Version 8.0
August 2017

PROPOSED
Plan Change 10: Lake Rotorua Nutrient Management

COUNCIL DECISIONS
Report and Recommendations of the Hearing Commissioners

August 2017

Bay of Plenty Regional Council
PO Box 364
Whakatāne 3158
New Zealand

The Bay of Plenty Regional Council appointed an Independent Hearing Panel to complete the hearing process for Proposed Plan Change 10 under section 34A of the Resource Management Act ("the Act"). The Independent Hearing Panel was given delegated authority under Sections 42A, 41B and 41C of the Act to hear and consider all submissions and evidence received on Proposed Plan Change 10, in their entirety and to make a report on those matters and recommend decisions for the Regional Direction and Delivery Committee to consider.

The report and recommendations were considered by the Regional Direction and Delivery Committee on the 2 August 2017.

A unanimous vote was received to **accept** the report, its appendices and the recommendations from the Independent Hearing Panel and to adopt these as Council's decisions and resolved to notify its decisions on Proposed Plan Change 10 accordingly. The Regional Direction and Delivery Committee agreed to the following resolutions:

That the Regional Direction and Delivery Committee under its delegated authority:

1 Receives the report, *Proposed Plan Change 10: Lake Rotorua Nutrient Management - Recommendations received from the Independent Hearing Panel*.

2 Receives the report and recommendations of the Independent Hearing Panel on Proposed Plan Change 10 to the Bay of Plenty Regional Water and Land Plan as set out in the document "Report and Recommendations of the Hearing Commissioners" and Appendices 1 to 7.

3 Accepts the recommendations of the Independent Hearing Panel on Proposed Plan Change 10 to the Bay of Plenty Regional Water and Land Plan as set out in the document "Report and Recommendations of the Hearing Commissioners" and Appendices 1 to 7 as Council's decisions on submissions on Proposed Plan Change 10 Lake Rotorua Nutrient Management under clause 10(1) of Schedule 1 to the Resource Management Act 1991.

4 Approves public notification of its decisions on submissions on Proposed Plan Change 10 Lake Rotorua Nutrient Management to the Bay of Plenty Regional Water and Land Plan in accordance with clauses 10 and 11 of Schedule 1 to the Resource Management Act 1991.

5 Notes that the requirements of 32AA(1)(d)(ii) of the Resource Management Act 1991 are fulfilled by the Hearing Panel report and that no separate 32AA report is therefore required.

6 Notes that on and from the date the decisions are publicly notified, Proposed Plan Change 10 is amended in accordance with the decisions.

7 Delegates to the Group Manager Strategy and Science to make any required minor corrections and formatting under clause 16(2) Schedule 1 of the Resource Management Act 1991.

Tahana/Thurston
CARRIED

The attached report entitled Report and Recommendations of the Hearing Commissioners dated 2 August 2017 and Appendices 1 to 7 are therefore the decisions of the Council on Proposed Plan Change 10 under clause 10 of Schedule 1 of the Act and are notified as such under clause 10 and 11. As a result of Council's decision, Appendix 8 has been included to identify changes made to Proposed Plan Change 10 from notification on 29 February 2016.

IN THE MATTER OF	the Resource Management Act 1991
AND IN THE MATTER OF	proposed Plan Change 10 to the Bay of Plenty Regional Land and Water Plan

Hearing Commissioners:	Retired Judge Gordon Whiting, Chair Dr Brent Cowie Ms Gina Sweetman Mr Rauru Kirikiri
Date:	30 June 2017

REPORT AND RECOMMENDATIONS OF THE HEARING COMMISSIONERS

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Part 1 – Introduction and background

Introduction

[1] This report and recommendation relates to proposed Plan Change 10 (**PC10**) to the Bay of Plenty Regional Water and Land Plan (**RWLP**).

[2] It is proposed that PC10 would be included as a new chapter within the RWLP. Importantly, no new objectives are proposed and the relevant region-wide provisions would continue to apply save for those provisions as amended specifically for PC10. To this extent PC10 must not be considered in isolation but as an integral part of the RWLP.

[3] PC10 was publicly notified on 29 February 2016. The Regional Council received 92 submissions. The summary of submissions was released on 4 July 2016 and 20 further submissions were accepted by the Council. We, the undersigned, were appointed as hearing commissioners with appropriate delegation under s 42A, 41B and 41C of the Resource Management Act 1991 (**RMA**) to hear and make recommendations to the Regional Council on the submissions made.

[4] A number of evaluations and reports required by statute or requested by us have been prepared by Regional Council. These include:

(a) s 32 report- pursuant to its obligation under ss 66(1)(e) and clause 5(1)(a) of Schedule 1 of the RMA, the Regional Council prepared an evaluation report for PC10 entitled ***Section 32 Evaluation Report, December 2016***. This report was made available for public inspection as is required by s 32(5) of the RMA; and

(b) s 42A report – pursuant to its obligations under s 42A of the RMA a report dated January 2017 was prepared by Regional Council for the purposes of assisting us in our deliberations.

[5] A hearing was held at Rotorua over a period of 15 days between 13-17 March 2017, 20-22 March, 3-5 April 2017, 18-20 April 2017 and 3-4 May 2017. We received written evidence from the Regional Council; written evidence from a number of submitters; and rebuttal evidence from the Regional Council. All of the witnesses were given the opportunity of attending the hearing and addressing their submission and any expert evidence they had provided in advance. Questions were addressed to the witnesses by the members of the panel and questions of clarification were allowed.

We received verbal and written submissions, expert evidence and representations from Regional Council and a number of submitters.

[6] During the course of the hearing we issued several directions requesting clarification of and caucusing on certain matters. This resulted in a number of further reports and memoranda. Attached as **Appendix 1** is a list of the reports, evidence, submissions and representations received and considered by us.

[7] Proposed PC10 introduces rules, supported by policies and methods, to limit the amount of nitrogen entering Lake Rotorua from land use. Its purpose is to reduce nitrogen (N) losses from rural land within the Lake Rotorua groundwater catchment within the boundary of the Regional Council[1]to meet the sustainable N limit of 435t/N/y (tonnes of nitrogen per year) by 2032 set by Policy WL 3B(c) of the Bay of Plenty Regional Policy Statement (**RPS**).

[8] The proposed rules set out how Nitrogen Discharge Allowances (**NDA**s) would be allocated to individual rural properties in the Lake Rotorua groundwater catchment. Existing policies and rules in the RWLP set a discharge limit or nutrient benchmark based on the discharges from most larger rural properties in 2001-2004. However, N reduction is not a requirement of existing policies and rules. The proposed new rules are designed to fill this gap to achieve the sustainable N limit by 2032.

Lake Rotorua

[9] Lake Rotorua is the second largest lake in the North Island of New Zealand by surface area, and covers 79.8km^2. With a mean depth of only 10m, it is considerably smaller in terms of volume of water than nearby Lake Tarawera and many lakes of a similar or smaller size. It is located in the Bay of Plenty region. The city of Rotorua is sited on its southern shore, and the town of Ngongotaha is at the western edge of the lake.

[10] The lake was formed from the crater of a large volcano in the Taupo Volcanic Zone (**TVZ**). Its last major eruption was about 240,000 years ago. After the eruption, the magma chamber underneath the volcano collapsed. The circular depression left behind is the Rotorua Caldera, which is the site of the lake. Several other lakes of volcanic origin are located nearby to the east around the base of the active volcano Mt Tarawera.

[1] 35 square km of the Rotorua Groundwater catchment is within the territory of the Waikato Regional Council.

[11] Lake Rotorua is fed with water from a number of rivers and streams; some, such as the Utuhina, flow water of a temperature warmer than the lake due to the thermal activity in the Rotorua area. Conversely, streams on the northern shore, such as the Hamurana spring and the Awahou stream, flow crystal clear water that has a constant temperature of 10^0C. Other notable tributaries include the Ngongotaha stream, which is a very good trout fishing and with a regional trout hatchery.

[12] Lake Rotorua flows directly into Lake Rotoiti via the Ohau Channel at the north-eastern corner of the lake. From Lake Rotoiti the waters of Lake Rotorua flow to the Kaituna River into the Pacific Ocean near Maketu. The rapid descent from over 300 metres above sea level in less than 20km has created an area used for extreme kayaking and white water rafting.

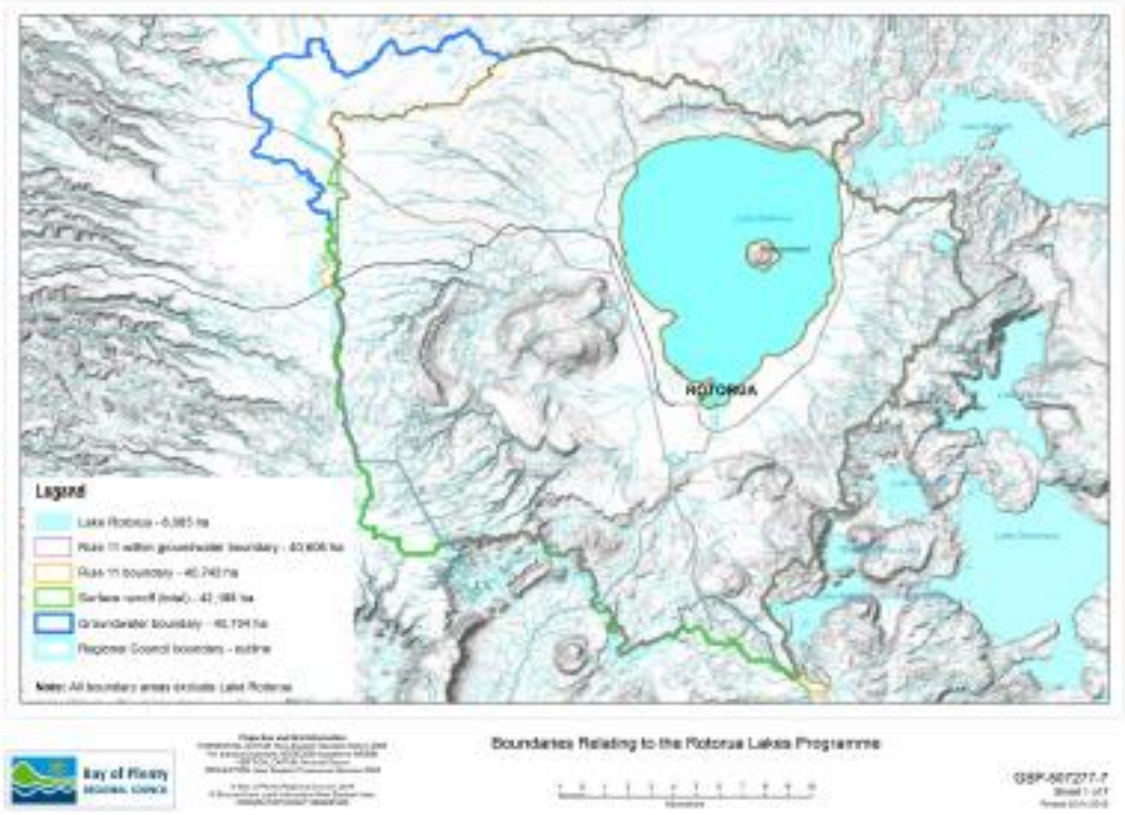
[13] Mokoia Island, close to the centre of the lake, is a rhyolite dome. It is probably New Zealand's best-known lake island, and is closely associated with one of the best-known Maori legends, that of Hinemoa and Tutanekai. It is said that Hinemoa swam across the lake to her lover Tutanekai, who lived on Mokoia Island.

Lake Rotorua catchment

[14] The plan change relates to all rural land in the Rotorua catchment and within the territory of the Regional Council. For the purposes of PC10 the catchment boundary is delineated by the groundwater catchment within the Bay of Plenty region, unlike the present boundary that applies to the RWLP which is delineated by the surface water boundary.

[15] There were a number of submitters that disputed the reliability of the extent of the boundary. A matter we discuss later in this report.

[16] The groundwater boundary is shown on the map below (Figure 1):



Water quality of the lake

[17] We heard a lot of evidence relating to the water quality of Lake Rotorua. For the Regional Council, we heard from Mr Andy Bruere, Professor David Hamilton and Dr James Rutherford. We also heard from Dr Thomas Stephens for Dairy NZ and Fonterra. We discuss in more detail the scientific evidence later in this report.

[18] Mr Bruere provided for us[2] an overview of the Regional Council's expert evidence. He also explained to us the details of the work of the Regional Council's science team that underpins the Rotorua Lakes Programme. The following summary sets out the Regional Council's position.

[19] The Rotorua Lakes Programme consists of a programme of restoration and protection for the twelve lakes in the Rotorua District. The largest of these lakes is Lake Rotorua, with a surface catchment area of 502km^2 and a total catchment area (including an aquifer outside the surface catchment) of 537km^2.[3]

[20] Water quality targets have been set for each of the twelve lakes in the RWLP, which became operative in 2005. The targets are measured by the lake Trophic Level Index (**TLI**). The TLI is a statistical indicator of lake water quality based on monitoring results of four water quality measurements:

(a) total nitrogen;

(b) total phosphorous;

(c) chlorophyll-a; and

(d) secchi-disc which measures water clarity.

[21] Each of the lakes in the Rotorua District has its own TLI target that was set based on historic information about water quality. The water quality of the lake can be managed by altering concentrations of nitrogen (N) and/or phosphorous (P), as these are plant nutrients that stimulate algal growth. Chlorophyll-a is a measure of the biomass of the phytoplankton present in the water column. Higher algal concentrations generally result in poor water clarity. Secchi-disc water quality is the vertical distance a black and white disc can be lowered into the water before it disappears from sight. The water quality TLI target relates to specific in-lake N and P concentrations along with chlorophyll-a and secchi-disc levels for the lake.

[2] Statement of evidence, undated, at [13] onwards.
[3] White et al, 2015.

[22] The water quality of Lake Rotorua has been the subject of concern since the 1970's and has been researched in a number of publications since before that time. The water quality of the 1960's (before widespread public concern about phytoplankton growths developed) was identified by an expert panel known as the Water Quality Technical Advisory Group (WQTAG) in 1986 as a suitable and achievable target for Lake Rotorua.[4] This target was subsequently endorsed by the WQTAG in 2005 and carried through into the RWLP in the form of a specific water quality target for TLI of 4.2 for Lake Rotorua (Objective 11).

[23] The TLI of a lake is an index of its trophic state, and can be used to classify and monitor changes over time of a particular lake. It is based on a logarithmic scale. For example:

(e) lakes with a TLI of 2-3 are considered "oligotrophic" (a lake with low primary productivity as a result of low nutrient concentrations and low levels of phytoplankton in the water column);

(f) lakes with a TLI of 3-4 are considered "mesotrophic" (lakes with an intermediate level of productivity). These lakes are commonly clear water lakes and ponds with beds of submerged aquatic plants and moderate concentrations of nutrients and phytoplankton in the water column;

(g) lakes with a TLI of 4-5 are considered "eutrophic" (lakes with a fairly high biomass of phytoplankton and often cyanobacteria, due to elevated concentrations of N and P); and

(h) lakes with a TLI of 5-6 are considered "supertrophic" (lakes with high concentrations of N and P in the water column, together with high biomasses of phytoplankton and commonly cyanobacteria).

Achieving and maintaining the TLI

[24] Based on the TLI target of 4.2 as set by Objective 11 of the RWLP for Lake Rotorua, Regional Council's scientific research supports the conclusion that approximately 435 tonnes of nitrogen per year (**t/N/yr**) and 37 tonnes of phosphorous per year (**t/P/yr**) are the suitable nutrient load inputs from the catchment required to achieve and maintain the TLI of 4.2.[5] More recent research[6] indicates that the sustainable P load may need to be within the range of 33.7-38.7 tonnes per year in order to achieve the target TLI.

[4] Rutherford et al, 1989.
[5] Rutherford et al, 1989.
[6] Tempero, 2015.

[25] The N and P targets were recommended in 1986 by the expert panel WQTAG which extrapolated back to the 1960's from measurements made in the 1970's and 1980's of nutrients reaching the lake from the catchment and sewage, as outlined in a paper by Rutherford et al (1989). The P targets are supported by recent modelling by Tempero (2015), although there was some dispute over the accuracy of the limits at the hearing. Another matter we discuss later in this report.

[26] Phytoplankton in the lake needs both N and P to prosper. The management of the mass loads of N and P into and in lake will affect the species composition and biomass of the phytoplankton community in the lake. In very broad terms, if either N or P can be made limiting (i.e. the nutrient is in most limited supply for growth), then the lack of that nutrient will limit algal growth. The relationships between these factors are complex, and can be affected by a number of variables such as natural variations in water temperature, and whether or not the lake becomes stratified.

[27] Since the 1960's the Lake Rotorua TLI has increased over time and peaked in each of 1985, 1989, 2001 and 2003.[7] The most recent peak in 2003 reached a TLI of 5.03 [8], which meant that the lake was supertrophic. Since then the TLI has fallen, and for three years (2012-2014) the lake met its TLI target of 4.2. The most recent TLI calculation is 4.4 for the 2015/16 year (July to June). This short period of compliance with the TLI target is a result of the alum[9] dosing programmes in the Puarenga and Utuhina Streams. Details of this were explained in Professor Hamilton's brief of evidence[10] and are discussed later in this report.

[28] Of particular importance to these proceedings is Rule 11 of the RWLP. Rule 11 capped the existing N loss from most larger properties within the Lake Rotorua surface catchment, benchmarked for the average annual exported nutrients for the period 1 July 2001 to 30 June 2004. N reduction is not required under Rule 11

[7] Hamilton et al, 2015.
[8] Mr Paul Scholes, environmental scientist, BOPRC.
[9] "Alum" is aluminium sulphate.
[10] [15(h)] and following.

Land use in the catchment

[29] Since PC10 applies to land containing pastoral activities and forestry within the catchment, we set out the different land uses in Figure 2 below:

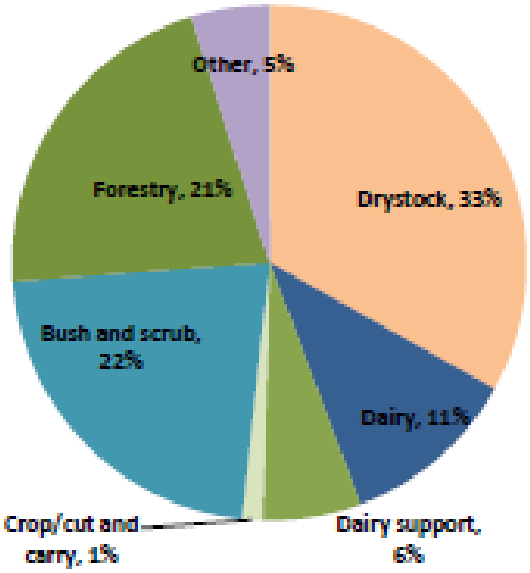


Figure 2 – Land use within the Lake Rotorua groundwater catchment (excl. public land)

[30] The Lake Rotorua catchment is dominated by pastoral farming and forestry. Of the approximate 502km², 22,209ha is in pastoral farming. The catchment also includes around 9,000ha of indigenous vegetation on public and private land, and the Department of Conservation manages 3,250ha of public conservation land in the catchment, which includes a large reserve on Mt Ngongotahā[11].

Dairy farming

[31] Dairy farming occurs on about a quarter of the pastoral farming land in the catchment. In 2012, 30 properties in the Lake Rotorua catchment identified as dairy farms, with 27 (90 per cent) of these being greater than 40ha. The total number of dairy cattle in the catchment reduced by 10 per cent between 2007 and 2012, to 20,200. This change was made up of an increase of 1,800 dairy cattle on dairy farms and a decrease of 4,000 dairy cattle on drystock farms. During the same period the total number of dairy cattle in the Bay of Plenty region increased by 13,000 (four per cent). Intensification of pastoral farming in the lake catchment has been constrained by benchmarking under Rule 11.

[11] See s 32 report at [3.1].

Drystock farming

[32] In 2012, 114 farms in the catchment identified as drystock farms, most of these farming sheep and beef. Seventy-five per cent of these were 40ha or more, and 27 of those farms were larger than 80ha. In 2012 there were around 11,000 beef cattle in the catchment and 16,000 sheep. Beef cattle numbers were fairly steady for the five years to 2012, while sheep numbers reduced by one fifth.

Deer farming

[33] Compared with dairy and sheep and beef farming, deer farming is relatively uncommon in the Lake Rotorua catchment. In late 2015 there were about 18 properties in the catchment with deer, although deer farming was not necessarily their main business. Eleven of these were properties of greater than 10ha, and seven of those are exclusively deer. Deer farming has declined in the catchment and across New Zealand in recent years. In the five years to 2012 the number of deer in the Lake Rotorua catchment halved. Deer farming infrastructure (such as fencing and handling facilities) remain on most farms, allowing them to readily revert back to deer in the future.

Māori land

[34] Māori land is land held in multiple ownership under Te Ture Whenua Māori Act 1993. About 11,000ha (25 per cent) of the Lake Rotorua catchment is Māori land. Land use of this land is predominantly drystock farming (40 per cent) and 16 per cent is used for dairy farming or dairy support. Around one fifth (22 per cent) of Māori land is in bush and scrub, and 16 per cent is in forest. Māori land makes up 11 per cent of the total area of small properties (less than 40ha) in the catchment.

[35] In addition to multiple ownership land under Te Ture Whenua Māori Act 1993, there is within the catchment land ownership from the Crown to Māori via Crown "Forest Land" Settlements, and a small part of the Comprehensive North Island Forest Settlement under the CNI Forest Land Settlement Act 2008. CNI Iwi Holdings Ltd holds approximately 3,120ha of forestry land and 90ha of forestry and scrub within the PC10 boundaries[12]. The Ngāti Rangiwewehi Deed of Settlement was signed in 2012 and there is approximately 127ha of forestry and three ha of bush and scrub within the proposed PC10 boundary.

[12] This land is in Whakarewarewa Forest.

[36] Māori land held under Te Ture Whenua Māori Act 1993 in the catchment sits under a separate legislative and cultural structure to general land. It cannot be sold on the open market, it can be difficult to raise funds to develop, and historical factors mean that much Māori land in the catchment has not been developed.

Forestry

[37] The 16 forestry blocks, defined as any block with over 90 per cent of the property in forestry, in the Lake Rotorua catchment cover over 8,000ha. Most are radiata pine. In addition to the large blocks of forest, the area in exotic forest intended for harvest makes up around four per cent of the land on pastoral farms, and native scrub and bush make up around seven per cent.

Small properties less than 40ha

[38] Small properties are a feature of the Lake Rotorua catchment, with around 1,480 properties covering 5,600ha, including 4,150ha effective area[13]. Approximately 70 per cent of small properties are less than 4ha, covering a total area of 1,100ha.

[39] In 2012, 132 smallholdings in the catchment were included in the Agricultural Production Census. Of these, 57 were less than 10ha and 24 were less than 4ha. The majority of GST-registered smallholdings (57 per cent) identified themselves as sheep and business farms. Two per cent identified themselves as dairy farms, and two per cent as deer farms. Drystock farming occurs on 90 per cent of small properties, and dairy support occurs on at least six per cent of small properties.

[13] Effective area is defined in the proposed plan as 'the part of the property/farming enterprise that is used for grazing, cultivation, cropping, horticulture, effluent disposal and includes areas of grazed trees'.

Control of nutrients

[40] There are two main sources of nutrient loss in the catchment. The first is from land use. Almost all of the N that reaches the lake, but only just over half the P comes from land use. The second half of P comes from the slow dissolution of pumice from old volcanic eruptions. This contributes 22 per cent of the total P, and 48 per cent of the biologically available Dissolved Reactive Phosphorous (DRP) to the lake in rivers and streams and groundwater. This high natural load of P means it is potentially difficult to reduce P losses to the lake to a sustainable level.

[41] N and P generated from farming activities enter water in fundamentally different ways. Most N entering the lake comes from it being leached to groundwater from diffuse sources, including from animal urine patches and faeces, and from the use of nitrogenous fertiliser. Apart from natural sources, most P enters water attached to sediment and/or in overland flow, particularly during storm events.

[42] Nitrogen travels in the groundwater, and depending on what part of the catchment it is released in, it can take anywhere from less than about a decade to more than 100 years to reach the lake via groundwater and discharge to springs recharging streams. The average age of groundwater reaching Lake Rotorua is 60 years.[14] So once in the groundwater N is likely to take a long time to reach the lake.

[43] In contrast, for P the main route to water from farmland is via overland flow. Depending on rainfall and soil conditions, the time of travel is hours, days and weeks rather than years. However, sediment movement in streams will influence the time of P travel to the lake.

[44] The science experts have consistently advised that addressing the problem of poor water quality/eutrophication in Lake Rotorua cannot be solved by the control of a single nutrient, N or P. As early as 1989 Rutherford et al advised control of N alone could cause the periphyton community to become dominated by potentially toxic blue-green algae (now known as cyanobacteria), and control of P alone would need to be to the extent that it made P the limiting nutrient. Thus, management of both N and P has been recommended by the science experts. This was confirmed in the caucusing of the water quality experts.[15]

[14] Morgansten et al, 2004.
[15] Caucusing statement, 3 April 2017.

PC10

[45] The focus of the PC10 rules as notified was on the reduction of N. In summary, the approach is to manage N loss from pastoral farms via rules. In addition, the Regional Council would be responsible for a $40m Incentive Scheme, a gorse control programme and what they called 'engineering solutions'. PC10 seeks to assist in reducing the mass load of N that eventually enters Lake Rotorua to 435t/N/y (which includes 30t/y sourced from rainfall). Without these interventions the mass load to the lake has been scientifically estimated to eventually reach 755t/N/y (including rainfall).

[46] The proposed reduction of 320t/N/y is anticipated to be achieved through the following land use changes and improvements:

(a) 140 tonnes through land use changes via the proposed rules; and

(b) 50 tonnes through engineering solutions – measures designed to improve lake water quality include sewage reticulation, detainment bunds (many of which have been completed), alum dosing (for P), planned construction of the Tikitere Geothermal Treatment Plant and alternative wastewater options for the Rotorua Wastewater Treatment Plant;

(c) 100 tonnes through the identified Incentives Scheme – a $40m fund contributed equally by the Crown and the Regional Council. The scheme would enable landowners to "sell" their proposed N discharge allowances to permanently remove this N from the catchment; and

(d) 30 tonnes through gorse management – a Gorse Conversion Project would fund the conversion of this N fixing plant to production forestry, native bush or other low N generating activities.

[47] This total reduction is staged to take place over the next 15 years with 70 per cent of the reduction, or 220 tonnes, to be achieved by 2022 and the balance of 30 per cent to be achieved by 2032. The 2022 target provides for full implementation of the Incentives Scheme, engineering solutions and gorse control.

[48] The discharge of N would be managed by allocating a Nitrogen Discharge Allocation (NDA) to the "effective area" of each "property" and requiring the managed reduction of N discharges so that the NDA would be complied with by 2032. In many instances this will likely require some changes in land use and/or the intensity of farming will need to be reduced (e.g. by less fertiliser inputs or lower stocking rates).

[49] In order to assist in managing the change in land use, PC10 proposes to implement a N transfer scheme that allows NDA's to be transferred between the original allocation to a market-led distribution based on a market price, to be eventually determined by free market operations. This open transfer is proposed to take place from 2022. Until the commencement of transfer in 2022, the publicly funded Incentives Scheme (the publicly funded package of $40m) would be the only permitted purchaser of N in the catchment.

[50] Since notification PC10 has undergone a number of iterations in response to submissions, further submissions, evidence and matters raised at the hearing. The latest iteration is Version 7 of PC10, which we received from the Regional Council on 1 May 2017. When we refer to PC10 we refer to Version 7, unless we specify otherwise. Version 7 is attached as Appendix **2**.

[51] By this report we have recommended some amendments to Appendix 2 (Version 7), and the final version as recommended by us is attached as Appendix **3** with our amendments highlighted.

Part II – Development of and extant provisions of PC10

Introduction

[52] PC10 attempts the difficult task of balancing the desire to reduce N losses from the catchment to help achieve the target TLI of 4.2 in Lake Rotorua while also providing for ongoing land use and development. To manage these conflicting desires, and achieve the goal of sustainable management, PC10 proposes a package of policies, methods and rules to constrain the discharge of N from rural pastoral land into the groundwater catchment of Lake Rotorua to help achieve the target TLI of 4.2 in the RWLP.

Focus on nitrogen

[53] The primary focus of PC10 is the regulatory control of N losses from farming activities to groundwater. A number of submitters criticised the narrow scope of PC10, particularly in relation to its limited attention to P.

[54] As for P, the Regional Council's officers in response pointed out that PC10 does acknowledge the importance of P in Policy LR P2 and LR P3. In answer to the criticism, the Regional Council's officers recommended strengthening the wording of Policy LR P2. Further, the Regional Council pointed out that the RWLP contains a number of discharge rules that are designed to contain P. In addition, they pointed out that P is addressed by a number of non-regulatory programmes.[16]

[55] We also note that both P and N are within the ambit of a further science review. The scientific experts in their caucusing statement[17] emphasised that a science review proposed by LR M2 and M3 of the proposed PC10 should study the potential for dual nutrient (P and N) management scenarios to achieve the objective TLI of 4.2 (Objective 11 of the RWLP).[18]

[56] As for the other related nutrients, during the hearing the Regional Council:

(a) presented further evidence from Professor Hamilton showing the compliance of concentrations of chlorophyll-a, total P and N with the national bottom-lines set out in the Attribute Tables in the National Policy Statement on Freshwater Management 2014 (NPS-FM);

(b) tabled a document entitled "Freshwater in the Bay of Plenty – comparison against the national freshwater objectives as set out in the NPS- FM" of each of the Rotorua Lakes; and

(c) provided its implementation strategy for the NPS-FM with supporting reports and Regional Council resolutions, and it's report to the Ministry for the Environment on implementation progress.

[57] It is proposed that the provisions of PC10 would form a chapter in the RWLP, and would thus be considered in the context of the whole plan, including the discharge rules. It would also need to be considered in the context of the non-regulatory methods being undertaken by the Regional Council and the community.

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16 See Appendix 4 to Regional Council's memorandum dated 22 March 2017.
17 Dated 3 April 2017.
18 See [2.4] of Outcome of caucusing, 3 April 2017.

[58] The science has clearly established that the sustainable mass load of N to the lake is about 435t/y. No expert evidence was received to the contrary. Without the interventions proposed in PC10 to limit N losses to groundwater in the catchment, the science predicts that the N load to the lake will increase to about 755t/y by about the end of the century. That would not achieve the target TLI of 4.2 nor the sustainable annual mass load of N to the lake. The Regional Council made an executive decision to focus on N in this proposed plan change. That decision was made in the context described above and we see no reason to not accept it.

Planning context out of which PC10 developed

[59] It is clear from the Regional Council witnesses, particularly Mr Lamb and Ms Burton, and the science witnesses, that Lake Rotorua's nutrient issues have been well documented over a long period, dating back to the 1960's. While the detail of PC10 has been developed over a two year period, the planning context within which PC10 was constructed started in 2000 with the development of the Strategy for the Lakes of the Rotorua District.[19]

[60] The return of the lake bed to Te Arawa in 2006 and the associated Crown Funding Deed are an important part of the planning matrix. The Funding Deed delivers $72.2m of taxpayer support to a $144.4m Rotorua Lakes Programme, of which $45.5m is available to support changes to the farming sector.

[61] A number of associated community and council organisations have also addressed the issues of the water quality in the lake. They include:

(a) Rotorua Lakes Council;

(b) Te Arawa Lakes Trust;

(c) Rotorua-Te Arawa Lake Strategy Group;

(d) Workstream Leads; and

(e) Water Quality Technical Advisory Group.

[62] All of these organisations have contributed to the Rotorua Lakes programme, which has been instrumental in establishing the factual context within which PC10 developed. This context includes:

(a) the need to use both regulatory and non-regulatory methods to achieve the sustainable lake load of N;

(b) a commitment to science reviews;

(c) the Funding Deed that delivers $72.2m of taxpayer support to a $144.4m Rotorua Lakes programme;

(d) the community-funded Incentives Scheme that seeks to secure a 100 tonne/y reduction of N entering groundwater in the catchment;

[19] Statement of evidence of Mr S Lamb at [7].

(e) engineering interventions and control of gorse to further reduce N losses from the catchment by 50 and 30t/y respectively;

(f) a proposed 140t/y reduction in losses of N to the catchment from the pastoral sector by 2032; and

(g) consented infrastructure (such as the Ohau wall) and operational activities (alum dosing).

[63] The context also includes the continuous investment made by the Rotorua community over time to reduce discharges into the lake. We were also advised[20] that under the umbrella of the Rotorua Lakes Programme, there has been a "significant and continuing" investment in:

(a) Lake Rotorua science;

(b) monitoring;

(c) university-led research; and

(d) land use advice.

[64] Of particular importance, the Regional Council coordinates a Water Quality Technical Advisory Group and a Land Technical Advisory Group that contribute to the science and the analysis that addresses water quality issues of the lake. An overview of this is explained in the evidence of Mr Bruere for the Regional Council.

[65] A number of submitters questioned the science and analysis that underpins the rules, a matter that we discuss later in this decision.

[66] An important milestone was the introduction of Rule 11 in 2005 to the RWLP, which set a discharge limit or nutrient benchmark based on the land use of each property, and their assessed N discharges for 2001-2004. The intention of Rule 11 was to stop further increases in N leaching into groundwater and eventually the lake. Benchmarking was required of larger properties of over 40ha within the catchment. A limited number of smaller properties were also benchmarked for various reasons (such as to inform subdivision proposals). According to the Regional Council witnesses, not all of the properties who were required to obtain benchmarks complied. We note that nutrient reduction is not required by Rule 11.

[20] Statement of evidence by Mr S Lamb at [26].

Regulatory genesis of PC10

[67] The regulatory genesis for PC10 can be found in two regulatory documents:

(a) **the RPS**, which contains;

(i) Policy WL 3B, which requires that the total amount of nitrogen that enters the lake shall not exceed 435 tonnes of nitrogen per annum;

(ii) Policy WL 5B, which allocates among land use activities the capacity of Rotorua Te Arawa lakes and other water bodies in catchments at risk to assimilate contaminants within the limits established; and

(iii) Policy WL 6B, which sets the water quality target to be achieved by 2032 and sets a catchment intermediate target for 70 per cent of the managed reduction of nitrogen loss to be achieved by 2022; and

(iv) a number of other relevant objectives and policies which reflect Part II of the RMA; and

(b) **the RWLP** which contains a number of objectives, policies and methods of relevance to PC10. Of particular relevance is Objective 11, which sets the target TLI index for Lake Rotorua at 4.2.

The development process of PC10

[68] Before its notification PC10 went through a lengthy incubation process. The process has been detailed in the s 32 and s 42A reports and the evidence of the Regional Council witnesses.

[69] Schedule 1 of the RMA requires consultation with the Minister for the Environment, other relevant ministers, relevant local authorities, and the tāngata whenua of the area through iwi authorities in the preparation of a plan change.

[70] The extent of the consultation and engagement is set out in the Regional Council officers' reports and evidence. We detail this later in this report.

[71] In summary, it included policy and rule development over a number of years as follows:

(a) **October 2011** – Regional Council's strategy policy and planning committee confirm rules development approach;

(b) **September 2012** – Lake Rotorua Stakeholders' Advisory Group (StAG), formed to guide development of rules and incentives;

(c) **October 2012-2014** – policy and rule development guided by StAG;

(d) **18 February 2013** – the Oturoa agreement was signed;

(e) **May 2014** – Lakes Strategy Group approve and endorse the draft rules framework;

(f) **June 201**4 – the Regional Council approves and endorses the draft rules framework;

(g) **July-October 2014** – consultation to get input from landowners and community;

(h) **November 2014-July 2015** – review and analysis of feedback and technical reports;

(i) **August-October 2015** – additional consultation open to all, but targeting specific groups; and

(j) **October-November 2015** – review and analysis of feedback.

[72] Of particular importance to the final shape of the rules was:

(a) the Oturoa agreement of 18 February 2013;

(b) the formation of the StAG in September 2012;

(c) the development of the StAG Principles; and

(d) the development of the "Integrated framework".

We discuss each of these below.

The Oturoa agreement

[73] The Oturoa agreement was signed on 18 February 2013 to resolve appeals to the Environment Court in relation to lake water quality matters in the proposed RPS. Its signatories were:

(a) the Lake Rotorua Primary Producers' Collective (Inc);

(b) Federated Farmers;

(c) the Bay of Plenty Regional Council; and

(d) the Lakes Water Quality Society (Inc).

[74] In resolving the appeals the parties agreed to a number of previously contentious matters, including:

(a) recognition that nutrient losses from the pastoral sector comprise a significant proportion of the total Lake Rotorua catchment N load, and that N is one of a number of contributing factors to water quality in the Lake Rotorua catchment (paragraph [5]);

(b) fixing the sustainable N load to the lake catchment at 435 tonnes per annum (paragraph [1(b)]);

(c) agreeing that the timeframe to meet the 435 tonne sustainable annual N load for the Lake Rotorua catchment will be 20 years from 2012-2032, with an intermediate target set for the reduction of N loss within the catchment to achieve 70 per cent of the required reduction in the first 10 years, followed by 30 per cent in the remaining 10 years. The intermediate targets will be confirmed as part of the rules and incentive programmes then under development by the Regional Council in consultation with the Lake Rotorua Catchment Stakeholder Advisory Group (paragraphs [10] and [11]);

(d) agreement that a collaborative approach, including all stakeholders, is the most effective way to achieve a sustainable rural sector and a clean and healthy lake (paragraph [12]);

(e) an agreement that the 2032 timeframe and intermediate reduction targets will be included in revised RPS wording for policy WL 6B (paragraph [20]);

(f) a commitment to a collaborative approach demonstrated through the establishment of the StAG (paragraph [14]); and

(g) that the main purpose of the StAG is to provide oversight, advice and recommendation on "Rules and Incentives" options that will achieve the nutrient reduction targets needed from rural land in order to meet Lake Rotorua's water quality target (paragraph [15]).

[75] Thus was set a clear and unambiguous goal, and a timeframe to be addressed by the provisions, including rules, of proposed PC10.

The Stakeholder Advisory Group (StAG)

[76] In accordance with Policy 25 and Method 45 of the RWLP, the Regional Council directed that the development of rules must involve active engagement of stakeholders.[21] Accordingly, to facilitate a collaborative approach, in late 2012 the StAG was established with the key role to oversee and provide advice on the development of PC10.

[77] The StAG comprised 15 members from sectors considered to be affected by PC10 including:

(a) the Lake Rotorua Primary Producers' Collective;

(b) Lakes Water Quality Society;

(c) Te Tumu Paeroa Office of the Māori Trustee;

(d) the forestry sector;

(e) Te Arawa landowners;

(f) small block owners;

[21] Strategy and policy planning report, 31 July 2012.

(g) Te Arawa Lakes Trust;

(h) Rotorua Lakes Council; and

(i) Bay of Plenty Regional Council.

[78] According to the s 42A report, the terms of reference[22] developed for StAG required StAG members to facilitate engagement with all stakeholders, and for individual members to engage with respective agencies and sectors to ensure a two-way flow of ideas and feedback. Wherever possible, discussion was to be by consensus. However, in reality that possibility proved to be a difficult goal.

[79] While the StAG collaborative process was not the only way in which the Regional Council consulted with the community,[23] it is clear from the evidence that it was an extremely important aspect of the consultation undertaken.

[80] StAG was initiated to enable issues of practicality and pragmatism to be applied to the scientific, policy and statutory material underlying the plan change process. It enabled a pragmatic approach to be applied to the management of land uses in the catchment. It provided the opportunity for the input of the knowledge and experience of land owners and managers who would be affected by the impact of the rules on their operations and livelihood.

