

PART 2
RECOMMENDED CONDITIONS

Introduction

1. The three main conditions recommended by ECan Officers for these consent reviews involve annual volume limits, water metering requirements and minimum flow restrictions. Throughout the hearing, different versions of these conditions have been proposed by myself, Mr Don Rule and consent holders. Individual consent holders have proposed conditions specific to their consents (detailed in Part 3 of this report), and the following four groups of consent holders have proposed generic conditions for their groups:
 - The Ellesmere Irrigation Society Incorporated (EISI).
 - Consent Holders represented by Irricon Resource Solutions Ltd (Irricon Clients).
 - Dairy Holdings Limited (DHL).
 - Upper Plains Irrigators.
2. I have summarised the different conditions proposed below, with comments on the various proposals.

Annual Volume Limits

3. The annual volume condition recommended by ECan Officers for the majority of consents under review is detailed in paragraph 63 of my Overview Section 42A Report. The condition sets an annual volume limit but provides flexibility for the consent holder to apply to change the annual volume limit in accordance with the PNRRP methodology once the PNRRP becomes operative. The annual volume limit in this condition has been calculated using Schedule WQN9v3 of the PNRRP as outlined in my Overview Section 42A Report. In addition to this, as a consequence of hearing consent holder's evidence at the hearing, and at the request of the Commissioners, I recommended an extension to this condition which involves monitoring water usage for five years in order to determine more accurately the annual volume of water required. This condition is outlined in note 4 of my Memorandum – Additional Information sought by the Hearing Commissioners (13 August 2009).
4. As mentioned previously, a large number of consent holders have expressed concern that the PNRRP Schedule WQN9v3 method does not provide an adequate annual volume of water for irrigation purposes. Many of these consent holders have proposed an annual volume limit determined using the Irricalc Model. In response to this, Mr Don Rule proposed a consent condition which provided for additional water to supplement the Schedule WQN9 volume (up to the Irricalc "plan compliant" volume) for a five year period while consent holders determine how much water is required annually. This condition is outlined in my Addendum to the Overview Section 42A Report (21 May 2009).
5. In addition, the consent holder groups DHL, Upper Plains Irrigators and Irricon Clients have proposed alternative annual volume conditions, and these are included in Appendix 2.1 of this report. For all of these groups, the annual volume condition proposed by consent holders is a variation on the condition provided by Mr Don Rule. The proposed condition incorporates an Irricalc Model volume for five years while monitoring is carried out to determine more accurately how much water is required annually.
6. DHL and the Upper Plains Irrigators consent holder groups propose variations on the limitations in Mr Rule's condition relating to the transfer of water (where the supplementary volume cannot be transferred to another site). The reasons for this

limitation on the transfer of supplementary water are discussed in my Addendum to the Overview Section 42A Report and any variations to the transfer provisions of the condition proposed are not supported by Mr Rule, myself or ECan Officers. The supplementary volumes were intended to provide for a shortfall in the amount of water required annually for the irrigation of land at that site and not intended for transfer to another site.

7. The annual volume condition proposed by DHL sets an annual volume limit from 1 January to 31 December each year rather than 1 July to 30 June the following year as recommended by ECan Officers. The proposal by DHL to set annual volume limits from 1 January to 31 December is not supported by myself or ECan Officers, as it is not consistent with the aim of the annual volume condition and the relevant PNRRP policies already discussed in my reports for this hearing, which is to provide sufficient water for each irrigation season, consistent with reasonable and efficient use.
8. DHL propose a water sharing group clause in the annual volume condition to allow for water to be shared across consents. This is not supported by myself or ECan Officers as it undermines the purpose of the annual volume limit which is to provide an annual amount of water that is required for each consent, in accordance with reasonable and efficient use of such water.
9. A condition is recommended by ECan officers which provides for the review of the annual volume limit at a later date, to allow for the limit to be varied each irrigation season (referred to as adaptive management). This was discussed in paragraph 111 of my Overview Section 42A report (15 May 2009). A number of consent holders are seeking to have this condition deleted. However, ECan officers still recommend this condition in the event that it becomes necessary in the future to vary the annual volume limit on a seasonal basis.

Metering and Reporting Conditions.

