

Tabled at Hearing 27/3/2013

Site to site transfers of groundwater consents – after 11 August 2012:

David Hendrikz - March 2013

A site to site transfer of an abstraction consent is, in most cases, the only way useful volumes of ground water can be obtained in an Over Allocated ground water allocation zone.

In most cases a ground water zone has to be over allocated or there would be no need to transfer consented volumes, people who needed water could simply apply to Environment Canterbury and, so long as the other effects of take and use were less than minor, they would get a consent.

The draft Land and Water Plan puts various restrictions on people transferring abstraction consents within over allocated groundwater zones, the intention being to "win back water" to help address over allocation.

This paper explores the transfers lodged with Environment Canterbury since 11 August 2012 to see how much water has been won back.

On Friday 21 2013 I emailed Environment Canterbury's Customer Services with a request for a list of applications made for site to site transfers since 11 August 2012 to date – copy of email attached.

On 28 February Environment Canterbury sent the list as shown in table 1.

I have looked at each application using the ECan TRIM system at the Lincoln Office. I have recorded my findings in Table 2.

Conclusion

Out of the nine applications listed as site to site transfers:-

- One was incorrectly listed and actually lodged before 11 August 2012.
- Two were defined as annulled, yet the actual application/consent numbers were not provided.
- Five were not site to site transfers rather they were applications to split consents.
- Three have been correctly defined as site to site transfers of which
 - ❖ One was defined as non compliant in a RED groundwater allocation zone requiring 50% or 22,850 cubic metres of the transferred water to be given up, The cumulative effects were subsequently defined in the ECan audit as less than minor and no water was taken back into the allocation when the consent was issued.
 - ❖ One is defined as non compliant in a RED groundwater allocation zone requiring 25 % or 7,657 cubic metres to be given up. It is still being determined.
 - ❖ One applicant has voluntarily given up 25 % of their water transfer or 91,330 cubic metres in the Valetta groundwater allocation Zone, which has an allocation of 96.6 million cubic metres, with 132.357 million cubic metres allocated. 91,330 is 0.26 % of the over-allocation of 35,757,000 cubic metres.

From this small data set, the four conclusions I have come to are:

- The database recording consents has data entry errors.
- It is difficult using this data base to identify what is a site to site transfer and to manage how much water will be won back for the environment
- Very few applications have been made to transfer ground water consents from one site to another after 11 August 2012 up to 28 February 2013.
- At this rate it will take a very long time to address over allocated ground water zones.

David Hendrikz

From: "David Hendrikz" <drhconsult@xtra.co.nz>
Date: Thursday, 21 February 2013 12:52 p.m.
To: "Customer Services" <ecinfo@ecan.govt.nz>
Subject: Site to Site transfers of groundwater consents
Hi

Please will you send me an excel spread sheet containing all the applications which have been made to transfer consented groundwater takes from one site to another lodged with ECan after 11 August 2012 to date.

If it is not easy to search for these kinds of applications then if you could send me an excel spread sheet containing a list of all applications for consents to take and use groundwater and to vary consents which allow the take and use of groundwater lodged with ECan after 11 August 2012 to date and I can try to pick out the transfers myself.

Many thanks

David

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Table 1: Information from ECan showing Site to Site Transfers after 11 August 2012 to 21 February 2013.

