

IN THE MATTER OF

the Resource Management Act
1991

AND

IN THE MATTER OF

applications by Central Plains Water
Trust to:

Canterbury Regional Council for
resource consents to take and use
water from the Waimakariri and
Rakaia Rivers and for all associated
consents required for the
construction and operation of the
Central Plains Water Enhancement
Scheme

Selwyn District Council for resource
consents to construct and operate
the Central Plains Water
Enhancement Scheme

AND

IN THE MATTER OF

a notice of requirement by Central
Plains Water Limited to:

Selwyn District Council for the
designation of land for works
associated with the construction and
operation of the Central Plains
Water Enhancement Scheme

BRIEF OF EVIDENCE OF IAN CHARLES BROWN

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QUALIFICATIONS AND EXPERIENCE

1. My full name is **Ian Charles Brown**.
2. I have a B Agr Sci and a M Agr Sci degree from Lincoln University, and have over thirty years experience in the fields of sustainable land and natural resource management. Up until June 2004, my work experience was with regional councils. Since July 2004, I have operated as Ian Brown Consulting Ltd, providing services to a wide range of clients including Government and Local Government agencies, industry and farmer groups.
3. I have over ten years experience in the development of auditable environmental farm plans based on the principles and concepts of the international environmental standard ISO 14001. In the mid 1990's I was a member of the team that developed ISO 14001 accredited environmental farm plans for the North Otago area.
4. I was involved in the development of an environmental farm plan template for the North Otago Irrigation Company (NOIC) and the subsequent workshops which were held in late 2005. These workshops were held to explain the concept and to guide participants through to the development of a plan for their property. In total, seventy plans were developed covering all properties within the irrigation scheme area. In June of this year I completed a first annual audit on fifty of the seventy properties. While the process for auditable farm plans has been in place in New Zealand for at least ten years, the NOIC process was the first to include a stipulation that an audit must be undertaken.
5. I also have experience in the development and use of best management practice guidelines and codes of practice, both of which are central to the functioning of environmental farm plans. Most recently, I was involved with the preparation of the Code of Practice for Nutrient Management. Also, I have been involved with the development of a number of best practice guidelines on topics including irrigation management.

SCOPE OF EVIDENCE

6. The topic of my evidence is "the implementation and audit of farm plans". The purpose is to explain why I believe the Central Plains Water Trust (CPW) proposal with its Sustainability Protocol and Farm Management Plan, plus conditions, is a sound approach to on-farm environmental management.

7. My evidence is based on my experiences with the development and use of auditable environmental farm plans. In particular, reference is made to my experiences associated with the development, implementation and audit of the NOIC environmental farm plans.
8. In preparing my evidence I have reviewed:
 - (a) the code of conduct for expert witnesses set out in the Environment Court practice note, and confirm that I have complied with the code in the preparation of my evidence,
 - (b) the Central Plains Water Trust Sustainability Protocol, and
 - (c) the Central Plains Water Trust Farm Management Plan for Irrigated Land Use.
 - (d) the evidence presented by Ms Mulcock on the CPW Sustainability Protocol and Farm Management Plan
9. The evidence presented links closely with the evidence presented by Ms Mulcock. NOIC provides a *'living'* example of what is proposed by CPWT and can be used to demonstrate how the farm planning process, as outlined by Ms Mulcock, applies in practice. The evidence provides a brief comparison of the NOIC and CPW farm planning processes and identifies how the lessons learnt through the NOIC process have been dealt with within the CPW proposal.

A COMPARISON OF THE NOIC AND CPW FARM PLANS

10. The NOIC environmental farm plan is based on a standardised template. The proposed CPW Farm Management Plan (FMP) was modelled on the NOIC template. (A copy of the NOIC farm plan template is provided in Appendix 1) The NOIC template builds on the experiences of the North Otago Sustainable Land Management (NOSLaM) group farm plan programme of the mid 1990s where several farms were accredited to the internationally recognised ISO 14001 standard. The NOIC environmental farm plan was developed following extensive consultation and agreement between the irrigation company, the Otago Regional Council (ORC) and the local Iwi.
11. Both the NOIC and proposed CPW farm plans follow an environmental management system (EMS) approach as outlined in the evidence presented by Ms Mulcock. The EMS approach is based on the identification of the

environmental risks associated with different land use activities and the setting in place of appropriate risk management measures. The NOIC and CPW farm plans include similar objectives and management policies covering irrigation management, soils management, nutrient management, riparian management, and effluent management. The CPW Farm Management Plan also covers the additional areas of biodiversity and ecosystem management.