The RPS and StAG principles

[81] Policy WL 5B of the RPS sets out nine principles to be had regard to when allocating land use activities to control N losses. The nine principles are:

(a) Equity/Fairness, including inter-generational equity;

(b) Extent of the immediate impact;

(c) Public and private benefits and costs;

(d) Iwi land ownership and its status, including any Crown obligation;

(e) Cultural values;

(f) Resource use efficiency;

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[22] At [3.1.2(7)].

[23] For details of the consultation process see the Regional Council s 32 and s 42A reports and the evidence of and memoranda from Mr S Lamb.

(g) Existing land use;

(h) Existing on-farm capital investment; and

(i) Ease of transfer of the allocation.

[82] During the consultative process the StAG developed the following additional principles for deciding the allocation method:

(a) no major windfalls for any sector;

(b) preference will be given to the allocation approach that has the least overall economic impact;

(c) existing investment (including infrastructure, land value, cash investment and nutrient loss management) will be recognised; and

(d) practices that cause high N loss, relative to sector norms, will not be rewarded.

The third StAG principle is effectively an expansion of Principle (h) of Policy WL 5B.

[83] We are conscious that the StAG Principles are not part of any statutory process. Accordingly, they cannot derogate from the RPS principles, which must be given effect to by PC10. However, they are part of the collaborative process as is required by Policy 25 of the RWLP. To this extent, they are matters to be considered in determining the most appropriate allocation framework, but the weight to be given to them should be carefully considered and should be less than the weight given to the RPS principles.

The Integrated Framework

[84] A significant development of the StAG process was the emergence of what has become known as the Integrated Framework. This was a framework that addressed the manner in which the amount of N required to reduce the load to the lake would be distributed between the pastoral sector and the community.

[85] The purpose of PC10 is to manage pastoral land uses to assist in reducing the annual load of N to the catchment from the current estimated load of 755t/y to 435 tonnes by 2032. This amounts to 320t/N/y. Recognising that not all of that reduction should be borne by rules applying to the pastoral community, the Integrated Framework proposed a sharing of the required reductions between:

(a) landowners through rules to remove 140t/N/y ; and

(b) the community via the following programmes:

(i) Incentives Programme to remove 100t/N/y ;

(v) Gorse Fund to remove 30t/N/y ; and

(vi) Engineering solutions to remove 50t/N/y.

The pastoral sector's contribution – 140t/N/y

[86] As set out above, the shared responsibility of the pastoral landowners was fixed at a reduction of 140t/N/y. The framework set out the actions and accountability of landowners as including[24]:

(a) Approved Farm Nutrient Plans (FNPs) – would include specific plans for N reduction – nominally implemented for individual farms over 40ha in size by 1 December 2015;

(b) staged reductions via FNPs – mandated through resource consents;

(c) individual farmer resource consents applied for by 1 December 2017; and

(d) farmer accountability, obligatory by 1 December 2032.

[87] We note that the rules of PC10 apply only to the pastoral sector's contribution, amounting to 140t/N/y. We accordingly do not have any jurisdiction over the remaining 180t/N/y which is part of the Regional Council's accountability and responsibility.

The gorse programme – 30t/N/y – responsibility of the Regional Council

[88] Gorse is a legume, or N fixing plant, and research has shown it is capable of leaching significant amounts of N to groundwater which flows into the lake. It is estimated that 870ha of gorse in the Rotorua catchment contributes 30 tonnes of N to the catchment every year.[25] The gorse conversion project will fund the conversion of mature gorse to production forestry, native bush, or other low-N leaching activities.

[24] S 32 report at 5.

[25] Mr A MacCormick, a witness for the Regional Council, said this was based on an average leaching rate from gorse of 38kg/N/ha/y, although this estimate remains provisional at this time.

Engineering solutions – 50t/N/y – responsibility of the Regional Council

[89] The scope of the engineering element comes from the Lake Rotorua and Rotoiti Action Plan 2009.[26] Engineering solutions funded by Regional Council, and which would contribute to the lake water quality, include:

(a) sewage reticulation;

(b) floating wetland;

(c) detainment bunds; and

(d) alum dosing.

[90] The following initiatives are planned or pending:

(a) construction of the Tikitere Geothermal Treatment Plant; and

(b) alternative wastewater disposal options from the existing Rotorua Wastewater Treatment Plant discharge into Whakarewarewa forest.[27]

The Incentives Scheme - 100t/N/y – responsibility of the Regional Council

[91] A $40m Incentives Scheme has been established to permanently remove 100t/N/y from the Lake Rotorua catchment. The Incentives Scheme is an integral part of the framework for achieving the N reduction targets for Lake Rotorua, and a key part of the cost-sharing between the farmers and the community. The Crown and Regional Council have contributed equally to the $40m Incentives Scheme.

[92] The Incentives Scheme is available for landowners who may wish to permanently reduce their N losses below their nutrient discharge allocation. The scheme enables landowners to "sell" some or most of their property's NDA to permanently remove this N from the catchment. The scheme is proposed to be managed by the Incentives Board, a committee of Regional Council.

[26] Mr A Bruere, Statement of evidence at [67].

[27] The Rotorua Lakes Council has committed to remove the wastewater discharge from the forest by December 2019.

Agreed reductions between sectors

[93] The framework also set out the agreed reductions by 2032 developed by the StAG between the dairy and drystock sectors as:

(a) dairying – a reduction of 96.4t/N/y or 35.5 per cent; and

(b) drystock – a reduction of 43.6t/N/y or 17.2 per cent.

[94] In an endeavour to alleviate the hardship that would likely accrue to high and low emitters, the StAG process developed the sector average and ranges, from which it was proposed that the NDA would be determined.[28] This methodology was updated to OVERSEER® 6.2.0[29] and has been incorporated in PC10 as Table LR 6. The dual sector averages and ranges are:

(a) the standard sector per cent reductions were fixed at dairy (31.3 per cent) and drystock (20 per cent);

(b) the N discharge allowance average was fixed at 64.5kg/N/ha/y for dairy and 25.6kg/N/ha/y for drystock;

(c) the lower N discharge allocation range boundary was fixed at 54.6kg/N/ha/y for dairy and 18kg/N/ha/y for drystock; and

(d) the upper N discharge allocation range boundary was fixed at 72.8kg/N/ha/y for dairy and 54.6kg/N/ha/y for drystock.

[95] From these figures the N discharge allocations would be calculated as follows:

(a) if the block OVERSEER® 6.2.0 per ha N discharge is reduced by the standard sector percentage reduction and the result is more than the upper limit, then the block allocation shall be reduced to the upper limit;

(b) if the block OVERSEER® 6.2.0 per ha N discharge is reduced by the standard sector percentage reduction and the result is between the upper and lower limits, then the block allocation is the result; and

[28] Approved by majority of StAG, 17 March 2015, and adopted by Regional Council on 2 July 2015.

[29] OVERSEER® is a computer model that estimates N leaching losses from farm blocks and then properties. We discuss the model and its proposed use in PC10 later in this report.

(c) if the block OVERSEER® 6.2.0 per ha N discharge is reduced by the standard sector percentage reduction and the result is less than the lower limit, then the block allocation is the lower limit.

[96] The understanding of the agreed Integrated Framework was that the proportions of N load reductions are to remain constant through time. These percentages have been taken through into the allocation principles that underlie the provisions of PC10, to the extent that the framework and percentage reductions are proposed as part of the Introduction to PC10 and are incorporated into the proposed policy and rules.

[97] During the hearing, the issue arose as to the status and weight that should be given to the Integrated Framework.

[98] The Integrated Framework is a non-statutory method and accordingly its development did not undergo the RMA statutory process. It was developed as part of the community process (StAG) that was initiated by the Regional Council in accordance with the directions contained in Policy 25 and Method 45 of the RWLP. It was presented to StAG by the Lake Rotorua Primary Producers' Collective and it was endorsed by StAG, and later approved and endorsed by the Regional Council on 17 September 2013.

[99] As pointed out by Ms Sharron Wooler on behalf of the Regional Council,[30] the Integrated Framework combines, and sets out a template for, the contribution that the public and private sectors should make to the reduction of nitrogen. This addresses the directions contained in WL 6B(a) and WL 6B(b) of the RPS, which respectively say:

> **Policy WL 6B**: require, including by way of rules, the managed reduction of any nutrient losses that are in excess of the limits established under Policy WL 3B by ensuring that:
>
> (a) rural production land use activities minimise their loss of nutrients as far as is reasonably practicable by implementing on-farm best management practices;
>
> (b) any land use change that is required within the Rotorua-Te Arawa lakes catchments to achieve the limits takes into account an equitable balancing of public and private costs and benefits; …

[100] The Integrated Framework sets out the pastoral sector's contribution to the N reduction of 140t/N/y, being 96t/N/y for the dairy sector (reductions of 35.3 per cent of sector load) and 44t/N/y for the drystock sector (reductions of 17.2 per cent of the sector load). The Integrated Framework then sets out the complementary public

[30] Closing submissions [54] and following.

commitment and funding for the reduction of an additional 180t/N/y as previously outlined.

[101] The inclusion of the Integrated Framework in the introductory part of PC10 is therefore a public statement of how PC10 gives effect to both policy WL 6B(a) and (b). Its inclusion enables an understanding of how the pastoral sector allocations for reductions are complemented by publicly funded reductions. Otherwise there would be no transparent way to understand how the dual requirements of Policy WL 6B had been met. Ms Wooler also pointed out that the inclusion of the Integrated Framework is consistent with s 67(2)(b) and (c) of the RMA to show the breakdown of the Integrated Framework being a method, other than rules, for implementing the policies of the region and a principal reason for adopting the policies and methods. It would also be consistent with s 67(h), being other information that is required for the purpose of the Regional Council's functions, powers and duties under the RMA.

[102] We conclude that the inclusion of the Integrated Framework as proposed would be consistent with s 67(2)(b) and (c) of the RMA to show how the Integrated Framework, being a non-statutory method, underlies the policies and rules of PC10. It would also be consistent with s 67(h), being other information that is required for the purpose of the Regional Council's functions, powers and duties under the RMA.

[103] A number of submitters, including individuals and corporates representing the farming community and various Māori entities, were critical of the development process and the extent of consultation. They were also critical of the allocation methodology under the Integrated Framework. We discuss these issues in some detail later in this report.

The conceptual methodologies that underlie PC10

[104] It was the development process, described above, that gave rise to the nutrient management concepts which form the basis of the rule framework. The concepts were explained to us in the Regional Council officers' reports and other evidence adduced by Regional Council. We summarise them below.

Sustainable lake load

[105] The sustainable lake load, more accurately referred to as the catchment load, is the annual nitrogen loss (tonnes per year) reaching Lake Rotorua, which is the recipient of waters from the groundwater catchment. As mentioned earlier, the long term lake load was fixed by collaboration on the signing of the Oturoa Agreement, and fixed at 435t/N/y in Policy WL 3B(c) of the RPS.

Timeframe

[106] The timeframe for achieving the catchment load was also set by the terms of the Oturoa Agreement and fixed at 2032 by Policy WL 6B(c) of the RPS, which also provided for a catchment intermediate target of 70 per cent for the managed reduction of the required N loss by 2022. This managed reduction target includes the 180 t/N/y envisaged by the combination of the Incentives Scheme, gorse reduction and engineering solutions.

The TLI

[107] We have already referred to the TLI, which has been fixed, after the statutory process, by Objective 11 of the RWLP at 4.2.

OVERSEER®

[108] OVERSEER® is a complex computer based model that aggregates information from individual farm blocks, and how they are farmed, to estimate leaching losses of N from the root zone of plants (which is defined as 60cm below the ground surface) from a property. The model is jointly owned by MPI, AgResearch and Fertiliser Association New Zealand, and is managed by MPI. It is not used to estimate P losses from farming activities.

[109] There are significant practical difficulties in estimating these N losses from the root zone. First it is not practicable to measure the amount of N that is discharged from a property through the root zone. Secondly, the N losses vary with the many

different types of land use, soil and climate combinations that occur across multiple properties and catchments. Catchments are hydrological systems, with multiple surface and sub-surface flow paths that may have long and variable lag times. The Rotorua catchment is particularly challenging, with complex groundwater – surface water interactions and some very long lag times between N entering groundwater and reaching the lake.

[110] It is not possible to attribute receiving environment N loads to individual properties or even sub-catchments. We discuss this in some detail later in this report.

[111] Individual farmers cannot control what occurs beyond the boundary of their property. They can only control the source load that leaves the property. Therefore, it is the source load that needs to be identified and controlled by the planning framework.

[112] The use of a model as an agricultural management tool can estimate diffuse N losses from the root zone or farm boundary of most land uses in a catchment. This enables an explicit link to be made between catchment land use activities and water quality in the receiving environment.

[113] OVERSEER® is used to estimate N losses using a comprehensive set of land use, soil and climate combinations. Essentially, a suite of nutrient simulation models is used to generate estimates of N losses and drainage under a range of farming systems for the purposes of setting limits in PC10.

[114] The OVERSEER® model is periodically updated with new versions as information improves and the model is refined. Such ongoing improvement is beneficial, because it leads to improvements in the estimates of N losses, and N attenuation in the root zone.

[115] The methodology underlying PC10 to manage OVERSEER® version updates is what has been termed the "reference file" method. The detail of how the methodology works is set out in the evidence of Mr Matheson for the Regional Council.

[116] There are five reference files covering the five land uses that form the basis of the N allocation scheme in PC10. These land use categories/sectors are:

(a) drystock;

(b) dairy;

(c) plantation forestry;

(d) native bush/scrub;

(e) house block (ie rural houses with on-site waste treatment).

[117] As new OVERSEER® versions are released, the five reference files are re-run using the latest version. The revised reference file loss rates are then multiplied by the start point, MRTs and NDA (for each block) in order to calculate revised allocations for the new OVERSEER® version.[31]

[118] The basis for the use of a reference file within the allocation framework is an attempt to anchor the relativity over time of permitted N losses allocated to properties, both within and between sectors, without the necessity of having to continually re-assess allocations.

[119] Many submitters were critical of the "reference file" method. We discuss this issue later in the report.

Allocation methodology – benchmarking, NDAs and starting points

[120] Allocation is a share of the sustainable catchment load of N that is assigned to a property. Allocation is a contentious issue within any nutrient management framework, as there will always be landowners who are adversely affected financially under any allocation method.

[121] The ability to discharge N needs to be matched to the assimilative capacity of Lake Rotorua. As we have said, this requires a reduction from the estimated present catchment load of 755t/N/y down to the sustainable catchment load of 435t/N/y by 2032.

[122] The methodology adopted by the Regional Council for PC10 consists of benchmarking all of the properties, establishing a benchmark, an NDA and reduction targets for each sector.

[123] Nutrient benchmarking was a requirement of a series of rules, commonly termed Rule 11, of the RWLP. Benchmarking involved collecting farm management information from individual farms over the 2001-2004 period and entering it into multiple OVERSEER® versions, in order to predict N loss from the farm through the root zone.

[31] See Mr A MacCormick, Statement of evidence at [41].

[124] Bio-physical data was taken from GIS sources including LiDAR, S-map[32]NIWA 1971-2001 mean rainfall and aerial photography. Farm data was sourced from the farmer and, where available, verified against records. However, not all farm data could be verified. Accordingly, some benchmarks are based on partial data and/or recollection. The benchmark is therefore the "best estimate".[33]

[125] Not all properties were benchmarked under Rule 11. For non-benchmarked properties, the Derived Benchmark is defined by the 2001-2004 benchmark averages, and the land use and effective area are what existed in the 2002-2003 period.

[126] All benchmark information was converted to OVERSEER® version 6.2.0 for the purpose of calculating the NDA. Under this methodology, N is provisionally allocated for all rural land in the catchment based on the benchmarked OVERSEER® 6.2.0 discharges and the 2001-2004 land use. Benchmarking involves identifying on each property what is termed in PC10 as an "OVERSEER® Block", which is one of the five different land use categories/sectors covered by the reference file method.

[127] Each property is categorised by identifying which of the land use category/sector blocks are situated on that property together with their number. All non-benchmarked land has also been categorised as containing one or other of the five PC10 land use categories/sectors, based on reviewing 2002/2003 aerial photography.

[128] All rural land within the catchment was proposed to be assigned an OVERSEER® 6.2.0 N discharge as follows:

(a) benchmark land where the Regional Council holds the OVERSEER® file was assigned the OVERSEER® 6.20 discharge; and

(b) benchmark land where the Regional Council does not hold the OVERSEER® file is assigned an estimated 6.2.0 discharge by multiplying the OVERSEER® 5.4.11 block discharge by the average OVERSEER® 6.2.0 shift for a particular land use category/sector; and

(c) non-benchmarked land received the average discharge for the relevant land use category/sector.

[32] LiDAR is an aerial photograph based monitoring tool that allows contours of the land to be accurately mapped. The s-map covers soils of NZ in fine detail and is managed by LandCare Research.

[33] Mr A MacCormick, Statement of evidence at [13].

[129] The result of the above process under PC10 is that all rural land in the catchment is divided into spatially defined blocks. Each block is assigned a PC10 land use sector and either has an actual OVERSEER® 6.2.0 discharge, a calculated 6.2.0 equivalent discharge, or an average sector 6.2.0 equivalent discharge.

[130] The next step is to calculate the NDAs in accordance with the Integrated Framework by applying the formula to apply the sector reductions and range boundaries for each sector as described earlier.

[131] The final step is to work out the Managed Reduction Targets, which are the reductions required in each five year timeframe for the pastoral sector which, in total, equals the difference between the start point and NDA. They are calculated as a percentage of the total reductions required according to the following formula:

(a) for a 2017 start:

  (i) July 2022, 31.4 per cent of total reduction required;

  (ii) 1 July 2027 34.3 per cent of total reduction required; and

  (iii) 1 July 2032, 34.3 per cent of total reduction required;

(b) for a 2022 start:

  (i) 1 July 2027, 50 per cent of total reduction required; and

  (ii) 1 July 2032, 50 per cent of total reduction required.[34]

Use of Nutrient Management Plans

[132] Underlying PC10 is the use of Nutrient Management Plans (NMPs) as part of any resource consent. They are proposed to be defined in the plan as "the plan for a property or farming enterprise that identifies the sources of nutrients associated with farming activity and the mitigation actions to reduce N losses to meet managed reduction targets and the nutrient discharge allowance". The key aspect of the NMP is the schedule of actions that, when modelled in OVERSEER® show the pathways to achieving the NDA.

[133] The NMP contains N budgets; block information; and mitigation actions that are designed to achieve the required reductions. If the mitigations are not being

[34] These figures are set out in Table LR7 in Schedule 1 of the proposed plan.

carried out, and therefore the N reductions are not occurring, the Regional Council would then have the ability to undertake compliance.

[134] There was considerable opposition to the manner in which NMPs are to be used in the PC10 process. This is a matter that we discuss in more detail later in this report. However, that opposition needs to be put into context, with the reality that property owners develop their own NMP's and can review them at their own will. Regional Council's role is ensuring that the outcome of the land management decisions is achieving the required reduction in N loss.

Transfer of nutrient discharge allocations (NDA's)

[135] The transfer of NDA's is an important underlying concept. It was so acknowledged in the Oturoa Agreement, and according to the Regional Council officers has been supported by the Crown through discussions around the Funding Deed.[35] The option adopted by the Regional Council was to use a simple process of transfer that reflected the transfer in the NDAs and Managed Reduction Offsets (MROs) for the source and destination properties. Transfer also includes the ability for short-term transfers to meet the five-year managed reduction targets.

[136] Under PC10 transfer is not allowed until 2022. This was seen by some as legislating for a monopoly, as prior to this date NDA's can only be purchased by the Incentives Board. The 2022 date has been implemented for two reasons:

(a) the first is that the Incentives Scheme has a challenging task to purchase a 100 tonne reduction in N entering the catchment by 2022; and

(b) the second reason is that there was a view that properties should not be able to purchase the ability to discharge N above their benchmarks.

General comment on the underlying concepts/methodologies

[137] The above concepts/methodologies underlay the provisions of PC10. They form the basis of the policies, methods and rules and they are essentially given effect through the schedules.

[138] As we have said, these concepts were developed through the collaborative StAG process. The directive to the StAG by the Regional Council was to endeavour to reach a consensus on all matters. But this potential was not achieved in reality, and accordingly some of the decisions were by majority. We got the clear impression

[35] Mr S Lamb, Statement of evidence at [97].

from the submissions, evidence and representations, that the members of StAG who were the minority in some of these decisions strongly disagreed with them. This is reflected in their opposition to the concepts / methodologies in their submissions and at the hearing.

The provisions of Plan Change 10 (Version 7): Lake Rotorua Nutrient Management

[139] We have set out the basic concepts that underlie PC10. These concepts are very much inter-related and need to be considered as a package. These concepts, developed as part of the collaborative process, have been carried through into the provisions of PC10 as notified and, as we have said, have been amended from time to time by the officers during the submission and hearing process, culminating in version 7. Version 7 is undated, but was attached to the memorandum of counsel for the Regional Council dated 20 April 2017. It is this version that we refer to in this discussion.

[140] The Lake Rotorua nutrient management provisions proposed in PC10 are being introduced into the RWLP as a separate chapter. The policies and methods are proposed to be contained in Part II of the RWLP. The rules (including definitions and schedules) are proposed to be contained in Part III. Both parts of this subject are to be identified by the unique identifier **LR**.

[141] The Part II section of the PC10 contains:

(a) the introduction;

(b) the objectives;

(c) the policies; and

(d) the methods.

[142] The Part III section contains:

(a) the rules;

(b) the definitions; and

(c) the schedules.

The Introduction

[143] The Introduction states that the proposed plan change provisions apply to the land contained in rural production (pastoral activities) and forestry within the Lake Rotorua groundwater catchment. Its scope is restricted to the management of land use activities which contribute N to the lake.

[144] The Introduction sets out the following information:

(a) the statutory catchment load limit of 435t/N/y as set out in Policy WL 3B of the RPS;

(b) the principles and considerations that have to be had regard to, as set out in Policy WL 5B of the RPS;

(c) the timeframe for implementing the sustainable N lake load by 2032, with 70 per cent of the required catchment reduction to be achieved by 2022;

(d) PC10's relationship with the National Policy Statement on Freshwater Management 2014 (NPS-FM) and a table setting out the attribute states of phytoplankton, total N, total P and cyanobacteria compared to the Attribute Tables in Appendix 2 of the NPS-FM, referred to in Part CA of the National Objectives Framework;

(e) the Integrated Framework (IF) or programme of regulated land use nitrogen reduction (Nitrogen Discharge Allocation), engineering solutions, incentives and gorse conversion developed through the StAG process and adopted by the Regional Council on 17 September 2013. This includes the following tables that reflect the Integrated Framework; the concepts of which we have discussed earlier:

(i) Table LR-1 – annual catchment loads and reductions;

(ii) Table LR-2 – pastoral farming sector proportional reductions; and

(iii) Table LR-3 – sector contributions;

(f) Map LR 1 showing the groundwater catchment boundary and rural land.

The objectives

[145] PC10 contains no new objectives. For information it sets out:

(a) Objective 28 of the RPS, which relevantly seeks to enhance the water of Lake Rotorua; and

(b) Objective 11 of the RWLP, which directs the water quality of Lake Rotorua to be maintained or improved to meet the Trophic Level Index (**TLI**) of 4.2 by way of information.

[146] While these are the only objectives of the RPS and RWLP quoted, we recognise the need to consider, to the appropriate statutory standard, all of the objectives and policies of the statutory instruments that are relevant to a consideration of the proposed provisions.

Policies

[147] In all there are 17 new policies; made up of two general policies and 15 policies grouped under the following headings:

(a) Adaptive management;

(b) Managed reduction;

(c) Use of rules;

(d) Use of OVERSEER®;

(e) Assessment of consent applications; and

(f) Implementation matters.

General policies

[148] There are two general policies:

> **LR P1** – reduce nitrogen losses from farming activity to Lake Rotorua to achieve the sustainable load;
>
> **LR P2** – manage diffuse and point sources of phosphorous through:
>
> (a) regional plan discharge rules;
>
> (b) non-regulatory programmes; and
>
> (c) good management practices.

Adaptive management

[149] There are five policies under this heading:

> **LR P3** – manage nitrogen by using:
>
> (a) the 435 tonne sustainable load from the RPS;

(b) the 755 tonne load estimated by the ROTAN model 2011 as the position from which nitrogen reduction will be determined;

(c) the most current version of OVERSEER® except for the initial allocation; and

(d) the pastoral sector reductions within the Integrated Framework;

LR P4 – implement adaptive management through:

(a) science reviews;

(b) regular reviews of the RPS and RWLP;

(c) five-year NMP reviews; and

(d) the use of OVERSEER® reference files;

LR P5 – allocating NDAs that align with the ranges for dairy and drystock activities, and to recognise standardised OVERSEER® loss rates for plantation forestry, bush scrub and house lots;

LR P6 – to determine individual NDAs in accordance with LR Schedule One for all properties not provided for as permitted activities. LR Schedule One effectively reflects the Integrated Framework;

LR P7 – manage transfers of NDAs and managed reduction offsets (MROs) between properties from 1 July 2022 by way of resource consents.

Managed reduction

[150] There is one policy under this heading:

LR P8 – require NMPs to achieve and maintain managed reduction targets (MRTs).

Use of rules

[151] There are three policies under this heading:

LR P9 – enable the continued use of land for low intensity farming, bush scrub and forestry;

LR P10 – provide for farming activity within properties that have an effective area exceeding 10ha where these have identified NDAs, MRTs and appropriate methods to achieve staged reduction of nitrogen by 2032;

LR P11 – avoid operation of farming activities that are not permitted.

Use of OVERSEER®

[152] There are two policies under this heading:

LR P12 – use OVERSEER® version 6.2.0 for initial allocation purposes;

LR P13 – the Council to consider the use of alternative nitrogen budgeting models, if OVERSEER® cannot be used for specific land use, considering:

(a) the ability to reliably estimate long-term nitrogen loss;

(b) a robust and verifiable process for estimating leaching rates; and

(c) the potential availability of suitably qualified and experienced persons.

Assessment of consent applications

[153] There are two policies under this heading:

LR P14 – grant controlled activity consents for a duration of 20 years and non-complying consents, where granted, for durations less than 20 years. The duration of consents is to reflect the nature, scale and robustness of any proposed on-farm mitigations and any risk of not achieving the applicant's 2032 NDA; and

LR P15 – only provide approval to non-complying farming activities and/or bush scrub and/or plantation forestry where assessment has shown adverse effects to be minor and will contribute to the Lake Rotorua water quality objectives and policies being met.

Implementation matters

[154] There are two policies under this heading:

LR P16 - an acknowledgement that the 435 t/N/y sustainable load includes losses from all sectors, including urban and wastewater discharges; and

LR P17 – an acknowledgement of the increased demand on infrastructure from land use change resulting from urban growth (and the consequential shift of losses between sectors) and reticulation of communities.

Methods

[155] There are five methods in PC10:

> **LR M1** – the Regional Council will supply information to the District Council for inclusion on land information memorandum and resource consent details of the rural properties that lie within the groundwater boundary and are subject to PC10, and identify the minimum nitrogen losses required to be allocated to each new lot;
>
> **LR M2** – requires a review of the science underpinning PC10 on a five-yearly basis, and a publication of the science contained in any such review. It also sets out the methodology for such a review, and a requirement that the review and any recommendations be peer-reviewed by a suitably qualified expert;
>
> **LR M3** – requires the Council to respond to any recommendation that would result from the review required by LR Method 2 through a formal and public decision-making process;
>
> **LR M4** – requires the Council to monitor permitted activities and any developing techniques to inform future plan changes and a review of permitted activity thresholds;
>
> **LR M5** – requires the Council to:
>
> (a) develop and maintain a rule implementation plan;
>
> (b) report on the achievement of the rule implementation plan on a five-yearly basis;
>
> (c) develop and maintain an NDA register;
>
> (d) provide land advisory services and incentives to support land use management practices and/or land use change that reduces nitrogen and phosphorous loss;
>
> (e) encourage and support good management practices;
>
> (f) work with landowners and the community to improve the water quality of the lake;

(g) implement an agreed accounting methodology for the shift in nitrogen losses between rural and urban land uses;

(h) collate and publish material about land-based actions to manage and reduce phosphorous losses; and

(i) prioritise efforts on stream catchments which contribute to the phosphorous load.

Rules

[156] The rule regime as developed for PC10 is a relatively uncomplicated one providing for permitted, controlled and non-complying activities. The structure is based on "allowing" farming activities through permitted or controlled activities, rather than using discretionary activities.

[157] The rules are based on land use activity rules proposed under s 9(2) of the RMA, rather than discharge rules under s 15. They are anchored on a property-based approach, and address land use activities with the aim of constraining N loss below the root zone as estimated by OVERSEER®.

[158] For the most part, the rules recognise the difference between "effective area", which is effectively the farmed area, and other parts of a property that do not contribute to N loss.

[159] The rules reflect the timeframes within the RPS, the Oturoa Agreement and the Integrated Framework.

[160] Generally, the rules provide for small, non-commercial properties, forestry/bush scrub and low intensity landowners to operate as permitted activities. Larger, higher intensity pastoral properties/farming enterprises are required to obtain a controlled activity consent from 1 July 2017 on the basis that NMPs are submitted that show how the NDA on the property will be achieved.

Permitted activities

[161] There are seven permitted activity rules:

> **LR R1** – this rule is a bridging rule from the point of notification to 1 July 2017, the date specified in the Integrated Framework, to allow for current land uses to continue.

LR R2 – plantation forestry and bush/scrub are permitted activities due to their comparatively low levels of nitrogen loss.

LR R3 – the use of land on lots of 5ha and under is a permitted activity, unless it is commercial in nature. This reflects the balance of the generally low level of nitrogen losses from these sized properties (being mostly rural residential in nature, with administrative effort). This rule is not limited to effective area.

LR R4 – this rule defines permitted activities on properties between 5ha and 10ha in effective area with no commercial dairy, cropping or horticulture, on the basis of compliance with a stocking rate table.

LR R5 and **LR R6** – until 2022 properties between 10 and 40ha, or properties that were not managed under rule 11 of the RWLP, are permitted activities, provided there is no increase in activities that would increase the nitrogen loss, and annual records are submitted.

LR R7 – this rule is designed to allow low intensity but potentially large properties/ farming enterprises to maintain their low nitrogen loss profiles. It applies to properties where the farming activity generates less than 71 per cent of the nitrogen loss rate generated by the drystock reference file as prescribed in Schedule LR Five. An OVERSEER® file is required as the basis of showing compliance with the required limitation on nitrogen loss. Importantly, it prescribes that there is no increase in effective area or nitrogen inputs from 29 February 2016.

Controlled activities

[162] There are four controlled activity rules:

LR R8 – a controlled activity consent would be required for farming activities on properties less than 40ha in effective area, or properties that were not previously managed under rule 11 and which do not meet permitted activity conditions, provided:

(a) a 2032 NDA and relevant Managed Reduction Targets (MRTs) have been determined in accordance with Schedule LR 1 and Policy LR P8; and

(b) a NMP has been prepared in accordance with Schedule LR Six;

LR R9 – 40ha or more – a controlled activity consent would be required for farming activities on properties with more than 40ha in effective area, and where the activity does not comply with the permitted activity conditions in rule LR R7, provided:

(a) a 2032 NDA and relevant MRTs have been determined in accordance with Schedule LR One and policy LR P8; and

(b) a NMP has been prepared in accordance with Schedule LR Six;

LR R10 – transfer of NDAs. A controlled activity consent would be required to transfer NDAs or Managed Reduction Offsets (MROs) MROs provided:

(a) any transfer of an NDA or MRO complies with Schedule LR Seven;

(b) a new 2032 NDA and new MRTs have been determined for both the source and destination land, in accordance with Schedule LR One and policy LR P8; and

(i) NMPs have been prepared for both the source and destination land in accordance with Schedule LR Six.

Non-complying Activity

[163] There is one non-complying rule:

LR R12 – non-compliance occurs upon a NDA or NMP not being provided as part of a resource consent application under Rules LR R8 to LR R11 or where the use of land does not meet the conditions of the permitted or controlled rules.

Discharge rule

[164] There is one discharge rule:

LR R13 – the discharge rule is part of the proposed rule framework in relation to s 15 of the RMA. This rule expressly allows for a discharge of contaminants into water – on the basis that the associated land use is one that is authorised/managed through one or other of the above land use rules.

Definitions

[165] The definitions section of PC10 follows the rules. This section sets out the definitions which apply only to Part II-LR and Part III-LR of the RWLP.

Schedules

[166] There are seven schedules set out in PC10. These schedules set out the methodologies that give effect to the rules. They are:

> **Schedule LR One** – schedule LR One sets out the methodology to determine the start points, managed reduction targets and nitrogen discharge allocations. It sets out in some detail the allocation methodology developed during the collaborative process, and described earlier in this decision.
>
> **Schedule LR Two** – stocking rates. This schedule sets out the stocking rates, which show how many animals are allowed per hectare of effective area at any point in time to comply with the permitted activity rule LR R4;
>
> **Schedule LR Three** – this schedule sets out the information that is to be provided to the Council annually for permitted rules LR R5, and LR R6.
>
> **Schedule LR Four** –This schedule contains a map setting out the land area subject to LR R6.
>
> **Schedule LR Five** – this schedule sets out the methodology that has been adopted and which:
>
> (a) enables the latest version of OVERSEER® to be used for every assessment (except for NDA purposes where version 6.2.0 applies);
>
> (b) adjusts a property's start points, managed reduction targets and 2032 NDA in a way that enables a comparison with the property farming enterprise's current N leaching rate;
>
> (c) maintains reasonable N discharge allocation relativity between properties properties/farming enterprises; and
>
> (d) enables effective compliance and reporting.

It explains the reference files and the methodology incorporating the reference file into the allocation methodology.

Schedule LR Six – points out that nutrient management plans are the primary point of monitoring and, if necessary, compliance. Accordingly, the schedule sets out the minimum requirement of such plans.

Schedule LR Seven – schedule LR 7 sets out the process for the transfer of nitrogen discharge allocations and managed reduction offsets.

General comments

[167] PC10 has been put together to give effect to the underlying concepts/methodologies that we have discussed earlier. It is a complete package and needs to be read as a whole, within the context of the objectives of the RWLP and the legal and statutory context which we set out in Part III of this decision. In Part IV of this report we evaluate the major issues that have been raised with respect to PC10, and the underlying concepts, and we evaluate the particular provisions of PC10.

[168] The Regional Council considers that the NMP can be used to enforce compliance with the NDA and the rules in PC10. We discuss this later in this report.

Part III – The legal and statutory context

[169] We now set out our understanding of the general legal and statutory context in which the Regional Council is to give its decision on the matters raised in the submissions and evidence when accepting or rejecting the amendments requested. We also address a preliminary legal matter raised by some of the parties relating to the scope of submissions.

No presumption

[170] It is now well accepted that there is no legal presumption that the proposals advanced by the Regional Council in proposed PC10 are to be preferred to alternatives being promoted by other participants in the process.

Validity of submissions – scope

[171] A number of submissions did not state what decision is sought from the Regional Council.

[172] By clause 6(5) of Schedule 1 of the RMA, a submission is to be in the prescribed form. Forms for submissions are prescribed by the Resource Management (Forms, Fees and Procedure) Regulations 2003. Regulation 6 prescribes that for submissions on a publicly notified proposal or a plan variation under clause 6 of Schedule 1 of the RMA, Form 5 is to be generally followed. Regulation 4 of those regulations provides that use of a form is not invalid only because it contains minor differences from a form prescribed "as long as the form that is used has the same effect as the prescribed form and is not misleading".

[173] Form 5 provides for a statement in a submission of the specific provisions of the proposal that the submission relates to, with the direction "***give details***". The form then provides for a statement of the submission, directing inclusion of whether the submitter supports or opposes the specific provision or wishes to have them amended, with the reasons for those views. Next, the form provides for the submitter to state what decision is sought from the local authority, directing that the submitter "***give precise details***".

[174] A submission that does not identify any specific provision of the variation that it relates to; nor whether the submitter supports or opposes any provision, or wants it amended; nor whether the submitter does not state what decision is sought from the Regional Council in respect of the variation does not qualify as having "***the same effect***" as the prescribed form.

[175] A submission that does not state what decision is requested, but reserves the statement of that during the hearing process, deprives would-be further submitters of that critical information. The submitter is required to lodge a submission that complies with the prescribed form, or a submission that has the same effect as using the prescribed form, by providing in the submission itself the information that a compliant submission would.

[176] Clause 7(1) of Schedule 1 of the RMA imposes a duty on the Regional Council to give public notice of a summary of the decisions requested. This is a critical part of the process, because it is from that summary that a person who might lodge a further submission (under clause 8) and take part in the hearing can discover if there is a submission on a topic of interest. A submission that does not state what decision is

requested, nor what amendments are sought, deprives would-be further submitters of that critical information.

Submissions that are not "on the variation"

[177] Clause 6(1) of Schedule 1 to the Resource Management Act 1991 provides that once a proposed plan (including a change) is publicly notified under clause 5, a person described in sub-clauses (2) to (4) may make a submission "***on it***" to the relevant local authority.

[178] An authoritative statement of the law on whether a submission is "on" a plan change is contained in the High Court decision of ***Palmerston North City Council v Motor Machinists Limited***.[36] The Court specifically endorsed the bi-partite approach in ***Clearwater Resort Limited v Christchurch City Council***[37] by which an analysis is required as to whether first, the submission addresses the change to the status quo advanced by the proposed plan change and, secondly, there is a real risk that persons potentially affected by the change proposed in the submission have been denied an effective opportunity to participate in the plan change process.

[179] The Court in ***Motor Machinists Limited*** said that:[38]

> The first limb of the **Clearwater** test requires that the submission address the alteration to the status quo entailed in the proposed plan change. The submission must reasonably be said to fall within the ambit of that plan change. One way of analysing that is to ask whether the submission raises matters that should have been addressed in the s 32 Evaluation and Report. If so, the submission is likely to fall within the ambit of the plan change. Another is to ask whether the management regime in a district plan or a particular resource is altered by 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, unless the change is merely incidental or consequential.

and[39]

> The second limb of the **Clearwater** test asks whether there is a real risk that persons directly or potentially directly affected by the additional changes proposed in the submission have been denied an effective opportunity to respond to those additional changes in the plan change process.

[180] The Court then went on to say that a precautionary approach is required to receiving submissions proposing more than incidental or consequential further

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[36] [2013] NZHC 1290.
[37] HC Christchurch AP34/02, 14 March 2013.
[38] At [91](d).
[39] At [91](e)

changes to a notified proposed plan change. The Court further said that the approach taken by the Environment Court in ***Naturally Best New Zealand Limited v Queenstown-Lakes District Council***[40] of endorsing "fair and reasonable extensions" is not correct. Where a submission does not meet each limb of the **Clearwater** test, the submitter has other options; to submit an application for resource consent, to seek a further public plan change, or to seek a private plan change.

[181] Ultimately it is a question of procedural fairness.[41] Procedural fairness extends to the public as well as to the submitter and the regional authority. At the same time, we need scope to deal with the realities of the situation. To take a legalistic view and hold that a Regional Council can only accept or reject the relief sought in any given submission would be unreal. In the end, the jurisdiction issue comes down to a question of degree, and perhaps even of impression.[42]

[182] We propose to apply the **Clearwater** test as explained by the Court in **Motor Machinists** when considering the question of scope. We summarise our duties in relation to scope as:

(a) to determine whether each submission is a valid submission and is "on" PC10, applying the tests in **Motor Machinist Limited**, being whether:

(i) the submission reasonably falls within the ambit of the plan change by addressing a change to the pre-existing status quo advanced by PC10; and

(ii) there is a real risk that, by making changes sought in the submission, other persons or potentially directly affected by the additional changes proposed in the submission have been denied an effective opportunity to respond to those additional changes in the plan change process; and

(b) by asking ourselves:

(i) has a submitter raised a relevant "resource management issue" in its submission? This may be in a specific or general way;

(ii) is the change contemplated by the submitter reasonably within the general scope of:

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[40] EnvC C049/04.
[41] See ***Westfield (NZ) Limited v Hamilton City Council*** [2004] NZRMA 558, at [574]-[575].
[42] HC Tauranga, CIV-2008-470-456, 30 October 2009, AllenJ.

a. an original submission; or

b. PC10 as notified; or

c. somewhere in between?;

(i) did the submission give precise details sufficient to give would-be further submitters critical information?; and

(ii) was the summary of the decision sought fair and accurate and not misleading?

