TrustPower's Applications U050729 and
U060284 to Operate a Hydroelectric Power Scheme in the Wairau Valley

SUBMISSION FOR THE ENVIRONMENT COURT

My name is Alison Jane Parr. I am a resident of the Wairau Valley (the Valley). My husband and I own a 50 hectare property, seven kilometres west of the township, known as "Beverley Hills". We live on the property with our two children, whose ages are 16 and 18.

We purchased the property in 2003, after visiting the Wairau Valley several times on holiday, and had been attracted by the climate, beautiful scenery, rural position and small population. The purpose was to enjoy a lifestyle that we had not had in the previous twenty years of travelling and working.

My husband has a high-pressured city job, and was keen to have a country home base. He commutes to Wellington and Auckland, and comes home at weekends.

We chose the property because we loved the land and the outlook. It was of a size that we could afford, and it was also possible to provide an area of land for my parents to build a house for their retirement.

We have subdivided an 8.3 ha block, and lease it to them on a rent-free basis. My parents used the equity from their previous home to build a new house on this block. This lifestyle package gives us the opportunity to have my parents in close proximity, so that we are on hand as they get older. They can see us, and their grandchildren and still maintain their independence.

At the time that we purchased our property we were aware that TrustPower Ltd (TrustPower) had plans for power generation and a canal system. (The Scheme)The posters and advertising that TrustPower produced at the time showed a small Scheme of a similar size to the Marlborough Branch river scheme, which has small in-ground canals. (**Attachment no. 1**) Designs for the Wairau Scheme have evolved and changed significantly since then, into what is proposed today – a huge canal retained behind earth walls (a dam). This now presents for us a much more dangerous proposition than the plans that TrustPower advertised in 2003.

In addition, we sought our lawyer's advice, and he informed us in writing that as TrustPower was a private company, it had no powers of compulsory acquisition. We proceeded with the purchase of the property on the understanding that the decision over whether the Scheme crossed our land or not would ultimately always be ours.

At this time the Wairau Valley Water Enhancement Scheme Committee (WVWES) was also proposing to build an irrigation canal that followed the route of the road. At that stage there was debate as to which scheme would

be built, but that it was unlikely that both would proceed. We did not object to the WVWES's application for resource consent.

Our property is the location for the end of Canal 7, and the header pond for Power Station 4 and a large section of the pipe leading to the power station. (**Attachment no. 2**)

Our situation

In 2003 we informed Mr Keith Tempest, the CEO of TrustPower that we would not give TrustPower access to our property. (**Attachment no. 3**) Our decision was not made lightly. We spent two years (including attending much of the MDC Hearing in 2006), finding out as much as possible about the effects of the Scheme on us, our community, our district and the Wairau River. The result of our findings was that we now have many serious concerns about the Scheme as it is proposed.

In 2006 I did some investigations in our local community, which indicated that approximately 80% of residents were opposed to the Scheme. (Evidence can be produced if requested by the court). The local paper, The Marlborough Express, conducted a survey in March 2008 showing the majority in the Marlborough district were opposed. (**Attachment no. 4**) Therefore, we believe our views are a reflection of those of our local and wider community, and not in opposition, and this is also an important factor in our decision. It is not a decision borne of a desire to reap economic reward.

Canal 7 would cross our land at the highest point, be above our house, and be retained behind earth walls measuring from five to nearly six metres (approximately 17 to 20 feet) high. The headpond for Power Station 4 would be above my parents' house. (**Attachment nos. 5a and b**) The wall of the headpond would measure almost six metres high. Attachment 5b gives a visual representation, shows just how high six metres is, and also shows the proximity of the headpond to my parents' house.

According to the evidence of TrustPower's chief engineer, Mr Robin Dawson (Brief of Evidence August 2009, 8.7, 8.5), wherever the canal would be in fill there would be a possibility of a breach, and the downstream ends of the canals just above the headponds would be where the peak breach flows are the highest. In other words we would live directly below the most dangerous place on Canal 7. Canal 7, excluding its headpond contains approximately 200,000 cumecs of water (200,000 tonnes).

This canal system has been designed to allow groundwater to seep in and out of the canal (Mr Callander, Brief of Evidence August 2009, 2.3), which increases the risk of failure from erosion of the structure.

Earthquakes

TrustPower is using NZSOLD dam safety guidelines. According to the safety criteria, in the event of a breach of the canal above my property, "*fatalities are possible*." TrustPower's flood flow map, which was presented at the 2006 MDC Hearing, (**Attachment nos. 6a and b**) shows that the floodwater would cover my entire property. The engineer's assessment shows that up to a metre of water would flow through my house. (Mr Dawson, Brief of Evidence August 2009, Appendix B, Table 4)

The Marlborough region is an area of significant earthquake activity. The Alpine Fault, the most significant faultline in New Zealand runs down the Wairau Valley (the section here is known as the Wairau Fault). It traverses our property. We know that if we live in New Zealand, we must also accept the risk of earthquakes. However, living below a large body of water retained behind earth retaining walls in an earthquake zone presents a much more dangerous scenario, and one we do not accept.

According to the evidence presented by TrustPower's geology experts, Mr Bruce Symmans, and Mr Berryman, the Alpine Fault has a cycle of 1,000 – 1,900 years (Mr Berryman, Brief of Evidence August 2009, 8.1) and is now due to rupture again. Indeed, I have read recently in the Dominion Post's Weekend Magazine (Cover story, 29/8/09), that this is attracting the interest of many international geologists and earthquake experts, who are visiting New Zealand to study the fault.

