is permitted.

1728. In this regard, we note that the notified version of permitted activity Rule 3.11.5.3 set out a number of conditions, one of which is the existence of an FEP that is prepared in accordance with Schedule 1, has been approved by a CFEP and is provided to the WRC. We find that on its face, the rule itself and its conditions were quite clear, including that requiring the FEP be "*prepared in accordance with Schedule 1*". We also find, that for the reasons that follow, the Low Intensity Farming rule that we have recommended would meet the requirements of a permitted activity, for similar reasons to the notified Rule 3.11.5.3.

1729. With respect to the recommended 'FEP - PA' rules, we have applied the relevant legal tests to determine that they can, in fact, be permitted. That is, the FEP contents are expressed with sufficient detail and clarity in (now) Schedule D to meet those relevant

⁵¹¹ Drawn from the Miraka legal Submissions at Block 3- paragraph 2.7 - 2.10- accepted in WRC's closing Legal Submissions, paragraph 4.2.

tests. In short, the FEP is based on a set of standards which leaves little room for any discretion.

1730. While we have provided for some farming activities with a FEP as a permitted activity, they are limited to farmers who are farming at a low intensity (i.e. low in terms of the N leaching loss rate numbers in Table 1 of Schedule B) as per the Low Intensity Farming rule. Beyond these, resource consents are required.
1731. In terms of 'risk', we find that the rule framework we have proposed, particularly in terms of the permitted FEP activity rule, is appropriate. As the permitted activity rule applies to those who are the 'lower emitters', it should incentivise other farmers to farm at or below those N leaching rate numbers and who are not farming in the more sensitive sub-catchments to reduce their N leaching so as to be a permitted activity.
1732. We also note that Schedule D - PA - FEP is fairly 'rigid', so as to be certain, and will clearly not be suitable for all farms. However, it is the Panel's finding that it will most likely be suitable for farmers with reasonably standardised systems, on reasonably flat country (who have either complied with stock exclusion or can comply) and with no other unusual environmental, geographical or other features.
1733. Moreover, we accept that there may be farmers who will be able to comply with almost all aspects of Schedule D, except for one or two aspects. Stock exclusion, as set out in Schedule C, is a good example. There are likely to be farmers, most likely drystock farmers, who can comply with all aspects of Schedule D other than stock exclusion, or importantly who choose not to, and seek a tailored outcome. In this case a consent would be required.
1734. In the Panel's view, the above paragraph accords with the overwhelming evidence we heard from drystock farmers. They were very clear that due to their unique circumstances; that each farm was different (which we understand and accept), the nature of the land they are farming, and that one size (of regulation) does not fit them, meant that prescribing stock exclusion (particularly fencing) would not be sensible, practical, affordable or result in the outcomes sought by PC1. We agree.
1735. However, for the reasons already set out with regard to the legal requirements for permitted activities, those seeking a tailored approach to having a FEP would be required to obtain a resource consent. For many drystock farmers this is likely to be a

controlled activity⁵¹² where consent must be granted, and the focus would be on stock exclusion only if this was the only matter not complied with.

Efficiency, potential regulatory failure and section 32

1736. A number of parties, notably Federated Farmers and Fonterra, raised the issue of efficiency of the proposed PC1 provisions and section 32 evaluation. Mr Matheson, legal counsel for Fonterra, set out under Part C - Other Legal Matters⁵¹³:

“I understand that some parties (or the Council staff) have suggested that the Hearing Panel either should not or cannot have regard to the ability of Council to implement any changes proposed. With respect, that proposition is completely wrong and is contrary to the core elements of section 32 – the requirement to identify “reasonably practicable” alternatives to achieve an objective; and the requirement to test the effectiveness of an identified alternative:

(a) The core element of s 32 is that any proposed planning provisions are the most appropriate method of achieving a certain objective, having regard to the relative efficiency and effectiveness of reasonably practicable alternatives for achieving the objective(s).”

1737. We note in passing that Mr Matheson may have been referring to the verbal submissions of Dr Somerville QC for WPL. Dr Somerville suggested to us that council resourcing is not an RMA issue, but subsequently, told us that we need to have rules and policies that can work, including administratively and substantively.

1738. In the same section of his legal submissions, Mr Matheson quoted *Royal Forest and Bird Protection Society of New Zealand Inc v Whakatane District Council*⁵¹⁴ where the Environment Court identified a number of factors to identify reasonably practicable alternatives, and commented:

“(a) For current purposes, factor (vi) is key: the “likelihood of success of the option”. Success is to be taken as achieving the objective. If a proposed set of provisions will not be able to be implemented (eg because the nature and extent of resourcing is impracticable), then those provisions will not be successful.

(b) Likewise, even if an option were identified as being reasonably practicable (and in my submission an option that has a very low chance of success because it cannot be

⁵¹² Subject to meeting the controlled activity rule provisions.

⁵¹³ Mr Matheson - Legal Submissions - Block 2, paragraph 13.4.

⁵¹⁴ [2017] NZEnvC 051 at [53].

implemented should not pass that test), then that option still must be assessed in terms of its relative effectiveness. For obvious reasons, if a set of provisions cannot be implemented by Council or by any other parties within the system (farm advisers etc), then those provisions will not be effective.”

1739. Mr Willis, Fonterra's planning witness, stated in his Block 3 evidence, in the context of section 32 and rule effectiveness:⁵¹⁵

“Assurance of effectiveness is a section 32 matter. In my opinion, Schedule 1, and the wider set of rules within which it operates, can be drafted to provide a high level of assurance of effectiveness of FEPs. The specificity with which requirements are expressed, the role and expertise of the certified farm environment planner (CFEP) and the certification, audit and review processes are central to providing that assurance. While a small level of discretion (in the form of expert judgment) may persist as to exactly how certain requirements are implemented in practise, that is not fatal to the viability of a permitted activity rule, particularly if the range of alternative options are clearly described within Schedule 1.”

1740. Mr Eccles, planner for Federated Farmers presented expert evidence on the risk of regulatory failure if the section 42A recommended approach in Blocks 2 and 3 in relation to FEPs was adopted. He stated that:⁵¹⁶

“The as-notified PC1 provisions will produce implementation strain on WRC and industry, but in my view “both sides of the fence” would be able to manage if those provisions were adopted. However, I am very concerned that there are significant implementation issues (many relate to resource and capability constraints) that mean it is very unlikely that WRC and the rural professional industry will be able to implement PC1 if the recommendations contained in the 42A report are adopted. I am concerned that apart from the 42A report suggesting there could be implementation issues resulting from the recommendations, there has been no analysis or further consideration of this critical issue. The risk of regulatory failure (as a result of the proposed drafting of provisions) is a risk of acting in the face of uncertainty or insufficient information that is required to be considered in a s32 assessment. In the alternative, or additionally, the risk of regulatory failure could be considered as an efficiency and effectiveness matter under s32(b)(ii).”

⁵¹⁵ Mr Willis, Block 3 evidence in chief, paragraph 3 1.2 b.

⁵¹⁶ Mr Eccles, Block 2 evidence in chief, paragraph 24.

1741. It was Mr Eccles opinion (and this was echoed by a number of submitters who appeared before us) that a large volume of consents would need to be processed, and FEPs prepared and certified by a CFEP, all within a very short period of time (likely to be over 5,000 consents that need to be processed and monitored by WRC and 5,000 FEPs that need to be prepared by CFEPs). He considered that there was a real risk, due to the lack of resources by both WRC and the industry to undertake such a large task, that there would be regulatory failure.

1742. For its part, WRC as submitter (and as implementer of PC1) said in evidence (Mr Sinclair), and in its closing statement (Mr Tamura) that:⁵¹⁷

“Council is committed to implementing PC1 in whatever form it ultimately takes as efficiently and effectively as it can. As the regulatory authority tasked with this function, Council is primarily concerned with ensuring that the planning framework, including rules and associated requirements are: clear, robust, and able to be effectively implemented and ultimately enforced. This is essential to achieve the outcomes sought through PC1 and give effect to Te Ture Whaimana o Te Awa o Waikato, the Vision and Strategy for the Waikato River (Vision and Strategy). This is essential given the approximately 13,800 farming activity land uses that are greater than 4.1 hectares within the Waikato and Waipā River Catchments. (Underlining added).”

1743. We do not find providing for FEPs as a permitted activity turns on the section 32 efficiency argument and the risk of regulatory failure. However, we are persuaded by the legal submissions and evidence of Fonterra and Federated Farmers that regulatory efficiency (more correctly regulatory failure), should at least be taken into account; that is, whether the PC1 provisions can actually be given effect.

1744. Notwithstanding the advice on behalf of WRC we have quoted, we think it would be extremely difficult for the WRC to be able to efficiently and effectively (in a timely and robust way) handle the thousands of PC1 consent applications, let alone these on top of all the consent applications generated by the WRP and other Plan Changes (including PC6).

1745. In particular, we are persuaded that WRC is likely to 'struggle' to implement PC1 as proposed in the section 42A report and the Officers' closing statements, without some significant phasing in of when the various consent applications are due. In this respect,

⁵¹⁷ Mr Tamura, WRC Closing Statement, paragraph 2.

we note that Officers' final marked up version of PC1 sought to amend Table 3.11.2 - Sub-catchment Application dates, to enable an 8-year phase-in date for all consent applications.

1746. The Panel was not persuaded by the recommended approach (all farming activities requiring an FEP to be via a resource consent) and the 8-year phase-in. As had been pointed out by a number of submitters, obtaining a resource consent is only one step in the process, and it may be several years later before the FEP actions are netting better environmental outcomes. This would likely lead to PC1 not meeting its short term (freshwater) objective.
1747. We have provided a revised table (Table 3.11-3) setting out the priority sub-catchments over a 5-year timeframe. The plan rules, and relevant timeframe link to this table. This phasing in addressing those 'priority' sub-catchments first (those relating to riverine and peat lakes and Whangamarino, followed by *E. coli*) along with providing for permitted activity rules (as addressed above), as well as the PA/FEP not having to be certified by a CFEP, will, in our view, enable the WRC (and farmers) to efficiently implement PC 1.

Farming activity with a FEP - Consent Process

1748. As part of the Council's process in relation to FEPs during the PC1 hearings, it prepared a paper by the WRC's PC1 implementation team⁵¹⁸ that provided a summary of how FEPs and the Good Farming Practice (GFP) framework could be used. It included a conceptual framework for what might be included under a GFP approach to describe how a farmer would be required to operate. This included:

- That the objective of an FEP should be to show that farming activities are consistent with GFP;
- A description of the process required for developing an FEP, and how that related to GFP;
- What other information should be included in a consent application alongside the FEP;
- What types of conditions should be included on a resource consent, including audit requirements;
- The ability to change the FEP at any time; and
- A description of auditing requirements and consequences.