12. With the NOIC and CPW farm plans, the approach taken for each management area follows a specified format. The objective sets out what is to be achieved in that management area. The requirements are those as specified by the company and may include legal requirements. These requirements must be met. The best management practices set out how the objective will be achieved. They are a statement of 'best practice' at the time the plan is prepared. These practices should be adhered to unless management experience or new research shows that there are better options. For each of the management areas, the expectation is that the farmer will monitor and record progress towards meeting the requirements, and implementing the best practices.
13. Both the NOIC and proposed CPW schemes include a water supply agreement. These require that, as a condition of supply, the farmer keep and comply with an up-to date Farm Management Plan. These provide for remedies in contract in the event of non-compliance issues being identified through the audit process.
14. The major area of difference between the NOIC and CPW processes relates to the farm plan supporting documentation. The proposed CPW programme includes a Sustainability Protocol. This plan clearly sets out the policies and procedures under which the individual Farm Management Plans must operate. The addition of the Sustainability Protocol as part of the CPW planning process is an advancement on the NOIC process. In my opinion, the procedures contained within this document address the main issues identified during the audit of the NOIC programme as outlined in paragraphs 15 to 35 of this evidence.

THE CPW PROCESS AND LESSONS FROM NOIC

15. Lessons learnt from the NOIC process and their relevance to the proposed CPW proposal are covered under the following headings:

- (a) Farm plan development
- (b) Setting of standards
- (c) Audit and compliance
- (d) Skills and training

Farm plan development

16. A series of farm plan workshops for North Otago farmers were held during the spring of 2005. At these workshops, the farm planning process was explained, and time was allowed for individuals to personalise the plan to suit their particular farming operation. The personalised plans were used as the basis of the 2007 audit.
17. Effective farm planning requires that the plans, while based on a template, are personalised to accurately reflect actual farm practice, provided that those practices comply with what are considered 'best' practices. In my view, allowing farmers the flexibility to personalise their plans to fit local conditions is one of the strengths of the NOIC and CPW planning processes. Flexibility encourages creativity and initiative, recognises differences in land types, management systems and styles, and provides the platform for effective environmental management.
18. Developing farm plans through a workshop process is by far the most cost effective means of providing individual plans. It also has additional benefits in terms of encouraging interaction between farmers, the sharing of ideas, and group learning. One to one assistance with plan preparation was not offered by NOIC but in some instances, this would have been beneficial, particularly as a follow up to the workshop process. CPW also proposes a series of workshops where farmers can develop their individual plans and has set out a process for the provision of individual support where required.

Setting of standards

19. Allowing amendments to the farm plan template raises the issue of the setting of standards. Notwithstanding the benefits of providing flexibility at the farm level, the credibility of the whole farm planning process relies on the management policies and practices, as listed in the farm plans, being accepted as 'best practice.' Allowing flexibility without the inclusion of a process for maintaining standards leaves the whole process open to criticism

that it is a *'soft touch'* for farmers. In my experience, this is normally not the case. In fact, farmers involved in group process schemes will often set more stringent conditions upon themselves than would be applied through a regulatory regime. Notwithstanding this, the maintenance of the credibility of the planning process is an important issue. Farmers must be seen to be doing the right thing.

20. NOIC encourages the use of recognised best practices but the company does not currently have any procedures that specify the process to be used when alternative practices from those listed in the template are put forward. As a result of the audit, a recommendation was made that NOIC consider developing procedures that include provisions for the setting of standards and for approval of plan amendments. A strong stance on the standards expected sends the message to farmers that it is not about *'business as usual.'* In some cases, significant changes in current practice may be required in order to meet environmental objectives.
21. The CPW Sustainability Procedures for plan approval take into account the lessons learnt through the NOIC programme on the setting and maintenance of standards. In my view, the CPW procedures which require that the Farm Management Plan is checked and approved prior to the supply of water are sound and should enhance the credibility of the planning process.

Audit and compliance

22. I undertook the first annual audit of the NOIC farm plans during the period March to June 2007. Fifty of the seventy properties involved in the scheme were audited, separate audit reports were prepared for each property and a summary report was prepared for NOIC. (A copy of a NOIC individual property audit report is provided in Appendix 2)
23. For each of the management areas, (i.e. irrigation management, soils management, nutrient management, riparian management and dairy effluent management), areas of good performance were highlighted and areas of improvement noted. The audit was based on the sighting of objective evidence in support of whether the scheme requirements had been met and whether the listed management practices had been followed. Objective evidence was taken as information supplied in the form of; records, data, and reports, actual practice observed during the audit, and stated practice. An assessment was also made of the completeness of the data provided and

whether the scheme requirements and listed management practices were sufficient to achieve the objective if followed.

