In the matter of The Resource Management Act 1991

And

In the matter of Lake Rotorua Nutrient Management **Proposed Plan Change 10** to the Bay of Plenty Regional Water and Land Plan

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Presentation for Timberlands Limited

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1. My name is Colin Maunder. I have filed evidence dated 6 March on behalf of Timberlands Limited. My qualifications and experience are set out in paragraphs 1 and 2 of that evidence.

2. My evidence concerns how Timberlands, a forest licensee with approximately 2800 Ha of plantation forest and an 80Ha pine tree nursery in the catchment, were involved in the development of Proposed Plan Change 10 and how aspects of the policy design affect Timberlands.

3. Timberlands support the purpose of the proposed Plan Change 10 to returning the TLI of Lake Rotorua to a sustainable 4.2 by using a rule structure to reduce N input to the Lake, but believe that these rules unnecessarily constrain aspects of potential plantation forestry.

4. I was the forestry representative on the Stakeholder Advisory Group (StAG). At the first StAG meeting on November 2012 I cautioned that foresters, who often lease land, will be affected differently by the Plan from how land owners will, as lessee foresters' interests are focussed on whether the rules will enable us to produce a valuable tree crop. I also advised that foresters are strongly opposed to grand parenting as an allocation mechanism.

5. Foresters in general did not have the staffing capacity to be involved to the extent demanded by the process and were thus intermittently represented at StAG. That has probably contributed to:

    a. a very simplistic view of forestry regimes being used[1], which Council advises was "due to time and budget limits".

    b. StAG reduced the N allowance from forestry from 4kg/Ha to 3 kg/Ha[2]. It is not clear how the Overseer 5.4 to 6.2 did not increase forestry leaching, as it did for most other land uses, however I am aware that Overseer has no technical advice on forestry, which may have contributed to its lack of sensitivity between versions on forestry N allocation.

6. It's evident that forestry is poorly understood and its needs and effects were poorly characterised in the policy development process. Most assessment techniques used for the policy development have been designed or done for a farming context. This has resulted in significant differences between how the two main productive land uses are dealt with:
    a. Relationship between land and crop. In farming the land owner is integrally involved with the crop. For forestry the land owner and the crop owner can be two completely different entities. The

[1] April 2013 StAG - Scion advised more forestry options should be considered - different species, silviculture regimes and financing structures.

[2] June 2013 meeting

nitrogen rules are tied to land, not crop. The needs of the land owner and crop owner could thus be quite different. The rules do not affect the continuation of non-fertilised short rotation softwood regimes. However taking away optionality from the landowner, as these N rules do, will act to favour the lessee and damage the prospects of the landowner. The lessee therefore cannot represent the landowner's interests in this process.

b. Modelling N. Overseer is designed for pastoral land management comparisons, not plantation forestry or nursery operations. *Slide 1 nursery – explain nursery.* Alternatives to Overseer are provided in Rule LR R11. But there is no guidance in the plan on how to correlate N leaching modelling between overseer and other models, particularly as Overseer's representation of N leaching substantially changes from version to version. *Slide 2 Overseer v forestry alternatives.* Forestry allocation has been reduced from the "low leaching activity" status set in Rule 11, of 10kgN/Ha, to the "extremely low" 2.5kgN/Ha. Native forest has been set at 3kgN/Ha. Other than it being a representation of atmospheric N processes, it is unclear to us the scientific or policy basis behind Council's acceptance of this number. High levels of leaching in dairy and pastoral systems suggest more N is being applied than is able to be used by the grass or taken up by the soil and I note Dairy NZ's recent statement that farms could leach up to 40% less N than currently with little adverse impact on profitability. (*Dairy NZ summary paper supplied*)

c. Economic effect of various policy options. EBIT (earnings before interest and tax) has been used as the methodology to assess farming profitability. Foresters use IRR (internal rate of return). This difference between sectors does not appear to have been recognised in economic assessments, nor has the difference in marginal value to each enterprise type of adding N – covered further below.

