

1. My name is Andrew Barton. I graduated from Otago University in 1998 with a Bachelor of Science, majoring in Chemistry and Geography, and a Postgraduate Diploma in Science, majoring in Environmental Science. I also achieved a Certificate of Proficiency in Contaminant Hydrogeology from the University of Canterbury in 2004.
2. I am currently employed as Environmental Manager of Synlait Ltd. I am responsible for advising farm managers of their requirements for complying with resource consent conditions. I am also responsible for applying for any resource consents required for farming activities.
3. Previously, I was employed by the Canterbury Regional Council as a Compliance Monitoring Officer from 1999-2000, a Consents Investigating Officer from 2000-2003, Team Leader Compliance Monitoring from 2003-2005, and was Acting Team Leader Consents Investigations for three months in 2005. I have been the s42A reporting officer for Levels Plains, Kakahu and Paparua irrigation scheme consent applications.
4. Synlait currently has two active water applications to take water from the Rakaia River for irrigation of land between the Rakaia and Selwyn Rivers, west of State Highway One. One of these has been granted, but is under appeal to the Environment Court. The other is presently on hold pending a hearing.
5. Synlait also owns two dairy farms adjacent to the Rakaia River that are irrigated with both shallow groundwater and run of river water from the Rakaia.

#### **The National Water Conservation Order Rakaia River 1988 ('WCO')**

6. The WCO has been explained in the s42A report of Mr Fietje, and in evidence by Mr Holland and others. S217 of the Resource Management Act 1991 ('RMA') requires that the Canterbury Regional Council ('CRC')

can only grant this application if it is consistent with the WCO, which would require it to be subject to the following conditions:

- The WCO monthly minimum flows; and
  - An allocation cap of 70 cumecs for takes and diversions; and
  - 1:1 sharing of water above the monthly minimum flows.
7. The first point is simple and clear. The second point requires the Commissioners to consider what quantum of water has already been granted to take water and divert from the Rakaia River. To some degree the third point relates to the second point, and once the second point has been determined, setting a 1:1 sharing regime is also reasonably simple.
8. In order to determine the quantum of water already granted to take and divert water from the Rakaia River, Mr Fietje has included the effect of hydraulically connected groundwater takes that have been granted adjacent to the Rakaia River. Mr de Joux has also included groundwater takes and has included some diversions from the Rakaia River.
9. I consider that the total rate of surface water takes that have allocated from the Rakaia River has been correctly presented in the evidence of Mr de Joux. However, I believe the matter of whether diversions and hydraulically connected groundwater takes should be included needs further consideration.

**Should hydraulically connected groundwater takes be included in the allocation cap?**

10. In order to consider whether a hydraulically connected groundwater take should be included in the allocation, I believe that one has to turn their mind to s217 of the RMA. S217 states that no consent can be granted that would be contrary to any WCO.

11. The WCO covers the flowing surface waters of the Rakaia but is silent on groundwater takes with a direct hydraulic connection. The CRC has granted a number of consents to take hydraulically connected groundwater. Some of these consents have no minimum flows, some have the WCO minimum flow, and some have the WCO minimum flow and 1:1 sharing.
12. In order for any water permit, including groundwater takes, to be consistent with the WCO it must have all three of the bullet points described earlier. There are no half measures. The consent is either consistent with the WCO or it is not.
13. I believe it is reasonable to assume that if an application is not subject to all three of the conditions outlined above, that the decision made by the CRC to grant the consent was made in the knowledge that the WCO existed, but that the WCO did not apply. I am making the assumption that the CRC has not acted contrary to s217 of the RMA.
14. This view is consistent with a number, though not all, of the decisions made by the CRC for groundwater takes adjacent to the Rakaia River that have been granted with the base WCO minimum flow. The decisions made state that groundwater is not subject to the WCO, but acknowledge that the WCO contains an appropriate minimum flow that can be applied as a condition to mitigate adverse effects on the environment.
15. There are two groundwater takes that, by virtue of the conditions of their consents which are entirely consistent with the WCO and I believe should be considered in the allocation. These are held by Rakaia Island Dairies and Abbott.
16. I consider that a water permit held by Holmes should be included in the allocation. This take is from a gallery in the Rakaia Riverbed and has a minimum flow consistent with band 4. In my view it is appropriate to

consider this in the allocation, in spite of the fact that it contains no 1:1 sharing provisions. This permit has been included by the CRC when the Band 5 minimum flow was set by conditions granted on subsequent consents. The Band 5 minimum flow was determined to be the Band 4 minimum flow plus twice the sum of the Barrhill Chertsey Irrigation consent allocation (17 cumecs) and the Holmes consent allocation (0.15 cumecs).

17. I believe that any consents to take groundwater that are not subject to all three of the relevant provisions of WCO should not be counted in the WCO.