10. The water metering conditions recommended by ECan Officers are detailed in the Summary of Recommended Conditions for each consent under review. These summaries were provided with my Overview Section 42A Report in May 2009. The conditions require consent holders to measure and record water use, and provide this data to ECan on an annual basis. For large groundwater takes (defined as those with an annual volume allocation greater than 357,000 m³) and groundwater takes subject to minimum flow conditions, telemetry is recommended by ECan Officers in order to continuously collect and store the data.
11. The Upper Plains Irrigators, Irricon Clients and DHL consent holder groups have proposed alternative water metering conditions, and these are included in Appendix 2.2. The key differences in the water metering conditions proposed by consent holders are:
 - Extra time to install the water meters.
 - Telemetry optional for all groundwater takes other than those subject to minimum flow conditions.
12. The water metering installation dates recommended by ECan Officers are September 2010 and September 2011. While I acknowledge that there are limitations on how quickly water meters can be installed for a large number of consents, I consider that it is essential that water metering is in place as soon as possible to enable consent holders and ECan to gain a more accurate understanding of the amount of water taken by consent holders. This is essential for effective water allocation management in the RSGAZ. In my view the lack of water use data has been a significant stumbling block

for consent holders and ECan Staff in trying to determine how much water is required by each consent holder in the review process. I consider that it is to the benefit of the consent holders for water meters to be installed as soon as possible so that more is known about actual water use. Therefore, the request by consent holders to have more time to install water meters is not supported.

13. Consent holders have requested that telemetry be optional rather than mandatory for “large” groundwater takes. They have stated that they do not consider telemetry necessary when they are only required to provide the water usage data to ECan on an annual basis, rather than continuously.
14. I agree that at this stage, ECan is only requiring water use data to be provided by consent holders on an annual basis, and telemetry is not required for this. However on this matter I am guided by Mr John Young, ECan’s Water Metering Manager. At the hearing Mr Young stated that he considers telemetry to be the most cost effective method of collecting and storing the data, and providing it to ECan. He also discussed issues with data loggers failing, and without telemetry, this does not become apparent until the end of the irrigation season, when an entire season’s data has been lost. Mr Young recently informed me that this problem occurred again for the 2008/09 irrigation season for a relatively large number of water permits. Therefore at this time, the recommendation by ECan Officers remains to require telemetry for large groundwater takes, and takes which are subject to minimum flow conditions.
15. However, if the Commissioners decide to add water metering conditions to the consents under review, but make telemetry optional, the condition recommended by ECan Officers could be easily modified with the word “or” instead of “and” in relation to the telemetry requirement, as detailed in the water metering conditions proposed by a number of consent holders, including the Upper Plains Irrigators and Irricon Clients consent holder groups.
16. As an alternative to telemetry to address the issue of data loggers failing, the Commissioners have discussed with consent holders at the hearing the option of more frequent data collection and provision to ECan, which would ensure that consent holders continuously check and verify that the water use data is being recorded and stored. Consent holders were asked how often they would suggest that the data be provided to ECan, and it appeared that a large number of consent holders supported monthly provision of water use data to ECan. I have discussed this with ECan Compliance and Enforcement Staff who agree that the provision of water use data monthly to ECan would be useful in the irrigation season. As for the telemetry requirement, if the Commissioners decide to make telemetry optional, but require more frequent data collection and provision to ECan, this could be achieved through a minor wording change to the water metering conditions recommended by ECan Officers.

Minimum Flow Conditions.

17. The minimum flow conditions originally recommended by ECan Officers are detailed in the Summary of Recommended Conditions for each consent under review. In addition, I recommended some supplementary conditions in note 10 of my Memorandum – Additional Information sought by the Hearing Commissioners (13 August 2009). As outlined in that memorandum, the purpose of the supplementary conditions is to:
 - Provide for consent holders to remove the minimum flow conditions if they drill a deeper bore or move the bore to avoid stream depletion effects, or provide information to demonstrate that a stream depletion effect is not occurring.