24. Within the NOIC audit reports, non-compliance means a failure to demonstrate that a requirement has been met. This includes any legal and scheme requirements. The term non-adherence was used in respect to non-adherence to the listed best management practices or policies.
25. In reviewing the results from the audit, it is pertinent to put them into the context of the overall farm planning process. Plans were developed by NOIC scheme members during the spring of 2005. However, the actual irrigation scheme was not commissioned until September 2006. The focus for most farmers during the first few months of scheme operation was on system setup. In my view, this is entirely reasonable given the scale of the changes involved on each property. However, to the credit of the farmers involved, by the time of audit an overwhelming majority were able to demonstrate that they had considered and had made progress towards the achievement of their plan objectives.
26. Excellent results were achieved in many areas of plan activity. For example; 88% of farmers were using direct drilling in preference to conventional cultivation techniques, 98% of farmers were conducting regular soil testing, 94% had a nutrient budget, and 100% of dairy farmers were fully compliant with the ORC permitted activity conditions for dairy effluent disposal. In addition, soil moisture monitoring tools were being used as an aid to irrigation scheduling on 20% of properties. The latter is an extremely encouraging result for a new system in its first season of operation, particularly given that the use of such tools is not a scheme requirement. The use of soil moisture monitoring tools is a useful early indication of the farmers' commitment to efficient irrigation.
27. Results were also obtained that suggested that there was still scope for further improvement. For example, only 46% and 25% of farmers respectively, demonstrated full adherence to the irrigation and nutrient management policies. From a plan credibility perspective, these results are unacceptable. However, an analysis of the audit data has shown that the lower than expected levels of adherence achieved in some areas are primarily due to issues associated with plan content and process. These issues are expanded upon in paragraphs 28-31.

28. The plan content issues referred to in paragraph 27, apply specifically to the way some of the best practices were written in the plans. Difficulties arise during audit when:
- (a) The management practices or policies are written in an open ended and/or ambiguous manner.
 - (b) The best practices or policies listed in the plan are reduced to the extent that those left are insufficient to achieve the management objectives.
 - (c) Reference is made to compliance with third party documents, such as the Fertiliser Code of Practice, when the farmer is not fully aware of the contents of these documents.
29. Plan content issues identified through the NOIC 2007 audit process have been addressed in the CPW Sustainability Protocol and Farm Management Plan. The scheme requirements and best management practices in the CPW Farm Management Plan are generally written in a specific and auditable manner. Sufficiency of best practice or policy issues are covered by the plan approval provisions in the Sustainability Protocols. Third party reference issues are addressed by including explanations of these documents in the appendices to the Farm Management Plan.
30. The plan process issues referred to in paragraph 27 refers to the provision of reasonable evidence. Some NOIC farmers did not fully appreciate the extent to which they needed to keep records for monitoring purposes. Keeping good records is an essential part of the environmental management system approach adopted by both NOIC and CPW. Both schemes specify that sufficient records should be kept to demonstrate progress towards achievement of the farm plan objectives.
31. The CPW Sustainability Protocol includes robust procedures requiring farmers to monitor their activities and provide reasonable records to verify compliance with scheme requirements. However, as the NOIC experience has shown, implementing a monitoring and recording programme is a learning process and it will take time for farmers to adapt to the changes required. In my view, a degree of realism in the first year or two of the programme is required as to what can be achieved. Nevertheless, this shouldn't be at the expense of compromising the integrity of the scheme.

32. The NOIC audit did not differentiate levels or seriousness of non-compliance. This is important, as the seriousness of non-compliance will determine how the irrigation company deals with the issues. Percentage compliance figures alone can be misleading and can give a false picture as to the true state of environmental management. Non-compliance in some areas (e.g dairy effluent irrigation), is more serious than non-compliance in other areas (e.g. soil compaction monitoring). One option is to develop a graduated system of compliance with different levels of seriousness. This is an issue that the NOIC committee is currently considering how best to address. The CPW Scheme Management Plan proposes that areas of non-compliance will be responded to by following established protocols. Currently, these protocols do not address the issue of seriousness of non-compliance. From discussions with Ms Mulcock, this is seen as an area where further development of the CPW process is required.

Skills and training

33. The NOIC process has shown that the concept of farm management plans and all their associated components are new to many farmers. In recognition of this NOIC has placed considerable emphasis on the upskilling and training of farmers. With the assistance of the Otago Regional Council (ORC) and the North Otago Sustainable Land Management Group (NOSLaM), NOIC has instigated a number of field days and seminars on topics including irrigation efficiency, 'know your soils', and monitoring and recording. In addition, trial audits were held to enhance farmers understanding of audit requirements.
34. The Otago Regional Council's involvement in this aspect of the NOIC programme has been important and forms a useful model for other councils. Through its involvement, the Council has been able to demonstrate its commitment to ensuring that the programme is successful, without compromising its position as the consenting authority.
35. Upskilling and training provisions are provided within the CPW Sustainability Protocols. In my view, these provisions recognise the importance of upskilling and training, and demonstrate CPW's commitment to this aspect of the programme.

