IN THE MATTER Of the Resource Management Act 1991

AND

IN THE MATTER Of application CRC103570 by Christchurch City Council to take and use groundwater for the purpose of town water supply at Little River

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DECISION OF HEARING COMMISSIONER EMMA CHRISTMAS

25 October 2011

The Application

1. Christchurch City Council has applied to take and use groundwater from bore N36/0131, adjacent to Western Valley Road, Little River, for the purpose of town water supply for Little River and Cooptown.

Decision

2. Under delegated authority from the Canterbury Regional Council to hear and decide this application, it is my decision that application CRC103570 should be granted for a duration of 35 years, subject to the conditions attached to this decision.

The hearing

3. The application was heard at the Lincoln Events Centre on the morning of 14 September 2011. I carried out a site visit on the afternoon of the same day.

4. The following people appeared at the hearing:

   For the applicant:

   Amy Callaghan, Senior Resource Management Planner, CPG New Zealand Ltd

   Michael Bourke, Planning Engineer, Water and Wastewater, Christchurch City Council

   Eric Van Nieuwkerk, Senior Hydrologist, CPG New Zealand Ltd

   Reporting Officer:

   Don Vattala, Environment Canterbury

5. No submitters were present. The hearing was adjourned in order to receive additional information from the reporting officer and the applicant's right of reply. The right of reply was received on 14 October and the hearing was closed on 17 October.

Background

6. Little River town water supply is currently sourced from a surface water take from Police Creek, a spring-fed tributary of the Okana River. Water is taken at a rate of up to 2.5 l/s and 216 m^3/day. The supply serves 74 residential and 23 commercial properties in the township. Each residential connection is allowed a restricted water supply of 1 m^3/day, although the applicant advised that some

connections exceeded this via illegal plumbing alterations. The supply is unreliable at times of low flow in the river and also experiences water quality problems when the flow is high and turbid. Additional properties cannot currently be connected due to the unreliable nature of the supply and possible water shortages during dry periods.

7. The application is to take water from a 60 m deep bore (N36/0131) at the base of the Little River valley. The bore will abstract groundwater from the volcanic rock aquifer beneath the valley floor. The maximum rate of take will be 3.0 l/s, with a maximum daily volume of 260 m^3. There will be a combined maximum take of 5.5 l/s and 260 m^3/day from the two sources. The additional abstraction from the catchment will therefore be 44 m^3/day.

8. The Police Creek supply will remain the preferred source of water as it is cheaper to operate. The groundwater supply will therefore primarily be a top-up supply at times of low surface flows or reduced surface water quality.

9. It is predicted that by 2041 the scheme will provide water to 122 residential connections (1 m^3/day) and 30 commercial connections (a total of 48 m^3/day) in Little River with a further 23 residential connections in Cooptown (1 m^3/day).

10. The application included a proposed community water supply protection zone, determined in accordance with Schedule WQL2 of the NRRP, with a 200 m radius from the bore, and extending 500 m up-gradient. The zone was proposed in response to a request from ECan, as the activity met the definition of a community drinking water supply at that time.

11. At the hearing however, the applicant advised that the NRRP, which had become operative since the application was lodged, now defined 'community drinking water supply' as '*a publicly or privately owned drinking water supply that serves 500 or more people at least 60 days of the year*…'. Ms Callaghan stated that there was no intention that the scheme would supply 500 people within the life of the consent and so there was no longer a need to consider establishment of a community drinking water protection zone.

12. To this end, the right of reply amended the application to 30 years, a period of time in which it was predicted that people supplied would not exceed 500.

Notification

13. The application was limited notified on 19 January to 52 people, comprising two well owners and the landowners and occupiers within the proposed community water supply protection zone.

Submissions

14. Eight submissions were received; two in support and six in opposition. The submissions are summarised in the s42A report, however the concerns of those in opposition can broadly be summarised as the effects on springs and wells which current supply water to properties, and the implications for future land uses and property values if a community supply protection zone is put in place.

15. Comments by submitters in support focussed on the benefits to the township in terms of improved water quality and quantity. It should be noted that one submitter, Mr & Mrs Skinner, own the property on which the subject well is located and will be compensated for disruption to their activities as a result. They state that their support of the proposal is not motivated by financial reasons.

16. No submitters appeared at the hearing.

Activity status

17. The application was lodged in August 2010, prior to the Natural Resources Regional Plan (NRRP) becoming operative. The activity status is therefore determined under the Proposed NRRP. There was no dispute that the taking of water is a non-complying activity under Rule WQN23 of the PNRRP, and the use of water a discretionary activity under Rule WQN27. Both activities are discretionary under the Transitional Regional Plan. The overall status of the activity is therefore non-complying.

