

APPLICANT: MAREE HORO

REPORT OF KERI JOHNSTON

Consent ID	Description	Table 3 Location	Table 5 Location
CRC042011	To divert, take and use up to 30 litres per second of water from Quail Burn, at or about map reference NZMS 260 H39:583-441, for spray irrigation of 100 hectares of pasture and winter fodder crops, at Ribbonwood Station, Quailburn Road, Omarama.	Quailburn tributaries and	Upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes.
CRC042015	To divert, take and use up to 30 litres per second of water from Quail Burn at or about map reference NZMS 260 H39:558-446; for spray irrigation of 180 hectares of crops and pasture, at Ribbonwood Station.	Quailburn tributaries and	Upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes.
CRC042017	To divert, take and use up to 30 litres per second of water from Quail Burn, at or about map reference NZMS 260 H39: 581-443; for spray irrigation of 180 hectares of crops and pasture, at Ribbonwood Station.	Quailburn tributaries and	Upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes.
CRC042018	To divert, take and use up to 30 litres per second of water from East Diadem Stream, at or about map reference NZMS 260 H39:563-411; for spray irrigation of 180 hectares of crops and pasture at Ribbonwood Station.	Quailburn tributaries and	Upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes.

Activity Status:

Rule 2, Table 3 WCWARP: The take exceeds the primary allocation limit for the Quailburn Catchment, therefore the applications are seeking B allocation, and as such, are seeking the higher minimum flow of 1,000L/s.

Rule 6, Table 5 WCWARP: The proposed annual volume is within the allocation limit for “Upstream of Waitaki Dam, but not upstream of the outlets of the glacial lakes”.

Overall status: Any activity that complies with Rules 2 and 6 is a discretionary activity under Rule 15

1 PROPOSAL

1. Maree Horo (hereon in referred to as “the applicant”) proposes to irrigate 532 hectares using spray irrigation, irrigating pasture used predominantly for sheep grazing with some cattle at approximately the same ratio’s as are carried now.
2. This report relates to 180 hectares that will be irrigated with water from the Quailburn and East Diadem Streams. The applications allow 30L/s to be taken at each of four sites (three on the Quailburn and one on East Diadem), but no more than three will be used at any one time, giving a total of 90L/s to supply this area. A small holding pond will also be used to allow water to be pumped into irrigators.

1.1 Timeline and Summary of Significant Amendments made to the Applications

Timeline	CRC042011, CRC042018	CRC042015,	CRC042017,
Date of Lodging	23 March 2004		
First Notifiable Date	24 March 2005		
WCWARP Notifiable Date	15 December 2006		
Public Notification	4 August 2007		

3. The applications were lodged in 2004.
4. The applications have been reduced significantly since lodging, having been notified with a combined annual volume of 1,860,000 cubic metres a year, to now only seeking 738,800 cubic metres per year as advised to the Canterbury Regional Council reporting officers recommendations for these applications by e-mail dated 7 July 2009.
5. The minimum flows have also been amended. The applications will now be subject to the “B” permit minimum flow specified in the WCWARP for the Quailburn Catchment.
6. No other changes have been made to the applications.

1.2 Mackenzie Irrigation Company Shares held

Name: Classic Properties Ltd	Number
Property Shares	1
Irrigation Shares	950

1.3 Derogation Approval

7. Derogation approval was obtained from Meridian Energy Limited on 11 September 2009.

2 BACKGROUND INFORMATION

2.1 Property Details

8. Maree Horo (heron in referred to as “the applicant”) farms two properties known as Ribbonwood Station and Shelton Downs, situated between the Ahuriri River and Lake Ohau. These applications are specific to Ribbonwood Station.
9. The property currently runs sheep and beef cattle.
10. The property is 7289 hecatres, and carries 11,300 stock units (8,000 as sheep and 3,300 as beef cattle).
11. As the property is fully developed within normal economic parameters, irrigation is now required to take the property to the next production step.
12. Farming practice now without water involves a fine wool, sheep and cattle breeding and store stock unit in a high country environment. Stock are currently sold on the store market which has distinct limitations in dry seasons and in terms of market options. It is considered that with irrigation all progeny bred on the property will be able to be finished if the irrigation system is installed as planned.

