

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF the Resource Management Act 1991

A N D

IN THE MATTER OF Water permit applications by Simons Pass Station Limited and
Simons Hill Station Limited

**STATEMENT OF EVIDENCE OF DENIS ALAN FASTIER
DATED 9 NOVEMBER 2009**

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INTRODUCTION

- 1 My name is Denis Alan Fastier. I am a Director of Simons Hill Station Limited and Pukaki Irrigation Company Limited.
- 2 Simons Hill Station Limited owns Simons Hill Station, which is located in the Mackenzie Basin and comprises approximately 6,282 hectares. Simons Hill Station is fully freeholded, having completed the tenure review process in 2005. Simons Hill is the immediate neighbour of Simons Pass Station, which comprises approximately 6,432 hectares, and also Maryburn Station (Classic Properties Limited). The property is bisected by the Mary Range, and therefore falls within the two separate catchments of the Maryburn Stream to the east of the Mary Range, and the Pukaki/ Tekapo River catchments to the west of the Mary Range.
- 3 Simons Hill and Simons Pass are joint shareholders in Pukaki Irrigation Company Limited. Pukaki Irrigation Company will be responsible for facilitating the irrigation of an area of approximately 5,000 hectares of land on the Pukaki Flats on the western side of the Mary Range and also on the eastern side of the Mary Range.
- 4 The area of approximately 5,000 hectares of possible irrigation involves the potential to irrigate land on four separate stations: Simons Pass, Simons Hill, Maryburn, and Catherine Fields (Glentanner Station).
- 5 Because of the inter-relationship between Simons Pass and Simons Hill Stations, and the commonality of issues facing the two, I am authorised to give this evidence on behalf of Simons Hill Station, Simons Pass Station, and Pukaki Irrigation Company.
- 6 I have been in the business of farming merino sheep and cattle for 37 years, and farm ownership for 35 years. The first 22 years were spent in Central Otago on the Pisa Range farming dry High Country and the last 15 have been at Simons Hill.
- 7 All of the properties I have owned and managed have had irrigation. I commenced with contour race wild flooding, progressed to border dykes, and more recently to a 150 hectare centre pivot on Simons Hill Station which has operated since 2005. This is a total of 37 years irrigation experience.
- 8 My quest for irrigation on Simons Hill Station began in 1998 when I applied to the Commissioner of Lands for consent to irrigate 1,600 ha of land on the Pukaki

Flats area which at that stage was still Pastoral Lease. The Commissioner, after consultation with the Dept of Conservation, granted consent to irrigate this area.

- 9 The next stage was to identify a reliable source of water. During the course of Hydro Development in the Upper Waitaki, all of the water had been removed from the Pukaki River, and most of the water removed from the Tekapo River. This had effectively alienated the Pukaki Flats from what had once been an abundant source of water.
- 10 The Upper Waitaki Power Development was, to coin a phrase popular at the time, “a multipurpose development” i.e. power and irrigation. An allocation of water was made to irrigation and protected by the 1969 Order in Council.
- 11 Accessing water should not have been a problem, but proved to be so, and is still ongoing 11 years later.
- 12 My commitment over this last eleven years has been significant:
- Initial negotiations with Meridian Energy Limited (Meridian)
 - Preparation of a legal case for a Declaratory Judgement Hearing
 - Withdrawal from the Declaratory Judgement Hearing
 - Recommenced negotiations with Meridian
 - Political lobbying for restoration of the Intent of the 1969 Order in Council
 - Formation of Mackenzie Irrigation Company Limited (MIC)
 - Appointed as a Director and Inaugural Chairman of MIC
 - Achieved agreement with Meridian
 - Achieved 90% community buy in to the MIC / Meridian Agreement
 - Helped prepare and present submissions on behalf of MIC to the Waitaki Water Allocation Board (WAB)
 - Successful in getting an irrigation allocation from the WAB that was equivalent to that negotiated from Meridian
 - Involved in initial scoping of water quality issues

- Helped set up the Upper Waitaki Water Quality Trust and was the Interim Chairman.
- Three of these preceding eleven years have seen me involved virtually on a full time basis dealing with aspects of this process

13 This was no single handed battle, and I need to acknowledge Murray Valentine, whose advice, wise counsel, and financial backing seeded the negotiations, followed by similar support from our fellow directors, and then ultimately a sign off from 90% of the community. Without all of this support none of us would be here today seeking to put in place the final phase of the Upper Waitaki Power Development Plan.

