

RECEIVED

22 APR 2008

THE WEST COAST REGIONAL COUNCIL



THE WEST COAST REGIONAL COUNCIL

PH: 0508 8000 118
Fax: (03) 768 7133

SUBMISSION ON RESOURCE CONSENT APPLICATIONS

Section 96 Of The Resource Management Act 1991

TO: THE WEST COAST REGIONAL COUNCIL	Copy to: Meridian Energy Limited PO Box 2454, Christchurch.
PO BOX 66	
GREYMOUTH	

Applicant: Meridian Energy Ltd	Application Numbers: tick boxes overleaf
Closing Date for Submissions on the Mokihiui Hydro Proposal: (Wednesday 23 April 2008)	

(Please print clearly) Title: Mr Mrs Miss Ms (Please circle the appropriate title(s) or write below)

My/Our Full Name(s): M. Mathers on behalf of The Green Party
Aotearoa / New Zealand - Aoraki Province

Postal address:

10 12 Falcon st, South Brighton, Christchurch, 8061

Wk Ph: 03 382 0580 Hm Ph: 03 382 0580 Cell: 021 175 6025 (text only)

Wk Fax: _____ Hm Fax: _____ Email: mojo.mathers
@paradise.net.nz

I/we support the application numbers ticked on the back of this form (tick one)

I/we oppose the application numbers ticked on the back of this form

The reasons for my/our submission are as follows (*further information attached (tick for yes)*)

[State in summary the nature of your submission, giving reasons]

Please see attached pages

I/we wish the consent authority to make the following decision [Give details, including the nature of any conditions]

Decline the application in its entirety

Use the tick boxes below to indicate the resource consent applications your submission concerns.

I/we make my/our submission concerning **all** the resource consent applications below (tick)

My/our submission **only** concerns the resource applications ticked below (tick)

I/we **wish to be heard** in support of my/our submission (tick one)

I/we **DO NOT** wish to be heard and hereby make my/our submission in writing only

Signature(s): M. Matters (on behalf of the Green Party

Aotea-roa / - Aoraki province)

Date: 20/4/08

If this is a joint submission by 2 or more individuals, each individual's signature is required)

I/we have served a copy of my/our submission on Meridian energy Limited as per Section 96(4) of the RMA (tick)

Consent List

Mokihinui River
consents RC07150/1 – RC07150/6

Earthworks and Vegetation
consents RC07150/14 – RC07150/19

Inundation Area
consents RC07150/7 – RC07150/8

General Construction
consents RC07150/20 – RC07150/23

Staging Area
consents RC07150/9 – RC07150/10

Access Roads, Walking Tracks and Recreational
Activities
consents RC07150/24 – RC07150/26

Substation and Transmission
consents RC07150/11 – RC07150/13

Submission to the applications lodged by Meridian to build a dam on the Mokihinui river

Submitter: **M. Mathers** on behalf of the Green Party Aotearoa/New Zealand – Aoraki Province,

Address: 12 Falcon St, South Brighton, Christchurch.

Reasons for opposing the above application

1 Loss of a unique gorge formation

The Mokihinui Gorge's size is unique in this area; only the Lower Buller Gorge is larger, while all other gorges are less than half of its size. Furthermore, this uniqueness extends to the overall indigenous quality of the area. Its precipitousness, its width and length probably make it unique to the whole of NZ. Regardless of the small percentage of the catchment area that the MHP footprint will contain, the geomorphological uniqueness of the Mokihinui Gorge itself will be permanently destroyed.

2 Impact on the ecological values of the Mokihinui River

The unique character of the river depends largely on the amount of sediment carried to the coast and this will be altered by reservoir entrapment of sediment. Sediment depletion will cause river bank erosion, drastically altering fish refuges since there will be major changes to riparian margins downstream from the dam. The present, mainly indigenous, riparian vegetation will be replaced by bare rock probably, due to the unnatural daily river-level fluctuations; this will adversely impact on the river's ecology. Loosing sediments will also cause erosion to the river bed "armour", thereby deepening the river bed, which in its turn will cause the coastal salt wedge and tidal influences to move further upriver. Man made structures may prevent the estuary from following this movement leaving it stranded.