2.2 Water Source

13. The Quailburn Catchment is located approximately 15km North-west of Omarama and drains the Diadem and Ohau Range. It has a catchment area above the minimum flow site of 82km² which is located at the Henburn Rd. The altitude of the upper catchment ranges from 500m to 1900m above MSL.
14. Several tributaries, including the East Diadem and Serpentine Stream, feed into the Quailburn upstream of the gorge, then into the Ahuriri River. Flows at the minimum flow site are usually continuous, however below this site is often dry, with surface flows often not continuous to the Ahuriri River.
15. The Quailburn provides a limited fishery for spawning and rearing habitat of rainbow and brown trout.
16. East Diadem is a tributary of Quailburn Stream, and is itself, a stream with many tributaries. It has no significant fisheries habitat.

3 SUBMISSIONS

17. A summary of the submissions is as follows:

Resource Consent	Submissions in support	Submission in opposition	Neutral
CRC042011	2	19	2
CRC042015	2	20	2
CRC042017	2	19	2
CRC042018	2	19	2

18. Details of the submissions made in response to all applications that were publically notified at the same time in 2007 are contained in CRC Report 1, Appendix 5. I have reviewed this report and adopt it as a true and accurate summary of the submissions received.

19. Details of the submissions received made individually on these applications are as follows:

Submitter	Issues	Support/neutral/oppose
Bellfield Land Co Ltd	That a suitable and fair flow-sharing regime can be settled amongst the users outside of the consent hearing process.	Oppose
Meridian Energy Ltd	Insufficient MIC shares, effects on water quality and flow metering requirements.	Oppose
Hamish and Pip Smith	If the applied for water is removed from the Quailburn Creek then it will have detrimental effects on the submitter's farming operation.	Oppose
DW McAughtrie	There is the potential for the applicant's take to adversely affect the submitters in respect to ability to abstract the consented rate of take	Oppose
The Glens Ltd, Greenfield Developments Ltd and DW McAughtrie	The submitters could be affected in respect to the ability to divert their consented rate but also in respect to the reliability of supply by causing the minimum flow condition to be reached sooner than it otherwise would be.	Oppose

20. In respect of the Meridian Energy Ltd submission, derogation approval has been obtained, and the applicant will install a flow meter, and has provided mitigation to ensure that effects on water quality are minor.
21. In respect of the Bellfield Land Co Ltd, DW McAughtrie and The Glens Ltd, Greenfield Developments Ltd and DW McAughtrie and Hamish and Pip Smith submissions, the applicant has amended the applications to seek B band water, and has proposed mitigation to ensure that water quality effects are minor.

4 CRC042011, CRC042015, CRC042017, CRC042018 - TAKE AND USE CONSENTS - ASSESSMENT OF ENVIRONMENTAL EFFECTS

4.1 Effects on other water users

Effects on other water users	
Comments	<p>The applications are for new takes, for which MIC shares have been purchased. As B band water is now being sought, the applications are “in addition” to the allocation limit specified for the Quailburn and Tributaries as specified in Table 3 of the WCWARP.</p> <p>Given this, the existing users (being the Quailburn Government Race parties and Bellfield Land Co Ltd) are not affected as the applicant has ceased taking water at 1,000L/s, which is 900L/s higher than the minimum flow of 100L/s on the system.</p> <p>The CRC reporting officer for these applications agrees that effects on other water users are minor.</p>

22. These applications fall into the “Quailburn and tributaries category” of Table 3 of the WCWARP, which sets an allocation limit of 310L/s and a minimum flow of 100L/s, as well as a flow sharing threshold of 1,000L/s above which any water taken, diverted, dammed or used pursuant to the flow sharing regime is in addition to the allocation limit.
23. There are two other users on the Quailburn system, being Bellfield Land Co Ltd and the Quailburn Government Race parties (McAughtrie, Ellis-Lea and Greenfields), who seek to renew existing consents at this hearing. These two users total 310L/s, being the allocation limit.
24. Therefore, the applicant seeks to take water only when flows are in excess of 1, 000L/s. This will ensure that the other users are not affected, as there will be sufficient water flows so as not to reduce the reliability of supply of other users, and the take will not be occurring at a time when it could influence the 100L/s minimum flow.
25. Mitigation is proposed restricting the rate of take and volume per week. Given this, effects on other users are considered to be minor.