Mr Symmans has stated that the Wairau Scheme would be engineered to withstand an earthquake of 7.6. (Brief of Evidence presented at the MDC Hearing 2006, 3.7)

I am not an expert on earthquakes, but have sought the advice of an independent geologist, Mr Rick Sibson, Professor at Otago University, and international earthquake expert. He agrees that, according to the most recent data, in geological terms the Alpine/Wairau Fault is overdue to rupture. However, he did assure me that though there have been many technological advances in their field, geologists can still only "forecast" such events, by assessing how faults have moved in the past. They cannot yet "predict" them.

This statement is proven by the recent earthquake in Fjiordland (July 2009), which was not predicted, and measured 7.8 on the Richter Scale.

TrustPower's Scheme will be built according to the forecast that the earthquake will be no more than a certain size, the fault displacement will be no more than a certain number of metres, have little or no vertical movement, and the earthquake will produce little or no liquefaction (Mr Dawson, Brief of Evidence August 2009, 6.9, Appendix A Fig. 2, Mr Symmans, Brief of Evidence August 2009, 10.20) Yet none of these things can be predicted with any real accuracy.

I accept on the basis of the scientific evidence, and with all the experts seemingly in agreement, that a rupture of the Alpine/Wairau Fault is to be expected, accompanied by a very big earthquake. And that the more time that passes, the greater the chances of it happening will be. I do not accept, however, that the parameters of the earthquake can be predicted with enough accuracy, for the engineers to be certain that a structure that crosses the fault eleven times will not fail.

I have explained to TrustPower's chief engineer, Mr Dawson, if my family is expected to live below the canal then he must give me a guarantee that it will never breach. He cannot give me that guarantee. On that basis Mr Dawson is admitting that the Scheme cannot be built to withstand a large earthquake. So it seems to me that the experts agree with me.

Any absolute statements from Mr Dawson in his evidence therefore are misleading, eg. "*The structure will be damaged during the event and will need to be dewatered and repaired, but will not collapse, and repairs will be able to be carried out safely*." (Brief of Evidence August 2009, 6.9) If Mr Dawson is not able to give me a guarantee that the Scheme will not fail, then he cannot give one to this court.

I seems to me that the most sensible question to ask is: If a rupture of the fault and a huge earthquake is overdue, and the design of this Scheme means that canals retained behind earth walls, containing large volumes of water, would cross that fault eleven times and sit above dozens of peoples' homes – why are we considering building it at all?

I have attended a seminar recently in our local area organised by Civil Defence. The guest speaker was Mr Tim Davies, acting Head of Geology for Canterbury University. He told us if there was indeed an earthquake of the magnitude expected, on the Wairau Fault, and there was surface rupture, roads would almost certainly be damaged and communications definitely would be cut. There is only one road in and out of the Wairau Valley and the chances of it being damaged would be increased considerably by the existence of TrustPower's Scheme. In the opinion of Mr Davies, in the event of a big earthquake, the chances of TrustPower's representatives knowing that there was a problem with the scheme, let alone being in a position to do anything about it, would be minimal.

Mr Davies told us that the earthquake of the magnitude expected would mean our house could shake violently for up to three minutes, and that we would probably not be able to do anything until it stopped. He advised those who lived in the Marlborough Sounds to have an escape route planned and maintained leading to higher ground in the likely event that a tsunami would accompany the earthquake. In the case of the TrustPower Scheme, the water would be above us. While the earthquake was shaking our house for minutes, we would have no idea whether the canal was damaged and water was escaping from it. The water would be above us. Where would we run?

All of these factors have considerable significance for us because we are the "possible fatalities". If this earthquake hit the Wairau Valley after this Scheme was built, we would be here, the ones who would die.

Dam Failure and Engineers

Earthquakes are one factor in dam failure. However, in the course of my research I discovered that the primary cause is engineering mistakes. Here in the Wairau Valley we could have both possibilities.

Tonkin and Taylor, the engineering company currently employed by TrustPower for the Wairau project, was employed to build the Opuha dam in 1997, which failed while it was under construction. The primary cause was a miscalculation of the volume of water coming from the surrounding hills during a one in ten year flood event. The Technical Investigations Report found that even though there was a "*high risk to life and property* ", that "*the level of specialised engineering and hydrology input into the final diversion design was far below what could be deemed reasonable and prudent for a high hazard dam*." (**Attachment no. 7**)

Canal systems in New Zealand like the one proposed for the Wairau have a high failure fate. All of the ones built by private companies or local authorities have failed. They are the Branch, Whaeo, Teviot and Ruahihi.

Our local MP has written to the CEO of TrustPower, Mr Keith Tempset, about our concerns. In his reply he argued that civil structures are built every day, for instance, grandstands at rugby grounds, and that there are no absolute assurances that they will not fail. I agree with that, but my answer in relation to the Wairau Scheme, is that if every grandstand in the country that had ever been built, had at some point collapsed, I would not want to go into the next one that was built.

Mr Tempest explained that in the 1970s the Government had offered low cost loans to power companies to build local power schemes. The companies in question did not have the engineering or governance skills required, and that was the reason that these schemes failed. He said that TrustPower had just commissioned a new power scheme, called the Deep Stream Hydro Scheme in Otago, which had a 19 metre earth dam, and seven kilometres of canals, constructed over more difficult terrain than the Wairau Scheme, although with lower volumes of water. This letter was dated 3rd September 2008.

