

**BEFORE THE INDEPENDENT COMMISSIONERS**

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

AND

**IN THE MATTER OF**            the Canterbury Proposed Land and Water  
Regional Plan.

Evidence of Claire Margaret Mulcock

FINAL

April 19 2013

## QUALIFICATIONS AND EXPERIENCE

1. My full name is Claire Margaret Mulcock. I am a director of Mulgor Consulting Ltd, an environmental management consultancy, based in Christchurch. I have practised as a resource manager / hydrologist since 1976, as a consultant and for both government and non-government organisations. My area of particular expertise is in land and water resource management, particularly in rural communities.
2. I hold the following qualifications: B.Sc. (Chemistry) and M.Sc. (Resource Management), both from the University of Canterbury. I also hold the Graduate Certificate in Hydrology (University of New South Wales).
3. Since 2005 I have been working on the development and implementation of Farm Environment Plans, mainly as a method for irrigation schemes to take a systematic approach to achieving sound on-farm environmental management and demonstrating this to regulatory authorities and the wider community. This work includes: development of the 'An Irrigation Scheme Environmental Management System'<sup>1</sup> for The Ritso Society Inc. and presentation of this approach at consent hearings for Central Plains Water (CPW) and Hunter Downs Irrigation; implementation of an Environmental Management Strategy, Farm Environment Plans and audits for Morven, Glenavy and Ikawai Irrigation Co.
4. Since October 2012, I have been working on a project for Irrigation New Zealand (INZ) reviewing and updating the Ritso Society work, particularly to incorporate a 'managing to limits' approach for water quality management and revising the Farm Plan template. Two reports were provided to INZ in March 2013, as 'drafts for review'. These reports are appended to this evidence:
  - a. Attachment 1: C M Mulcock and I Brown (2013) 'Irrigation Audited Self-Management: Managing Water Quality and Quantity within limits' prepared for Irrigation NZ Draft for Review March 2013
  - b. Attachment 2: C M Mulcock and I Brown (2013) 'Irrigation Audited Self-Management: 'How-To Guide' (and appendices) prepared for Irrigation NZ Revised Draft April 2013
5. This evidence is presented on my personal submission (Claire Mulcock submitter 91) and on behalf of Irrigation NZ (submitter192).
6. I confirm that I have read and agreed to comply with the Code of Conduct for expert witnesses. This evidence is within my area of expertise, except where I state that I am relying on facts or information provided by another person. I have not omitted to

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<sup>1</sup> Mulcock, Cumberworth and Brown (2009)

consider material facts known to me that might alter or detract from the opinions that I express.

## **Key Issues Addressed in this Evidence**

### **Schedule 7 – Farm Environment Plan**

#### **Farm Environment Plans**

##### **Concept / background**

7. The key reason for developing the Farm Plan and audit process for Central Plains Water (CPW) was for the scheme managers (as consent holders) to have a means whereby the irrigation scheme could ensure that good environmental management was occurring on the scheme farms. As an irrigation scheme generally covers a wide range of property sizes, soils, slopes and land uses of various intensities, it is difficult to write meaningful consent conditions that have the flexibility required to be appropriate for different activities over time, whilst achieving the desired environmental outcomes.
8. At the time that CPW was preparing its consent applications, a consent had recently been granted for another irrigation take from the Waimakariri River (CRC52033, now CRC52033.2) with condition 6 stating: *'.....for the irrigation of pasture for milking dairy cows and grazing of sheep, beef cattle and dairy support. Provided that water taken under the consent shall not be used to irrigate more than 50 per cent of the total area for dairy farming.'* CPW considered that there had to be a better approach than requiring the scheme to restrict land use activities, and the Ritso Society project was initiated to develop an environmental management system for irrigated land use, using farm plans.
9. The key purpose of these farm plans, therefore, was to cover the potential adverse environmental effects of irrigated land use on water quality and quantity. In evidence presented to consent hearings for CPW and Hunter Downs Irrigation I was of the view that the irrigation schemes should not be required to take responsibility for collected effluent on individual properties, except where effluent issues were exacerbated by irrigation.
10. In my view Farm Plans should not be a surrogate for other Canterbury Regional Council (CRC) monitoring for permitted or consented activities. Auditors with skills to carry out farm systems assessments and nutrient budget checks will often have little or no experience with resource consent conditions or the requirements of permitted activities (e.g. those pertaining to offal and rubbish disposal).
11. The Schedule 7 Farm Plan process has picked up many of the concepts from the Ritso Society work, but the objectives of the process are now wider and are intended to be applied much more widely, including to individual properties.