The Mokihinui Estuary still retains indigenous vegetation, including a healthy population of mistletoe, is a habitat for fish, and there is also a large population of birds, both resident and migratory, dependant on it. The estuary has not been cared for in recent times, but despite this, it's resilience can be seen in the recovery from storms and major man made interference. However, the estuary may not be too far away from the point of no recovery

Meridian claim that floods and freshes will be similar to the present conditions rendering river flushing unnecessary. However, this claim is contradicted by other reports stating that floods and freshes will be reduced or suppressed hence flushing will be needed. Even though the median and mean river flows would not be changed by the MHP this is merely coincidental since there will be prolonged, unnatural periods of low flow in the river. It is debatable as to whether the present quality of instream habitat could endure this flow regime for the periods determined with a MHP and this may need deeper analysis.

If the proposed dam goes ahead there should be mitigation procedures in place to prevent build up of unacceptable levels of aquatic flora and microfauna, due to the lack of freshes.

It appears that food degradation, resulting in major changes to the riparian margins and sediment loading, loss of the estuary, and deepening of the river would have a major effect on fish taxa and abundances, and a major impact on the present ecology of the river and its surrounds. There is no mention in the report as to whether or not effects on instream habitat would be minor or major.

3 Impact on ecological values of Mokihinui gorge area

The gorge is an avian flight corridor and Anderson's flat an important resting site; losing it would have a considerable detrimental impact on the lowland birds living in the conservancy area. Whio are a notable feature of the area with a stable and sustainable population but the report appears to minimise this fact. Since there are no documented cases of trans-location of adult whio these birds are doomed to extinction if the gorge is flooded. Furthermore, contrary to Meridian's report, kereru and weka are frequently seen within the proposed dam site.

The report makes no mention of the possible impact on terrestrial invertebrates such as spiders. The Mokihinui area contains a variety of large and unusual spiders along with a large population of several dragonfly species; whether or not any are endemic to the area is not discussed. Nor are wetas, moths, butterflies, native bees, flies, stick insects, beetles, earthworms and other invertebrates considered. Nor were herpetofauna included in the threatened species list. The vegetation species list is extensive but appears to omit the winter-flowering rata vine and mistletoe while only 2 species of hebe are noted.

The transmission corridor runs through an Ecological Reserve and there is good reason for its status. Lowland forests are now a rarity and conserving those that lie on DOC lands is important since no reliance can be placed on conservation by private owners. Removal of trees from 92-102m.a.s.l. will involve cutting on very steep and often inaccessible slopes, areas that would not normally be considered by a forestry operation. There will inevitably be huge volumes of sediment as a result of such operations. Hence any alteration to the natural conditions of the area has to be considered a major effect.

4 Loss of biodiversity – Weka Creek/Ngakawau Ecological Area

In the Weka Creek gully 2 plant and 2 bryophyte species of conservation concern have been found. There are 4 species/subspecies of Powelliphanta snail in the area. There are rare sightings of long-tailed bats, there are herpetofauna, and about 30 species of indigenous birds, with 13 of them being threatened species.

The presence of these rare and endangered species is part of the reason for this area having conservation status. Meridian admit that the area through which the transmission lines will pass is able to attain higher natural value; secondary growth and regeneration from earlier disturbances is already well underway.

Furthermore the siting of the transmission line will lower the conservation value of the area because it is not a natural feature. The value in predator control that Meridian will add to the area will neither compensate for, nor mitigate the destructive effect of the line. Mitigation will not counteract the 15ha vegetation and habitat removal. Not only will 15ha be permanently removed but the noise and other forms of pollution associated with the work will impact heavily on the area.