Hydrogeology

18. The hydrogeology of the area is relevant to the consideration of effects. This was described in evidence by Mr van Nieuwkerk and Dr Vattala.

19. The Little River valley stretches down from the rim of the Akaroa caldera, with Lake Forsyth at its mouth. The lower reaches of the valley are relatively

narrow, with alluvial flats, consisting of loess-colluvium which has washed down from the slopes above, at the base. A shallow groundwater system is associated with the Okana River and tributaries in these alluvial flats, sourced primarily from rainfall on the alluvial deposits. Shallow groundwater is generally abstracted at depths of about 7 – 10 metres.

20. Below the alluvial deposits is fractured volcanic rock, which makes up the sides and bedrock of the valley. Deep groundwater is present in these rocks, fed from percolation through rock fractures in the valley walls and to a lesser extent from the alluvial valley floor. Contact springs occur in the valley sides, fed from water percolating from the valley ridges through the fractures.

21. Some bore logs contain peat and clay layers, which obstructs groundwater flow between the overlying sediments and the deeper volcanic rock. These layers serve as a confining layer that separates the two groundwater systems.

22. The application is to take water from the deeper, volcanic rock aquifer.

Assessment under Section 104

23. The potential effects of the activity have been clearly detailed in both the s42A report and the application. There was no dispute that the following potential effects were minor or negligible:

- Adverse effects on aquifer stability

24. The aquifer in question is fractured volcanic rock and compression and subsequent land subsidence highly unlikely.

- Adverse effects of cross-connection on groundwater quality

25. Whilst Dr Vattala had initially recommended a condition requiring backflow prevention, the applicant advised this was unnecessary as all pumps have a non-return valve, which is necessary to ensure they operate efficiently and effectively. Back-flow prevention systems are not normally included within the setup for community supply wells and are not required for CCC's other wells. Requiring such a system would add unnecessary cost and result in energy being wasted through unnecessary pumping.

26. I accept the applicant's view that a back-flow prevention system is unnecessary.

- Adverse effects on surrounding groundwater users as a result of cumulative effects

27. The applicant made a crude but conservative assessment of water availability within the Okana River catchment, on the basis of land surface recharge in accordance with Schedule WQN4 of the NRRP. An allocation limit of 2.4 million m^3/year was derived. Dr Vattala advised that Mr Matt Smith, ECan's hydrogeologist, considered the approach used to be reasonable. There are two current consented groundwater takes in the catchment, estimated to be taking approximately 15,000 m^3 of water per year in total. Based on these figures there are no concerns with catchment-wide cumulative effects.

- Adverse effects on saltwater intrusion

28. Since the abstraction is from a confined volcanic aquifer and there are no concerns with over-allocation, the likelihood of the abstraction resulting in saltwater intrusion at the coast is negligible.

- Adverse effects of an inefficient take

29. Water is supplied to domestic connections by means of a restricted water supply. That is, the volume that can be taken is limited to a maximum of 1 m^3/day. The applicant advised this is less than typically allowed through other rural supply schemes (2 m^3/day) and is therefore considered efficient.

30. The current unaccounted for losses are 35%. An allowance of 20% loss has been made for the future, which Mr Bourke considered was optimistic. A new treatment plant and new reticulation system is planned, to be completed by 2014.

31. Given the above, I consider the proposed use of water is efficient.

32. Other potential effects require further discussion.

Adverse effects on surrounding groundwater users as a result of well interference

33. The Regional Policy Statement (RPS) and NRRP require that new grants of consent do not unreasonably interfere with existing authorisations. Specifically Chapter 9, Policy 6 of the RPS states:

"*In considering a permit to take water, a consent authority should, as part of the requirements of s104 of the RM Act, consider the need to:… (c) provide for existing water permit holders to have priority for the term of their permit;"*

34. Policy 5 of the RPS also gives priority to existing users, saying that the grant of a permit to take water "*should not preclude the reasonable exercise of an existing consent to take ….water"*

35. Objective WQN7 of the NRRP seeks to ensure that groundwater abstractions from new bores, in conjunction with all other abstractions from existing bores, do not significantly affect the yield from neighbouring bores.