12. It is not clear exactly what the farm plan in Schedule 7 seeks to achieve. There is a considerable risk that it will become a bureaucratic process, and lose the focus on improving farmer understanding and skills in managing the environmental aspects of irrigation, stock, cultivation, nutrients and waterways that was key to the Ritso Society work, and is evident in the implementation of farm plan processes for Morven, Glenavy and Ikawai Irrigation Co Ltd (MGI) and North Otago Irrigation Co Ltd (NOIC).

### **Schedule 7**

13. The introductory section to Schedule 7 on the pLWRP states that '*...plan shall be prepared by ...*'. I note that my submission is incorrectly reported in the s42A report. I sought that 'prepared by' be altered to 'approved by'. This is so that the farmer can prepare their own plan, but that there is a process to check that the plan is adequate to address the issues and achieve the desired outcomes. In my view the farmer needs to be actively involved in both assessing the environmental risks and in determining the appropriate management practices and records to demonstrate how they are managing adverse environmental effects, and therefore must be responsible for preparing the plan.
14. The s42A report proposes new wording that replaces the notified pLWRP Schedule 7 introductory section. This wording does not cover either who prepares a Farm Plan, or how it will be checked as being complete and appropriate. I support the concept proposed in the s42A report, that the Farm Plan can be based on either an approved industry template/programme or specified criteria.
15. The s42A recommendation 'Part A 1(ii)' refers to '*identifying environmental effects*' and then to '*avoiding, remedying and mitigating those effects*'. As not all environmental effects on farms are adverse effects, the 'avoiding, remedying and mitigating' should only be for '*adverse effects*'. It is however appropriate to identify positive as well as adverse effects when assessing risks. There are several other places in the s42A recommendations where 'environmental effects' should be prefaced by 'adverse'.
16. The s42A recommendations for pLWRP 'Plan requirements' are identified as 'Part B'. The recommendations contain some significant changes from the pLWRP. For the Plan to be of most benefit to achieving the desired environmental outcomes for water quality and quantity it must be as practical as possible for the farmers to complete and minimise the need to attach material or information that the CRC already has easy access to.
17. Part B 3 requires the '*full text of any resource consents ...*' be appended to the Plan. This does not define the types of consents needed and, therefore, may be taken to also include those granted by territorial authorities. Requiring the full text, when CRC

consents are readily available from CRC databases seems unnecessary. At most, a list of any water permits or discharge permits related to farming activities (i.e. not the house septic tank consent) and the consent numbers would seem to be sufficient.