The RMA

[183] The starting point for setting the statutory context is the Resource Management Act 1991 (the RMA). The RMA is the statutory basis upon which all functionaries, including regional councils, exercise their functions, powers and duties under the RMA.

Part 2

[184] **Part 2** is a framework against which all the functions, powers and duties under the RMA are to be exercised for the purposes of giving effect to the RMA. Section 5 has been described as the lodestar of the RMA.[43] It guides decision-making under the RMA towards the over-arching purpose of sustainable management, and directs decision-makers to manage resources so that the reasonably foreseeable needs of future generations can be met in the life supporting capacity of the ecosystem protected.

[185] **Section 5** sets out the Act's overall objective. Its purpose is identified in s 5(1) as "***to promote the sustainable management of natural and physical resources***". In doing this, sustainable management is to be given the meaning stated in s 5(2):

> In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while–
>
> (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
>
> (b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
>
> (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

[186] Section 5 contemplates environmental preservation and protection as an element of sustainable management of natural and physical resources,[44] and protecting the environment from adverse effects of use and development is an aspect (though not the only aspect) of sustainable management.[45]

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[43] ***Leigh v Auckland City Council*** [1995] NZRMA 241 (PT) at [248].
[44] ***Environmental Defence Society v NZ King Salmon Limited & Ors*** [2014] NZCSC 38 at [146].
[45] ***NZ King Salmon*** at [148].

[187] Although s 5 is not itself an operative provision,[46] where applicable the other sections of Part 2 (ss 6, 7 and 8) are operative, albeit at the level of general principles, directing those administering the RMA, and elaborating[47] on how s 5 is to be applied in the circumstances described in them.

[188] **Section 6** of the RMA identifies matters of national importance, and directs all persons exercising functions and powers under the Act to recognise and provide for them. Those relevant to PC10 include:

- the protection of areas of indigenous vegetation and significant habitats of indigenous fauna (s 6(c));
- the maintenance and enhancement of public access to and along lakes and rivers (s 6(d)); and
- the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga (s 6(e)).

[189] **Section 7** directs that, in achieving the purpose of the Act, all persons exercising functions and powers under it are to have particular regard to some eleven listed matters, nine of which are relevant to PC10. They are:

> (a) Kaitiakitanga;
>
> (aa) the ethic of stewardship;
>
> (b) the efficient use and development of natural and physical resources;
> …
>
> (c) the maintenance and enhancement of amenity values;
>
> (d) intrinsic values of ecosystems;
> …
>
> (f) maintenance and enhancement of the quality of the environment;
>
> (g) any finite characteristics of natural and physical resources;
>
> (h) the protection of the habitat of trout and salmon; and
>
> (i) the effects of climate change;
> …

[46] ***NZ King Salmon*** at [151].
[47] ***NZ King Salmon*** at [25] and [149].

[190] **Section 8**, the final section of Part 2 of the Act, directs persons exercising functions and powers under it to take into account the principles of the Treaty of Waitangi "te Tiriti o Waitangi". We understand this direction does not extend the principles that are not consistent with the scheme of the RMA, nor does it provide for allocating resources to Māori.[48] It does not impose a duty on functionaries to take into account past wrongs, or to be open to ways to restore imbalance.[49]

[191] Although Part 2 states the purpose of the Act and the principles in elaboration of the purpose, the specific, unqualified prescriptions of a superior instrument by which Part 2 is given effect apply, a decision maker is not free to "***refer back***" to Part 2.[50] To do so would diminish such a prescription. However, the Supreme Court direction is qualified by two constraints:

- the lawfulness and meaning of the prescription must not be in dispute; and
- the prescription must "***cover the field***".

Restrictions on land and water – ss 9 and 15

[192] **Section 9(2)** of the RMA provides that no person may use land in a manner that contravenes a regional rule, unless the use is expressly allowed by a resource consent.

[193] **Section 15(1)** of the RMA provides that, unless expressly allowed by a rule in a regional plan or a resource consent, no person may discharge any contaminant or water into water, or contaminant onto or into land, in circumstances which may result in that contaminant entering water.

Functions of regional councils – s 30

[194] **Section 30** of the RMA lists the functions of regional councils for the purpose of giving effect to the Act in their regions. The following of those functions are relevant to PC10:

- the establishment, implementation and review of policies and methods to achieve integrated management of the natural and physical resources of the region (s 30(1)(a));

[48] ***Minhinnick v Minister of Corrections*** NZEnvC A043/2004.
[49] ***Waikanae Christian Camp v Kapiti Coast District Council*** (HC Wellington 27/10/2004, McKenzieJ).
[50] ***King Salmon*** at [80] and [88].

- control of the use of land for the purpose of soil conservation; maintenance and enhancement of the quality of water and water bodies; maintenance and enhancement of the ecosystems in water bodies (s 30(1)(c));

- the control of discharges of contaminants into or onto land, air, or water and discharges of water into water (s 30(1)(f));

- the establishment, implementation, and review of policies and methods for maintaining indigenous biological diversity (s 30(1)(ga)).

Contents of regional plans – ss 63, 65, 66, 67 and 68

[195] **Section 63** of the RMA states that the purpose of a regional plan "is to assist the regional council to carry out any of its functions in order to achieve the purpose of this Act".

[196] **Section 65(1)** authorises a regional council to prepare a regional plan for any function in s 31(c), (f), or (ga); and directs that a plan is to be prepared in accordance with Schedule 1 (s 65(3)).

[197] **Section 66** stipulates:

- that a regional council is to prepare a regional plan **in accordance** with its functions under s 30, the provisions of Part 2, its duty under s 32, and any regulations (s 66(1));

- that when preparing a regional plan, the regional council is **to have regard to** any proposed regional policy statement for the region and the management plans and strategies prepared under other Acts to the extent to which their content has a bearing on resource management issues of the region (s 66(2)(c)(i));

- that when preparing a regional plan, a regional council is to **take into account** any relevant planning document recognised by an iwi authority, if lodged with the Council, to the extent that its content has a bearing on resource management issues of the region (s 66(2A)(a)).

[198] **Section 67** of the RMA stipulates that:

- a regional plan is to state the objectives for the region;

- the policies to **implement** the objectives; and the rules (if any) to **implement** the policies (s 67(1));

- a regional plan is **to give effect to** any national policy statement, and any regional policy statement (s 67(3));

- a regional plan is **not to be inconsistent with** a water conservation order, or any other regional plan for the region (s 67(4)).

[199] **Section 68** of the RMA:

- empowers a regional council to make rules in a regional plan for carrying out certain functions and **for achieving the objectives and policies of the plan** (s 68(1)(a)(b));

- prescribes that in making a rule, a regional council is **to have regard to** the actual or potential effect (particularly any adverse effect) on the environment of activities (s 68(3)).

[200] We keep all of these duties in mind when addressing submissions in PC10 if and as they apply to the subject matter of the submissions and evidence.

Section 32 requirements and other statutory reports

[201] **Section 32** of the RMA prescribes the requirements for preparing and publishing evaluation reports. An evaluation report is to examine whether the provisions of PC10 are the **most appropriate** way to achieve the relevant objectives of the RWLP by:

(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 provisions (s 32(1)(b)).

[202] The report is to contain the level of detail that corresponds to the scale and significance of the environmental, economic, social and cultural effects anticipated from implementation of the proposal (s 32(1)(c)).

[203] In assessing the efficiency and effectiveness of provisions, the assessment has to identify and assess the anticipated benefits and costs of the environmental, economic, social and cultural effects, including opportunities for economic growth and employment anticipated to be provided or reduced.

[204] The assessment has also, if practicable, to quantify the benefits and costs; and if there is uncertain or insufficient information about the subject matter of the provisions, has to assess the risk of acting or not acting. (s 32(2)(a))

[205] Section 32 requires a value judgement as to what, on balance, is the most appropriate when measured against the relevant objectives. The High Court[51] rejected the submission that in order to be the "most appropriate", a plan change must be the superior method; the Court found that "appropriate" meant suitable, and there was no need to place any gloss on that word by incorporating that it be superior. Further, the Court did not agree that s 32 mandated that each individual objective had to be "the most appropriate" way to achieve the RMA's purpose. Each objective is required to be examined in the process of evaluation. Objectives could not be looked at in isolation because the extent of each objective's relationship in achieving the purpose of the Act may depend on inter-relationships.

[206] **By s 32AA**, a further evaluation is required for any changes proposed since the original evaluation report was completed. That further evaluation does not need to be published as a separate report if it is referred to in the decision-making record in sufficient detail to demonstrate that it was undertaken in compliance with that section (s 32AA(1)(d)(ii)).

[207] Pursuant to its obligation under s 66(1)(e) of the RMA, and clause 5(1)(a) of Schedule 1, the Regional Council prepared an evaluation report for the proposed plan change entitled *Lake Rotorua Nutrient Management Plan Change 10: s 32 evaluation report; December 2015*. This report was made available for public inspection as is required by s 32(5).

[208] Pursuant to s 42A of the RMA, the regional council prepared a report entitled *Lake Rotorua Nutrient Management Plan Change 10: s 42A; January 2017*. During the hearing this s 42A report was updated from time to time by way of addendum and by way of further information being provided to us.

[209] During the course of the hearing, we also issued several minutes requesting clarification of and caucusing on certain matters, and directions to parties. We have considered responses to those questions and directions in our evaluation.

[210] We have considered all of the statutory reports to the extent that we are required to do so by the statutory directions.

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[51] See ***Rational Transport Society Inc v New Zealand Transport Agency***, HC Wellington CIV-2011-485-2259, 15 December 2011.

Other Acts and relevant statutory instruments

[211] There are other Acts that apply either directly or indirectly to the Regional Council's decision on PC10 and deciding submissions on it.

Local Government Act 2002

[212] Schedule 1 of the RMA sets out the process required to be completed with the preparation, change and review of any policy statement and plan. Clause 3 of Schedule 1 identifies the consultation required during the preparation of a plan or policy, and requires this to be completed in accordance with s 82 of the Local Government Act ("**LGA**").

[213] Section 82 of the LGA ensures that all parties who will or may be affected by, or have an interest in the matter, are provided with reasonable access to information, and the opportunity to present their views to the local authority. Specific mention is provided for consultation with Māori by s 82(2). The local authority must give consideration to the views and preferences of any persons affected by or has an interest in the matter.

Te Arawa Lakes Settlement Act 2006

[214] The Act was passed to record the acknowledgement and apology given by the Crown to Te Arawa in the Deed of Settlement dated 18 December 2004, and to give effect to certain provisions of that Deed.

[215] The Act identifies a number of Rotorua lakes, including Lake Rotorua, as statutory acknowledgement areas. This identifies the association and historical connection that Te Arawa have with the lakes and requires this to be considered in the identification of parties affected by either a resource consent application, or in this case a matter addressed by a plan change.

National Policy Statements and Bay of Plenty Regional Policy Statement

[216] In considering the submissions on PC10, and the recommendations that we make on them, we apply the statutory requirements that PC10 is "***to give effect to***" national and regional policy statements.[52] The words "***to give effect to***" are strong directives, creating a firm obligation,[53] and require positive implementation.

[52] RMS s 67(3).

[53] *Environmental Defence Society v New Zealand King Salmon*, cited above [**77**].

National Policy Statement on Freshwater Management 2014 (NPS-FM)

[217] The NPS-FM is about recognising the national significance of fresh water for all New Zealanders and Te Mana o te Wai (the mana of the water). It sets 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.

[218] The main focus of the NPS-FM is:

(a) setting freshwater objectives (goals that describe the desired state of fresh water now or in the future);

(b) setting limits (the maximum amount of the resource available for use); and

(c) implementing methods to achieve the freshwater objectives and limits.

[219] The policy statement is divided into eight parts:

> **Part A** and **Part B** give direction on what must be provided for, or addressed in a regional plan in terms of managing water quality and quantity. Part A is about water quality and Part B is about water quantity;
>
> **Part C** gives direction to Regional Councils about managing fresh water in an integrated way. Councils must manage the relationship between land use and development, and fresh water. Councils must manage the effects of land use and development, including cumulative effects on fresh water and coastal water;
>
> **Part CA** provides the process for setting fresh water objectives. This section has two appendices, which provide lists of national values (Appendix 1) and attributes (Appendix 2) that regional councils must use to set fresh water objectives;
>
> **Part CB** provides direction on how to monitor progress towards, and achievement of, fresh water objectives;
>
> **Part CC** gives direction to regional councils about the requirement to account for fresh water takes and discharges. This means that when it comes to setting fresh water objectives and limits, councils and the community know what water is being taken and what contaminants are being put into fresh water bodies;

Part D provides direction on providing iwi and hapu and reflecting tāngata whenua values and interests in water management;

Part E provides information on the timeframe for implementing the NPS-FM 2014.

[220] The NPS-FM 2014 was gazetted on 4 July 2014 and came into force on 1 August 2014. This revoked the earlier NPS-FM 2011 as from 1 August 2014. While the objectives of the NPS-FM 2014 remain largely the same as the objectives in the NSP-FM 2011, the process that Regional Councils must use to set freshwater objectives (i.e. the intended environmental outcomes) is different.

[221] In particular, policy **CA2** requires the Regional Council to consider all national values for water and identify the values for each fresh water management unit (i.e a water body or an assemblage of water bodies with similar characteristics) which includes two compulsory values and may include any other national value or values that the regional council considers appropriate.

[222] The process under Policy CA2 also requires the Regional Council to assign attribute states for the compulsory values and also for the other values identified by the regional council for the particular fresh water management unit (some attribute states are specified in an appendix to the NPS-FM and, if an attribute state is not given the Council is required to set an attribute state that the regional council considers appropriate).

[223] When formulating fresh water objectives (i.e. the environmental outcome for a water body) which are required to be set under Policies A1 and B1, the regional council is required to set the fresh water objectives in numeric terms by reference to the specific numeric attribute states contained in the appendix of the NPS-FM (if there is a numeric attribute state).

[224] As we have said, PC10 focuses on the control of diffuse N discharges within the Lake Rotorua catchment. This reflects the recognition, as expressed in the Oturoa Agreement, that N is a major contributing factor to the nutrient loss from the pastoral sector that contributes to the water quality of Lake Rotorua.

[225] The sustainable lake load, or limit, was fixed by the Oturoa Agreement and embedded in the RPS by Policy WL 3B. The RPS was notified on 9 November 2010 and was made operative on 1 October 2014. The lake load has not been set using the exact process set out in the NPS-FM, because at the time it was developed the process did not exist.

[226] It was thus argued by some, particularly Federated Farmers, that the provisions of PC10 do not give effect to the NPS-FM, as the basis upon which it is built, the lake load, was not developed in accordance with the national policy statement.

[227] We are satisfied on the evidence that the StAG process was not too dissimilar to that stipulated by the NPS-FM, although it was confined to Lake Rotorua. In particular:

(a) N was identified as a nutrient with a potential to adversely affect the water quality of Lake Rotorua;

(b) an attribute state was assigned to the N and a fresh water objective was set via the TLI;

(c) objectives were set, namely the TLI and the Sustainable Lake Load; and

(d) the N attribute state compares favourably to the specific numeric attribute state contained in the Appendix of the NPS-FM.[54]

[228] The sustainable lake load of 435t/N/y is only one small part of an overall joint strategy for the management of the Rotorua Lakes; a strategy which is led by the Te Arawa Lakes Strategy Group.[55] The strategy contains values, objectives and outcomes. One of particular relevance is: "*Nutrient inputs are reduced to levels which ensures water quality meets community expectations.*"

[229] The RPS includes a range of objectives and policies relating to improving water quality by managing the reduction of nutrient losses. The sustainable N limit was set to meet those objectives and policies, from which the Integrated Framework was developed.

[230] More importantly, the strategy was underpinned by science. We heard from the science experts that Rotorua is the most studied lake in New Zealand. No one disagreed with this. Again, a number of submitters questioned the science and sought a delay until a further science review was undertaken. The science experts all agreed that a review was desirable, but opposed any delay in addressing the N problem. Professor Hamilton, in answer to questions from the panel, was firm in his response that controls of N discharges needed to start now, rather than wait five or more years.

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[54] See Fresh Water in the Bay of Plenty – comparison against the national framework objectives: 2015.

[55] See National Policy Statement for Freshwater Management Implementation: 15 March 2017.

[231] The provisions of PC10 have been built over time as part of the overall strategy described, albeit briefly, above. It is designed to protect and improve the water quality of the lake, and to this extent is giving effect to the NPS-FM.

[232] We have addressed the prescriptive process that must now be followed by a regional council when implementing the NPS-FM. The council is required to notify a progressive implementation programme under Policy E1. During the hearing the Regional Council provided us with copies of the Council's resolutions to give an effect to the progressive implementation programme under Policy E1.

[233] While the freshwater objectives and limits in PC10 were not established fully in compliance with the National Objectives Framework, they are critically important to ensure that in time, the national bottom lines (once put in place through an additional process in accordance with the progressive implementation programme), can be achieved. The preamble to the NPS-FM recognises:

> National bottom lines in the National Policy Statement are not standards that must be achieved immediately. Where fresh water management units are below national bottom lines, they will need to be improved to at least national bottom lines over time. It is up to communities and iwi to determine the pathway and timeframe for ensuring fresh water management units meet the national bottom lines. Where changes in community behaviours are required, adjustment timeframes should be decided on the economic effects that result from the speed of change. Improvements in fresh water quality may take generations depending on the characteristics of each fresh water management unit.

The Bay of Plenty Regional Policy Statement

[234] The RPS was notified on 9 November 2010 and was made operative on 1 October 2014. The RPS contains a number of objectives and policies which are relevant for determining the issues in this matter that PC 10 must give effect to In doing so, we are mindful that the NPS-FM was promulgated after the RPS became operative. However, in our view the relative objectives and policies identified below cannot be said to be inconsistent with the objectives and policies of the NPS-FM that direct Regional Councils to manage water in an integrated and managed way, No planning evidence was adduced that would suggest otherwise.

[235] The relevant objectives include the following:

> **Objective 10** – cumulative effects of existing and new activities are appropriately managed;

Objective 11 – an integrated approach to resource management issues is adopted by resource users and decision-makers;

Objective 13 – kaitiakitanga is recognised and the principles of the Treaty of Waitangi are to be taken into account in the practice of resource management;

Objective 16 – multiple-owned Māori land is developed and used in a manner that enables Māori to provide for their social, economic and cultural wellbeing and their health and safety, while maintaining and safeguarding its mauri;

Objective 17 – the mauri of the water, land, air and geothermal resources are safeguarded and where it is degraded, where appropriate, it is enhanced over time;

Objective 21 – recognition of and provision for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga;

Objective 26 – the production potential of the region's rural land resource is sustained and the growth and efficient operation of rural production activities are provided for;

Objective 27 – the quality and mauri of water in the region is maintained or, where necessary to meet the identified values associated with its required use and protection, enhanced;

Objective 28 – enhance the water quality in the lakes of the Rotorua District and other catchments at risk; and

Objective 29 – land use activities are:

(a) within the capability of the land to support the activity;

(b) integrated with the wider environmental values of their surroundings; and

(c) within the capacity of receiving waters to assimilate any discharge.

[236] A number of policies are also relevant. They include:

Policy IR 1B – applying a precautionary approach to manage natural and physical resources;

Policy IR 3B – adopting an integrated approach to resource management that includes:

(a) encourage developments, activities or land use changes to:

  (i) provide for the relationship between land use and water quality and quantity;

  (ii) recognise the advantages and constraints of land use capability;

  (iii) benefit the economic wellbeing of communities; and

(b) recognise different community values and social needs;

Policy IR 5B – assessing cumulative effects by having regard to the cumulative effects of a proposed activity in contributing to a number of matters including:

(a) incremental degradation of matters of significance to Māori, including cultural effects;

(b) incremental degradation of water quality from point source and non-point source discharges, including urban stormwater; and

(c) social and economic wellbeing;

Policy IW 3B – recognising the Treaty in the exercise of functions and powers under the Act;

Policy IW 1B – enabling development of multiple Māori land in a manner which *inter alia* enables Māori to develop multiple owned Māori land and resources to provide social and economic benefits;

Policy IR 4B – use consultation in the identification and resolution of resource management issues;

Policy IW 2B – recognising matters of significance to Māori;

Policy UG 18B – managing rural development and protecting versatile land, and in particular:

(a) protecting productive rural land for rural production activities;

(b) whether any proposed development will result in a loss of productivity of the rural area, including loss of versatile land; and

(c) addressing cumulative impacts that would reduce the potential for food or other primary production.

In the catchments of the Rotorua-Te Arawa lakes, land use changes to achieve reduced nutrient losses may justify over-riding this policy. Any such changes in land use must, however, be integrated and coordinated with the provision of appropriate infrastructure;

Policy WL 1B – enabling land use change, and regard as a positive effect any significant reduction in contaminant discharges (including nitrogen and phosphorous) likely to result from land use change proposals;

Policy WL 2B – defining catchments at risk, and in particular controlling contaminant discharges in a number of catchments including Lake Rotorua;

Policy WL 3B – establishing limits for contaminants entering catchments at risk by establishing limits for the total amount of specified contaminants that enter the receiving waters within a catchment at risk, including:

(a) contaminants to be managed to avoid compromising public health and each catchment's ecology, mauri, fishability, swimmability and aesthetics;

(b) for the Rotorua-Te Arawa lakes, the amount of nitrogen and phosphorous that can enter each lake in order to achieve its target TLI; and

(c) for Lake Rotorua, the total amount of nitrogen that enters the lake shall not exceed 435t/N/y;

Policy WL 5B – allocating the capacity to assimilate contaminants by allocating among land use activities the capacity of Rotorua-Te Arawa lakes and other water bodies in catchments at risk to assimilate contaminants within the limits established in accordance with **Policy WL 3B**, having regard to the following principles and considerations:

(a) equity/fairness, including inter-generational equity;

(b) extent of the immediate impact;

(c) public and private benefits and costs;

(d) iwi land ownership and its status, including any Crown obligation;

(e) cultural values;

(f) resource use efficiency;

(g) existing land use;

(h) existing on-farm capital investment; and

(i) ease of transfer of the allocation;

Policy WL 6B – managing the reduction of nutrient losses by including, by way of rules, the managed reductions of any nutrient losses that are in excess of the limits established under Policy WL 3B by ensuring that:

(a) rural production land use activities minimise their loss of nutrients as far as is reasonably practicable by implementing on-farm best management practices;

(b) any land use change that is required within the Rotorua-Te Arawa lakes catchments to achieve the limits takes into account an equitable balancing of public and private costs and benefits; and

(c) no discharges shall be authorised beyond 2032 that result in the limit for Lake Rotorua being exceeded. A catchment intermediate target for the managed reduction of nitrogen loss is to be set to achieve 70 per cent of the required reduction from 746t/N/y to 435t/N/y by 2022,

Policy WL 7B – minimising the effects of land and soil disturbance to avoid accelerated erosion and soil loss and to minimise silt and sediment runoff into water or onto land or into land that may enter water so that health aquatic ecosystems are sustained.

The Bay of Plenty Regional Water and Land Plan (RWLP)

[237] The RWLP was notified in 2002 and became operative in 2008 before the RPS became operative, and before the NPS-FM was promulgated. In our view, the relevant

objectives and policies of the RWLP, as set out below, do give effect to the provisions of those documents in that they are not inconsistent with them. Again, no planning evidence was adduced that suggested otherwise.

[238] As there are no new objectives proposed for the RWLP in PC10, the current objectives of the plan are of considerable importance. As PC10 proposes policies, methods and rules which will become part of the RWLP, it is to the objectives of that plan that we should first turn.

[239] As we have said, a regional plan must state:[56]

(a) the objectives for the region;

(b) the policies to implement the objectives; and

(c) the rules to implement the policies.

[240] There is, therefore, a hierarchy within a regional plan with objectives at the top, followed by policies, and then rules. This hierarchy is reflected in the s 32 evaluation report which must examine the extent to which the objectives are **the most appropriate way** to achieve the purpose of the Act, and whether the provisions proposed are the most appropriate way to achieve the objectives.

[241] The objectives in the RWLP identify the resource management outcomes or goals for land and water resources in the Bay of Plenty region, to achieve the purpose of the RMA. The objectives form a comprehensive suite of outcomes to be attained and implemented by the policies, rules and other methods.

[242] All the parties to this plan change appeared to accept that the objectives of the RWLP reflect the relevant principles of the RMA and the then-extant statutory instruments to the degree that they apply. At least, no party claimed otherwise.

[243] There are a number of objectives which are of relevance to our consideration of the proposed provisions in PC10:

> **Objective 8** – integrated management of land and water resources;
>
> **Objective 9** – land use and land management practices are appropriate to the environmental characteristics and limitations of the site, and avoid, remedy or

[56] S 67(1) of the RMA.

mitigate adverse effects on the life-supporting capacity of soil resources, the receiving environment and heritage values;

Objective 10 – stewardship of natural resources which sustain the life-supporting capacity of soil, water and ecosystems and maintains, where appropriate, the ecological and amenity values through management practices;

Objective 11 – the water quality in the Rotorua lakes is maintained or improved to meet the TLI of 4.2;

Objective 12 – reduced occurrence of cyno-bacterial algal blooms on the Rotorua lakes;

Objective 15 – maintenance of high-quality groundwater;

Objective 16 – degraded groundwater quality is improved where appropriate;

Objective 19 – protect the vulnerable areas from erosion; and

Objective 20 – the intactness and health of the region's soil is maintained.

[244] While PC10 proposes a number of new policies, there are a number of over-arching policies in the RWLP that are also relevant to our consideration of the proposed provisions in PC10:

Policy 21 – to manage land and water resources in the Bay of Plenty within an integrated catchment management framework to:

(a) maintain or enhance water quality in individual lakes to meet their TLI and water quality classification;

(b) require the management of nitrogen or phosphorous in individual Rotorua lake catchments;

(c) reduce cyanobacterial algal blooms on the Rotorua lakes by managing nutrient inputs in the lake catchment;

…

(g) maintain existing high-quality groundwater;

…

(k) promote and encourage the adoption of sustainable land management practices that are appropriate to the environmental characteristics and limitations of the site to:

(i) protect the soil and avoid, remedy or mitigate the adverse effects of erosion;

(ii) maintain the health of the region's soil resources for future generations;

(iii) achieve the appropriate management of riparian areas, including the retirement and replanting of riparian areas of streams, rivers, lakes, wetlands and estuaries;

(iv) avoid, remedy or mitigate adverse effects on water quality in the receiving environment;

(v) take into account the assimilative capacity of the soil

…

(ix) manage land and water resources according to realistic management goals that are appropriate to the existing environmental quality (including ecosystem values) of the location;

Policy 22 – to research and monitor the effects of land use practices on surface and groundwater quality, and take appropriate action within the framework of the regional plan (including future plan changes) where such investigations indicate land use has significant adverse effects on water quality);

Policy 23 – to develop equitable and workable provisions in relation to existing land uses where investigations indicate that changes to existing land management practices, or land use restrictions, are required to maintain or improve water quality;

Policy 24 – to recognise and provide for people and organisations who have adopted proven good environmental management practices;

Policy 25 – to encourage and provide for community involvement in the management of water and land resources;

Policy 26 – to continue to raise community awareness about water quality and integrated management issues;

Policy 27 – to use a range of mechanisms, including education, and regulation where necessary and appropriate, to avoid, remedy or mitigate the adverse effects of land use activities on water quality;

Policy 28 – to develop and maintain accurate information on soil and water (including groundwater) resources in the region;

Policy 29 – to continue to monitor and investigate the cause and effect of biological responses to the adverse effects of use and development activities;

Policy 30 – to review and amend the water quality classifications of the rivers, streams and lakes where new information is available to indicate a change is necessary through a publicly notified plan change or variation process;

Policy 31 – to promote the adoption of the stewardship of soil and water resources, and ecosystems;

Policy 32 – to allow resource use and development where there are beneficial effects on the social, cultural and economic wellbeing of people and community, and adverse effects on the environment are avoided, remedied or mitigated; and

Policy 33 – to promote and support land use change and/or land management practices in the catchments of the Rotorua lakes that will achieve lake water quality improvement.

[245] There are also a number of methods which are relevant:

Method 41 – develop and implement action plans for each lake catchment to improve lake water quality to meet the TLI for the lake set in Objective 11;

Method 43 – support land use changes, and changes to land use rules, that actively promote and support low nutrient loss land uses and land management practices in the catchments of the Rotorua lakes;

Method 45 – in conjunction with appropriate parties, investigate and document best management practices for nutrient management, including reduction and mitigation measures, for urban and rural land uses;

Method 47 – in partnership with landowners, develop, trial and implement where appropriate, voluntary Stewardship Management Agreements within the framework of the regional plan to give effect to the Act;

Method 53 – where necessary and appropriate, use rules to restrict the use and development of land that is otherwise allowed by s 9 of the Act where the actual or potential adverse environmental effects of the activity are more than minor, or the activity is undertaken in a location that presents a high risk to the environment due to proximity to surface water bodies;

Method 54 – use permitted activity rules to allow activities that are otherwise restricted by s 15 of the Act where the actual or potential adverse environmental effects of the activity are no more than minor, and where adverse effects on the environment can be avoided, remedied or mitigated by conditions in permitted activity rules; and

Method 83 – review and refine lake water quality indicators in response to improved scientific knowledge.

Application of legal context

[246] We have set out the most relevant of the statutory precepts which make up the somewhat complex legal context, and which set out our statutory duties as they should be applied to our consideration of PC10 and the amendments sought in the submissions.

[247] While our duties at first appear multifarious and compound, we can in this exercise simplify them considerably. This is because the objectives of the RWLP are deemed to have subsumed the principles set out in the RMA and the relevant statutory instruments extant at the time the RWLP was promulgated.

[248] We thus propose to assess the policies, methods and rules that are proposed to be introduced or changed against the plan's objectives, and in the case of rules and other provisions the effects on the environment. We shall, where appropriate, refer to the Part 2 provisions, the relevant National Policy Statements, and the provisions of the RPS.

[249] We thus summarise our duties as:

(a) to remind ourselves of the direction in s 63(1) of the RMA that the purpose of regional plans is to assist the regional council to carry out any of its functions in order to achieve the purpose of the Act;

(b) from the submissions, identify an amendment sought;

(c) determine whether the amendment is within scope;

(d) identify amendments that are alternative options to a particular provision, and discard those that are impracticable;

(e) to remind ourselves that there is no presumption as to which alternative should be accepted;

(f) for each reasonably practicable alternative option, which proposes a change of policy, assess the extent to which adopting that option or not would:

(i) be the most appropriate way to achieve the objectives by assessing the efficiency and effectiveness of the policy against the objectives; and

(ii) consider, where appropriate, the relevant statutory instruments promulgated in accordance with the statutory directions under the RMA;

(g) if a requested amendment is to a rule, have regard as to whether the rule, as it would be amended, would:

(i) be the most appropriate way to achieve the objectives and policies of the RWLP; and

(ii) have any actual or potential effect on the environment, including in particular, any adverse effect (as directed by s 68(3) of the RMA); and

(h) if we determine the wording of a provision should be substantially different to that notified by the Regional Council officers, we must:

(i) undertake a s 32AA analysis; and

(ii) either publish that analysis or set it out in our recommendations.

Part IV – Consideration of and evaluation of overarching major issues

Introduction

[250] In this part of the Report we consider and evaluate the major issues that have arisen during the hearing, and which have an overarching effect on the PC10 provisions as proposed. Our findings on these issues will have a bearing on our consideration of the specific provisions proposed in PC10.

[251] We have, in the earlier parts of this report, identified a number of issues that are fundamental to the structural framework of PC10 and apply across the board. We set these out:

(a) the collaborative process and consultation;

(b) water quality in the lake and the underlying science;

(c) the economic evidence;

(d) the management of pastoral land use to constrain nitrogen loss;

(e) allocation framework:

(f) use of OVERSEER®;

(g) nutrient management plans

(h) nitrogen trading;

(i) wastewater treatment plant.

[252] We deal with these major issues below.

The collaborative process and consultation

[253] The legal and statutory context within which the PC10 recommendation is to be made is covered elsewhere in this report. Our attention here turns to the consultation process itself in respect of the statutory requirements that have to be met in the development of PC10.

Schedule 1

[254] We remind ourselves that under Schedule 1 of the RMA:

(a) Clauses 2-3(c) set out statutory requirements for consultation that must occur before notification of any proposed plan; and

(b) Clause 3(1) lists parties that councils must consult with including the Minister for the Environment, other Ministers of the Crown who may be affected by the proposal, local authorities who may also be affected, and tangata whenua through iwi authorities)

[255] We were told that no other Ministers were seen as being relevant given that the Ministry for the Environment was represented on the StAG; and the only relevant territorial authority was the Rotorua Lakes Council. There was therefore no need to pursue these two matters further. Nor were they challenged.

[256] Accordingly, we consider that these two Schedule 1 requirements have been met.

Iwi Management Plans

[257] Section 66(2A)(a) of the RMA requires a council to take into account any relevant planning document recognised by an iwi authority. In the development of PC10 three key Te Arawa iwi management plans were reviewed, namely[57]:

(a) the Ngāti Rangiwewehi Iwi Environmental Management Plan 2008;

(b) the Ngāti Whakaue ki Maketū Hapū Iwi Resource Management Plan 2009; and

(c) the Tapuika Environmental Management Plan 2014.

[57] [6.4.2] s 32 evaluation report

[258] The s 32 report prepared as part of PC10 informed us that in principle the Iwi Management Plans supported the drive to restore the health of Lake Rotorua and to reduce the N leaching from land use activities. There was some concern over continued long-term alum dosing and associated sediment capping, which is addressed elsewhere.

[259] We consider that the requirement to take into account relevant Iwi Management Plans was met.

RMA Part 2 Māori Matters

[260] The provisions of Part 2 of the RMA that are relevant relate to whether any improvements in water quality in Lake Rotorua arising out of PC10 would support and enhance the cultural and traditional relationship of Te Arawa with their taonga, that is, their lake.

[261] We were largely reliant on the s 42A report and the Regional Council's expert witnesses to address this matter,

[262] The s 42A report assessment was that it would do so. Enhancement of trout and koura habitat in the lake would be a logical outcome of reducing N inputs into Lake Rotorua, underscoring also the lake's positive amenity values as required under section 7.

[263] The Te Arawa Cultural Values Framework sets out the long term aspirations for all 14 Rotorua lakes. This framework was designed to ensure that Te Arawa cultural values apply, in particular that their kaitiakitanga responsibilities were recognised and expressed accordingly.

[264] We consider that the intent of PC10 to enhance water quality though the reduction of N losses from the catchment would contribute to enhancing and supporting the relationship of Te Arawa and their culture and traditions with Lake Rotorua, its tributaries, springs and water, sites, waahi tapu, and other taonga as required by section 6(e) of the Act, and reflects the section 7 clause in respect of kaitiakitanga.

Treaty of Waitangi Claims Settlements

[265] Consultation with iwi authorities as a consequence of Treaty of Waitangi claims settlements is another important consideration; particularly the return of the bed of Lake Rotorua to Te Arawa under the Te Arawa Lake Settlement Act 2006.

[266] Statutory acknowledgement in the Deed registers Te Arawa's special association with Lake Rotorua.

Local Government Act

[267] The consultation requirements of the Local Government Act 2002 with respect to a plan change run in tandem with those of the RMA in large part, and as such have in our view been met.

Comment

[268] Elsewhere in this report we have summarised the community engagement and consultation undertaken by the Regional Council and we do not intend to repeat it here. In summary, it has been an extensive development and engagement process. Council have maintained a clear and ongoing focus on the requirements of Schedule 1 of the Act and completing the consultation requirements of the Local Government Act 2002.

Finding

[269] Accordingly, we consider that the consultation and engagement process for the development of PC10 has met the requirements of both the Resource Management Act and the Local Government Act.

Consultation with Māori

[270] This matter is dealt with separately because of the special relationship that Te Arawa has with Lake Rotorua, and because it was one of the more complex and – arguably – less fruitful aspects of the overall consultation process.

[271] To Te Arawa Lake Rotorua is a taonga, and their relationship to the lake and environs is the foundation of their identity, cultural integrity, wairua, tikanga and kawa.

[272] It is acknowledged that Te Arawa are the kaitiaki of the mauri of the lake and that takes into account the intergenerational knowledge and experience of Te Arawa beyond just cultural matters.

[273] Aside from the historical, geographical, cultural and spiritual associations that Te Arawa iwi have with Lake Rotorua, a number of other factors are relevant in our deliberations, namely that:

(a) a significant proportion of the land in the catchment is Māori land (around 11,000 hectares):

  (i) 40 per cent is in drystock;

  (ii) 22 per cent is in bush and scrub;

  (iii) 16 per cent is in forest;

  (iv) 11 per cent is in small properties of under 40ha in size; and

  (v) 10 per cent is in dairying;

(b) developing jointly owned Māori land as defined under Te Ture Whenua Māori Act 1993 is difficult;

(c) the Council is required to give consideration to Part 2 RMA matters;

(d) the Council is required to take into account relevant iwi management plans; and

(e) the Council is required to consult with iwi authorities as a result of Treaty of Waitangi claims settlements.

[274] The return of the bed of the Lake to Te Arawa in 2006 and the associated Crown Funding Deed were an integral part of the process that resulted in PC10.[58]

[275] We note the various opportunities offered for Māori landowner participation in the consultation process – including extensive mail outs, presentations, drop-in days, hui and other meetings, and attendance at Komiti Māori meetings, - but the response was disappointing.

[58] Statement of Evidence, 17 January 2017, Mr S Lamb at para [7].

[276] The Iwi Engagement Summary Report prepared by Councillor Arapeta Tahana and presented at the Komiti Māori[59] meeting of 1 October 2015 commented that the "… turn out to these hui was extremely poor (eight people across three hui)."

[277] We accept that there are various reasons why this might have been so – including perceptions of negativity; the highly technical nature of the issues at stake; hui burn out; and low capacity to respond confidently – but it did concern us that the consultation process was found wanting in this respect.

[278] As a result feedback was low, so too were submissions.

[279] While we acknowledge that direct Māori input into the development of PC10 might be seen to have been addressed through StAG membership of key Māori entities like the Te Arawa Lakes Trust, Te Tumu Paeroa and some Te Arawa Land Blocks it did concern us that the Rotorua Lakes Trust chose not to submit and be heard, while the others did.[60]

[280] Of the eight Te Arawa land blocks that were members of the StAG, five submitted and were heard. Te Tumu Paeroa submitted but did not initially take up the option to be heard. At a late stage of the hearing they requested to be heard but the request was declined.

[281] We would have welcomed the opportunity to hear from the Rotorua Lakes Trust, especially because of their statutory role following the Te Arawa Lakes Settlement. Unfortunately, they did not make a submission on the plan change.

[282] We acknowledge the Regional Council's efforts to engage meaningfully with iwi authorities and other Māori landowners.

Finding

[283] We find that the Regional Council through its officers, fulfilled their statutory obligations under Schedule 1 of the RMA to consult with tangata whenua through iwi authorities.

[59] The primary function of the Komiti Maori is to set operational direction for Council's legislative obligations to Māori and to monitor how these are implemented.

[60] Other Te Arawa land blocks submitted and were heard as well.

The Collaborative Process and StAG

[284] As mentioned earlier in our report, the Regional Council adopted a collaborative planning approach in the development of PC10, a key component of which was the establishment of a "collaborative group". This upheld the requirements of the RPS and Oturoa Agreement.