#### **Should diversions be included in the allocation cap?**

18. The wording of the WCO includes "diversions". A number of water permits have been granted that have higher diversion rates than the take rates. For example one consent permits a take of 1800 l/s for abstractive use but permits a diversion of 2500 l/s. None of the permits to divert water have any minimum flow or 1:1 sharing provisions, nor have they been counted in the allocation.
19. The reason for this is that most of the diversions are diversions within the bed of the Rakaia River, that facilitate the taking of water. Diversions may be at a higher rate to ensure that the sweep path past the take point is such that there is still a viable fish passage at the take point. Such diversions in themselves do not divert any more water out of the active bed of the Rakaia River.
20. There are three operative diversions (Brown, SDC, Lower Rakaia Diversion Group ('LRDG')) that divert water out of the active bed of the river. Brown and SDC are relatively small diversions, where water is only out of the active bed of the river for several kilometres. The absence of 1:1 sharing and minimum flow conditions on these diversion consents means that, in granting these consents the CRC has not considered that the

- WCO order applies. Once again I am assuming that the CRC would not grant a consent contrary to s217.
21. This is a pragmatic approach, and given the natural gains and losses along the length the river, the smaller diversions outlined above are arguably of little consequence.
  22. The LRDG diverts up to 14 cumecs into an old channel of the Rakaia River, commonly referred to as the North North Branch. The issue of whether the diversion should be considered as part of the allocation block and be subject to 1:1 sharing was discussed at length at the consent hearing and on appeal.
  23. The approach that I believe was taken was that the North North Branch was considered to be part of the Rakaia River and that diversion within the bed of the river was not subject to the WCO. In recognition of the fact that the NN Branch was part of the Rakaia River, a condition of the diversion is that water exiting the NN Branch finds its way to an active braid to allow continuous fish passage through the NN Branch.
  24. In order to consider whether diversions should be included in the 70 cumec allocation, I believe that again one needs to consider s217 of the RMA. If the conditions on the consent are not consistent with the WCO, then pursuant to s217, the CRC has considered the WCO and didn't believe that it applied. If the WCO did apply, a consent couldn't have been granted if it resulted in a breach of the WCO otherwise it would have been in breach of s217.
  25. In summary, of the three measures from the WCO are not included as conditions of a permit to divert water, I don't believe that the permit should be included within the 70 cumec allocation limit.

### **Area irrigated by water permits within the central plains irrigation area**

26. The evidence of Mr McFarlane states that the land presently irrigated within the Central Plains scheme area by groundwater is 30,000 ha. Mr McFarlane makes no mention of the land already irrigated by surface water within the CPW scheme area.
27. I requested that the CRC provide an estimate of the area irrigated by consents within the CPW scheme. The CRC were reluctant to undertake the search because it would be very time consuming.
28. I have used the on-line GIS program on the CRC website to gather information on the area irrigated by consents within the CPW area.
29. The groundwater permit database specifies irrigation area as a parameter, so the total area irrigated within the CPW scheme area ( and consented for irrigation capable of immediate uptake by farmers ) is reasonably easy to estimate. I have used my knowledge of consents in the area to eliminate duplications that I am aware of. I have included the recently granted consents in the Rakaia Selwyn groundwater zone.
30. Our search of the CRC database shows that 46,000 ha is capable of irrigation from groundwater and 6,000 ha has been allocated to water permits from surface water within the CPW area. Therefore a total of 51,000 ha is my best estimate of the area that is authorized to be irrigated by resource consents. I note that this is the best estimate that I am able to present to this hearing. I recommend that this figure be audited by the CRC to ensure that it is robust. I am able to supply a copy of the spreadsheet which captures the consents within the CPW area to the Commissioners upon request.

### **Hydraulically connected groundwater takes**

31. Synlait owns two farms (Ngamarua Dairies and Riverland Dairies) adjacent to the Rakaia River, on the north bank, which rely on irrigation from groundwater that is hydraulically connected to the Rakaia River. There

are a number of other farms that also rely on water permits they hold to take shallow groundwater adjacent to the Rakaia River for irrigation.

32. Neither the AEE nor the evidence predicts the effect of the proposed significant abstraction on groundwater takes downstream of the points of take.
33. The shallow unconfined aquifer adjacent to the Rakaia River is fed by the Rakaia. The Synlait groundwater takes have been experiencing reduced yields during recent low flow years. The proposed abstractions will reduce the flow in the river, which will potentially reduce the recharge to the shallow unconfined aquifer.
34. This effect should be quantified to allow the Commissioners to make their decision on this application. Ngamarua Dairies and Riverland Dairies have a reliable supply of irrigation water, that can come under pressure in low flow years. Synlait's expectation is that if those dairy farms will continue to operate the consents as they are currently able to do. Any suggestion that there may be a reduced yield from the shallow bores as a result of granting the CPW consents would be unacceptable.