36. Policy WQN19 of the NRRP establishes a threshold of acceptable interference and requires that any new bore be located so that the abstractions from it do not cause any significant interference on abstractions from neighbouring bores. Specifically, the policy states that the extent of direct cumulative interference effect on any neighbouring bore should not exceed 20% of the available drawdown in any bore with an existing authorisation that is within 2 kilometres, unless the effect is mitigated. A *de minimus* threshold of 0.1 metres is set for direct drawdown effects, below which effects are considered to be insignificant.

37. One submitter, Mr Keith Ussher, submitted on the basis of potential effects on his well.

38. The applicant conducted an aquifer test on the subject bore (N36/0131) in 2009. Using the aquifer parameters derived, they initially identified three potentially adversely affected well owners: Mr Ussher (well N36/0082, 41.5 m deep); Mr and Mrs Story (well N36/0132, 1.2 m deep); and Okuti Valley Wines Ltd (well N36/0064, 21 m deep). An audit by Dr Vattala also initially indentified a further bore, N36/0064 (15 m deep) owned by Mr Rissman.

39. However, further consideration of the aquifer test results by Mr Matt Smith, ECan hydrogeologist concluded that the pumped aquifer is confined, and therefore pumping from it will not affect shallow wells in the overlying unconfined aquifer. This was demonstrated by the lack of response to pumping of well N36/0250 (10.9 m deep) located 15 m from the pumped well. A depth of 17 m was considered an appropriate 'cut-off' between unaffected shallow wells and potentially affected deeper wells.

40. Mr van Nieuwkerk concurred with these findings at the hearing and considered that there would be no effects on the bores owned by the Storys and Mr Rissman. The bore owned by Okuti Valley wines was also excluded on the basis that, while deeper than 17 m deep, it is primarily screened between 13 and 17 m depth, within the shallower overlying layers which are not hydraulically connected to the deeper aquifer.

41. The well owned by Mr Ussher is therefore the only well likely to be affected by the proposal. The effect of the applicant's pumping exceeds the thresholds set in Policy WQN19, specifically, it will cause a drawdown of greater than 0.1 m, and a cumulative effect, along with other nearby groundwater users, of more than 20% of the available drawdown in the well. However, when the location of the screen and the lowest calculated water level in the area are considered, there is 21.24 m of water available in the well. There is no consent associated with the well, therefore water can only be taken as of right up to a maximum of 10 m^3/day, an average rate of take of 0.12 l/s. Considering the self-induced drawdown from pumping at this rate, plus the cumulative drawdown from other wells, plus the effect of pumping from N36/0131, 15.87 m of water would still remain in the well.

42. There is therefore no shortage of water in the well, however an issue will arise if Mr Ussher currently uses a surface pump, which may struggle to operate effectively as water levels are reduced. At the hearing, the applicant offered mitigation for Mr Ussher via connection at no cost to the community water supply and provision of a submersible pump or deepening of an existing submersible pump, if one exists, to allow water to taken from a greater depth. In the right of reply, Ms Callaghan suggested a condition worded as follows:

"If the water take results in a drawdown of more than 20% on the bore located at 29 Western Valley Road, the consent holder shall install (at no cost to the property owner) a submersible pump (or similar) on the bore."

43. A drawdown of greater than 20% of the available water has already been predicted to occur at the pumping rate applied for using the results of the pump test. It is therefore appropriate that the applicant install the submersible pump as soon as requested to do so by Mr Ussher.

44. In summary, while there is likely to be an effect on Mr Ussher in terms of ease of access to water, I do not consider this should prevent the grant of consent.

Water will still be available in his well and the applicant has offered appropriate mitigation such that this water can be pumped. Ms Callaghan also drew my attention to the Opiki Water Action Group case[1], where it was concluded that a consent does not guarantee the current form of abstraction, in that case free-flowing artesian water, where subsequent development reduced water levels such that pumping would be required.

45. With the mitigation proposed, I conclude that the effects on other groundwater users will be minor.

Adverse effects on surface water flows

46. Objective WQN3 of the NRRP is to enable access to the region's groundwater resource while ensuring, amongst other things, that abstraction from groundwater that is hydraulically connected to surface water does not result in adverse effects on flows and the values that the surface water supports.

47. The well is located close to Police Creek, however due to the depth of the well and the presence of confining layers between the volcanic rock and the river, as evidenced from bore logs and the results of the aquifer test, both Mr van Nieuwkerk and Mr Smith concluded there would be no effect on surface water resources.