[285] The Lake Rotorua Catchment Stakeholder Advisory Group (StAG) subsequently set up in 2012, by definition, became a key component of the development process for PC10. Its membership and terms of reference, are described in the earlier section. The terms of reference included a requirement for members of the StAG to facilitate engagement with all stakeholders and for individual members to engage with respective agencies and sectors to ensure a two-way flow of ideas and feedback. We received no evidence or submissions saying that this did not happen, but some submitters had misgivings over the StAG's membership.

[286] Ms Robson, in her Statement of Evidence on behalf of CNIHL argued that, despite their significant land holdings as a proportion of the catchment (3,180ha), CNIHL was marginalised in the development of PC10 by not being afforded the opportunity to be a member of the StAG. This was particularly important given the constraints on alternative land uses the CNI 2008 Settlement imposed on them.[61]

[287] The Chair of the StAG, Dr Tanira Kingi refuted this in his rebuttal response claiming that the key principle in the StAG Terms of Reference was that members were not expected to represent industry or landowner interests in the catchment. Instead they were selected or nominated by their respective sectors, organisations and agencies on the basis of the knowledge and skills they brought to the table, particularly their ability to operate in a collaborative manner. [62]

[288] It seemed to us a moot point, as we had sympathy for some of the arguments put forward by Ms Robson. For example, she claimed that none of the member parties on the StAG could have represented CNIHL because CNIHL land was neither Te Ture Whenua land or land under the control of Te Tumu Paeroa, even if any of them wanted to – and none did.

[289] Ms Robson also contended that the StAG collaborative process ran the risk of "process capture by the group who are the primary subject of the regulation."

[61] Statement of evidence at [9] onwards.
[62] Rebuttal evidence at [20].

[290] Deer Industry New Zealand made a similar assertion in their submission and requested an independent review of the membership of the StAG to address the balance of sector and landowner representation and to assess the outcomes of the StAG process in terms of vested interests.

[291] In his rebuttal evidence Dr Kingi also said "… *the involvement of Te Arawa in the StAG process could best be described as reasonable or adequate"*. He did not elaborate on this but neither did we ask him to. However, it might have in part accounted for the noticeable absence of Te Arawa Lakes Trust during the hearing – referred to in more detail in the section on Māori Consultation.

Findings

[292] Both the s 32 and s 42A reports provide detailed accounts of the extensive process used to progress the development of PC10 and the part the StAG played in that. We find that the StAG process was acceptable. The Regional Council's officers evidence was very supportive of that process.

[293] We find that the consultation process with Māori was adequate and meet the statutory requirements.

Water quality in the lake and the underlying science

Background

[294] Lake Rotorua is a medium sized, relatively shallow lake. Formed by a caldera eruption about 240,000 years ago, the lake covers a surface area of 80 square kilometres (km^2), has an average depth of 10m and a maximum depth of 23m. The lake outlet is the Ohau Canal in the east. The average water retention time in the lake is only 1.5 years. The lake has on occasions stratified during calm conditions, but it is described as polymictic, which means its waters are generally well mixed.

[295] The surface water catchment of the lake covers an area of $502km^2$. Most of the catchment is to the west of the lake. Recent studies by GNS Science have shown that the groundwater catchment of the lake covers $537km^2$, and so is larger than the surface water catchment. Most of this additional groundwater feeds into the Hamurana Stream in the north west of the lake catchment. This means that about $35km^2$ of the groundwater catchment of the lake is in the Waikato region, and is not subject to proposed PC10.

[296] There are two particular features of the catchment that make Lake Rotorua unusually challenging to manage.

[297] The first feature is that there is a high natural loading of the nutrient P to the lake from the gradual dissolution of pumice from historic volcanic activity. This natural load contributes nearly quarter (22 per cent) of the total phosphorous (TP) and nearly half (48 per cent) of the biologically available dissolved reactive phosphorous (DRP) to the lake. This is challenging because it means that in order to meet the estimated "sustainable load" of P to the lake of about 34-38 tonnes per year (t/y), sources of anthropogenic P (i.e. P that originates from human activities on the land) must be reduced by between about 43 per cent and 64 per cent, which will be difficult to achieve.

[298] The second feature is that in the 10 main tributary catchments of the lake there is a lag between the other plant nutrient nitrogen (N) being leached to groundwater in the catchment, and that N reaching the lake. This lag time varies from as little as an estimated 15-30y in the Ngongotaha catchment in the west, to as high as 127-145y in the Waingaehe catchment in the south east. It is estimated to be 110-125y in the groundwater fed Hamurana catchment along the north-west boundary of the groundwater catchment. Indeed the average age of the groundwater reaching the lake is estimated to be 60 years. This is challenging because it means that much of the N

that has entered groundwater from recent expansions in activities such as dairying and pastoral farming in the catchment will not reach the lake for some decades.

[299] This conclusion regarding N lag times and catchment loads "in train" comes from information provided us by Dr Rutherford, an expert witness for the Regional Council, who used a model called ROTAN (which has been through a series of iterations) to show the linkages between land use in the catchment and the N load reaching the lake. His model showed that without controls on farming activities and other interventions to reduce N losses from the catchment, the N load reaching the lake from the catchment will increase from about 570t/N/y now to an estimated 725t/N/y by the end of the century. This is directly attributable to the "legacy" N, predominantly from pastoral activities, entering the lake from largely groundwater fed streams.

[300] The nutrients N and P are critically important as they strongly influence water quality in lakes. In simple terms, the microscopic algae suspended in the water column of a lake (which are known as the phytoplankton) require both N and P to prosper. The phytoplankton in turn affect water clarity, which is how people generally perceive water quality[63]. Particularly in lakes clear water is seen as having high water quality and suitable for activities such as swimming; water of low clarity is perceived as being of low quality and unsuitable for contact recreation. Additionally, high concentrations of N and/or P in a lake can promote the proliferation of blooms of cyanobacteria, which can be toxic to fish, birds and other animals.

[301] N and P need to be present in particular ratios to promote phytoplankton growth. What this exact ratio is appears to depend on the makeup of the phytoplankton community, i.e. what species are present and in what relative abundance. If the ratio of TN:TP exceeds about 20-25:1 a lake is likely to be P limited, which means that adding more N will not cause phytoplankton communities to develop to a much greater extent. If this same ratio is less than about 10:1 a lake is likely to be N limited. However this science is not exact and there is also evidence that higher concentrations of either nutrient (particularly N) can promote blooms of toxic cyanobacteria.

[63] In rivers and streams suspended sediment also strongly affects perceptions of water quality. However this is not very common in lakes, although exceptions exist, notably lakes such as Pukaki in the Mackenzie Basin where "glacial flour" results in quite high suspended sediment loads in the water column.

[302] The quality of water in a lake is measured by an index known as the Trophic Level Index (TLI), which we discuss earlier in this report. The target TLI, as set in the RWLP, is equal to or less than 4.2. This would mean the lake remains slightly eutrophic.

[303] More recent human settlement has not been kind to water quality in the lake. As the population of Rotorua grew rapidly in the second half of the last century, discharges of little treated human sewage to the lake resulted in degraded water quality and accelerated growth of aquatic macrophytes (the plants that grow from the bed of the lake) along its shores. These plants, which include exotic invasive species such as *Lagarosiphon*, were washed on to the shores of the lake leaving an unsightly and decaying mess, and had to be mechanically removed. This led eventually to what was then (in 1990) innovative in New Zealand – the disposal of treated wastewater to land in Whakarewarewa forest to the south of the Rotorua. This land based treatment led to a marked reduction of nutrient losses to the lake from the urban community[64]. More recently, reticulation of communities around the margins of the lake have further reduced nutrient losses from sources such as septic tanks. Today Rotorua boasts one of the most advanced wastewater treatment plants in the world, with extensive treatment of human sewage and other wastewater.

[304] The other main cause of elevated nutrient levels in the lake is pastoral farming. In part encouraged by Government interventions (such as for the development of marginal land) pastoral farming, including drystock, cropping and dairying have developed widely in the catchment. Dairying has much increased over the last few decades, particularly on higher rainfall country in the north west of the catchment, including along Oturoa Road and on the Mamaku Plateau. Much of this development has been on land in Land Use Capability classes 4 and 6, which is unusual because elsewhere in the country dairying on non-irrigated land is very largely confined to class 1-3 soils.

[305] N and P from farming activities enter water in fundamentally different ways. Most N entering the lake comes from its leaching to groundwater from diffuse sources, including urine patches from cattle and other agricultural activities. As already noted N leached to groundwater takes an average of 60y to reach the lake. Anthropogenic phosphorous on the other hand enters water primarily by overland flow, particularly when attached to sediment during storm events, and so enters the lake much more rapidly.

[64] These reductions from the land based treatment have been estimated to be 150t/y of N and 30t/y of P.

[306] These different pathways are very important for two reasons. Nitrogen losses can be managed to a large extent by controls on land use activities, which lends itself to a regulatory approach. The effects of land use activities on N losses to groundwater can be estimated by a complex computer model known as OVERSEER® (about which we will have much to say later in this decision). Phosphorous losses cannot readily be either modelled or regulated; rather non-regulatory tools (such as riparian fencing and retirement, construction of detention ponds and planting out of potential critical source areas for P) can be used to reduce to try and reduce the anthropogenic P load to the lake.

[307] In recent years another approach has been used to reduce the P load to the lake. This has involved alum (aluminium sulphate) dosing of the Utuhina and Puarenga Streams in the south west of the lake catchment. The use of alum to reduce P in the water column is used widely in many parts of the world to improve lake water quality. In simple terms the alum bonds to phosphorous, which is then precipitated out in the bed of the lake, where it is no longer available to the phytoplankton.

[308] Alum dosing in the Utuhina began in 2006, and in 2010 in the Puarenga. It is estimated to have reduced the P loading to the lake by about 6t/y. Importantly alum bonds with Dissolved Reactive Phosphorous (DRP), which is the biologically available form of phosphorous. Additionally, there is evidence that alum dosing in these streams has reduced DRP loadings in the lake[65], and has also precipitated out some N. The amount used for dosing is very conservative, and although there are potential risks to biota from the use of alum, these seem unlikely to occur at the low dosing rates presently used.[66] This alum dosing has led to marked improvements in lake water quality as measured by the TLI. This is because the lake is now P limited, so the high N load presently entering the lake is not presently promoting high levels of phytoplankton growth.

[309] This alum dosing is presently authorised by resource consents that expire on 30 September 2018 in the Utuhina Stream, and on 30 January 2019 in the Puarenga. Both were granted under Rule 37 of the RWLP. We were given to understand that there

[65] Primary Evidence of Prof D Hamilton at [15(f)] and Figure 3 in the primary evidence of Mr A Bruere.

[66] The main concern about alum is that the floc formed can potentially form toxins when water has high acidity. For this reason it is recommended that dosing rates do not exceed 200 micrograms per litre (ug/l) at pH6 or more, 75 ug/l at pH 5-6, and 25 ug/l at pH 4-5 (Tempero 2015 – Ecotoxicological Review of Alum Applications to the Rotorua Lakes).

Current dosing rates in Lake Rotorua are 2.62 ug/l. This is very conservative, even if volcanic activity were to cause the pH of the lake to drop significantly.

might be some opposition to the consents being "renewed" at that time. Mr Lamb said that the annual cost of alum dosing is about $600,000 – $700,000 per year, and provision has been made in the Regional Council's long term plan for it to continue for the next 10 years. Professor Hamilton noted that the benefits of alum dosing in reducing the P load in the lake are likely to persist for 2-3 years after its discontinuation.[67]

Load Limits of N and P

[310] According to Professor Hamilton, Lake Rotorua is the most studied lake in New Zealand. The Regional Council has a Rotorua Lakes Programme, which is supported by a WQTAG. Among the studies carried out are long term monitoring records of N and P inputs to the lake from the 10 main tributary streams. These have shown that at present the total loads of P and N entering the lake are about 43t/y (allowing for alum dosing) and 570t/y respectively. Another estimated 30 t/y of N enters the lake from rainfall. As already noted due to legacy N loads in groundwater, the total N load to the lake is projected to reach about 755t/N/y (including rainfall) by the end of the century unless the present N loading in the catchment is reduced substantially.

[311] As far back as 1989 the present lake "limits" proposed for N and P were determined by scientists at what was then the Water Quality Centre. These were respectively 300 micrograms per cubic metre (mg/m^3) for total N and 15 mg/m^3 for total P. A TLI of 4.2 was set in the Regional Land and Water Plan in 2001. To achieve this, with a chlorophyll-a limit of 20 mg/m^3 and a secchi-disc depth of 2.5-3m the catchment annual loads of N and/or P must be reduced significantly (see discussion below)

[312] The sustainable catchment load of N is estimated presently to be 435t/N/y, or 405t/N/y if rainfall is excluded. In his written evidence Dr Rutherford said this may be a little on the high side, but it is within the range that will achieve an overall N concentration of 300 mg/m^3 in the lake. This requires a reduction in the present N loading to the catchment of between 300 and 350t/N/y. The most likely load to the catchment, assuming the 320t/N/y N load target is achieved, is 420t/y, which when

[67] Primary Evidence of Prof D Hamilton at [15(g)].

rainfall is added gives a total eventual lake load of 450t/N/y.[68] This is within the statistical accuracy of the ROTAN model.[69]

[313] It is very important to understand that even with significant interventions to reduce the N loading, and strong regulatory controls on N losses, this catchment load will not lead to the lake load being reduced to 435t/y until about 2080. Rather it will be reduced to about 560t/N/y in the next 25 years – about what it is now. The reason for this is that groundwater N loads to the lake will continue to increase because of land development and the long "lag" between N leaching from land and eventually entering the lake.

[314] As already noted the sustainable load of P to reach an average in lake concentration of 15 mg/m^3 is estimated to be between about 34 and 38t/y. In the absence of alum dosing, the current loading is estimated to be about 49t/y.

[315] In the early stages of the hearing there were differences of opinion between scientists including Professor Hamilton, and Dr Stephens, a witness for Dairy NZ/Fonterra, about whether reductions in both N and P were critical for the long term achievement of the target TLI of 4.2 in the lake. In the end these differences were largely resolved during caucusing. We return to this matter below, but before doing so we need to outline how recent improvements in the TLI have prompted such debate.

Trends in the TLI

[316] The TLI is calculated from four equally weighted components – the concentrations of TN and TP and chlorophyll-a (which measures periphyton biomass) in the water column, and a measure of water clarity known as the secchi-disc. The concentrations of TN and TP are input measures, whereas chlorophyll-a and secchi-disc are measures of effects. In simple terms if one or both of TN and/or TP are reduced, the biomass of phytoplankton in the water column will fall and water clarity will improve due to this reduced algal biomass. The measurement scale is logarithmic.

[317] The TLI of Lake Rotorua has varied significantly over recent decades. The highest it has reached this century is 5.03 in 2003. At this TLI the lake would have appeared very green due to high algal biomass in the water column, and the clarity of

[68] Primary Evidence of Mr A Bruere at [55].

[69] In this same context we note that in his primary evidence Mr S Lamb at [63 and 64] noted that "the exactness of the numbers cannot be the reality" and that additional certainty is unlikely to ever eventuate". We agree.

the lake would have been poor. Recent trends in the phytoplankton biomass and N and P concentrations in the lake are shown by the following figure 3[70]:

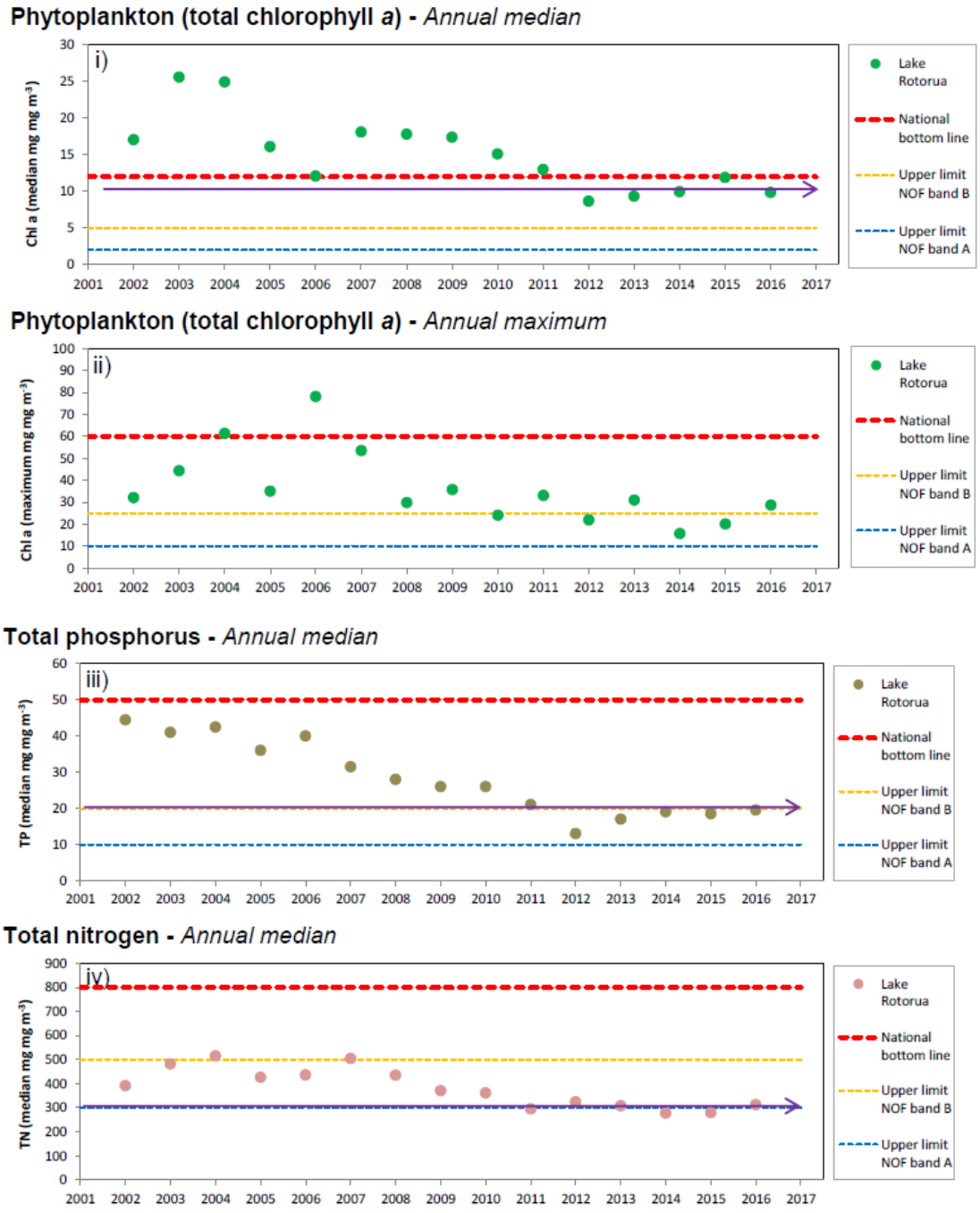

Figure 3 Annual values for Lake Rotorua (Bay of Plenty) against National Policy Statement limits for polymictic lakes (MfE 2014), for i) annual median total chlorophyll-a, ii) annual maximum total chlorophyll-a, iii) annual median total phosphorus, and iv) annual median total nitrogen[71].

[70] Appendix 6 of Regional Council Memorandum, 22 March 2017, (Page 80)

[71] Data: Bay of Plenty Regional Council. Figure: The University of Waikato.

[318] More recently the TLI has improved significantly, reaching the target of 4.2 in the years 2012 and 2014. It was 4.4 in the 2015/16 year. Nuisance algal blooms have largely been eliminated, and water clarity has also much improved (remembering the TLI scale is logarithmic). Additionally, cyanobacteria blooms, particularly those that potentially fix N from the atmosphere, have reduced by a factor of up to about 1,000.[72]

[319] There was no doubt among the scientists we heard from that this improvement is due to alum dosing reducing the P load to the lake. There was also evidence that this reduction in the P load had led to a reduction in the N load of between about 3-5 per cent, although the mechanism of this was not entirely clear.

[320] Trends in phytoplankton biomass (measured as chlorophyll-a concentrations), total P and total N were discussed by Professor Hamilton in response to a question from the panel, and these were then related to the bands in the National Objectives Framework targets in the NPS-FM[73]. These were shown graphically in supplementary evidence presented on 23 March 2017, and are portrayed here by Figure 3 above. In summary:

(a) Median chlorophyll-a has been in the C band for the last five years; prior to that it was in the D band.

(b) Maximum chlorophyll-a was in the C/D bands in 2004-06, and in the C and B bands since then.

(c) Median TP concentrations have been in the B band for the last five years, prior to which they were in the C band.

(d) Median TN concentrations have been in the in each of the A, B and C bands over the last 16 years. In the past six years the classification has been around the margin between the A and B bands.

[321] In order to meet the TLI target of 4.2 the Regional Council considers that chlorophyll-a needs to be 10 mg/m^3 or less, TP needs to be 20 mg/m^3 or less, and N needs to be 300 mg/m^3 or less. These are in the C band, and on the border of the B/C and A/B bands respectively.

[72] Evidence of Dr Thomas Stephens.

[73] There are A, B, C and D bands. The A band represents pristine water quality and the D band is a "fail".

Attenuation

[322] Attenuation was a matter of some contention at the hearing. Attenuation is a relatively simple concept, but is near impossible to measure in the environment. In the context used at the hearing it describes the various physical and biological processes that reduce the mass load of N estimated (by OVERSEER®) to leach at the root zone of plants in the catchment versus the mass load of N that has been measured to enter the lake in the main tributaries. In the version of OVERSEER® (5.4) used originally in PC10 attenuation was estimated by the ROTAN model to be zero, which would mean the mass load of N leaving the root zone is the same as the mass load of N entering the lake. This is implausible, given the average age of the groundwater entering the lake is 60 years, and given that in anoxic conditions and in the presence of carbon, denitrification can occur in the groundwater. In a more recent version of OVERSEER® (6.2.0) attenuation is estimated to be a much more credible 32 – 50 per cent (the current estimate is 42 per cent.).

[323] It is very important to understand however that should future versions of OVERSEER® change predicted leaching losses of N at the root zone, the estimate of "attenuation" will also change. This is because it is used to explain the difference between the estimated leaching losses of N in the catchment and the known mass loading of N entering the lake.

[324] With this in mind we draw several conclusions at this time about "attenuation".

(a) Attenuation cannot be measured in the environment without very extensive studies, which would be site specific in any case. At the hearing Federated Farmers were critical of the lack of groundwater monitoring carried out in the catchment by the Regional Council, and in doing so they implied that such monitoring would help determine actual attenuation. This is not the case – all monitoring bores would do is record actual N at a specific location, and factors such as where exactly the N was sourced from and what the exact groundwater flow path is would remain unknown. An extensive bore monitoring network would give better information, but would still not allow attenuation to be estimated accurately.

(b) Some parties, such as the Lake Rotorua Primary Producers Collective and the Federated Farmers, latched on to a table in Dr Rutherford's most recent (2016) ROTAN report, saying that it provided information about different attenuation rates in different sub-catchments of the lake. They argued on this basis that sub catchment plans could be developed and used to better manage nutrient

losses to the lake. Support for this approach also came from Ms Jordan on behalf of Beef and Lamb NZ. However in response to questions Dr Rutherford was very firm in his view that this modelled information was not sufficiently reliable for sub-catchment planning at any level, and could just be an artefact of what is a complex model. He also "warned against trying to exploit the apparent differences in attenuation between sub-catchments because they are unreliable." Dr Rutherford's expert evidence was not contested.

[325] For these reasons we have not recommended any differential rules or other approaches in different sub-catchments of the lake. Nor have we differentiated properties close to the lake (which may be expected to have less attenuation of N leaching losses) from those more distant from the lake. To do so would imply a reliability in the overall estimate of attenuation, and the possible differences between sub-catchments, that would not be justified on the basis of the science reported to us.

Dual Nutrient Management

[326] In the evidence initially provided to us the experts took different views on the extent to which both N and P needed to be managed/reduced to achieve the target TLI of 4.2. For the Regional Council both Dr Rutherford and Mr Bruere advocated that both N and P needed to be managed, whereas Dr Stephens argued that the emphasis should be on P.

[327] However after caucusing the water quality experts came to several joint conclusions, which we partially quote and otherwise paraphrase here:

(a) Despite their confidence that reductions in P have plausibly driven recent improvements in water quality, they supported both N and P being managed at this time. For this reason they did not propose any change in the recommended N targets of Policy LR1 in proposed PC10.

(b) In saying this however they opined that "the balance of N and P reductions might change through improved understanding of algal-nutrient dynamics and specific knowledge about P management strategies in the lake's catchment".

(c) They strongly supported a comprehensive science review, and for this reason strongly supported methods LR M2 and M3 in proposed PC10. They stated that the science review proposed by these methods should "be tasked with testing and reaching consensus on P-deficiency having driven improved water quality recently", and that the review "ensures adaptive nutrient management achieves and sustains a TLI equal to or less than 4.2 in the lake".

(d) The science review should "prioritise P-mitigation across all land use types to generate specific estimates of catchment scale P-loading reductions. This will also be critical to exploring alternative dual nutrient management approaches focussed on greater P-limitation to sustain the (TLI target), but under reduced anthropogenic P-loading instead of our current reliance on alum."

[328] One of the issues this raises is whether proposed PC10 should be deferred until the next science review is completed. This was the position advocated by parties such as the Lake Rotorua Primary Producer's Collective and the Federated Farmers. The evidence of Dr Stephens was cited as supporting this view, but in response to a question he confirmed that this was not any part of his evidence. We do not see any good reason to defer our recommendations until the science review is completed, as this is very unlikely to change what has long been assessed to be the sustainable N load to the lake of 435t/N/y (including rainfall).

Implementation of the NPS-FM

[329] We have previously discussed the NPS-FM and how the Regional Council proposes it be implemented.

[330] One of the criticisms made of PC10 is that it does not fully implement the provisions of the NPS-FM in the lake (or indeed its catchment). Federated Farmers for instance submitted that we should defer the implementation of PC10 until the NPS -FM is fully implemented by the Regional Council in the catchment.

[331] We agree that PC10 does not fully implement the NPS-FM for Lake Rotorua. It does not for instance propose limits for other attributes in the National Objectives Framework (NOF) in the lake, such as for P and cyanobacteria. The Regional Council provided us with a detailed programme for fully meeting the NPS-FM, including the NOF, in the entire Bay of Plenty region by 2025 (the NPS-FM specifies this date should be met by regional authorities, but does allow this to be extended to 2030).

[332] We have decided that implementation of PC10 should not be deferred to await the broader region wide approach to the NPS-FM. The main reason for this is because the RPS requires that N loadings to the catchment be reduced by 320t/N/y by 2032, and that 70 per cent of this reduction take place by 2022. This 70 per cent Managed Reduction Target includes the 180t/N/yr proposed to be removed through community funding. To further defer PC10 would mean that the 2022 target would be very unlikely to be attained. Further, this community funding includes a significant Government subsidy, which we understand will be jeopardised if PC10 does not

proceed. We do not want to limit access to that funding, nor deviate from the RPS targets nor indeed the Oturoa agreement. As already explained, we are obliged to implement the RPS. Additionally, the science around the sustainable N limit has long been settled, and further delay in implementing the programme to limit N losses to the catchment is not at all justified.

Findings

[333] Our findings from the review of the science that underpins PC10 and its focus on controlling N losses to the catchment to reduce the long term input of N to the lake to 435t/N/y are:

(a) We agree with the experts that it is desirable to manage both N and P inputs to the lake.

(b) We support the science that underpins the sustainable catchment load of N in the lake being around 435t/N/y (including rainfall), but note that even if the catchment load is reduced to this by 2032, it will take about another 50-60 years for this reduction in catchment load to be achieved in the lake. This is because the average lag time for N leached from the soil to reach the lake in the groundwater is 60 years.

(c) We agree that to achieve this about 320t/N/y needs to be removed from the groundwater catchment of the lake. This is what PC10 is designed to contribute to, and so we support that. This 320t/N/y would be subject to ongoing review as better information becomes available.

(d) Managing the catchment N load would not in itself achieve the TLI of 4.2 for the next 20 years or more because of the lag time between N entering groundwater and later the lake, but it is critically important in the longer term. This is because even with full implementation of PC10 in the catchment, the mass load of N entering the lake will continue to increase from the approximate 570t/N/y (excluding rainfall) that it is currently and it only drops again to that level in about 2040. In this same context we note that the catchment N load in 2003, the last time the lake exceeded a TLI of 5, was just over 500t/N/y, and the lake is not expected to reach that level again for several decades. Given this the community cannot rely on N reduction loads in the catchment significantly helping to achieve the target TLI for at least 20-25 years.

(e) Alum dosing has taken about 6t/y of P from the Utuhina and Puarenga Streams, reducing the loading to a maximum of 43t/y (noting that alum dosing has also reduced DRP concentrations in the lake). This has reduced the TLI to 4.2 – 4.4 with the current N loading, which is a very significant improvement. So even with full implementation of the N regulation proposed by PC10, for the next 20 years or more, sustaining the recent P driven improvements in TLI need to focus on the management of P.

(f) We accept that alum dosing may not be a long term solution to managing P concentrations in the lake and so limiting the TLI to about 4.2-4.4. For this reason there needs to be a strong ongoing focus on reducing sources of anthropogenic P to the lake. This is challenging as significant reductions need to be made, and for this reason we support methods LR M2 and LR M3 in proposed PC10.

(g) Finally, with respect to P, we note the experts agreed that the science review needs to focus on "testing and reaching consensus on P-deficiency having driven improved water quality recently", and that the review "ensures adaptive nutrient management achieves and sustains a TLI equal to or less than 4.2 in the lake". If that review shows that water quality in the lake can achieve a TLI of 4.2 or less by focussing more on P, then the adaptive management provisions of Method LR M3 would need to be triggered.

The economic evidence

[334] It is now well settled that economic considerations are relevant to the making of decisions under the RMA. In particular, s 5 refers to the enabling of "***people and communities to provide for their … economic… wellbeing***" as part of the meaning of sustainable management.

[335] Section 7(b) directs that, in achieving the purpose of the RMA, all persons "***shall have particular regard to … the efficient use and development of natural and physical resources***," which includes the economic concept of efficiency.[74]

[336] Section 32 requires that any evaluation report "***identify and assess the benefits and costs of the …economic…effects that are anticipated from the implementation of the provisions including the opportunities for (i) economic growth that are anticipated to be provided or reduced; and (ii) employment that are anticipated to be provided or reduced".***

[337] Economic efficiency is also implicit in many of the provisions of the RPS and the RWLP, particularly those provisions that relate to the integrated management of resources.

[338] It is important for us to remember that economic analysis is but one of the many threads that goes to make up the evaluation process.

[339] The Regional Council provided a large amount of evidence that addressed the potential economic impacts of the provisions of PC10. We heard from:

(a) Ms Sandra Barnes, who gave us an overview of the economic evidence;

(b) Mr Lee Matheson, who addressed the impact that meeting nutrient loss targets would have on affected farm businesses;

(c) Professor Graham Doole, who assessed the economic on-farm effects of different allocation scenarios; and

(d) Ms Nicola Smith, who explained the modelling work undertaken by Market Economics Limited to compare alternative scenarios for N discharge allocations among landowners to see what potential impacts there would be at the district and regional levels.

[74] ***Northridge Limited v Marlborough District Council*** [1998] NZRMA 73 at [86].

[340] The Rotorua Lakes Council called Mr Philip Osborne to review the economic assessments undertaken by the Regional Council.

[341] DairyNZ and Fonterra Co-operative Group Limited called Ms Carla Muller, who addressed the economic costs on dairy farms of the proposed PC10 provisions.

[342] A number of submissions were received in opposition to PC10 and the proposed N allocation methodology due to the economic impacts at a farm, catchment, district and regional scale. Many submissions challenged the economic analysis within the s 32 report and the outcome of research completed for PC10. We also heard from a number of individual farmers who gave evidence at the hearing relating to the economic impacts on their farm operations.

[343] The economic experts were directed to caucus and produced a "Joint Statement of Economic Experts: 18 April 2017".

The Regional Council evidence

[344] The Regional Council commissioned the following reports:

(a) the Perrin Agriculture (2014) report, which assessed the likely cost of the NDA policy at farm level. This was updated in the Perrin Agriculture (2016) report. These reports were explained to us in the evidence of Mr Matheson;

(b) the Parsons et al (2015) report that was explained to us by Professor Doole. This analysis was commissioned by StAG to estimate the economic on-farm effects on different allocation scenarios. The catchment modelling considered eight N allocation scenarios, each involving alternative assumptions about the way in which N discharge allowances were initially allocated among landowners;

(c) the Market Economics Limited report (2015) which was explained to us in the evidence of Ms Smith. This report followed on from the Parsons et al report and used the output from that modelling to compare alternative allocation scenarios at the district, regional and national levels. Three of the eight scenarios considered in the Parsons et al (2015) report were considered:

(i) the single sector target scenario, where each sector is allocated a constant amount of N[75]:

a. for dairy, 45.52kg/N/ha/y;

b. for drystock, 20.78kg/N/ha/y;

c. for forestry, 3kg/N/ha/y;

(ii) natural capital allocation scenario. Allocation is based on the inherent productivity of each spatial zone based on each Land Use Capability (LUC) unit which, in turn, is based on the biophysical potential of the natural capital of the soil; and

(iii) sector ranges scenario (that are used in proposed PC10). This provides a range for dairy and a range for drystock:

a. for dairy, 40-53kg/N/ha/y with an average of 46kg/N/ha/y;

b. for drystock, 15.5-31.5kg/N/ha/y with an average of 20.4 kg/N/ha/y.

[345] The case studies and modelling were consistent in that the analysis of each show that the financial impact on farmers would likely differ across and within farming sectors. The pattern of results was summarised by Ms Barnes:[76]

(a) a small number of farmers are likely to be able to make changes in their farm systems that increase profitability and achieve their N reduction targets;

(b) some farmers will be able to achieve their N reduction target within their current farming system;

(c) other farmers will be able to achieve the reduction target by changing their land management practices; and

(d) some farmers will be faced with more difficult choices – purchasing N discharge allowances, making more costly investments such as stand-off

[75] Note these numbers from the Parsons et al report (2015) differ from those in PC10 because they are in OVERSEER® Version 5.4.0 rather than Version 6.2.0 in PC10. The comparisons made remain valid however.

[76] Statement of Evidence at [67].

pads; accepting less income to remain in the same farm type, or changing land use and selling allocated allowances.

[346] Ms Smith opined[77] that, based on the modelling, the sector range scenario (adopted in PC10) would be the most favourable, least cost, of the three N allocation options considered. She said:[78]

> Regardless of the allocation option taken, there will be some adverse economic consequences generated for the district and regional economies as a result of the re-organisation of pastoral and forestry activities in the catchment.

The evidence of Dairy New Zealand

[347] Ms Muller, who gave evidence on behalf of Dairy NZ and Fonterra, opined that the modelling of Mr Matheson is likely to under-estimate the actual impact on farmers. However, she gave no specific reason why this would be so.

[348] Ms Muller undertook an analysis, which was appended to the Dairy NZ and Fonterra submission. She concluded that:[79]

> Achieving the 2032 NDAs in PC10 will impose substantial economic costs on dairy farmers, and in turn the community. Those costs will require major farm system changes for some dairy farmers, and more dairy farmers will no longer be viable.

The evidence of the Rotorua Lakes Council

[349] Mr Osborne was of the opinion[80] that the economic assessment of PC10 by the Regional Council witnesses did not consider adequately all potential and pertinent economic costs and benefits. He considered that an alternative allocation methodology, the natural capital approach, would be more likely to meet the requirements of economic efficiency. However, no detailed analysis was undertaken.

[350] Mr Osborne also raised issues relating to the effect on under-utilised land, and the need to recognise urban infrastructure – matters we discuss elsewhere in this report.

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77 Statement of Evidence at [53].
78 Statement of Evidence at [53].
79 Statement of Evidence at [91].
80 Statement of Evidence at [95].

Evidence of farmers

[351] We heard from a number of farmers who own pastoral properties of various kinds in the catchment. They told us of their forecasts of financial undermining. We accept that such fears were genuinely held. However, we did not receive any comprehensive evidence of an accounting or financial basis for such fears.

[352] Many of the farmers who made submissions and appeared at the hearing said that while they could meet the 2022 Managed Reduction Target (MRT), the 2032 target reductions are much too onerous and would result in their businesses becoming uneconomic, or marginally economic at best. While we accept that this may very well be case with present farming technology, we note that nutrient management in the dairy sector in particular is evolving rapidly, and lower fertiliser inputs or better controls on N losses from sources such as urine patches are emerging as promising technologies. If we think back 15 years and how dairy farmers managed their properties, there have been very significant advances since that time. While none of us are farmers, we are confident that emerging management practices will mean that in 10 -15 years' time, meeting these longer term targets will not seem as daunting as it does today.

[353] We heard from several forestry companies, such as PF Olsen and Scion, and forest landowners, such as CNI Iwi Forests Limited. The forestry sector was concerned about the low NDA's allocated to it. This, they said, would make it difficult for the owners of the forestry blocks to develop their land to higher emitting activities.

Evaluation and findings

[354] All of the expert witnesses agreed that there would be financial impacts on a number of farmers as a consequence of PC10. They also agreed that, whichever allocation approach is finally adopted in proposed PC10, the costs and benefits would not be evenly distributed.

[355] The difference between the economic experts is not about the outcome, but the extent of that outcome. Mr Osborne was also critical of the in-depth analysis of the Regional Council witnesses.

[356] In an endeavour to narrow the gap between the expert witnesses, we directed them to caucus. However, the joint statement of economic experts "***did not really assist us in determining the differences***".

[357] We have given careful consideration to the economic evidence. We find that the Regional Council witnesses carried out extensive economic analysis at a farm level, and at a district, regional and national level. A comparison between allocation scenarios was undertaken at the farm level by the Parsons et al (2015) report and at the district, regional and national levels in the report by Markets Economic Ltd (2015).

[358] The criticism levelled at the economic analysis of the Regional Council witnesses was of a general nature and reflected, to some extent, the reality of future economic analysis which has so many variables. The extent of such variables leaves open room for criticism. Such is the lot of economics.

[359] We do not consider that sufficient doubt has been raised that, solely from an economic perspective, PC10's proposed N allocation approach would not be the most appropriate approach. We emphasise again that economics is only one of the many themes that we must consider when determining the appropriateness of the PC10 provisions.

Management of land use by rules to control N loss

[360] There was much criticism of regulating, by rules, the management of land use by limiting the amount of N lost from land to groundwater. The relief pleaded by various parties ranged from "hold the line", as advocated by Federated Farmers and others, to voluntary compliance.

[361] The "hold the line" approach essentially sought a continuance of the status quo under Rule 11 until sometime in the future (possibly five years or so), when a full science review would be completed.

[362] A significant shift in science, it was argued, would provide greater certainty.[81] It was argued that "scientific uncertainty", as existed now, should not form the basis of any rules proscribing a reduction of N outputs.

[363] Ms McGruddy's, witness for Federated Farmers, opinion was based on her own analysis and conclusions of the science evidence. No scientific evidence was called. Ms McGruddy's evidence was often contrary to the evidence of all of the scientists who gave evidence as set out in the caucusing statement of Professor Hamilton, Dr Stephens and Mr Bruere:[82]

> To avoid confusion, we have not proposed any change in the recommended nitrogen targets of LR Policy 1 in PC10. Hence, despite our confidence that reductions in P have plausibly driven recent improvement to water quality, we support both N and P being managed at this time. Instead, it is our opinion the balance of N and P reductions might change through improving understanding of algal-nutrient dynamics and specific knowledge about P management strategies in the Lake Rotorua catchment. To act on that knowledge requires formal and robust best international scientific practice, with reviews of sufficient scope to re-define nutrient targets for the same fixed algal and clarity (effects) expected under Objective 11 of the Regional Policy Statement.