⁵¹⁸ Block 2 Section 42A report - Good Farming Practice - as an approach to reducing contaminant losses from farms in the Waikato and Waipā catchments under PPC1.

1749. Following the Block 1 hearing, WRC also facilitated and ran workshops on the proposed approach to GFP and FEPs with industry bodies and practitioners. This helped to inform their proposed revisions to the specific wording proposed for Schedule D. That wording, along with supporting information about the wider implementation of FEPs, was provided in a paper contained within the Block 3 Section 42A Report.⁵¹⁹ As reported by the Officers:⁵²⁰

"The revised schedule takes an outcome-based and principle-based approach to FEPs, is considered by the implementation team to be inherently more flexible, and is expected to empower land-owners to operate and respond to changing circumstances over time, in a way that focuses on the achievement of a desired result, rather than completing a fixed set of actions."

1750. Schedule D as recommended by the Officers is aimed at creating an obligation to farm in accordance with a number of objectives (now called goals)⁵²¹ - one high level overarching objective related to the whole farm, and the other objectives related to a specific area of management on the farm. Collectively, these objectives would apply to the management areas of the farm that contribute the four contaminants PC1 seeks to manage. Each objective is supported by one or more principles, which are to give guidance on how the objective is to be met. As we understand it, most of the Principles are copied from the principles set out in the Good Farming Action Plan for Water Quality 2018,⁵²² or are based on those, but amended as necessary to better reflect PC1's objectives or provide greater clarity in a PC1 context.

1751. We accept that the 'goal/principle' approach as set out in the Council's Closing Statement is appropriate in a consenting context as those goals and principles provide a sound basis on which to assess an application and determine if the FEP will assist in achieving a reduction in diffuse discharges of the 4 contaminants.

1752. Under the revised schedule, which the Officers have recommended in their final marked up version of the PC1 provisions, a farmer would be required to prepare a FEP, with a CFEP certifying that it meets the Schedule D requirements, which:

- Assesses their farming operation against each of the goals and principles;

⁵¹⁹ Proposed revisions to Schedule 1 to incorporate good farming practice into Farm Environment Plans. Block 3 Section 42A Report, paragraph 210.

⁵²⁰ Concern was raised during the hearing that the use of the word "*objectives*" in the Schedule could be confused with the Plan "*objectives*". We have accepted the Officers' recommendation to use the term "*goals*" in place of "*objectives*", which we consider is a more technically correct description.

⁵²² Good Farming Practice Action Plan for Water Quality 2018.
http://www.fedfarm.org.nz/FFPublic/Policy2/National/Good_Farming_Practice-Action_Plan_for_Water_Quality_2018.aspx.

- Records and commits to continuing those existing actions and practices that are consistent with the goals and principles; and
- Identifies actions and practices that need to be changed or adopted in order to be consistent with the goals and principles.

1753. A number of submitters supported and offered a 'purpose' statement for FEPs. The Council, in its Closing marked-up version offered the following Purpose Statement, having considered the range of suggestions proposed by other submitters.⁵²³

“PART B – FEP PURPOSE

The purpose of a Farm Environment Plan is:

1. *To assess whether current farming activities are consistent with the goals and principles set out in part C of this schedule; and*
2. *Where current farming activities are not consistent with the goals and principles set out in part C of this schedule, to identify and record the specific, time bound actions and mitigations that will be adopted to ensure the farming activities are consistent with the goals and principles set out in part C of this schedule.”*

1754. We generally support the Purpose Statement, but in the revised Schedule D we recommend, we have made it clearer that "*specific, time bound actions and mitigations*" may be required even if the current farming activities are consistent with the goals and principles set out in part C of this schedule, so as to ensure the greatest reductions in diffuse discharges are achieved.

Review Provisions

1755. We did not entirely support the "Review Requirements" as proposed by the Officers. In their Closing Statement, the text recommended stated:

“PART D – FEP REVIEW REQUIREMENTS

The FEP shall be reviewed by a Certified Farm Environment Planner for consistency with this schedule:

1. *Prior to lodging a landuse consent application with the Council under rule 3.11.5.3 – 3.11.5.5 of Chapter 3.11; and*
2. *Within 12 months of the granting of that consent application; and*

⁵²³ Eg, Fish and Game, DoC, Federated Farmers and Miraka.

3. *In accordance with the review intervals set out in the conditions of that resource consent.*

The purpose of the review is to provide an expert opinion whether the farming activities on the property are being undertaken in a manner consistent with the goals and principles set out in Part B of this schedule.

The review shall be undertaken by a Certified Farm Environment Planner who holds a reviewing endorsement (issued by WRC), and must be undertaken in accordance with the review process set out the Waikato Regional Councils FEP Independent Review manual.

1756. The Panel does not agree with the underlined section of the final paragraph above.
1757. As we understand it, the review process proposed is that described in the Block 3 Hearing Report - Appendix 3: Review Grades and Confidence ratings.⁵²⁴ As was set out in that report, and as discussed at the hearing, the review is based on a Level of Confidence (LOC) rating with an A to D Review grading. The CFEP would undertake that review against the FEP and the actions/mitigations that have/have not been undertaken. A grade is then assigned that will impact on how often the farm needs to be reviewed in relation to improving its rating.
1758. We further understand that the details of the grading system would be set out in the "*Waikato Regional Councils FEP Independent Review manual*". Neither the Panel, submitters, nor those farmers who would be subject to the FEP review, have seen or know what is in the Review Manual. Given that the FEP is one of the major tools to address contaminant loss in PC1, and their 'success' will have a major role in ensuring the short-term (freshwater) objective is met, we do not think the review of FEPs should be managed in a way that is "*to be advised*".
1759. Moreover, in relation to those FEPs under a consenting process, the consent holder is required to give effect to their consent. As set out in the Purpose Statement, the FEP may have specific and time bound actions and mitigations (which will be conditions of consent either specifically or as part of giving effect to the FEP). These conditions will need to be complied with. It is the Panel's view that it is inappropriate in this context to use a grading system for consent compliance.
1760. The Panel's recommendation is not to include a statement that the review shall be undertaken in accordance with the review process set out the WRC's FEP Independent

⁵²⁴ Block 3 Section 42A report - page 77 (page 25 of Mr Dragten's report).

Review manual. The Council should be checking compliance with the resource consents, as it does for all of its resource consents in terms of its obligations under the RMA.

Certified Farm Environment Planner

1761. Given the role of the FEP in the consenting process, the role of CFEP will be important. This is because they will be providing farmers with expert assistance so that the FEP is developed with an appropriate degree of rigour and objectivity. They will have the relevant skills and expertise (as has been defined in the plan provisions), and will be subject to audit, and thereby incentivised to act independently and professionally. While the CFEP role gave rise to much of the debate about discretion, the Schedule D we have recommended, and as recommended by the Officers in their closing statements,⁵²⁵ has minimised that discretion such that in our view satisfies the permitted activity principles, and provides a clear limitation on the discretion available to a CFEP.

1762. In relation to that question, and the issue of discretion and certainty, we agree with Mr Willis, expert planner for Fonterra where he stated⁵²⁶ -

“Also, it is clear that the role of the CFEP is to provide that technical expertise – not some vague discretionary judgement, but expert interpretation of the actions a farmer should take in response to known and identified risks of contaminant loss. The technical expertise needs to be applied within clear parameters. If there is not confidence that an [sic] CFEP can objectively and consistently exercise that technical judgement then, frankly, there is little point in given [sic] them any role in the plan implementation.”

1763. In our view, the Council (and the community) will be able to have confidence in the performance of a CFEP in exercising their judgment with defined parameters, including:

- All Certified Farm Environment Planners need to demonstrate the necessary qualifications and skills for approval by the Regional Council;
- Discretion has been (essentially) removed from the FEP development process, including in terms of the consenting environment;
- Their performance can be audited by the Regional Council;

⁵²⁵ Having considered all of the legal submissions and evidence presented to the Panel.

⁵²⁶ Mr Willis, Block 3 evidence in chief - paragraph 6.9 - noting that this in the context of FEPs being part of a permitted activity.

- Information will be provided to the Regional Council, either by farmers/CFEP or by the CSS, to allow monitoring and enforcement by the Council as necessary; and
- It is the Council that has the ability to confirm whether the farming operation is acting in accordance with the permitted activity standards.

1764. The review of and reporting on, the implementation of actions and practices required by FEPs is critical to give confidence to the Council and the community that the FEPs will be implemented. This review of the FEP could be undertaken by the CFEP who worked with the farmer and prepared it as he/she will have an established relationship (and trust) with the farmer and is more likely to get farmer cooperation and commitment.

1765. However, notwithstanding the point we made above, any audit of the FEP either needs to be undertaken by the Council or an independent auditor, with the results being provided to the Council (as is recommended in respect to CSSs). This is to ensure there is an independent auditing process given the significance of FEPs as the major implementation tool in PC1.

1766. We address CSSs in the next section. However, we note here in the context of FEPs, that a CSS can provide support for farmers, oversight of FEP preparation and performance, potential efficiencies for large scale preparation of FEPs and additional monitoring to assist WRC in its role. This additional layer of farmer support will also provide confidence to the Council that robust monitoring is being undertaken and that there are additional incentives through the CSS to encourage farmers to achieve the required targets.

1767. As regards who should be certified to carry out advisory and audit activities under the PC1 framework, Officers addressed this in the Closing Planning Statement,⁵²⁷ having considered the evidence. There was varied evidence presented as to the level of experience and capability that should be required, and particularly the CVP sector seeking acceptance of the NZGAP audit framework.⁵²⁸

1768. The Officers were concerned that the NZGAP auditors, while being fully accredited and adhering to a robust program, would only assess compliance with a FEP. Officers stated that:⁵²⁹

⁵²⁷ Officers' Closing Planning Statement, paragraph 128.

⁵²⁸ Dr Farrelly, Block 3 evidence in chief, paragraph 36.

⁵²⁹ *ibid.*

"Schedule D of PC1 anticipates that the auditors will consider the adequacy of the farm environment plan itself, the efficacy of mitigation actions and whether they are implemented. As Officers understand it, the NZGAP audit framework will not cover all of these aspects and therefore is not recommended to be adopted".