- Allow the consent holder to reduce the annual volume of water taken to the extent that a stream depletion effect is no longer occurring, making the minimum flow restriction unnecessary.
18. Mr Rule also proposed some alternative minimum flow conditions which are more lenient for a five year period, and these are detailed in paragraph 19 of my Addendum to Overview Section 42A Report (21 May 2009).
 19. I have also discussed earlier in this report a change to the minimum flow condition to be consistent with Policy WQN19(2) of the PNRRP which the Commissioners may like to consider. It is noted that such a condition would be instead of, rather than in combination with the condition proposed by Mr Rule (which is similar but offers a reduction in pumping to half of the consented take, rather than down to a level considered unlikely to have a stream depletion effect of more than 5 L/s).
 20. The EISI represents a large number of consent holders who have minimum flow conditions recommended for their consents. They have objected to the minimum flow conditions recommended by ECan Officers, and have proposed alternative conditions, which are included in Appendix 2.3. The alternative conditions proposed by the EISI include:
 - (i) No minimum flow restrictions before September 2014.
 - (ii) A requirement to provide information to ECan by September 2014 about the extent or absence of a hydraulic connection between the relevant well/s and waterbody.
 - (iii) After September 2014 the provision for ECan to review the consent unless the information provided by the consent holder demonstrates that there is no stream depletion effect on the relevant waterbody.
 - (iv) A requirement for the consent holder to certify with ECan an Investigation Plan which outlines any proposed information gathering, investigation, monitoring and/or pump test proposed to demonstrate that there is no stream depletion effect on the waterbody.
 - (v) The ability to propose a change in depth and/or location of a well to avoid a stream depletion effect, subject to demonstrating that any proposed change will not change any predicted drawdown effects on surrounding wells.
 - (vi) A restriction preventing ECan from reviewing the consent again before 31 August 2014.
 21. The conditions proposed by EISI are not recommended by ECan Officers or myself, other than condition (iv) above. I do not support the proposal to require another review process to add minimum flow conditions to consents after 2014. That is the purpose of this consent review process, and where minimum flow conditions are recommended, I consider that ECan Staff have provided sufficient technical information to support this recommendation. Therefore I consider that the recommended minimum flow conditions should be added to consents through this process. Another consent condition review process to achieve this is unnecessary and inefficient in my view, and would incur extra costs on consent holders and ratepayers. I also consider that the adverse effects on lowland streams need to be addressed as soon as possible, and do not support the proposal to wait until after 2014 to apply minimum flow conditions to the consents under review.
 22. A condition was proposed in note 10 of my Memorandum – Additional Information sought by the Hearing Commissioners (13 August 2009) which provides for the

minimum flow restriction to be removed if it is demonstrated at a later date that it is not necessary. I do recommend that this condition be considered by Commissioners as an alternative way of providing for the removal of minimum flow conditions at a later date should they be determined to be unnecessary.

23. I do support the proposal to give consent holders the ability to propose a change in the depth and/or location of a well to avoid a stream depletion effect, subject to demonstrating that any proposed change will not change any predicted drawdown effects on surrounding wells (condition iv of the conditions proposed by EISI). This is similar to the second condition detailed in note 10 of my Memorandum – Additional Information sought by the Hearing Commissioners (13 August 2009).
24. I do not support the proposed condition preventing ECan from reviewing the consents again until 31 August 2014. While it is not desirable to impose another review process on consent holders in the near future, I consider that ECan should retain the ability to review the consents on any given year in the event that a review is necessary to deal with unforeseen adverse effects that occur in the future.

Summary

25. The Commissioners have been presented with a range of options in relation to annual volume, water metering and minimum flow conditions. The main conditions are summarised here, with specific conditions proposed for individual consents detailed in Part 3 of this report. I have provided comment on these conditions, and some suggested wording for various options. However, given the wide range of options before Commissioners at this time, I have not provided a final set of conditions. Should the Commissioners request it, draft wording could be provided for a final set of conditions if the Commissioners indicate which options they consider appropriate.

