

## *LEAMAN GEOPHYSICS*

ABN: 34 479 871 658

Registered office:

3 MALUKA STREET, BELLERIVE, TAS. 7018

**All correspondence to:**

**GPO Box 320, HOBART, TAS. 7001**

Telephone: (03) 6244 1233

Fax: (03) 6244 6674

# PULP MILL WOOD AND WATER ISSUES

Members of the Legislative Council invited Dr David Leaman to provide a briefing about water use by the pulp mill and the risks involved. This was given on August 28; the day voting on the approval began!

He noted that there are **two water issues**: the water for the mill itself, and the water required to generate the wood resource. Wood equals water.

The first problem could have been avoided by closed loop treatment; which would also have solved the Bass Strait disposal issue (later the subject of review under the Federal EPBC Act and conditioning of approval).

Neither issue has ever been properly assessed by government agencies or Gunns, even though water was raised as a planning matter long before the mill proposal was conceived. The refusal to study the problem or replicate independent work has risked the future of both the mill and many Tasmanians. The proponent has steadfastly refused to even discuss this topic, even when given opportunity to do so.

Dr Leaman said full evaluation of implications would have helped the company and its investors determine the proper size and location for the mill – and its likely profitability. At the moment the entire project is stepping into a dark unknown. Thus far it has simply been assumed that the South Esk River system will provide for all: mill, irrigators, tree production, towns...The first guess, the Pipers River, was simply hopeless, reflecting lack of serious thinking about this issue. He noted that the South Esk was merely a better choice, not a good choice, and that he had indicated in very early submissions that there were few rivers in Tasmania able to cope with the demands to be imposed. He indicated that two had been identified in his research. No one had ever asked which, something that suggests Gunns, or the government, was not interested in seeking the best result or dealing with outsiders. He told the councillors that the South Esk was not one of the rivers.

His conclusions based on Tasmanian catchment research is that the mill is too big by a factor of two to three for sustainability – unless, that is, we wish to wipe out water supplies to other industries (notably agriculture), towns and individuals.

He advised the Councillors that until proper analysis of water commitments has been completed to everyone's satisfaction the present mill proposal should be denied.

Dr David Leaman

October 6, 2007

## LEAMAN GEOPHYSICS

ABN: 34 479 871 658

Registered office:

3 MALUKA STREET, BELLERIVE, TAS. 7018

All correspondence to:

GPO Box 320, HOBART, TAS. 7001

Telephone: (03) 6244 1233

Fax: (03) 6244 6674

# BRIEFING NOTES FOR PRESENTATION TO LEGISLATIVE COUNCILLORS AUGUST 28, 2007

## WATER AND THE PULP MILL PROPOSAL

### INTRODUCTION

I would like to make a short statement about the water issue – since it has been totally neglected in every forum – and then allow free discussion and questions.

**This month, August 2007, Terry Edwards of Forest Industry Association repeated, in public for the umpteenth time, (like Evan Rolley, FT; Bob Gordon, then of the government's public campaign, and Damon Thomas of TCCI) that any decision you make (or RPDC was to have made) must be "based on science and fact".**

I agree.

What a pity, though, that much science and many facts have NEVER been considered in this entire mill process and before that were excluded from the RFA process, or any discussion about how we operate and plan forest operations. I regard these men as hypocrites – because they do know better.

I have consistently raised the water science question over the last decade only to be told:

- a) it does not apply in Tasmania; which is to admit that the science exists.
- b) it is not important, effects are negligible, anyway; which is to downplay the science.
- c) we do not have any data and could not apply it; which is reprehensible since it means no one attempted to have such data. I have enough, however, and if I could assemble it – why couldn't official agencies and companies?
- d) it would be too hard to enact quotas; yet South Australia has been able to.
- e) you are ignorant, a junk scientist, anti-forestry, a deep Green; just read Hansard to find these insulting, defamatory claims under various spellings of my name.