When considered within a wider National Sustainability objective it is critically important that ecological areas such as the Ngakawau Ecological Area is kept in as natural a state as possible; the biodiversity of such areas need to be given highest priority. There are already coal expansion works going on in the area, and no further exploitative development should be allowed. A large transmission line will degrade the pristine quality of the area permanently, not just during the construction phase. None of the proclaimed mitigation procedures, whether ongoing or during construction will compensate for the permanent loss of such a unique riverine gorge system and its associated ecosystem.

P28 – *"Marked accordance of spur height on both sides of river @ ~700mRL implies little tilting of elevated Radiant–Glasgow Ranges since inception of the gorge"*

This is incorrect. The only conclusion that can be drawn from "marked accordance of these spurs" is that there is no break in the controlling fault at that point. It is not the river that controls tilt on either side, rather it is the main range front fault that controls uplift of these ranges; here it is the Glasgow Fault that appears to be coherent where it passes the Mokihinui River. Discordance of spur height is most likely at the Karamea Bluffs (NZMG L28 260 285645) where there may be a break in the integrity of the Glasgow Fault.

P33 – *"Compared with the Alpine Fault there is only a low to moderate seismicity at the dam site."*

This statement *understates* the severity of earthquakes near the dam site. Strong movement on the Alpine Fault may produce a superquake of intensity M8-9, which could overpower, and do more damage, than any earthquake in the vicinity of the dam site. However, there is no doubt that local earthquakes in the area have the ability to cause severe damage also.

P 34 – *"Probable Seismic Hazard Analysis" – Probably the main influence of the background seismicity would be movement on the Alpine Fault, although, being about 60km away from the dam site, would hardly be considered "background".*

The PSHA model for the Mokihinui dam site gives seismicity for the area as M5-6. This is *unsubstantiated*, especially when the seismic characteristics of the range controlling Glasgow Fault are unknown at this time, and also that the last movement of the White Creek Fault, 14km away, was about M7.9. However it is true that earthquake magnitude from background seismicity would be in the region of M5-6 for some of the larger events, although it appears that the drowned forest at the Forks may have been a result of down faulting occurring with the 1855 Wellington earthquake.

P40 – There is a claim here that the stability of the area is reflected in the terrace found above the proposed left abutment, said to be 100 000yr old. This statement may be erroneous as it is unlikely that any terraces in the area would have survived the last interglacial, dated at about 100 000yr. If it is as old as claimed then there could be a number of terraces in the sequence missing, which is unlikely. There are 3 confirmed terraces above the Mokihinui River, labelled the low, the mid, and the high; these correspond to the 3 stadia within the last glacial. The remnants found high on the spurs may relate to either of two sub-stadia just postdating the last interglacial, making them between 80 000 and 120 000yrs. Alternatively they may be from the last stadia of the penultimate glacial, ending about 130 000 years ago. It is not uncommon in NZ to find terrace remnants pre-dating the last glacial, even in highly seismic zones.

Meridian claims that no faults run through the dam site. However Meridian's documentation has the "Cableway Fault" running through the dam foundations (P41) and the powerhouse (p51). No seismic characteristics have been documented for this fault or another fault also that also runs through the dam foundations. There is also rock shearing due to warping and fault association in the foundation area.

P41 - Rock (granite plus Greenland Group sandstone) in the vicinity of the dam is shattered. The joints may be tight but there is little annealing to the gravel-sized rock pieces encountered in the drill cores. Drill cores plus observation indicate that the whole mountain is shattered in the vicinity of the dam site. Such rock may be strong in direct compression tests, normal to joint direction, but there is no indication of how this shattered

The Suicide area is of major importance, giving valuable information regarding the effect of seismicity there. The well-formed pack track disappears completely at Suicide (this general area of very difficult track stretching about 300-500m along the river), to be replaced by sheer walls of granite rock towering above the rapids below. The track was destroyed here, during the 1929 earthquake, and the violence of the earth shock is nowhere more evident than at this point, where a cable now stretches to assist trampers across the razor-thin ledge left high above the river.

