

APPLICANT: AVIEMORE LTD

REPORT OF CATHY BEGLEY

Consent ID	Description	Table 3 Location	Table 5 Location
CRC041031	To take and use water from Lake Waitaki at a maximum rate of 55 L/s for the irrigation of 119 ha. of crop, pasture and viticulture.	Lake Waitaki	Upstream of Waitaki Dam, but not upstream of the outlets of the glacial lakes
CRC083692	To take and use water from Lake Aviemore at a maximum rate of 19 L/s for the irrigation of 35 ha. of crops and pasture.	Lake Aviemore	Upstream of Waitaki Dam, but not upstream of the outlets of the glacial lakes
Activity Status			
<p><u>Rule 2, Table 3 WCWARP</u>: No allocation limit is specified for either Lakes Aviemore or Waitaki, and the minimum lake level as set out within the WCWARP is proposed.</p> <p><u>Rule 6, Table 5 WCWARP</u>: The proposed annual volume is within the allocation limit for “Upstream of Waitaki Dam”, but not upstream of the outlets of the glacial lakes.</p> <p>Overall status: Any activity that complies with Rules 2 and 6 is a discretionary activity under Rule 15.</p>			

1 PROPOSAL

1. Aviemore Station Ltd (hereon in referred to as “the applicant”) applied for CRC041031 on 14 November 2004. This application seeks the ability to take and use up to 55 L/s from Lake Waitaki to enable the spray irrigation of up to 119 ha. of crop, pasture and viticulture. Currently the exact composition of the land use (i.e. how many ha will be in crop and pasture and how many will be in vines) is unknown. This is due to the fact that the land use composition is highly dependent upon market forces.
2. CRC803692 was applied for on 28 March 2008 and sought the ability to take and use up to 19 L/s from either Station Creek or Lake Aviemore for the spray irrigation of 35 ha of land. This application originally sought in part to replace WTK750901 that allowed the applicant to take and use up to 25 L/s from Station Creek for the irrigation of up to 3 ha of land. Following notification the application was amended to remove the ability to take water from Station Creek, and now only seeks the ability to take and use up to 19 L/s from Lake Aviemore to irrigate 35 ha of land.
3. The area to be irrigated by these applications is shown on the plans contained in Appendix A.
4. It is also noted that new intake structures will be required to enable water to be taken from both Lake Aviemore and Lake Waitaki. Currently the exact location and design of these intakes is unknown and does not form part of these applications. The applicant recognises that should these consents be granted, there will be a need to gain further consents from the both the CRC and potentially the Waitaki DC to install the intakes.

1.1 TIMELINE AND SUMMARY OF AMENDMENTS MADE TO THE APPLICATIONS

Timeline	CRC041031	CRC083692
Date of Lodging	14 November 2004	28 March 2008
Final Notification Date	15 March 2005	22 October 2008
Public Notification	4 August 2007	5 November 2008

5. As outlined above the application to take water from Lake Waitaki was lodged in November 2004. Between February 2005 and November 2008 the CRC has made a number of requests for further information, which sought to clarify a number of matters associated with the application.
6. With respect to the take from Station Creek and Lake Aviemore, this application was lodged in March 2008. Between May 2008 and January 2009 the CRC has made a number of requests for further information, which sought to clarify a number of matters associated with the application. In June 2009 the applicant advised that they no longer wished to proceed with the take from Station Creek.
7. For both applications, the applicant has provided further information on the following matters:
 - An annual volume for the proposed takes;
 - An assessment of effects of the use of water on the water quality within the Mackenzie Basin;
 - An assessment of irrigation effects on landscape values within the Mackenzie Basin;
 - Information regarding whether additional consents are required for stock water; and
 - Derogation approval from Meridian Energy Ltd.

1.2 WATER SOURCE

8. Both Lakes Waitaki and Aviemore are considered to have high aesthetic and recreational values from a district/local perspective, due to the fact that they are the two lower hydro lakes that are used extensively for recreational opportunities such as boating, fishing, camping etc. I note that Daily (2004)¹ states that the Lakes (Benmore, Aviemore and Waitaki) are considered to have a moderate to low degree of naturalness, due to them being hydro lakes. However, he notes that a number of bird and fish species rely upon these lakes for habitat, including:
 - Upland bullies;
 - Common bullies;
 - Long finned eel;
 - Brown trout;
 - Rainbow trout;
 - Sockeye salmon; and
 - Chinook salmon.

2 BACKGROUND INFORMATION

2.1 Farm Details

9. As stated in the evidence of Otematata Station Ltd, this property is farmed in conjunction with Otematata Station (which has water permit applications subject to this hearing), Awakino Downs and

¹ Daily A (2004), *Inventory of Instream Values for Rivers & Lakes of Canterbury New Zealand* Report U04/13 (Charteris DOC, pers., comm., 2004).

Little Awakino Station. The latter two areas have been used to grow out young stock, and as hogget wintering blocks. What this means is that the property subject to the applications extends from the shores of Lake Aviemore and Lake Waitaki to the Hawkdon Range in the south.

10. Given this, I do not propose to repeat how the farm operates and how important irrigation is to the entire farming operation.