RecordNo	HolderAddressFullName	B1_PER_CATEGORY	STATUS	Lodged	Max Rate (l/s)	Max Volume (m3)	Consented Annual Volume (m3/year)	Effective Annual Volume (m3/year)	Full Effective Annual Volume (m3/year)
CRC042619.1	Peter James Pankhurst	Part Transfer Site2Site (W)	Application in Process	23-Oct-12	85	7344	1902980	1712682	1902980
CRC130255	Pike Farms Limited	Part Transfer Site2Site (W)	Terminated - Annulled	5-Sep-12	40	16560		279675	310750
CRC131519	Mr R W & Mrs J J Ellis	Part Transfer Site2Site (-)	Issued - Inactive	17-Sep-12	59	71366	444014	377412	444014
CRC131520	John Ellis	Part Transfer Site2Site (W)	Issued - Active	17-Sep-12	81	97977	615916	523529	615916
crc131816	Guyon Farm Limited	Part Transfer Site2Site (W)	Issued - Active	26-Oct-12	88	22810	333350	283348	333350
CRC133205	B J & L A Smith Limited	Part Transfer Site2Site (W)	Issued - Inactive	10-Dec-12	22	4049	79875	67894	79875
CRC133716	Mr C R & Mr N F Lowery	Part Transfer Site2Site (W)	Application in Process	17-Jan-13	15	470	30627	27564	30627
crc133844	Helen Patricia Skinner	Full Transfer Site2Site	Application in Process	21-Jan-13	12.67	22024.5	45700	38845	45700
CRC133980	Foundation Foods Holdings Limited	Part Transfer Site2Site (W)	Terminated - Annulled	23-Jan-13	3.5	444		26640	29600

Table 2: Analysis of Site to Site Transfer information

Consent	Name	Status at 21 Feb 2012 as reported by Ecan	Lodged	Comment on DATA ENTRY	Notes	Water won back to the allocation
CRC042619.1	P J Pankhurst	Application in progress	23-Oct-12	The application form was dated stamped 7 August 2012 - the Section 42 Report was dated 12 October 2012 - INCORRECT LODGE DATE. Consents issued on 26 October 2012	This application was to change a consent to allow abstraction from another bore and then split the irrigated land as part of it was sold off NOT REALLY A SITE TO SITE TRANSFER	0
CRC130255	Pike Farms	Annulled	5-Sep-12	Spurious entry - actual application for transfer is CRC130254, lodged on 8 August 2012	CRC130254 was lodged before Aug 11, still in process as far as database records	0
CRC131519	RW and JJ Ellis	Issued	17-Sep-12	OK	Application is to split existing consent CRC082384.1 as son was taking over part of farm. NOT A SITE TO SITE TRANSFER	0
CRC131520	John Ellis	Issued	17-Sep-12	OK	Application is to split existing consent CRC082384.1 as son was taking over part of farm. NOT A SITE TO SITE TRANSFER	0
CRC131816	Guyon Farm Limited	Issued	26-Oct	OK	Applicants bought land and moved some of their existing consented water to irrigate the new land. Agreed to give up 25% of transferred annual volume, if not would have had to go to a Hearing. Application to split existing consent as neighbour had bought some of the consented land, water would be abstracted from a different bore for management convenience. NOT REALLY A SITE TO SITE TRANSFER	91,330 cubic metres in Valetta
CRC133205	BJ and LA Smith	Issued	10-Dec-12	OK	SITE TRANSFER	0
CRC133716	CR and NF lowery	In process	17-Jan-13	OK	Application to transfer 30,629 cubic metres per annum. Applicants do not want to give up 25% of this water as it would make the transfer unviable. Application to transfer 45,700 cubic metres per annum. Applicants do not want to give up 50% of this water as it would make the transfer unviable. This application was defined as NON COMPLIANT, BUT STILL ISSUED AS EFFECTS DEFINED AS LESS THAN MINOR	Maybe 7,657 cubic metres in Rakala Selwyn
CRC133844	H P Skinner	In process	21-Jan-13	OK	This application was to split consent CRC990052.2, so that the consented bores can irrigate part of the originally irrigated land. NOT A SITE TO SITE TRANSFER.	0
CRC133980	Fountain Foods Holding Limited	Annulled	23-Jan-13	CRC133980 was replaced by CRC134006 and CRC134007		0

David Hendrikz submission on the management of Groundwater Allocations, with regard to Site to Site Transfers of Groundwater Consents 27 March 2013.

All in all I support the Objectives of this plan, my points are about being practical, fair and achieving Objectives. My comments are in bold.

There is no definition of Site to Site Consent Transfers in Section 2.10 - Definitions, Translations and Abbreviations. Already there have been different interpretations provided by ECan. This plan must avoid this sort of costly confusion with proper definitions, possibly with examples.