48. I accept these experts' reasoning in relation to creek and river flows. However the effect on springs, about which submitters Mr Bellamy and Mr Hoult raised concerns, was not specifically addressed in evidence at the hearing. According to Mr Hoult's submission, the spring referred to currently supplies a number of domestic properties, together with the community hall, Little River fire station, a playcentre and primary school, with water. Of concern is that if the springs emanate from the volcanic rock strata, rather than from the surface sediments associated with the creek, then a lowering of the water table within the volcanic rock may result in reduced spring flow.

49. The location of the spring was not identified in evidence, so it is not clear if it is located within the alluvial deposits or within the volcanic rock on the valley sides.

50. Mr van Nieuwkerk addressed this matter in the right of reply. His opinion was that if the springs were associated with the volcanic rock, the results derived

[1] Opiki Water Action Group v Manawatu Wanganui Regional Council (W064/2004).

from the pump test would have been different, with the water levels in the observation bore stabilising as soon as the drawdown cone around the applicant's bore reached the nearest spring.

51. I also note that there was no reported disruption to the spring flow while the pump test was undertaken. An interruption to flow to the 5 houses, the community hall and primary school four weeks after the pump test was noted in Mr Hoult's submission. I am satisfied that due to the length of time between the events this is unlikely to be related to the pump test.

52. Further, the properties currently supplied by the spring are within the area which will be supplied with water by the community scheme, therefore any effects, albeit unlikely, will be mitigated.

53. Overall, I am satisfied that the effects on surface flows, springs and those who currently rely on water from them, will be minor.

Adverse effects on landowners due to creation of a community water supply protection zone

54. Policy WQL13 of the NRRP requires that a protection zone be identified around any community supply well included within Schedule WQL2 of the NRRP. Within such a zone, certain activities that are permitted elsewhere would require resource consent or would be subject to more stringent conditions as a permitted activity. Such activities include discharge of contaminants to land from on-site wastewater systems and various common farming activities.

55. The restrictions on land use for those living within the zone and the effect of this on property values was raised in submissions.

56. As discussed above, the definition of community drinking water supply In the NRRP now applies to schemes serving 500 or more people. This is generally consistent with the National Environmental Standards for Sources of Human Drinking Water Regulation 2007 (the NES). This includes restrictions on the granting of permits, and the making of permitted activity rules, that may affect the quality of a drinking water supply serving 501 or more people.

57. As a result, if the scheme serves less than 500 people, it is not classed as a community drinking water supply in terms of the plan or the NES, and a protection zone will not be included within the plan. The more stringent rule requirements will not apply.

58. Ms Callaghan identified in her right of reply that "*current conservative predictions indicated that the water supply will not serve a population of 500 people until at least 2041*". She states: "*Rather than proposing a condition that the consent will lapse when a population of 500 is reached, I consider it more appropriate to amend the consent application such that the term of consent sought is now 30 years*".

59. However, her population estimate differs from information provided by Janice Carter, Principal planner CPG, in response to a s92 request in November 2010. This states: "*The Little River Water supply is projected by 2041 to serve at least 540 people, and therefore this regulation* [the NES] *applies*."

60. Should the scheme exceed 500 people during the term of consent, the NES will automatically apply and the NRRP provisions will apply providing a plan change is made to include the scheme within Schedule WQL2. I have no reason to assume that this would not occur. In this situation, there clearly would be effects on neighbouring landowners.

61. I made clear to the applicant at the hearing that if this situation was likely, evidence would need to be heard on the appropriate size of a protection zone and the effects of that on landowners and occupiers within it. In response, Ms Callaghan stated that the applicant would prefer to offer conditions (ultimately the shortened duration), limiting the scheme such that the trigger of 500 people was not reached.

62. While I accept the applicant's position, given the lack of consideration of effects on neighbouring landowners, it is important that the scheme size does not reach 500 during the term of consent. However, given the differing information on the likely number of connections by 2041 and the lack of any detail of the predictions made and whether these might be altered by the recent Christchurch earthquakes (the application was lodged prior to the first earthquake) I am not confident that the reduce the duration to 2041 on its own will definitely achieve this. I have therefore included a condition that the scheme size be limited to less than 500 people.

63. With this is place, there is certainty that a community water supply zone will not be required, and consequently there will be no effects on neighbouring landowners.

Relevant provisions of planning and policy documents – RPS/NPS

64. I have referred above to relevant provisions of the operative RPS and NRRP, however the recently notified Proposed Regional Policy Statement 2011 and the National Policy Statement on Freshwater ("NPS") are also relevant.