7. The Rule 11 section 32 report and the 2009 review identified that the "hold the line" approach was only meant to be a stop-gap measure until a fairer regime was developed. Forestry's preference was that if an allocation regime was to be used, that it be based on natural capital. Stag Sept 2015 minutes note: *Natural Capital allocation was discussed in depth and there was support from many attendees as the best long-term solution.*

8. The Rule 11 benchmark was used as the Plan Change 10 benchmark. At less than 10kg/Ha, forestry was originally beneath a level of interest or concern to Council and therefore its nitrate loss may not have been characterised. The allocation to forestry in PPC10 of nothing more than atmospheric nitrogen transport is substantially less than the margin of error of an Overseer output, and would not allow for other variants on forestry. Slide 3 *Scion trial information. 200kg N applied at year 8 produced a 25% response in volume grown over the subsequent 6 years.*

9. At the October 2015 StAG meeting foresters summarised their concerns and position. Locking forestry in at <3kgN/ha/yr would make it not possible to use fertiliser even though this would improve its economic efficiency further. Sector averaging forested land would give no capacity to use other tree crops. For example hazelnuts may be <10kgN/ha/yr, but not 2.5kgN/ha/yr. Locking forestry to a really low level puts forestry investment at risk, because any land user presently not in forestry will see that a change to forestry land use will become a lock into forestry land use. A policy regime that creates behaviour that would shun the lowest emission land use is a perverse one. Such a regime does not provide for as yet unforeseen land uses, or risks as yet unknown. This needs to be provided for, through land use flexibility that reflects the land's potential for use.

10. Various policy options were assessed in the Section 42A report. Several were ruled out without proper explanation or supporting evidence:

    a. Adding an objective and policy *providing for flexibility of …Forestry* was considered and rejected, as it would require reallocation of load to an extent that would be unpalatable for high-leaching pastoral activity. But if the nett benefit of the option to the catchment is greater, that is insufficient reason

to rule it out. I have not seen Council's analysis of the marginal value of N input, both in terms of its contribution to economic value, and to its impact on leaching. I would be very interested to see an analysis of the marginal benefit of additional N input on forest economics and on leaching from these sites, and a comparison with dairy and pastoral farming for the same.

b. Allowing plantation forestry to change to other uses, in accordance with land use capability was also ruled out: *Allocating 54.6 kgN/ ha/year to the 2943ha of plantation forest on LUC class 1-4 would require 153 tonnes of nitrogen, which is more than the 140tN/year on-farm reduction that the rules require. Using the drystock NDA of 25.6kgN/ ha/year would reallocate 68T of nitrogen, or 49% of the current target for on farm reductions.* (Moleta evidence). The report states these effects but does not explain why this should not happen. It leaves hanging what the effect of the present regime has been to various land users.

c. A reallocation of nitrogen to forestry. Council advises that can't be done because: *This will alter the Integrated Framework, which was developed based on "extensive community engagement".* Timberlands contends that the Integrated Framework was mainly developed by the Lake Rotorua Primary Producers.

11. The report does not consider any scenarios where the standard short rotation softwood regimes is replaced by any other horticultural or forestry regime such as long rotation hardwood, trees as a host for high value other crops such as truffles or mushrooms, fruit or nut trees or vines, or any form of intensive horticulture or cropping on classes 1-4.

12. Proposed Plan Change 10 enables the pastoral farming community to provide for their economic and social well-being but constrains other land users from doing the same. Land used for pastoral agriculture, identified as the most significant source of nitrogen leaching, is provided with an allocation of nitrogen at the same or greater levels per hectare than it had over the period 2001 to 2004[3], from which to start a reduction process. Those land users who may want to modify presently *extremely* low leaching activities to become merely *low* leaching activities cannot do so, but must contribute to the compensation to be paid to retire N out of the system. Substantial tangible economic benefits are provided to high-leaching land uses while costs and constraints are imposed on low leaching land users.

13. Council advised that although Rule LR R2 requires that any forest must remain as forest, a change of tree species will not need resource consent. Council also advised that there is no research showing that an increase in inputs (such as fertiliser application) increases the forestry N loss, thus no trade is required for fertiliser application to trees. While Council may make this interpretation, the wording of the rule does not make either of these options abundantly clear.

14. "Overseer" is the key model for determining nitrogen outputs per property, which are required for the allocation process to work. It is dealing with the natural world in which there are a huge number of variables, so N flows will never realistically be able to be characterised to be extremely precise. Overseer has not been validated to the characteristics of different soil types and its accuracy for the soils of Lake Rotorua is still unknown. Overseer is not designed to model forestry. *Slide 4 overseer v other mass balance approach*

15. It appears that at no point did Council step back and identify that the tools they had made the policy approach impossible. If the tools available can only provide a coarse analysis of the pollution portfolio, the policy must be designed to respond to a coarse quality of data. Instead Council has set up an implausibly accurate allocation regime.

[3] Because benchmarking did not occur until 2013 and the farm practice may have changed in the intervening 8 years to increase the amount of N leaching.