I have put the challenge, namely inclusion of the water factor, to the forest industry in submissions to various inquiries, to the EPBC and RPDC concerning this proposal and, in the press, to Gunns itself. No one has ever taken the hint, no one has ever contacted me for discussion, and there have been no checks made. Why is that?

Because the industry actually knows how much water it is diverting (a lot) and fears some curtailment or restrictions, even costs. Perhaps they should worry: certainly every other water user must.

## **THE SCIENCE**

Water is too important to ignore and the big picture must be seen. The long term future of the island is at stake, and I am not exaggerating. Yet no inquiry specification has allowed any review of either the water to be used (actually wasted) IN the mill – which recent history proves to be an inefficient design (compare Penola), or the water REQUIRED to produce the wood resource. Wood is water: water used this way is lost to the catchment – and all other users. The focus must be bigger than the mill itself.

The amount of water used in the mill will stretch the capacity of the South Esk system in any below par year and, as demands grow for other usage, in other years as well. A big user will always choke out small users: that is plain commercial and political practice. It is not equitable, nor fair, however. In the last year, the South Esk could not have supplied the mill for a fair period.

The amount of water used to grow trees, whether as regeneration, plantations, or after fires, varies according to catchment, elevation, general climate, aspect, rainfall, or species involved but my work shows that the average demand across the rotation cycle (10-30 years) ranges from about 0.3 to 4 ML/ha/year and may peak between 0.5 and 4.6 ML/ha/year in these same catchments. For longer rotations and regenerations, up to 90 years, the values may range from about 0.3 to 3 ML/ha/year as long term averages, but with peak times at canopy closure where demand is higher (as above).

For most plantations and regenerations undertaken in the last 10-15 years, using upper catchment and higher rainfall areas, the normal demands exceed 2 ML/ha/year. Lower demand sites simply do not produce enough timber quickly enough.

These demand values are for forest-forest conversions. You can add up to 2 ML/ha/year for pasture-forest conversions which are becoming increasingly common as prime land and farms are bought up and converted. The lack of planning in all this is leading us to a water supply precipice. An enormous price will be paid for this.

The demand figures vary because there is a variable claim depending upon the age of the trees or coupe. Unfortunately we have planted so much in a short period that we will see some very high peak demand combinations. This water will disappear from groundwater storage and result in massive reductions in river flows. That means a lot less water can be supplied to anyone who has a surface water allocation. It also means, in a State where draw on groundwater is totally uncontrolled, that this reserve will be damaged, and overdrawn as well, with increasing problems and deeper wells.

If one considers the 250 000 ha of current plantation (as at December 2006) then the current projection of average water demand in the coming years will be AT LEAST 500 000 ML/year but will peak somewhat higher, and will continue to rise because we are still planting trees. If we add in regenerations, and the occasional fire, then the coming demand will exceed 750 000 ML/year in normal years and perhaps 1 000 000 ML/year in bad years or combinations of demands.

This amount of water, from 500 to 1000 GL, is enough to solve the problems of the entire Murray-Darling Basin. **We are fooling ourselves if we think this extraction can be done here without consequences.**

**The government and the mill proponent require you to vote for a PERENNIAL DROUGHT** – for that is what we will get. Every other water user, in industry, on farms, in towns, is going to find this out in coming years. The Premier does not know this. He and his agencies do not want to know and they will not listen, have not wanted to listen, and have chosen instead to shoot the messenger.

Do you want this? Do you want to be the people who consigned Tasmania to this? These are huge stakes.

The science behind all this has been published by various workers over the last twenty years. The industry knows all about it. I was one of the first to detect vegetation use seasonal responses more than 30 years ago and we then used the information in land stability studies. Dry land, with vegetation draining groundwater, resists slope failure. My recent research has been directed toward collection of Tasmania-specific information on catchments, land use change effects and the role of climate change.

### **THE KEY QUESTIONS**

None of the science says “no mill.” Nor have I ever said this.