1769. We do not share the same concern as the Officers. We are persuaded by the HortNZ evidence that the GAP Assurance Framework is comprehensive and robust, independently audited, nationally and internationally accepted and accepted by the Ministry for Primary Industry. We were also persuaded by the PVGA evidence on the NZ GAP 'bolt on' FEP, and the rigorous process required to be NZGAP 'compliant' with both the domestic and export CVP market. Furthermore, the CVP growers understand and support it, and the evidence they provided is that it is driving adherence to good practice and importantly (from a section 32 perspective), would use it anyway to meet their market quality assurance obligations. If it were not able to be used under PC1, that would result in duplication and additional costs for growers that we would need to be satisfied were matched by the benefits.

1770. While we accept that Schedule D anticipates that the auditors will consider the adequacy of the FEP itself, the relevant PC1 provisions state that the purpose of the review of FEPs is to provide an expert opinion whether the farming activities on the property are being undertaken in a manner consistent with the goals and principles set out in Part B of this schedule; i.e. the significant issue is compliance with the FEP. We consider that the NZGAP audit framework is acceptable.

1771. Officers have reconsidered the education and qualification element of the definition and now consider that the simplest process is to adopt the certified nutrient management advisor program, which includes both training as well as professional development criteria, and a code of ethics. We agree and have provided an amended definition in the Glossary of Terms.

Dispute Resolution Process

1772. Federated Farmers sought the inclusion of a dispute resolution procedure in the FEPs (noting that Federated Farmers were seeking FEPs as a permitted activity). Mr Eccles⁵³⁰ and Mr Millner⁵³¹ both addressed why they considered a dispute resolution procedure in the FEP process was appropriate.

⁵³⁰ Mr Eccles, Block 3 evidence in chief, paragraphs 3.24.to 3.27.

⁵³¹ Mr Millner, Block 3 evidence in chief, paragraphs 3.50, 3.51 and 3.57.

1773. The Panel's view is that a dispute resolution procedure is unnecessary. First, the Panel's recommendation is that most FEPs (but not all) are likely to be required via a resource consent, and the RMA has provisions dealing with adequacy of information, information requirements and consenting processes. Moreover, there are any number of dispute resolution processes that could be used between farmers and the Council if there were a dispute, and there is no need to 'codify' any particular model in PC1.

Overall Findings

1774. Having regard to our reasons above, we find that in section 32AA terms, the provisions we have recommended are the most efficient in that there is high likelihood they can be achieved and will be the most effective in meeting the outcomes sought by PC1.

1775. Our recommended Schedule D (incorporating D1 and D2) is set out in the revised version of PC1 appended to our report. [See *Waikato Regional Council Policy Series 2020/02 DOC#15708291*]

Schedule E - Certified Sector Schemes

Introduction/ Overview

1776. Certified Industry Schemes (CSS)⁵³², were recognised in the notified PC1 which provided for farming to be a permitted activity provided the farming activity was "*registered to a Certified Industry Scheme*". Schedule 2 set out the criteria for Certified Industry Schemes.

1777. Certified Sector Schemes were proposed to be entities that have been approved by the Chief Executive Officer of WRC as meeting specific requirements in PC1 for supporting the preparation of FEPs and overseeing their ongoing implementation. Only a few submitters who appeared before us said they would likely register as a CSS, including Fonterra and Miraka. They told us that their seeking to be a CSS was dependant on the final rule framework, and in particular if farming activity with an FEP remained a permitted activity. If resource consents (for all or most) farming activity with an FEP was required, they said they would unlikely register as a CSS as they did not want to duplicate consent requirements.

1778. As notified, the CSS concept was "*intended to manage permitted activities with a comparable level of scrutiny to consented activities, but with the CSS providing the*

⁵³² Noting that the Officers' recommendation is to change the name to Certified Sector Schemes - so as to move away from reference to "industry". We accept the Officers' logic and use this name (abbreviated to CSS) from here on.

oversight instead of WRC".⁵³³ The certification process was set out primarily in Schedule 2. Farming activities registered with a CIS were permitted and those not registered would generally require resource consent.

1779. A number of submitters supported the concept of the establishment and use of CSSs as a method for achieving the objectives of PC1. These included (but were not limited to) Fonterra, Miraka, Federated Farmers, Beef and Lamb, DairyNZ, Waikato Dairy Leaders Group, Horticulture NZ, and PLUG. The Iwi Co-Governors conditionally supported the concept of CSSs as a mechanism for achieving Te Ture Whaimana efficiently and at a larger scale on the basis that there was scope for well-resourced and effective Industry Schemes to provide a high-quality service to landowners who are members of those Schemes.
1780. A number of submitters opposed the concept of a CSS in its entirety on the basis that it is, at best, an inappropriate delegation or transfer of WRC's functions, powers and duties, and at worst, unlawful. These included WPL, Fish and Game, Forest and Bird, DoC and Oji, and others, as set out in the Block 2 and 3 section 42A reports. Hancock, while supporting the concept in part, also questioned the vires of third parties determining matters that are the responsibility of WRC.
1781. The CSS concept was a primary method in the notified version of PC1 for supporting the preparation and implementation of FEPs, and is therefore closely linked to the (permitted) rule framework, and the content of the notified Schedule 1 (the requirements for FEPs). The permitted activity status of the notified Rule 3.11.5.3 (PA - Farming Activities with FEP under CSS) has a significant impact on WRC's implementation of PC1 – as if not permitted, approximately 5,000 plus farms would require resource consent.
1782. Much of the opposition to CSSs was due to its activity status (PA) and the purported unlawful delegation, as those parties saw it, of the council's functions to the CSS itself. Due to this, this section of our report, and the rules related to CSSs, needs to be read in conjunction with that part of this report addressing FEPs and the rules related to those. They are inextricably linked, particularly with respect to its vires as a permitted activity, and how they may function under a FEP-PA rules framework.

⁵³³ Block 2 section 42A Report - page 126 - paragraph 779.

1783. The Officers' Closing Planning Statement considered that due to the other recommendations made by them (notably that farming activities with FEPs could not be a permitted activity) that CSSs be deleted in their entirety. They stated:⁵³⁴

"In the Block 2 Section 42A Report the appropriateness and efficacy of certified industry schemes was questioned.⁵³⁵ Further evidence to the Hearing Panel and responses to questions asked of submitters have led the Officers to further question the usefulness of certified industry schemes within the PC1 provisions.⁵³⁶ Overall, it appeared that those organisations that may be interested in setting up a certified industry scheme did not consider a resource consent framework for the scheme itself to be appropriate and it became apparent that it is difficult to justify a different activity status simply based on membership of a scheme.

Certified industry schemes may be useful in a non-regulatory context, in terms of providing support to the members for resource consent applications and farm environment plans, but overall it appeared that including them in a regulatory sense would likely involve a difficult to manage mixture of roles. After some further consideration, Officers now recommend that certified industry schemes be deleted in their entirety, including the suggested new policy, the various rules, definitions and Schedule 2. This will not stop an industry body or company setting up a 'scheme' in a way that can assist members to fulfil their RMA obligations, and applying for resource consent in a normal way."

1784. We find, on balance, for the reasons that follow, that CSSs are lawful and should be provided for. However, it is our finding that farming activities under a CSS do not have a rules status *per se*; e.g. not Permitted, Controlled, Restricted Discretionary etc. CSSs are able to function in terms of the FEP Schedule - that is CSSs are able to, among other things, prepare and review FEPs. As set out in the FEP section of this report, there are different FEP schedules for those activities which are a permitted activity and those as part of a consenting process. We provide our reasons below.

⁵³⁴ Officers' Closing Planning Statement, paragraphs 56 and 57.

⁵³⁵ Section 42A Block 2 Report section C.3 [pg. 126 to 136].

⁵³⁶ Gerard Willis – Fonterra Block 2 hearings evidence for Plan Change 1 [Section 6 pg. 8 to 20], Federated Farmers Closing Statement for Plan Change 1 [Annexure A – pg. 3 to 5].

Unlawful Delegation?

1785. Submitters opposing CSSs considered the concept, and in particular Rule 3.11.5.3 (as notified), was inappropriate and/or unlawful. This was largely on the basis that the 'delegation' of powers to an external body in Rule 3.11.5.3 was ultra vires.
1786. This point was addressed in legal submissions for the Council at the opening of the Block 1 hearing, where it was acknowledged that there were some deficiencies in the construction of the rules, but that these could be resolved by wording changes.
1787. Those parties who supported the concept of CSSs, notably Fonterra, Miraka and Federated Farmers, submitted in their legal submissions (relying on the redrafted plan provisions as offered by their expert witnesses) that there was no delegation of powers. That is, the terms of CSS (as now drafted) does not devolve or assign to a CSS any section 30 RMA duties, functions or powers of the Regional Council and they remain unfettered and with the Council.
1788. We find that the use of CSSs in a permitted activity framework can be justified where there are appropriate controls in the CSS itself (as set out in Schedule D) such as the CSS has the ability to review the FEP, but any audit or compliance function is the WRC's alone. Activities managed under the permitted rules are subject to the same rigour as those managed under those rules requiring a resource consent, including the development, monitoring and enforcement of FEPs.
1789. Moreover, in response to concerns from a range of submitters⁵³⁷ about monitoring and compliance functions, the criteria in (now) Schedule E have been amended to include a requirement for appropriate governance arrangements, management systems, compliance monitoring and enforcement processes, procedures and resources. Also, it is clear that while the CSSs will need to audit their performance, Schedule E (as recommended) requires a description of an annual audit process to be conducted by an independent body, including:
- A process for assessing performance against agreed actions in FEPs at an individual property level;
 - A statement of how audit results will be shared with the Scheme's members and the wider community;

⁵³⁷ Including Fonterra, Ata Rangī, Southern Pastures Limited, DoC, Beef and Lamb and CNI.

- A process for assessing the performance of any personnel employed by or otherwise contracted to the Scheme to prepare, certify, and audit the implementation of FEPs.

1790. It has also been made clear that the review report must be submitted to the WRC annually, as sought by a number of submitters. This will ensure that WRC can monitor, review and audit the performance of the CSS. That is - it will remain a Council function to monitor and audit, and if necessary, enforce any non-compliance with the rules of PC1.

1791. Overall, we find that the terms for the CSS do not devolve or assign to a Scheme any section 30 RMA duties, functions or powers of the Regional Council. We agree with the submissions that those functions, powers and duties will remain unfettered and with the Regional Council.