Appendix 2.1 Annual Volume Conditions Requested by Consent Holder Groups

1. Irricon Clients example

- (a) For five years following commencement of this condition of consent the annual volume taken shall not exceed 1,112,594 cubic metres between 1 July and the following 30 June;
- (b) If this consent is transferred to another site (not owned and adjoining the consented area), (in whole or in part) within five years of the commencement of this condition, the annual volume that can be transferred shall be:
 - (i) Where the transfer is in whole, to another site and for the remainder of the term of the consent **[IRRICALC POLICY COMPLIANT VOLUME*]** cubic metres between 1 July and the following 30 June; or
 - (ii) Where the transfer is in whole, to another site but for limited duration, **[IRRICALC POLICY COMPLIANT VOLUME*]** cubic metres between 1 July and the following 30 June for the term of the transfer. In these circumstances:
 - (A) the original consent will not be exercised during the term of the transfer; and
 - (B) upon expiry of the term of the transfer, the annual volume taken pursuant to this original consent shall not exceed that set out in (a) above.
 - (iii) Where the transfer is in part, to another site and for the remainder of the term of the consent the volume that can be transferred shall comprise up to the **[IRRICALC POLICY COMPLIANT VOLUME* component of (a) above]** cubic metres between 1 July and the following 30 June. In these circumstances, the volume of water that can be taken pursuant to this original consent for the remainder of its term shall be limited to the residual **[IRRICALC POLICY COMPLIANT VOLUME* component of (a) above]** remaining with the property cubic metres, between 1 July and the following 30 June; or
 - (iv) Where the transfer is in part, to another site but for limited duration the volume that can be transferred shall comprise up to the **[IRRICALC POLICY COMPLIANT VOLUME component of (a) above*]** cubic metres between 1 July and the following 30 June for the term of the transfer. In these circumstances:
 - (A) the volume of water that can be taken pursuant to this original consent for the term of the transfer period shall be limited to the residual **[IRRICALC POLICY COMPLIANT VOLUME* component of (a) above]** remaining with the property cubic metres, between 1 July and the following 30 June; and
 - (B) the maximum volume of water that can be taken pursuant to this original consent after the expiry of the transfer period shall revert to that specified in condition (a) above.
- (c) Following the five year period specified in (a) above, the resource consent holder shall calculate the annual volume of water that may be taken in accordance with the process set out in (d) below.
- (d) The annual volume of water that may be taken shall be **[IRRICALC POLICY COMPLIANT*]** cubic metres unless an analysis of data collected over the preceding five year period demonstrates that a greater volume of water is required to ensure that the water content of the area irrigated is maintained at or above 50% of the capacity of the top 600 millimetres

depth of soil to retain plant available water, for at least 90% of the time between 1 September and 30 April following, providing that:

- (i) The irrigation application efficiency meets or exceeds 80% unless a suitably qualified and experienced irrigation engineer provides a report concluding that special circumstances exist which reasonably preclude achieving a greater level of application efficiency, such as the presence of existing infrastructure, the shape of the property and/or environmental benefits from an application efficiency of less than 80%; and
 - (ii) The data analysis is undertaken by a suitably qualified and experienced irrigation engineer.
- (e) If the Canterbury Regional Council does not accept the annual water volume calculated by the resource consent holder in accordance with the process specified at condition (d) above, the following process shall be adopted:
- (i) A suitably qualified and experienced independent irrigation engineer, proposed by the resource consent holder and approved by the Canterbury Regional Council, shall be appointed (“the Independent Engineer”);
 - (ii) The Independent Engineer shall certify that the annual volume of water proposed by the resource consent holder has been derived by correct application of the methodology set out at condition (d) above.
 - (iii) If the Independent Engineer does not provide the certification required in (e)(ii) above the Consent Holder shall re-submit a volume under Clause (c) and the process in (d) and (e) shall be repeated.

* For the purposes of this condition, the Policy which is referred to is Policy WQN17(4) of Chapter 5, Proposed Natural Resource Regional Plan and the Policy Compliant Volume is based on the following assumptions:

- (i) 80% application efficiency; and
- (ii) 9 in 10 years reliability.

2. Dairy Holdings Limited.

- (a) For five years following commencement of this condition of consent the annual volume taken shall not exceed [IRRICALC POLICY COMPLIANT VOLUME* PLUS IRRICALC SUPPLEMENTARY VOLUME] cubic metres between 1st January and the following 31st December.

Advisory note: the IRRICALC POLICY COMPLIANT VOLUME is based on the Irrigation New Zealand (INZ) *Irricalc* methodology assuming an 80% application efficiency and 9 in 10 years of reliability.