[364] Clearly, the scientists were of the opinion that the PC10 methodology, or the targets of TLI and sustainable lake load, should not be abandoned. This was reinforced by Dr Stephens in answer to a question from the panel, where he agreed that there should not be any delay in implementing the proposed provisions of PC10 to await a science review.

[365] Much was made of voluntary compliance. This suggestion was in part based on the evidence presented by some landowners of significant investment in environmental practices. We acknowledge that evidence, and the contribution that such investment has made to the environment. However, we remind ourselves that the

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[81] Evidence-in-chief, Ms E McGruddy, pages 4/608 and 5/1008.

[82] Caucus statement, water quality scientists at [2.3].

need for regulation is often engendered by the recalcitrant few. We are also conscious of the evidence we received about the widespread previous non-compliance under Rule 11 benchmarking requirements.

Finding

[366] We find on the evidence, that a regulated rule framework to implement a N allocation regime would be the most appropriate way of achieving the necessary N reductions from the pastoral sector.

Nutrient management allocation framework

Introduction

[367] Nutrient management as proposed in PC10 involves the setting of limits on losses of N from land use in NMP's. As we have said, water draining through the soil leaches N into the groundwater at a rate that varies depending on factors such as soil type, land use type and rainfall. The N resurfaces in the lower parts of the catchment and forms the base load for Lake Rotorua. A sustainable limit on the catchment load has been fixed by the RPS at 435t/N/y. This has been called the sustainable lake load in proposed PC10, and reflects the target N concentration in lake of 300 mg/m^3.

[368] A portion of contaminants lost at source in the catchment are attenuated as they travel down the catchment. Thus the catchment load, at a measurement point at the bottom of the catchment, would be some factor of the load granted at source. We discuss this in more detail elsewhere of this report.

[369] As individual farmers can only control the source load that leaves their property, it was the source load that needs to be identified and controlled by the planning framework. As we have said, the OVERSEER® model is used to estimate diffuse N losses from the root zone on a block by block and property basis. This enables an explicit link to be made between the catchment load, and water quality in the receiving environment. This enables a limit to be imposed on the estimated amount of N loss from a specific farm.

[370] Allocation is the share of the sustainable lake load that is assigned to a particular property. For proposed PC10 the allocation methodology results in a NDA being allocated for each block within the catchment. These are summed per property or farming enterprise, and this is the limit required to be met by 2032.

[371] The NDA's are expressed as a percentage of a reference file. This methodology has been explained earlier in this report.[83] The methodology is also set out in Policy LR P5, Policy LR P6 and Schedule LR 1 of PC10.

[372] The allocation methodology set out in PC10 could best be described as a hybrid, according to Mr Lamb.[84] He said it combines the elements of:

(a) grandparenting (due to the use of benchmarking as a start point);

[83] Based on the evidence of Mr S Lamb, Mr A McCormack and the s 32 and s 44A reports.
[84] Statement of evidence at [94].

(b) natural capital ("better" areas for N loss management will be able to do more with less NDA);

(c) "polluter pays" (high N loss blocks/properties lose more under the claw-back regime);

(d) sector averaging (as a start point for the ranges).

[373] The allocation methodology also includes the ability to consider exceptional circumstances should this be warranted in any specific case. It does this by providing matters that may be considered under Schedule LR One for amendments to a NDA.

[374] The way that the sustainable load was allocated in PC10 was a contentious topic. The allowances allocated would impact on the activities farmers could undertake now and in the future, and could potentially impact on property values. The impacts would differ within and as between sectors.

[375] The high emitters, such as the dairy sector, denounced the proposed allocation regime and claimed unfairness. The low emitters; such as the low leaching drystock farmers; the owners of forestry land; and under-developed land including Māori land; claimed that the provisions were inequitable as they were only assigned relatively low NDA's.

[376] It is not surprising, therefore, that there were a large number of submissions lodged against the proposed allocation regime. A regime that was forced into a scheme designed to meet the directive of the RPS that the sustainable assimilative capacity of the lake is 435t/N/y.

[377] The share of the allocation load stated to each farm and each sector is circumscribed by the sustainable load of the lake as fixed by the RPS. Accordingly, granting more or less to one sector would result in taking more or less from another sector. To accommodate this delicate task, the so-called "collaborative Integrated Framework" was adopted. Regrettably, even though it was developed by the Lake Rotorua Primary Producers' Collective and adopted by the StAG, it was not accepted by many in the farming community.

[378] The end result appears to be that no-one was happy with the Integrated Framework figures. Each of the farming sectors backed into their respective corners. They railed against the proposed provisions by filing submissions in opposition, and in some cases seeking amendments that reflected their own individual interests.

[379] A number or submitters expressed general opposition to the allocation process. Some submitters expressed specific criticism, and sought specific amendments. The many submissions in opposition were varied. So much so, that addressing each individually would be impracticable. In this section, we deal with the specific criticisms levelled by way of topic. We evaluate the specific amendments sought to the proposed provisions and amendments elsewhere in this report.

[380] We have grouped the specific criticisms into the following topics:

(a) PC10's hybrid allocation methodology based on Rule 11;

(b) changing the start date; and…

(e) further categories

[381] We discuss each of these topics below.

PC10's hybrid allocated methodology based on Rule 11

[382] As we have pointed out, the allocating methodology set out in PC10 could best be described as a hybrid. However, its base stems from a grandparenting of Rule 11 discharges as fixed for the year 2001-2004. A large number of submitters opposed the grandparenting aspect of the methodology and sought alternative scenarios.

Natural capital approach as an alternative

[383] The most common alternative sought was a natural capital approach, which appeared to be derived from the productive capacity of land, based on land classification. A number of submitters, particularly from the forestry industry, addressed this issue in their submissions. The essence of their representations was encapsulated in the evidence called by the Rotorua Lakes Council, CNI Iwi Holdings Limited and Scion.

[384] It was argued that the grandparenting approach, based on historical farm activity and consequent N discharges, would result in a more likely retention of current land use activities and a lower transition cost for those activities due to the value of their N rights.

[385] By contrast, it was argued, the natural capital approach would rectify historical inefficiencies, thus promoting more sustainable management of the land resource in the long term.

[386] The forestry sector was strongly opposed to the grandparenting with sector allocation approach. One of the consistent themes we heard from forest owners, or the owners of land with forests on them, is that they would be effectively locked into that land use for the foreseeable future. This is because to develop that land would require ongoing purchase of N to enable the development of the land.

[387] Ms Robson for CNI Iwi Holdings Limited made strong adversarial assertions, that the forestry industry would be unfairly punished by the proposed framework. She alleged that the StAG process had been subject to "sector capture" by groups such as the Lake Rotorua Primary Producers' Collective.

[388] We also heard from a number of Māori landowners who pointed out that they were disproportionately impacted by the grandparenting approach to allocation. Māori landowners have not had neither the time, nor the capital resources to historically develop their land.

Evaluation

[389] In considering this matter, we are guided by the relevant objectives and policies of the RPS to which we must give effect to, and the objectives of the RWLP. These have been summarised in Part II of this report.

[390] A number of relevant themes emerge from the relevant objectives and policies, including:

(a) the need for an integrated approach to resource management;

(b) the need to enhance the water quality in Lake Rotorua;

(c) that land use activities are within the assimilative capacity of the lake;

(d) requiring the management of N and P in the lake's catchment;

(e) ongoing research, monitoring and review;

(f) the need for community involvement; and

(g) strong directions reflecting the provisions of ss 6, 7 and 8 of the RMA that relate to Māori.

[391] There are also the explicit directions contained in Policies WL 3B, WL 5B and Policy WL 6B of the RPS and Objective 11 of the RWLP. We are also mindful, albeit to a lesser degree, of the principles enunciated by the StAG process.

[392] We are conscious that the rule framework developed over a period of time through discussions centred around the StAG process. This reflected the directions in the statutory instruments to ensure community involvement. We acknowledge the criticisms of the process, a matter we have dealt with elsewhere in this report. Notwithstanding those criticisms, we have found that the process was as robust as could be expected having regard to the entrenched positions of the parties.

[393] We are satisfied that the themes and directions set out above (save for the directions relating to Māori which we discuss later) would be given effect to by the proposed provisions of PC10.

[394] For us to interfere substantially with the result of that process would require some strong and cogent evidence. In this regard, we did not receive from any submitter who argued for a natural capital approach any details, let alone "precise details";[85] as to the form of a rule framework of a natural capital approach.

[395] We have found, that from an economic perspective the Regional Council, through its officers and consultants, have carried out a comprehensive economic analysis of natural capital as an alternative to extent of practicability. To require a council to develop alternative scenarios to the rule framework to the same detail as PC10 would be impracticable.

[396] One of the major difficulties with the use of a natural capital approach is that land use in the catchment does not mirror the underlying capability of the land, as reflected in the land use capability classes. Some of the better class 2 and 3 land is in lifestyle blocks or smallholdings around the margins of the lake, or within urban areas such as Ngongotaha or Rotorua itself. According to Mr Lamb, 75 per cent of the drystock farm blocks and 81 per cent of the dairy farm blocks are on Class 4 and 6 land, which in a national context is highly unusual.[86] So while a natural capital approach has been used successfully elsewhere in the country, this is because in those regions land use closely reflects land use capability. A good example is the Manawatu catchment, where class 1 and 2 land is widely used for cropping, horticulture or dairying, class 3 land is used for some dairying and drystock farming, class 4 and 6 land is used largely for drystock or forestry, and class 7 and 8 land is generally either

[85] As is required by Form 5.
[86] Supplementary Evidence of Mr S Lamb dated 19 April 2017.

in forestry, extensive farming or catchment protection. No such tidy correlation between land use and land capability exists in the Lake Rotorua catchment.

[397] We acknowledge the criticism of the low emitters, particularly the forest sector and the low-emitting drystock farmers, who claim that the rule framework protects the dairy industry. While it is correct to say that the dairy sector is a significant contributor of N discharges to the lake, we recognise that the sector is making the most significant contribution in terms of proportional sector load reduction, 35 per cent overall from current load.

[398] Further, to interfere with the sector load reductions as developed by the Integrated Framework would mean reducing one sector to provide for another. As we have said, we have heard no evidence as to what would be an appropriate adjustment to the Integrated Framework to adequately reduce the alleged inequities. Unfortunately, the evidence establishes that no matter which methodology is used, there would be resulting inequities to one sector or another.

Finding

[399] We find, for the reasons set out above and for the reasons set out in the Regional Council's s 32 and s 42A reports, that the proposed allocation methodology, when compared with the natural capital methodology is the most appropriate method, to the extent that it is the most suitable in the context of the development of PC10. It is also in our view the approach most consistent with the nine principles of Policy WL 5B of the RPS.

Underutilised Māori land

[400] One sector that did cause us particular concern was the effect of the proposed rule framework on under-utilised Māori land. Approximately 38 per cent of the total catchment is Māori land,[87] of which approximately 53 per cent (8,000ha) is under-utilised. The Regional Council, as are we, are required to give effect to the strong directions in the RPS which reflect the relevant provisions of Part 2 of the RMA that relate to Māori. While the Council's evidence and reports refer to these strong directions, they do not address the manner they have been given effect to in proposed PC10.

[87] See Eccles, Memorandum 11 April 2017 at [9].

[401] Accordingly, we propose to address this issue by giving some measure of relief, within the RPS constraint setting the assimilative capacity of the lake at 435t/N/y (including rainfall). This we explain in Part V of this report.

Other alternative frameworks

Submission points and submitter evidence

[402] Mr Lachlan McKenzie, the Lake Rotorua Primary Producers' Collective, and Federated Farmers of New Zealand, sought relief in the form of detailed alternative proposals to PC10. Each of these included amendments to the proposed introduction, policies, methods and schedules, and a new suite of rules.

[403] At the conclusion of presenting their submission, we asked for a final version of what Federated Farmers were seeking as relief, which was subsequently provided on 26 April 2017. We are basing our evaluation on the 26 April 2017 memoranda and appendices provided by Federated Farmers.

[404] We note that several of the other submitters supported the Federated Farmers submission, and agreed with their relief sought. In particular, we note the Hearing Statement Executive Summary from Ms Corina Jordan for Beef and Lamb New Zealand dated 21 March 2017 which states at paragraph 17 that it supports generally the relief sought by Federated Farmers and that it seeks that the Regional Council adopt an Integrated Management Framework, focused at the sub catchment level.

[405] It is clear from reading through the submissions from Mr McKenzie, Federated Farmers and the Lake Rotorua Primary Producers' Collective that these were prepared with some level of collaboration between the parties, and that was also evident through the hearing process. However, there are some variances between those submissions.

[406] The common points between Mr McKenzie, Federated Farmers and the Lake Rotorua Primary Producers' Collective were that they sought that the plan change not proceed as proposed. Their focus was on pursuing the 2017 science review included in method LR M2, and then progressing through a sub-catchment community process, developing sub-catchment action plans to address any nutrient reductions. They sought some similar amendments to the introduction to PC10, to include reference to an integrated nutrient management framework. There was some divergence to the relief sought through the hearing, with further refinements coming from Federated Farmers, who appeared after Mr McKenzie and the Lake Rotorua Primary Producers' Collective.

[407] In this section of our report, we are focussing on the overall approach sought by the submitters, rather than the nuance of each point of relief sought through their submissions. We address those points later in this report.

[408] Dairy NZ and Fonterra Co-operative Group Limited did not submit on the policy framework; with points limited to the methods, rules and schedules. As they were in general support of the overarching policy framework, we have not categorised their submission as an alternative framework and do not comment upon it in this section.

[409] CNI Holdings Limited and Kaingaroa Timberlands proposed totally alternative frameworks; their preference being a polluter pays regime, or failing that, a natural capital approach. We also note that Mr Richards for PF Olsen, Mr Osbourne for the Rotorua Lakes Council and Ms Corina Jordan for Beef and Lamb New Zealand also supported a natural capital approach, or similar. We discuss this matter previously in this report.

Evidence of Federated Farmers

[410] We summarise the overall approach of Federated Farmers as seeking that Rules 11A – 11E of the RWLP be retained, with some minor variation, while undertaking the science review, and then proceeding on the basis of a sub-catchment collaborative approach with committees developing non-statutory sub-catchment allocation plans to address reductions of nutrient loads to the lake, and achievement of the TLI for the Lake. The rule framework, while generally being similar to Rules 11A-E, differs to those rules in that it would enable dairy and drystock farmers who have already reduced their N load below the Rule 11 benchmark to "farm back up" to that benchmark. The rule also allows a farmer to obtain a new nutrient benchmark by 2017 and thereafter not exceed it. We note that the rules only apply to farming activities and farming enterprises, as the proposed definitions would not appear to include standalone plantation forestry and bush/scrub that is not associated with a "farming activity". There was no definition proffered for farming enterprise.

[411] In summary Federated Farmers proposed the following amendments:

(a) Within the introduction:

(i) A new scope statement;

(ii) A new purpose statement;

(iii) A new section on integrated nutrient management framework;

(iv) A new heading "Lake Rotorua Integrated Nutrient Management";

(v) The deletion of Tables LR2 and LR3 and associated text;

(vi) A new map LR1A which identifies sub-catchment boundaries.

(b) Amendments to all the policies, including deletion of Policies LRP11, LRP12 and LRP17

(c) Amendments to all the methods, with the exception of Method LRM3, and the deletion of LRM1.

(d) The deletion of Rules LR R1 – LR R12, and their replacement with five new rules. Of these proposed new rules:

(i) Rules LR R1 and R2, permitted activities, relating to farming activities / farming enterprises, are similar to Rules LR R3 and LR R4 as notified.

(ii) Rule LR R3, permitted activity, relating to farming activities / farming enterprises with a land area greater than 10ha or do not comply with Rules 1 or 2. Lots less than 40ha are required to establish a nutrient benchmark, and lots over 40ha are either required to continue to comply with an existing benchmark or obtain one from Regional Council. A farming activity or enterprise is then not to exceed the benchmark.

(iii) Rule LR R4, controlled activity, for farming activities / farming enterprises that do not meet Rule LR R3.

(iv) Rule LR R5, restricted discretionary activity, for farming activities / farming enterprises that do not meet Rule LR R4.

(e) An amendment to the definition of "block";

(f) A new Schedule AA, entitled "Nutrient benchmark" which mirrors that contained in Rule 11;

(g) The deletion of Schedule LR One;

(h) The deletion of Schedule LR Five;

(i) Amendments to Schedule LR Six;

(j) The deletion of the section titled "Transfer of Nitrogen Discharge Allowance" from Schedule LR Seven.

[412] Ms Nikki Edward's legal submissions set out the rationale for the Federated Farmers approach. Her position was that, at this stage, giving effect to the RPS does not require the imposition of stringent N rules on the rural sector that lock a trajectory to achieve a limit of 435t/N/y in the catchment by 2032. She considered that PC10 gives paragraph (c) of Policy WL 6B priority over paragraphs (a) and (b) and fails to adequately consider the other water quality policies, and that it also imposes the responsibility for ensuring that N discharges do not exceed 435t/y on the rural sector, when Policies WL 5B and WL 6B(c) do not discriminate in this way.

[413] Ms Edward's position on why the Federated Farmer's position does give effect to the RPS was as follows:

(a) The Rule 11 benchmark is retained to prevent N discharges from increasing (i.e. a "regulatory backstop" to ensure we do not regress during 2017 to 2022).

(b) Rural activities implement industry agreed good management practice to do what is reasonable, practical and affordable to reduce N (the rural sector's commitment in Policy WL 6B(a)).

(c) Resource consents may be sought for activities that increase N discharges (Rules 4 and 5), giving effect to Policy WL 4B.

(d) Sub catchment action plans are prioritised to target hot spots and to provide for an integrated approach (in terms of nutrients, land uses and source/transport/sink pathways).

(e) The 2017 science review is undertaken to identify and confirm the most effective combination of sustainable N and P loads to the lake to achieve the TLI (thereby giving effect to all paragraphs of Policy WL 3B and making the improvement of lake water quality the overarching objective).

(f) The implementation of the NPS-FM for the Rotorua Lakes Water Management Area ("WMA") (scheduled for 2020/24 but could occur in 2017/18) is the stage at which the science, community values, targets, allocation, methods, rules and public/private partnerships are evaluated[88].

[88] Paragraph 10 of Synopsis of Legal Submissions for Federated Farmers dated 19 April 2017.

[414] Ms Edwards' position in respect to the NPS-FM was that PC10 does not give effect to it; in particular that it locks in historic N targets and does not allow them to be considered as part of the water management area consideration of the NPS-FM's National Objectives Framework. Again, her position is that the Federated Farmer's framework enables the NPS-FM to be given effect to as:

(a) It provides for the integrated assessment of all of the NOF water quality attributes that are contemplated by the NPS-FM;

(b) It provides for an iterative community process where the values, attributes, objectives and limits for water quality and quantity can be considered in the round;

(c) It is not constrained by historical decisions or limitations (unlike StAG or -PC10) and can be informed by the science review[89].

[415] Ms Edwards' submission was that the Federated Farmers' proposal "attempts to strike a better balance between a clean lake and allowing economic, social and cultural development for iwi, rural, forestry and urban sectors of the community. It aims to do so in a way that is cost effective, efficient, has the least risk and achieves the greatest certainty."

[416] During questioning of the Federated Farmers' representatives, we asked whether there were any critical elements to their proposal, in terms of bottom lines. In her response of 26 April 2017, Ms Edwards' sets out the Federated Farmer's bottom lines as being:

(a) NPS-FM – PC10 does not give effect to the National Policy Statement for Freshwater Management 2014 ("NPS-FM"). PC10 should state that the upcoming Rotorua Lakes Water Management Area ("WMA") community process is the step that is intended to give effect to the NPS-FM.

(b) Allocation – it is premature to land a N allocation regime in PPC10. Allocation should be considered as part of the Rotorua Lakes WMA process, informed by the Science Review, and supported by freshwater accounting for all sources and contributors of nutrients.

(c) Individual NDAs – regulated farm-level N discharge allocations ("NDAs") are not supported.

[89] Paragraph 12 of Synopsis of Legal Submissions for Federated Farmers dated 19 April 2017.

(i) The Science Review is expected to re-assess N and P targets in the coming year.

(ii) Allocations to one sector cannot properly be considered in isolation from other sectors.

(iii) The proposed NDAs are not reasonably achievable with current technology.

(iv) The proposed NDAs would result in significant and irreversible harm to individual farms and to the wider catchment economy and community.

(d) Regulation of farm plans – the use of farm plans as a "point of compliance" in the regulatory framework is not supported.

[417] She set out the critical elements of relief sought as being:

(a) **Science Review –** cement the commitment to the Science Review in 2017 and the consequential review of Bay of Plenty Regional Water and Land Plan ("RWLP") and Regional Policy Statement ("RPS") objectives and policies.

(b) **Rule 11 –** retain the Rule 11 regulatory framework.

(v) Extend the application to non-benchmarked properties.

(vi) Establish reliable benchmark estimates for properties under 40ha (which collectively comprise 5000ha).

(c) Provide an enabling framework – for community engagement, innovation and solutions to drive continued reductions in nutrient losses to the Lake.

(i) Acknowledge the significant progress that has been made beyond Rule 11 benchmarks towards the catchment intermediate target.

(ii) Support the establishment and resourcing of Sub-catchment Action Plans to prioritise nutrient reductions (both N and P), informed by sub-catchment specific data.

(d) Review the Incentives Scheme with a view to potentially expanding the focus and potentially informed by the results of the science review.

[418] In paragraphs 7 to 18 of her response of 26 April 2017, Ms Edwards also set out how she considered the Federated Famers relief addresses the key six concerns raised by other parties through submissions and the hearing. For the sake of brevity, we do not repeat that here in its entirety, but we have considered it carefully. These concerns included that the Incentives Scheme is too narrow and the requirement for 999 year contracts is too narrow. In paragraph 17, Ms Edwards's addressed the concern that the Federated Farmers relief does not sufficiently provide for assurance of progress to meet the 2022 catchment target. Her position was that significant progress has already been made on achieving the 38t/N/y pastoral reduction target, that there is no evidence on the engineering and gorse reductions, and that progress to date on the Incentives Scheme has been limited.

[419] When questioned by the Panel, Ms Edwards' agreed that effectively the Federated Farmer's position is to "hold the line" for now, and go through another plan change process.

Lachlan McKenzie and Lake Rotorua Primary Producers' Collective

[420] We summarise the overall approach of these submitters as seeking that there is a wider review of the science and the relevant provisions in the RPS and RWLP which PC10 seek to give effect to. They also sought a sub-catchment plan approach and that all farming is a permitted activity where landowners operate at or below a benchmark figure and work voluntarily to reduce nutrient losses. They supported a managed reduction target to 2022.

[421] In summary, the submitters sought:

(a) The introduction of two new objectives (which we were advised are repetitive of existing objectives in the RWLP);

(b) Similar amendments to the policies and methods as Federated Farmers;

(c) A new method 41 (which was identified through hearing Federated Farmers as being repetitive of method 41 in the RWLP);

(d) Minor corrections to PC10 where it does not accurately reflect the wording of other provisions;

(e) Amendments to the wording of policies;

(f) Not supporting Farm Nutrient Management Plans as a point of compliance;

(g) Not supporting the OVERSEER® based reference file approach;

(h) Amendments to definitions, including a new definition for benchmark, commercial dairying, managed reduction target; and

(i) Several other amendments to definitions.

[422] In addition to the new rules also proposed by Federated Farmers, they propose the requirement to meet a managed reduction target to 2022. They then introduce three new rules to manage farming activities and farming enterprises after 2022, which provide for farming activities to be permitted activities if the TLI of Lake Rotorua is at or below the TLI of 4.2, and for Mr McKenzie, where it complies with an allocation benchmark set through a nutrient reduction plan. It then includes controlled and restricted discretionary activity rules where the permitted activity rule is not met.

[423] The Lake Rotorua Primary Producers' Collective challenged the Regional Council's position that the consultation undertaken decades ago around water quality issues with the community addresses all the requirements of the NPS-FM and of today's community values.[90]

[424] Their position, as set out in their submission, was that the overarching hierarchy under which PC10 sits is as follows:

RWLP: objective 11: Requires Lake Rotorua to be at a TLI 4.2;

RPS: WL 3B (c) Nitrogen losses to the lake shall not exceed 435tonnes/y;

PC10: rules to achieve 435 t/N/y limit.

[425] The Lake Rotorua Primary Producers' Collective considered that there is new knowledge available now than there was at the RPS mediation table, and that if it had been known, the 435t/N/y target would not have been set. They believed the overarching goal of the Regional Council is to ensure the TLI of 4.2 is met, and they supported this goal.

[426] The Lake Rotorua Primary Producers' Collective's position on PC10 was that:

(a) to proceed with a Plan which has now been judged likely to fail in its only goal, is contrary to common sense and good judgement;

[90] Statement of Evidence of Ms G Schweizer at [16].

(b) to proceed with a plan which was in need of serious review before it even became operative and when the science review is imminent, is nonsensical;

(c) there is a better way to achieve the TLI of 4.2, but more importantly than that the scientists believe that the science review is essential and that an alternative way forward is the only way to achieve the 4.2;

(d) there is a real and unjustifiable risk in proceeding with PC10 prior to the review, on the premise that some N is required in any event, because it is clear that PC10 will cause irreversible harm to individuals and the community at large; and

(e) it is therefore unconscionable to allow this to occur when there is the strong probability that the harm is unnecessary and unwarranted[91].

[427] The Lake Rotorua Primary Producers' Collective sets out their decisions sought as:

(a) that the science review proceed and that the best combinations of N and P are established before PC10 becomes operative; or at the very least before the reductions post 2022 are imposed, as any reductions in excess of the 2022 targets will result in permanent changes to land use and irreversible harm that could not later be reversed;

(b) that OVERSEER® files are used as the point of compliance, as agreed and understood at StAG, in order to allow and incentivise land owners to adopt new and innovative solutions as they become available and in order to maximise resource use efficiency through adaptive management;

(c) that Regional Council encourage and resource sub catchment action plans as the primary point of actions;

(d) that PC10 aligns with the intent of the RPS Policies and that it achieves the real goal of a lake maintained at TLI 4.2, in the most cost efficient way; and

(e) that Regional Council ensures full compliance with the NPS-FM[92].

[428] Mr McKenzie summarised his relief as being:

(a) Maintain Rule 11 as it controls both N and P losses;

[91] Statement of Evidence of Ms G Schweizer at [49].
[92] Statement of Evidence of Ms G Schweizer at [50].

(b) Provide for innovation by farmers; that farmers have made great progress, and that progress should be continued to 2022. Further, that work should occur at the enterprise, sub-catchment and lake levels;

(c) Undertake a stocktake of the science, economics and community/social effects before hard wiring in 2032 numbers;

(d) PC10 is not the best way to achieve the objectives.

[429] The submissions and evidence of CNI Iwi Holdings Ltd, Kaingaroa Timberlands, PF Olsen Ltd, Rotorua Lakes Council and Beef and Lamb New Zealand did not provide any detail of a policy or regulatory framework that would support either a polluter pays[93] or natural capital approach, nor an evaluation of how either approach would better give effect to the Regional Policy Statement and achieve the TLI target of 4.2 in the RWLP.

Regional Council evidence

[430] PC10 was accompanied by a section 32 evaluation report, setting out its rationale behind PC10. This rationale is further provided in the section 42A report and the evidence presented by the Regional Council through the hearing. We have summarised the Council's rationale and approach earlier in this decision and focus now on the Council's position on the alternative framework's proposed. Ms Sharron Wooler for the Regional Council set out the Council's position in paragraphs 13 to 26 of the legal submissions in closing dated 1 May 2017. Ms Wooler identified the following as flaws of the alternative proposals:

(a) That there is little to stop farms that may have reduced their stocking intensity and nutrient losses below benchmarks to move quickly to increase intensity to meet the benchmark; thus negating the reductions that have already occurred. That the new date ranges proposed could lock in and reward farmers who did not comply with the requirements of Rule 11, and creates two different sets of data that would make modelling difficult. Further, the enforceability of the rules would be an issue given the lack of uncertainty around what the permitted activity would be, and when it would be exceeded. The further criticism is that consent to increase above the Federated Farmers' caps is easy to obtain as there is no intention of meeting the 2032 limit and a restricted discretionary status is proposed.

[93] In the case of CNIIwi Holdings Ltd and Kaingaroa Timberlands.

(b) There is no explanation as to how they better give effect to the RPS, including the direction in WL 6B(c). Ms Wooler's position is that the Federated Farmers proposed policy LR P16 is contrary to WL 6(C) in that it states a policy of granting controlled activity consents for a period of 20 years, which would clearly exceed the policy direction to not authorise discharges in excess of the 2032 limit. Again, her position is that it is not possible to proceed with the alternative proposals on the assumptions that the RPS limit of quantity and timeframe will be changed under some future change to the RPS, particularly given the science consensus position to proceed with PC10 as proposed.

(c) That there were no examples provided in the evidence of submitters that demonstrated voluntary reductions of N that would achieve the level required under the RPS Policy WQ L3B.

(d) That there are gaps in the alternative frameworks, in that neither fully address plantation forestry or bush/scrub, and there is potential that intensification and increased N losses to the lake could occur, and it is not clear how managed reduction is treated, as there is no target to reduce to.

Evaluation

[431] As stated earlier, we approach the alternative frameworks at a high principle level, and leave evaluation of the nuances of the approaches to later in this decision.

[432] We summarise the three approaches as follows:

(a) Federated Farmers - maintain the status quo under Rule 11 until such time as new science is developed and the NPS-FM water management area programme for the Rotorua catchment progresses, and rely on the good efforts of farmers in the meantime. Use a sub-catchment approach to nutrient management.

(b) The Lake Rotorua Primary Producers' Collective – Do not proceed with the plan change, rather wait for the science review to occur. It should also address P. If we do proceed, then only to the 2022 reductions, as anything above that may be irreversible. Focus on sub-catchment plans. Re-open consideration of the RPS and RP objectives and policies. That any plan change covers the whole of community and catchment.

(c) Mr McKenzie – generally as with the Lake Rotorua Primary Producers' Collective.

[433] One of the issues that this relates to is whether PC10 should be deferred until the next science review is completed. The evidence of Dr Stephens was cited as supporting this view, but in response to a question he confirmed that this was not any part of his evidence. We do not see any reason to defer our recommendations until the science review is completed, as this is very unlikely to change what has long been assessed to be the sustainable N load to the lake of 435t/y (including rainfall). Additionally, and as discussed we discuss earlier in this report under the hearing Water Quality, Dr Rutherford was adamant that the ROTAN modelling was not sufficiently robust to support any form of sub-catchment planning (as discussed elsewhere in this report).We do not agree with the positions of Federated Farmers, the Lake Rotorua Primary Producers' Collective and Mr McKenzie that their alternative approaches better give effect to the RPS, and to the NPS-FM. Rather, we agree with the Regional Council's officers' position. This is because:

(a) Their proposed rules could lead to an increase in N discharges to the Lake, which completely undermines the achievement of both the 2022 and 2032 RPS limits.

(b) For the Lake Rotorua Primary Producers' Collective and Mr McKenzie approach, there is no requirement to reduce N losses after 2022.

(c) The proposed rules would not see achievement of the 2032 limit and would allow the limit to continue to be exceeded for generations to come.

(d) There is no reliable basis for any sub-catchment approach.

[434] It is clear from the alternative approaches that it is the RPS policies and the integrated framework that are the essence of the submitters' opposition to the PC10 framework. Neither of these are within the scope of PC10; both were established through separate processes. The intent of the RMA is quite clear; a plan (change) has to give effect to a regional policy statement and meet the overarching purpose of the RMA. PC10 is also promulgated to achieve Objective 11 of the RWLP, the TLI of 4.2. That objective is also not within the scope of this plan change. Our consideration is on whether the provisions contained in PC10 are the most appropriate means to achieve the objective(s), and to ensure that they give effect to higher level documents. The submitters' alternative approaches simply fall down in that they will not give effect to, or positively implement, the RPS, and will also not achieve the relevant objective.

[435] In saying this, we have some sympathy with the submitters, that the RPS and RWLP were developed prior to PC10, and it can be difficult to focus on giving effect to these, without wanting to re-examine them. Similarly, the Integrated Framework was developed through a separate exercise, and it is that framework that sets out how the reductions to achieve the 435 tonne sustainable annual load of N into Lake Rotorua. However, that is the nature of the plan change that we are dealing with.

[436] We also note that the Lake Rotorua Primary Producers' Collective and the Federated Farmers are signatories to the Oturoa Agreement on 18 February 2013 which settled Environment Court proceedings and led to the now operative wording to Policy WL 6B of the RPS. They were also parties to the subsequent development of the Integrated Framework which was the method to achieve Policy WL 6B. It is an odd position that both parties are now proposing alternative frameworks that will not achieve the Policy that they agreed on.

[437] We can understand in part the submitters' concerns that PC10 does not give full effect to the NPS-FM, and rather that PC10 should be deferred until such time as the process for the Rotorua Lakes Catchment is underway. That pending NPS-FM exercise may necessitate another formal RMA plan change process.

[438] However, we are also aware that that under the NPS-FM, the Regional Council does have until at least 2025 to give full effect to the NPS-FM, and there is nothing to prevent the Regional Council taking a staged approach, even in the case of one or two nutrients. Further, the Regional Council has an obligation to give effect to its operative RPS which includes a very directive policy of achieving the 435t/N/y by 2032, and to have achieved a 70 per cent reduction across the catchment by 2022. Given the challenge that brings with it, there is not time available to put PC10 on ice.

Finding

[439] Overall, we find that of the approaches before us, the hybrid approach proposed by the Regional Council in PC10 is the most appropriate means of achieving Objective 11 of the RWLP, and of giving effect to Objectives and Policies of the RPS. As stated previously, we deal with the intricacies of PC10 itself later in this report.

Changing the start date

[440] A number of submitters sought to extend the start date from the Rule 11 assessment in 2001-2004 to the "current state". This would have the effect of

extending the start date for any reduction by a number of years. No evidence was adduced to support such an extension, or to guarantee that the sustainable lake load could still be met.

[441] Rule 11, made operative in 2008, seems to us to be a practical starting point. It produced a reasonably robust starting point from which allocation could be derived. As was pointed out in the s 42A report,[94] to use the current state would penalise farmers who had complied with Rule 11 and improved their N management practices. At the same time it would benefit those who had not, potentially being a windfall gain for those who have not complied with Rule 11 and have not acknowledged the N issues with the lake.

Finding

[442] For the above reasons and for the reasons set out in the Regional Council's reports, we find that to shift the start point would not be appropriate.

Further categories

[443] A small number of submissions sought further categories to be added to the methodology. This included dairy support and other unspecified categories.

[444] As was pointed out in the s 42A report, dairy support is included within the drystock sector category. We are satisfied that in the interests of simplicity, there is no need to increase the number of categories.

Overall conclusion

[445] Based on the above findings, we conclude that the so-called "hybrid" methodology based on the Rule 11 discharges as fixed for the years 2001-2004 is the most appropriate means of achieving the relevant objectives and policies in the RWLP and the higher level documents, in that they:

(a) reflect an integrated resource management approach;

(b) would assist to achieve the target TLI of 4.2 in Lake Rotorua;

(c) enable land use activities that are within the assimilative capacity of the lake;

[94] At [87].

(d) address the management of N in the Rotorua lake catchment;

(e) address the need for monitoring and review; and

(f) reflect the outcome of a community involvement process.

Proposed Use of OVERSEER® as a Regulatory Tool

Introduction

[446] This section of our report deals with the proposed regulatory controls on land use in PC10 which seek to limit long term N losses to the catchment. We cover the following matters:

(a) The proposed use of OVERSEER® as a regulatory tool, including discussions of how N has provisionally been allocated, the way reductions in the N load to the catchment are proposed to be managed, and the use of the proposed reference file system;

(b) The proposed use of Nutrient Management Plans (NMP's) based on OVERSEER® modelling as the primary means of regulating N losses from the pastoral sector, including the content of those plans and how they might be enforced;

(c) The detailed framework of the rules associated with the regulatory control of N losses from the pastoral sector, and our recommended additions and amendments to those rules.

[447] This discussion is set in the context of other recommendations we have made on PC10. In particular:

(a) We support the general direction of PC10, including its regulatory focus on managing long term N losses from the catchment;

(b) We have not accepted the alternative proposals put forward by groups such as Federated Farmers and the Lake Rotorua Primary Producers' Collective, as those proposals would not achieve the sustainable N load to the catchment of 405 t/N/y (excluding rainfall);

(c) We have accepted the recommendations from the Stakeholders Advisory Group (StAG) as to how the burden of meeting the N loss reductions from the dairying and drystock sectors will be assigned as part of the Integrated Framework adopted by the Regional Council;

(d) We do not consider that managing nutrient losses at the sub-catchment level is appropriate, as the science on which estimates of attenuation rates in different sub-catchments may apply is not sufficiently robust to do so;

(e) We are providing for up to 800ha of land in Māori tenure to be converted to low impact pastoral farming.

The Use and Updating of OVERSEER®

[448] OVERSEER® is a complex computer model that aggregates information from individual farm blocks, and how exactly they are farmed, to estimate N leaching losses from the root zone of plants (which is defined as 60cm below the ground surface). The model takes information from a number of input parameters, including soil type, rainfall, estimated drainage losses, land use, stocking rates and fertiliser use to estimate how much N is lost annually to groundwater from a particular block of land. This information on individual farm blocks is then aggregated to a farm level, and the estimated N leaching losses from each farm is assessed in terms of kilograms of N lost to groundwater per hectare per year (kg/ha/y).

[449] The OVERSEER® model is managed by the Ministry of Primary Industries (MPI), and is owned jointly by MPI, AgResearch and Fertiliser Association New Zealand. The model is updated from time to time, as better information becomes available. These are subject to strict quality controls. Mr MacCormick, a witness for the Regional Council, gave us examples of the types of update since OVERSEER® 5.4 in Table 1 of his primary evidence, and then he explained these in the following paragraphs 16 to 20.

[450] OVERSEER® is typically updated about twice a year. Updates within versions (e.g. 6.2.1 to 6.2.2) are generally to iron out bugs in the programme or to update information; more significant updates (e.g. 6.1.3 to 6.2.0) generally use new information to reset or recalibrate components of the programme. Indeed this particular update generally resulted in much higher N leaching rates being estimated by OVERSEER® largely because drainage estimates increased. It is fortunate that the Regional Council has developed a system, known as reference files, which takes the information based on previous versions of OVERSEER® (in the case of the Integrated Framework in PC10, Version 5.4) and updates this to the latest version of OVERSEER® by proportionate adjustments of estimated N leaching rates across all the larger farm properties in the catchment. We discuss this below. We know of councils who have not provided any system for so managing OVERSEER® updates equitably, and of farmers whose nominal N leaching rates increased by up to 30 per cent or more overnight when version 6.1.3 was updated to 6.2.1.

[451] There was some significant criticism of OVERSEER® in submissions, and in evidence presented during the hearing. This included:

(a) OVERSEER® was not designed as a regulatory tool and property N limits cannot be enforced, so OVERSEER® should be used only for guidance;

(b) Regular version changes make it unreliable and difficult to use as a regulatory tool;

(c) There is no OVERSEER® module for activities such as forestry, and these are given just a nominal leaching rate loss;

(d) OVERSEER® is not accurate for use in the catchment of Lake Rotorua;

(e) Access to the OVERSEER® programme is restricted to those registered to use it, and that once a version is updated, the previous versions are not available. We note that these are not matters that we have any control over, so this is not discussed further in this report.

[452] We discuss the first two of these matters later in this section of our report.