16. At Stag June 2015 Dr Nicky Smith identified some considerations and cautions of locking into a policy regime that would freeze land use to current patterns. Firstly in the relatively long time horizon for this policy (>15years) a number of other factors affecting enterprise profitability might change. Secondly that the model assumes structural relationships and relative agricultural prices will continue to grow at a relatively higher rate than forestry. This may not be so. Thirdly there is potential for other low N land use and N mitigation options will emerge, and the model doesn't contemplate those or how to fit them in.

17. The compromises required to sustain the activity of one sector does raise the question of whether that subsidy is worthwhile.

18. Allocation is not a suitable policy regime in conditions where there is considerable measurement uncertainty for the substance being allocated. Allocation of all N sets in place a rigid regime with enormously valuable property rights. The wealth transfer that this process sets in train gives a small proportion of land use in the catchment a tradeable resource worth millions of dollars, while preventing other land users from exercising their ability to flexibly use their land at all.

Conclusion

19. Timberlands believes the process Council used to arrive at a sector averaging allocation regime is inconsistent with the purpose of the RMA and does not properly interpret RPS policy WL 5B.

20. Timberlands believes that Council does not have suitable tools for an allocation regime.

21. Timberlands believes that Council should replace the Plan Change 10 policy regime with one that uses polluter pays, but should Council persevere with an allocation regime, Timberlands believes the regime should be based on natural capital, and be zero-based rather than start from Rule 11 benchmarks.

22. Timberlands believes that the model "Overseer" should be restricted to that of a non-regulatory decision support tool.

Economic and environmental indicators for a forest and dairy farm Supplied by W Parker, Scion.

Comparative economic and environmental indicators for a representative forest and dairy farm in the Central North Island

	Forestry		Dairy	
Hectares	28,000		26,600	Grazable
Stocking	550	trees/ha	2.50	cows/ha
Yield/unit	678	m^3/ha	380	kg milk solids/cow
Rotation	28	Years	1	Season
Total yield	678,000	m^3/yr	25,270,000	kg milk solids/yr
10-year average price	98.15	$/$m^3$	6.42	$/kg milk solids
Min. price in 10 years	88.94	$/$m^3$	4.60	$/kg milk solids
Max. price in 10 years	102.31	$/$m^3$	8.64	$/kg milk solids
Average surplus	28,686,180	$ to forest owner	39,673,900	$ to farmer for milk
Minimum surplus (loss)	22,441,787	$	-6,317,500	$
Maximum surplus	31,503,709	$	95,773,300	$
Probabilities of loss	0	%	13	%
Manufactured Product	67,550	t pulp	37,522,559	kg whole milk powder
	275,268	m^3 of lumber	3,035,393	kg cull cow and veal*
10-year avg. export price	737	$/t pulp	7.07	$/kg milk solids
	404	$/$m^3$ of lumber	4.76	$/kg whole milk powder
			4.90	$/kg meat
Values of manuf. products**	160,992,373	$/forest	193,527,714	$/land area to dairy
Land value***	6,000	$/ha	36,100	$/ha
Jobs (farm/forest)	84	emp/forest/yr	415	emp/farm/yr
Jobs (plant/mill)	280	emp/mill/yr	175	emp/plant/yr
Nitrogen discharge****	3	kg/ha/yr	54	kg/ha/yr
Red./Inc. from allow.*****	-32	kg/ha/yr	19	kg/ha/yr
Indicative payment	1,024	$/ha/yr	-608	$/ha/yr
Carbon emitted/stored******	11	t CO_2e/ha/yr seq	-10	t CO_2e/ha/yr emitted
Price assumed	7	$/t CO_2e	7	$/t CO_2e
Indicative payment	77	$/ha/yr	-70	$/ha/yr
Indicative env. payment	1.62	$/$m^3$	-0.71	$/kg MS
Indicative env. payment	30,828,000	$/forest	-18,034,800	$/land area to dairy

* 18% herd culled at 197 kg avg. carcass weight, 22% replacement rate, 97% of calves that survive, 70% bobbied at 15 kg carcass weight (refer to text for data sources).
** Valued at export prices and assuming that all raw-product supply is manufactured domestically to show full potentials. Actual production values in the CNI are listed in the main body of the text.
*** Sources: Dairy NZ (2015a), Evison (2008) and McCarthy (2004).
**** All nitrogen figures are based on the benchmarks estimated for Lake Rotorua using Overseer v5, a nitrogen price of $400/kg (or perpetual annuity of $32/kg), and a dairy discharge allowance of 35 kg/ha.
***** Indicative figures to show the externalities generated by forestry (avoided leaching below allowance) and dairy (leaching above allowance). The actual policy implementation is described in the text.
****** Considers average annual seq. rates (35 t CO2e/ha/yr) and emissions (647 t CO2e/ha) for forestry