4.2 Effects on ecosystems

Minimum flow requirements	
Proposed Environmental Flow Regime	Alternative Minimum Flow
Comments	<p>The applicant proposes a minimum flow of 1,000L/s which B band water for the Quailburn System.</p> <p>The applicant will install fish screens on all intakes in accordance with the recommended guidelines.</p> <p>The CRC reporting officer for these applications considers that effects on ecosystems are minor provided a suitable fish screen is installed.</p>

26. The applicant accepts the minimum flow for these applications as specified in Table 3 of the WCWARP for B band applications.
27. A fish screen will be installed prior to the commencement of this consent, and will be designed and installed in accordance with NIWA client report.
28. Therefore, effects on in-stream values will be minor.

4.3 Effects of inefficient water use

Reasonable and Efficient Use Seasonal Volumes and Land Use	
Land Use	Mixed (cropping, and pasture for fattening sheep and beef cattle)
Area to be irrigated (hectares)	180
Method of application	Spray
Daily <u>net</u> application depth	5mm
Return period	3 days
Return period application depth	15mm
Soil profile available water	50% medium soils (PAW range from 75mm to 110mm) and 50% heavy soils (PAW > 110mm)
Effective Irrigation Season Rainfall	300mm
Seasonal volume required (m ³ /year)	738,800 m ³ /year
Volume to be included in Table 5 (WAP) allocation	738,800 m ³ /year
Comments	<p>The proposed irrigation annual volume has been determined using Schedule WQNv2, incorporating the parameters described above.</p> <p>The CRC reporting officer for the applications agrees that effects on inefficient water use are minor provided the annual volume is amended.</p>

29. Whilst the four applications would allow 120L/s to be taken, it is proposed to limit the combined abstraction from these four consents to 100L/s. The proposed application depth of 15mm per return period is less than 50% of the water holding capacities expected. This is considered to be an efficient use of water.
30. The proposed annual volume is based schedule WQN9v2, and as recommended by the Canterbury Regional Council reporting officer for these applications.
31. Policy 19 of the WCWARP encourages piping or sealing distribution systems. The system will utilise existing race systems that are now well sealed.
32. Policy 21 of the WCWARP requires all water takes to be metered. To ensure that this application is consistent with this policy, the applicant proposes to meter their take.
33. Given this, effects of inefficient water use are considered to be minor.

4.4 Effects of the use of water on water quality

Effects on Water Quality	
Comments	<p>The CRC reporting officer for these applications is not currently satisfied that effects of water quality are minor.</p> <p>Cumulative effects on water quality have been addressed by Mackenzie Water Resources Limited (MWRL) and are summarized below.</p> <p>Local effects have also been addressed below</p>

34. The calculated nutrient mitigation requirement of the receiving environments determined in the MWRL Study has identified an N and P threshold for each property.
35. "OVERSEER® has been RUN by a QUALIFIED person to model the N and P outputs from the proposed farming system. The results of the model have been incorporated in to the table below. The following table shows that the applicant can meet the property thresholds proposed by the MWRL study.

	Nitrogen Threshold (kg/farm)	Phosphorous Threshold (kg/farm)
MWRL Water Quality Study Property Thresholds	16,533	438
OVERSEER® outputs	16,194	352

36. The applicant is committed to implementing the "Mandatory Good Agricultural Practices" set out within the FEMP (see Appendix E). Implementing these practices ensure that the OVERSEER® results are validated. This along with ensuring that the property thresholds of the WQS (set out in the table above) are not exceeded will ensure that the cumulative effects of the use of water for irrigation on water quality are no more than minor.
37. Whilst the applicant is within their property thresholds, the MWRL Study identified that the applicant still has to consider specific on farm effects and the impacts these activities could have on the local receiving environment. This requires a specifically developed Farm Environmental Management Plan (FEMP) to identify and implement appropriate mitigation measures set out in the draft attached (see Appendix E).
38. At a workshop held in Twizel in August 2009, the applicants met with Ms Melissa Robson of GHD Limited. A "desk top" on farm risk assessment was undertaken. This is considered to be the "starting point" of the FEMP.
39. The workshop identified potential on farm risks specific to each farm along with possible mitigation measures. The on farm risks identified during the desktop risk assessment need to be verified by an appropriately qualified person who has carried out a site visit. It is anticipated that this will occur should the applications be granted. For Ribbonwood Station, the following potential risks were identified:
- Evidence of erosion
 - Runoff from winter feed crops
 - Laybacks from waterways from fertiliser application
 - Track runoff - check
 - The many water ways that flow through the property
 - Fencing off water races
 - Stock access to water ways