2.2 Mackenzie Irrigation Company Shares held

Name: Aviemore Ltd	Number
Property Shares	1
Irrigation Shares	154

2.3 Derogation Approval

Derogation approval was obtained in standard format from Meridian Energy Limited on 10 September 2009

3 COMMENTS ON SUBMISSIONS

11. CRC041031 (take from Lake Waitaki) was notified in 2003, as part of the "ministerial call-in".
12. A summary of the 2007 and 2008 submissions is as follows:

Resource Consent	Submissions in support	Submissions in opposition	Neutral
CRC041031	2	10	2
CRC083692	1	2	0

13. Details of the submissions made in response to all applications that were publicly notified at the same time in 2003 and 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.
14. Details of the submissions received made individually on these applications are as follows:

Submitter	Issues	Support/neutral/oppose
LINZ	The submitter has highlighted that some of the areas to be irrigated are subject to Crown Pastoral Lease. To enable irrigation, the terms of the lease may need to be changed.	Neutral
Meridian Energy Ltd	The effects on water quality and flow metering requirements.	Oppose

15. LINZ submission highlighted that where the land to be irrigated is subject to a Crown Pastoral Lease, for the terms of the lease to be amended to allow irrigation to occur the areas to be irrigated under these consents are freehold land parcels owned and operated by the applicant. Therefore, there is no need to gain further permission from LINZ to irrigate these areas.
16. As outlined above, Meridian Energy Ltd has provided derogation approval. The applicant holds sufficient MIC Shares to irrigate the 154 ha of land. Further the applicant is proposing that the take be

measured in accordance with the WCWARP. The impact of the take upon water quality is addressed in section 4.4 of this evidence.

4 CRC041031 & CRC083692 – TO TAKE AND USE WATER - ASSESSMENT OF ENVIRONMENTAL EFFECTS

4.1 Effects on other water users

Effects on other water users	
Comments	The CRC reporting officer for these applications agrees that effects on other water users are minor provided derogation approval is obtained.

17. There are no other surface water abstractors within a 500 metre radius of the applicant's proposed points of take on either Lake Waitaki or Lake Aviemore.
18. I note that Ms Rodrigo has noted that Brooks Property Ltd seeks to take and use water from Lake Waitaki for a community supply take. I note that the point at which water is to be taken from the Lake is located (based upon CRC's GIS database) some 800 metres downstream of where the applicant proposes to take water. Further, I note that community supply takes are not subject to minimum flow or minimum lake levels. Given the distance between the two takes and the fact that this application will be required to cease taking if the lake levels drop below a particular point, the effects of this take on Brooks Property Ltd are considered to be *de minimis*.
19. With respect to the take on Lake Aviemore the closest neighbouring intake (CRC010927) is located approximately 630 metres upstream of the proposed point of take. Furthermore, it is not subject to any minimum lake levels. Given the distance between the two takes and the fact that this application will be required to cease taking if the lake levels drop below a particular point, the effects of this take on CRC010927 are considered to be *de minimis*.
20. These proposed takes sit within the area defined as "upstream of Waitaki Dam", but not upstream of the outlets of the Glacial Lakes in Table 5 of the WCWARP. This table sets a cumulative allocation of 275 million m³/year for the area. Ms Bartlett in her *Report 3 – Annual Allocations to Activities (Rule 6 Table 5)* acknowledges that the granting of the applications subject to this hearing will not result in the cumulative allocation limit of 275 million cubic metres per year being exceeded.
21. Further, the applicant has gained derogation approval from Meridian Energy Ltd and as such the granting of the proposed takes will not impact upon its existing consents to take and use water within the catchment for power generation.

4.2 Effects on in-stream values

Minimum flow requirements	
Proposed Environmental Flow Regime	Lake Waitaki minimum Lake levels Lake Aviemore minimum Lake levels
Comments	<p>A minimum lake level of 227m a.m.s.l. for Lake Waitaki is proposed.</p> <p>A minimum lake level of 265.5m a.m.s.l. for Lake Aviemore is proposed.</p> <p>The CRC reporting officer for these applications agrees that effects on ecosystems are minor.</p>

22. Table 3 of the WCWARP sets specific minimum lake levels for both Lakes Waitaki and Aviemore to ensure that the in-stream values of these lakes are protected. The applicant is proposing to cease

taking water whenever the water level within Lake Waitaki reaches 227 metres a.m.s.l, and 265.5 metres a.m.s.l. within Lake Aviemore as set out in Table 3 of the WCWARP. Given this, the taking of water from either Lake Waitaki or Lake Aviemore is unlikely to impact upon the aquatic values of the lakes.

23. While the specific designs of the intake structures are unknown, it is possible that these intakes will take water directly from the Lakes and as such it will be necessary for a fish screen to be designed and installed on them. To this end, the applicant is proposing that should a fish screen be required, it will be designed and installed by a suitably qualified person, who will then certify that the fish screen has been designed and installed to, as far as is practicable, exclude fish from entering the intake and that the intake is in general accordance with the report *Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007.*

4.3 Effects of inefficient water use

4.3.1 CRC041031 – Lake Waitaki

Reasonable and Efficient Use Seasonal Volumes and Land Use	
Land Use	Intensive mixed (Cropping, Sheep and Beef)
Area to be irrigated (hectares)	119 ha
Method of application	Spray
Daily <u>net</u> application depth	3.9 mm
Return period	10 days
Return period application depth	39 mm
Soil profile available water	100 mm
Effective Irrigation Season Rainfall	210 mm/ha/yr
Seasonal volume required (m ³ /year)	714,000 m ³ /year
Seasonal volume - Schedule WQN9v2 (m ³ /year)	642,600 m ³ /year
Volume to be included in Table 5 (WCWARP) allocation	714,000m ³ /year
Comments	The proposed annual volume is based upon the applicant's Mackenzie Irrigation Company share holding. For spray irrigation 1 share = 600 mm/ha/year or 6,000m ³ /year. Schedule WQN9v2 is 642,600 m ³ /year, which is less than that proposed.