14 In my evidence, I will cover:

- i. Current farming operations on Simons Hill and Simons Pass;
- ii. The sustainability of present farming practices in light of the challenges posed by nature and changing times;
- iii. The opportunity offered by irrigation in terms of sustaining farming practices in the long term;
- iv. A broad outline of the irrigation proposed.
- v. Summary

SIMONS HILL STATION

15 As described above, Simons Hill Station is located within the central Mackenzie Basin and, more particularly, it is on the southern side of SH8 midway between Twizel and Tekapo. **Attached** and marked "A" is a map showing the Station's boundaries.

16 The Station has completed the tenure review process and, as a result of that process, 5,976 hectares of land are in freehold title and 407 hectares of land were vested in the Crown. An additional adjoining and freehold title of 306 ha gives the total holding of 6,282 hectares for Simons Hill Station.

17 I own the Station jointly with my partner Jane and my son Glenn. It is managed by Glenn, Jane, and myself with the help of contractors for shearing and silage making and casual labour at other key times of the year. With the completion of a second homestead two years ago we all now live on the property. We are well down the track with a farm succession plan.

- 18 Present operations on Simons Hill Station include 7,000 ewes, 4,500 hoggets, and 80 beef cows. Merino wool is our principal income, but all merino lambs are taken through their first winter, shorn, and all wether lambs are killed fat at one year of age. All ewe lambs surplus to requirements as replacements are also killed fat at the same time. Beef cows are a recent addition to our stocking policy and at this stage all calves are sold as weaners.
- 19 The property is 30% hill, ranging in height from 500 to 1,000 metres a.s.l. and 70% flat. The flat areas range from very light soils (approximately 30mm PAW) to very heavy soils (approximately 130mm PAW) with approx 3,000 ha tending toward the lighter end of the scale. Notably, these lighter soils are almost solely found on the Pukaki Flats. We have not grazed any stock on the 3,000 hectares on our Simons Hill portion of the Pukaki Flats since 1998 because of increased bare ground, the consequent increased threat of wind erosion, the invasion of Hieracium spp. outcompeting the natural grassland species, and rabbit infestations.
- 20 Simons Hill was split off Simons Pass in 1911 under the Government Land Settlement Scheme, and farmed by the Hosken family for 83 years. I purchased the pastoral lease property in 1994. The carrying capacity in 1994 was 2,500 ewes. We knew that productivity would need to be improved considerably to make farming a viable proposition into the future. The property was largely undeveloped or reverted at the time we bought it, but our experience developing similar properties in Central Otago gave us confidence that we had the skills and knowledge to lift productivity significantly.
- 21 Since 1994 we have:
- i. aerial over sown and top dressed 1,500 ha of the hill country;
 - ii. constructed 140km of subdivision fencing;
 - iii. installed 35km of reticulated stock water;
 - iv. established 530 ha of improved dryland pastures including Lucerne, on the better flats;
 - v. developed 150 ha of centre pivot irrigation, to utilise the existing water right that had only previously irrigated, by wild flooding, a much smaller area.
 - vi. Lifted stock numbers from 2,500 stock units to 10,500 stock units

- 22 Irrigation is the key to optimising the opportunities that the other forms of development have afforded us. Without irrigation, in most years you are a weak seller and potential production is compromised at some stage.
- 23 The development of the property has mirrored changes in the way we have managed our business. These include:
- Formation of a Company
 - Adoption of a formal governance structure utilising two independent agri business professionals as advisors
 - A formal reporting process to service this governance group
- 24 This formal reporting function not only covers the obvious computer generated financial reports and budgets but also physical reports. We run a farm mapping and recording programme called Endeavour. This programme, which we have been running for ten years now, has very accurately mapped the whole property and records all the following:
- All subdivision and paddock sizes
 - All paddock history, i.e. soil tests, fertilizer applications (both rate and type), spray applications, cultivation, seeding rates etc
 - All stock movements are recorded daily so stocking rate analysis is available for every paddock.
 - All stock activities are recorded i.e. drenching, dipping crutching etc.
 - All winter supplements have to be tested, measured out, and recorded
- 25 Maintenance of the inputs to Endeavour requires a significant monitoring regime.
- Every stock movement is recorded every day with very accurate tallies
 - The average live weight is recorded of a sample of 50 sheep of each age group which is weighed three times a year (pre tup, pre lamb, and weaning).
 - Soil tests are carried out regularly. On the hill we have twelve 100 metre transect lines that have been marked out and to date tested annually, but now with 10 years data we are confident to move to bi annual testing. The centre pivot has six transect lines that are tested annually and then any other pivot paddock that is showing visual signs of a potential nutrient deficiency is either soil tested as well or else herbage tested. The balance of the

paddocks are grouped according to soil type and testing frequency is determined by whether they are in development mode or maintenance mode.