40. The applicant has committed to carrying out a full on farm risk assessment, proposing mitigation, monitoring and auditing will occur prior to the commencement of the consents. All risks will be addressed in a Farm Environmental Management Plan (FEMP).
41. Given that the N and P thresholds from the MWRL Study can be met, and the applicant's commitment to addressing on farm risks with the implementation of the FEMP, the effects of the use of water on water quality for both the local receiving environment and cumulative effects are considered to be minor.

4.5 Effects on people, communities and recreational value, including landscape

Effects on People, Community and Recreational Values, including Landscape	
Comments	<p>Landscape effects have been addressed by UWAG's Landscape Architect, Mr Andrew Craig, who considers that this proposal will have a minor effect on landscape values.</p> <p>An appropriate minimum flow is proposed and the applications are within allocation limits set by the WCWARP, therefore effects on people, communities and recreational values are minor.</p> <p>The CRC reporting officer for these applications is satisfied effects are minor subject to conditions.</p>

4.5.1 Landscape

42. This application is for "new" water, however, the property is intensively farmed and part of a substantially modified rural environment, whereby cultivation, and fencing occur regularly.
43. Greening of this specific area of land therefore occurs seasonally during the irrigation season, which is therefore a temporary effect that is already experienced in this location with the applicant's existing consent and others nearby.
44. The applicant has a defined area to be irrigated.
45. Mr Andrew Craig is a landscape architect who is providing general and specific recommendations on behalf of UWAG clients to this hearing. His conclusions reflect that the general effects on the MacKenzie landscape of these applications within the basin will be significantly less than minor. I adopt his recommendations to the committee.

4.5.2 People, communities and recreational values

46. The applicant has proposed the appropriate minimum flow condition from the WCWARP for the water body from which they have applied to take and use water. A minimum flow is considered to adequately protect people, community and amenity values within the waterway specific to the application.
47. The activities all occur in a rural setting, where the dominant land use is pastoral farming. Given that the proposed activities all occur on private farmland; as such the use of water is unlikely to adversely affect amenity values.
48. The WCWARP sets an annual allocation "cap" for agricultural and horticultural activities within defined areas (Table 5). The applicant has proposed an annual allocation limit for their own resource consents for the use of water, as well as implementing Farm Management Plans, which require existing irrigation systems to be audited and improved where possible, and new systems to be designed and installed by accredited personnel, and implementing initiatives to ensure that water is used wisely.
49. The primary objective of an annual allocation is to ensure that the water is used efficiently and effectively for the land use, soil type and climatic conditions. The applicant has proposed an annual volume that is considered to reflect reasonable and actual use and this is within the allocation limit defined by Table 5.

50. Therefore, given the applicant's commitment to ensuring efficient use of water on their properties, and that the take is within allocation limits set to protect in-stream values and other users, it is considered that effects on people and communities will be minor.