1792. A number of submitters also opposed Rule 3.11.5.3 (as notified) as they considered it did not comply with section 70(1) of the RMA. As already noted, we have concluded on the evidence before us that none of the effects listed in section 70(1) are likely to occur at the point of discharge as a result of any permitted activities.

Benefits and Efficiencies of Certified Sector Schemes

1793. Both legal counsel supporting CSSs in their submissions, and the respective expert witnesses they called to give evidence, stated that there were clear benefits and efficiencies with CSSs (on a permitted activity basis). We set out below what we consider those benefits and efficiencies are, noting our view that those benefits are also likely to apply under a consenting regime.

1794. The section 42A Officers (Mr McCallum-Clark and Mr Dragten) had recommended a very different approach to FEPs than had been in the notified version of PC1. The approach recommended has been set out in the section of this report on FEPs but in summary, moved away from FEPs being a set of standards, to one of assessing a number of goals and principles, and was advanced on the basis that farming activities with an FEP would require a resource consent as opposed to their being a permitted activity.

1795. In recommending this approach, the Officers acknowledged that this would significantly increase the 'plan implementation burden' for WRC. The section 32 evaluation⁵³⁸ stated that approximately 5,000 farms in the Waikato and Waipā catchments will require

⁵³⁸ Page 154.

FEPs, and that the CSS concept was a method for delivering these with comparable oversight to a resource consent process without generating 5,000 individual resource consent applications.

1796. If all of the farming activities required resource consent, WRC would need to reconsider its implementation process to ensure that there was capacity to process the 5,000 plus applications. In evidence for WRC as submitter, Dr McLay (Block 2) and Mr Sinclair (Blocks 2 and 3) raised issues about the scale of the implementation 'challenges' of the notified PC1 provisions; and raised concerns about whether or not it would be able to 'cope' with the influx of resource consent applications if the changes recommended in the section 42A report were approved. Mr Sinclair stated that:

*"Fundamentally, there needs to be a sufficient period of time provided to enable at least 2500 (approx.) farms, and possibly up to 5700, to prepare an FEP and apply for consent, and for the Council to effectively process those consents. Being able to achieve this will necessitate significant time and resources to develop, test and prepare the internal systems, processes and infrastructure to enable it."*⁵³⁹

1797. He went on to state:

*"In my opinion, resource consent requirements should be spread across the period of the Plan itself (i.e. up to 10 years) in order to maximise the opportunity for manageable and effective implementation. A possible 5700 consents required over 10 years equates to approximately 570 per year. The preparation for, granting and regulatory oversight of which will require a significant increase in Council's current resourcing in this area. Phasing across this period of time will also have clear effectiveness benefits both in terms of Council's ability and capacity to undertake effective prior engagement with farmers."*⁵⁴⁰

1798. We have already quoted from the evidence of Mr Eccles, planner for Federated Farmers, who opined that there was high risk of "regulatory failure" if the section 42A Officers' recommendation were adopted.

1799. Fonterra ran a similar case - that the ability for the Council to be able to implement its plan was a relevant section 32 consideration. Again, we have quoted from Mr Matheson's submissions on this point above.

⁵³⁹ Mr Sinclair, Block 3 evidence in chief, paragraph 14.

⁵⁴⁰ Mr Sinclair, Block 3 evidence in chief, paragraph 16.

1800. In the context set out above, we considered the benefits of a CSS. As pointed out by a number of the farm environment experts and planning witnesses, the opportunity to obtain permitted activity status for a farming operating under a CSS is considered the primary incentive for joining a CSS. As above, Miraka and Fonterra advised us that they would be unlikely to register as a CSS unless farming activity with an FEP was a PA.

1801. While we acknowledge Miraka and Fonterra's position, it is the Panel's view that many of the benefits of a CSS would apply where resource consents are required for farming activities. In this context the CSS would be able to offer coaching and coordination, as well as completing all the necessary work to produce an FEP and the 'internal' (to the CSS) monitoring and auditing of the FEP. We consider that would appeal to a large number of farmers.

1802. Other benefits of a CSS are likely to include:

- (a) To ensure its members are registered with the Council.
- (b) To ensure its members have FEPs prepared and approved by a CFEP and will submit those FEPs (in the agreed format), on behalf of its members, to the Council within the required timeframes.
- (c) Can oversee implementation of its members' FEPs, including by:
 - (i) providing annual Nutrient Budget assessments; and
 - (ii) working with members to ensure they understand their regulatory commitments.
- (d) The CSS will be able to monitor compliance of its members with the relevant rules of PC1 (including compliance with the itemised actions set out in the FEP) and could include an on-farm visit; the results of which can be made available to the Council in an agreed format.
- (e) The CSS will be able to report member non-compliance to the Council (allowing Council to take any follow up action or enforcement against that individual member as appropriate).

1803. Moreover,

- From the industry perspective it potentially provides a stronger lever to terminate supply agreements with farmers who fail to obtain and comply with a FEP.

- From a farmer perspective, it gives them the option of dealing with their industry body as opposed to having to deal with the council as a PA or in obtaining consent.
- From the Council's perspective, it provides some standardisation and consistency in terms of FEPs and assistance with monitoring and reporting of information.

1804. On the first point, we note the evidence of Mr Millner (for Federated Farmers):

*"In my opinion, the greatest benefit of the CIS is the strong incentive for the farmer and his/her financier to make sure they are compliant with the terms of the CIS (i.e. the FEP) in order to ensure supply."*⁵⁴¹.

1805. Mr Richard Allen for Fonterra also stated:⁵⁴²

"The fundamental value proposition of a CIS for Fonterra and Fonterra supplying farmers is that the method can decrease bureaucratic processes and speed up the on farm uptake of good farming practices. Fonterra has systems and processes that will mean farmers receive far more support than they would through a Council managed consent pathway. Based on my knowledge of Fonterra's systems, capacity and commitment to a CIS programme, it is my view that the required change will occur faster and with less resistance, under a well managed CIS than under a Council managed resource consent regime. Fonterra does not intend to duplicate Council consent processes, and the associated costs, that would be the result of the Officers recommendations being accepted."

1806. We also note that throughout Mr Lee Matheson's⁵⁴³ Block 1 hearing evidence, he raised concern about the ability of the rural professional community to prepare the number of required FEPs in the timeframes proposed. The constraint on capacity that Mr Matheson highlights applies not just to FEP certification, but also to the preparation of material to support applications for resource consent. We note a number of other witnesses raised this same point, including Mr Eccles for Federated Farmers in the context of regulatory failure. Providing for CSSs is one way that efficiencies could be gained in terms of the use of the required experts, such as the CFEPs.

⁵⁴¹ Mr Millner, Block 2 evidence in chief, paragraph 3.62.

⁵⁴² Mr R Allen, Block 2 evidence in chief, paragraph 6.2.

⁵⁴³ Mr L Matheson represented The New Zealand Institute of Primary Industry Management- Waikato Branch.

1807. While the Panel accepts that CSSs would be lawful (as set out above), it also acknowledges that many of the benefits of a CSS would or could likely occur if CSSs were not provided for in PC1. This was certainly the view of the Officers in the Closing Planning Statement (quoted above). It was their view that not providing CSSs would not stop an industry body or company setting up a CSS in a way that could assist its members to fulfil their RMA obligations either as a PA or where necessary applying for resource consent.
1808. On a section 32 basis, we find it is more efficient to provide for CSSs in the way we have recommended them, especially as no 'special treatment' is accorded to them in terms of a CSS having any preferential activity status. Sector groups can, if they choose to, set up as a CSS in terms of Schedule E - Certification of Sector Schemes.
1809. More generally, having reviewed our recommended rules, including the accompanying schedules, individually and collectively, for the reasons set out in this section, we find them to be the most appropriate option to achieve our recommended objectives.
1810. While we have not canvassed every submission on the Rules in this section of our report, our recommendations as to whether those submissions should variously be accepted, accepted in part or rejected are reflected in the amendments we have recommended (or not recommended) in our revised version of PC1.

12. TABLE 3.11-2

1811. Table 3.11-2 of notified PC1 ranks the sub-catchments in order to prioritise actions that are required under its policies and rules. Rankings were divided into three tranches using the extent of the water quality improvement required across the four contaminants of concern. Basically, the approach taken was to rank sub-catchments based on the difference between the current and desired water quality state across the four contaminants.
1812. In the Closing Planning Statement, Officers recommended annual tranches spread over a longer period (eight years) in order to spread the workload associated with consent processing. The revised Table 3.11-2 also prioritised all dairy farming over the 75th percentile nitrogen leaching in the first tranche, commercial vegetable production and some high priority catchments in the second tranche and then used the same ranking mechanism as contained in notified PC1. Officers also provided an alternative ranking (Appendix B of the Closing Planning Statement), which prioritised Whangamarino Wetland and the lake catchments.
1813. A number of submitters at the hearing were of the view that not all four contaminants were a significant issue in their sub-catchment or, alternately, one or two contaminants were clearly of more importance than the others. If accepted, the corollary is that they would be better to prioritise management in their sub-catchment to target the contaminant(s) of greatest concern. We have some sympathy for this approach and consider that notified PC1 places too much emphasis on N. We understand the rationale behind this emphasis to some degree, but not entirely. On Day 1 of the hearing, Dr Scarsbrook for WRC, in response to questions from the Panel about the apparent emphasis on N, stated that, while in some individual sub-catchments there may be a need, for example, to focus on sediment, there was a 'region-wide' increase in N that needed to be addressed.
1814. Dr Scarsbrook's point is fair⁵⁴⁴, but on the following day, when discussing his report on water quality trends, Mr Vant said that he considered *E. coli* to be a 'top priority'. He based this comment on the emphasis on swimming in Te Ture Whaimana and by inference, the relationship between safe water to swim in and acceptable levels of *E. coli* as an indicator of pathogens.

⁵⁴⁴ Although we note the reasoning of Dr Neale in his Block 1 evidence for WPL that growth in algal biomass is more strongly correlated with P than with N, and accordingly, management of P should be given greater focus than N: see in particular paragraphs 17-20.