- (b) Following the expiry of the five year period referred to in the condition 3(a), the annual volume shall not exceed [IRRICALC POLICY COMPLIANT VOLUME] cubic metres between 1st January and the following 31st December, **unless:**
- (i) the consent holder provides a Report prepared by a suitably qualified professional in accordance with the INZ Irrigation Evaluation Code of Practice dated February 2006 that contains:
 - (A) a Monitoring Report that for the period of 1 January to 31 December for each of the preceding five years that records:
 - o the total annual volume of water used on each property;
 - o soil moisture measurements;

Advisory note: Soil moisture may be approximated through the use of the INZ Irricalc methodology or through the use of data from similar neighbouring properties

- rainfall on a monthly basis;
 - The proportion of irrigated area shown in attached plan [CRC]; and on a 3 monthly basis, the type of crop or pasture being irrigated
- (B) a recommendation for the annual volume which is based upon the Monitoring Report and the reasonable and efficient use of water taking into consideration:
- policies WQN17(2)(b) and WQN14(7) (or their equivalent) as set out in the then proposed or operative Natural Resources Regional Plan where those policies can reasonably be expected to be achieved (and assuming that those policies provide for an 80% application efficiency and 9 in 10 years of reliability);
 - the actual volume needed to undertake irrigation on the property given the nature of the existing and available infrastructure and the likely water demand;
 - whether a greater volume of water is required to ensure that the water content of the area irrigated is maintained at or above 50% of the capacity of the top 600 millimetres depth of soil to retain plant available water, for at least 90% of the time between 1 September and 30 April; and
 - any other mitigating circumstances including, for existing infrastructure, a program of staged improvement in water use efficiency or any other matter described in Policy 17(3)(b).

OR

- (ii) using Schedule WQN9, or its functional equivalent, in an operative Natural Resources Regional Plan (the *NRRP Method*) the consent holder forwards to the Canterbury Regional Council:
- a revised annual volume which has been calculated by a suitably qualified person using the NRRP Method; and
 - a certificate signed by the suitably qualified person which details and certifies the calculation done in accordance with the NRRP Method;

And after receipt of the revised annual volume under either condition 3(b)(i) or 3(b)(ii) the Canterbury Regional Council gives written notice to the consent holder that it accepts the revised annual volume and that the calculation has been undertaken in accordance with either the Policy or the NRRP Method and such notice shall not be unreasonably withheld.

Transfers

- (c) If this consent is transferred to another site (in whole or in part) within five years of the commencement of this condition, the annual volume that can be transferred shall be:
- (i) Where the transfer is in whole, to another site and for the remainder of the term of the consent [IRRICALC POLICY COMPLIANT VOLUME*] cubic metres between 1st January and the following 31st December;

OR

- (ii) Where the transfer is in whole, to another site but for limited duration, [IRRICALC POLICY COMPLIANT VOLUME*] cubic metres between 1st January and the following 31st December for the term of the transfer. In these circumstances:
- (A) the original consent will not be exercised during the term of the transfer; and

- (B) upon expiry of the term of the transfer, the annual volume taken pursuant to this original consent shall not exceed that set out in (a) above.

OR

- (iii) Where the transfer is in part, to another site and for the remainder of the term of the consent the volume that can be transferred shall comprise up to the [IRRICALC POLICY COMPLIANT VOLUME* component of (a) above] cubic metres between 1st January and the following 31st December. In these circumstances, the volume of water that can be taken pursuant to this original consent for the remainder of its term shall be limited to the residual [IRRICALC POLICY COMPLIANT VOLUME* component of (a) above] remaining with the property cubic metres, between 1st January and the following 31st December;

OR

- (iv) Where the transfer is in part, to another site but for limited duration the volume that can be transferred shall comprise up to the [IRRICALC POLICY COMPLIANT VOLUME component of (a) above*] cubic metres between 1st January and the following 31st December for the term of the transfer. In these circumstances:
- (A) the volume of water that can be taken pursuant to this original consent for the term of the transfer period shall be limited to the residual [IRRICALC POLICY COMPLIANT VOLUME* component of (a) above] remaining with the property cubic metres, between 1st January and the following 31st December; and
- (B) the maximum volume of water that can be taken pursuant to this original consent after the expiry of the transfer period shall revert to that specified in condition (a) above.