On the 26th of September 2008 The Deep Stream Hydro Scheme breached. TrustPower's project manager, Mr Jim Pearson was reported in the Otago Daily Times as saying that "schemes often had issues, such as engineering or mechanical problems, in their first few months of operation." He said that he did not know how much water had come out of the canal before alarms had alerted the power company. (**Attachment no. 8**)

I have researched the Ruahihi canal failure in depth, as this was built in 1981 by TrustPower, at that time known as the Tauranga Electric Power Board. Papers produced for the Australia-New Zealand Conference on Geomechanics in 1988 concluded that the materials used to build the canal were not suitable. "*Early investigations indicated the nature of the materials, but the significance of this was apparently not recognised at the planning, detailed investigation and design stages*."

I have spoken to two engineers who worked on this project. Both told me that concerns were raised by locals about the suitability of the construction materials that were being used for the canal walls, and that the engineers disregarded their advice.

I submit as evidence photographs and information on the Ruahihi canal failure, as this gives a good comparison with Canal 8 of the proposed Wairau scheme. Canal 8 would run above the Wairau Valley township, the area of greatest population in the Wairau Valley. At this point the Wairau Fault splits into two faults and the canal would be built between them. (**Attachment no. 9**) The canal would be retained at this point, and the retaining walls would measure up to seven metres (approximately 25 feet) high.

According one engineer who was working on the Ruahihi project when the canal failed, the damage occurred in one hour, and the majority of it in the first fifteen minutes. He made the point that safety mechanisms like gates are very sensitive to earth movement, and would be very unlikely to work in the event of a large magnitude earthquake.

You can see by the photos, the damage caused by this canal failure is catastrophic. (**Appendix 1**) If a breach of Canal 8 occurred at night, the occupants of the houses in the township would have no warning before the water reached them.

I would also like to point out that the chances of the Scheme failing are affected significantly by timelines and budgetary constraints at the time of construction. I do not need to be an expert civil engineer to know this. The court should take into account that Mr Dawson states that the Scheme would be constructed in a single stage. This would not allow time for sections of the Scheme to be tested individually before commissioning. He also states that "*The relatively short timeframe and multiple work fronts will require duplication of many activities and facilities to allow timeframes to be met."* (Brief of Evidence August 2009,11.5) Short timeframes result in shortcuts, and the more workers there are operating at once, the more difficult it is to ensure that they will be adequately supervised. Perhaps this is the reason that these canal systems often have problems at commissioning, or perhaps it makes this worse.

As time has gone on and I have found out more about this Scheme, I have discovered more and more reasons to be concerned about its safety. The cumulative effect of everything I know about it means that I feel justified in saying to this court that the chances of this Scheme failing are high. I do not

want to live under it, and I would consider anyone representing TrustPower who forced me to would be acting without conscience or morals of any kind.

Safety Standards

The NZSOLD safety guidelines have been utilised by TrustPower's engineers. The methods by which the engineers arrive at their safety standards have been calculated in a table, which I will include here for ease of reference (Mr Dawson, Brief of Evidence August 2009, Appendix B Table 4):

Potential impact category	**Potential incremental consequences**	**Potential incremental consequences**	**Population at risk criteria**
	Life	**Socio economic**	
High	Fatalities	Catastrophic damages	At least 2 houses or 1 community hall in area of dxv > 1
Medium	A few fatalities possible	Major damages	At least 2 houses or 1 community hall in area of 0.5<dxv<1 greater than 1 or, out flow traverses a State Highway
Low	No fatalities expected	Moderate damages	Less than above
Very low	No fatalities	Minor damages beyond owner's property	Less than above

(dxv = depth times velocity)

The safety standards are population-based. Most of the valley is classified under the Low or Medium PIC (Population Impact Category). If there was a higher population in the Wairau Valley, the safety standards would be higher. This is another reason why we do not feel safe living under this canal. Our lives have been classified as being less important because there are fewer of us.

There are numerous flaws with the methodology. For example farm buildings are classed as having a "*low degree of hazard to life*" because they are "*not habitable*". (Mr Dawson, Brief of Evidence August 2009, 8.11, 9.4) This is true, unless of course, as they often are, the farmers happen to be in them.

In America, the classification system appears to be as follows:

Hazard Potential Classification	Loss of Human Life	Economic, Environmental Lifeline Losses
High	Probable. One or more expected	Yes
Significant	None expected	Yes
Low	None expected	Low and generally limited to owner of dam

This demonstrates that in other countries dams are built to the highest safety standards if there is the possibility of even one human death.

I do not agree with the New Zealand safety classification system that discriminates against human life by way of numbers. Every human life is just as important as the next, and to be 'classified' in this way as having more or less importance as a human being according to the size of the community you belong to is abhorrent. How can I be expected to accept that the safety of my children is a lower priority than that of children who live elsewhere?

"The death of one man is a tragedy. The death of millions is a statistic."
- Joseph Stalin.

Groundwater

During MDC Hearing in 2006, TrustPower presented evidence stating that activities during constructing and operating the Wairau Scheme would affect the production of approximately 55 wells in the Wairau Valley, including ours. (Mr Callander, Brief of Evidence presented at the MDC Hearing 2006, 6.3)
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The majority of the information produced as evidence for the MDC Hearing was prepared in a report in July 2005, and subsequent sampling and assessments were submitted to the Marlborough District Council in March and April of 2006. (Mr Callander, Brief of Evidence presented at the MDC Hearing 2006, 3.3, 3.4, 3.5, 3.6)

The Marlborough District Council released a report in July 2007, 'The Wairau Valley Exploratory Drilling and Testing Report', commissioned to provide the council with more information on freshwater resources in the Wairau Valley, to assist it with water management planning. This report was not available at the time of the MDC Hearing.

The report finds that the source of the most commonly utilised Wairau Valley aquifer is the southbank hills, and not the Wairau river as previously thought.