Summary of lessons learnt

36. All of the lessons learnt through the NOIC process are relevant to the CPW process. In summary these lessons are set out in points 1-4 below.

- (a) Developing farm plans through a workshop process is by far the most cost effective means of providing individual plans. It also has additional benefits in terms of encouraging interaction between farmers, the sharing of ideas, and group learning. However, the provision of one to one assistance for those farmers that require it is also seen as beneficial.
- (b) Allowing farmers the flexibility to personalise their plans to fit local conditions is one of the strengths of the farm planning process. Flexibility encourages creativity and initiative, recognises differences in land types, management systems and styles, and provides the platform for effective environmental management. However, flexibility should not be able to compromise standards. A strong stance on the standards expected sends the message to farmers that it is not about 'business as usual.' In some cases significant changes in current practice may be required in order to meet environmental objectives.
- (c) The audit is a critical component of the whole farm planning process. The audit adds credibility and ensures that the risks associated with land use activities are recognised and are being appropriately managed. The audit requires as a prerequisite that the plans are written in a precise, non ambiguous manner, and that objective evidence is provided to verify compliance with requirements and /or adherence to the plan best management policies.
- (d) Formal farm planning is a new concept for many farmers. It introduces processes that are foreign to many and therefore present a challenge. Management of the change process, including the upskilling and training of farmers is very important in terms of programme success.

CPW PLAN ROBUSTNESS

- 37. The CPW process 'takes on board' many of the lessons learnt from the NOIC programme and tackles the issue of on-farm environmental management in a comprehensive manner. As a result, I believe that the CPW farm planning proposal, with the Sustainability Protocol and Farm Management Plan, is robust and will make a significant contribution to the achievement of the desired environmental outcomes.
- 38. My reasons for this conclusion relate to the structure and format of the proposed CPW farm planning process. These include:

- (a) *The environmental management system format.* The benefits of the EMS approach are explained in the evidence provided by Ms Mulcock. The EMS approach is used as the basis for environmental management programmes by a wide range of industries. The approach is relatively new to the New Zealand primary sector but is used elsewhere, particularly in Australia. In my view, the proposed CPW environmental management system approach, as outlined in the Sustainability Protocol, is very comprehensive and covers all necessary areas.
- (b) *The cycle of continuous improvement.* The corner stone of the EMS approach is the cycle of continuous improvement. The continuous improvement cycle recognises that progress will be made over time through planning, doing, monitoring and adaptive management. The philosophy of adaptive management is followed where policies and practices are continually improved by learning from the outcomes of previous work. The process is iterative and aspects of the management process are revisited and reviewed. Continuous improvement is supported by scheme management and offered through consent conditions requiring continual review of management plans at both scheme and farm level.
- (c) *The audit process.* An environmental management system must include a credible means of recording and reporting on progress made towards the achievement of the plan and scheme environmental objectives and outcomes. In this regard, clear and comprehensive procedures for monitoring and enforcement are set out in the CPW Sustainability Protocol.
- (d) *The supply agreement* As a condition of supply of water, farmers within the proposed CPW scheme area will be required to prepare a farm plan to scheme specifications and for this plan to be audited. In the event of non-compliance water may be turned off. This provides a powerful motivation for farmers to comply with the contents of their plans.

Will the farm plans lead to better environmental outcomes?

39. From the information available to date, it is impossible to definitely say that the farm plans as used by NOIC and proposed by CPW will guarantee that no environmental degradation will occur. However, in my opinion, the technical basis for the farm plans is sound. The plans encourage the

adoption of 'best' farm practices from day one and set out in a systematic way a process for managing the risks associated with irrigated land use. If the procedures and processes, as outlined in the CPW Sustainability Protocol and Farm Management Plan are followed and regularly reviewed and improved where necessary, there is no reason why the plans cannot be the instruments for positive environmental outcomes.

OVERALL CONCLUSIONS

40. The use of farm plans as a condition of a resource consent is a relatively new concept for New Zealand. As expected, it is a learning process for councils, irrigation companies and for farmers. NOIC has shown that good progress can be made in a relatively short period of time towards the implementation of an effective environmental management system for irrigated land use.
41. The major area of difference between the NOIC and CPW processes relates to the inclusion of a Sustainability Protocol within the CPW documentation. The inclusion of this plan as part of the CPW planning process is a significant advancement on the NOIC process, and provides provisions which address the main issues identified during the audit of the NOIC programme.
42. Given my experiences with the NOIC programme and from an examination of the CPW Sustainability Protocol and Farm Management Plan, I am confident that the integrated approach to environmental management proposed by CPW will provide an effective means of managing the environmental risks associated with irrigated land use.

Dated: January 2008

Ian Charles Brown