1815. As already commented on above, WRC water quality scientists provided us with current state data appended to the Closing Planning Statement (Appendix C). When we examined that information, we found a significant number of sub-catchment monitoring sites had very high and unacceptable *E. coli* levels, such that it would place them at or below national bottom lines for the *E. coli* attribute in the NPS-FM.
1816. The combination of the direction contained within Te Ture Whaimana and the unacceptable *E. coli* levels referred to above leads us to the view that this plan change needs to significantly increase its emphasis on reducing *E. coli*, and prioritise those sub-catchments with the highest *E. coli* levels.
1817. That is not to say we have ignored the other three contaminants of concern, and we undertook a similar exercise for clarity, N and P to consider what sub-catchments were of greatest concern for these contaminants, as we described in section 10 of our report. We have also noted that lakes and wetlands have in our view received relatively little emphasis in notified PC1, despite the evidence we received about very poor water quality and degraded ecosystems in some waterbodies.
1818. As a result of our position on contaminant prioritisation, we have altered Table 3.11-2 (renumbered 3.11-3) by prioritising sub-catchments associated with riverine lakes and the Whangamarino Wetland, followed by sub-catchments with the highest *E. coli* levels. We have also split (now) Table 3.11-3 into five one-year tranches. We consider eight years is too long. Sub-catchments listed in the first year are all riverine and peat lake catchments, and/or Whangamarino Wetland sub-catchments. Sub-catchments listed in the year-five tranche either rank low in terms of contaminant levels (relative to other sub-catchments) or have no current state monitoring data to assess their level of contamination.
1819. A revised version of Map 3.11-2 shows the revised priorities.
1820. For the reasons set out in this section, we find our recommended Table 3.11-3 to be the most appropriate option, together with the other provisions we have recommended, to achieve our recommended objectives.
1821. As in previous sections, our recommendations as to whether submissions on notified table 3.11-2 should variously be accepted, accepted in part, or rejected are reflected in the amendments we have recommended in (now) Table 3.11-3.

13. FORESTRY

Background

1822. Part B of PC1 contained an additional condition (for permitted activities) and matter of control (for controlled activities) from the standard matters in section 5.1.5 of the WRP in relation to effects on water quality (principally sediment) from plantation forestry. This included provision of a harvest plan, and detail on the contents of that harvest plan, for forestry activities throughout the Waikato and Waipā catchments.
1823. There were 20 submissions on the proposed condition (q) with a majority in support. Reasons for support included that harvest plans are already prepared by the forestry industry, that the addition of condition (q) is consistent with key themes in PC1, and is a sensible addition to enable Council to be more proactive in administering and enforcing rules. In their Block 3 section 42A Report, Officers considered and provided a summary and analysis of submissions with the final recommendation that Forestry (Part B) be deleted in its entirety. We adopt and rely on their summary.
1824. Council Officers referred to a determination made during the CSG process that the forestry provisions in the WRP were sufficient to control the effects of contaminant loss to water over the life of the forestry rotation, therefore giving effect to Te Ture Whaimana.⁵⁴⁵ They noted that the requirement for a harvest plan was signalled by a draft of the NES-PF and was intended to improve Council awareness of any harvesting operations that may result in a range of issues, including changes to sediment discharge.⁵⁴⁶
1825. Fish and Game supported the requirement for a harvest plan for forestry in PC1 and sought in its submission the introduction of rules regulating the clearance of plantation forestry, including more restrictive riparian setbacks for forestry, restrictions on clearance, and timeframes for replanting.⁵⁴⁷ In addition, DoC proposed a new rule requiring plantation forestry to be set back 20 metres from all waterbodies.⁵⁴⁸ Counsel for Waikato Regional Council submitted that the relief sought by DoC was not specifically sought in any submission. This appears to be correct. Ms Kissick told us

⁵⁴⁵ WRC Closing submissions, Planning Statement, paragraph 114; WRC Block 3, s42A Report, paragraph 588.

⁵⁴⁶ WRC Closing submissions, Planning Statement, paragraph 114; WRC Block 3, s42A Report, paragraph 588.

⁵⁴⁷ Submission by Auckland-Waikato Fish and Game Council; Eastern Region Fish and Game Council, pages 47 and 48.

⁵⁴⁸ Ms. Kissick, Block 3 evidence in chief, paragraphs 122-126, Schedule 1 to her evidence proposed principle 4 for Objective 6 (at page 60), and Appendix 2, her section 32AA Assessment regarding setbacks from waterbodies (page 52).

that DoC was relying on Fish and Game's submission to provide jurisdiction. As she noted, Fish and Game's submission sought more limited relief:

- i. An amendment to WRP rules 5.1.4.14.6 and 7 to reverse the exclusion of plantation forestry and require a 10 metre buffer;
- ii. An amendment to ensure that no more than 50% of a catchment or sub-catchment is harvested in a 10-year period unless 20 metre buffers are used on perennial streams, wetlands and lakes.

1826. We consider DoC's submissions and evidence on the basis that it is limited to the same relief.

Of those rules, what is truly related to harvesting of plantation forestry?

1827. In section 4 of our report, we found that the only scope for PC1 to manage forestry is in relation to harvesting operations.

1828. We have already noted that harvesting is quite a discrete operation particularly in terms of the definition in the NES-PF that does not include replanting and specifically excludes the clearance of vegetation that is not plantation forest trees ((b)(ii)).

1829. Rule 5.1.4.14 relates to soil disturbance, roading tracking and vegetation clearance in defined high risk erosion areas. Plantation forestry is 'vegetation', but the other activities are not necessarily associated with or part of forestry harvesting.

1830. Accordingly, the only rules sought by Fish and Game (and therefore DoC) that truly relate to the harvesting of plantation forestry are specific rules to: require a harvest plan prepared under the NES-PF to identify and manage risks for all waterbodies, not just the larger ones; and require that no more than 50% of any sub-catchment be harvested in a 10-year period, unless 20 metre riparian buffers are put in place adjacent to perennial streams, wetlands and lakes; or alternatively imposes a 10 metre buffer on forestry harvesting in high risk erosion areas, subject to the conditions in Rules 5.1.4.14.6 and 7.

Merits of the suggested amendments

1831. Much of Fish and Game's evidence relied on the fact that plantation forestry rules are able to be more stringent than the NES-PF, when a rule gives effect to an objective developed to give effect to the NPS-FM.⁵⁴⁹
1832. Fish and Game's planning witness, Ms Marr, observed that while the NES-PF put in place a nationally consistent set of controls for forestry activities, including harvest plans, its provisions do not require the identification and management of risks to all waterbodies, only those above a certain size. Ms Marr was of the view that as the NES-PF had a narrow consideration of waterbodies, reliance on the provisions of the NES-PF to manage forestry-generated sediment carries a high risk that the objectives of PC1 and Te Ture Whaimana related to water quality will not be achieved.⁵⁵⁰
1833. Ms Marr noted that given the impact of sediment on ecosystem health⁵⁵¹, lakes and wetlands⁵⁵², managing deposited and suspended sediment is critical to maintaining healthy aquatic ecosystems and achieving the aims of the WRPS, the NPS-FM and the Vision and Strategy (i.e. Te Ture Whaimana).⁵⁵³ Pointing to the evidence of Dr Stewart for DoC and Dr Daniel for Fish and Game, Ms Marr highlighted that forestry harvest can result in significant pulses of sediment reaching waterbodies.⁵⁵⁴
1834. She therefore recommended that PC1 include a specific rule to require a harvest plan prepared under the NES-PF to identify and manage risks for all waterbodies, not just the larger ones.⁵⁵⁵ She also recommended a new rule is included to provide for forest harvest within 20 metres of a waterbody to be a controlled activity. This would give Council the ability to have oversight and to impose further controls to manage harvest generated sediment and control vegetation clearance in riparian areas.⁵⁵⁶
1835. Ms Strang did not agree, and in her rebuttal evidence for Hancock and NZFOA⁵⁵⁷ opined that the combination of notification and provision of a harvest plan ensured Council is now made aware of any new harvesting commencing in the region and can assess the potential risk to waterways posed by the proposed harvesting and earthworks, which can be used to prioritise their compliance monitoring inspections.

⁵⁴⁹ Ms Marr, Block 3 evidence in chief, paragraph 7.14.

⁵⁵⁰ Ms H. Marr, Block 3, evidence in chief, para 2.9-2.10.

⁵⁵¹ Dr Canning & Dr Daniel, Block 1, evidence in chief.

⁵⁵² Mr Klee, Block 1, evidence in chief and Dr Robertson, Block 1, evidence in chief.

⁵⁵³ Ms Marr, Block 3, evidence in chief, paragraphs 7.4-7.6.

⁵⁵⁴ Ms Marr, Block 3, evidence in chief, paragraph 7.6.

⁵⁵⁵ Ms Marr, Block 3 evidence in chief, paragraph 2.12.

⁵⁵⁶ Ms Marr, Block 3 evidence in chief, paragraph 2.13.

⁵⁵⁷ Ms Strang, Block 3 rebuttal evidence, paragraph 7.4.

She noted that, under the NES-PF, the Council can for the first time charge the direct costs for any compliance monitoring of permitted activities to parties undertaking a range of forestry operations, including harvesting and earthworks.

Are the suggested rules more stringent than the provisions of the NES-PF?

1836. In their final planning statement Council Officers expressed the view that there are a number of provisions in the NES-PF harvest plan that make it more stringent as a whole. Consistent with this, Ms Marr’s opinion was that in general the harvest plan in the NES-PF is more detailed than the one proposed in PC1. However, she considered it was less stringent in its identification of waterbodies.⁵⁵⁸ She noted that the NES-PF only requires identification of rivers ‘to their perennial extent’ or those greater than 3 metres wide and wetlands larger than 0.25 ha. PC1 proposed that the harvest plan identify all waterbodies, streams and wetlands.
1837. Council Officers advised that *“setbacks in the WRP are similar to the setbacks in the NES-PF with the exception of lakes and wetlands smaller than 0.25ha not being included, which, in addition to application to intermittent or ephemeral rivers, is the issue identified in Fish and Game’s evidence.”* Council Officers made the comment that the position of Fish and Game and the Director-General may be justified, but did not make a recommendation given Council’s closing legal submissions as to scope.
1838. In her planning evidence for Timberlands, Ms Robson noted that the NES-PF includes specific stream demarcations with a permitted activity status which stipulates all streams less than 3m wide (bank to bank) require a 5m setback for planting or replanting and that all streams over 3m wide have a 10m setback.⁵⁵⁹The NES-PF cut-off for when a stream is no longer regarded as being perennial is the point at which an intermittent stream becomes an ephemeral channel. i.e. a 5m or greater setback applies to all continuously flowing streams and all intermittent streams.⁵⁶⁰ Ms Robson did not support the inclusion of ephemeral watercourses as they are not well defined, they flow rarely, they do not contain aquatic ecosystem habitat and their location is thus often difficult to ascertain.
1839. We found Ms Strang’s evidence on this point helpful.⁵⁶¹ She confirmed that the requirement to map under the NES-PF extends well beyond large waterbodies, down to any waterbody that is not even permanently flowing but provides some level of

⁵⁵⁸ Ms Marr, Block 3 evidence in chief, paragraph 7.9.