3. Upper Plains Irrigators

For consents that do not have minimum flow conditions

- (a) For five years following commencement of this condition of consent
- (i) the annual volume taken shall not exceed **[IRRICALC (intensive pasture) POLICY COMPLIANT VOLUME* PLUS IRRICALC SUPPLEMENTARY VOLUME* PLUS (0.05 m x irrigation area (m2))]** cubic metres between 1 July and the following 30 June; and
- (ii) the volume of water taken over any consecutive three year period commencing on 1 July in any given year and ending on 30 June three years later shall not exceed **[(IRRICALC (intensive pasture) POLICY COMPLIANT VOLUME* PLUS IRRICALC SUPPLEMENTARY VOLUME) x 3]**
- (b) If this consent is transferred to another site (in whole or in part) within five years of the commencement of this condition, the annual volume that can be transferred shall be:
- (i) Where the transfer is in whole, to another site and for the remainder of the term of the consent **[IRRICALC POLICY COMPLIANT VOLUME*]** cubic metres between 1 July and the following 30 June; or
- (ii) Where the transfer is in whole, to another site but for limited duration, **[IRRICALC POLICY COMPLIANT VOLUME*]** cubic metres between 1 July and the following 30 June for the term of the transfer. In these circumstances:
- (A) the original consent will not be exercised during the term of the transfer; and
- (B) upon expiry of the term of the transfer, the annual volume taken pursuant to this original consent shall not exceed that set out in (a) above.

- (iii) Where the transfer is in part, to another site and for the remainder of the term of the consent the volume that can be transferred shall comprise up to the **[IRRICALC POLICY COMPLIANT VOLUME* component of (a) above]** cubic metres between 1 July and the following 30 June. In these circumstances, the volume of water that can be taken pursuant to this original consent for the remainder of its term shall be limited to the residual **[IRRICALC POLICY COMPLIANT VOLUME* component of (a) above]** remaining with the property cubic metres, between 1 July and the following 30 June; or
- (iv) Where the transfer is in part, to another site but for limited duration the volume that can be transferred shall comprise up to the **[IRRICALC POLICY COMPLIANT VOLUME component of (a) above*]** cubic metres between 1 July and the following 30 June for the term of the transfer. In these circumstances:
 - (A) the volume of water that can be taken pursuant to this original consent for the term of the transfer period shall be limited to the residual **[IRRICALC POLICY COMPLIANT VOLUME* component of (a) above]** remaining with the property cubic metres, between 1 July and the following 30 June; and
 - (B) the maximum volume of water that can be taken pursuant to this original consent after the expiry of the transfer period shall revert to that specified in condition (a) above.
- (c) Following the five year period specified in (a) above, the resource consent holder shall calculate the annual volume of water that may be taken in accordance with the process set out in (d) below.
- (d) The volume of water that may be taken shall not exceed:
 - (i) **[IRRICALC (intensive pasture) POLICY COMPLIANT VOLUME* PLUS (0.05 m x irrigation area (m²))]** cubic metres between 1 July and the following 30 June; and
 - (ii) **[[IRRICALC (intensive pasture) POLICY COMPLIANT VOLUME* x 3]** over any consecutive three year period commencing on 1 July in any given year and ending on 30 June three years later.

metres unless an analysis of data collected over the preceding five year period demonstrates that a greater volume of water is required to ensure that the water content of the area irrigated is maintained at or above 50% of the capacity of the top 600 millimetres depth of soil to retain plant available water, for at least 90% of the time between 1 September and 30 April following, providing that:

 - (iii) The irrigation application efficiency meets or exceeds 80% unless a suitably qualified and experienced irrigation engineer provides a report concluding that special circumstances exist which reasonably preclude achieving a greater level of application efficiency, such as the presence of existing infrastructure, the shape of the property and/or environmental benefits from an application efficiency of less than 80%; and
 - (iv) The data analysis is undertaken by a suitably qualified and experienced irrigation engineer.
- (e) If the Canterbury Regional Council does not accept the annual water volume calculated by the resource consent holder in accordance with the process specified at condition (d) above, the following process shall be adopted:

- (i) A suitably qualified and experienced independent irrigation engineer, proposed by the resource consent holder and approved by the Canterbury Regional Council, shall be appointed ("the Independent Engineer");
- (ii) The Independent Engineer shall certify that the annual volume of water proposed by the resource consent holder has been derived by correct application of the methodology set out at condition (d) above.
- (iii) If the Independent Engineer does not provide the certification required in (e)(ii) above the Consent Holder shall re-submit a volume under Clause (c) and the process in (d) and (e) shall be repeated.

* The Irricalc method used shall be as described in the evidence provided by Dr John Bright to the Rakaia-Selwyn Consent Reviews Hearing Panel on 12 June 2009.