4.3.2 CRC083692 – Lake Aviemore

Reasonable and Efficient Use Seasonal Volumes and Land Us	
Land Use	Intensive mixed (Cropping, Sheep and Beef)
Area to be irrigated (hectares)	35 ha
Method of application	Spray

Efficiency of application	80%
Daily application depth	4.6 mm
Return period	7 days
Return period application depth	33 mm
Soil profile available water	90 mm
Effective Irrigation Season Rainfall	180 mm/ha/yr
Seasonal volume required (m³/year)	210,000 m ³ /year
Seasonal volume Schedule WQN9v2 (m³/year)	199,500 m ³ /year
Seasonal volume - Irricalc	280,975 m ³ /year
Volume to be included in Table 5 (WCWARP) allocation	210,000m ³ /year
Comments	The proposed annual volume is based upon the applicant's Mackenzie Irrigation Company share holding. For spray irrigation 1 share = 600 mm/ha/year or 6,000m ³ /year. Schedule WQN9v2 is 199,500 m ³ /year, which is less than that proposed. However, the Irricalc annual volume is 280,975 m ³ /year, which is more than the proposed annual volume.

24. Traditionally two methods have been used to determine whether the use of water for irrigation is efficient. The first method is ensuring that the peak application rate is no more than half the water holding capacity of the soil. The second method is through the implementation of an annual volume using one of the two methods set out in Policy 16 (c) of the WCWARP.
25. With respect to the soil water holding capacity (WHC) for the 119 ha, for that area to be irrigated using water taken from Lake Waitaki, I have used a WHC of 100 mm. This is different from the WHC that Ms Rodrigo has used in her report. In Ms Rodrigo's report she suggests that the WHC of this area is between 200-300 mm. The WHC I have used has been determined in consultation with Mr Trevor Webb (Landcare Research) and Mr Jeremy Cuff (CRC). Both agree that for the 119 ha. a WHC of 100 mm is more appropriate than the 200-300 mm. used by Ms Rodrigo.
26. The applicant will be applying no more than 39 mm. and 33 mm. per 7 - 10 days, which is no more than half of the average water holding capacity of the soil at each site. Consequently, the use of water is considered to be efficient.
27. This application proposes an annual volume of 714,000 m³/year and 210,000 m³/year respectively, which is based upon the applicant's MIC shareholding. Using the applicant's MIC shareholding does not automatically mean that the proposed annual volume is consistent with Policy 16(c).
28. For the proposed take from Lake Waitaki I note that, using the methodology set out in Policy 16(c)(ii), an annual volume of 642,600m³/year or 540mm/ha/year would be acceptable. This annual volume is less than that proposed, which is calculated using the applicant's MIC share entitlement of 600mm/ha/year.
29. The applicant proposes that no more than 540 mm. will be applied per ha in any one season, ensuring for efficient watering and that no more than 714,000m³ of water will be used in any one season. This will be achieved by strategic watering. Hard hose irrigation guns and k-lines are mobile, so once an area of land has received up to 540 mm. of water the guns and/or k-lines can be moved to another location.
30. As the area that can be irrigated (command area) covers some 202 ha, this ability to strategically water different areas will mean that the amount of water being applied for will be able to be efficiently

utilised and not exceed 540 mm. (as determined using the methodology set out within Policy 16(c)(ii)). It is not proposed to irrigate any more than 119 ha at any one time.

31. It is therefore considered that Policy 16(c) can be complied with and that the consent conditions proposed by the applicant can be complied with. Furthermore, Policy 15 anticipates that the rate of abstraction and annual volume is considered reasonable for the intended use as strategic watering uses water as, when, and where required, in order to avoid wastage and to meet crop demand.
32. For the take from Lake Aviemore using the methodology set out in Policy 16(c)(ii) an annual volume of 199,500 m³/year would be acceptable. This differs from the annual volume proposed by Ms Rodrigo. I understand that the main difference is due to the fact that Ms Rodrigo used an effective rainfall of 210 mm/year rather than 180 mm/year. I have discussed this difference with Ms Rodrigo and understand that we are in agreement that the effective rainfall is 180 mm/year. Using this rainfall along with the soils requiring 750 mm/ha/year an annual volume of 199,500 m³/year would be appropriate. This annual volume is less than that proposed. However, as set out above, we have used Irricalc to determine an alternative annual volume of 280,975 m³/year.
33. As the proposed annual volumes are less than the annual volume determined using the methodology set out under Policy 16(c)(ii) the use of water is considered to be efficient.
34. 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.

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>

35. The MWRL Water Quality Study states that the areas to be irrigated are located within the Lake Aviemore and Lake Waitaki Catchments. This study goes on to calculate N and P thresholds for the property.
36. The calculated nutrient mitigation requirement of the receiving environments determined in the MWRL Study has identified the N and P thresholds for the property. These are shown in the table below.
37. 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 into the table below. This table shows that the applicant can meet the property thresholds that are the most restrictive.

	Nitrogen Threshold (kg/Farm)	Phosphorus Threshold (kg/Farm)
MWRL Water Quality Study Property Thresholds (into Lakes Aviemore/Waitaki)	97,622	2,206
OVERSEER® outputs	80,466	788

38. The applicant is committed to implementing the “Mandatory Good Agricultural Practices” set out within the Farm Environmental Management Plan (FEMP) (see Appendix D). Implementing these practices ensures 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.
39. Whilst the applicant is able to comply with the thresholds outlined within the MWRL Water Quality Study, this study also 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 D).