Having read sections 6-15, I find no coherent plan with timelines to eliminate over allocation in Groundwater Zones. At the very least there should be a table to show the date by which each over-allocated Groundwater Zone should have its plan in place.

Activity and Resource Policy - 4.73 (page 4-13)

“ In an over-allocated surface water catchment or groundwater zone, enable the transfer of water permits to take or use water where the water is moving to an irrigation scheme, and in all other instances, enable the transfer of water provided there was a surrender of a proportion of the allocated water to the water body and it is not re-allocated.”

Section 5 – Region-wide rules 5.107 and 5.108 (pages 5-25 and 5-26)

In summary - Consents being temporarily or permanently transferred within an over-allocated zone will have to surrender either 25% or 50% for the application to be determined as a restricted discretionary activity, if not then they are non-complying activities and will have a much greater degree of difficulty in being granted.

This policy and related rules unfairly penalise existing groundwater users and also can give the irrigation companies a windfall of groundwater takes. I will be discussing transferring of water in more depth, later in this submission.

The NPS Freshwater Management - Objective B3 – “To improve and maximise the efficient allocation and use of water.”

The NPS Freshwater Management -Policy B3 – “By every Regional Council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.”

The NPS Freshwater Management -Policy B4 - “By every Regional Council identifying methods in regional plans to encourage the efficient use of water.”

The NPS defines "Efficient Allocation" to include economic, technical and dynamic efficiency.

The NPS Section 32 Report for the Ministry, further explains these concepts as:

- Technical efficiency - maximising net value eg fixing a dripping tap
- Allocative efficiency - the ease with which resources can move to their most productive or best use - or highest value.
- Dynamic efficiency - optimisation of innovation and rate of change to new activities eg regulatory processes which are consistent and easily understood give people confidence in making decisions and investment.

The NPS Section 32 Report also considers some alternatives to the status quo (Chapter 4), it comments that Market-Based instruments would be necessary to provide an incentive for water permit holders to trade or transfer their permits, market-based mechanisms include tradable water take permits.

The Government strategy "New Start for Fresh Water" makes "Allocation of water to its maximum use" one of its priorities.

There is a growing realisation that, as in any market, consent transfers will allow water to move to holders who can make the most profitable/efficient use of that water.

By definition transfers of consented annual volumes will not take place in groundwater zones until that zone is at least fully allocated. If not there would be no need to transfer as allocation would be available. Groundwater Zones should be managed so that when they are fully allocated, a small buffer (say 10 %) is included to allow for transfers. One must be conscious here of the difference between "over-allocated" and "over-abstracted".

There are many areas of the Canterbury Plains, where farmers cannot get water for irrigation unless they transfer a groundwater consent. For these farmers surface schemes are not an option.

Environment Canterbury, cannot become a "Consent Trader", however it can provide a regime which allows irrigation consents to be traded equitably and fairly by famers. Environmental wins can be made by ensuring efficient irrigation, proper metering and record keeping and annual volumes established which efficiently meet irrigation demand.

Randomly penalising transfers by taxing an arbitrary 25 or 50% will not reward good irrigation practice, it will also not enable short term swaps or leases which could allow more efficient water use over a short period. Rather it will quite likely promote inefficient water use and the hoarding of "Paper Water".

When an annual volume is allocated to a consent, it should only meet the irrigation demand of the proposed irrigation. "Paper Water" exists where more water has been allocated than is needed to meet irrigation demand. This water cannot be used efficiently if at all.

Either banning water transfers or taking some water back can, as part of a well thought out plan, could be one of the tools used to rectify over-allocation of a groundwater zone. However as it is applied here, as a sort of default and blunt instrument, it will not rectify over-allocation. Section 6 is the proper place to make plans to address over-allocation of groundwater zones. Only properly configured

plans will have any hope of redressing over-allocation. This proposed taxation is tinkering where proper action is required.