- Soil moisture deficits are measured in the pivot using a TDR moisture measuring device (Time Domain Reflectometry). This is not a common tool for measuring soil moisture deficits in irrigation but it has the advantage of being able to measure multiple sites which has been very interesting in a new pivot development with varying soil types, but it has the disadvantage of no recording mechanism. The knowledge that we gain from using this machine will help us identify the best site to install a moisture measuring device such as Aquaflex that has logger capability.
- We have manually recorded rain records going back thirteen years but have recently installed a full meteorological station recording wind, solar radiation rainfall, relative humidity, soil surface temperature and sub soil temperature. To complement this we have four TRH loggers at different locations recording temperature, rainfall, and relative humidity.

26 The advantage of having all this monitoring data recorded and easily retrieved in a useful format is that when experts like Graeme Ogle for Farmax modelling and Val Snow for Overseer see the depth of data and the long timeframes, they have huge confidence in the inputs to their models and the outputs have the highest chance of being relevant to the exercise.

27 These measures have boosted the capacity of the Station. However, as I will go on to explain, more needs to be done. This investment in development has focused on the better soils i.e. excluding Pukaki Flat and has already cost in excess of two million dollars.

28 We have now developed all of the better soils but still have over half the farm (3,000 ha) of lighter soils undeveloped. This is basically because it is a waste of resources (time and money) applying the above techniques i.e., over sowing, topdressing, or direct drilling in the absence of adequate available water to irrigate the lighter soils. Essentially, anything we do will blow away.

29 The principal area of lighter soils (essentially glacial outwash soils) is what we call the Pukaki Flats. It is that area bounded by the Tekapo River, the Pukaki River, the actual Simons Hill on the Mary Range, and extends almost up to State Highway 8. The Pukaki Flats includes both Simons Hill land and Simons Pass land (to the north). The Simons Pass portion of the Pukaki Flats includes lighter soils on the glacial outwash area and heavier soils on the glacial terminal moraine closer to Lake Pukaki.

- 30 The lighter soils fall outside the threshold for economically viable development without suitable irrigation. They are shallow, raw, lacking in structure and any organic matter. This makes them unsuitable for dryland pasture development as the risk of establishment failure is extremely high. Even if we were lucky enough to succeed in establishing pasture cover initially, the chances of the plants growing on and becoming robust enough to withstand successive dry years are slim. Even assuming you overcame the previous two hurdles, the total annual dry matter production is unlikely to cover annual maintenance costs, let alone a return on investment.
- 31 The existing pivot covers an effective irrigation area of 150 hectares. Resource consents for the pivot were granted in 2003. I have appended a copy of the resource consent as Appendix F to my evidence. While we have developed 150 hectares of centre pivot irrigation, the present resource consent already allows us to irrigate a total of 300 hectares in this immediate location adjacent to the existing pivot.
- 32 It is important to understand therefore that we already have resource consent for a total of 300 hectares of irrigation of which we have utilised only 150 hectares up to present. In effect, we see the only change being the source of the water i.e. the supply of water is coming from the Meridian system rather than the Maryburn stream. In all other respects, such as location of pivots, application rates, fertiliser application rates, and land use, the two applications are the same.
- 33 The water for the irrigation is presently abstracted from the Maryburn stream below State Highway 8 and stored in a storage dam nearby.
- 34 One of the major environmental benefits of our applications is that our present resource consent for the abstraction of water from the Maryburn Stream will be relinquished allowing greater all year round surface water flows in the Maryburn Stream. Flows will be increased by 110 litres per second. The Maryburn often flows at its base rate during the summer irrigation season and this will now be increased.

SIMONS PASS STATION

- 35 Simons Pass Station adjoins Simons Hill Station. **Attached** and marked “**B**” is a plan showing the Simons Pass boundaries. It comprises approximately 6,432 hectares, including 385 hectares of land contained in a separate Certificate of Title owned by Mary Range Farming Limited, located on the eastern side of the Mary Range.