Almost the whole length of TrustPower's Scheme would run along the bottom of the southbank hills. TrustPower has requested permits to divert, realign,

flume or intercept every creek and stream along the southbank. Approximately 25 square kilometres of land has the potential to be affected by groundwater mounding and approximately 10 square kilometres could be affected by drawdown. (Mr Callander, Brief of Evidence August 2009, Fig 30)

The new report finds that the Wairau Valley is unique in the presence of highly saline groundwater, associated with tectonic seepage, which occurs in places at the surface (ie. Walkers Stream and Saltwater Stream). Well drilling information is beginning to identify several patterns about the distribution of saline water. Not only is it widespread, but also it consistently occurs at a depth of 15 metres below the surface.

TrustPower's proposal would require excavations deeper than 15 metres at four of the five power stations, one downstream invert; and "deep excavations that occur below the water table" along other sections of the canal. (Mr Callander, Brief of Evidence presented at the MDC Hearing 2006, Table 3)

The council's new report finds analysis of dissolved salts in groundwater from the deep aquifer show high concentrations of, among other things, arsenic, boron and manganese. Council hydrologist Peter Davidson said there were particular concerns about the high level of these chemicals, some of which were 15 times higher than Health Ministry drinking water standards. The Wairau Valley is developing at a rapid rate with many new lifestyle subdivisions. (Chch Press 2/8/07, **Attachment no. 10**)

This report was not submitted at the resource consents hearing, and is vital evidence for this court to consider. (**Appendix 2**)

In his August 2009 evidence,TrustPower's expert hydrologist Mr Callander states:

- *"…due to the variability of hydrological parametres within the Wairau Valley it is not possible to define the exact magnitude and extent of groundwater level changes that will occur."* (2.7)

- *"… lack of precision is not a shortcoming of our assessment, but rather it is a recognition of the inability of our scientific processes to totally characterise the natural variability of the groundwater systems in this area."* (7.30)

- *"The nature of the effects that can occur are well understood. What is less certain is the exact magnitude of those effects that will occur at any particular location."*(9.1)

- *"…the uncertainty is unavoidable."* (9.2)

Then he says:

- *"It is important to keep the groundwater salinity issue in perspective*." (8.37)

This is a perfect example of an expert doing a job, who is out of touch with the fact that he is dealing with real people. How are we to have any faith in his assurances that nothing terrible would happen to us when he tells us so many times that he really has no idea what would happen?

We currently have a very reliable well that we depend on for our domestic supplies and as well as two-thirds of our property for stock. Our well is in the fault. At this point on our farm the underground water comes to the surface and creates a swampy area. The well is quite shallow. We don't know how deep the water is, all we know is that the water quality is good, and it is consistently reliable all year round, as well as in droughts. We also have an irrigation right for 8.3 l/s (enough to irrrigate 12 ha of pasture), which we can take from the spring-fed Huddleston Creek which runs at the lower end of our property. In the Wairau Valley, with its dry climate, a reliable supply of good water is a huge asset.

The possibility that TrustPower's activities might "affect" our well is terrifying. Not only for us, but because of the animals we are responsible for, some of which are pets. We also have horses, which we have great affection for, and in addition are important to us for recreation and are worth many thousands of dollars. If Power Station 4 is built, TrustPower "*expects*" that the water in our spring-fed creek will "*decline*". (Mr Slaven, Brief of Evidence August 2009, 6.3) This means that we may have no irrigation water over this period of construction, perhaps for a whole summer or longer. It is simply not good enough for TrustPower to say that it will "*give an undertaking to provide an alternative water supply to any affected property*." Does this include an alternative source of irrigation water?

An "undertaking" is not a guarantee. I am disappointed that our District Council considers TrustPower's mitigation measures would be adequate enough to safeguard the health of the people and animals in the Wairau Valley.

TrustPower's mitigation measures (Groundwater Management Plan) in this instance are:

1. Provide a tankered supply of water to a watertank on the property (supply watertank if required).

This is a temporary measure only. It is not possible to supply water to stock, this way for any length of time. We currently graze over 1,000 animals on our farm, two thirds of which are watered from our well. Sometimes we have lambing ewes, and when they are lambing they require water at all times. How many truckloads of water would have to be delivered?

2. Lower the well pump (if water table is lowered.)

3. Deepen the water supply or extend the gallery.

Both of these measures may not be possible as digging wells deeper, according to the council's report, will significantly increase our chances of encountering saline water with its unacceptable levels of arsenic, boron and manganese.

4. Drill a replacement supply well, or dig a replacement gallery.

5. Pipe water from the scheme to point of supply.

A replacement well may not be found, in which case both of these measures will require landowner access over adjacent properties, and will not be possible if access is denied.

Mitigation is either temporary, dangerous for human health or not possible because of access. A replacement water supply would have to be found within twelve hours to ensure stock survival and human health standards.

We have no faith that TrustPower would be able to overcome some of these problems. The Marlborough District Council has not imposed any condition that comes anywhere near to being satisfactory in these circumstances.

In the final decision of the commissioners under "Complaints Procedure", no.33 d states*: "Where practicable the consent holder shall respond to complaints within 24 hours and shall log the action that it intends to take in response to the complaint."*

A response "within 24 hours" is unacceptable, "where practicable" literally means that TrustPower is not bound to do anything.

For us, this means that if there is a problem with our water supply as a result of TrustPower's activities, we have no legal way of ensuring that it will be remedied. We could be in a position where we have no household water, and our animals are dying, and we could not force TrustPower to act.

If TrustPower's activities two kilometres up the Valley affect our water supply, and TrustPower's representatives deny that it is their fault, how do we prove otherwise? The answer is, we can't.