⁵⁵⁹ Ms Robson, Block 3, rebuttal evidence, paragraph 8.

⁵⁶⁰ Ms Robson, Block 3, rebuttal evidence, paragraph 8.

⁵⁶¹ Ms S. Strang, Block 3 rebuttal evidence, paragraphs 6.1-6.4.

aquatic habitat. She noted that the practical reality is that when preparing harvest plans, harvest planners generally have no way of knowing exactly where the perennial extent ends (unless they plan mid-summer) and simply map all waterways that are present. She added that aside from the words relating to mapping, the NES-PF includes extensive provisions relating to the protection of waterbodies that make no distinction regarding size or importance.

1840. As Ms Robson highlighted, identifying all waterways has significant implementation challenges because of the uncertainty of their overall location and uphill extent. She further noted that in proposing this extension to the application of riparian distances, Fish and Game provide no consideration of the cost benefit ratio of taking what she described as “vast” areas out of production and the further costs of working around that vegetation to avoid damage to those riparian setbacks that under almost all circumstances will span dry ground.
1841. Dr Stewart’s evidence for DoC focused on lakes. His view was that the NES-PF does not provide adequate protection for lakes, particularly during harvest periods when forestry land is acutely susceptible to sediment loss and can result in significantly elevated sediment loss to aquatic ecosystems.⁵⁶² While the NES-PF provides for 10m setbacks from lakes during harvest periods, Dr Stewart recommended that PC1 require 20m setbacks for forestry activities from all water ways within lake FMUs, as well as within the upper-river and mid-river FMUs, to reflect the sensitivity of the Waikato lake receiving environments (lakes and reservoirs) to fine sediment deposition.
1842. Ms Robson was critical of Dr Stewart’s reasoning as it was based on a single study using a novel modelling method, and she pointed to other examples of the use of that method producing implausible results.
1843. Although Ms Robson was commenting on the absence of costs in Ms Marr’s evidence, she might have made the same point regarding the relief sought by DoC in respect of lakes, and the catchments feeding them.
1844. Indeed, Ms Kissick’s s32AA analysis regarding setbacks from waterbodies and appended to her Block 3 evidence as Appendix 2, focused on the costs and benefits of stock exclusions requirements, included little analysis/discussion of the effects of changing buffer widths (setbacks) for forestry and no discussion of the costs and benefits of buffer zones/setbacks for forestry.

⁵⁶² Dr Stewart, Block 3 evidence in chief, paragraph 19.

1845. We therefore agree with the point made by Counsel for WRC in closing, questioning whether the Panel has evidence upon which to undertake a section 32AA analysis, and accept the submission that it is particularly important to have appropriate evidential support for that relief given that what is being requested is more stringent than the NES-PF.
1846. The Officers maintained their position as set out in the Section 42A Block 3 Report that while generally supported, the advantage of reliance on the universal application of the NES-PF outweighs the benefits of having bespoke provisions in PC1.⁵⁶³ Ms Robson had a similar view, that given national regulations have been specifically developed for plantation forest activities, they should be relied on. She noted that Council implements the NES-PF, which contains a number of other provisions that address the risks of sediment transport. Those specific to harvest are at regulations: 65, 66, 67, 68 and Schedule 3. Many more sediment management provisions are in other parts of the NES-PF regulations.
1847. Dr Mitchell, in his rebuttal evidence for Oji,⁵⁶⁴ agreed with Ms Marr that the NES-PF does provide for regional plans to have more stringent standards than those specified in the NES-PF, but not with her assessment of its applicability in the way she suggests. Like Ms Robson, Dr Mitchell also did not agree the NES-PF should be departed from except in special and limited circumstances, given the primacy of an NES within the planning framework and the preparation of the NES-PF, well after the promulgation of the NPS-FW. In his view, the drafters of the NES-PF would have been well aware of the requirements of the NPS-FW and that they would, all things being equal, be complementary to one another.⁵⁶⁵
1848. That point was reiterated by Ms Strang in her evidence for Hancock and NZFOA.⁵⁶⁶ Having been involved in the NES-PF development process, Ms Strang confirmed that the requirements of the NPS-FM and the potential impacts of plantation forestry on water quality were absolutely front and centre in the thinking as the rules were developed, as evidenced by the significant number of regulations that relate to the effects of sediment on waterways. She considered there was no merit in adding Waikato Region-specific forestry rules over and above the NES-PF and that it would result in inconsistency between regions which the NES-PF was designed to overcome. She added that the NES-PF is currently under review, that that would be the

⁵⁶³ Officers' Closing Planning Statement, paragraph 116.

⁵⁶⁴ Dr Mitchell, Block 3 rebuttal evidence, paragraph 3.2.

⁵⁶⁵ Dr Mitchell, Block 3 rebuttal evidence, paragraphs 3.5-3.10.

⁵⁶⁶ Ms Strang, Block 3 rebuttal evidence, section 4.

appropriate place to make any changes to the forestry rules to maintain consistency and that both Fish and Game and DoC are represented on that review process.

1849. We are therefore, persuaded by the evidence of Dr Mitchell, Ms Robson and Ms Strang and agree with Council Officers that the rules of the NES-PF should prevail, particularly given there is insufficient evidential support (particularly in terms of assessing the costs to forest owners) to justify the relief sought by Fish and Game and DoC to depart from the universal application of the NES-PF.
1850. It follows that we agree with the recommendation of the Officers that notified Part B of PC1 should be deleted. We find that to be the most appropriate option to achieve our recommended objectives.
1851. While we have not canvassed every submission on plantation forestry in this section of our report, our recommendations as to whether those submissions should variously be accepted, accepted in part or rejected are reflected in the overall recommendation that notified Part B of PC1 be deleted.

14. CONSEQUENTIAL CHANGES

1852. Part D of PC1 contains consequential amendments to the WRP. These changes have been identified as being required as a consequence of the substantive changes proposed in PC1, in order to ensure the integration and workability of the WRP as a whole.
1853. Very few submissions were made to Part D of PC 1. These submissions were addressed in the Block 3 section 42A report.
1854. WPL supported the consequential amendments set out in Part D, as they considered they provided added protection to the Whangamarino Wetland as a wetland of national importance. DoC also support the amendments proposed in Part D to Section 3.7 (Wetlands).
1855. Fish and Game supported the consequential amendments set out in Part D, subject to relevant consequential amendments being made to Part D to align with the substantive changes they sought to PC1. Similarly, Forest and Bird supported the consequential amendments, but noted that some amendments may be necessary to be consistent with the broader relief sought in their submission. Both submitters will need to review the Panel's recommended PC1 provisions to determine if they are satisfied their concerns have been addressed.
1856. Fish and Game also support the approach to the consequential amendment to 3.2.4.1 Water Management Classes (e), that where two policies address the same issue, particular regard is given to the more stringent policy. However, they consider this should not only be applied when there are inconsistencies. Fish and Game's view was that in that specific case, the direction given is superfluous and the limitation to situations of inconsistency could limit the operation of Chapter 3.11. They requested the amendment to 3.2.4.1 is further amended as follows:
- ...the same issue ~~and are inconsistent~~ particular regard...*
1857. We do not agree with the deletion sought, as the intent of the addition is to provide further guidance and clarification of when a more stringent policy is to be given priority. In our view, the deletion sought would not provide this guidance and clarity.
1858. Hancock and Oji opposed the consequential amendments, to the extent that they amend the existing regional plan rules so that they apply only to point-source discharges. They consider that the changes are inappropriate and unreasonable, and state that the extent to which the existing WRP rules will continue to apply to farming

activities is unclear. They consider that a number of existing standards in the plan should continue to apply to farming activities in addition to the PC1 rules. They sought that the consequential amends in Part D be deleted, so that it is clear that the existing rules continue to apply to diffuse discharges, or that the relevant rules be incorporated into Chapter 3.11 to form part of the permitted activity standards.

1859. We consider that it is already made clear through the consequential amendments where farming activities are regulated through Chapter 3.11 rather than through the existing WPR rules. The proposed consequential amendments are written to clarify that the existing plan provisions no longer apply to the diffuse discharges of N, P, sediment and microbial pathogens, which are instead addressed in Chapter 3.11. All other point-source discharge rules will continue to apply to farming activities. The issues relating to point source discharges have been discussed in sections 9 (Policies) and 20 (Glossary) of this report. Accordingly, it is not appropriate to delete the consequential amendments that refer to point source discharges.
1860. WRC supported stock exclusion from waterways as a priority mitigation, as first and second order streams and ephemeral waterways contribute the bulk of sediment within a catchment. However, the Council submission raised concerns that PC1 does not provide clarity about which chapter has preference with regard to the application of riparian planting and stock exclusion fencing. WRC notes Schedule C in PC1 as notified has a setback of 1m, whereas existing standard 3.3.4.28 in the regional plan requires 3m and specific planting density.
1861. WRC requested Part D be amended to ensure the more stringent parts of 3.3.4.28 have preference. We agree that the inter-relationship between PC1 and the existing regional plan standard 3.3.4.28 needs to be clarified with respect to riparian planting and stock exclusion fencing. We recommend that the advisory note should be amended to make it clear that the riparian planting and stock exclusion fencing requirements in Chapter 3.11 apply in addition to the default region-wide requirements.
1862. WRC also requested the consequential amendment to Rule 3.4.5.6 is amended, as irrigation data needs to be developed each month of each irrigation season to plan irrigation and FEPs do not provide data monthly. The submission sought the following amendment:

“Subject to compliance with any specific requirements, reporting through a FEP is a valid means of supplying data under this rule to describe how irrigation water balances will be calculated and managed.”

1863. We agree that reporting of irrigation data through a FEP is not appropriate as it is not expected that FEP will be updated monthly. Therefore, amending the consequential amendment to identify that the role of the FEP is to provide a description of the process of how water balances are determined, rather than the actual data is appropriate and will ensure correct and timely data will still be provided for through consent requirements. We think however that the point can be expressed more simply than as set out above. We also accept the Officers' recommendation that a similar amendment be made to the Advisory Note to the controlled activity rule for the use of water for crop and pasture.
1864. In summary, for the reasons set out above we find the consequential changes we have recommended to be the most appropriate way (together with the other provisions recommended) to achieve our recommended objectives.
1865. As for other sections, while we have not canvassed every submission on the consequential changes, our recommendations as to whether those submissions should variously be accepted, accepted in part, or rejected are reflected in the consequential changes contained in our recommended version of PC1 attached.