[453] OVERSEER® does have a module for N leaching losses from activities such as plantation forestry, or land covered by bush and scrub of which a loss rate of 2.5 and 33kg/N/ha/y is provided. However these do not adjust with version, so the reference file allows for adjustments. We understand this is typical of what leaching losses are assigned to these activities elsewhere in the country, but there are only limited scientific investigations that support this. Standalone plantation forests are not required to reduce their N leaching losses, but it was confirmed to us by the Regional Council that they can apply nitrogenous fertiliser occasionally to promote forest growth without the need for resource consent. The use of OVERSEER® itself was criticised, such as by Ms Robson for CNI Iwi Holdings Ltd. However such critics did not seem to appreciate the complexity of the inputs to the programme, and the broad extent of the science that underpins it. Actual N leaching losses can only be determined by expensive lysimeter studies, which have taken place in many parts of the country on many soil types. It was encouraging to hear that lysimeter trials are now taking place on two properties in the Lake Rotorua catchment, and that these trials are on each of the two main soil types in the catchment. Accordingly, we can expect more accurate estimates of N losses from soils in the catchment sometime in the future.

The Allocation of Nitrogen Load and Management of Reductions

[454] The Regional Council provisionally allocated N to all rural land in the catchment based on benchmarked 6.2.0 discharges (including the standard N leaching loss rate from plantation forestry and bush/scrub as set out in table LR 3 of PC10) and the 2001-2004 land use. During benchmarking each block was identified as being in one of 18 land categories and these were then aggregated into six categories for PC10: drystock, dairying, bush and scrub, plantation forestry, grazed trees and house.[95]

[455] In PC10 all rural land in the catchment was then assigned an OVERSEER® 6.2.0 N discharge as follows:

(a) Benchmarked land where the OVERSEER® file is held was assigned its actual 6.2.0 discharge.

(b) Benchmarked land where the file is not held was assigned an estimated 6.2.0 discharge by multiplying the 5.4.11 discharge by the average OVERSEER® shift for that land use.

(c) Non benchmarked land was proposed to receive the average discharge for the land use sector.[96] Schedule 1 of proposed PC10 gives the opportunity for these derived benchmarks to be altered where there is evidence of substantial change since the 2001-2004 period.

[456] As we have explained in the Introduction to this report, the StAG process resulted in an agreement to share the burden of reducing N losses in the catchment by 140 t/N/y between the dairying and drystock sectors as follows:

(a) Dairying – a reduction of 96.4t/N/y, which represents a 35.5 per cent reduction overall by 2032.

(b) Drystock – a reduction of 43.6t/N/y, which is a 17.2 per cent reduction by 2032.

[457] This agreement was adopted by the Regional Council and forms part of the Integrated Framework in the introductory section of PC10.

[95] Table 2 of the primary evidence of Mr A MacCormick.

[96] Note that we have changed this to the bottom of the sector range to allow for some development of Maori land presently in forest to drystock farming.

[458] The catchment load reductions by sector were then calculated using OVERSEER® 6.2.0, as we set out hereunder as Figure 4 shown by Table 5 from Mr MacCormick's primary evidence.

Sector	OVERSEER® 6.2.0 load (tN/yr)	Reduction (%)	Reduction (tN/yr)	2032 Sustainable load (6.2.0 tN/yr)
Dairy	501	35.3%	177	324
Drystock	505	17.2%	87	418

Figure 4 – Calculation of the dairy and drystock sector reductions and sustainable loads.

[459] The StAG then further discussed how these actual reductions would be managed through the allocation of what have been called provisional Nitrogen Discharge Allocations (NDA's). This resulted in ranges of NDA's being assigned to each of the dairying and drystock sectors under OVERSEER® 6.2.0. In simple terms, the range of NDA's assigned to each of the dairying and drystock sectors were from 54.6 to 72.8kg/N/ha/y and 18 to 54.6kg/N/ha/y respectively. Then in proposed PC10 once the existing 6.2.0 discharge is reduced by the standard sector percentage:

(a) if the result was more than the upper limit, then the block allocation was reduced to that limit;

(b) if the result was within the sector range, the block allocation was the sector range; and

(c) if the result was below the sector range; then the block allocation is the lower limit of the range.

[460] Figures 3 and 4 in Mr MacCormick's primary evidence show how this will affect existing dairy and drystock farmers on a farm block by block basis. Most dairy farming blocks are well above the upper sector NDA of 72.8kg/N/ha/y, and the farms will need to reduce N leaching losses substantially. Most drystock farm blocks lie within the sector range, but significant overall reductions are still required. A small number of drystock farms sit below the sector range, allowing them to increase to the bottom of the sector range.

[461] This allocation methodology was preferred by most StAG members, although no vote was taken on it. We see no reason to change it. At the hearing farmers who made submissions, including Federated Farmers and the Lake Rotorua Primary Producers' Collective were critical of the StAG process in so far that it only decided "how the cake would be divided", rather than the size of the cake itself. However as

we have agreed with the Regional Council position that, consistent with Policy WQ L3B of the RPS and the Oturoa agreement, the catchment N load needs to be reduced to 435t/N/y by 2032, the "size of the cake" remains as it was when StAG discussed how it might be allocated.

The Proposed Reference File System

[462] The Regional Council proposed to manage updates in OVERSEER® from 6.2.0, which as described above was used to calculate the provisional NDA's, by use of what it called a reference file system. This is described in Schedule LR Five of proposed PC10. There is one reference file for each of the five main land uses in the catchment (dairy, drystock, forestry, bush and scrub and grazed trees).

[463] We do not consider it necessary to detail how the reference file system works in this report. In simple terms it seeks to maintain the integrity of the NDA's, and the changes to them, through progressive updates of OVERSEER®. To put this another way, what the reference file system seeks to do is maintain the relative leaching losses provided for in the NDA's both within and between the dairy and drystock sectors. These updates to the reference file system will slightly change the total N load projected to be removed from the catchment by 2032 – this was 405t/N/y in OVERSEER® 6.2.0 but is 411t/N/y using OVERSEER® 6.2.3 (remembering that in both cases 30t/N/y will reach the lake in rainfall).

[464] Mr Park, a consultant who was an expert witness for the Regional Council, outlined alternatives to the reference file system in Table 2 of his evidence in chief. While none of us have on ground experience in OVERSEER® modelling, we are familiar with the model and the alternative approaches discussed by Mr Park. We agree with him that these alternatives are not appropriate in the Lake Rotorua catchment.

[465] On behalf of Dairy NZ/Fonterra Mr Allen put forward another alternative approach. In essence he advocated that instead of reference files that generically cover the different land uses that may occur on any property in the catchment, it would "not be difficult with the right systems" to run an OVERSEER® version control method where the data entered into the version used to create the original NDA for each farm is automatically re-run for each subsequent version so as to recalibrate the N loss farm by farm. He also suggested that if the reference file system is carried forward into the RWLP, it would be sensible to allow for the alternative as outlined above. His opinion

was that all dairy farms in the catchment could "easily be managed through the farm specific recalibration".[97]

[466] We consider that the reference file system is a reasoned and quite elegant way of dealing with the changes to estimated farm N leaching losses through periodic OVERSEER® updates. We do not agree with Mr Allen that individual farms should be able to update their OVERSEER® outputs independent of the reference file system as this would undermine the integrity of the reference file system as well as increasing the complexity of PC10; with many submitters already concerned that PC10 is too complex.

[467] The Regional Council has been through a comprehensive iterative process as the reference files have been updated with progressive changes in OVERSEER® from 6.2.0 to 6.2.3. Some of this has been confounded by "bugs' in the updated versions of OVERSEER®. This iterative process has highlighted several issues with the reference file system, which the Regional Council has modified to limit the impacts of these version changes on the integrity of the reference file system. In particular, several submissions raised concerns that the drystock and dairy reference files were based on "hypothetical 2032 future" farm systems and are not representative of current practises (e.g. the reference files exclude cropping), and so the files were updated to reflect this.

[468] This was summarised in Paragraph 15(b) of Mr Park's evidence as follows:

> (a) The reference file method in LR Schedule Five is intended to address the ongoing biannual version updating of OVERSEER®, which can result in changes to OVERSEER® outputs, generally reflecting improved science. Since notification, some issues with the dairy file method were identified by Regional Council staff, discussed with several submitters, and a revised and improved reference file method developed by Mr MacCormick and Mr Matheson. In my opinion the revised reference file method is an improvement on the notified version, and I therefore recommend it be adopted in place of the notified version.

[469] There was some other criticism of the proposed reference file system by submitters, but much of this was based largely on strong antipathy to the use of NDA's and OVERSEER® as a regulatory tool, and of the proposed NMPs. We now discuss these.

[97] Primary Evidence of Mr Richard Allen at [5.6 and 5.13].

Nutrient Management Plans

[470] The Regional Council proposed to use NMPs, which are provided for in Schedule LR Six of PC10, as the practical means of compliance with the NDA for a property. NMP's have to be prepared when seeking resource consents for ongoing farming activities on larger properties in the Lake Rotorua catchment under Rules LR R8, LR R9, and LR R11. These NMP's need to updated at least every five years to reflect the target dates in PC10 for meeting particular outcomes for catchment N losses, which are 2022, 2027 and 2032. Updated NMP's also need to be prepared for both the properties involved in any N transfer under Rule LR R10.

[471] In simple terms Schedule LR Six provides for the use of a programme such as (but not necessarily) OVERSEER® to detail how the property will be managed to comply with the NDA. In PC10 as notified these had been termed Nitrogen Management Plans, but in response to submissions Regional Council staff recommended they include identifying potential sources of P run-off from a property, and then outline how they could be mitigated. We support this proposed change, particularly as management of P by alum dosing has been shown to have strong benefits in reducing the TLI of Lake Rotorua to the range of 4.2 – 4.4.

[472] The proposed NMP's were the subject of considerable angst from pastoral submitters and in their evidence at the hearing. NMP's were seen as very prescriptive, over regulatory, onerous and expensive to prepare (as a consultant would need to be employed to do so) and generally seen as intrusive. Many submitters sought that the NDA be the point of compliance.

[473] While we understand many of those concerns, we accept the Regional Council's position that it is not in the business of telling famers how they should farm. As Mr Lamb said in his primary evidence "a key aspect of the NMP approach is that they allow individual farmers to best respond to meeting the NDA requirements by making their own decisions in collaboration with advisers and the Regional Council".[98]

[474] We also understand the Regional Council's position that it cannot enforce the NDA if it does not have a detailed outline of how that NDA will be complied with. The NMP's are a practical, but rather onerous way of doing this. We questioned some of the prescription in them, but we were satisfied with the Council's response as to

[98] Primary evidence of Mr Stephen Lamb at [105].

why details of effluent management, water and irrigation management and gorse control should be included in NMP's.[99]

[475] We were also conscious that the Regional Council does not have at its disposal a wide range of regulatory options to enforce the NMP's, and that indeed enforcement will not be straightforward. Provisions such as abatement notices can put a consent holder "on notice" that they need to improve their performance. Prosecution is the strongest regulatory tool available to the Regional Council, but it is lengthy and costly to undertake and requires a high burden of proof.

[476] In relation to enforcement we do not much agree with Mr Allen, a witness for Dairy NZ/Fonterra, who compared enforcement of non-compliance with a NMP to that of non-compliance with a take of water as measured by a water meter, which he said could be readily enforced. We agree that the measured exceedance of a consented take can be enforced, but it is single dimensional compared with the multitude of parameters that go into preparing and monitoring the implementation of an NMP on a property. Regardless, the Regional Council were confident that an NMP can be used for enforcement purposes, and in the end that will be their responsibility.

[477] Mr Allen also advocated that compliance be assessed on the basis of a three year rolling average. This was because he said this was good practice in response to factors such as climatic variations from year to year, and he noted that in the introduction to Schedule LR Five in PC10 the Regional Council said that "OVERSEER® files submitted as part of a consent or permitted activity conditions will be monitored on a three year rolling basis but also may be assessed on an annual basis."

[478] We understand the Regional Council's position on the sole use of three year rolling averages – namely that they could not enforce significant non- compliance with a NMP until three years had passed. In practice however, we think it unlikely that most NMP's will be monitored annually as this would be a very laborious process, and that three year monitoring will be appropriate. The use of a three year rolling average for enforcement should not however be mandatory, as the Regional Council needs to be able to take action to enforce any significant breaches of the requirements of the NMP (and with it the NDA) at any time.

[99] Regional Council response to Commissioner's Questions dated 28 April 2017.

Findings

[479] Our findings from this discussion are:

(a) We consider OVERSEER® to be the most appropriate regulatory tool to set NDA's, and the associated use of NMP's as an enforcement tool , to help achieve the sustainable catchment load of N by 2032;

(b) We support the proposed reference file system, which we think is a reasoned approach to updating to more recent versions of OVERSEER® while retaining the integrity of the pastoral sector reductions necessary to achieve the sustainable N load in the catchment;

(c) We agree that NMPs are an appropriate means of seek to enforce compliance with a property's NDA. We note however that the Regional Council's enforcement options are limited, and partly for that reason we do not support the mandatory use of three year rolling averages as the sole basis for enforcement.

Nitrogen transfers

[480] It is proposed that nitrogen transfers would be achieved through a transfer regime as set up under the proposed rules. This reflects the outcome of the StAG process, whereby properties/farming enterprises can avail themselves of the regime to help reduce the financial impact of the rules on the pastoral sector. It also forms a basis of the Incentives Scheme developed together with the Crown, whereby N NDAs can be purchased and taken out of use.

[481] The Incentives Scheme, which is the responsibility of the Regional Council, is required under the Integrated Framework to remove 100t/N/y from the catchment by 2022, to assist in meeting the required reduction in catchment load set by the RPS. To enable this to be more likely achieved, general transfer outside the incentive scheme prior to 2022 is proposed not to be allowed. General transfer after 2022 is proposed to be authorised by a controlled activity consent.

[482] A number of submissions sought transfers to be allowed prior to 2022, and alleged that the proposed rules would establish a monopoly market for N transfer. We agree with the alternative viewpoint of the Regional Council, as expressed in the s 42A report,[100] that the community would be taking a sizable risk in meeting the proposed reduction of 100t/N/y by 2022, which risk would be exacerbated if general transfers were allowed before that time. We note that the Incentives Scheme is contributing significant funding to purchase N, which reduces the pastoral requirements under the rules.

[483] A number of submitters also requested transfers from 2022 to be as for a permitted activity rather than a controlled activity, as proposed under Rule LR R10. In response, the Regional Council in the s 42A report[101] pointed out that, in order to ensure the required pastoral reduction of 140t/N/y and the sector proportions, the Council needs to be able to exercise an appropriate control over any transfers. We agree. It would also enable the Regional Council to exercise the necessary control over the recalculated NDAs and NMPs on properties on both sides of the transfer.

[484] We received some submissions that sought the ability of all sectors to be able to transfer, including the forestry and urban sectors. As was pointed out in the s 42A report,[102] the forestry sector is able to transfer if it is a farming enterprise within the

[100] At [119].
[101] At [120].
[102] At [121].

catchment groundwater area. To extend the transfer to other farming enterprises or outside the catchment area would be beyond the scope of PC10.

Findings

[485] For the above reasons, and for the reasons set out in the Regional Council's reports, we find that transfers should be limited to between farming enterprises and only after 2022, and as a controlled activity.

[486] Transfers prior to 2022 should be limited to the Incentives Scheme.

Rotorua Wastewater Treatment Plant and Population Growth

Submission points

[487] Section 5.3.12 of the s 42A report addresses the submission points by Rotorua Lakes Council which seek that PC10 provides for future growth within the District and acknowledge the impacts that development has on the N load discharged from the Wastewater Treatment Plant (WWTP). Rotorua Lakes Council was particularly concerned that PC10 would result in the WWTP being restricted to 30 t/N/y, and the impact that this would have on the upcoming 're-consenting' of the WWTP and the potential to accommodate additional growth. Rotorua Lakes Council advised that it is likely that they will seek to reticulate some catchments outside of the Lake Rotorua catchment to the WWTP in the future.[103]

[488] The Regional Council addressed these submission points in section 5.3.12 of the s 42A report. In paragraph 158, the Regional Council acknowledged that PC10 may result in potential greater demand for rural subdivision within the catchment, and that this would have a flow on effect to the WWTP should such lots be reticulated. In response, the Regional Council's reporting officer in paragraph 183 recommended two new policies be included to:

(a) Acknowledge that the 435t/N/y sustainable load for Lake Rotorua provides for N losses from all sectors located within the Lake Rotorua groundwater catchment; and

(b) Acknowledge the increased demand on infrastructure located within the Lake Rotorua Groundwater Catchment resulting from land use change.

[489] The s 42A report recommended a new clause (c) to Method LR M1, requiring that the Regional Council supplies information to the Rotorua Lakes Council on minimum N losses required to be allocated to new lots, and a new bullet under Clause E to Schedule LR 1, also in relation to reallocation of N from parent to new lots on subdivision.

[490] At the hearing, appearances by Mr Muldowney (Counsel), Mr Grant Eccles (Consultant Planner) and Mr Simon Banks (Consultant Planner) for Rotorua Lakes Council, reinforced their submission points, and sought further amendments to provide greater recognition of the benefits of wastewater reticulation and treatment to all the Rotorua Lakes and to the health and wellbeing of the community.

[103] The Lake Tarawera catchment was cited as an example.

[491] Along with a new policy, Mr Eccles also sought a specific method to give effect to the proposed two new policies, and an amendment to Schedule LR 1 to provide greater detail on reallocation from a parent lot to new lots. Mr Eccles also sought a new rule be introduced to provide for increased discharges of N and P from the WWTP. He also drew our attention to policies within the RPS that are not included in the information box that outlines some relevant objectives and policies covered by PC10.

[492] The Rotorua Lakes Council evidence also included details of some discussions that had occurred between the two councils on how nutrients will be accounted for in the PC10 N accounting system as rural land within the catchment changes to urban use. Unfortunately, this had not been fully agreed by the time the hearing commenced. Accordingly, and in response to the outstanding matters between the two Councils, we requested the two Councils to further conference between each other. The results of that conferencing were presented to us on 3 April 2017.

[493] The caucusing statement set out the areas of agreement and disagreement. The agreed points were:

(a) A new clause (g) to Method LR M5:

> (g) Implement the accounting methodology agreed by the Rotorua Te Arawa Lakes Programme for the shift in N losses between rural and urban land uses (including for the purposes of recognising changes to waste water discharge loads). The accounting methodology recognises that:
>
> (i) 2001-04 is the baseline for accounting purposes;
>
> (ii) Reticulation should not result in a net increase in N discharge to Lake Rotorua;
>
> (iii) Land use change (subdivision) requires a N allocation; and
>
> (iv) Offsets within the groundwater catchment may provide opportunities for reticulation of out-of-catchment communities, or urban infrastructure development.

(b) Two new policies:

> (i) LR P18 "Acknowledge the 435tN/y sustainable load for Lake Rotorua provides for nitrogen losses from all sectors located within the Lake

Rotorua groundwater catchment including urban and waste water discharges";

(ii) LR P19 "Acknowledge the increased demand on infrastructure located within the Lake Rotorua Groundwater Catchment resulting from land use change resulting from urban growth (and the consequential shift of losses between sectors) and reticulation of communities outside the Lake Rotorua Groundwater Catchment."

(c) An additional bullet point to point E of Schedule LR 1:

(i) The complete or partial sell down of the Nitrogen Discharge Allocation for a property may result in that property losing the ability to be subdivided in the future, unless the nitrogen deficit is addressed.

[494] The points of disagreement, and the reasoning for disagreement, were:

(a) Messrs Eccles and Banks sought a specific reference to the title of the document containing the accounting methodology in recommended clause (g) Mr Lamb did not think this necessary as both Councils would be aware of where the methodology is recorded, and also that the mechanism as a MOU had not yet been adopted by the Rotorua Te Arawa Lakes Strategy Group and the document's title and date are also not yet available.

(b) Messrs Eccles and Banks sought a third new policy, as follows:

(i) LR P20 "Acknowledge the benefits of municipal wastewater reticulation and treatment to the overall water quality of the Rotorua lakes, and to the health and wellbeing of the community."

[495] Mr Lamb's view was that this steps away from the purpose of PC 10. He also referred to paragraph 183 of the s 42A report, which sets out the Regional Council's position that a policy directly relating to the capacity and operation of the WWTP is not considered appropriate and sits outside the scope of PC10.

[496] Messrs Eccles and Banks continued to seek a new restricted discretionary activity rule to provide for increased point source discharges from the WWTP This was primarily because of the proposed deletion of the Lake Rotorua catchment from Rule 11F, meaning any future applications would be considered under the catch-all discretionary activity Rule 37 in the RWLP.

[497] Mr Lamb believed it appropriate to retain the deletion of Rotorua from Rule 11F, as consenting relating to the WWTP would in any event be considered a discretionary activity under the "bundling" of consents principle. The proposed wording would also reduce Rule 11F's general application to only the Rotorua WWTP

[498] In respect of point (a), we asked Ms Wooler on the vires of clause (g) referring to a document that had not gone through appropriate process for incorporation by reference into a regional plan. Ms Wooler submitted that the caucused wording was ultra vires. We were subsequently advised that the Councils had discussed the wording further, and agreed on the following amended wording for the clause:

> implement an the accounting methodology agreed by the Rotorua Te Arawa Lakes Programme for the shift in nitrogen losses between rural and urban land uses (including for the purposes of recognising changes to waste water discharge loads). The accounting methodology should will recognises that:
>
> - 2001-04 is the baseline for accounting purposes;
> - Reticulation should not result in a net increase in nitrogen discharge to Lake Rotorua;
> - Land use change (subdivision) requires a nitrogen allocation ;
> - Offsets within the groundwater catchment may provide opportunities for the reticulation of out-of-catchment communities, or urban infrastructure development.

[499] In respect of points (b) and (c), Ms Wooler submitted[104] that she did not see scope for inclusion of the policy or the rule.

[500] In respect of point (c), during questioning at the hearing, it became apparent that the proposed new rule, and the new policy, sought by the Rotorua Lakes Council was in response to the proposed deletion of Rule 11F from the RWLP. In response to Panel questions, the reporting officers for the Regional Council subsequently changed its position of the conferencing statement points of disagreement and recommended the reinstatement of Rule 11F[105], along with Rule 11[106].

[104] See paragraph 97.
[105] See Appendix 8 to the memorandum of Regional Council dated 13 April 2017.
[106] See document titled "consequential changes resulting from Proposed Plan Change 10 (Lake Rotorua Nutrient Management) to the Operative Bay of Plenty Regional Water and Land Plan dated 1 May 2017.

[501] During the Regional Council's closing, we were also presented with an amended to recommended policy LR P19, as follows:

> *Acknowledge the increased demand on infrastructure located within the Lake Rotorua Groundwater Catchment resulting from land use change resulting from urban growth (and the consequential shift of losses between sectors) and reticulation of communities.*

[502] Ms Wooler said[107] that the Regional Council had made this amendment as it considers reference to communities outside the Lake Rotorua Groundwater Catchment are beyond the scope of PC10, as PC10 is spatially limited to the area within the catchment. We note that the Regional Council had not discussed this with the Rotorua Lakes Council prior to presenting closing submissions.

[503] In respect of the recommended LR P18, Ms Wooler submitted that the policy was "borderline within the scope of the plan change" given that PC10 only actively manages some of the reductions required to reach the RPS limit. However, she considered that it does relate to the RPS limit and provides some context.

[504] We also heard from Ngāti Uenukukopako Iwi Trust, who were a further submitter on Rotorua Lake Council's submission seeking recognition of and specific provisions on the wastewater treatment plant in PC10. Messrs Olsen and Pirika for the Ngāti Uenukukopako Iwi Trust advised us of their position that PC10 specifically relates to the reduction of nutrients from rural properties and that as such, PC10 is not the appropriate forum to address increasing urban loading into the Lake. Their position was that what the Rotorua Lakes Council was seeking was a backdoor mechanism to secure change through PC10 to influence the forthcoming resource consent process for the WWTP.

Evaluation

[505] As outlined earlier, it became apparent through the hearing that the Rotorua Lakes Council's concerns regarding the WWTP were largely driven by:

(a) The consequential amendments to Rules 11 – 11F, and in particular the deletion of Rule 11F which provided specific considerations for point source discharges of N and P; and

(b) The inclusion of the Integrated Framework within the introduction to the plan change policies, methods and rules.

[107] See [93 to 95] of Counsel's closing statement.

[506] We address the status of the Integrated Framework earlier in this report. In summary, the Integrated Framework is a non-statutory method to achieve the objectives and policies of the RPS focussed on reducing N into Lake Rotorua. Its placement within PC10 as we understand is to provide a link of how the RPS policies as a whole are being given effect to, with PC10 being one of the components of the Integrated Framework.

[507] In our opinion, the scope of PC10 is clear, it is on managing N losses from rural land use activities. It is clear from its purpose that it was not intended to cover urban discharges, but unfortunately, through the proposed deletion of Rules 11 and 11F, it inadvertently did so.

[508] We agree with Ms Wooler that discharges from the WWTP are beyond the scope and purpose of PC10. We also consider that the reinstatement of Rule 11F satisfies the concerns of the Rotorua Lakes Council by retaining the consenting avenue for the WWTP (while noting that any future consent application is likely to be bundled into Rule 37). The benefits associated with the WWTP are otherwise dealt with through other objectives and policies in the RPS and the RWLP and we see no reason to duplicate those within a plan change that is focussed on the rural part of the catchment and which will integrate into the wider RWLP.

[509] Like Ms Wooler, we concur that the new policy recommended by the planners for the two Councils are borderline within the scope of PC10. We believe that this policy is more an explanation to the Integrated Framework, and the implementation of RPS Policy WL 6B. Its inclusion serves no specific purpose on a plan change that is focused on reducing discharges from one part of the wider catchment. However, we appreciate that it does provide some context that is otherwise missing.

[510] We consider that inclusion of LR P19 is appropriate, as land use change from urban growth and reticulation will place increased demand on infrastructure, and PC10 will likely result in land use change. However, given the scope of the plan change is limited to the Rotorua Groundwater Catchment, we concur with the Regional Council that inclusion of the words "outside the Lake Rotorua Groundwater Catchment" is not appropriate. Should the Rotorua Lakes Council wish to reticulate communities outside of the catchment and rely on the WWTP, then this is best addressed through objectives, policies and rules otherwise contained in the RPS and the RWLP.

[511] We also consider that the changes to Clause E of Schedule LR 1 recommended and agreed by the two Councils are for the most part appropriate as PC10 will have potentially have an impact on the ability to subdivide, particularly in situations where

the property's N discharge allocation has been partly or completely transferred. We address the amendments further in the next section of our report.

[512] We consider that the amendment to Method LR M1 is appropriate to include information about the N discharge allocation for subdivided lots within the rural part of the catchment. This amendment would assist to address the issue of how the nutrient discharge allowance is managed and advised to new landowners through subdivision, a Rotorua Lakes Council function. In this regard, we consider that developing and implementing an agreed methodology to record N losses between rural and urban land use resulting from subdivision and growth. We also note that as the urban area does grow, that as some point the Regional Council will need to revisit the boundaries between rural and urban within the catchment.

Findings

[513] We find on the evidence, that the agreed position between the two Councils is the most appropriate way of ensuring the potential impacts resulting from a change of land use from rural to urban are addressed and managed. This is with the exception of the initially agreed wording "outside the Lake Rotorua Groundwater Catchment" as an addition to policy LR P19, which we do not consider should be included for the same reasons as Ms Wooler said in her closing submissions.

[514] We consider that the withdrawal of amendments to Rules 11 and 11F sufficiently address the concerns of the Rotorua Lakes Council so that the requested new policy LR P20 and rule are unnecessary.

[515] We also consider it inappropriate, and ultra vires, to insert a reference to a document into Method LR M1(g) that is not yet in existence and has not been therefore incorporated by reference.

[516] In summary, we recommend that:

(a) New policies LR P18 and LR P19 be inserted as set out below:

(i) LR P18 Acknowledge the 435tN/y sustainable load for Lake Rotorua provides for nitrogen losses from all sectors located within the Lake Rotorua groundwater catchment including urban and waste water discharges.

(ii) LR P19 Acknowledge the increased demand on infrastructure located within the Lake Rotorua Groundwater Catchment resulting from land

use change resulting from urban growth (and the consequential shift of losses between sectors) and reticulation of communities.

(b) Clause E of Schedule LR One be amended, as set out below:

(i) The complete or partial sell down of the Nitrogen Discharge Allocation for a property may result in that property losing the ability to be subdivided in the future, unless the nitrogen deficit is addressed.

(c) Method LR M1 be amended, as set out below:

(i) identifies the minimum nitrogen losses required to be allocated to each new lot with this providing for:

- Residual loss from land
- Losses from sewage disposal (either reticulated or onsite)
- Losses from general residential use.

(ii) Implement an accounting methodology for the shift in nitrogen losses between rural and urban land uses (including for the purposes of recognising changes to waste water discharge loads). The accounting methodology recognises that:

- *2001-04 is the baseline for accounting purposes*
- *Reticulation should not result in a net increase in nitrogen discharge to Lake Rotorua*
- *Land use change (subdivision) requires a nitrogen allocation*
- *Offsets within the groundwater catchment may provide opportunities for reticulation of out-of-catchment communities, or urban infrastructure development.*

Part V – Evaluation of PC10 proposed provisions and submissions

Introduction

[517] It is against the physical and legal context and the factual findings as set out earlier in this Report that we evaluate the recommended provisions of PC10 as set out in Appendix **2.** We must also assess those provisions against the submissions, the evidence, the representations and the reports that we have received.

[518] The proposed plan change contained a package of provisions to address pastoral land uses and, in particular, the issue of N loss from those land uses to Lake Rotorua. PC10 primarily focusses on reducing N loss by way of imposing land use controls to constrain the loss of N through the root zone.

[519] As we have said, the proposed provisions as set out in Appendix **2** were arrived at after an extensive collaborative process which culminated in a notified version of PC10 which has since been amended as part of the hearing process.

[520] It is important for us to remember that this package must be considered as an integrated and holistic package. However, for the purpose of evaluating the provisions it is practicable to consider them grouped under the following topics:

(a) the introduction section to the plan;

(b) the policies underlying the rule framework;

(c) the methods;

(d) the rule framework; and

(e) the schedules.

[521] We discuss each of these topics in turn. Where we agree with the Regional Council's officers recommendations, we do so based on the evidence and for the reasons set out in their reports and memoranda. Where we disagree, we set out our recommended amendments and the reason why we consider them to be the more appropriate. We attach as Appendix 3 our versions of PC 10 with our recommended amendments highlighted. We also attach as Appendix 5 "Panel Recommendations on Provisions with Submissions and Further Submissions, Parts 1, 2 and 3".

Introduction to the plan change

[522] A number of submitters made submissions on the wording of the introduction to PC10. Many of them have been addressed by the Regional Council. For the reasons set out in the s 32 and s 42A reports, we concur with those amendments.

[523] We particularly note the amendments sought by Federated Farmers, Lake Rotorua Primary Producers' Collective, and Mr Lachlan McKenzie. We have discussed these previously, and concluded that these alternative proposals will not meet the 435t/N/y catchment load by 2032. In response to their submissions and evidence, we have made a number of minor amendments which we consider add to the certainty and clarity of PC10. These are set out in our recommended version of PC10 contained in Appendix 3 and highlighted accordingly.

[524] We do not accept the additional amendments proposed by the Regional Council in Version 7 of PC10 that references the NPS-FM. In our view, the attribute states should not be set out in the introduction to the plan as it should await the process of full implementation as is required by the NPS-FM.

The policy framework

Introduction

[525] Earlier in this report, we found that a regulated rule framework to implement a N allocation regime would be the most appropriate way of achieving the necessary N reductions from the pastoral sector. The policy framework and its supporting methods set out the framework of how the N allocation regime would be implemented. As set out earlier, Version 7 of PC10 proposes 17 new policies; two of which are general or overarching policies and 15 grouped into headings. In this part of our report, we have grouped the policies accordingly, as follows:

(a)	General / overarching	LR P1 and LR P2;
(b)	Adaptive management	LR P3 – LR P7;
(c)	Managed reduction	LR P8;
(d)	Use of rules	LR P9 – LR P11;
(e)	Use of OVERSEER®	LR P12 – LR P13;
(f)	Assessment of applications	LR P14 – LR P 15;
(g)	Implementation matters	LR P16 – LR P17.

[526] We note with the implementation matters grouping which relate to the WWTP that we have already addressed these in the report under the section "Rotorua Wastewater Treatment Plant and Population Growth" and do not intend to address them again.

[527] We also note that many of the submission points received were general ones, seeking that the whole PC10 not proceed, that the sustainable N load limit and timeframe in the RPS be amended, that the science be reviewed before PC10 proceed, and that a different sub-catchment based approach or a different allocation approach altogether be taken. Many of these points were repeated through the summary of submissions, and then in the staff recommendations on those submissions and further submissions. We have addressed these higher level matters earlier in this report, and for the sake of brevity, we do not repeat them here. Rather, our focus is on recommended amendments to the scope and wording of the policies, and what is the most appropriate, efficient and effective means to achieving the objectives contained in the RPS and RWLP under which PC10 sits.

Consistent nomenclature

[528] We note that the annual N load limit of 435t/y is variously described in the policies. It is our view, that for consistency, the same nomenclature should be used, and we accordingly amend policies, LR P1, LR P5, LR P16, and LR P17 to refer to the" 435 tonne sustainable annual nitrogen load" as set out in Policy LR P3(a).

Submission points

[529] There were a number of overarching submission points on the overall policy structure and content, which the Regional Council has summarised and addresses in the section titled "Policies". In summary, those submissions sought:

(a) Discharges from the Wastewater Treatment Plant be provided for in the policy framework (Rotorua Lakes Council);

(b) Support to RPS and RWLP objectives and policies;

(c) Support to the enabling nature of some of the provisions (Ravensdown);

(d) A new policy regarding benchmarking (Ravensdown);

(e) Amending the narrative after the objectives and deletion of RPS objectives (Mr McKenzie);

(f) A new policy requiring rules to be consistent with Treasury Principles for Best Practice Regulation (Mr McKenzie);

(g) The insertion of new objectives (Lake Rotorua Primary Producers' Collective);

(h) Taking an input-based approach does not enable innovation and flexibility (The Fertiliser Association of NZ);

(i) Consistency of terminology (The Fertiliser Association of NZ);

(j) Avoiding writing policies as rules (The Fertiliser Association of NZ);

(k) Including other RPS and RWLP policies and objectives, and adding in new objectives and policies (Federated Farmers of NZ);

(l) Policies must not be more prescriptive than the TLI target of 4.2 (Mr James and Mrs Chris Paterson).

[530] We have addressed some of the matters raised through these submission points elsewhere within this report. We do not repeat them here.

Evaluation

[531] Overall, we agree with the recommendations of the Regional Council's officers in the s 42A report and subsequent supplementary reports, and the reasoning presented, but provide the following additional comments.

[532] We addressed earlier submission points which sought the inclusion of objectives into PC10. We reiterate our earlier finding that PC10 needs to be read in the context of the RWLP as a whole, and cannot be seen in isolation to that. We questioned Ms Edwards and Ms McGruddy of Federated Farmers on this matter during the hearing. Both accepted that there was no need to repeat provisions that already existed within the planning framework and we note that their updated version of PC10 provided to us by way of memorandum dated 26 April 2017 no longer included these earlier requested amendments. We find there is no need to repeat or include objectives and policies that are already contained within the RPS and RWLP.

Findings

[533] We agree with the Regional Council's officers' recommendation in respect of Ravensdown submission; however, we note that Ravensdown sought a new policy, rather than an objective.

[534] We find overall that the amendments made to the policies in response to The Fertiliser Association of New Zealand in are the most appropriate insofar as they now provide direction, rather than being at a rule level.

Overarching Policy LR P1

Submission points

[535] Many of the submission points against these policies questioned and sought amendment to the catchment load limits set in the higher level planning documents. Many also sought that a science review be undertaken and the limits adjusted. Some sought that the timeframe be amended. We have addressed the matters raised in these points earlier in the report.

[536] There were some submissions which sought specific wording amendments on the policy, and in particular how PC10 intends to uphold the RPS target.

[537] By the conclusion of the hearing, the Regional Council's officers had recommended the following amended wording, which responded to submission points from The Fertiliser Association of New Zealand and Ravensdown:

(a) ~~To r~~Reduce ~~the~~ nitrogen losses from farming activity ~~land~~ to Lake Rotorua to achieve the 2032 sustainable lake load as required by the Regional Policy Statement ~~and to monitor this target through science and policy reviews~~ while providing for an adaptive management approach.

(b) We note that Ravensdown in the final memorandum from Mr Chris Hansen dated 4 April 2017 requested that the Panel accept the Regional Council recommendation in respect to its submission point;

(c) Mr McKenzie, the Lake Rotorua Primary Producers' Collective and Federated Farmers of NZ all sought that the policy be amended as follows:

(i) To reduce nitrogen losses to Lake Rotorua to support achievement of the Lake TLI objective, and to monitor this target through science and policy reviews.

[538] All these submitters retained this position through the hearing.

Evaluation

[539] Overall, we agree with the recommendations of the Regional Council's officers, and the reasoning presented, with the exception of the recommended amendments to the wording of Policy LR P1.

[540] It was made clear through the course of the hearing that in itself, PC10 will not achieve the 2032 sustainable lake load required by the RPS. We have addressed this matter earlier in the report. Indeed, the Integrated Framework sets out how the lake load is proposed to be achieved by the pastoral sector and the community. As such, we agree with Mr McKenzie, the Lake Rotorua Primary Producers' Collective and Federated Farmers of NZ that PC10 can only assist to achieve, or support the achievement of the lake load.

Findings

[541] We find that the submissions from Mr McKenzie, the Lake Rotorua Primary Producers' Collective and Federated Farmers of NZ be accepted in part, and that LP P1 be amended as recommended by the Regional Council's officers as follows:

(a) ~~To r~~Reduce ~~the~~ nitrogen losses from farming activity ~~land~~ to Lake Rotorua to assist to achieve the ~~2032 sustainable lake load~~ 435 tonne sustainable annual nitrogen load for Lake Rotorua as required by the Regional Policy Statement ~~and to monitor this target through science and policy reviews~~ while providing for an adaptive management approach.

Overarching Policy LR P2

Submissions

[542] This policy addresses the management of phosphorus in the catchment through PC10 and the nomenclature of "Nitrogen Management Plan". We addressed the former matter in detail earlier in the report and do not repeat it here.

[543] We note that the Regional Council's officers did not update the s 42A recommendations report to include amendments recommended through the hearing. However, this policy was the subject of caucusing between relevant submitters during the hearing, and we received advice on this matter through the Regional Council's memorandum dated 13 April 2017. In that memorandum, the Regional Council's officers recommended the following amended wording of this policy:

> *~~To m~~ Manage (70-9) diffuse and point sources of phosphorus loss through:*
>
> *a) regional plan discharge rules,*
> *b) non-regulatory programmes,*
> *c) the implementation of good management practices particularly within critical source areas, as part of an approved (43-24, FS15-17, 19-9, 37-7, FS5-1) ~~that will be detailed in~~ Nutrient ~~Nitrogen~~ (43-24, FS15-7, 70-17, FS15-33) Management Plan prepared for individual properties/farming enterprises*

[544] Each of Ravensdown and the Fertiliser Association requested that we accept the Regional Council's officers recommendation in relation to this submission point[108].

[108] Evidence of Mr Chris Hanson dated 3 April 2017 and evidence of Ms Bethany Bennie dated 22 February 2017.

Evaluation

[545] We did not hear any evidence that did not support the renaming of a N management plan to a nutrient management plan.

[546] We concur with the Regional Council's recommended amendments to LR P2 contained in the memorandum of 13 April 2017, and the supporting amendments to LR M5. These amendments were supported by Ms Justine Young for Dairy NZ, who was part of the caucusing exercise. We note that the Federated Farmers of NZ who also participated in the caucusing did not support the amendments, and preferred their requested amendment to the policy.