The burden of proof is on us. If there is a dispute, we would have to take TrustPower to court. TrustPower would produce its expert witnesses, and in order to prove our case, we would have to do the same. We do not have the tens of thousands of dollars that would cost. I think it is completely unreasonable that anyone should have to face a situation like this.

Adaptive Management

Adaptive management is a concept and process by which companies attempt to justify proceeding with a project, when they have not conducted adequate research and investigation, or have minimal knowledge of what effect their activities will have. Mr Callander's evidence regarding effects on groundwater, provides a perfect example of this.

To someone like me living in the Wairau Valley, TrustPower's representatives have simply admitted many times that the effects of their activities are not known, but for their own benefit they want to carry on regardless of this, and they will just fix things up as they go. Apparently if they change the words "carry on regardless" to "adaptive management" somehow this will make the situation acceptable to the people who would be affected. It does not.

Mr Kyle, TrustPower's planning consultant, quoted a 'summary of the concept' of adaptive management in his Supplementary Evidence at the MDC Hearing: *"Adaptive Management applies the concept of experimentation to the design and implementation of natural resource and environmental policies….For example, commercial fishery regulation monitoring by a regulating authority can readily be designed in an experimental fashion. If the policy succeeds, the hypothesis is affirmed. But if the policy fails an adaptive design still permits learning so that future decisions can proceed from a better base of understanding."*

Mr Kyle talks about adaptive management in other sections (74, 75) of his supplementary evidence. Although he talks about "*ecological and geological systems*", as well as fish, nowhere in his evidence does he acknowledge or even mention the existence of people. Or that the things that would be "experimented" with would be the health and safety of those people.

Adaptive management may be suitable in an ecological environment for a project that can be reversed, for example a mussel farm or a wind farm. If unacceptable adverse effects are discovered through the adaptive management process, a wind farm can be removed, and the environment saved. TrustPower's canals cannot be removed, therefore adaptive management is not pertinent, because it is experimental and the result of the experiment is not known. By the time it is known, even if it proves to be an environmental disaster, it will be too late to rectify it.

Although it may be used in some instances, adaptive management is never an "appropriate" concept to apply to the lives of humans, and in the same brief, (7.5) Mr Kyle explains why: "*Such experimentation can often bring surprises… the surprises become opportunities to learn, rather failures to predict*." How can this possibly be thought to be "appropriate" if the "surprise" has meant someone has died?

Aquacides

As previously stated, the canals would be designed to allow groundwater to seep in and out. TrustPower would use aquacides in the water to control weeds. The expert hydrologists have not stated how water containing these chemicals seeping from the canals would be prevented from entering the wells that supply us with our drinking water, or affecting the pastureland. Mr Callander's evidence contains a chart that shows the part of our property where our well sits, and the spring-fed stream would be affected by groundwater mounding.

At some point the canals would be infected with dydimo, and TrustPower would have to exterminate it to stop it interfering with the turbines. I have yet to discover evidence from TrustPower's experts explaining how it will stop the contaminated water from ruining people's land, or their water supplies.

If there were to be a chemical spill of any kind TrustPower's Event Management Procedure shows that informing emergency services, regional services and the public comes in seventh on the list, after TrustPower informs its legal representatives and insurers. (**Attachment no. 11**)

It is hardly reassuring for someone living in the valley, who may be in close proximity to an uncontrolled contaminant release, to know that TrustPower's priority is lawyers and insurance agents, not the safety of people.

Degradation of Natural Areas and Areas of Historical Significance

We have on our property a wetland containing one of the last areas of flax left in the Wairau Valley. Beverley Hills was originally part of the Hillersden Run. In1869 the Hillersden Run was bought by Thomas, James and Joseph Carter, who built a flaxmill. It was the leading flaxmill in the province, and considered to be at the forefront of technology at the time. Our wetland is a remnant from this era and one of the last surviving. It is identified in the evidence of Mr Clough, (Brief of Evidence August 2009,30.4), TrustPower's heritage consultant, as a *"place of historical and archaeological interest relating to early European settlement*". It is also recognised by the Department of Conservation as a Significant Natural Area (SNA) and was given the High Category in Recommended Areas for Protection (RAP) in their 2002 survey.

TrustPower's ecology expert, Mr Slaven, says that most of the wetlands in his study are *"unlikely to be present in a further decade or so",* (Brief of Evidence August 2009, 5.11) but the wetland on my property is in the process of being protected by a QE2 Covenant.

If TrustPower was to lower the water table, especially during construction of Power Station 4, this wetland would be threatened, as it is preserved by a section of the Huddleston Creek, which is spring-fed. According to the brief of evidence given by the Department of Conservation at the MDC Hearing (7.1), degradation of wetlands can also occur as a result of increased water table

levels, so the groundwater mounding that Mr Slaven expects to occur on our property after construction is completed, will also threaten the wetland. (Brief of Evidence August 2009, Table 5)

Mr Clough states in section 38.4 of his evidence *"The remaining area of flax (on the Parr/Rogers property) will not be affected by the project."* This statement directly contradicts the evidence presented by Mr Slaven and Mr Callander, who have both stated that groundwater level changes have the potential to damage wetlands.

We also have on our property many magnificent trees of historical significance. They were planted by the original owners of Beverley Hills, Mr and Mrs Huddleston (nee Beverley), who bought the 600 acre property in the 1914 Ballot, when the Hillersden Run was broken up. (The trees were one of the reasons we were so attracted to the property.)