4.6 Effects on Tangata Whenua Values

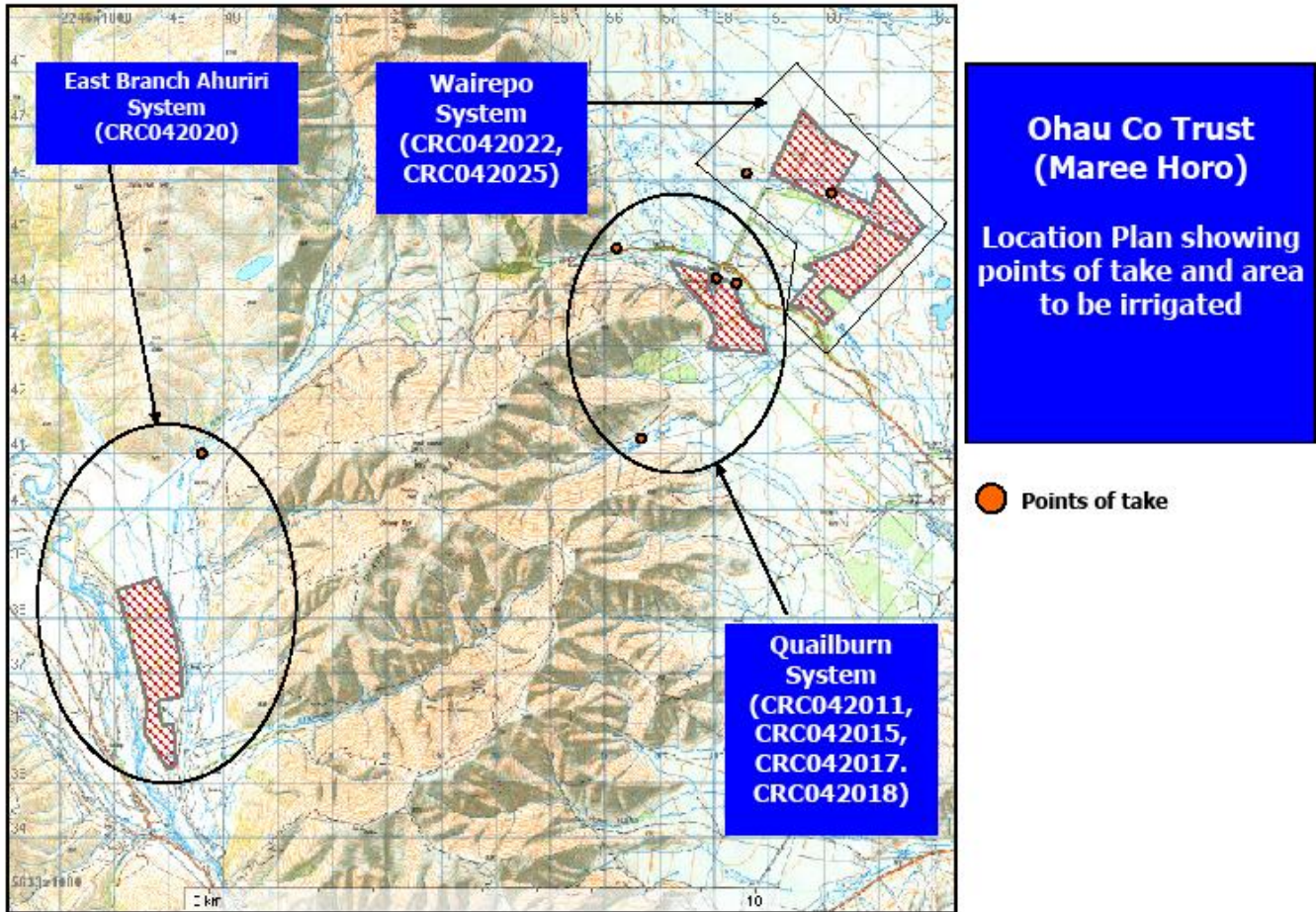
Effects on Tangata Whenua	
Comments	The CRC reporting officer for these applications considers the effects on Tangata Whenua are uncertain and may therefore be more than minor

51. Te Runanga O Ngai Tahu submitted on all applications in the catchment, seeking that all applications be declined.
52. The primary reasons for this were that the applications were considered to be inconsistent with the policies and objectives of the WCWARP, and also at odds with the cultural objectives of the RMA.
53. This application is entirely within the limits defined by the WCWARP. Te Runanga O Ngai Tahu had considerable input into the creation of the WCWARP.
54. However, it is acknowledged that Te Runanga O Ngai Tahu have a significant relationship with the Waitaki Catchment, and as such, appropriate minimum flow conditions, and management of water quality effects, is proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values are minor.