For the purposes of this condition, the Policy which is referred to is Policy WQN17(4) of Chapter 5, Proposed Natural Resource Regional Plan and the Policy Compliant Volume is based on the following assumptions:

- (i) 80% application efficiency; and
- (ii) 9 in 10 years reliability.

Appendix 2.2

Water Metering Conditions Requested by consent holder groups.

1. Dairy Holdings Ltd.

The consent holder shall, within 2 years of the date on which these conditions take effect:

- (a) (i) install a water meter(s) that has an international accreditation or equivalent New Zealand calibration endorsement, and has pulse output, suitable for use with an electronic recording device, which will measure the rate and the volume of water taken to within an accuracy of plus or minus five percent as part of the pump(s) outlet plumbing, or within the mainline distribution system, at a location(s) that will ensure the total take of water is measured; and
 - (ii) install a tamper-proof electronic recording device(s) such as a data logger that records or logs the pulse totals at between 3 and 10 times per hour, and has the capacity to hold at least 12 months water use data as specified in clauses (b)(i) and (b)(ii).
 - (b) The water meter(s) and recording device(s) shall:
 - (i) be set to wrap the data from the measuring device such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and
 - (ii) store the data in each 12 month period from 1 January to the following 31 December, which the consent holder shall then download and store and provide to the Canterbury Regional Council in a format and standard specified in the Canterbury Regional Councils form for Water Metering Data Collection; and
 - (c) No data in the recording device(s) shall be deliberately changed or deleted.
 - (d) The water meter(s) and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.
 - (e) The water meter(s) and recording device(s) shall be installed, maintained and operated throughout the duration of the consent in accordance with the manufacturer's instructions and with a minimum straight length of pipe upstream (before the meter) of 10 times the diameter of pipe and a minimum straight downstream (after the meter) length of five times the diameter of pipe.
 - (f) All practicable measures shall be taken to ensure that the water meter(s) and recording device(s) are fully functional at all times and still meeting the accuracy stated in condition 6(a) and (b).
- 8) The consent holder shall, within 2 years of the date on which these conditions take effect install or make available an easily accessible straight pipe at a location where the total water take is passing through, with no fittings or obstructions that may create turbulent flow conditions, of a

length of at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system, to allow the Canterbury Regional Council to conduct independent measurements.

Note: Installation of an electromagnetic or acoustic meter in accordance with condition 7(e) above will not cause turbulence in the pipe work and will provide the required 15 times diameter pipe length to comply with condition 8 above. However, if a mechanical meter is installed an additional five times diameter length of straight pipe will be required (before the meter) to avoid turbulence created by the meter and to comply with condition 8.

- 9) Within one month of the installation of the measuring or recording device(s), or any subsequent replacement measuring or recording device(s), and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying that:
- (a) the water meter(s) is measuring the rate of water taken as specified in condition 7; and
 - (b) the measuring and recording device(s) has been installed in accordance with the manufacturer's specifications; and
 - (c) data from the recording device(s) can be readily accessed and/or retrieved in accordance with condition 6; and
 - (d) the tamper-proof electronic recording device(s) is operating as specified in condition 7.

2. Irricon clients.

- (a) The consent holder shall, within 12 months of this condition commencing OR if installation within that period is not reasonably achievable due to third party constraints (including unavailability of hardware, suppliers or installers) despite all practicable steps having been taken by the consent holder, as soon as reasonably practicable after 12 months and no later than 24 months after this condition commences:
 - (i) install a water meter(s) that has an international accreditation or 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 bores(s) [specify] is measured; and
 - (ii) 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 data of water taken as specified in clauses (b) (i), or which is telemetered, as specified in clause (b)(ii).
- (b) The water meter and recording device(s) shall 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:

- (i) 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; or
 - (ii) 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 to the consent holder. No data in the recording device(s) shall be deliberately changed or deleted.
 - (iii) the data collected and stored pursuant to either (i) or (ii) above shall be provided to the Canterbury Regional Council upon request at no more than annual intervals in a form and to a standard specified in writing by the Council.
- (c) The water meter and recording device(s) shall be accessible to the Council at all times for inspection and/or data retrieval.
- (d) The water meter and recording device(s) shall be installed, maintained and calibrated throughout the duration of the consent in accordance with the manufacturer's instructions.
- (e) Within one month of the installation of any water meter or recording device, and every five (5) years thereafter (unless more frequently required under (d) above), the consent holder must provide a certificate to the Council to verify that the water meter has been installed in accordance with the manufacturer's instructions and consent condition requirements and is accurately measuring the rate of water taken.
- (f) 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 $\pm 5\%$.