- 36 Simons Pass is currently going through the tenure review process. Therefore most of the Station is presently managed under the terms of a pastoral lease from the Crown. There are 5,658 hectares of pastoral lease and 774 hectares of freehold.
- 37 Simons Pass Station is owned by Simons Pass Station Limited, the Directors of which are Murray and Barbara Valentine. The Station is managed by Tony Wall who has lived at the Station homestead with his family for the last 25 years. An additional staff member is employed and lives in a cottage on the property.
- 38 Present operations on Simons Pass are essentially the same as those on my Station, namely running 7,950 merino sheep, and up to 150 cattle.
- 39 Unlike Simons Hill, Simons Pass Station has less variable topography with the majority being flat to rolling country. Simons Pass is also subject to variable soil quality with approximately 1,500 ha of lighter soils, mainly found on the Pukaki Flats area of Simons Pass adjacent to the Simons Hill Pukaki Flats.
- 40 The better soils have previously been developed and are currently being rejuvenated. The property also has 130ha of border dyke irrigation, but during a recent renewal of the irrigation consent, the minimum flow that must be maintained in the Maryburn Stream (the source of irrigation water) was increased. This water right is now unreliable and it is completely ineffective. This was a very serious blow to the balance of the Station.
- 41 The lighter soils on the Pukaki Flats face a similar challenge in respect of development as those on Simons Hill, but unlike Simons Hill where there is no grazing of the lighter soils there is limited grazing on the Simons Pass portion of the Pukaki Flats of about 0.5 s.u. per hectare. The cut off between the lighter and better soils is not as distinct on Simons Pass so that areas of lighter soils that are grazed are generally supported by small areas of better soils dispersed throughout.

SUSTAINABILITY OF PRESENT FARMING PRACTICES

- 42 Both Stations face a major problem – being that all of the fixed costs for the total farm are borne by the productive portion of it. The Pukaki Flats constitute a substantial portion of each Station that is currently completely un-used in the case of Simons Hill and almost completely unused in the case of Simons Pass. In the past, the Flats were able to carry stock. However, in my opinion, there are a number of possible causes for the degradation of vegetation on the Pukaki Flats including the lowering of the water table due to the removal of all of the

water from the Pukaki River and most of it from the Tekapo River, and through a combination of natural factors including *Hieracium*, soil erosion, and pests, the Flats are now devoid of productive growth. Yet we have to pay rates and other fixed costs for the entire area and carry out ever increasing levels of pest control (rabbits and hares) and weed control (wilding pines and sweet briar) over the entire farm.

- 43 With increasing costs such as fertilizer, seeds, fuel etc, any increases in the price for meat and wool are likely to be countered, and the economic viability of present practices is becoming more and more marginal. In short, we need to utilise much more of our land to sustain our operations into the future.
- 44 With the drier seasons that we have been experiencing this decade, farming in areas like the Mackenzie Basin has become increasingly difficult without irrigation. We are experiencing a five-fold variation in dryland dry matter production from a dry year to a wet year. The annualised stocking rates of our dryland Lucerne paddocks this last ten years have alternated between three stock units per ha and fifteen stock units per ha. This makes maintaining a base stocking rate in a dry year very difficult, and utilising all the feed in an average year equally challenging, especially if you have not been able to maintain your base stocking rate. At three stock units per ha, no Lucerne is able to be conserved for winter feed, so in three of the last six years we have been totally dependent on our irrigation for winter supplements. Simons Pass, without reliable irrigation, has had to buy in supplements for winter feed.
- 45 Most farms in the Mackenzie Basin sell store stock. With the increase in dairying and cropping down country the number of finishing farms has diminished, and consequently the demand and price for store stock has dropped. Being able to finish your store stock has shifted from being an option to a necessity. Not all properties have land suitable for irrigation but those that do can finish other's surplus stock. If all stock bred in the Mackenzie Basin was finished there, we would have an opportunity to create a Mackenzie brand, and branding is the way forward.
- 46 In addition, after many years of investigation and commissioning independent advice, we know that adaptation of present practices is the only solution to the significant land use challenges we face – namely *Hieracium*, soil erosion, rabbits, and wilding pines.