40. At a workshop held in Twizel in August 2009, the applicants met with Ms Melissa Robson of GHD Limited. A “desktop” on farm risk assessment was undertaken. This is considered to be the “starting point” of the FEMP.
41. 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 application be granted.
42. For Aviemore & Otematata Station, the desktop risk assessment identified the following potential risks:
 - ▶ The large number of surface water bodies that flow through the property;
 - ▶ Extensive tracking; and
 - ▶ Use of full cultivation.
43. The applicant has committed to implementing the FEMP, including an on farm risk assessment, appropriate mitigation, monitoring and auditing, before the first exercise of this consent. The FEMP has been proposed as condition of consent and the draft FEMP is attached (see Appendix D).
44. 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 landscape values

Effects on 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>The CRC reporting officer for these applications considers the effects on landscape are uncertain and may therefore be more than minor</p>

45. Submissions have been received to the effect that the Mackenzie Basin as a whole is considered to be an “outstanding natural landscape”. These values could be impacted upon through the irrigation of land. The area to be irrigated (located by CRC041031) is located on the southern side of the Otematata - Kurow Road (SH 83). The area also bounds the Waitaki Township on its north eastern frontage.
46. The area to be irrigated (located by CRC083629) is located adjacent to (on either side of) the Otematata - Kurow Road (SH 83).
47. Mr Andrew Craig will provide further evidence as to whether the irrigation of this area will impact upon the landscape values of the area, and as such I do not propose to repeat his assessment here. Mr Craig has concluded that the general effects on the Mackenzie landscape of these applications will be significantly less than minor. Given this, the effects of the proposed takes on landscape values are considered to be minor.

4.6 Effects on Tangata Whenua Values

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

- 48. Te Runanga O Ngai Tahu submitted on all applications in the catchment, seeking that all applications be declined. 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.
- 49. 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 Effects on People, Communities and Amenity Values

Effects on People, Communities and Amenity	
Comments	The CRC reporting officer for these applications considers there may be effects on people and communities may be more than minor.

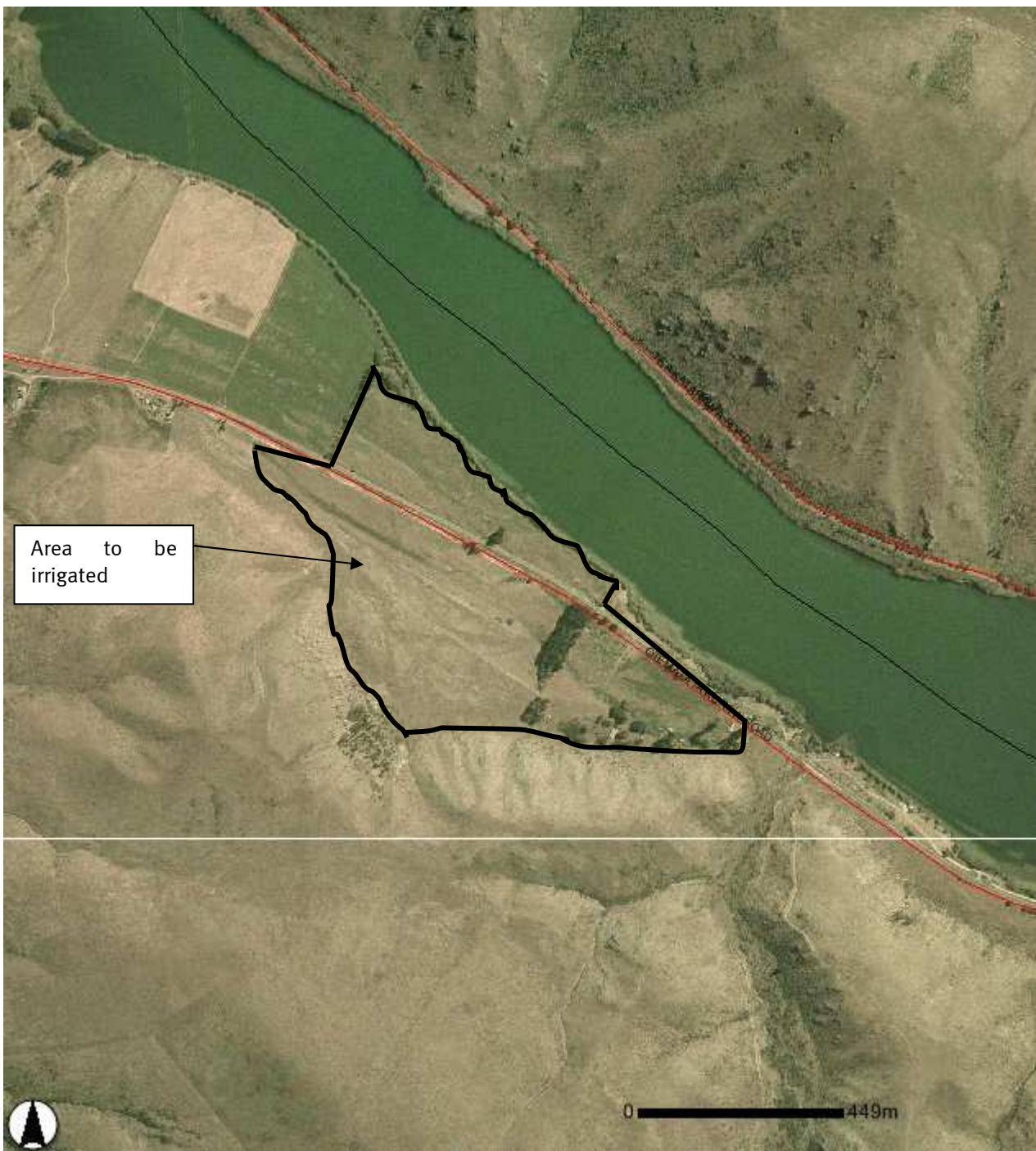
- 50. The applicant has proposed an appropriate minimum flow condition for the water body from which they have applied to take and use water. A minimum flow is considered to adequately protect people, community and amenity values within the rivers specific to each applicant.
- 51. The activities all occur within a rural setting, where the dominant land use is pastoral farming. And given the proposed activities all occur on private farmland the use of water is unlikely to adversely affect amenity values.
- 52. 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 FEMP, which require existing irrigation systems to be audited and improved where possible, and new systems to be designed and installed by accredited personnel, as well as implementing initiatives to ensure that water is used wisely.
- 53. 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.
- 54. I note that Ms Rodrigo identifies that there are Transpower structures (i.e. pylons) and wires crossing the area to be irrigated from the take servicing Lake Aviemore. Ms Rodrigo has proposed a number of conditions to ensure that the applicant does not impact upon Transpower’s structures. These measures include maintaining a 12 m. buffer (horizontal) and 4 m. buffer (vertical) distance between any pylons and any buildings/structures etc. The applicant is happy to maintain these separation distances.
- 55. 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.