I believe that there has been an oversight because these trees are not included in Section 30 of Mr Clough's evidence, yet two eucalypt trees on the Timms/McKenzie Boundary*,"thought to mark the graves of two men"* are. (30.1) Also mentioned is the site of the Hillersden homestead*, "now marked only by trees",* and *"historic plantings"* on Hillersden Station. (30.4,7)
Our trees have survived in a drought prone area because they were planted on the edge of our wetland. Two of these trees are redwoods, which are also in the process of being covenanted.

I have consulted with Mr Martin Conway, a landscape architect and conservation planner, who has documented the effects of a Catchment Board project that lowered the Waiete river near Nelson in the 1970s. Many of the trees beside the river died because the root systems of mature trees do not have the ability to adapt to sudden changes in moisture levels. He told me that redwoods are particularly susceptible.

As previously stated, the canals are designed to allow groundwater seepage. TrustPower intends to use chemicals in the water to control aquatic weeds like dydimo. The expert hydrologists have admitted that they cannot predict the groundwater effects with any great precision.

The problem that we face is that it is simply impossible to replace a hundred-year-old tree, even if we could prove that TrustPower was responsible, which we can't, and even if there is a plan to offer compensation for damage like this, which there is not.

<u>Social Impact</u>

The social impact of the Scheme for people who live in the Valley has been assessed by Mr James Baines, TrustPower's social impact expert. In preparing his evidence for the MDC Hearing and the Environment Court, Mr Baines spoke to 47 people before the MDC Hearing and twelve people

around two months ago. A total of 59, which is approximately 10% of the population of the Wairau Valley.

I was one of the twelve people Mr Baines spoke to recently. The interview included two other Wairau Valley residents. Reading his recent brief of evidence (August 2009), I have not found any direct reference to this interview. Although he talks about, for example: "individuals' concerns", "a number of people expressed concern" and "many of those interviewed expressed that", there are no figures or percentages accompanying any of his findings. Indeed, very little of his evidence relates to interviews or discussions with residents of the Wairau Valley at all, even though this method of research is described as "primary data collection". (3.8 b) Almost all of his evidence is concerned with predictions based on other social impact studies, and the regurgitation of the evidence of other TrustPower experts.

Mr Baines expresses his confidence in the mitigation measures offered by TrustPower, without stating whether Wairau Valley residents concur or share his opinion. Indeed, in our interview we discussed the fact that mitigation is impossible in the event of a canal breach, because you cannot mitigate against loss of life. Mr Baines does not mention this. We also told him that we considered that the mitigation offered for wells would not be effective or practical, and he recorded this in his discussion notes, which I requested a copy of. But in his evidence in 5.27 he states: [Based on reading of the draft Groundwater Management Plan] *"I conclude that the concerns expressed about risks to existing water supply arrangements in the valley have been responded to in an appropriate manner."*

The number of times Mr Baines expresses his own opinion far outnumbers the times he mentions the opinions of the people who are affected by this scheme. (3.17, 5.10, 5.21, 5.27, 5.30, 5.33, 5.34, 5.75, 5.81, 5.87, 5.88, 7.6, 7.7, 7.13, 8.4)

When he does mention conversations with residents, he also sometimes states whether or not he agrees with that particular person's view. (eg: 8.5) This shows bias, which is disconcerting as it marginalises concerns that people have about their health and safety, and these are issues of the utmost importance, and should be treated accordingly.

In referring to the civil safety issues associated with dam breach, Mr Baines states in Section 5.88 "*While I do not deny that some individuals in the Valley are anxious about this civil safety issue, I do not believe that this anxiety is widespread."* A sample size of 10% of the population is not a basis for stating whether or not a particular concern is "widespread", and indeed it is not backed up with any other data, except for the statement from Mr Baines in Section 3.17, which says that, in his opinion, this sample size was *"sufficient to gain a good understanding of the likely issues and social effects to be expected across the spectrum of social circumstances."*

Mr Baines discusses the positive social impact of irrigation water at length, only acknowledging once, that irrigation water for the Wairau Valley is not at

all dependent on the TrustPower scheme. WVWES has resource consents already in place for an irrigation scheme, which would result an all the positive effects, ("*a vibrant growing community*" as Mr Baines says), without the numerous adverse ones - including the permanent danger from canal breach.

There is no added benefit from the electricity generation, we already have a secured supply in the Valley.

In 2006 I spoke to105 people in the Valley about this Scheme, almost twice as many as Mr Baines has. I did not ask people about their individual concerns, only if they supported or opposed the Scheme. 80 of them told me they opposed it. (The list can be supplied for the court if requested.) In addition I live here, I am directly affected and have been for the last five years. This is something that Mr Baines has no experience of.

I am a member of Wairau Valley Action Inc., a society set up by residents as a response to concerns about the Scheme. Wairau Valley Action has a membership of 75 and is the second largest community group in the Valley after the Golf Club.

I have spoken to members about their individual concerns, and there is a simple way of listing the issues for the court:

Positive:

- (Permanent): Irrigation water (not dependent on the scheme).

- (Temporary): Increased business for service and accommodation providers in the township

Negative:

- (Temporary): Construction effects – Noise (possibly 24 hr). Health risk from dust (possibly 24 hr), Traffic disruption. Travelling delays. Safety issues for children. Fire risk. Privacy invasion. Relocation. Problems with domestic and stock water supplies. Problems with irrigation water. Security risk from itinerant workers.

- (Permanent): Risk of canal breach from engineering error, earthquake or extreme rainfall event. Flooding from spillways in extreme rainfall event. Health risk from dust originating from drier riverbed, and gravel canal road. Problems with domestic and stock water supplies. Problems associated with groundwater mounding or drawdown for pasture and crops, including vineyards, as well as established trees. Possible chemical contamination of drinking water, crops and pastureland. Loss of amenity and recreation value of river. Loss of appreciated landscape. Social divisions in the community. Loss of friends who have moved from the Valley.