TUSSOCK GRASSLANDS

- 47 There is a common misconception that farming practices are responsible for the dwindling tussock stock in the Mackenzie District. In fact, dryland farming and tussock can and did live happily together for years. Tussock grassland is not a natural state for the Basin floor. It is an induced state brought about by burning the native scrublands both pre and post European settlement. Tussock grasslands require inputs and management to survive, or else they will revert to a *Hieracium* cover, then scrubland, and then, given the now dominant seed source, a pine forest.
- 48 When we arrived at Simons Hill in 1994 the Flats had been grazed and yet there was a strong, healthy, fescue tussock grassland as shown in the 1995 photograph **attached** (marked “C”). At that time, I employed Dr Brian Molloy, a botanist with a lifetime of experience in the High Country, to advise me on how to manage this tussock grassland. His assessment concurred with mine, that this was one of the best remnants of a fescue tussock grassland in the Mackenzie, and possibly the South Island. In particular, we wanted to know if we ought to retire it from grazing.
- 49 His evaluation of the Flats was that there were no obvious factors or qualities that had predisposed this area to healthy tussock land. He concluded that the condition of the tussock grassland at that time was probably a coincidence of timing – good luck, effectively, that it had not yet suffered the same fate as other tussock in the area. He advised that there was nothing we could do to prevent the tussock dying. Notwithstanding his advice, we tried to preserve it by ceasing to graze it.
- 50 However, within 18 months the tussocks were dying. The combination of dry seasons and insect attack (mainly *Porina*, and Grass Grub), and competition from *Hieracium*, inflicted on our beloved tussock grassland the same fate that had depleted most other fescue tussock grasslands in the Mackenzie. As Dr Molloy had so correctly predicted, there was nothing we were able to do to prevent it. Our own observations over this time confirmed that this extremely disappointing outcome was the result of natural forces.
- 51 Early records from the history of the Basin report large areas of tussock dying for no man-induced reason (as early as the late 1800's). This became known as “black tussock disease” and was thought to be caused by the combined effect of drought and insect attack.

- 52 Tussock is a prolific hard-seeder and, in the early days, rainfall in the following spring was sufficient to ensure an adequate percentage of that hard seed was struck and the grassland consequently recovered. These days, however, with the rapid ingress of the fiercely competitive weed *Hieracium*, re-establishment of tussock grasslands is not realistic. People suggest that if we simply stop farming, entire areas would return to their former tussock glory. Sadly, this is simply not true.
- 53 The Pukaki Flats are a prime example of this. The Pukaki Flats portion of Simons Hill has not been grazed for over 10 years now and tussock has continued to decline to the extent that there is now hardly any left. Tussock now only occurs on patches of better soils with higher water holding capacity. With the advent of weeds and especially *Hieracium*, competition for moisture is so severe that the tussock seedlings can not compete and grasslands are unable to recover. **Attached** and marked “D” is a photo of the Pukaki Flats in 2003, illustrating the devastating effect of *Hieracium*. The tussock cover can be starkly contrasted with that in the earlier 1995 photo. I emphasise that no stock has grazed this area over this period.
- 54 *Hieracium* is an extremely aggressive weed. It became prolific in the Basin in the 1960's. *Hieracium* decreases under high fertilizer and pasture sowing but persists at lower fertility. It has therefore been able to be controlled on the better soils that give an economic response to seeding and fertilizer.
- 55 On both Simons Pass and Simons Hill, *Hieracium* is wide-spread on the lighter soils. In fact, I estimate it to cover approximately 50% of the Pukaki Flats with the balance being bare ground, with negligible tussock. The difficulties caused by *Heiracium* are that in the lighter, lower fertility soils, with lower water holding capacity, it out-competes all other plants for moisture. It does not completely cover the ground and the bare soil areas around the plants increase the water harvesting area of each plant and prevent any grass seedlings re-establishing in this bare ground.
- 56 The bare ground is subject to frost heave in the winter which leaves it exposed and more vulnerable to drying out and consequently wind erosion. Without the addition of reliable moisture through irrigation, it is absolutely impossible for any grassland or tussock seedlings to establish, survive and outcompete *Hieracium*.
- 57 The only seedling I have observed that is able to outcompete *Hieracium* is the wilding pine. If we do nothing the wilding pine will become the dominant species on not only the Pukaki Flats but on most of the Mackenzie Basin.