What the science does ask, however, is **“is the mill sustainable in water terms?”** and **“is the mill the right size for the resource (wood and water)?”**

**I believe that if these questions had been asked (which they were by me) at square one, and answered directly, then this proposal would have been properly defined, scaled or modified to suit – right away: or found to be uncommercial.**

**The information I have to hand suggests that the proposal is too large by a factor of at least two, and possibly THREE, and in the wrong place** for efficient water supply to the mill – unless we close cycle it: something apparently unacceptable to the proponent for some inexplicable reason. Refinement of my conclusion about mill size depends on detailed analysis of plantation and wood source locations. It is quite possible to derive accurate-enough estimates with known techniques but the necessary information is often held “commercial in confidence”. Rubbish, it should be public domain data. I have inspected areas, known sources, and calculated approximate estimates. Hence the range of mill size estimate. Note it must be smaller than proposed. A complete analysis should be done urgently, indeed it should have been done long ago. There is no reason, nor valid excuse, for not doing it.

I have made similar submission to the South Australian Parliament and advised that the Penola mill, where calculations are simpler and data is available, should be no more than 70% of the original proposition.

The proponent there has, more recently, actually asked for a doubling in mill size!! That is simply a recipe for short term gain and long term disaster: desertification and a total wipe-out of agriculture and towns. Note also that the SA government recently applied a 1.8 ML/ha/yr quota to plantations in a 600-800 mm rainfall area – three years after I suggested a better, dynamic system in Tasmania, and three years after I was told that it was all impossible. Well, it is not, and never has been.

**Smells and location are not the primary, nor pre-eminent factors for the mill. Water is.**

With respect to any environmental standard, or sharing of resources, note that if you place a barracuda in a sea life tank with other fish then co-existence might be possible while feeding is regular (government help and subsidies etc) but if feeding is missed for some reason (commercial problems, reduced profits, or lack of help in hard times) then the little fish will disappear very rapidly. This is life on Earth. Translate that to water shares and other elements of a diverse economy and one sees that issues of equity and balance are crucial. Gunns' proposal is a very big fish. Too big.

If anyone believes that a big fish will be treated the same as small fish in difficult times then they have been living on another planet. Who, by the way, will have the nerve to police environmental standards?

**Until the critical questions (water) have been properly answered then the proponent is acting in the dark, and so are you. Neither you, nor they, know the right size for the mill – and until they do, you must vote no mill.**

I have made my deduction from open data, my research and the general science. They (Gunns, Government agencies) have done nothing other than deny the realities.

**This is a simple resource and investment risk equation. It carries significant consequences for the future of Tasmania, and any views simply based on the scale of the proposed investment are irrelevant. What is the scale of the risk and costs if key resources such as water supply are damaged?**

## **MATTERS OF PLANNING**

Proper planning of resource requirement (wood stock and water), and locations is essential. This does not exist; worse it has been avoided, and the Water Management Act (WMA) is a pathetic, incomplete, illogical document unable to handle any of this. It was specifically written in order not to. Refer to my book "*WATER, Facts, Issues, Problems and Solutions*" (3<sup>rd</sup> edition, 2007) to find explanations of this, and some fixes.

Consider an example of how we must integrate our thinking: the not so small matter of the South Esk River at Trevallyn, or can we supply a pulp mill – and everyone else?

This river was in a depressing state last summer and although that was a special event of the type which occurs from time to time it will become more common – because that is the long term trend. Further, we are adding to our own woes due to lack of oversight and planning.

First, increasing irrigation requirements and encouragement (government policy!?) will demand more water from the system. (Not wise; we need better water use/crop/value options instead)

Second, plantations in the headwaters will carve a chunk out of future supplies – perhaps 25% over the next 15 years. (No water planning entertained; factor thus ignored)

Third, ideas of diverting Poatina water south will hardly help and this presupposes that Great Lake can continue reliable supply.