APPENDIX A – RELEVANT PLANS

CRC041031 – LAKE WAITAKI – AREA TO BE IRRIGATED



CRC083692 – LAKE AVIEMORE – AREA TO BE IRRIGATED



APPENDIX B - PHOTOS

Area to be irrigated – Lake Aviemore



Lake Aviemore



Area to be irrigated – Lake Waitaki





APPENDIX C - PROPOSED CONDITIONS

CRC041031 – TO TAKE WATER FROM LAKE WAITAKI

No.	Condition Code ²	Details																								
Duration																										
1		Consent is granted for a term expiring on the 30 th of April 2025.																								
Take																										
2		Water may only be taken and/or diverted from Lake Waitaki located at or about map references NZMS I40:051-107 <i>Clause 15.3(d)</i>																								
3		<p>Water may only be taken between 1 September and the following 30 April and only in accordance with the maximum rate, daily volume (being from 12.01am to 11.59pm) and annual volume (measured between 1 July and the following 30 June) set out in Table A. <i>Clause 15.3(d)</i></p> <p style="text-align: center;">Table A – Maximum Rates & Volumes</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Year</th> <th style="text-align: center;">Maximum rate of abstraction (litres / second)</th> <th style="text-align: center;">Maximum Daily Volume (cubic metres / day)</th> <th style="text-align: center;">Maximum Annual Volume (cubic metres / year)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 September 2009 to 30 April 2010</td> <td style="text-align: center;">55 l/s</td> <td style="text-align: center;">1,4752m³/day</td> <td style="text-align: center;">714,000 m³/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2010 to 30 April 2011</td> <td style="text-align: center;">55 l/s</td> <td style="text-align: center;">1,4752m³/day</td> <td style="text-align: center;">714,000 m³/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2011 to 30 April 2012</td> <td style="text-align: center;">55 l/s</td> <td style="text-align: center;">1,4752m³/day</td> <td style="text-align: center;">714,000 m³/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2012 to 30 April 2013</td> <td style="text-align: center;">55 l/s</td> <td style="text-align: center;">1,4752m³/day</td> <td style="text-align: center;">714,000 m³/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2013 to 30 April 2014 and every year thereafter</td> <td style="text-align: center;">55 l/s</td> <td style="text-align: center;">1,4752m³/day</td> <td style="text-align: center;">714,000 m³/annum</td> </tr> </tbody> </table>	Year	Maximum rate of abstraction (litres / second)	Maximum Daily Volume (cubic metres / day)	Maximum Annual Volume (cubic metres / year)	1 September 2009 to 30 April 2010	55 l/s	1,4752m ³ /day	714,000 m ³ /annum	1 September 2010 to 30 April 2011	55 l/s	1,4752m ³ /day	714,000 m ³ /annum	1 September 2011 to 30 April 2012	55 l/s	1,4752m ³ /day	714,000 m ³ /annum	1 September 2012 to 30 April 2013	55 l/s	1,4752m ³ /day	714,000 m ³ /annum	1 September 2013 to 30 April 2014 and every year thereafter	55 l/s	1,4752m ³ /day	714,000 m ³ /annum
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Use																										
4		Water allocated in Table A of Condition (3) shall be used only for the spray irrigation of land for grazing sheep and beef cattle to irrigate 119 hectares on the area of land shown on attached Plan CRC041031 . <i>Clauses 15.3(d) & 14(3)</i>																								
5		Water for irrigation shall only be used on or applied to land that is subject to a memorandum of encumbrance that complies with the requirements of the agreement entitled " <i>Agreement in Relation to the Allocation of Water for Irrigation</i> " between Meridian Energy Limited and the Mackenzie Irrigation Company Limited dated the 31 st of October 2006. <i>Clause 14.3</i>																								
6	WP05	The consent holder shall take all practicable steps to: <ul style="list-style-type: none"> (a) Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; (b) Avoid leakage from pipes and structures; and (c) Avoid the use of water on non-productive land such as impermeable surfaces and river or stream riparian strips. 																								
7	WP06	(a) If the irrigation system used to distribute water taken in terms of this permit is used to distribute effluent, fertiliser or any other added contaminant, a backflow preventer manufactured in accordance with AS 2845.1 (1998) or the American Society of																								