Some of these issues are not covered in Mr Baines' evidence, and when listed in this simple way, present a very different picture. TrustPower's experts have stated in several briefs that I have read, that the adverse effects of the

Scheme will almost all be temporary. As you can see from the list above, this is not the case.

The experts representing TrustPower are doing their jobs, and I don't blame them for that, but they are not in our situation, and facing it on a daily basis. It is important that the court gets some kind of balance.

Landscape

As mentioned earlier, the landscape of the Wairau Valley was one of the primary reasons that we moved to there, and we place great value on it for its natural character, as well as for its worth as an amenity. We think that the Wairau Valley is a stunningly beautiful place. My friends and I regularly go horse riding on some of the bigger stations in the Valley. On a fine Marlborough day, the views of the Valley from high on the southern hills are simply breathtaking, and the experience is one of those ones that reminds you of how good it is to be alive. Needless to say I disagree with both Mr Boffa, and Mr Brown when they state that the mid-Wairau section of the Valley is not worthy of the district level outstanding landscape feature classification. (Mr Boffa, Brief of Evidence August 2009, 6.13)

Mr Boffa states: "*Interpretations of natural character can vary and may emphasise either: the level of modification and the divergence from an original natural state, or: perceptions and people's experience of natural character*" (Brief of Evidence August 2009, 9.4)

The experience that Mr Boffa and particularly Mr Brown have of the Wairau Valley is very limited. I think if they came with us on a summer's day on one of our rides, they would change their opinions.

If interpretation of natural character is based on people's perceptions, I feel that I can comment on their views. I disagree with two in particular.

Both Mr Boffa and Mr Brown have commented that although the Wairau River is a significant landscape feature within the valley, it cannot be readily seen from public viewpoints and State Highway 63. (Mr Boffa, 5.3) Mr Brown says it is *"a rather somnolent, even recessive feature that belies its geophysical significance as the shaping force behind the valley system in the first place."* (Brief of Evidence August 2009, 31) "*Because the River is much more visually recessive downstream of the Branch river, it also lacks the conspicuousness, eminence and overall stature that I associate with outstanding landscapes*." (50)

I cannot think of any reason why the river should lose some kind of status or significance, simply because it can't be seen from some parts of the road. This argument certainly has no scientific, or even logical basis. I can't see the river from my house, but it does not mean that the river loses its value because of that. I can't see the Pyramids from my house either, and as far as

I know this has never interfered with their collective qualification as one of the wonders of the world.

Both of these witnesses point out that the landscape of the Valley has changed significantly in the last few years with the development of vineyards and dairy farms. (Mr Brown, eg. 26,27,28) Because of this, they say, the impact of the scheme would not be so great. In other words, because there has been some change, there is suddenly a license for TrustPower to make more significant changes.

I believe that the opposite should be the case. If some development has meant a loss of natural character, then it is even more important to preserve what is left. If we own something precious that subsequently is damaged, do we then go ahead and damage it more and more, until it is ruined entirely? That is the argument of Mr Boffa and Mr Brown, and seems to be at odds with humanity's changing attitudes towards environmental issues.

Mr Boffa states that components of the proposed Scheme would be "*similar to those evident in the Branch Scheme*." (Brief of Evidence August 2009, 7.9) I have taken some photos of the Branch Scheme (**Attachment nos.12a and b**). The first picture is of the Wairau River at the same location, the others of the infrastructure of the Branch. As "people's perceptions are important for interpretation of natural character", I would describe this scheme in the setting of the Wairau Valley landscape as being an industrial, incongruous, indissoluble eyesore.

Mr Boffa says that the visual effects of the steel penstocks of the proposed scheme will be no more than minor (8.2) The photos show that steel penstock at the Branch is highly visible and inappropriate in its rural and semi-wild landscape, and this is only a short section compared with what is proposed for the Wairau Scheme.

In fact Mr Brown admits that the Branch Scheme has had a detrimental effect on the natural character of its surrounding area, in his evidence in section 51 "…*the current TrustPower station near the Branch River, together with roading and other infrastructure elements, combine to appreciably diminish the River's natural state"* and in section 80, *"…the existing power station already impacts on the strictly local character and values of the area…"*

He then concludes that the effects of the Wairau Scheme *"would be acceptable in terms of the landscape and natural character values of the river system."*

If the Branch Scheme has "appreciably diminished" natural character, then how can the current, massive proposal including nearly 50 kilometres of canals, hundreds of metres of penstocks and five power stations, be "acceptable" in terms of natural character? This evidence doesn't make sense.

Finally, Mr Boffa makes the statement in Section 9.11 of his evidence *"….it is important that the landscape specialist does not lose sight of the fact that water flow is only one attribute within a riverscape that influences natural character."* Perhaps this landscape specialist needs reminding that without water, a riverscape ceases to exist. This statement would imply that Mr Boffa would be quite comfortable if TrustPower took all the water from the river. A landscape specialist who is capable of making statements such as these, needs to have his qualifications and credibility questioned, along with all of the evidence he has presented to this court.

My parents would have hundreds of metres of large and ugly steel pipe running across the paddock behind their house. They would hate it and wouldn't want to look at it, and I would not want it on my property. We moved to the Wairau Valley because it is a beautiful, rural valley with stunning mountain and river scenery. If we had wanted to look at some steel pipes we would have moved to an industrial area in a city.