The Archaeological report neglects entirely the area downstream of the proposed dam. There was a wharf along SH67, and at least until recently, the piles were still visible. There was also a complete wharf near the mouth on the true right bank, at least until 30 years ago; the driveway to the wharf is still there, although the wharf has been replaced by a groyne. Most importantly however are the remains of the vessel "Lawrence" sitting in the tidal reach of the Mokihinui beach on the southern side of the river. It will be completely inundated, way below low tide, if the dam proposal goes ahead.

7 Impact on recreational values

The Mokihinui is seldom in brochures because it is **truly** remote. Exploitation of this area is low compared to other areas of similar ecological value on the West Coast, and this condition is highly valued and worthy of retention. There is no large, extractive industry within the catchment (other than farming) and this status should be maintained.

The Recreation report says that recreation in the Mokihinui has no more than local significance; this is incorrect. There are a number of discerning foreign and national visitors that explicitly seek the challenge of the Mokihinui track, the rafting, and also the fishing, and therefore do use the recreation amenity here. The importance of a river should not be rated on the number of entries in tourism brochures and books, but rather on its own merits. The recreational value of the Mokihinui lies in its solitude and intrinsic beauty. The Recreation report says that the effects of a proposed hydro scheme would have a minor effect on tramping, camping and hunting. But the loss of a centuries old tramping track, internationally known and appreciated is not a minor event and visitors seeking a true wilderness experience will no longer find it in the Mokihinui. Instead they will be confronted with a huge dam and its trappings.

It is true that new forms of recreation could be introduced as a result of the proposed Mokihinui hydro, but at what cost to the intrinsic and recreation values of the present state of the area? For instance white water rafting may no longer be possible. Mitigation and avoidance of adverse effects does include keeping boat speeds low on the proposed lake and banning jet boats; but who would police this?

8 Inadequate information : Lack of assessment of dam safety

Appendix 1 – Project Engineering Description Report:

There are no diagrams, description or discussion of the extent of downstream damage in the event of full or partial dam failure. Nor is there any outline of "Emergency Action Plans" (p19), for various emergency scenarios, to be found in the appendices.

P18. *"...reduce risk to be as low as reasonably possible."*

This is essentially meaningless; what is reasonable and who decides?.

rock may react to a seismic upheaval. The shattered rock is almost certainly caused by the range controlling Glasgow fault yet no consideration has been given to the effects of further movements of this fault.

P41 – There is a claim that the proposed right abutment wall is composed of very stable and solid rock. The nature of the very steep, shrub-covered slope indicates otherwise; it appears to be regrowth from the 1929 White Creek Fault movement.

P48 – Landslides and over-topping waves. The assessment of the full impact of the 1929 M7.9 seismic event sending slip material into the river appears to underestimate the event. Slips identified in OPUS' report "Effects of Landslides on Dam and Reservoir" are incomplete. Identification has been from river level and limited aerial photography, whereas additional slips can be identified from the walkway. It appears that the river has cleared the many toes of slips caused by the two local major seismic events of the last century. So much so that, today, some of the slips are hard to identify from river level, certainly their visual impact has been lessened when observed from that level.

Also OPUS only considers a movement on the foot wall of the White Creek Fault rather than also including movement in the hanging wall of the Glasgow Fault. Even so, OPUS do not consider the full impact of all slips reacting at the same instant to the seismic event. OPUS also appears to have severely underestimated the impact of over-topping waves in response to a seismic event.

P72 - Eel Passage. "Catch and Carry" for eels travelling upstream is inadequate; this method has not worked elsewhere so why should it work here? For eels travelling downstream, methods to overcome the dam barrier are even more inadequate. Not only is there little understanding of this stage of the eel life cycle but the methods to help eels overcome the dam barrier are woefully inadequate and, furthermore there will be considerable eel mortality in the turbine intakes.

P84 – Cofferdam. There is no consideration of coffer-dam construction in relation to foundation faulting. The United States Geological Society states that any dam greater than 80m height may induce seismic activity.

This report has not considered the possibility of hidden faults have have not yet become apparent.

Leakage is important, especially in relation to rock jointing. The hydrostatic pressure associated with an 85m dam will increase leakage into joints and this may well cause increased breakdown of the rock fragments.