² See Report 1, Appendix 6 for condition code and explanation

		<p>Sanitary Engineers standards shall be installed within the pump outlet plumbing or within the mainline, to prevent the backflow of water into the bore.</p> <p>(b) The backflow preventer shall be tested to the standard set out in AS 2845.3 (1993) or an equivalent method within one month of its installation and annually thereafter by a suitably qualified person. A test report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two weeks of each inspection.</p>
Lake Level		
8	Non standard	When the level in Lake Waitaki, as measured at [x] is at or below 227 metres above mean sea level, the abstraction of water from Lake Waitaki shall cease.
Fish Screen		
9		<p>(a) A fish screen shall be installed, operated and maintained on the intake to ensure that fish are prevented, as far as is practicable, from passing into the intake.</p> <p>(b) The fish screen shall be positioned to avoid the entrapment of fish at the point of abstraction, and to minimise the risk of fish being damaged by contact with the screen face.</p> <p>(c) The fish screen shall be designed and installed in general accordance with <i>Fish Screening: good practice guidelines for Canterbury, NIWZ Client Report: CHC 2007. 092, October 2007</i></p> <p>(d) The fish screen specified in Condition [XXX] (a) shall be designed or supplied by a suitably qualified person who shall ensure that the design criteria specified in Condition [XXX] (a)-(c) of this consent is achieved. Prior to the installation of the fish screen, a report containing final design plans and illustrating how the fish screen will meet the required design criteria shall be provided to the Canterbury Regional Council.</p> <p>(e) Prior to the exercise of this consent a certificate shall be provided to the Canterbury Regional Council by the designer or supplier of the fish screen to certify that the fish screen has been installed in accordance with the details provided to the Canterbury Regional Council, in accordance with Condition [XXX] (d) of this consent.</p> <p>(f) The fish screen shall be maintained in good working order.</p> <p>(g) Records shall be kept of all inspections and maintenance, and those records shall be provided to Environment Canterbury upon request.</p>
		I am unaware of any Transpower infrastructure that is located within the area to be irrigated. Further Ms Rodrigo has not set out in her report why this condition is required.
Measuring & Metering		
10		The consent holder shall, six months prior to this consent being exercised, provide to the Canterbury Regional Council a certificate from the Consent Holder's solicitor certifying that the memorandum of encumbrance provided for in Condition (5) is registered on the computer registers for the land shown on Plan x, and any other evidence of registration as the Canterbury Regional Council may require (if any). <i>Clause 14.3</i>
11		<p>The consent holder shall, before the first exercise of this consent:</p> <p>a. install a water meter(s) that has an international accreditation or an equivalent New Zealand calibration endorsement suitable for use with an electronic recording device, from which the rate and the volume of water taken can be determined to within an accuracy of plus or minus five percent at a location(s) that will ensure the total take of water from Lake Waitaki is measured;</p> <p>b. install a tamper-proof electronic recording device such as a data logger that shall record (or log) the flow totals every 15 minutes and have the capacity to hold at least one season's (as specified in condition (3)) data of water taken as specified in clause (b)(i), or which is telemetered, as specified in clause (b)(ii), <i>Clause 15.3(b)</i>;</p> <p>c. ensure the water meter and recording device(s) are be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and shall;</p> <p>d. store the entire season's data in each 12 month period from 1 July to 30 June in the following year, which shall be downloaded and stored in a commonly used format and provided to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the</p>

		Canterbury Regional Council; or e. be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder. No data in the recording device(s) shall be deliberately changed or deleted. f. The measuring device shall be installed at a site likely to retain a stable rating (i.e. a man-made channel, concrete, steel or fibreglass pipe). Installation shall be in accordance with ISO 1100/1-1981 or equivalent and be undertaken by a suitably qualified person.
11		The water meter and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval. <i>Clause 15.3(b)</i>
12		The water meter and recording device(s) shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions. <i>Clause 15.3(b)</i>
13		All practicable measures shall be taken to ensure that the water meter and recording device(s) are at all times fully functional and have an accuracy standard of $\pm 5\%$. <i>Clause 15.3(b)</i>
14		The consent holder shall, within one month of any water meter and recording device(s) being installed, or within one month of any water meter and/or recording device(s) being replaced, and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, provide a certificate to the Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that: a. the water meter and recording device(s) has been installed in accordance with the manufacturers specifications; and b. data from the recording device can be readily accessed and/or retrieved in accordance with conditions (11), and (12)..
Farm Environmental Management Plans		
Administrative Conditions		
15	AD01	The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder.
16	AD03	The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
17	AD04	The lapsing date for the purposes of section 125 shall be [between 5 years and 5 years three months, date set for each quarter].

CRC083692 – TO TAKE WATER FROM LAKE AVIEMORE

No.	Condition Code ³	Details
Duration		
1		Consent is granted for a term expiring on 30 April 2025.
Take		

³ See Report 1, Appendix 6 for the condition code explanation.