Note that Great Lake supplies are already a diversion from the Ouse River. A midlands diversion also increases the salinity problem: this is not simply a risk since the problem is there already just waiting to be re-awakened. And what about those irrigators at Cressy-Longford who already have allocations to water which may now be diverted? How does this all work? (No deep, big picture thought evident)

Fourth, climate issues bedevil many catchments and have already cut the South Esk substantially. Expect more change. (Factor not included in the allocation planning process)

Fifth, every dam that is approved without an overview diverts water, and loses some of it before use. (Planning, totalling, losses not included in WMA)

Finally, the other saviour was to be the Meander but we have dammed that, have now allowed greater diversion of its flow, hacked at its upper catchment with unplanned forestry which will reduce yields, and now expect miracles at Trevallyn.

Given all this it will be virtually impossible to guarantee a perennial supply to the mill proposed, and any regulations or political orders enacted to protect the mill will put pressure on everyone else. As for scenic environmental flow in the gorge, forget it.

**For each action there is reaction. Nothing involving water should ever be done in isolation but that is what is happening here.**

**You are being asked to approve a giant project with tremendous water implications – something never mentioned.**

That is why every possible attempt has been made to silence me.

You are deluded if you think government agencies have looked at all this in any serious way. There has been no command, indeed no desire, to understand this issue or evaluate it. I would add that there is also little relevant expertise available as well.

I would mention that when the proponent first presented the proposal it was thought that Pipers River could be used. This was a joke which I pointed out in my first submissions to EPBC and RPDC; submissions which indicated there were only two rivers which could be used for the mill, depending upon its location. I did not have the South Esk in mind, although it is a far better idea than the Pipers River.

Did anyone ask me which rivers I did have in mind? No. Pity. It hardly matters now we are totally hung up on trivia, smells, irrelevancies and something far too large.

## FURTHER COMMENT

I would comment that I was specifically trained by a Reece government in the 1960s to evaluate groundwater, catchment balances and water usage. I find it rather ironic to be the only person still standing with any idea of what is involved in this and how to assess catchments – having done the only water audit ever completed in Tasmania.

Audits and assessments are the only way forward. They indicate, catchment by catchment, realities and possibilities. They are not the same as management plans, especially plans formulated before an audit or which exclude significant components of the water cycle and water usage. The present set-up seems tailor made to propagate the forest industry unfettered, and to completely strangle general agriculture, other industries, urban supplies, and supplies to individual properties. I have seen it all happen.

Audits allow us to see which catchments present scope for more takes or development, including more forest operations, and which do not.

It is often stated that Tasmania has plenty of water, indeed a sizeable part of the nation's fresh water. This is true, but it tends to be in the wrong places. We could shift it to other areas, at considerable cost to conditions at each end of the transfer and to the environment as a whole. All the while we fail to live in balance with what we do have, and make the most of it. All costly transfer ideas are rarely wise or cost effective.

Gunns have needed my help and knowledge. A pity they lacked the good sense to ask for it. In this they have been very ill-advised.

The data I have collected, and which I thought would (not might or could) be used to aid planning and full development of equitable forestry and farming industries was offered as a gift to agencies and industry in 2003-4. A ten page initial summary was sent to fifty organisations: there was a deadening response. Since most of this research was done at my own expense you will understand my anger at the denigration of my reputation and credibility, and damage to my income, by the crude or whispering attacks from the forest industry and public attacks in Parliament. Such attacks were un-founded and ignorant, and as a result I withdrew my free offers in early 2005. Anyone now wanting my experience or information must deal with me commercially as a consultant.

The data to hand does, however, allow me to comment on various proposals and to suggest that some **serious questions must be asked by those supposed to act in the public interest**. I do not mind if my work is doubted, or has to be replicated even if it might take years we do not have. Not to ask the questions and not to replicate the work – true science, however, is criminal neglect. So much for Terry Edwards and his claim. There has been ten years to get the science up since I first raised the matter in public.

Dr D E Leaman  
August 24, 2007