18. 1 (c) requires the legal description and property identifier. This information is not easy for a farmer to provide, especially as a 'property' will often be in several titles. Providing that the map or aerial photo required in (2) has North direction identified and one or more roads identified by name, then CRC can easily locate the property on their GIS system and retrieve the land title information for themselves, as required. In my view the Farm Plan should provide sufficient information for the area covered by the plan to be located on the ground and on a GIS system. A suitably annotated map and a farm address would be adequate.
19. S42A recommendation Part B 4 revises pLWRP 3 which requires an assessment of risks to 'water quality', and broadens the assessment to include the environmental effects and risks associated with the farming activities on the property and how the identified effects and risks will be managed, including irrigation, application of nutrients, effluent application, stock exclusion from waterways, offal pits and farm rubbish pits. The key environmental issue that the plans need to focus on is managing water quality and water quantity. I consider that if the farm plan becomes a 'catch all' for every type of environmental effect it will lose its effectiveness. The key issues of nutrient management from stock, cultivation and fertiliser should be the focus. The related matters of irrigation design and operation are also critical to minimise runoff and leaching. If, at the end of the plan period for this LWRP, we have made significant progress on these matters, then additional issues that are relevant, but have not been currently identified as high priority problems (e.g. offal and rubbish pits) could be added. For example, if a farm plan auditor has to check rubbish pits, this potentially distracts from the key focus of the audit. In my view, pLWRP – Plan requirements (3) was appropriate. The s42A recommendations are not.
20. pLWRP Schedule 7 4. (a) to (f) and s42A recommendations 5. (a) to (f) set out the objectives that farm plans must be seeking to achieve. In removing the objective on wetland and riparian management and adding one on offal and rubbish pits the plan has shifted from a clear focus on managing water quality and quantity within limits to giving mixed messages about which environmental risks are critical to address.
21. In order for the Farm Plans to be audited in a manner that is clear and transparent, each objective must be independent. That is, at the time of audit, each matter should only be assessed in one section. I recognise that this is not straightforward, as the various aspects are inter-linked. However, it is not satisfactory if the same matter is given a 'fail' grade in two places, as this is not the same as two 'fails' for different matters. For example, with the proposed wording, an auditor could find that stock

were causing nutrient losses to water both under Nutrient Management and under Livestock Management. In our work with implementing Farm Plans for MGI, that were based on the Ritso Society template, we realised that there were significant overlaps between the Soils Management and Nutrient Management sections, and that we needed to revise how the sections were designed and audited.

22. In the recent work for INZ we have carefully reviewed the objectives to ensure that each is a key outcome for achieving management of water quality and quantity within limits, and that each objective can be audited independently of the others, as far as possible. Based on that work, these are the management areas and objectives that I now consider to be the most important :

**Irrigation System Design and Installation:** To ensure that all new irrigation systems and significant upgrades meet industry best practice standards

**Irrigation Management:** To ensure efficient on-farm water use that meets crop needs and minimises losses.

**Nutrient and Soil Management:** To minimise nutrient and sediment losses from farming activities to ground and surface water.

**Waterway and Wetland Management:** To manage waterways, wetlands and their margins to avoid stock damage and minimise inputs of nutrients, sediment and faecal contamination

**Collected Effluent Management:** To manage the operation of the effluent system to avoid adverse effects on water quality

23. I note that the changes that I sought to these management areas and objectives in my submission are slightly different to, but consistent with, what I now propose.
24. The farm plan template that is included in the report in Attachment 2<sup>2</sup> demonstrates how these management areas and objectives can be incorporated in to a practical plan that can be audited against the objectives and required outcomes for each area. This template was designed to incorporate the requirements for Farm Plans that were set out in the notified version of Schedule 7.
25. Recommendations in the s42A report and last paragraph pLWRP schedule 7 4 both cover the matters to be included in the Farm Plan. The new 6(a) (*6. The plan shall include for each issue in 5 above: (a) detail commensurate with the scale of the environmental effects and risks*) is not clear as to what the CRC is seeking. That is, whether an adverse effect that has a high risk of occurring must be explained in a lot

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<sup>2</sup> C M Mulcock and I Brown (2013) 'Irrigation Audited Self-Management: 'How-To Guide' prepared for Irrigation NZ Draft for Review March 2013

of detail, or whether the management practices to avoid etc need to be explained in detail, or some other meaning. In my view 6(a) is unnecessary, as I do not consider that the amount of detail written in the plan will necessarily improve the outcome. A very brief, but clear description of the proposed practices could be equally or more effective on the ground.