2		Water may only be taken and/or diverted from Lake Aviemore located between map references NZMS H40:893-186 and H40:899-180 <i>Clause 15.3(d)</i>																								
3		<p>Water may only be taken between 1 September and the following 30 April and only in accordance with the maximum rate, daily volume (being from 12.01am to 11.59pm) and annual volume (measured between 1 July and the following 30 June) set out in Table A. <i>Clause 15.3(d)</i></p> <p style="text-align: center;">Table A – Maximum Rates & Volumes</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Maximum rate of abstraction (litres / second)</th> <th>Maximum Daily Volume (cubic metres / day)</th> <th>Maximum Annual Volume (cubic metres / year)</th> </tr> </thead> <tbody> <tr> <td>1 September 2009 to 30 April 2010</td> <td>19 l/s</td> <td>1,642 m³/day</td> <td>210,000 m³/annum</td> </tr> <tr> <td>1 September 2010 to 30 April 2011</td> <td>19 l/s</td> <td>1,642 m³/day</td> <td>210,000 m³/annum</td> </tr> <tr> <td>1 September 2011 to 30 April 2012</td> <td>19 l/s</td> <td>1,642 m³/day</td> <td>210,000 m³/annum</td> </tr> <tr> <td>1 September 2012 to 30 April 2013</td> <td>19 l/s</td> <td>1,642 m³/day</td> <td>210,000 m³/annum</td> </tr> <tr> <td>1 September 2013 to 30 April 2014 and every year thereafter</td> <td>19 l/s</td> <td>1,642 m³/day</td> <td>210,000 m³/annum</td> </tr> </tbody> </table>	Year	Maximum rate of abstraction (litres / second)	Maximum Daily Volume (cubic metres / day)	Maximum Annual Volume (cubic metres / year)	1 September 2009 to 30 April 2010	19 l/s	1,642 m ³ /day	210,000 m ³ /annum	1 September 2010 to 30 April 2011	19 l/s	1,642 m ³ /day	210,000 m ³ /annum	1 September 2011 to 30 April 2012	19 l/s	1,642 m ³ /day	210,000 m ³ /annum	1 September 2012 to 30 April 2013	19 l/s	1,642 m ³ /day	210,000 m ³ /annum	1 September 2013 to 30 April 2014 and every year thereafter	19 l/s	1,642 m ³ /day	210,000 m ³ /annum
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Use																										
4		Water allocated in Table A of Condition (3) shall be used only for the spray irrigation of land for grazing sheep and beef cattle to irrigate 35 hectares on the area of land shown on attached Plan CRC083692. <i>Clauses 15.3(d) & 14(3)</i>																								
5		Water for irrigation shall only be used on or applied to land that is subject to a memorandum of encumbrance that complies with the requirements of the agreement entitled " <i>Agreement in Relation to the Allocation of Water for Irrigation</i> " between Meridian Energy Limited and the Mackenzie Irrigation Company Limited dated the 31 st of October 2006. <i>Clause 14.3</i>																								
6	WP05	The consent holder shall take all practicable steps to: <ul style="list-style-type: none"> (a) Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; (b) Avoid leakage from pipes and structures; and (c) Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips. 																								
7	WP06	<ul style="list-style-type: none"> (a) If the irrigation system used to distribute water taken in terms of this permit is used to distribute effluent, fertiliser or any other added contaminant, a backflow preventer manufactured in accordance with AS 2845.1 (1998) or the American Society of Sanitary Engineers standards shall be installed within the pump outlet plumbing or within the mainline, to prevent the backflow of water into the bore. (b) The backflow preventer shall be tested to the standard set out in AS 2845.3 (1993) or an equivalent method within one month of its installation and annually thereafter by a suitably qualified person. A test report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two weeks of each inspection. 																								
Lake Level																										
9	Non standard	When the level in Lake Aviemore, as measured at [x] is at or below 265.5 metres above mean sea level, the abstraction of water from Lake Aviemore shall cease.																								
Fish Screen																										
10		<ul style="list-style-type: none"> (a) A fish screen shall be installed, operated and maintained on the intake to ensure that fish are prevented, as far as is practicable, from passing into the intake. (b) The fish screen shall be positioned to avoid the entrapment of fish at the point of abstraction, and to minimise the risk of fish being damaged by contact with the screen face. (c) The fish screen shall be designed and installed in general accordance with <i>Fish Screening: good practice guidelines for Canterbury, NIWZ Client Report: CHC 2007. 092, October 2007.</i> (d) The fish screen specified in Condition [XXX] (a) shall be designed or supplied by a 																								

		<p>suitably qualified person who shall ensure that the design criteria specified in Condition [XXX] (a)-(c) of this consent is achieved. Prior to the installation of the fish screen, a report containing final design plans and illustrating how the fish screen will meet the required design criteria shall be provided to the Canterbury Regional Council.</p> <p>(e) Prior to the exercise of this consent a certificate shall be provided to the Canterbury Regional Council by the designer or supplier of the fish screen to certify that the fish screen has been installed in accordance with the details provided to the Canterbury Regional Council in accordance with Condition [XXX] (d) of this consent;</p> <p>(f) The fish screen shall be maintained in good working order.</p> <p>(g) Records shall be kept of all inspections and maintenance, and those records shall be provided to Environment Canterbury upon request</p>
9	WP13	<p>The consent holder shall, in relation to any Transpower structures or Transpower transmission lines:</p> <p>(a) Prevent the spray of water onto conductors by adjusting nozzles, turning jets off when the irrigator boom passes by the towers and keeping the irrigator boom away from conductors.</p> <p>(b) Ensure the placement of structures, buildings, planting of trees or encroaching vegetation comply with the set back distances described in the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001).</p>
Measuring & Metering		
10		<p>The consent holder shall, six months prior to this consent being exercised, provide to the Canterbury Regional Council a certificate from the Consent Holder's solicitor certifying that the memorandum of encumbrance provided for in Condition (5) is registered on the computer registers for the land shown on Plan x, and any other evidence of registration as the Canterbury Regional Council may require (if any). <i>Clause 14.3</i></p>
11		<p>The consent holder shall, before the first exercise of this consent:</p> <p>a. install a water meter(s) that has an international accreditation or an equivalent New Zealand calibration endorsement suitable for use with an electronic recording device, from which the rate and the volume of water taken can be determined to within an accuracy of plus or minus five percent at a location(s) that will ensure the total take of water from Lake Waitaki is measured;</p> <p>b. install a tamper-proof electronic recording device such as a data logger that shall record (or log) the flow totals every 15 minutes and have the capacity to hold at least one season's (as specified in condition (3)) data of water taken as specified in clause (b)(i), or which is telemetered, as specified in clause (b)(ii), <i>Clause 15.3(b)</i>;</p> <p>c. ensure the water meter and recording device(s) are be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and shall;</p> <p>d. store the entire season's data in each 12 month period from 1 July to 30 June in the following year, which shall be downloaded and stored in a commonly used format and provided to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; or</p> <p>e. be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder. No data in the recording device(s) shall be deliberately changed or deleted.</p> <p>f. The measuring device shall be installed at a site likely to retain a stable rating (i.e. a man-made channel, concrete, steel or fibreglass pipe). Installation shall be in accordance with ISO 1100/1-1981 or equivalent and be undertaken by a suitably qualified person.</p>
12		<p>The water meter and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval. <i>Clause 15.3(b)</i></p>