15. GLOSSARY CHANGES

1866. We have provided an amended Glossary of Terms including what we consider to be the appropriate terms to interpret the PC1 provisions we have recommended. Most of the terms (additions/deletion/amendments) and the reasons for them have been discussed throughout this report, particularly those sections addressing the objectives, policies and rules. Some terms have been added, deleted or amended due to the recommendations in the section 42A reports, in response to submissions and evidence, or as a consequence to some of the rules we have recommended.

1867. Those terms included in our recommended version of PC1 that have been amended or added from the notified version of PC1 include:

- Annual Stocking Rate (not in the notified PC1);
- Certified Farm Environment Planner;
- Certified Farm Nutrient Advisor;
- Commercial Vegetable Production;
- Critical Source Area (not in the notified PC1);
- Cultivation;
- Dairy Cattle (not in the notified PC1);
- Dairy Farming;
- Diffuse discharge/s;
- Drystock Farming;
- Farm Environment Plan/s;
- Farming (was Farming Activities);
- Feedlot (not in the notified PC1);
- Grazed Hectares (not in the notified PC1);
- Livestock crossing structure;
- Low Intensity Horticulture⁵⁶⁷;
- Milking Platform;
- Nitrogen Leaching Loss Rate; (not in the notified PC1);
- Property (not in the notified PC1 - and discussed in more detail below in relation to "enterprise/s");
- Regionally Significant Industry (not in the notified PC1);
- Regionally Significant Infrastructure (not in the notified PC1);

⁵⁶⁷ That is - there is no definition, but the CVP definition also includes what is not CVP) and is part of the low intensity farming rule.

- Sacrifice Paddock (not in the notified PC1);
- Sector Scheme (not in the notified PC1);
- Slope (not in the notified PC1);
- Sub-catchment;
- Tangata whenua ancestral lands;
- Winter forage crops (was a definition of Forage Crops);
- Winter Stocking Rate (not in the notified PC1);
- Woody Vegetation (not in the notified PC1).

1868. Where the reasons for the additions or amendments have already been addressed in other sections of the report relating to the objectives, policies and rules, we have not repeated them here. Also, a number of changes are as a consequence of the recommended objective, policy and rule framework. As an example, we have provided for a different activity status based on stocking rates. Accordingly, there needed to be a definition both of Animal Stocking Rate and Winter Stocking Rate. We have also provided for a different activity status based on a specified nitrogen leaching loss rate. Accordingly, a definition of Nitrogen Leaching Loss Rate was required.

1869. The following terms that were in the notified version of PC1, but are not in our recommended provisions are:

- Best Management Practice/s and Good Management Practice;
- Five-year rolling average, Nitrogen Reference Point, and the 75th percentile nitrogen leaching value;
- Offsets;
- Edge of field mitigations;
- Enterprise/s; and
- Point Source Discharges.

1870. We address these below, noting that to some extent they have been addressed in other parts of this report. We then address a number of other requests for "terms" to be included in the Glossary, and why we have not included them.

Best Management Practice/s and Good Management Practice

1871. The terms (and concepts) Best Management Practice and Good Management Practice were used throughout the hearings process, particularly in the section 42A report in relation to FEPs. While the Panel, and many submitters, did not oppose the general concept of good and best farming practices, and that farmers should be (and in many

cases were) striving to farm at good and best farming practices, we find that the terms are somewhat nebulous and difficult to define. Furthermore, in some cases the changes required in farming practices to achieve the PC1 objectives would require more than "good" and "best" farming practices.

1872. We have addressed good and best farming practices in other sections of this report. The conclusions from those sections of the report are that as good and best farming practices are not required in a policy and rule sense, there is no need to define these terms.

Five-year rolling average, Nitrogen Reference Point, and the 75th percentile nitrogen leaching value

1873. In relation to these terms, they were all related to the notified PC1 provisions and the need to establish an NRP, and to establish the 75th percentile nitrogen leaching value across each FMU. As has been discussed in section 5 of our report (Major Policy Issues) and in those sections of the report addressing the objectives, policies and rules, our recommendations are to delete: the need to establish the NRP (as notified); to use the five-year rolling average annual nitrogen loss as determined by the latest version of Overseer; or to establish the 75th percentile nitrogen leaching value. It is also noted that the WRC's submission requested that all references in PC1 to the five-year rolling average be deleted. We agree. Accordingly, these terms do not need to be defined.

Offsetting

1874. With respect to offsetting, there was considerable 'debate', particularly in the Block 2 hearings, about offsetting and compensation. This has been addressed in section 9 of this report, where the justification for our recommended policy on offsetting and compensation is set out. In this context, we do not think that there is a need to define offsetting (or compensation).

Edge of field mitigation/s

1875. We have recommended that the definition of "*Edge of field mitigation/s*" not be retained as it not a term used in the PC 1 as recommended by us. There were a number of submissions to this definition. While most supported the concept, some (WRC, Forest and Bird and Miraka) sought greater clarity to the definition - or to add new terms/definitions that specifically related to the function that this mitigation has in reducing contaminant losses to offsite surface waterbodies (e.g., permanently or intermittently wet areas, shallow water, bogs, wet gully bottoms, swamps and seeps

which have the potential to reduce losses of contaminants from farm land to surface water).

1876. As mentioned, we have not used the term "*edge of field mitigation/s*" in the revised provisions. However, the concept of mitigation/actions or technologies to reduce the loss of contaminants (including things like constructed wetland, sedimentation ponds and detention bunds) are more broadly 'incorporated' into the policies and rules. On this basis, as a consequential amendment, the definition has not been retained.

Enterprise/s and Property

1877. PC1, as notified, provided rules relating to enterprises and properties. Enterprise and property are referenced throughout PC1 in numerous policies, implementation methods, rules, schedules, tables and other definitions.

1878. The term Enterprise was defined in PC1 as follows:

***Enterprise/s:** means one or more parcels of land held in single or multiple ownership to support the principle land use or which the principle land use is reliant upon, and constitutes a single operating unit for the purposes of management. An enterprise is considered to be within a sub-catchment if more than 50% of that enterprise is within the sub-catchment.*

1879. There was no definition of property.

1880. Examples of the use of the terms "*enterprise*" and "*property*" from the notified PC1 (to provide context to the recommendations we have made) are:

Rule 3.11.5.2 - Permitted Activity Rule - Other farming activities

3. Where the property area is less than or equal to 20 hectares:

a. The farming activities do not form part of an enterprise being undertaken on more than one property;

and

4. Where the property area is greater than 20 hectares:

a. No part of the property or enterprise over 15 degrees slope is cultivated or grazed

1881. It was clear from the discussions at the hearing (mainly Blocks 2 and 3) that a property was intended to refer to a 'single' property or farm, while an enterprise referred to multiple properties which were "*a single operating unit for the purposes of*

management". However, confusingly, an enterprise by definition could constitute a single parcel of land; more akin to what most people understood to be a "property".

1882. We understand that PC1, as notified, was attempting to provide for single and multiple property farming operations. Multiple property farming operations are common, sometimes being on contiguous blocks of land and sometimes non-contiguous blocks. However, as was made clear by the section 42A authors in the Block 2 and 3 reports, attempting to manage discharge of diffuse contaminants from farming enterprises (in particular CVP with multiple properties and crop rotations) within the context of PC1 is complex.

1883. The following two paragraphs from the Block 3 section 42A report essentially summed up the Officers' view; a view that we largely accept.

"The Block 2 report did not make recommendations with respect to "enterprise", there being a general recognition that the definition of enterprise and how enterprises are managed could have had an overlap with the sub-catchment planning submissions. Setting that aside, Officers consider that enterprises can at times be complex, particularly in terms of the management of discharges of the four contaminants, uncertainty with respect to assigning NRP loss rates or other contaminant losses, and the application of FEPs. These matters are particularly pertinent when a piece of land may enter or leave an enterprise.

If the Hearing Panel was of a mind to continue to use "enterprises", Officers consider that the complexity of management make it unlikely that a permitted or controlled activity status would be appropriate for an enterprise. A restricted discretionary activity status, while possible, may need a large list of restrictions of discretion in order to capture every possible permutation of "enterprise". In any event, if the term is to be retained, Officers recommend that the same condition applying to other rules, that triggers a noncomplying activity status for intensification, ought to apply to the whole enterprise, and a definition that is mutually exclusive with property be used.⁵⁶⁸

1884. Furthermore, in the Closing Planning Statement, the following was set out:

"The issue of multiple property consents and enterprises arose a number of times, particularly in the evidence of HortNZ and Beef and Lamb. As is discussed further below in relation to Policy 9A, Officers recommend that a new policy be introduced to support resource consents for multiple properties, but overall consider that there are

⁵⁶⁸ Block 3 section 42A report - paragraphs 574 and 575.

complexities and risks involved with farming operations spread across multiple properties, or multiple properties coming under the same resource consent, such that a controlled activity status is not considered appropriate or sufficiently precautionary.⁵⁶⁹

1885. In response to the evidence (included the section 42A reports and the Closing Planning Statement) we have recommended:

- The deletion of the term "*enterprise*", and removal of this term from the provisions of PC1.
- Inclusion of a definition of the term "*property*" and focusing the PC1 provisions on property/ies.
- Provision of a specific policy and rule addressing collectives - sub-catchment groups (including what may have otherwise been enterprises) which 'recognises' that farming can and does operate across multiple properties.

1886. The policy and rules for collectives/sub-catchment has been addressed in the policy and rule sections of this report. We note that due to the complexity of consenting on a collective basis, we have recommended a discretionary activity 'consenting pathway'.

1887. As addressed above, we have focused the provisions on properties. In this respect we note that nothing in the RMA prevents applicants from applying for resource consents over a number of properties/sites. This is not an unusual occurrence.

Point Source Discharge

1888. PC 1 introduced a definition for the term "Point Source Discharges" - and that terms only applies within Chapter 3.11. That definition was:

For the purposes of Chapter 3.11, means discharges from a stationary or fixed facility, including the irrigation onto land from consented industrial and municipal wastewater systems.

1889. There is already an existing definition of point source discharge in the WRP. It is:

A stationary or fixed facility from which contaminants are discharged or emitted.

⁵⁶⁹ Officers' Closing Planning Statement - paragraph 41.