Environment Canterbury has calculated the allocation of groundwater by either calculating irrigation demand, using the out of date WQN9 version 2 or consented annual volumes. There are many over/under estimates of irrigation demand and double counting (where land is irrigated by more than one consent) even in zones which have recently been reviewed. In many cases there has been no split between the stream depletion element of a consent and groundwater.

Although better use of surface water, storage and aquifer recharge are very important and will bring in more water resources, I feel there should be more emphasis in this plan on how groundwater can be better managed, especially for people who cannot or do not want to join in one of the big schemes.

I recommend:

- Plans to reduce over-allocation in groundwater zones must include a review of the zone consents and a rationalisation of the data used to calculate water allocated.
- The consent reviews must ensure all groundwater consents have annual volumes and that there is no consented or allocated "Paper Water", only proper irrigation demand must be consented and accounted for.
- The reviews should also split stream depletion from groundwater and properly allocate them to surface or groundwater allocations.
- As part of its review Environment Canterbury should use its powers under Section 126 of the RMA to win back unused consents eg those consents where the land has been subdivided for housing estates.
- Environment Canterbury ensures that it does not put unnecessary barriers on the free transfer of consents.
- A buffer (say 10 %) over full allocation in a groundwater zone should be established for each allocation to allow transfers.
- Adaptively managed allocation, must be identified and managed separately from the "base allocation".
- Free Trade Areas and Water User Groups, who can share consented groundwater over several farms should be encouraged.
- If transferred water is to be "taxed", water which is as a result of an efficiency gain, should have a lesser tax or none at all to encourage efficient water use.
- Innovative methods, including financial incentives, should be devised and used to encourage consent holders to be more efficient with water use and to give unused water back to the allocation.

David Hendrikz submission on Schedule 12- Well Interference Effects, specifically on aspects related to how a bore is defined as Adequately Penetrating the Aquifer 27 March 2013

This paper is effectively a cut down version of the submission that I sent to Environment Canterbury, with a small addition at the end.

Schedule 12 recognises that bores that do not go far enough into an aquifer, can effectively sterilise future development, within the same target aquifer, despite there being sustainably replenished water available. It quite sensibly states "Where an existing bore inadequately penetrates an aquifer, the interference effects of a new bore will be assessed as if the existing bore is also adequately penetrating."

Schedule 12, where it deals with adequate penetration, is virtually identical to that in the NRRP.

Schedule 12 provides the following methods to determine an adequate penetration depth, **my comments are in bold:-**

1. where the aquifer is included in Section 6-15, the depth specified in Sections 6-15 or

I can find no depths specifies in Sections 6-15. It would be useful for ECan to put more Hydrogeological resources into defining and then recording aquifers or "water bearing" zones.

2. for aquifers where the depth is not specified in Sections 6-15:
 - (a) either a depth below calculated minimum water level, or below the level to which 50% of bores within 2km penetrating the aquifer are already established at 1 January 2002, which ever is deeper; or

Using the calculated minimum water level is sensible as it is the benchmark for determining drawdown effects, however since 2002 other bores may have been drilled, provision should also be made for bores which have dried up and are not used.

The Proposed Pareora Catchment Environmental Flow and Water Allocation Regional Plan, has the same wording (with regards adequate penetration) but uses the date that plan is notified.

It appears that 1 January 2002, was chosen as the start of the year following the release of the NRRP Discussion Draft (October 2001), as many bores have been drilled since then, in the past 10 years, it would be wise to update this default method.

I recommend that the LWRP should use its notification date.

- (b) a depth determined by the application of the best available technical information and/or advice to be an adequate penetration depth.

I am aware that work on “adequate penetration” has been on ECan’s Work list for some years, but has been put in the “too hard” basket on a number of occasions and it appears that no substantial work has been accomplished.

The only work I have found is by Grant Davey. He briefly mentions Adequate Penetration in section 2.4 of his Report “Definition of Canterbury Plains Aquifers U06/10 April 2006, he concludes that a median depth calculator should be added to the WQN10 (drawdown assessment) software, but that median depth will not necessarily provide a definitive answer to adequate penetration.