4.7 CONCLUSIONS

55. The potential effects associated with the take and use of water have been assessed and are considered to be minor.

APPENDIX A – LOCATION PLAN SHOWING AREA TO BE IRRIGATED



APPENDIX B – DEROGATION APPROVAL



11 September 2009

Gillian Enser
Environment Canterbury
PO Box 345
Christchurch

Dear Gillian

Application by Maree Horo (Ohau Co Trust)

1. We write to you to outline the basis of Meridian Energy Limited (*Meridian*) providing its derogation approval of the applications numbered CRC042011, CRC042015, CRC042017 and CRC042018 by Maree Horo (Ohau Co Trust). We refer to the letter to Ecan from Chapman Tripp dated the 26th of June 2008 setting out Meridian's position on derogation approvals generally.
2. Meridian has read and considered the applications CRC042011, CRC042015, CRC042017 and CRC042018 by Maree Horo (Ohau Co Trust) and provides derogation approval on the following basis:
 - 2.1. Maree Horo (Ohau Co Trust) shall only be entitled to divert, take and use water from the Quailburn Stream (at map reference NZMS 260 H39:583-441) at a maximum rate of 30 litres per second and a maximum daily volume of 2,952 cubic metres per day;
 - 2.2. Maree Horo (Ohau Co Trust) shall only be entitled to divert, take and use water from the Quailburn Stream (at map reference NZMS 260 H39:558-446) at a maximum rate of 30 litres per second and a maximum daily volume of 2,952 cubic metres per day;
 - 2.3. Maree Horo (Ohau Co Trust) shall only be entitled to divert, take and use water from the Quailburn Stream (at map reference NZMS 260 H39:581-443) at a maximum rate of 30 litres per second and a maximum daily volume of 2,952 cubic metres per day;
 - 2.4. Maree Horo (Ohau Co Trust) shall only be entitled to divert, take and use water from the East Diadem (at map reference NZMS 260 H39:553-441) at a maximum rate of 30 litres per second and a maximum daily volume of 2,952 cubic metres per day;
 - 2.5. The combined rate of take under CRC042011, CRC042015, CRC042017 and CRC042018 shall not exceed 100 litres per second and the combined maximum daily volume shall not exceed 8,640 cubic metres per day;
 - 2.6. The water shall be used for the spray irrigation of 180 hectares identified in the application;

APPENDIX C – PROPOSED CONDITIONS

CRC proposed conditions with tracked changes.

Please note that conditions relating to water quality thresholds and FEMP's are to be added.

Recommended draft conditions for water permit CRC042011, CRC42015, CRC042017 & CRC042018		
No.	Condition Code ¹	Details
Divert & Take		
1	WP01	<p><i>Name of waterbody:</i> Quail Burn & East Diadem Creek</p> <p><i>Map reference:</i> NZMS 260 H39:583-441, H39:558-446, H39:581-443 or H39:563-411</p> <p><i>Instantaneous rate:</i> 30 litres per second each up to a combined 90 100 litres per second</p> <p><i>Volume:</i> 7,776 8,640 cubic metres per day and 875,800 738,800 cubic metres between 1st July and the following 30th June</p> <p>Insert tranching table from derogation approval</p>
Use		
2	WP04	<p><i>Type of irrigation:</i> Spray irrigation</p> <p><i>Number of hectares:</i> 180 hectares</p> <p><i>Use:</i> crops and pasture for grazing stock excluding milking dairy cows</p> <p><i>Plan No:</i> Maree Horo (Attachment 1)</p>
3	WP05	Efficiency of use
4	WP06	Backflow preventer
Mitigation		
5	WP07	<p><i>Name of waterbody:</i> Quail Burn</p> <p><i>Map reference:</i> NZMS 260 H39:6553-3542</p> <p><i>Minimum flow:</i> 1,000 litres per second</p> <p><i>Flow graph:</i> See Report 2A Not applicable to this application as above any flow sharing thresholds</p>
6	WP09	Fish screen
Measuring & Metering		
7	ME02	East Diadem take
8	ME03	Quail burn takes

¹ See Report 1, Appendix 6 for condition code and wording.

9	ME04	
10	ME05	
11	ME06	
12	ME07	<i>Waterway: Quail Burn</i>
13	WP08	<i>Waterway: Quail Burn</i> <i>Map reference: NZMS 260 H39:6553-3542</i> To be used with ME03-05
Administrative Conditions		
14	AD01	
15	AD02	<i>Number of working days: 5</i> <i>Month 1: March</i> <i>Month 2: July</i> <i>Waterbody: Quail Burn</i> <i>Cross reference to Condition: 5</i>
16	AD04	Lapse date

APPENDIX D – DRAFT FARM ENVIRONMENTAL MANAGEMENT PLAN