3. Upper Plains Irrigators

*For takes that are **not** hydraulically connected*

- (a) The consent holder shall, within 12 months of this condition commencing OR if installation within that period is not reasonably achievable due to third party constraints (including unavailability of hardware, suppliers or installers) despite all practicable steps having been taken by the consent holder, as soon as reasonably practicable after 12 months and no later than 24 months after this condition commences:
- (i) install a water meter(s) that has an international accreditation or 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 bores(s) [specify] is measured; and
 - (ii) 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 data of water taken as

specified in clauses (b) (i), or which is telemetered, as specified in clause (b)(ii).

- (b) The water meter and recording device(s) shall 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:
 - (i) 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; or
 - (ii) 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 to the consent holder. No data in the recording device(s) shall be deliberately changed or deleted.
 - (iii) the data collected and stored pursuant to either (i) or (ii) above shall be provided to the Canterbury Regional Council upon request at no more than annual intervals in a form and to a standard specified in writing by the Council.
- (c) The water meter and recording device(s) shall be accessible to the Council at all times for inspection and/or data retrieval.
- (d) The water meter and recording device(s) shall be installed, maintained and calibrated throughout the duration of the consent in accordance with the manufacturer's instructions.
- (e) Within one month of the installation of any water meter or recording device, and every five (5) years thereafter (unless more frequently required under (d) above), the consent holder must provide a certificate to the Council to verify that the water meter has been installed in accordance with the manufacturer's instructions and consent condition requirements and is accurately measuring the rate of water taken.
- (f) 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 $\pm 5\%$.

Appendix 2.3
Minimum Flow Conditions Requested

ELLESMERE IRRIGATION SOCIETY INCORPORATED – Conditions as Proposed – 27 August 2009

1. Prior to 1 September 2014, the consent holder shall provide to the consent authority information, investigation, monitoring and/or pump test results, which will provide evidence as to the extent or absence of a hydraulic connection between bore/s subject to this consent and the [waterbody name].
2. The consent holder shall provide to the consent authority an annual report in respect to the matters listed in condition 1 above, either in relation to this consent only or as part of a joint group consent report. The report shall give an account of the state of the information, investigations, monitoring and/or pump tests required by condition 1. This report shall be provided to the consent authority by 31 August each year.
3. If by 1 September 2014:
 - (i) The information provided under (1) above shows that there is a stream depletion effect less than the magnitude that would require a low flow restriction under the requirements of the Policies and Rules of the operative regional plan, then the resource consent will not be reviewed under (ii) below and the consent authority shall advise the consent holder confirming this
 - (ii) If the consent holder fails to provide the required information to the consent authority, or the information provided establishes that there is more than or equal to a stream depletion effect of the magnitude that would require a low flow restriction under the requirements of the Policies and Rules of the operative regional plan, then the consent authority shall give written notice that the resource consent shall be reviewed under section 128 for the purpose of determining and potentially imposing a minimum flow condition.
4. Before any investigation is commenced, the consent holder shall prepare and submit to the Manager of the Groundwater Section, Canterbury Regional Council for certification that it meets the requirements of this condition, an Investigation

Plan which describes the proposed information gathering, investigation, monitoring and/or pump testing. This shall include:

- A summary of the investigations, information gathering and monitoring to be undertaken;
- Details of the pump testing that will be undertaken.

The purpose of this condition is to ensure that there is an agreed protocol for carrying out information gathering, investigations, monitoring or pump testing which will ensure a robust set of data for determining the magnitude of any stream depletion effect.

5. For the purpose of mitigating stream depletion effects prior to 1 September 2014, the consent holder may propose a change to the location and/or depth of the bore/s taking water as authorised by this consent without the need for a compulsory pumping test (CRC Policy 1 July 2009), provided that any change in bore interference effects on surrounding bore/s will not be more than minor.

Advice note: any such change to the location and/or depth of a bore will require an application for a change of condition/s pursuant to Section 127 of the Resource Management Act 1991.

6. The Canterbury Regional Council may, no earlier than 31 August 2014, serve notice of its intention to review the conditions of this consent for the purpose 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.