Findings

[547] We find that the amendments recommended to this policy which came out of the Regional Council and submitter caucusing, are the most appropriate means, at this point in time, of achieving Objective 11 of the RWLP in respect to the TLI of 4.2 for Lake Rotorua. In coming to this finding, we note that LR P3, supported by LR M2, set out an "adaptive management" approach for the ongoing monitoring and review of the science that determined the RPS limits and progress against achieving the catchment lake load limit. These provisions may mean that this policy will need to be amended in the future as a result. We anticipate that this may occur and we find that the policies and methods as a whole enable this to occur. On the basis of the evidence before us, and the scientific evidence we received, which we also addressed earlier in this report, that the recommended wording is the most appropriate.

[548] We therefore recommend that LR P2 be amended as follows:

> Manage diffuse and point sources of phosphorus loss through:
>
> (a) regional plan discharge rules;
>
> (b) non-regulatory programmes;
>
> (c) the implementation of good management practices particularly within critical source areas, as part of an approved Nutrient Management Plan prepared for individual properties/farming enterprises.

Adaptive Management – Policy LR P3

[549] This policy effectively sets out the base position or starting points from which the rest of the policies and supporting methods and rules are generated. That is:

(a) The 435 tonne sustainable annual N load contained in the RPS;

(b) The estimated 755 tonne annual N load that the lake will eventually receive without interventions to reduce N losses from the catchment;

(c) The use of OVERSEER® to determine N leaching losses from farming activities that will enter groundwater and eventually the lake

(d) The pastoral reductions of 140t/N/y contained in the Integrated Framework.

[550] Ravensdown and the Fertiliser Association of New Zealand in particular raised issues with the reference to and use of OVERSEER®, and wanting to ensure that a plan change was not required every time OVERSEER® was updated. We note that Ravensdown in the final memorandum from Mr Chris Hansen dated 4 April 2017 requested that the Panel accept the Regional Council's officers recommendation in respect to its submission point.

[551] Many of the submissions raised points relating to the 435 and 755 tonne N figures and sought that they be amended.

[552] By the conclusion of the hearing, the Regional Council's officers had recommended the following amendment to LR P3:

> *~~To r~~Recognise (70-9) the balance between certainty and the use of best science and good environmental data in the management of nitrogen within the Lake Rotorua groundwater catchment by using:*
>
> *(a) the 435 tonne sustainable annual nitrogen load for Lake Rotorua from the operative Regional Policy Statement Policy WL 3B(c)*
>
> *(b) the 755 tonne load to Lake Rotorua estimated by the ROTAN model in 2011 as the position from which nitrogen loss reductions will be determined*
>
> *(c) the most current version of OVERSEER ®, except for initial allocation purposes where OVERSEER ® 6.2.0 applies. (70-38) ~~for nitrogen discharge allowance~~ and*
>
> *(d) the pastoral sector reductions within the Integrated Framework approach.*

Evaluation and finding

[553] We addressed the submissions and evidence to change the 435t/N/y RPS limit and the science underpinning PC10 earlier in this report, and do not repeat it here.

[554] We have also addressed the use of OVERSEER®, including reference files, earlier in this report. We consider that the amendments recommended by the Regional Council's officers address the concerns of both Ravensdown and the Fertiliser Association of New Zealand in that we believe it is now clear, when this policy is read in conjunction with others, how OVERSEER® is to be used in PC10. However, we do consider that the wording could be made more concise by replacing "applies" with "is used".

[555] We recommend that this policy, as recommended to be amended by the Regional Council's officers, is the most appropriate means of achieving the purpose of PC10 and that it be amended as follows:

~~To r~~Recognise the balance between certainty and the use of best science and good environmental data in the management of nitrogen within the Lake Rotorua groundwater catchment by using:

(a) the 435 tonne sustainable annual nitrogen load for Lake Rotorua from the operative Regional Policy Statement Policy WL 3B(c)

(b) the 755 tonne load to Lake Rotorua estimated by the ROTAN model in 2011 as the position from which nitrogen loss reductions will be determined

(c) the most current version of OVERSEER ®, except for initial allocation purposes where OVERSEER ® 6.2.0 is used, ~~for nitrogen discharge allowance~~ and

(d) the pastoral sector reductions within the Integrated Framework approach.

Adaptive Management - Policy LR P4

Submissions

[556] Generally, the submissions on this policy supported its intent, but sought amendments to its content. Some submitters sought that reference be added to a future Water Management Area for Lake Rotorua to give effect to the NPS-FM, to change the reference from N to nutrients, and amendments to the use of

OVERSEER®, such as the use of reference files. Federated Farmers, the Lake Rotorua Primary Producers' Collective and Mr McKenzie sought that clause (ii) be amended to include reference to objectives.

[557] We note that Ravensdown in the final memorandum from Mr Chris Hansen dated 4 April 2017 requested that the Panel accept the Regional Council's officers recommendation in respect to its submission point. We also note that the Fertiliser Association of New Zealand in the statement of evidence from Ms Bethany Bennie dated 22 February 2017 requested that the Panel accept the Regional Council recommendation in respect to its submission point.

Evaluation and finding

[558] We addressed the higher level issues of the timing of PC10 in respect to the NPS-FM, the reference from N to nutrients, and amendments to the use of OVERSEER® earlier in this report.

[559] We agree with the Regional Council that including referencing to "objectives" in clause (ii) is inappropriate and unnecessary. Further, the Regional Council has an obligation on it more broadly under s 35 of the RMA which requires it to monitor the efficiency and effectiveness of policies, rules or other methods in its policy statement and plan. This clause effectively mirrors what is already an obligation under the RMA. The Regional Council also has the obligation under s 79 of the RMA to commence a review of every provision within its policy statement or plan within 10 years of that policy statement or plan being made operative. We further note that the Regional Council has the additional obligation on it to give effect to the NPS-FM, which will also necessitate review of relevant provisions within both the RPS and RWLP. For these reasons, we find that clause (ii) need not be amended to include reference to "objectives".

[560] We find overall, that the policy as modified slightly by the officers in Version 7 of PC10, is the most appropriate means of achieving the relevant objective, when read in conjunction with the other provisions.

Adaptive Management – Policy LR P5

Submissions

[561] This policy, together with LR P6, establish how PC10 will assist to achieve the reductions necessary to meet the RPS 435 t/N/y load limit. That is, setting N

loss ranges for the dairy and drystock sectors, and then establishing N discharge allocations to set required reductions.

[562] Federated Farmers sought a more generic policy, and the deletion of LR P6, so that managed reduction targets may be allocated. The Lake Rotorua Primary Producers' Collective and Mr McKenzie sought an amended policy as follows:

> To ~~achieve the~~ support achievement of ~~Policy LR P1~~ the RWLP TLI objective ~~sustainable load to Lake Rotorua~~ by allocating ~~nitrogen discharge allowances~~ managed reduction targets across all contributing sectors; including to dairy and dry stock activities within the Lake Rotorua groundwater catchment in accordance with (Table LR 4) subject to further work on dairy support; and to recognise standard OVERSEER® 5.4 loss rates for plantation forestry, bush/scrub and house blocks.

[563] We note that Ravensdown in the final memorandum of Mr Chris Hansen dated 3 April 2017, advised that its concern with the use of OVERSEER® and updating of reference files had been addressed, and they no longer wished to pursue this matter.

Evaluation and finding

[564] We have addressed the approach to allocation earlier in this decision. We agree with the recommendations and reasoning of the Regional Council in respect to the submission points on this policy, except that we agree with the Lake Rotorua Primary Producers' Collective and Mr McKenzie that PC10 will only assist to achieve the sustainable load to Lake Rotorua.

[565] We therefore recommend that the policy be amended to read as follows:

> ~~To achieve the~~ ~~Ensure the~~ Assist to achieve the ~~sustainable load~~ 435 tonne sustainable annual nitrogen load for ~~to~~ Lake Rotorua ~~is achieved~~ by allocating nitrogen discharge allocations ~~allowances~~that align with the ranges for (43-29) ~~to~~ dairy and drystock activities within the Lake Rotorua groundwater catchment (Table LR 4) and to recognise standardised OVERSEER® loss rates for plantation forestry, bush/scrub and house blocks.

Table LR 4: Allocated nitrogen loss rates to sectors.

Sector	Average nitrogen loss by sector (kgN/ha/yr) (OVERSEER® 6.2.0)	Nitrogen loss range within each sector (kgN/ha/yr) (OVERSEER® 6.2.0)
Dairy	64.5	54.6 – 72.8
Drystock	25.6	18 – 54.6

Adaptive Management - Policy LR P6

Submissions

[566] There were few submissions on this policy. Ravensdown and the Fertiliser Association of New Zealand both sought that it be clarified in its intent, with the latter proposing new wording. Other submissions sought that the date be removed, or amended, which is a matter addressed already in this report. Two submitters considered that nutrient discharge allowances were a matter too complex for the average owner to understand.

Evaluation and findings

[567] We agree that it would be useful to better clarify the intent of this policy, and support the wording proffered by Fertiliser New Zealand, and as generally adopted by the Regional Council officers in the s 42A report. In respect of those submissions who consider the N reductions to be too complex, we note that the Regional Council includes a method of providing support to those in the system. We consider this will address the submitters' concern.

[568] We support the amendments recommended by the Regional Council officers, and find that the policy should be amended as follows:

> ~~To d~~Determine individual ~~Nutrient~~ Nitrogen Discharge Allocations ~~Allowances~~for the purpose of achieving by 2032 the ~~sustainable lake load~~ 435 tonne sustainable annual nitrogen load for Lake Rotorua ~~that must be achieved by 2032~~) in accordance with Schedule LR One for all properties/farming enterprises that are not provided for as permitted activities.

Adaptive Policy - Policy LR P7

Submissions

[569] The submissions on this policy all related to the ability to transfer nitrogen discharge allocations and the proposed moratorium until 2022, which is a matter we have addressed elsewhere in this report.

[570] Some submitters sought that the policy be widened to include other mechanisms such as transferable development rights, offset mechanisms, baseline-and-credit trading schemes, and suggested amended wording that sought to achieve these.

[571] Ravensdown sought further clarity in the policy, in respect of the meaning of "authorise" and how it related to Policy LR P5 and also sought that there be a reference to Schedule LR Seven, which sets out how transfers occur.

[572] In response to submissions, Regional Council's officers recommended amendments to the wording as follows:

> ~~To enable~~ Manage (70-9) the ~~authorised~~ (43-30, FS14-17) transfer of ~~nitrogen loss entitlements~~ Nitrogen Discharge Allocations or Managed Reduction Offsets (49-30, FS14-17, 49-79, 53-73, 66-110, 75-204) between properties/farming enterprises from 1 July 2022 to encourage efficient outcomes by way of resource consent (43-30, 70-26, FS15-37).

Evaluation and finding

[573] We agree with the Regional Council's evaluation in respect to submission points on this policy in respect to other mechanisms. In particular, the submitters have not provided any indication on how such mechanisms would be implemented through a framework, and the proffered policy does not provide certainty. Further, we agree with the Regional Council that the transfer mechanism does provide sufficient flexibility, as well as certainty of its application.

[574] We disagree with the Regional Council officers in respect to the Ravensdown submission, and agree with the submitter that it is appropriate to reference Schedule LR Seven within the policy, as this will provide appropriate guidance for those dealing with transfer matters. We note that Policy LR P6 references Schedule LR One, so referencing a Schedule is not inconsistent.

[575] We recommend that Policy LR R8 be amended as follows:

> ~~To enable~~ Manage the ~~authorised~~ transfer of ~~nitrogen loss entitlements~~ Nitrogen Discharge Allocations or Managed Reduction Offsets (between properties/farming enterprises from 1 July 2022 in accordance with Schedule LR Seven to encourage efficient outcomes by way of resource consent

Managed Reductions - Policy LR P8

Submissions

[576] The submissions received on this policy centred around the use of NMPs through the regulatory framework, and how P should be managed through the plan change. Some submitters also sought that the policy be amended to reference the

RWLP TLI objective and a sub-catchment approach. We addressed both of these matters earlier in this decision, where we find that NMPs are an appropriate way of managing the NDA assigned to a property, and that the approach to managing P agreed through caucusing by the water quality experts is the most appropriate means of addressing P management through PC10. We also addressed the lack of scientific support for any sub-catchment plans earlier in the report.

Evaluation and findings

[577] For the reasons we have set out elsewhere in this report, we agree with the Regional Council's recommended amendments to this policy, as follows:

> ~~To r~~Require property/farming enterprise specific ~~Nitrogen~~ Nutrient Plans and require the implementation of mitigation actions including adopting good management practices) to achieve and maintain Managed Reduction Targets, ~~(five- yearly nitrogen loss reduction targets)~~ and Nitrogen Discharge Allocations ~~Allowances~~.

[578] We also agree with the recommended amendments to Schedule LR Six 5(b) to include the following:

> *Phosphorus management:* To identify the environmental risks associated with phosphorus and sediment loss from the subject property, the significance of those risks and implementation of good management practices to avoid or reduce the risks from critical source areas and other areas which may contribute to phosphorus losses.

Use of Rules - Policy LR P9

[579] Policy LR P9 as notified, set out in some detail the permitted activity land uses. In response to the submission points received, the policy was simplified by amending it in Version 7 to:

> Enable the continued use of land for low intensity farming, bush/scrub and forestry within the Lake Rotorua groundwater catchment.

[580] For the reasons set out in the Council officers' s42A report, we concur with the amendments proposed in Version 7.

Use of Rules - Policy LR P10

[581] Policy LR P10 as notified, set out in some detail the use of land for farming activities that would require resource consents. In response to submission points, the policy was simplified by amending it in Version 7 to:

> Provide for farming activity within property/farm enterprises that have an effective area exceeding 10ha where these have identified Nitrogen Discharge Allocations, Managed Reduction Targets and appropriate Methods to achieve the staged reduction of nitrogen losses by 2032.

[582] For the reasons set out in the s42A report we agree with the Regional Council officers' recommendation save for one minor matter. We consider that it is appropriate to substitute the words "Provide for" to "Manage". This is a minor amendment that we make for the purposes of clarity, as the words "Provide for" indicate some form of discretion, and is more appropriate for use on such activities as restricted discretionary or discretionary activities.

[583] Accordingly, we recommend Policy LR P10 as follows:

> Manage farming activity within property/farm enterprises that have an effective area exceeding 10 ha where these have identified Nitrogen Discharge Allocations, Managed Reduction Targets and appropriate methods to achieve the staged reduction of nitrogen losses by 2032.

New policies recommended

New Policy - LR R11

[584] During the hearing, we received submissions and evidence from a number of submitters who are owners of small lifestyle properties between 5-10 hectares. They were concerned that they could be required, under Rule LR R8, to go through an onerous consent process to obtain a controlled activity consent where there was no financial or commercial gain, simply because they failed to comply with the stock rate table (Schedule LR Two). We acknowledge their concerns, and consider that a more simplified and streamlined process should be made available to them. It is our view that, to ensure sustainable management of such small lifestyle blocks, there should be a change to the policies and rules to accommodate their concerns.

[585] We recommend the following new policy, as Policy LR P11 in our recommended version Appendix 3, to address this matter. We also propose a new Rule LR R8A and new definitions of "Simplified Nutrient Management Plan" and "Lifestyle Farming Activities", which we discuss later. Our proposed recommended new LR P11 is as follows:

> Provide for lifestyle farming activities on properties/farming enterprises in the Lake Rotorua groundwater catchment greater than 5 hectares in effective area and up to and including 10 ha in effective area that exceed the stocking rates contained in Schedule LR Two where these have provided Council with a simplified Nutrient Management Plan and can demonstrate that their long term nitrogen loss will be no more than 80% of the drystock reference file average.

New Policy - LR P12

[586] We propose to recommend a new policy, LR P12, be inserted into PC10 to provide a measure of relief for under-utilised Māori land under Te Ture Whenua Māori Act 1993. We also recommend a new rule LR 11A to give effect to this policy.

[587] As we have pointed out, we are required to give effect to the strong directions in the RPS that reflect the relevant provisions of the RMA which relate to Māori. We have found that the Regional Council's evidence and reports refer to these strong directions, but they do not address the manner in which they have been given effect to in proposed PC10.

[588] We are conscious of the need, as expressed by the Privy Council,[109] that the directions relating to Māori are strong directions to be borne in mind at each stage of the planning process. Conscious of this direction, and having regard to the evidence we received relating to the under-developed and under-utilised Māori land in the catchment, we have reached the view that some accommodation should be made if this is at all possible.

[589] We are also conscious of the directions relating to the assimilative capacity of the lake as set out in the RPS and the Sustainable Catchment Load of 435t/N/y and the Integrated Framework which forms the basis of the rule framework.

[590] As a matter of equity, we consider that the provisions made in Schedule LR One for allocating derived NDAs to properties that were not benchmarked under Rule 11 were inequitable, and that some of the owners of those properties may receive a windfall gain by being given the sector average allocation. We consider this to be inappropriate, particularly as it may reward those who have not complied with the required benchmarking exercise. It may give them a higher NDA than their property merits. For these reasons we have recommended that such properties be allocated the lower nitrogen discharge boundary for each of the dairy and drystock sectors, and we have made changes to Schedule LR One to reflect this recommendation. The Regional Council's officers had recommended such properties be assigned the sector average.

[591] We sought further information from the Regional Council's officers about how much nitrogen would be available annually as a consequence of assigning a lower NDA boundary, rather than the average, to these non-benchmarked

[109] ***McGuire v Hastings District Council*** [PC] NZLR at [577].

properties. We were informed this would "free up" approximately 11.9 tonnes of N/y while remaining within the 435t/N/y sustainable catchment load.

[592] PC10 allocated nominal leaching rates of 2.5t/N/kg/y to plantation forestry and nominal 3t/N/kg/y to bush and scrub. The lower NDA drystock boundary is 18t/N/kg/y.

[593] We have recommended that this 11.9t/y of N should be allocated to enable multiple Māori land, held under Te Ture Whenua Māori Act 1993, to be developed for drystock farming up to the lower boundary of the NDA for dry-stock. This would enable up to 800ha of this land to be developed.

[594] We sought information from Regional Council's officers as to the available multiple-owned land that could be converted under a proposed rule. They advised that there was approximately 2,000ha of land presently in plantation forestry, and we have previously been advised by Ms Moleta,[110] a witness for the Regional Council, that there is about an additional 2,800ha of land in bush and scrub. However, of this land in bush and scrub, approximately 81 per cent is protected in some way, such as by provisions in the Rotorua Lakes District Plan to protect significant natural areas, or land covered by QEII covenants, leaving 573ha that could be converted to drystock farming under this rule.[111] This means that, potentially, up to about 2,500ha of multiple-owned land could be converted to drystock farming under this rule. However, we note that much of this land is in blocks that are too small to enable them to be converted under any proposed rule giving effect to this proposed new policy.

[595] We propose to limit the total amount of affected area able to be converted to 800ha, so that the sustainable catchment load then remains at about 435t/N/y. For the above reasons, we recommend new Policy LR P12 as follows:

> Provide for the conversion of Māori land held under Te Ture Whenua Māori Act from forestry and bush/scrub to low intensity farming activities collectively up to 800 hectares and individually to the lowest end of the drystock reference file contained in Schedule LR One where these have provided Nutrient Management Plans and can demonstrate that the that the land has had reduced development opportunities in the past and the land is suitable for drystock farming, while also ensuring that any adverse effects on water quality in Lake Rotorua are appropriately mitigated.

[110] Rebuttal evidence at [24].
[111] Ms G Moleta, rebuttal evidence at Table 2.

Use of Rules - Policy LR P13 (Appendix 3)

[596] Policy LR P11, as set out in Version 7 (Appendix 2), now Policy LR P13 in Appendix 3, is a replacement policy recommended by the Regional Council's officers in lieu of Policy LR P12 as notified. For the reasons set out in the s 42A report, we agree with the Council's recommendations, save for a minor amendment for clarification. We accordingly recommend proposed LR P11, as set out in Version 7, but which would now become LR P13 in our proposed version, because of the additional new policies we have recommended, as follows:

> Avoid the establishment or continued operation of farming activities within farming/property enterprises within the Lake Rotorua groundwater catchment that are not permitted and have no identified or agreed Nitrogen Discharge Allocation and Managed Reduction Targets or have not provided Council with a Nutrient Management Plan.

Use of Overseer - Policies LR P14 and LR P15

[597] These two policies relate to the use of Overseer, and we consider them together. We agree with the Regional Council's officers, for the reasons set out in the s 42A report, the suggested amendments to these policies (as set out in Version 7 where they are Policies 13 and 14), and accordingly recommend these policies as set out below:

LR P14 Use OVERSEER® version 6.2.0 for initial allocation purposes and subsequent versions to determine nitrogen losses from land.

LR P15 Consider the use of alternative nitrogen budgeting models to determine nitrogen losses if OVERSEER® cannot be used for a specific land use. Consideration of whether alternative nitrogen budgeting models may be used will take into account:

(a) The ability to reliably estimate a property/farming enterprise's long-term nitrogen loss;

(b) The acceptability of information inputs, for example, a robust and verifiable process for estimating leaching rates; and

(c) The potential of suitably qualified and experienced persons to develop nitrogen budgeting files.

Any alternative to OVERSEER® for nitrogen budgeting purposes must be authorised by the Regional Council by way of resource consent.

Information requirements

[598] There was only one policy under this grouping in the notified version of the Plan, namely Policy LR15, as notified. The Regional Council's officers now

recommend that the policy be deleted as a consequence of matters raised in submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we concur with this recommendation.

Assessment of consent applications – Policy LR P16 and LR P17

[599] Version 7 of PC10 contained two policies under this grouping. We deal with each below:

Policy LR P16 (LR P14 of Version 7)

[600] This policy contained some minor amendments to the notified version in response to submissions. For the reasons set out in the Regional Council's officers' s 42A report, we concur with the Council's recommendations and add the words "restricted discretionary activity" to include the new restrictive discretionary activity rule that we propose:

> Grant controlled activity and restricted discretionary activity consents for a duration of twenty years and non-complying activity consents, where granted, for durations less than 20 years. The duration of consent will reflect the nature, scale and robustness of any on-farm mitigation options proposed and any associated risk of not achieving the property/farming enterprise's 2032 Nitrogen Discharge Allocation.

Policy LR P17 (LR P15 of Version 7)

[601] In Version 7 of PC10, the Regional Council replaced, for the second time, Policy LR P17 as notified. We have difficulty with the wording as set out in Version 7 in that the words "and/or"; "bush/scrub" and "and/or plantation forestry" are not qualified by any status, and as we understand the plan, they are permitted activities. We accordingly propose, in the interests of clarity and to avoid ambiguity, that these words are deleted. We have also made some minor amendments to improve clarity and recommend the policy to be:

> Only approve applications for non-complying activities where the application demonstrates that any adverse effects will be minor and will contribute to the Lake Rotorua water quality objectives and policies being met.

Implementation matters - LR P18 and LR P19 (LR P16 and LR P17 of Version 7)

[602] These two policies under this grouping provide for two matters:

(a) an acknowledgement that the 435 tonne substantial annual N load for Lake Rotorua includes N losses from both rural and urban land; and

(b) an acknowledgement of the increased demand on infrastructure resulting from land use change as a consequence of urban growth and reticulation of communities.

[603] As we have pointed out at the beginning of this section, we have already addressed the matters relating to these policies. For the reasons there set out, and for the reasons set out in the s 42A report, we recommend the wording of the two policies as set out in Version 7.

Methods

[604] As notified PC10 included five methods. These were the subject of many submissions, and the more comprehensive of these, such as from Federated Farmers. Mr McKenzie and the Lake Rotorua Primary Producer's Collective, sought significant changes to the methods. For reasons discussed elsewhere in this report, we have not accepted the alternative proposals put forward by those submitters.

[605] We have discussed some of the methods, and the proposed amendments to them, elsewhere in this report.

[606] In their s 42A report the Regional Council's officers have recommended changes to all the methods, primarily to update them to reflect other amendments they have proposed to PC10. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with those recommendations, which we note include a change to Method LR M5 (g) agreed between officers of the Rotorua Lakes Council and the Regional Council. This Method now also includes new clause (h) made in response to Astrid Coker (submitter 12), and (i), which was in response to submitters including Ms Coker, Mr McKenzie, the Lake Rotorua Primary Producers' Collective and Federated Farmers.

Rules

[607] As notified PC10 contained 12 land use rules and one discharge rule.

[608] An alternative rule framework had been put forward by a group of submitters including Federated Farmers and the Rotorua Primary Producers' Collective. For the reasons discussed earlier in this report we have not accepted this alternative approach, as it will not achieve the sustainable catchment N load by 2032, nor indeed at any time in the future.

[609] Accordingly, we have broadly adopted the Rule framework put forward by the Regional Council's officers, as we are confident that this will enable the 140t/N/y reduction in the catchment load from the pastoral sector to be met by 2032. In particular, we support the permitted/controlled/non-complying framework in proposed PC10, as applications for controlled activities have to be granted (subject to them meeting the requirements of the rule), and the non-complying activity is reserved for those activities that cannot meet the other rules.

[610] We now discuss the specific rules, as listed in Version 7 of PC10 put forward by the Regional Council's officers:

[611] **Permitted - LR Rule 1**: This is a bridging rule from when PC10 was notified to 1 July 2017, which is the date specified in the Integrated Framework to allow for current land uses to continue.

[612] The Regional Council officers in Version 7 recommended some minor amendments to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with their recommendations.

[613] **Permitted - LR Rule 2**: This permits plantation forestry and bush/scrub to continue as existing land uses due to their low levels of N loss. We note that it was confirmed during the hearing that PC10 does not preclude the occasional use of nitrogenous fertiliser by forest owners.

[614] The Regional Council officers in Version 7 recommended a minor amendment to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with their recommendations.

[615] **Permitted - LR Rule 3**: This rule enables non-commercial activities on properties of under 5ha in effective area to continue to operate after 30 June 2017 as a permitted activity. Most such properties are rural/residential.

[616] The Regional Council officers in Version 7 recommended a minor amendment. For the reasons set out by the Regional Council's officers in the s 42A report, we largely agree with their recommendations.

[617] We recommend a change to this rule by making it subject to 5ha of effective area rather than the total area. The effective area excludes land covered by houses, garages, hardstand and the like, and so is only the land on which activities such as livestock rearing and cropping take place. We make this change in order to ensure equity and consistency with other rules in PC10. We recommend the rule be amended as follows:

> **LR R3 Permitted – From 1 July 2017, the use of land for farming activities on properties/farming enterprises 5 hectares or less in effective area**
>
> Farming activities on properties/farming enterprises 5 hectares or less in effective area in the Lake Rotorua groundwater catchment are a permitted activity from 1 July 2017 subject to the following conditions:
>
> (a) No commercial cropping or commercial horticulture or commercial dairying occurs on the land; and
>
> (b) There is no transfer of ~~nitrogen loss entitlement~~ Nitrogen Discharge Allocations or Managed Reduction Offsets (49-30, FS14-17, 49-79, 53-73, 66-110, 75-204) either to or from the property/farming enterprise prior to 2022. (70-58)
>
> Advice Note:
>
> ~~1 Rule LR R3 uses "area" as opposed to "effective area".~~
> 1 If the land use does not meet the conditions of LR R3, it may be permitted by LR R5 (until 30 June 2022) or LR R7 or consent will be required by Rule LR R8.

[618] **Permitted - LR Rule 4**: This rule defines a permitted activity from 1 July 2017 onwards for properties greater than 5ha in area and up to and including 10ha in effective area with no commercial dairy, cropping or horticulture provided stock numbers do not exceed the limits in Schedule LR Two. We recommend a consequential amendment to be consistent with our recommendation relating to Rule LR R3 by adding the word "**effective**" after the words "in 5ha" and "area".

[619] As discussed below we recommend a simpler controlled activity path than that presently provided under Rule LR R8 for owners of properties of between 5 and 10ha in effective area who undertake non-commercial activities on that land.

[620] The Regional Council's officers in Version 7 recommended some minor amendments to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with those recommendations.

[621] **Permitted - LR Rule 5**: This permitted activity rule enables farming activities to continue on land of between 10 and 40ha in effective area from 1 July 2017 to 30 June 2022, after which a consent will need to be sought (which might be expected to be for a controlled activity under Rule LR 8). Under this rule no increases in nitrogen losses are allowed, and annual land use records have to be provided, as specified in Schedule LR Three.

[622] The Regional Council's officers in Version 7 recommended some minor amendments to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with those recommendations.

[623] **Permitted - LR Rule 6**: This is a similar permitted activity rule to LR 5 that applies to properties not managed under rule 11 of the RWLP. It similarly applies from 1 July 2017 to 30 June 2022, after which a consent will need to be sought (which might be expected to be for a controlled activity under Rule LR 8). Likewise, under this rule no increases in N losses are allowed, and annual land use records have to be provided, as specified in Schedule LR Three.

[624] The Regional Council's officers in Version 7 recommended some minor amendments to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with those recommendations.

[625] **Permitted - LR Rule 7**: This is another permitted activity rule that allows low intensity but potentially large properties or farming enterprises to maintain their current low N loss profiles. It applies only to properties where the farming activity generates less than 71 per cent of the nitrogen loss rate in the drystock reference file, as prescribed in Schedule LR Five. No increase in effective area or nitrogen inputs could take place after 29 February 2016 (the date PC10 was notified), and this has to be shown through provision of either annual land use records or an OVERSEER® file.

[626] After the hearing the Regional Council's officers advised that because of updates to the methodology for revision of NDA reference files[112], the figure of 71 per cent listed in this rule and in the associated definition of "low intensity farming" should be amended to 57 per cent. This change had been overlooked when preparing Version 7 of PC10. We have accepted these as minor changes.

[627] The Regional Council's officers in Version 7 recommended some other minor amendments to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with those recommendations.

[628] **Controlled - LR Rule 8**: This controlled activity rule seeks to cover activities permitted by Rules LR 6 and LR 7 after 30 June 2022. As recommended to us by the Regional Council's officers it covers those properties of less than 40ha (but excluding properties of under 5ha in effective area which remain permitted under Rule LR R3) and those properties not covered by Rule 11 of the RWLP. In order to comply with this rule a landowner must have a 2032 NDA and the relevant Managed Reduction Targets (MRT's) determined in accordance with Schedule LR One and Policy LR P8 respectively, and a NMP prepared in accordance with Schedule LR Six.

[629] The Regional Council's officers in Version 7 recommended some minor amendments to address matters raised in the submissions. For the reasons set out by the Regional Council's officers in the s 42A report, we agree with those recommendations except, for clarification, we have made a minor amendment to "matter of control (iii)":

> The requirement for contractual written ~~landowner~~ ~~approval from~~ agreement with the land owner of any leased land agreeing to proposed nitrogen loss mitigations to be undertaken on ~~their~~ that ~~land~~.

[630] We have also recommended the same changes to Rules LR R9, LR R 10 and LR R11.

[631] Controlled - New Rule LR R8A: We heard strong submissions from several owners of blocks of between 5 and 10ha in effective area, who ran stock such as horses, that the requirements of Rule LR R8A were unduly onerous. We agree with them as we consider the regulatory benefits of them being required to go through preparing Nutrient Management Plans and the like, are outweighed by the costs and

[112] Matters as discussed later in this report.

inconvenience of doing so. We asked the officers to draft an appropriate rule for our consideration to address this issue.

[632] After considering the Regional Council's officers recommendations and the evidence, we recommend the following new rule LR R8A:

LR R8A Controlled – The use of land for lifestyle farming activities on properties/farming enterprises greater than 5 hectares in effective area and up to and including 10 hectares in effective area

The use of land for lifestyle farming activities on properties/farming enterprises in the Lake Rotorua groundwater catchment where the property/farming enterprise is greater than 5 hectares in effective area and up to and including 10 hectares in effective area is a controlled activity subject to the following conditions:

a) 2032 nitrogen loss targets have been determined for the land equivalent to 80% of the drystock reference file referred to in Table LR 6 for the effective area (excluding areas of grazed trees); and

b) A Simplified Nutrient Management Plan has been prepared for the lifestyle farming activity and has been certified by the Regional Council and that shows reductions (if required) in nitrogen loss over time to meet the 2032 nitrogen targets.

Bay of Plenty Regional Council reserves control over the following:

(i) The approval of the nitrogen loss reduction requirements targets set in relation to the lifestyle farming activity.

(ii) The relevant matters in Schedule LR Six as elements of a Simplified Nutrient Management Plan for the property/farming enterprise.

(iii) Setting of the appropriate frequency for the submission of information demonstrating implementation of the Simplified Nutrient Management Plan.

(iv) Circumstances that may require a review of nitrogen loss reduction requirements, the Simplified Nutrient Management Plan or consent conditions including a change to property size, the sale or disposal of land or changes to the Regional Policy Statement or Regional Plan resulting from Method 2 and Method 3.

(v) Implementation of the Simplified Nutrient Management Plan, including the mitigations and methodology to be used to meet the nitrogen loss reduction requirements.

(vi) Self-monitoring, record keeping, information provision and site access requirements to demonstrate on-going compliance with the Simplified Nutrient Management Plan.

(vii) The duration of the consent to reflect the nature, scale and robustness of any on-farm mitigation options proposed as set out in LR P16.

Applications for controlled activities under this rule do not require the written approval of affected persons and shall not be publicly notified except where the Regional Council considers special circumstances exist in accordance with Section 95A(4) of the Act.

Advice Note:

1. Templates for Simplified Nutrient Management Plans and descriptions of stocking rates to meet 80**%** of the Drystock reference file are available from the Bay of Plenty Regional Council.

[633] This new rule would require new definitions to accompany new terms used in the rule namely ”Simplified Nutrient Management Plan” and “Lifestyle Farming Activities”. Accordingly, we recommend the following new definitions:

(a) **Lifestyle farming activities:** farming activity over an entire property/farming enterprise which is characterised by the following: property’s primary purpose being as a residence; the income from the land not representing a significant proportion of the income for a household or owner; the farming intensity being generally low with low labour inputs; no commercial cropping, dairying or horticulture; the District Plan zoning reflecting rural lifestyle land use.

(b) **Simplified Nutrient Management Plan:** A plan prepared for a lifestyle farming activity that identifies a planned approach to meet any required nitrogen loss reductions and to manage nutrient losses. The Simplified Nutrient Management Plan will only contain key elements of the matters specified in Schedule LR Six and will focus on stocking rates, fertiliser and feed imports.

[634] **Controlled - LR Rule 9**: This is a similar controlled activity rule to Rule 8, but it applies to properties over 40ha and comes into effect on 1 July 2017. In order to comply with this rule a landowner must have a 2032 NDA and the relevant Managed Reduction Targets (MRT’s) determined in accordance with Schedule LR One and Policy LR P8 respectively, and a NMP prepared in accordance with Schedule LR Six.

[635] It was this particular rule, along with proposed LR Rule 11, that drew the most criticism from organisations like Federated Farmers and many submitters. They sought the activities covered by this rule be permitted[113]. As we have explained earlier in this report, this would not achieve the sustainable catchment load of 435t/N/y by 2032, and indeed would risk farms going back to the 2001-04 years which form the basis of benchmarking. We have found that to be unacceptable and we do not propose to repeat our reasons here.

[113] Ms J Young for Dairy NZ/Fonterra was an exception, in that she could see both sides of the argument and in the end favoured neither option strongly.

[636] The Regional Council's officers in Version 7 recommended a minor amendment to address matters raised in the submissions. We recommend a further minor amendment to matter of control (iii) for the reasons set out by us in relation to Rule LR R7.

> The requirement for contractual written ~~landowner~~ ~~approval from~~ agreement with the land owner of any leased land agreeing to proposed nitrogen loss mitigations to be undertaken on ~~their~~ that ~~land~~.

[637] **Controlled - LR Rule 10:** This rule enables NDA's and MRT's to be transferred post 1 July 2022. Any such transfer must comply with Schedule LR Seven, and a 2032 NDA and the relevant Managed Reduction Targets (MRT's) have been determined for both the source and destination land in accordance with Schedule LR One and Policy LR P8 respectively. Similarly, new NMP's need to be prepared for both the source and destination land in accordance with Schedule LR Six.

[638] We support N transfers as it will potentially provide for more efficient land use. It needs to be fully managed however, and the proposed rule allows for this.

[639] There was some criticism of this rule in that it places a moratorium on transfers for five years. The reason the Regional Council officers gave for this is that transfers prior to this could undermine the success of the Incentives Scheme, which aims to purchase 100t/N/y from landowners in the catchment as part of the 70 per cent of the MRT sought to be achieved by 1 July 2022. We accept the Regional Council's view that allowing transfers before 1 July 2022 could jeopardise the Incentives Scheme reaching its target. We also note that most farmers we heard from were reasonably confident of meeting their initial 2022 MRT (and indeed many said they already had), so there is likely to be little demand for N transfers in the short term. This will give farmers time to adapt to the idea of transfers, what N might cost and how it could work for them.

[640] The Regional Council's officers in Version 7 recommended a minor amendment to address matters raised in the submissions. We agree with those recommendations. We also recommend a minor amendment to matter of control (iii) for the reasons set out by us in relation to Rule LR R7.

> The requirement for contractual written ~~landowner~~ ~~approval from~~ agreement with the land owner of any leased land agreeing to proposed nitrogen loss mitigations to be undertaken on ~~their~~ that ~~land~~.

[641] **Controlled - LR Rule 11**: This is a controlled activity enabling the use of farmland that cannot readily be modelled by OVERSEER®. It applies to properties of over 40ha from 1 July 2017 and to properties less than 40ha where the farming system does not fall into permitted activity criteria from 1 July 2022. It follows a similar framework to LR R9, but with much less emphasis on OVERSEER® modelling.

[642] We have already outlined the reasons why we think this rule is necessary in our discussion of LR R9.

[643] The Regional Council's officers in Version 7 recommended a minor amendment to address matters raised in the submissions. We agree with those recommendations. We also recommend a minor amendment to matter of control (iii) for the reasons set out by us in relation to Rule LR R7.

> The requirement for contractual written ~~landowner~~ ~~approval from~~ agreement with the land owner of any leased land agreeing to proposed nitrogen loss mitigations to be undertaken on ~~their~~ that land.

[644] **Restricted Discretionary - New Rule LR R11A:** We recommend a new rule Restricted Discretionary LR R11A be inserted into PC10 to provide a measure of relief for underutilised Māori land under the Te Ture Whenua Māori Act 1993.

[645] As we have pointed out, we are required to give effect to the strong directions in the RPS which reflect the relevant provisions of the RMA which relate to Māori. We have discussed this matter in considerable detail when recommending new policy LR P12. This new rule LR R11A gives effect to this policy.

[646] For the reasons set out earlier, we consider that inclusion of this new rule is the most appropriate means of achieving the higher level objectives and policies in the RPS, and the objectives within the RWLP. We have recommended amendments to Schedule LR One to reflect the implications of the new rule.

[647] For the above reasons, we recommend rule LR R11A as follows:

> **LR R11A Restricted Discretionary – Land use change from plantation forestry or bush/scrub on land held under Te Ture Whenua Māori Act, to low intensity farming**
>
> The conversion of plantation forestry and/or bush/scrub on land held under Te Ture Whenua Māori Act to drystock within the Lake Rotorua Groundwater

Catchment is a Restricted Discretionary activity subject to the following conditions:

(a) A Nutrient Management Plan has been prepared for the land proposed to be converted by a suitably qualified and experienced person and that person has certified that the Nutrient Management Plan has been prepared in accordance with Schedule LR Six;

(b) The proposed activity shall be low intensity farming (drystock);

(c) If the area of land proposed to be converted is in production forestry, it shall be harvested or will be harvested within the next 5 years;

(d) If the area of land proposed to be converted to drystock farming is in bush/scrub, this shall occur within the next 5 years;

(e) No more than 800ha of effective area in total shall be converted to drystock farming under the provisions of this rule;

(f) Suitable best management practices shall be identified and implemented that will reduce or avoid potential adverse effects of the drystock activity;

(g) There is no transfer of nitrogen to or from the drystock farm enterprises created by the conversion prior to 2022.

Bay of Plenty Regional Council's discretion will be restricted to:

(i) Information provided to demonstrate that the land has reduced development opportunities due for historical cultural and/or economic reasons.