65. The proposed RPS Objective 7.2.1 gives primacy to provision for community water supply, customary uses, safe-guarding the life-supporting capacity of water and preservation of the natural character, over other uses and values. Policy 7.3.8 focuses on efficient use of water. While the document is at a very early stage and little weight should be afforded to it, there is no inconsistency between the activity and the proposed RPS provisions.

66. The NPS took effect on 1 July 2011. A major focus of the NPS is water allocation (and over allocation). This is not an issue of concern for this allocation. The NPS also deals with water quality, which again is of limited relevance to this application.

67. I am satisfied that relevant freshwater objectives can be met by the grant of this consent.

Section 104D

68. The application is for a non-complying activity, therefore the threshold test in section 104D of the RMA must be met before consent can be granted. Consent may only be granted if either the adverse effects of the activity on the environment will be minor, or the application is for an activity that will not be contrary to the objectives and policies of the relevant plan or plans.

69. I am satisfied that the test is met on both counts. With the mitigation proposed the adverse effects of the activity will be no more than minor, and the activity is consistent with relevant planning provisions.

Part 2

70. The application must be considered in light of Part II of the RMA. There are no matters of national importance (s6) that will be compromised by the proposed activity.

71. Relevant considerations in Section 7 (Other matters) include: (b) the efficient use and development of natural resources, and (f) maintenance and

enhancement of the quality of the environment. The activity is consistent with these matters.

72. Having regard to section 8, Principles of the Treaty of Waitangi, no evidence was provided by the applicant. Dr Vattala advised that the activity is within the rohe of Wairewa runanga. The runanga were informed of the application but did not provide comment. It is not clear whether the runanga was directly notified – this would only have been the case if they are a landowner of occupier in the area.

73. No evidence was provided of sites of significance or particular value accorded to the water resources in the area. In any event there will be no effects on surface water. I conclude that Section 8 has been given effect to.

74. The purpose of the Act is to promote sustainable management of natural and physical resources. The proposed activity will provide for the social and economic and cultural wellbeing of the Little River and Cooptown communities through provision of a more reliable water supply to an increased residential area. Adverse effects on the environment, including those on existing groundwater abstractors, will be minor.

Duration

75. The duration sought was 30 years. I have had regard to section 1.3.5 of the NRRP. Since the activity is for community water supply, it is on a relatively small scale and the effects are minor, I consider a 30 year duration to be appropriate.

E Christmas, Independent Commissioner

APPENDIX 1

Conditions of Consent

CRC103570 – To take and use groundwater

1) Water may be taken only from bore N36/0131 300 millimetres diameter and 60 metres deep, at map reference NZMS 260 N36:93271-15583.

2) (a) Water may be taken at a rate not exceeding three litres per second, with a volume not exceeding 260 cubic metres per day.

(b) The combined volume of water that may be taken under this consent in combination with consent CRC920831A is 260 cubic metres per day.

3) Water shall only be used for community drinking supply for no more than 499 people.

4) The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder.

5) The consent holder shall, before the first exercise of this consent, install an easily accessible straight pipe(s), with no fittings or obstructions that may create turbulent flow conditions, of a length at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system.

6) The consent holder shall prior to the first exercise of this consent:

(a) 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 volume of water taken within an accuracy of plus or minus five percent, as part of the pump outlet plumbing, or within the mainline distribution system, at a location(s) that will ensure the total take of water is measured.
(b) Take a reading from the water meter at least once per month, record the date and the meter reading either electronically or in a log book kept for that purpose, and supply these data to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, each year during the month of June, or when requested in writing.
(c) Ensure that the water meter is accessible to the Canterbury Regional Council at all times for inspection.
(d) Ensure that the water meter is installed, maintained and operated throughout the duration of the consent in accordance with the manufacturer's instructions.
(e) Take all practicable measures to ensure that the water meter is fully functional at all times.

7) Within one month of the installation of any measuring device(s) required in accordance with condition (6), or any subsequent replacement measuring device, 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, and demonstrating by means of a clear diagram, that the measuring device(s) has been installed in accordance with the manufacturers specifications.

8) The consent holder shall take all practicable steps to avoid leakage from pipes and structures.

9) At the request of the owner of bore N36/0082, located at or about map reference NZMS 260 N36:9324-1576 the consent holder shall, at no cost to the property owner, supply and install a submersible pump or deepen any existing submersible pump, as necessary to allow water to be pumped from the well up to a daily volume of ten cubic metres.

10) 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.

11) The lapsing date for the purposes of section 125 shall be 30 September 2016.