SOIL EROSION

- 58 The loss of soil on the Pukaki Flats is much greater than the rate of soil formation or accumulation and accounts for the major loss of soil nutrients, especially Phosphorus, which binds to the soil particle. The soil being lost is phosphate rich and that phosphate is ending up in the rivers and lakes. Phosphate is the most expensive nutrient to replace and without it agricultural production is not possible. The erosion of this topsoil further reduces the water holding capacity of the soil and makes it increasingly more difficult for dryland grasses to survive and compete for moisture.
- 59 Given that the total area of this soil type that Simons Hill and Simons Pass jointly propose to irrigate is approx 3,000 ha, I estimate that we would be able to avoid a very large annual loss of soil each year through the irrigation proposed.

RABBITS

- 60 Rabbits are a problem because they thrive in dry conditions. Mortality is lower, the incidence of disease is lower, and litter survival is higher.
- 61 When we purchased Simons Hill Station in 1994, the whole property had been poisoned under the Rabbit and Land Management Programme and rabbit numbers were assessed by the CRC as "low". The rabbit population exploded that first autumn however, and in the first 18 months we spent \$94,000 dollars on rabbit eradication, mainly on materials, as we did nearly all of the work ourselves. We were losing the battle, but in the winter of 1995 we got 18 inches of snow that lay around for 6 weeks and we gassed 8,000 active rabbit holes. This reduced rabbit numbers back to post poison levels. But by the winter of 1997 we were losing the battle again. However, fortunately RCD (or rabbit calici-virus) arrived. With the introduction of RCD, rabbit numbers were reduced once again to post poison levels of one rabbit per night count kilometre.
- 62 The current position with rabbit control on Simons Hill and Simons Pass is that RCD is still 65% to 70% effective. This has declined from initial effectiveness of 99%. At this current level of effectiveness, manpower management methods such as day shooting, night shooting, and gassing remain cost effective. However, in many areas of the Basin RCD has reduced in effectiveness to 30% already. I see no reason why Simons Hill and Simons Pass would not follow this trend given that RCD effectiveness has steadily declined since it was originally introduced.

- 63 Once RCD effectiveness reduces below 50%, manpower methods are increasingly ineffective and poisoning is required. Poison costs vary with infestation levels but a figure of \$50 per ha is a reasonable estimate. Traditionally this area of the Mackenzie was in a three year poisoning cycle. Paying \$50 per ha every three years on 3,000 ha of the better soils is not sustainable, but expecting those 3,000 ha to fund rabbit control on a further 3,000 ha (which is not generating any income) is not just unsustainable, it is impossible. These costs also look set to increase as bait costs escalate and aerial application and freight costs respond to increasing fuel costs.
- 64 Irrigation reduces the area of ideal habitat, and reduces the area of very low or nil stocking rate. Thus we are much more likely to be able to manage rabbit increases as the worst area will have been significantly reduced, and the income base we have available to service the rabbit control costs will have greatly increased.

WILDING PINES

- 65 The only downside with improved rabbit management is that it has the unfortunate consequence of exacerbating the spread and growth of wilding pine seedlings, which are otherwise controlled by rabbits. **Attached** and marked “**E**” is a photo of the Flats in 2008, showing the growth and spread of wilding pines.
- 66 At present, we focus our wilding pine control on the better soils because pasture improvement and subdivision enable intensive grazing which provides effective maintenance control and minimises the costs of follow up control. Only trees too large to be grazed down or ring barked by stock need to be cut down, or where numbers of trees are too great, or the density is too great then cutting or root raking is required.
- 67 The problem with the lighter soils (including those found on the Pukaki Flats) is that there is no pasture to compete for seedling establishment and no intensive grazing to manage any seedlings that do strike, so the scale of the problem just escalates.
- 68 As a result of tussock dying, and *Hieracium* invading, there is more bare ground on the Pukaki Flats than ever before to receive the windblown seeds of wilding pines. The problem is further exacerbated by the presence of the Mackenzie District Council’s 187 hectare neighbouring pine forestry block in the north-east corner that is now almost completely planted in trees. This provides a much increased seed source right next to an ever more receptive seed bed. This forestry block contains most of the species the District Plan is endeavouring to

prevent being planted with a rule prohibiting such species being planted by rural landowners!

- 69 The scale of the wilding pine problem is seldom appreciated. The only upside is that once completely covered in trees it would halt the soil erosion in the Basin. But that benefit can be achieved by much more sustainable and manageable means and overcomes the detrimental and invasive effects of wilding pine spread.