(ii) The suitability of the land for drystock farming and any methods proposed to mitigate any adverse effects on the water quality in Lake Rotorua.

(iii) The expiry of the allocation, or portion of the allocation where this has not been utilised within a specified timeframe.

(iv) Setting of the appropriate frequency for the submission of an annual OVERSEER® file, prepared by a suitably qualified and experienced person, demonstrating implementation of the Nutrient Management Plan.

(v) The form of information and documentation to support the OVERSEER® file including data inputs and protocols.

(vi) Self-monitoring, record keeping, information provision and site access requirements to demonstrate on-going compliance with a Nutrient Management Plan.

(vii) The duration of the consent to reflect the nature, scale and robustness of any on farm mitigation options proposed.

[648] **Non-Complying - LR Rule 12**: This is a non-complying activity rule that is triggered if an NDA or NMP is not provided under Rules LR 8-10, or where the use of land does not meet the conditions of permitted, controlled or restricted discretionary activity rules.

[649] Several submitters (notably the Fertiliser Association) thought this "default rule" should be a restricted discretionary activity. We do not agree. In our view any activity that cannot meet the permitted or controlled activity rules, such as by refusing to provide an NMP, should have to go through the "gateway" tests of s 104D of the Act in order to be granted. Having this default rule as non-complying also incentivises landowners to comply with the requirements of controlled activity rules such as LR R8 and LR R9.

[650] For the reasons set out in the s 42A report the Regional Council's officers have not recommended any changes to this rule as it was notified. We concur, save that we recommend that the rule also applies to the new restricted discretionary activity rule LR R11A. The proposed rule we are recommending accordingly now reads:

> Non-complying – The use of land for farming activities with non-point source loss of nitrogen from land use activities that do not meet the conditions of permitted, ~~or~~ controlled or restricted discretionary rules
>
> The use of land for farming activities with non-point source loss of nitrogen from land use activities that is not otherwise authorised by permitted, ~~or~~ controlled activity or restricted discretionary rules is a non- complying activity.

[651] **Rule LR R13**: This is a permitted activity rule that is necessary to provide for incidental nutrient discharges associated with Rules LR 1 to LR 11.

[652] For the reasons set out in the s 42A report the Regional Council's officers have not recommended any changes to this rule as it was notified. We concur with their view.

Definitions

[653] The definitions section of PC10 contains a number of definitions that apply to Part II LR and Part III LR of the RWLP as would be amended by the provisions of PC10. A number of submitters made submissions on the wording of the definitions and this matter was also addressed during the hearing.

[654] The Regional Council's officers have made a number of recommendations to amend the wording of the definitions as notified, and have recommended additional definitions in an endeavour to meet the concerns of the submitters.

[655] Overall, we agree with the Regional Council's officers' recommendations for the reasons set out in the s 42A report and other reports received from the Council officers. We also recommend two new definitions which would apply to new rule LR R8A for the reasons we have set out in the section discussing the rules.

[656] We recommend a change to the definitions of "Community Garden" and "Household Garden", by the replacement of "minor" with "incidental", to more accurately reflect the intent of the definition. The word "incidental" relevantly means, according to the Oxford Living Dictionary:

> *"Happening as a minor accompaniment to something else"*

[657] We consider the word "incidental" to better reflect the non-commercial nature of the activity to which it qualifies. We also consider that as the word "minor" has a particular meaning under the RMA, it is preferable not to use it in this context.

[658] We set out the proposed new definitions hereunder:

(a) Simplified Nutrient Management Plan: A plan prepared for a lifestyle farming activity that identifies a planned approach to meet any required nitrogen loss reductions and to manage nutrient losses. The Simplified Nutrient Management Plan will only contain key elements of the matters specified in Schedule LR Six and will focus on stocking rates, fertiliser and feed imports.

(b) Lifestyle farming activities: farming activity over an entire property/farming enterprise which is characterised by the following: property's primary purpose being as a residence; the income from the land not representing a significant proportion of the income for a household or owner; the farming intensity being generally low with low labour inputs; no commercial

cropping, dairying or horticulture; the District Plan zoning reflecting rural lifestyle land use.

Schedules

[659] PC10 contains seven schedules which contain the methodology used to give effect to the policies and rules and which incorporate the manner in which OVERSEER® and updates of OVERSEER® are to be managed. We have discussed the contents of Schedules LR Two, Five and Six elsewhere in this report, and in this section we address changes that we have recommended to the various schedules in PC10

[660] A number of submissions were lodged addressing the schedules and the Regional Council's officers have recommended changes to the various schedules in an endeavour to address those concerns. The Regional Council's officers in their s 42A report and evidence set out the reasons for the amendments made and the reason why some submissions were not accepted. As we have already noted in the discussion of Rule LR R4, the Officer's recommended changes to Schedule LR Two seemed to be well received by most submitters.

[661] We concur with the Regional Council's officers for the reasons set out in the s 42A report for each of Schedules LR Two, Three, Four, and Seven. We have recommended changes to Schedules LR One, Five and Six, which we now discuss.

Schedule LR One

[662] The first proposed change is simply clarification and relates to the final bullet point under E of Schedule One, where we recommend that the words "sell down" be substituted with the word "transfer" which reflects the use of that word in other provisions of the plan, and therefore, is more consistent.

[663] The second set of recommended changes are more significant. Earlier in this report we expressed our concern about the effect of the proposed rule framework on underutilised Māori land and recommended a new restricted discretionary rule LR R11A. This new rule requires amendments to Schedule LR One so that non-benchmarked properties (which have derived benchmarks) receive the lower range boundary of the dairy and drystock sectors, rather than the average as proposed by the officers. We discussed the reasons for this earlier in our report, and for the reasons we set out we recommend that changes be made to reflect rule LR R11A as follows:

Schedule LR One – Methodology to determine Start Points, Managed Reduction Targets and Nitrogen Discharge Allocations

Start Points, Managed Reduction Targets and Nitrogen Discharge Allocations must be calculated and authorised by the Regional Council.

Start Points, Managed Reduction Targets and Nitrogen Discharge Allocations are expressed as a percentage of the relevant reference file (see Schedule LR Five).

A. Start Points and Nitrogen Discharge Allocations

The Start Points from which the 2032 Nitrogen Discharge Allocations are calculated are set out in Table LR 5 below.

For Benchmarked properties - the Benchmark, land use and effective area are defined by, and are what existed in, the 2001-04 period. For non-Benchmarked properties the Derived Benchmark is the lower range boundary of the 2001-04 Benchmark Nitrogen Discharge Allocation as set out in Table LR 6, and the land use and effective area are what existed in the 2002/03 period. Any lawful change is taken into account. All Benchmark information is converted to OVERSEER® 6.2.0 for the purpose of calculating Nitrogen Discharge Allocations.

Table LR 5: Start Points and Nitrogen Discharge Allowances

Rules category	Rule 11 status	Nitrogen management start point	2032 NDA
40 ha or greater	Benchmarked	Actual Benchmark. (From Benchmarked land use and effective area.)	Actual Benchmark and land use applied to allocation methodology.
	Not benchmarked	Derived Benchmark. (Function of 2001-04 sector benchmark lower range boundary, and 2002-03 land use and effective area ***unless evidence of significant farm system change.)***	Derived Benchmark and land use applied to allocation methodology.
Between 10-40 ha Consented	Benchmarked	Actual Benchmark. (from Benchmarked land use and effective area).	Actual Benchmark and land use applied to allocation methodology.
	Not Benchmarked	Derived Benchmark. (Function of 2001-04 sector Benchmark lower range boundary, and 2002-03 land use and effective area ***unless evidence of significant farm system change.)***	Derived Benchmark and land use applied to allocation methodology.
Less than 40 ha 2017 Permitted 2022 Consented	Benchmarked	Actual Benchmark. (From Benchmarked land use and effective area).	Actual Benchmark and land use applied to allocation methodology.
	Not Benchmarked	Derived Benchmark. (Function of 2001-04 sector benchmark lower range boundary, and 2002-03 land use and effective area ***unless evidence of significant farm system change.)***	Derived Benchmark and land use applied to allocation methodology.
For properties/farming enterprises within the Lake Rotorua groundwater catchment that were not previously managed under Rule 11 to 11F (LR R5)	Not Benchmarked	Derived Benchmark (This will be created through the application of OVERSEER® to the actual land use and effective area in place during the 36 month period ending on 01 January 2016.)	Derived Benchmark and land use applied to allocation methodology

B. Nitrogen Discharge Allocation methodology

The following process will be used to calculate Nitrogen Discharge Allocations for all Dairy and Drystock blocks. For house blocks, plantation forestry and bush/scrub no reductions are required.

(a) Take actual or Derived Benchmark from Table LR 5.

(b) Apply the standard sector % reduction (from Table LR 6) for all blocks except:

(i) Those blocks where the benchmark is already below the relevant Nitrogen Discharge Allocation sector range; or

(ii) Those blocks where applying the standard sector % reduction would cause the Nitrogen Discharge Allocation to fall below the relevant Nitrogen Discharge Allocation sector range, where in both cases the Nitrogen Discharge Allocation shall be set at the bottom value of the relevant Nitrogen Discharge Allocation sector range.

(iii) No property/farming enterprise will be required to reduce its nitrogen loss below the bottom of the relevant sector nitrogen loss range.

(c) Following the application of the standard sector % reduction (from Table LR 6), any block that is above the relevant Nitrogen Discharge Allocation sector range is assigned the upper value of that range.

A property's Nitrogen Discharge Allocation equals the sum of the allowable nitrogen losses for all of the blocks within the property (drystock, dairy, bush/scrub, plantation forestry and house block). Nitrogen Discharge Allocations are calculated in kg/N/ha/yr using OVERSEER® 6.2.0 and are then expressed as a percentage of the relevant reference file.

The combination of parameters and figures in Table LR 6 below supports the allocation methodology that achieves the required reductions and sector contributions within the Integrated Framework:

Table LR 6: Allocation parameters and figures

	Dairy	Drystock
Standard sector % reduction	31.3%	20.0%
Nitrogen Discharge Allowance average	64.5	25.6
Lower Nitrogen Discharge Allocation range boundary	54.6	18.0
Upper Nitrogen Discharge Allocation range boundary	72.8	54.6
Sector contribution from Integrated Framework	35.3%	17.2%

Table notes:

a) the Nitrogen Discharge Allocation average shows the average for blocks within the range. The application of the methodology results in some blocks being given an increase in relative NDA. The non-benchmarked blocks receive the lower range boundary NDA of 18.0kgN/ha/yr for drystock and 54.6 kgN/ha/yr for dairy.

C. Managed Reduction Targets

Managed Reduction Targets are the reductions required in each five-year timeframe which in total equal the difference between the Start Point and Nitrogen Discharge Allocation. They are calculated as a percentage of the total reduction required (as shown in Table LR 7) and will be expressed as percentages in relation to the relevant reference files (see Schedule LR Five).

Table LR 7: Managed Reduction Targets

Managed Reduction Target Date For 2017 Start	Integrated Framework reduction (tN/yr) to be achieved	% of total reduction required	Managed Reduction Targets as % of total reduction required
1 July 2022	44	31.4%	31.4%
1 July 2027	48	34.3%	65.7%
1 July 2032	48	34.3%	100.0%
	140	**100.0%**	

Managed Reduction Target Date For 2022 Start	% of total reduction required	Managed Reduction Targets as % of total reduction required
1 July 2022	N/A	N/A
1 July 2027	50%	50%
1 July 2032	50%	100%
	100%	

If there is a need to recalculate a Nitrogen Discharge Allocation due to a transfer of Nitrogen Discharge Allocation the Managed Reduction Targets will be recalculated to maintain the same proportional rate of reduction.

D. Additional matters

- Exceptional circumstances may exist that imply a need to assess amendments to the Nitrogen Discharge Allocation calculations on a case by case basis. This may include consideration of previous on-farm nitrogen loss mitigations implemented on the property, lawfully established activities that result in nitrogen discharges and non-pasture low nitrogen discharge activities.

- Areas of trees that were grazed and that were benchmarked as pastoral will be allocated the current benchmarked allocation unless after applying the Drystock reduction calculations the discharge is greater than the Permitted Activity level. If this occurs, the Drystock calculation applies.

  Plantation Forestry-bush/scrub and house blocks will be given a Nitrogen Discharge-Allocation that equates the OVERSEER® discharge rate for these land uses within the Lake Rotorua groundwater catchment.

- Non-Benchmarked grazed trees will be allocated the Benchmarked grazed trees average discharge rate.

E. Amendment of Nitrogen Discharge Allocation

- Any amendment to Nitrogen Discharge Allocation that occurs due to subdivision, changes to property boundaries, addition of house blocks, contractual permanent removal of Nitrogen Discharge Allocation from the system or other circumstances must be authorised by the Regional Council.
- New lots created by way of subdivision will require a portion of the Nitrogen Discharge Allocation from the parent lot to be registered against each new title (Computer Freehold Register). This will need to be sufficient to provide for potential losses from sewage disposal, residential activity residual losses from the land, and losses from any area available for farming activity.
- The creation of new properties may lead to the requirement for resource consent.
- The complete or partial transfer of the Nitrogen Discharge Allocation for a property may result in that property losing the ability to be subdivided in the future, unless the nitrogen deficit is addressed.

Schedule LR Five

[664] There are several matters in relation to Schedule LR Five, which outlines the details of the reference file system:

(c) The need for consequential amendments;

(d) Changes to methodology for incorporating future version changes of overseer into PC10;

(e) Some minor changes for clarity and consistency.

We deal with each in turn.

The need for consequential amendments

[665] Schedule LR Five sets out the methodology to enable the latest version of OVERSEER® to be used to adjust a property's Start Point, Managed Reduction Targets and 2032 Nitrogen Discharge Allocations.

[666] As we have pointed out earlier in this report, PC10 has adopted the reference file system to address version updates of OVERSEER®. As we said, reference files are simplified single land use OVERSEER® representations of the five main rural land uses in the Lake Rotorua catchment: drystock, dairy, forestry, native bush/scrub and house blocks. These reference files would be used in PC10 to "index" the initial nitrogen allocation rates (measured in kg/N/ha/yr, in Overseer version 6.2.0) for each of these five land uses on a property. As new versions of

OVERSEER® are released, the reference files would be updated. If the new OVERSEER® version results in a percentage change to a reference file's nitrogen loss, the same percentage change is applied to real blocks with the same land use. That is, real block nitrogen allocation rates (Start Point, Managed Reduction Targets and 2032 Nitrogen Discharge Allocations) are all "indexed" against the relevant reference file.

[667] The reference file method is set out in Schedule LR Five and involves two steps. Step one, headed "*Create* OVERSEER® *reference files*" begins with:

> Overseer "reference files" have been established for a hypothetical dairy farm and a hypothetical dry-stock farm ("dry-stock reference file"), and to represent the permitted activity nitrogen discharge level. The Overseer input parameters for these files and methodology are provided in ***methodology for and output from further revision of NDA reference files, December 2016*** **and where not superseded, methodology for creation of NDA reference files and stocking rate table February 2016.**

[668] The highlighted words replaced the notified version which referred to a methodology dated ***August 2015***. The reason for the amendment to the updated ***August 2016*** was set out in the evidence of Mr MacCormick and Mr Matheson.[114]

[669] Following notification, and in response to a meeting with submitters on 15 September 2016, an analysis was carried out on how the reference files compared on a percentage basis against the average sector benchmarks over four versions of OVERSEER®. This comparison showed that the drystock reference files tracked the benchmarks reasonably closely. However, this was not the case for the dairy reference files.

[670] Further investigation revealed that the divergence from the benchmark average resulted from a bug in how OVERSEER® was calculating the background losses on effluent blocks. An analysis of options were identified to resolve this issue and resulted in the recommendation that the reference files be revised in accordance with an updated "***methodology for an output from further revision of NDA reference files, December 2016***".

[671] No evidence was adduced that challenged the updated methodology, discussed by Mr MacCormick and Mr Matheson and set out in an appendix to Mr Matheson's evidence. In the absence of such evidence we accepted the recommendations of Mr MacCormick and Mr Matheson.

[114] see MacCormick statement of evidence at [45] and ff; and Matheson statement of evidence at [41] and ff.

[672] Adopting the updated 2016 version of the methodology would, according to last minute advice lodged by the Regional Council officers, require some consequential amendments to PC10 as follows:

> The following table contains the relevant text and associated consequential change.

Rule	Rule text	Associated consequential change
LR R7(bpt 1)	"the effective area is less than 71% of the nitrogen loss rate generated by the drystock reference file …"	Amend 71% to **57%**
Schedule LR Five	Step 1 bpt 2 (see below)	Insert new bpt 2 (see below)
New LR R8A(a)	"2032 nitrogen loss reduction requirements have been determined for the land equivalent to 100% of the drystock reference file"	Amend 100% to **80%**
New LR R8A(a) Advice note	"1.Templates for Simplified Nutrient Management Plans and descriptions of stocking rates to meet 100% of the Drystock reference file are available from the Bay of Plenty Regional Council."	Amend 100% to **80%**

Schedule LR Five consequential amendment to reflect recommended reference file approach (Step 1: Create OVERSEER® reference files)

"In summary each pastoral reference file is based on:

- A simplified and hypothetical 100 ha farm.
- The same structure as typical benchmarking files, inputs that represent average benchmarked inputs, and predicted nitrogen losses in line with average discharges for the sector from the benchmarking period.
- ~~Input parameters selected to give a nitrogen leaching loss approximately at the mid-point of the two pastoral sector Nitrogen Discharge Allocation ranges. In OVERSEER® version 6.2.0 these are:~~
  - ~~25.6 kgN/ha/yr for drystock.~~
  - ~~64.5 kgN/ha/yr for dairy.~~"

[673] For the reasons set out in the s 42A report, and the evidence of Mr MacCormick and Mr Matheson, we concur with the suggested amendments.

[674] Mr Matheson said:[115]

[115] Statement of evidence at [57] and [59].

> The basis for the use of a reference file within the allocation framework is an attempt to anchor the relativity over time of permitted N losses allocated to properties, both within and between sectors, without the necessity of having to continually re-assess allocations.

[675] and

> … it is my opinion that the revised "sector benchmark average" files will deliver improved relativity of benchmark nitrogen losses through Overseer version change, and that they will therefore provide a better option for use in the framework than those originally developed in August 2015.

Finding

[676] For the above reasons we find that the suggested consequential amendments be incorporated into PC10.

Changes to the methodology for incorporating further version changes of OVERSEER into PC10

[677] Our concern here was the minor adjustments that may need to made to the methodology for incorporating future version changes of OVERSEER® into PC10 and which is referred to in Schedule LR Five. To maintain and uphold the integrity of the files and to reflect OVERSEER® version changes it would be necessary to update the methodology. Our concern was that any changes to the methodology could require a plan change which would be impracticable.

[678] We asked the Regional Council's officers how this concern could be addressed. They recommended a suite of changes to step 1 and particularly 8 of Schedule LR Five along with changes as to how the methodology should be referred to.

[679] We consider the Regional Council's officers recommendations would provide a practical and transparent process by identifying a series of principals to which any amendments would need to be adhered to.

[680] The approach suggested would also provide certainty to the community.

Minor changes for clarity and/or consistency

[681] We also address three other minor changes which we recommend to Schedule LR Five:

(a) In the summary section at the start we recommended inserting the word "discharge" into the phrase "nitrogen allocation rates", so that it would now read "nitrogen discharge allocation rates". This minor change is to ensure consistency throughout PC10.

(b) In Step one we recommend adding the words "dairy farm reference file" after the words "hypothetical dairy farm". This change is made to be consistent with the way the drystock reference file is referred to.

(c) In step C 9(a) we recommend replacing the word "renewal" with the word "interval". This is to avoid any confusion "renewal" of resource consents.

For the above reasons, we recommend Schedule LR Five as follows:

Schedule LR Five – Use of OVERSEER® and Reference Files

Introduction

The OVERSEER® nutrient budget model is updated from time to time with new versions that reflect:

- Improvements to the model algorithms and the user interface;
- Additions of new farm systems, farm practices and mitigation options;
- Corrected software issues.

While each of these OVERSEER® version updates represents progressive improvements, they may result (to varying degrees) in different nitrogen leaching outputs, even though the same farm inputs are entered. Some version updates will impact some farms, and some farm practices, more than others.

It is therefore appropriate to adopt an OVERSEER® methodology that:

- Enables the latest version of OVERSEER® to be used for every assessment (except for nitrogen discharge allocation purposes where version 6.2.0 applies) and so takes advantage of the best available science;
- Adjusts a property's Start Point, Managed Reduction Targets and 2032 Nitrogen Discharge Allocation in a way that enables a fair comparison with the property/farming enterprise's current nitrogen leaching rate, including when a new Nutrient Management Plan is generated every five years;
- Maintains reasonable Nitrogen Discharge Allocation relativity between properties/farming enterprises i.e. maintains the overall integrity of the nitrogen loss allocation method in Schedule LR One;
- Is understandable to landowners and managers;
- Enables effective compliance and reporting.

Use of Reference Files

Summary

Reference files are simplified single land use OVERSEER® representations of the five main rural land uses in the Lake Rotorua catchment: drystock, dairy, forestry, native bush/scrub and house blocks. These reference files are used to 'index' the initial nitrogen discharge allocation rates (measured in kgN/ha/yr, in OVERSEER® version 6.2.0) for each of these five land uses on a property. As new versions of OVERSEER® are released, the reference files will be updated. If the new OVERSEER® version results in a percentage change to a reference file's N loss, the same percentage change is applied to real blocks with the same land use i.e. real block nitrogen discharge allocation rates (Start Point, Managed Reduction Targets and 2032 Nitrogen Discharge Allocations) are all 'indexed' against the relevant reference file. The reference file method is explained in detail below:

Step 1: Create OVERSEER® reference files

OVERSEER® "reference files" have been established for a hypothetical dairy farm ("dairy farm reference file") and a hypothetical drystock farm ("drystock reference file"), and to represent the permitted activity nitrogen discharge level. The OVERSEER® input parameters for these files and methodology are provided in in *Methodology for and output from further revision of NDA reference files, December 2016* prepared by Perrin Ag Consultants Ltd. In summary, each pastoral reference file is based on:

- A simplified and hypothetical 100 ha farm.
- The same structure as typical benchmarking files, inputs the represent average benchmarked inputs, and predicted nitrogen losses in line with average discharges for the sector from the benchmarking period.

  In addition to the two pastoral reference files, it is also necessary to define a reference file for plantation forestry (typically *Pinus radiata*), due to potential changes in how OVERSEER® models forestry nitrogen losses (e.g. by OVERSEER® linking to the NuBalM model under development by Scion). To ensure consistency with the suite of reference files for dairy, drystock and forestry, it is necessary to have comparable reference files for, bush/scrub, and house blocks. Together, these land uses constitute the major land uses underpinning the Nitrogen Discharge Allocation method.

  The reference file parameters for plantation forestry, bush/scrub and house blocks are described in Table LR8 below:

Table LR8: Reference file inputs for plantation forestry, bush/scrub and house blocks

Reference file land use	Input Parameters	Nitrogen loss in OVERSEER® version 6.2.0
Plantation forestry	1000 ha pine block; 45 km from coast (prevailing NE wind); 1663mm catchment average annual rainfall (catchment average for benchmarked land in plantation forestry 2001-04)	2.5 kgN/ha/yr
Bush/scrub	1000 ha native block; 45 km from coast (prevailing NE wind); 1836mm catchment average annual rainfall (catchment average for benchmarked land in plantation forestry 2001-04)	3.0 kgN/ha/yr
House block	2.1ha property comprising two blocks	78 kgN/ha/yr or

	A and B. Block A: 2.0ha house block with 1755mm annual rainfall and 45 km from coast, 10 standard houses on conventional septic tanks: 30 people, 5% cultivated garden area. Block B: 0.1 ha trees and scrub block, 1800 mm annual rainfall and 45 km from coast, and native bush type. (the N loss from Block B is ignored as its inclusion is a work-around to enable the file to run i.e. OVERSEER® will not run if the only block is a house block).	15.6 kgN/house/yr

Step 2: Calculate property/farming enterprise's targets in relation to the reference files

Each property/farming enterprise's nitrogen targets (Start Point, Managed Reduction Targets for 2022 and 2027, and 2032 Nitrogen Discharge Allocation will be calculated as set out in A, B and C below.

A. Setting nitrogen loss targets in OVERSEER® version 6.2.0 and as percentages of reference files

1 The property's land use and 2017 start point are described in accordance with its 2001-2004 land uses and nitrogen losses, consistent with its 2001-2004 nutrient benchmark, being an actual Rule 11 benchmark value or a derived benchmark value in accordance with
Schedule LR One.

2 The 2032 Nitrogen Discharge Allocation is calculated in accordance with Schedule LR One using OVERSEER® version 6.2.0.

3 The reduction increments for the five year periods (corresponding to managed reduction) are as described in Schedule LR One and show the total reduction required over the 15 year period from 2017 to 2032, unless otherwise prescribed in a Nutrient Management Plan and resource consent conditions.

4 The reference file nitrogen loss rates are calculated using OVERSEER® version 6.2.0, using the file input parameters in in *Methodology for and output from further revision of NDA reference files, December 2016* prepared by Perrin Ag Consultants Ltd.

5 The target Nitrogen loss rates (Start Point, Managed Reduction Targets for 2022 and 2027, and 2032 Nitrogen Discharge Allocation are then expressed as a percentage of the relevant reference file Nitrogen loss rate.

6 The relevant land uses and areas, and Nitrogen Discharge Allocation and Managed Reduction Targets as percentages of reference files will be included within consent conditions (LR R8(a), LR R9(a) and LB R10(b).

B. Using reference files with subsequent OVERSEER® versions and maintaining the methodology

7 The reference files for the major land uses are rerun upon each new OVERSEER® version release, using the file input parameters provided in *Methodology for and output from further revision of NDA*

reference files, December 2016 prepared by Perrin Ag Consultants Ltd with the nitrogen loss results (in kgN/ha/yr) to provide an updated output. The nitrogen loss results (in kgN/ha/yr) will be made publicly available by the Regional Council. This will include a statement of any minor adjustments to the reference file input data necessary to maintain the detailed functionality of the reference files.

8 Where an OVERSEER® version change causes any reference file to malfunction, produce scientifically implausible nitrogen loss results, or includes a known error the reference file methodology will be amended on the basis of the following principles and considerations:

(a) Any changes to the reference files shall be the minimum required to maintain their integrity and functionality;

(b) The amended methodology will be consistent with technical information published by OVERSEER® Ltd;

(c) The reference file shall be structured to ensure consistency with current OVERSEER® data entry practice for the Lake Rotorua groundwater catchment;

(d) The reference file behavior should not be inconsistent with current Lake Rotorua Groundwater Catchment farm files;

(e) Any amendments will be independently certified by agricultural advisors with experience of the Lake Rotorua groundwater catchment and will align with changes to published OVERSEER® user guides;

(f) The amended methodology and independent certification will be published and made available by the Regional Council.

C. Use of updated reference files

9 A property's nitrogen targets are reassessed by applying the property's relevant reference file percentage rates (from step 6 above) to the updated reference file nitrogen loss rates. This reassessment shall be carried out when any of the following occurs:

(a) Upon updating the Nutrient Management Plan at the standard five-year interval;

(b) When the Nutrient Management Plan needs to be updated to reflect actual or proposed changes in the property's nitrogen management, including any transfer of Nitrogen Discharge Allocation or Managed Reduction Offset;

(c) Upon request for a reassessment.

OVERSEER® descriptions used to define sectors

OVERSEER® descriptions relate to definitions in the following ways[4]:

Drystock areas are OVERSEER® pastoral block types where the land use is not dairy, and cut and carry, crop and fruit crop.

Dairy areas are OVERSEER® pastoral blocks or fodder blocks that are

primarily used for dairy.

Bush/Scrub areas are OVERSEER® native blocks.

Plantation Forestry areas are OVERSEER® forestry blocks.

[4] OVERSEER® Technical Manual: Technical Manual for the description of the OVERSEER® Nutrient Budgets engine, April 2015.

[682] We have recommended two further changes to the Schedule LR Six over and above what was recommended by the Regional Council's officer's in Version 7. These are to include references to nutrient management (rather than just nitrogen management) in the third clause of Schedule 6, and to the list specifying the plan requirements so these four points are listed sequentially. These now read as follows:

> The Nutrient Management Plan shall take into account sources of nitrogen and phosphorus associated with the farming activity and identify relevant nitrogen and phosphorus management practices and mitigation measures.
>
> Nutrient Management Plans are the primary point of monitoring and if necessary compliance, particularly the mitigation actions, described land uses and OVERSEER® input parameters specified in the Nutrient Management Plan. These provide a point of comparison so that monitoring of resource consents issued under the land use activity rules can ensure that Managed Reduction Targets and Nitrogen Discharge Allocations are being met.
>
> The plan requirements will apply to:
>
> **A** **A Nutrient Management Plan prepared for an individual property or farm enterprise; or**
>
> **B** **A Nutrient Management Plan prepared for an individual property which is part of a farming enterprise or a collective of pastoral properties.**
>
> **C** **Nutrient Management Plans prepared for an individual property or a farming enterprise as part of an industry environment management programme approved by the Bay of Plenty Regional Council.**
>
> **D** **Nutrient Management Plans prepared for an individual property or a farming enterprise that are not derived from an industry environment management programme.**

[683] The final matter is that we recommended some minor changes to the Schedules to improve consistency and clarity.

Part VII – Overall Evaluation

[684] Proposed PC10 to the RWLP is the product of a community-centred process, undertaken in accordance with Policy 25 of the RWLP, to address the future management of pastoral land use in the Rotorua catchment to constrain the discharge of nitrogen. It is also designed to:

(a) give effect to the sustainable load of 435t/N/y set out in Policy WL 3B(c) of the RPS;

(b) give effect to the managed reductions set out in Policy WL 6B(c) of the RPS; and

(c) achieve the water quality in Lake Rotorua set at a TLI of 4.2 by Objective 11 of the RWLP.

[685] As we have said, proposed PC10 emerged through a community-based process that developed a definitive Integrated Framework which allocated a proposed reduction of 140t/N/y through rules applying to a pastoral land use out of a reduction target of 320t/N/y. The remaining 180 t/N/y is the responsibility of the community.

[686] Thus we are conscious that the rule framework as proposed in PC10 applies only to the allocated reduction of 140t/N/y by the pastoral sector. The Integrated Framework has allocated this reduction between the dairy and drystock sectors. These reductions are proportionately carried through into the methodology used to allocate NDAs and MRTs to individual farming enterprises.

[687] It is important for us to remember that the provisions of proposed PC10 must be considered as an integrated and holistic package. Each segment of the package relies on the other. The Integrated Framework forms the basis of the rule framework. The calculation of the NDAs and MRTs relies on the methodology set out in the Schedules, which in turn relies on the methodology used to apply OVERSEER® and the use of Reference Files. The implementation of the NDAs and the MRTs in turn rely on the methodology used to incorporate the NMPs.

[688] This has resulted in a complex, but inter-related, framework. The divergent views of the submitters have added to the complexity of the process. In the body of this report we have, for convenience and ease of analysis, grouped the major overarching issues into topics that reflect the areas of concern raised by the submitters.

We have then addressed specifically the provisions of proposed PC10 in accordance with the headings as set out in that document.

[689] The limits and managed reductions proposed in the proposed provisions are founded on science. In this regard, it was commonly accepted that Lake Rotorua is the most scientifically studied lake in New Zealand. Notwithstanding, we are conscious of the need for further and continuing science to inform the future management of land use in the Rotorua catchment. A need that is provided for in LR M2 of proposed PC10 and is strongly supported by the scientific experts.

[690] A number of submitters sought that PC10 be put on hold until the outcome of the science reviews. We have found that to do so would be inappropriate. First, any delay was not supported by the scientific experts. This reflected our concern, that to put PC10 on hold for five or more years is failing to address the significant nitrogen load that is currently, albeit slowly, making its way through the groundwater to the lake.

[691] Secondly, to put matters on hold would not address the need to address nitrogen loads to the lake, a matter that is strongly signalled in the objectives and policies of the RPS, the RWLP and the NPS-FM. To delay addressing this issue would put at risk the timely control of nitrogen, which would have an impact on the water quality of the lake in the future.

[692] Federated Farmers and its allied submitters sought detailed amendments to the rule framework, which we have addressed in this report. The overall approach of Federated Farmers was to seek rules 11A to 11E of the RWLP be retained, with some minor amendments, until the science review has been undertaken. They sought a sub-catchment collaborative approach, with communities developing non-statutory sub-catchment allocation plans to address the reduction of nitrogen. They also sought that all farming be a permitted activity where landowners operate at or below a benchmark figure and work voluntarily to reduce nitrogen losses.

[693] We have rejected the approach put forward by Federated Farmers and its allies as we consider:

(a) their proposed rules could lead to an increase in nitrogen discharges to the lake and would not achieve either of the 2022 and 2032 RPS limits;

(b) the uncertainty of and doubts about the enforceability of the proposed permitted activity rules; and

(c) that there is no scientific reliable basis for any sub-catchment approach.

[694] We have also rejected claims by some submitters that we should recommend abandoning the hybrid grandparenting approach and start afresh on an alternative Natural Capital basis or a polluter pays approach. We received no evidence or details as to how such approaches could be implemented. The Natural Capital approach was considered as one of the scenarios economically modelled by the Regional Council's economic witnesses. We have found that the criticism of that evidence did not reach the threshold that would raise doubts that proposed PC10's nitrogen allocation approach is the most appropriate, at least from an economic perspective.

[695] We have found that the proposed allocation methodology is the most appropriate method for a number of reasons, including:

(a) that it was developed over a period of time through the community process in accordance with Policy 25 of the RWLP;

(b) that the correlation between land use and land capability in the Rotorua catchment does not lend itself to the most favoured alternative natural capital approach;

(c) that there was no evidence adduced as to the form or framework of any alternative approach; and

(d) for the reasons given in the report and set out in the Regional Council's s 32 and s 42A reports we considered that the existing allocation framework in PC10 would give effect to the relevant objectives and policies of the RPS and RWLP.

[696] We have addressed the major criticisms of the rule framework, such as:

(a) the adequacy of OVERSEER® as a regulatory tool;

(b) the form and use of NMPs as both a farm management tool and an implementation tool;

(c) the Nutrient Transfer Scheme; and

(d) the need to recognise the significance of the Rotorua Wastewater Treatment Plant.

[697] We have considered all of the issues raised in the submissions. Many of these have been addressed by the Regional Council by way of iterative amendments during

the hearing. We have, where we considered it appropriate on the evidence and representations, made further amendments to the proposed provisions.

[698] As the proposed changes are to the policies and to the rules, our starting point has been the objectives of the RWLP, which are not proposed to be amended. This is because a regional plan must state (inter alia):[116]

(a) the policies to implement the objectives; and

(b) the rules to implement the policies.

[699] In making rules we are also to have regard to the actual and potential effects on the environment.[117] We have undertaken our analysis on the basis that the objectives of the RWLP have adequately subsumed the principles of the RMA. In this case, we cannot assume that the objectives of the RWLP have subsumed the principles set out in the higher statutory instruments. This is because the RPS and the NPS-FM were promulgated after the RWLP became operative.

[700] As for the RPS, an analysis of the objectives and policies reveals that they align well with the objectives and policies of the RWLP. They endeavour to achieve the same environmental and community outcomes.

[701] We have identified the relevant themes that emerge from the relevant objectives and policies of both the RPS and the RWLP, and have concluded that proposed PC10 as recommended by us gives effect to:

(a) the need for an integrated approach to resource management;

(b) the need to enhance the water quality in Lake Rotorua;

(c) land use activities being within the assimilative capacity of the lake;

(d) requiring the management of nitrogen and phosphorous in the lake catchment;

(e) on-going research, monitoring and review;

(f) the need for community involvement; and

(g) the strong directions reflecting the provisions relating to Māori in the RMA.

[116] s 617 of the RMA.
[117] s 68(7) of the RMA.

[702] The objectives and policies also give effect to the explicit directions contained in Policies WL 3B, WL 5B and Policy 6B of the RPS and Objective 11 of the RWLP. We have also been mindful, albeit it to a lesser degree, of the principles enunciated by the StAG process.

[703] Of particular relevance to this plan change is the NPS-FM 2014. As we have said, the freshwater objectives for PC10 have not been set using the exact process required by Policies CA1-CA4, because at the time the objectives and limits were set the process did not exist. However, although the exact process was not followed, we have found that the process undertaken as part of the community StAG process was very similar.

[704] As we have pointed out in the body of this report, the Regional Council has addressed the fact that the freshwater outcomes in the plan change were not prepared under the National Objectives framework required by the NPS-FM by publicly notifying a staged implementation programme. Full implementation of "the NOF" is to be completed as part of the Regional Council's revised implementation programme.

[705] Overall, we are satisfied that the outcomes and limits set for water quality partially give effect to the policies of the NPS-FM. The Regional Council is addressing full implementation of the Lake Rotorua Catchment and other catchments within its territory by its progressive implementation programme.

[706] We are satisfied that the Land Management Rules controlling the discharge of contaminants into water are appropriate to ensure:

(a) compliance with the statutory directions contained in Part 2 of the RMA;

(b) consistency with the objectives and policies of the RWLP and the other related statutory instruments, and particularly the TLI target of 4.2 for the lake;

(c) a balance between economic and community considerations for the farming community and the environmental outcomes;

(d) a practical and equitable balance as between low and high emitters; and

(e) a novel but practical approach to addressing the vagaries of providing for updated versions of OVERSEER®.

[707] We have been greatly assisted by the Regional Council officers' detailed reports and memoranda. They have assisted us to make the necessary evaluations, and we

have adopted parts of those reports and evaluations on certain matters as set out in the body of this report.

[708] We have also been greatly assisted by the submission and hearing process. We are grateful to those parties who showed a willingness to participate in a collaborative and caucusing process to address some of the major areas of concern. We were assisted by the outcome and reports that evolved from that process.

[709] We are, at the end of a very full process, satisfied that the proposed provisions as set out in Appendix 3 are the most appropriate to give effect to the single purpose of the Act.

Part VIII - Recommendations

[710] We have considered and deliberated on PC10; the submissions lodged on it; the further submissions lodged on it; the reports of the Regional Council's officers; and the evidence and submissions made and given at our public hearing or lodged with the Hearing Manager.

[711] We have considered, to the degree directed by statute, the matters set out in:

(a) the Resource Management Act;

(b) the relevant national policy statements; and

(c) the relevant statutory instruments.

[712] Our reasons for our recommendations are set out in the main body of this report.

[713] We accordingly recommend the provisions of Plan Change 10 as set out in Appendix 3 to this report which is a 'track change' version showing our amendments in 'green'. We also enclose as Appendix 4 a 'clean copy' of our recommended version of PC10 as it would appear if all our recommendations were adopted. If there is any discrepancy between the wording set out in our report and the wording set out in Appendices 3 and 4, the wording in Appendices 3 and 4 prevails.

[714] We also attach as Appendix 5 the document "Plan Change 10 Lake Rotorua Management Recommendations on Provisions with Submissions and Further Submissions – Parts 1, Part 2 and Part 3".

Retired Environment Court Judge Gordon Whiting (Chair)

Gina Sweetman

Rauru Kirikiri

Brent Cowie

29 June 2017

VOLUME TWO - APPENDICES

Appendix	Details
1	A list of the reports, evidence, submissions and representations received and considered by the Panel
2	Version 7 of Plan Change 10
3	'Track change' version of Plan Change 10 dated 29 June 2017
4	Panel Recommendations on Plan Change 10- clean copy version dated 29 June 2017
5	Panel Recommendations and Decisions on Provisions with Submissions and Further Submissions: - Parts 1; - Part 2; and - Part 3.
6	Lake Rotorua Nutrient Management Plan Change 10 – Consequential amendments to RWLP – for notification version dated 29 June 2017
7	Lake Rotorua Nutrient Management Plan Change 10 – Consequential amendments to RWLP – 'clean copy' version dated 29 June 2017