26. Recommended change in 6(b) [shall include ...] *'defined measurable targets that clearly set a pathway and timeframe for achievement, and set out defined and auditable "pass/fail" criteria'* needs to state what is to be achieved. The pLWRP used the term 'objectives' in 4, and then referred to *'achievement of the objective'*. This makes it clearer what the achievement is to be assessed against. In 6(b), the plan is required to set out *'defined and auditable "pass/fail" criteria'*. If we were able to define the good management practices that would achieve the water quality objectives, then we would be able to define these criteria, and we would not need the farm plan process, as it would be practical to write rules in plans, and then monitor and enforce these. However, appropriate practices vary depending on the land and water resources and the farm activities.
27. As above, recommended change in 6(c) (previously 4 ii) does not now state what the actions required are for. This reduces the clarity of 4 ii.
28. 6(d) *'required to be kept'* These words do not add to the previous 4 (iii).
29. New 7 – *'Nutrient budgets are prepared by a suitably qualified person using ....'* is appropriate, as noted in my submission.

### **Part C Audit Requirements**

30. S42A recommendations 'Part C' appear to be largely new. Some of the aspects, such as the auditor independence requirements and the grading framework, are a significantly new concept and it is unfortunate that the concepts were not available to submitters to consider and discuss. With only a short period available between availability of the s42A report and submission of evidence there is little opportunity to fully evaluate these.

### **Auditors**

31. In my view the recommended Farm Plan Auditor stringent independence requirements are unnecessary. The auditor definition requires a professionally qualified person, and an auditor will only be a part time role. I agree that auditor should not be an employee of the property owner or an irrigation scheme or catchment club that is responsible for implementing the Farm Plan. Auditing will therefore always be a contract arrangement, either with a scheme or group, or with an individual.

32. As a professional person, the same person can advise on the preparation of the farm plan and then audit the plan. There are a limited number of organisations / consultancies who will have the skills / interests in taking on this work, and to preclude someone in the same organisation from auditing a plan that another consultant has assisted a client with is totally unnecessary. As discussed above, the farmer should be the key person preparing the plan.
33. An alternative process is to have a 2 tier approach, whereby CRC arranges for a percentage of farm plans and/or audits to be reviewed / checked by another auditor. This 2 tier approach is used by CRC to provide checks in other areas of resource assessment (e.g. aquifer test reporting). This approach is already provided for in Central Plains Water resource consent CRC061973 to use water from Rakaia and Waimakariri Rivers. The consent states that each farm plan shall be audited by a *'suitably qualified independent assessor appointed by the consent holder'* and then adds by way of Note 3 to the same condition, that *CRC may review any FMP [farm plan] to check compliance with all the relevant matters.*
34. Using this approach, farm consultancies can build up supportive relationships and encourage the necessary changes in practices, many of which will require new skills, and some of which may be costly. The necessary transparency and robustness of the audit process can also be achieved.

### **Frequency of Audits**

35. Recommendations in s42A report on frequency of audits is new material for this schedule, although in pLWRP it was included in rules in section 5, where the proposal was that the Farm Environment Plan is externally audited each year for the first three years by an Farm Environment Plan Auditor. Following three consecutive years of full compliance, the audit shall occur once every three years. The change to annual audits does not appear to be justified through submissions.
36. Annual audits would be an unnecessary expense that the farmers would have to carry, and would be better spent on on-farm activities to manage environmental risks. My direct experience from MGI and from discussions with the NOIC auditor confirm that after 2 or 3 years most farmers have got to grips with the actions required to achieve compliance with their Farm Plans. The ones still having issues to deal with would not have achieved full compliance and would remain on annual audits.
37. As well as considering the costs and benefits, the logistics of carrying out annual audits must also be considered. On irrigated land the audits should be carried out during the irrigation season, otherwise it is hard to identify issues such as excessive runoff, watering non-target areas etc. An auditor can realistically only visit and audit 3 properties a day (maybe 4, if some are smaller, lower intensity operations or do



not have waterways or collected effluent). In addition to the visit there other tasks – arranging appointments, preparing for audit, then post-audit preparing reports, sending out etc. Therefore, there is a reasonable cost to the individual property for the audit.