THE NEED TO CHANGE

- 70 In the early 1990's as part of the Rabbit Land Management Programme, grazing trials were set up on Pukaki Flats by Landcare Research and Ag Research. The trials included an area with all grazing (including rabbits) excluded, an area with grazing by sheep excluded, and an area free to be grazed by sheep and rabbits. With the rapid ingress of *Hieracium*, there was little difference between all plots except that the invasion by weeds was reduced in the grazed areas. Weeds were flat weeds, sweet briar, and wilding pines.

- 71 After the trial had been running for eight years, I asked these scientists to do an evaluation for us of the options for Pukaki Flats. Their view was that without irrigation they could not see any options, and that the ground and soil type was imminently suited to spray irrigation. They did not see dryland pasture as an affordable, or even unaffordable option. The establishment risks were seen as too great and longevity was viewed as highly uncertain.

- 72 Based on my experience in the farming business, I have unreservedly come to the same conclusion – irrigation is the only solution to the challenges facing the Pukaki Flats. This is a huge undertaking with significant financial risk but without it we will be left with nothing more on the Flats than a grey pile of stones, or it completely covered in wilding Pines, if not controlled.

- 73 The notion of irrigating the Basin is far from new. In 1969 when the Government decided to proceed with power development in the Upper Waitaki, it set aside water for irrigation as part of that development. That Order in Council for 150 million cubic metres was sufficient to irrigate approximately 25,000 ha of the Upper Waitaki area, of which the Basin comprises a significant part. The agreement recognised that areas imminently suited to irrigation and currently adjacent to rivers were going to be alienated from their source of water by the power development. The Pukaki Flats were an area recognised as imminently suitable for irrigation by the Waitaki Catchment Commission, based on the "Report to the Commissioner of Works by an Interdepartmental Committee on the

WATER RESOURCES of the MACKENZIE BASIN, 1966". However, its potential source of water was removed when all of the water was taken from the Pukaki River, leaving it a dry riverbed, and most of the water from the Tekapo River.

- 74 Not all of the irrigation allocation was taken up immediately. This was due to impediments including: the high cost of the necessary infrastructure, land tenure, and the lack of suitable technology. However with the advent of centre pivot spray technology, the tenure review process allowing for land to be freeholded, and the increasing difficulty of farming without irrigation, there has been renewed demand for the allocation of water. New processes had to be gone through to obtain that allocation however, and we spent some eight years fighting Meridian to get that 150 million cubic metre figure re-instated.
- 75 It is important to note that even if all of the allocation is eventually used for irrigation, the proportion of the Upper Waitaki catchment that could in fact be irrigated is around 35,000 ha out of a total catchment area of 946,380 ha. That is 3.7% of the total area. It does not signal a wholesale change.
- 76 Aside from making farming in the Basin viable into the future, irrigation will have substantial environmental benefits. It will halt the loss of thousands of tonnes of topsoil and nutrients per year and enable pest control, both directly by reducing rabbit habitat within the irrigated areas, and indirectly by increasing the revenues available for rabbit control elsewhere on the farm.
- 77 If we do nothing to adapt our land use practices by introducing irrigation, there will be a major impact on the landscape that will be out of our control and over which we can do very little about.

IRRIGATION PROPOSALS

- 78 Simons Hill and Simons Pass have together applied for consents to irrigate a total of 4,800 hectares.
- 79 Within each property there are two irrigation subsets based on different catchments and different soil types. Both properties have applied for consents to irrigate land on the east side of the Mary Range, which is predominantly a better soil type, and is part of the Maryburn catchment. Both properties have also applied for consents to irrigate land on the west side of the Mary Range, which is predominantly the Pukaki Flats, a lighter soil type, and part of the Pukaki catchment.

- 80 Three years ago, in anticipation of the impending irrigation, Simons Hill and Simons Pass did a land swap to rationalise the boundaries and make for better land management, stock management, and irrigation development.
- 81 This adjustment took place east of the Mary Range where Simons Hill had a block of 385 hectares on the north side of the main road. Simons Hill had no infrastructure on the north side of the highway and stock, plant, and personnel were frequently crossing the highway. This block was purchased by an entity associated with Simons Pass (Mary Range Farming Limited) and was exchanged for a block of Simons Pass of 305 hectares that was adjoining on the south side of the highway. Simons Pass on the other hand already had significant other land and infrastructure on the north side of the highway.
- 82 While the irrigation command areas are larger, the actual area of land to be irrigated is as follows:

Simons Hill West of Mary Range (Pukaki Flat):	1,735 hectares
Simons Hill East of Mary Range:	491 hectares
Total:	2,226 hectares
Simons Pass West of Mary Range (Pukaki Flats):	2,287 hectares
Simons Pass East of Mary Range (incl Mary Range Farming):	287 hectares
Total:	2,574 hectares

MATTERS PERTAINING TO SIMONS HILL (refer map Appendix G)

- 83 Of the 491 hectare irrigation area outlined east of Mary Range, this area is further subdivided into an area north of House Hill and an area south of House Hill. The area south of House Hill includes an area of 150 hectares that is currently consented (CRC 012046) (out of a total area of 300 hectares consented) and irrigated with a centre pivot irrigator as indicated earlier. Therefore our consent application is to take enough water for 491 hectares, but there will only be 341 hectares of new irrigation.
- 84 The current pivot is on a mix of soil types, but the further land that we propose to irrigate is a heavier soil type predominantly in Lucerne at this stage, and intensively farmed, with extreme variations in annual dry matter production as noted in paragraph 44 above.

- 85 The 1,735 hectares proposed for irrigation west of the Mary Range is on the Pukaki Flat, a lighter soil, the condition of which I documented earlier. This land area has been conservatively assessed for irrigation, and is little more than half the total area of this flat. The Pukaki Flats has been frequently described as being eminently suited for irrigation, with easy topography, and high sunshine hours. Large set backs, to create buffer areas, are proposed from the Pukaki river boundary of approximately 560 metres to 1,200 metres. Additional buffer set backs from the Tekapo River of between 1,000 metres and up to 1,775 metres are proposed. These buffer areas will not be farmed.

MATTERS PERTAINING TO SIMONS PASS (refer map in Appendix G)

- 86 The area of land east of the Mary Range and north of the state highway that Simons Pass and Mary Range farming are proposing to irrigate contains an area of 130 hectares that is currently consented for borderdyke irrigation (CRC011554). This consent is part of the Maryburn Irrigation Company consent and was reviewed in 2005 with the result that the minimum flow for the Maryburn was substantially increased and the reliability of the borderdyke irrigation which had been in place for over 30 years was significantly undermined. It is proposed that if the new consent is granted, and the consent conditions are acceptable, then this take will cease resulting in significant environmental benefits to the Maryburn stream particularly early in the season. All of the land east of the Mary Range is a better soil type, which is intensively farmed, with Lucerne and improved dryland pastures but subject to the same rainfall variation that lead to the extreme variation in dry matter production that I discussed earlier.
- 87 The 2,287 ha that is proposed to be irrigated on the Pukaki Flats west of the Mary Range has two distinct soil types. Approximately 50% of the area (the northern half) is a better soil type, similar to the better soils east of the Mary Range, and the balance on the southern end is a lighter soil, similar to the Pukaki Flats soils of Simons Hill. At present, these lighter soils support only approximately 0.3 stock units per hectare. The land is never grazed in the winter.
- 88 This land has also been conservatively assessed for irrigation with good set backs from the Pukaki river dry river bed (500 metres to 900 metres), lake, and main road (600 metres minimum). It is also often described as eminently suited to irrigation with easy topography and high sunshine hours.

SUMMARY

- 89 In combination, the two Stations propose to irrigate 4,800ha. This is a large area but it is necessary to achieve the economies of scale. The cost of the

consent process, design and planning, and the building of the off-farm structures and water conveyance delivery system are so great that we need a large area to spread these costs over.

- 90 This land was earmarked by the Waitaki Catchment Commission as suitable for irrigation and noted as being disadvantaged by the Upper Waitaki Power Development, in that it was alienated from a suitable supply of irrigation water, and hence covered by the 1969 Order in Council, the intent of which has been negotiated into the Meridian agreement
- 91 Additionally, if we only tackle a small area then we are not addressing in any significant way the issues of soil loss, *Hieracium* spread, wilding tree spread, and rabbit control. Because this project is beyond the resources of a family farming business we need scale to attract and service outside funding.
- 92 We have not placed any stock on our portion of the Pukaki Flats for the last ten years because it is simply not financially viable to do so, yet it still continues to cost money with respect to rabbit control and wilding pine control. In the mean time, we have continued to see the Flats degrade through the increase in *Hieracium* and rabbit numbers.
- 93 The choice is simple. Irrigate or leave to further degrade.

Denis Fastier
09 November 2009