13		The water meter and recording device(s) shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions. <i>Clause 15.3(b)</i>
14		All practicable measures shall be taken to ensure that the water meter and recording device(s) are at all times fully functional and have an accuracy standard of $\pm 5\%$. <i>Clause 15.3(b)</i>
15		<p>The consent holder shall, within one month of any water meter and recording device(s) being installed, or within one month of any water meter and/or recording device(s) being replaced, and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, provide a certificate to the Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:</p> <p>a. the water meter and recording device(s) have been installed in accordance with the manufacturers specifications; and</p> <p>b. data from the recording device can be readily accessed and/or retrieved in accordance with conditions (11), and (12)..</p>
Farm Environmental Management Plans		
Administrative Conditions		
16	AD01	The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder.
17	AD03	The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
18	AD04	The lapsing date for the purposes of section 125 shall be [between 5 years and 5 years three months, date set for each quarter] .

APPENDIX D – FARM MANAGEMENT PLANS

APPENDIX E – DEROGATION APPROVAL



11 September 2009

Gillian Ensor
Environment Canterbury
PO Box 345
Christchurch

Dear Gillian

Application by Aviemore Limited

- 1 We write to you to outline the basis of Meridian Energy Limited (*Meridian*) providing its derogation approval of the applications numbered CRC083692 and CRC041031 by Aviemore Ltd. 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 CRC083692 and CRC041031 by Aviemore Ltd and provides derogation approval on the following basis:
 - 2.1 Aviemore Ltd shall only be entitled to take and use water from Lake Aviemore (between map references NZMS H40:893-186 and H40:899-180) at a maximum rate of 19 litres per second for the spray irrigation of 35 hectares identified in the application;
 - 2.2 The maximum daily volume shall not exceed 1,642 cubic metres per day and the annual volume shall not exceed 210,000 cubic metres per annum and this shall be allocated as an agricultural and horticultural activity upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes under Rule 6, Table 5 of the Waitaki Catchment Water Allocation Regional Plan;
 - 2.3 The taking of water outlined in Clause 2.1 and 2.2 shall cease whenever the level of Lake Aviemore reaches 267.7 metres asl;
 - 2.4 The annual volume provided for in Clause 2.2 shall be time tranching in accordance with the following table:

Table A – Maximum Rates & Volumes for CRC083692

Year	Maximum rate of abstraction (litres/second)	Maximum Daily Volume (cubic metres/day)	Maximum Annual Volume (cubic meters/year)
1 September 2009 to 30 April 2010	19 l/s	1,642 m ³ /day	210,000 m ³ /annum
1 September 2010 to 30 April 2011	19 l/s	1,642 m ³ /day	210,000 m ³ /annum
1 September 2011 to 30 April 2012	19 l/s	1,642 m ³ /day	210,000 m ³ /annum
1 September 2012 to 30 April 2013	19 l/s	1,642 m ³ /day	210,000 m ³ /annum
1 September 2013 to 30 April 2014 and every year thereafter	19 l/s	1,642 m ³ /day	210,000 m ³ /annum

- 2.5 Aviemore Ltd shall only be entitled to take and use water from Lake Waitaki (at map references NZMS 260 140:051-107) at a maximum rate of 55 litres per second for the spray irrigation of 119 hectares identified in the application;
- 2.6 The maximum daily volume shall not exceed 4,752 cubic metres per day and the annual volume shall not exceed 714,000 cubic metres per annum and this shall be allocated as an agricultural and horticultural activity upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes under Rule 6, Table 5 of the Waitaki Catchment Water Allocation Regional Plan;
- 2.7 The taking of water outlined in Clause 2.5 and 2.6 shall cease whenever the level of Lake Waitaki reaches 228.7 metres asl;
- 2.8 The annual volume provided for in Clause 2.2 shall be time trached in accordance with the following table:

Table B – Maximum Rates & Volumes

Year	Maximum rate of abstraction (litres/second)	Maximum Daily Volume (cubic metres/day)	Maximum Annual Volume (cubic meters/year)
1 September 2009 to 30 April 2010	55 l/s	4,752 m ³ /day	714,000 m ³ /annum
1 September 2010 to 30 April 2011	55 l/s	4,752 m ³ /day	714,000 m ³ /annum
1 September 2011 to 30 April 2012	55 l/s	4,752 m ³ /day	714,000 m ³ /annum
1 September 2012 to 30 April 2013	55 l/s	4,752 m ³ /day	714,000 m ³ /annum
1 September 2013 to 30 April 2014 and every year thereafter	55 l/s	4,752 m ³ /day	714,000 m ³ /annum

- 3 Any amendment or modification to the above will require further written derogation approval from Meridian. On the same basis any subsequent variation, transfer or replacement application that is relevant to the volume or location of the take may also require further approval.
- 4 This letter is not an affected party approval to the consent application under section 94 of the Resource Management Act. Meridian may choose to submit in support or oppose the application on grounds which do not relate to the derogation of its rights, or not to submit at all.
- 5 This letter does however record (subject to the above) that Meridian will not oppose the granting of the Aviemore Ltd application on the ground that it will reduce the quantity of water available under Meridian's existing consents.
- 6 Please advise if any basis for Meridian's approval outlined in paragraph 2 will not be met by the resource consent.

Yours sincerely

A handwritten signature in black ink, appearing to be 'M. Roan', with a long horizontal line extending to the right.

Mike Roan
Markets and Production Director