In the first instance I recommend that ECan should create contour maps which define the top and bottom of water bearing layers.

I recommend that the second step should be for ECan to create a set of rules to define adequate penetration of the target layer (I use the term layer as deeper aquifers are generally semi confined and sometimes leaky). ECan experts could start working out these rules with the following seed ideas:

- **To adequately penetrate the target aquifer the bore must be at least 3 metres below the relevant calculated minimum water level.**
- **Self induced drawdown does not draw water level below 1 metre above bore screen.**
- **Bore must penetrate either 80 % of the water bearing layer or X metres (to be defined on a case by case basis, especially for deep bores) into the water bearing layer.**

A project which determines a methodology which defines adequate aquifer penetration, seems to be a perfect brief for an MSc thesis, I would encourage ECan to pursue this method of solving an outstanding issue.

The Section 42 A report Volume 1, only comments on this submission with a quote from the Section 32 Report for the NRRP and comments that “there is no additional technical information to support a different approach.” – copies of pages 321 and 322 attached.

I am afraid that I think that this is an “idle comment” and wonder how much effort has been put into discussing this with expert Hydrogeologists.

I think that it is a poor show that since 2002, ECan has not found better ways to identify “Inadequate Penetration” of an aquifer.

My interest was first raised in this matter when I was exploring an area where most bores had been drilled to about 100 metres and supplied small holdings with water to irrigate a few hectares, these bores were not good yielders and had been drilled in a similar period with cost in mind, when a subdivision was developed. Many could not supply the volumes of water they were consented for.

I was advised (by ECan) that it was wise for new bores to be drilled to at least 120 metres, if you wanted a reasonable water supply, however for drawdown analysis the existing bores would not be defined as “inadequately penetrating the aquifer”.

On one hand it was admitted that it was common knowledge that the existing bores did not adequately penetrate the aquifer, but as they were drilled prior to 2002 the development of better sources of water was now very difficult.

these terms is appropriate, and the suggested change from Synlait Farms Limited and Synlait Milk Limited is recommended.

One submission suggests that the pLWRP should use the public notification date of the Plan (11 August 2012) for item 1(a). Therefore it should read as follows:

either a depth below the calculated minimum water level, or below the level to which 50% of bores with 2km penetrating the aquifer are already established at 11 August 2012, whichever is the deeper.

The Schedule provides a method to determine adequate penetration depth of a bore and uses the year 2002 as an indicator of the median depth. This value was set in the NRRP which (as discussed in the s32 Report for the NRRP) considered that "linking adequate penetration to the median depth of existing bores will reflect the community's existing investment in groundwater development and in that way can be considered a reasonable measure of what the community considers an adequate depth". Given there is no additional technical information available to support a different approach, the suggested amendment is not supported.

Two of the submitters also request the following amendments:

- That replacement takes are excluded from Schedule 12; and
- The 20% threshold is amended to allow for exemptions around gaining necessary written approvals if the bore is owned by the same party and to allow greater drawdown if the bore can still operate effectively.

In accordance with Policy 4.56, replacement consents are not required to consider well interference effects. It is also noted that the provisions of s95 of the Act still apply to any consent application to take and use groundwater, including disregarding effects on those parties who have provided their written approval. As such, the suggested amendments are not considered necessary.

Recommendation Schedule 12

That Schedule 12 be amended as follows:

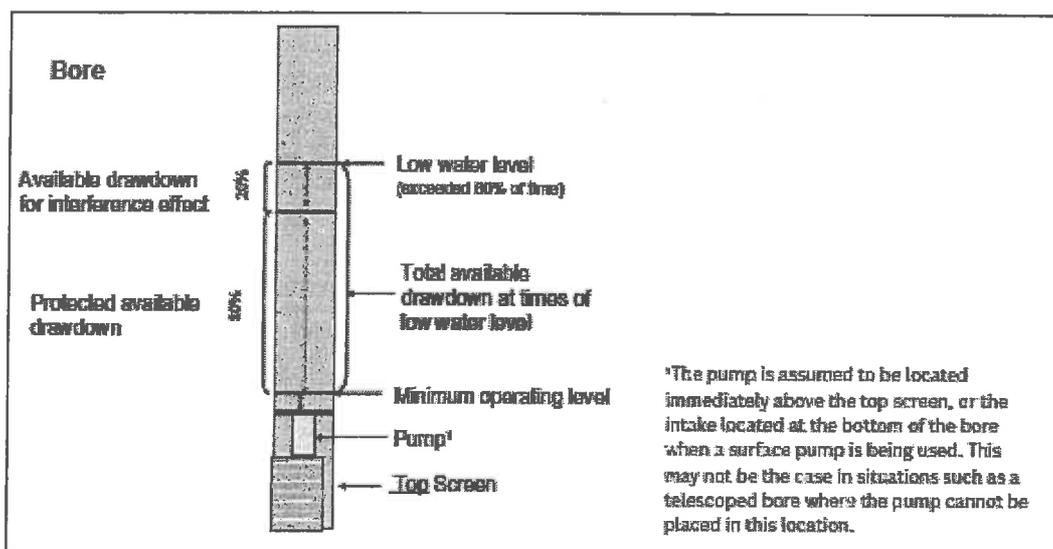
The direct cumulative interference effect on a bore shall be the combined interference of abstracting from all bores (including the new bore):

1. *That are authorised by a resource consent to take groundwater for abstractive purposes (but excluding those that are authorised to take groundwater through an operative permitted activity rule) and bores used for which no water permit to take groundwater is required, but which are intended to be used for water level observations; and*
2. *That are located within 2 km of the bore, and have a calculated interference effect on that bore of more than 0.1m, when abstracting at either the authorised rate of abstraction over 150 days to deliver their seasonal allocation, or pumping at the authorised average daily rate over seven continuous days, whichever is the greater.*

*An "acceptable" direct cumulative interference effect is when the direct cumulative interference effect is no greater than 20% of the total available drawdown at times of low water level that is exceeded 80% of the time during the period of proposed water use, having taken into account individual bore and pump installation details (see Figure 12.1)*³⁴²

³⁴² 187.91 Synlait Mil Limited, 188.91 Synlait Farms Limited

Figure 12.1: Illustration showing the available drawdown in a well



Where an existing bore adequately penetrates an aquifer, the existing bore should not have its protected available drawdown reduced due to the direct cumulative interference effects from other bores, unless the effect is mitigated.

For a bore to adequately penetrate the aquifer, an adequate penetration depth shall be determined as follows:

1. where the aquifer is included in Sections 6-15, the depth specified in Sections 6-15; or
2. for aquifers where the depth is not specified in Sections 6-15:
 - (a) either a depth below the calculated minimum water level, or below the level to which 50% of bores within 2km penetrating the aquifer are already established at 1 January 2002, whichever is the deeper; or
 - (b) a depth determined by the application of the best available technical information and/or advice to be an adequate penetration depth.

Where an existing bore inadequately penetrates an aquifer, the interference effect of a new bore will be assessed as if the existing bore is also adequately penetrating.

Schedule 13 - Requirements for implementation of water allocation regimes

The Schedule states:

Surface water allocation regimes

1. The amount of water allocated within an allocation block is the sum of:
 - (a) the average daily rate of abstraction of each surface water take or diversion; and
 - (b) the stream depletion effect of each groundwater take that is calculated in accordance with Schedule 9;
2. The amount of water allocated is to be assessed on a monthly basis for the period in each year (period of abstraction) that each take requires the water, on the following basis:
 - (a) the period of abstraction authorised as a condition of each permit, if such a condition exists;
 - (b) where the water permit is to take water for irrigation use and no storage is authorised by the water permit, the calculated period of abstraction is the months of September to May inclusive; or
 - (c) 12 months of the year in all other cases;
3. Where a surface water body is dammed and/or water is stored, the limit for each allocation block may also be set to include an annual volume. Where the annual volume is used, the effective allocation shall be determined in the same way as set out for groundwater allocation zones in Schedule 13 below.