<u>The river</u>

The value of the river cannot be quantified in monetary terms for those who love and use it for recreation. My family and I have spent many hours at the river, often with friends from the valley, having picnics or walks. When we have visitors from other parts of the country or overseas, we always take them down to the river, so that we can sit, share a bottle of Marlborough wine and enjoy the beauty of New Zealand.

My friend Lauren and I and some of our children ride our horses down there through the nearby Fish and Game access point. We have a lot of fun swimming the horses in the river.

My husband often goes there to spend a few hours fly-fishing at the weekends. He rarely catches anything, but the sound of the river and the loveliness of his surroundings give him vital peace and a chance to relax after his hectic working week.

To a court of law these sorts of statements may sound emotional, but value in life comes down to what is important for the individual. My husband and I have come to realise that money is not the most important thing in life. We place the greatest value on what we enjoy doing and what we can offer our children. Where we live, the natural beauty of our country, and the way we interact with it are very important to us.

We consider that it is vital that rivers like the Wairau are not used simply as a resource to be plundered, but are preserved for the enjoyment they give to us and for generations to come.

The proposed Wairau Scheme will effectively privatise some of the river water for almost 50 kilometres as the canals will run through private property and there will be no access for the public.

TrustPower's Scheme would not only affect our enjoyment of the river, but would also cause us great distress, because we believe it is extremely short-sighted and fundamentally wrong to damage the river and its ecosystem for such a small amount of power. I spoke to someone at the Electricity Commission, who told me that 73 megawatts of power is less than one percent of New Zealand's annual demand. As demand increases, and in the very near future, the benefit of this contribution will become negligible.

There are other and better options for power generation.

And, considering the fact that New Zealand gets 10% of its income from tourism, there are other and better options for this river.

Ten Year Lapse Period

If TrustPower gains consent, it has requested a ten year lapse period. This is twice the maximum permitted under the RMA.

We believe that this is an unacceptable length of time to wait before the effects of TrustPower's activities and the damage to property and the environment will be known. The Marlborough District Council has not been able to tell us how the Scheme would affect flood mapping, consequent zoning or plans for subdivision.

Plans for the development of our property would have to be put on hold for at least that long. What gives TrustPower the right to disrupt the lives of people in this way?

Real Estate Agents are obligated to inform buyers of any possible future developments. I have a letter from a Registered Valuer who assessed the effects of the Scheme on my property in 2006, and he has stated that it will have a detrimental effect on its value. (**Attachment no. 13**)

I refer to the evidence at the resource consent hearing of Mr Carey Cudby, who worked for the Ministry of Energy for a number of years. "*In the past the Government bought up whole catchments to overcome issues such as this. Who puts this right? The Applicant has not cast his net wide enough or made proper assessments of the financial costs involved for the affected property owners. You cannot hold an application such as this over the heads of people for 10-12 years*."

Conclusion

Our lives have already been on hold for five years, and for that length of time we have not been able to make any plans for the future. We love the Wairau Valley, and we want to stay here, so the situation is stressful, and we have suffered many sleepless nights worrying about what will happen. We feel as if we are living constantly under a cloud.

We believe that there are many reasons why this Scheme should not be built. The overriding one is the risk to the lives of humans, and their property is simply too great to justify it. If the engineers get it wrong, even slightly, this scheme has the potential to kill many. This is why we will not sell or lease our property to TrustPower.

I would like to state (and perhaps the length of my submission reflects this), that the effect of this proposed Scheme, on my life and the lives of my family members has been detrimental, prolonged and major. When TrustPower presents its evidence, somewhere in the region of 35 experts will stand before this court. Not one of them will be able to refute this.

In reference to requiring authority, Mr Whata stated in his memorandum to council on the 13th of July 2006 that TrustPower has *"no intention of engaging in such a process."* TrustPower has been aware we will not give up our land for this Scheme under any circumstances for three years now, but continues to proceed with its application.

I note that, in his evidence (August 2009), regarding landowner negotiations, Mr Lilley says that it is possible to realign the canal envelope to avoid those properties that cannot be purchased. This would entail further design and analysis, necessitating the need for TrustPower to reapply for resource consent. Mr Lilley neglects to mention a very important point, that in this instance contracts already signed with TrustPower would have to be redrawn, and further land purchase would have to be negotiated.

I see in the same brief, that even after over five years of attempting to negotiate with affected landowners, and the purchase of several properties, TrustPower still only has 62% agreement. Mr Lilley would have the court believe that only two landowners will not sign because they are "opposed to the scheme". I personally know other landowners who are opposed and have no intention of signing. I wonder under which category Mr Lilley has them in his table (1.1). There are several categories apart from "Signed Agreement", none of which give any proof that the landowner in question will ever sign. (I met recently another landowner who is not opposed to the scheme in principle, but will not sign with TrustPower for other reasons.)

TrustPower is attempting to downplay the problem of acquiring the land necessary for this project. It is a far larger one than Mr Lilley's evidence implies.

The simple fact of the matter is, that in its current form and location this Scheme cannot be built.

Given the expense and time involved for all the affected parties, how is it that TrustPower can justify proceeding with a resource consent that can never be exercised?

I ask the court to consider that the burden of uncertainty created by this scheme has gone on for long enough. That if TrustPower has ways of overcoming these problems, either by applying for requiring authority, or redesigning the Scheme, it is fair that they should be asked to do so now, before the consenting process proceeds any further.

Otherwise the problem with property acquisition has the potential to be dragged out for many, many years to come, and consequentially the stressful, costly and debilitating situation for the people who are affected. We have been in this situation for five years already. It is not an acceptable way for people to live their lives.

Alison Parr
September 2009