38. In summary, once a farm plan is in place and has been shown to be implemented, annual audits are not required. Reducing the audit frequency for full compliance provides an incentive to farmers. In my experience most farmers do want to achieve good water quality and will do what is necessary, providing they understand what is required and how to achieve it. However, there does need to be a backstop, to deal with any problems and ensure that appropriate practices are maintained. This is why on-going audits are required, but no more than 3 yearly for compliant properties.
39. I note that the consent conditions for MGI (CRC091997) and CPW (CRC061973) both provide for audits to be reduced to one audit every 3 years, following 2 or 3 years of full compliance.

### **Assessment of the Farm Plan**

40. S42A report recommendation: *“The Farm Plan will be assessed against the following criteria ....”* Includes ‘3 Does the Plan enable all statutory requirements, including resource consents to be met?’. As discussed earlier, those who have the skills and experience to audit the farm management systems and environmental risks, are unlikely to also have the skills and experience to make an assessment of whether all statutory obligations, including resource consents, are being met. There are very many statutes, covering many topics. The farm plan audit should neither duplicate nor take the place of RMA consent compliance monitoring.

41. In my view, the overall aim of the audit is twofold:

- to determine if the objectives and outcomes for each management area (e.g. irrigation management) covered by the farm plan have been achieved, and
- to provide an overall compliance grading for the property

The grading process as set out in s42A report is not clear, and would more appropriately developed outside the LWRP.

42. In my view, when carrying out the audit, the auditor should assess:

- Achievement of the farm plan objectives and required outcomes in relation to site factors and previous audit history
- The overall robustness of the farm management systems and practices to manage identified risks to water quality
- The robustness of the nutrient budget results

43. Assessment of the completeness of the Farm Plan as to whether it is:

- Technically sound and feasible
- Addresses the causes of identified environmental risk
- Able to meet plan objectives

Is necessary, but is not a matter for the auditor, although the auditor may note if there are concerns about the plan itself. For example, all farm plans prepared for an irrigation scheme consent requirement have to go through an approval procedure.

44. S42A report recommendation '*any audit result that does not result in an 'A-B' grade may be submitted*', should read '*A-B' grade or better*. A-A grades should not need to be re-submitted.

### **Grading for Farm Plan itself, and for performance**

45. S42A report recommendation: Part C: '*The Audit framework will give a grade of A, B or C for the Farm Environment Plan itself, and a grade of A, B or C for performance against the Farm Environment Plan actions.*' It is not clear what the 'audit framework' is. This appears to be a new term that is not defined.

### **Part D Farming Information**

46. S42A recommendations Part D set out *Farming Information* to be provided to CRC if required under specific rules. Again, this is new material for Schedule 7 that does not appear to be requested in submissions.

47. It is not clear why the data are required and how they will be used. For many of the requirements the relevance to RMA implementation is not clear. If the intended purpose is to analyse the data across many farms, then the results are likely to be seriously flawed, as data quality and accuracy cannot be readily checked. If the purpose is to check individual properties that may have problems, then a provision that allows CRC to request this type of detailed information is more appropriate, rather than collecting large amounts of data for little or no value.

48. Provision of this data will be a cost to farmers that is not warranted and does not appear to have been clearly justified.

### **Summary**

49. The focus of Schedule 7 Farm Plans should be very clearly on achieving sound practices in the key aspects of farm management that can detrimentally affect water quality i.e. management of irrigation, nutrients (fertiliser and effluent), soil, waterways and wetlands. Peripheral issues, especially those that may alter the focus of an audit from managing water quality and quantity should not be included.

50. The farm plan requirements must be practical for farmers and readily auditable.
51. The purpose of the farm plan audit should be to both check on the achievement of objectives and required outcomes, and to encourage improvement. Auditing should check that appropriate systems and practices are in place to manage the environmental risks associated with each farm business.
52. In my view the LWRP could include a description of what is required to be achieved the audit process, but should not include details of implementation as proposed in s42A recommendations. Neither of the schemes that have already implemented farm plans and audits were given detailed instructions, but both have developed robust systems for plan development and audit.