1890. Mr Matheson for Fonterra discussed this issue in the Block 2 hearing. In their recommended final marked up version of PC1, the Officers offered the following definition, essentially relying on the submission from Fonterra:

For the purposes of Chapter 3.11, the discharge of contaminants at a discrete location, directly caused by the action of a person. It includes discharges from stationary and mobile facilities, the irrigation onto land of collected farm animal effluent, and discharges from consented industrial and municipal wastewater systems.

1891. The Panel finds it confusing to have two different definitions for the same term in the same plan (noting of course that PC1 is a plan change to the WRP, and will be Chapter 3.11 of that plan). In this respect, the Panel agrees with the Fonterra submission⁵⁷⁰ that having two definitions is likely create problems when the two definitions are applied- particularly in the context of Rule3.5.5.1. which is not in Chapter 3.11. We further note that it appears the proposed definition in PC1 seeks to specifically include discharges to land from municipal and industrial wastewater systems as point source discharges, although it is not clear to us that these were ever excluded.

1892. In addition to the confusion from having two definitions, we are concerned that there may be unintended consequences from this proposed change. In particular, we agree with Fonterra when its submission expresses concern “... *that the discharge of Farm Animal Effluent to land by way of ponds, centre pivots or slurry trucks may no longer be a permitted activity under Rule 3.5.5.1, because the discharge might not fall within the Plan's existing definition of "point source discharge"*.”⁵⁷¹

1893. Fonterra sought that the definition be deleted, or amended (to a term suggested by them - see below). It further sought that whatever decision was made, there should only be one definition of "point source discharge" in the WRP, which would also apply to Chapter 3.11 - being: *Point Source Discharge - means a discharge from a specific and identifiable outlet onto or into land, a water body, the air or the sea.*

1894. While we may think the Fonterra definition has merit, we do not think that a change to a definition in the WRP is within the ambit of PC 1, since it applies to activities not the subject of PC1. We are also concerned that a change to a definition in the WRP may have consequences that we do not fully appreciate or understand.

⁵⁷⁰ Fonterra submission - section 29, page 38.

⁵⁷¹ Fonterra submission - section 30, page 39.

1895. Having considered the issues relating to the term Point Source Discharge, we find that having two definitions for the same matter in the same plan is confusing and may potentially have unintended consequences. Accordingly, we have recommended that the definition be deleted from PC1, and reliance placed on the operative term in the WRP. When that Plan is reviewed, that would be the time to reconsider the appropriateness of the term as currently defined.
1896. Moreover, we think the 'risk' of deleting the definition in the context of PC1 is low. This is because PC1 is mainly about diffuse discharge from farming activities as opposed to point source discharge of those four contaminants and effluent management being a specific requirement in the FEP Schedules - D1 and D2.

Springs

1897. WPL sought that the Glossary of Terms be amended to include a hydrological definition of "springs" to distinguish between ephemeral and perennial springs. We have determined, for the reasons that follow, that no definition of "springs" is required; in short, PC1 provisions do not apply to ephemeral waterbodies, including ephemeral springs.
1898. A number of parties raised issues with respect to intermittent and ephemeral waterbodies, particularly in relation to stock exclusion and fencing requirements. WRC submitted that the Auckland Unitary Plan definitions could be considered appropriate. Officers provided further advice to us on this matter, having discussed it with the Council as submitter. We were advised that the Council as submitter still supported the use of those definitions.
1899. From the Panel's perspective, this has enabled clarification of the fencing requirements which are to apply to intermittent, but not ephemeral, water bodies. We accept the Officers' position that due to the difficulties caused by introducing a definition of river and intermittent waterbodies into the WRP through the PC1 process, we should recommend that the application of fencing requirements to intermittent waterbodies be in Schedule C, rather than by introduction of a new term. The suggested 'definition' is therefore set out in Schedule C of our recommended revised Chapter appended to our report. *[See Waikato Regional Council Policy Series 2020/02 DOC#15708291]*

Low, Medium, and High levels of Contaminant Discharge

1900. In a more general sense, a number of submissions requested the addition of new definitions to clarify what they considered commonly used terminology within PC1.

These included:

- Low level of contaminant discharge;
- Low discharges;
- Low discharging activities;
- High level of contaminant discharge.

1901. In relation to this terminology, we have not defined these terms in the Glossary. However, in the PC1 rules we have recommended, we have included rules that distinguish between Small and Very Low intensity farming, Low intensity farming, Medium intensity farming and High intensity farming. The difference between these is largely the specified nitrogen loss leaching rates (in Schedule B). This is essentially the definition we have used in terms of low, medium and high discharging activities. Accordingly, no definitions are required.

1902. In summary, we find that our recommended changes to the glossary, taken together with the other provisions recommended, are the most appropriate option to achieve our recommended objectives.

1903. As for other sections, while we have not canvassed every submission on the glossary, our recommendations as to whether those submissions should variously be accepted, accepted in part, or rejected are reflected in the glossary contained in our recommended version of PC1 attached.

Dated: 17 January 2020



Greg Hill (Chair)



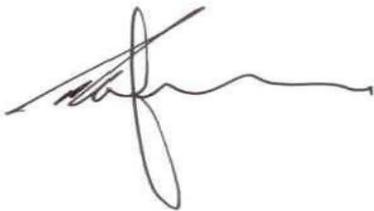
Greg Ryder



Basil Morrison



Sheena Tepania



Trevor Robinson

APPENDIX 1
Abbreviations and Acronyms

BOPRC	Bay of Plenty Regional Council
BPO	Best Practicable Option
CFEP	Certified Farm Environment Planner
CFNA	Certified Farm Nutrient Advisor
CNMA	Certified Nutrient Management Adviser
CSG	Collaborative Stakeholder Group
CVP	Commercial Vegetable Production
DIN	Dissolved Inorganic Nitrogen
DO	Dissolved Oxygen
DRP	Dissolved Reactive Phosphorus
<i>E. coli</i>	Escherichiacoli
FEP	Farm Environment Plan
FMU	Freshwater Management Unit
GFP	Good Farming Practices
GMP	Good Management Practice
HRWO	Healthy Rivers Wai Ora
MAV	Maximum Acceptable Value
MCI	Macroinvertebrate Community Index
MMOL	Multiple Māori Owned Land
N	Nitrogen
NES	National Environmental Standard
NES-PF	National Environmental Standards for Plantation Forestry
NES-DW	National Environmental Standard for Sources of Human Drinking Water
NOF	National Objectives Framework
NPS-ET	National Policy Statement on Electricity Transmission
NPS-FM	National Policy Statement for Freshwater Management
NPS-REG	National Policy Statement for Renewable Electricity Generation
NPS-UDC	National Policy Statement on Urban Development Capacity
NRP	Nitrogen Reference Point
NZCPS	New Zealand Coastal Policy Statement
Overseer	OVERSEER™ Nutrient budgets
P	Phosphorus
PC1	Proposed Plan Change 1, including Proposed Variation 1
PCE	Parliamentary Commissioner for the Environment
RMA	Resource Management Act 1991
RSI&I	Regionally Significant Infrastructure and Industry
Section 42A report	Officers' Section42AReport
Te Ture Whaimana	Te Ture Whaimana o Te Awa o Waikato / Vision and Strategy for the Waikato River
TLG	Technical Leaders Group
TN	Total Nitrogen
TP	Total Phosphorus
TRH	Te Rōpū Hautū
Var1	Variation 1 to Proposed Plan Change 1
WRA	Waikato River Authority
WRC	Waikato Regional Council
WRP	Waikato Regional Plan
WRPS	Waikato Regional Policy Statement

Abbreviations of submitter names used in the text of this Report

Ata Rangi	Ata Rangi 2015 Limited Partnership
Ballance	Balance Agri-Nutrients Limited
Beef and Lamb	Beef+Lamb New Zealand Limited
DoC	Director General of Conservation
F4PC	Farmers 4 Positive Change
FANZ	Fertiliser Association of New Zealand
Federated Farmers	Federated Farmers of New Zealand, Federated Farmers of New Zealand (Waikato Region) 1999Incorporated, Federated Farmers of New Zealand Rotorua Taupō Province Incorporated, Federated Farmers of New Zealand (Auckland Province) Incorporated
Fish and Game	Auckland/Waikato Fish and Game Council, Eastern Region Fish and Game Council
Fonterra	Fonterra Co-operative Group Limited
Forest and Bird	The Royal Forest and Bird Protection Society of New Zealand
Hamilton CC	Hamilton City Council
Hancock	Hancock Forest Management (NZ) Limited
Heritage NZ	Heritage New Zealand Pouhere Taonga
HFM	Hancock Forest Management (NZ)
HortNZ	Horticulture New Zealand
Iwi Co-Governors	Waikato Raupatu River Trust, Maniapoto Māori Trust Board, Raukawa Charitable Trust, Te Arawa River Iwi Trust and Tūwharetoa Māori Trust Board
Matamata-Piako DC	Matamata-Piako District Council
Miraka	Miraka Limited
NZFOA	New Zealand Forest Owners Association
NZTA	NZ Transport Agency
Oji	Oji Fibre Solutions NZ) Limited
Oil Companies	BP Oil NZ Limited, Mobil Oil NZ Limited, ZEnergy Limited
Pamu Farms	Pamu Farms of New Zealand by Landcorp Farming Limited
PVGA	Pukekohe Vegetable Growers Association
PLUG	Primary Land Users Group
Ravensdown	Ravensdown Limited
Rotorua Lakes DC	Rotorua Lakes District Council
South Waikato DC	South Waikato District Council
Tangata Whenua	As a description of a large group of common submissions in similar terms, refers to Maniapoto Māori Trust Board, Maungatautari Marae, Ngaati Tamaoho Trust Te Taiao, Ngāti Haua Iwi Trust, Ngāti Koroki Kahukura Trust & Taumata Wiiwii Trust, Poohara Marae, Potini Whaanau, Raukawa Charitable Trust, Te Arawa River Iwi Trust, Te Awamaarahi Marae Trustees, Te Kauri Marae, Te Runanga o Ngāti Kea Ngāti Tuara Trust, Te Taniwhao Waikato, Te Whakakitenga o Waikato Incorporated (Waikato-Tainui), Turangawaewae Marae, Tūwharetoa Māori Trust Board, Waahi Whaanui Trust, Waikato and Waipā River Iwi
Taupō DC	Taupō District Council
Timberlands	Timberlands Limited
Watercare	Watercare Services Limited
Waitomo DC	Waitomo DC Waitomo District Council

WRA	Waikato River Authority
WRC or the Council	Waikato Regional Council

APPENDIX 2
Revised Plan Change 1

[See Waikato Regional Council Policy Series 2020/02 DOC#15708291]

