

Submission to Inquiry into the Impacts of Mining in the Murray Darling Basin

To: Senate Standing Committee on Environment, Communications and the Arts

Jeff Bidstrup
Chair, Haystack Rd Coal Committee

Background.

Haystack Road Coal Committee is a group set up to try to protect prime agricultural farmland from mining so that future generations in Australia and worldwide may have the benefit of stable food production (www.coal4breakfast.com.au)

Haystack Rd is the centre of a Mineral Development Licence 383 owned by Tarong Energy, and Tarong plans to sell the MDL for an open cut coal mine.

Referring to Haystack Plain, Prof Neal Menzies, UQ Professor of Soil and Environmental Chemistry said on *Australia Talks*, ABC Radio National, 6:00 PM 28th July, 2009 said: "There is no doubt that these are some of the Australia's most fertile soils – one of your earlier ladies calling in made the comment that there is only about 5% of Australia land mass is truly high quality land and of that 5% these are really in the top 1% of the land that we have available to us."
<http://www.abc.net.au/rn/australiatalks/stories/2009/2637485.htm>

It was stated at the Surat Basin Energy Conference in Dalby Aug 19-21 2009 that the Surat Basin is possibly the third largest energy province in the world, with 6.5 billion tonnes of coal and massive reserves of CSM.

This is a valuable resource that our nation cannot afford to leave untapped. But with such massive resources, and a relative Greenfield site, we have the opportunity with some prudential planning to present the world with a model of how to do it right, not just develop ad hoc with all the attendant and future problems that entails.

We must manage these resources responsibly with a focus on future prosperity. From the Mineral Council of Australia's website, the Brundtland Commission's definition of sustainable development, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Our Common Future, Brundtland 1987), is appropriate.

Submission

Australia has been blessed with an abundant supply of food since a few years after our European settlement. We have never been subjected to famine or the possibility of it as has Europe during and after the last two world wars, and as does much of the world's population today.

This tends to make us blasé about the importance of food, and the importance of protecting our food production capacity. Unfortunately many Australians disregard their international humanitarian obligations to those less privileged.

Farmers are generally proud of their profession which produces abundant healthy food for our nation, with surpluses that help feed the world. Those who object to our profession and take a narrow view that we can either import our food, or should only use our agricultural resources to feed ourselves take a dangerously shortsighted view of food production for ourselves, our world neighbors and global peace.

Haystack Road sits in Queensland's Surat Basin at the top of the Murray Darling system, and therefore the frenetic exploration and development activity that is happening here will have far reaching and long lasting effects on the Murray Darling system, our agricultural productivity, and possibly even our ability to be self sufficient in food in decades to come.

We therefore commend the Senate for instituting this inquiry into the impacts of mining on Australia's premier foodbowl.

Australia has recently experienced a mining boom that is unprecedented in our history. We have had mining booms many times in our past, and the land still bears the scars of that activity. Many areas will never again produce any worthwhile produce.

However, in the past, these booms have been primarily confined to sub-prime land, and the long term effect is less on our future economy. We are now seeing the large mining companies taking licences to prospect and mine over our premium agricultural lands e.g Caroon NSW, Felton and Haystack Road Qld, and importing with them their habits and procedures from remote areas.

There are many more areas where drilling is continuing, and it can be reasonably expected that coal mining is planned. The premium Jimbour and Pirinuan Plains, Tipton and Brookstead in Qld are examples.

The Haystack area that is under Qld Mineral Development Licence 383 last year produced enough wheat to make 68 million loaves of bread, enough feed grain to make beef for sausages to go around Australia 1.5 times, enough barley to make 7 million stubbies of beer, etc, etc. All of this without irrigation.

The issues that impact on the Murray Darling Basin are:

- (a) Overland flow diversions and waterway diversions on floodplains in MDB
- (b) Salinity and sodicity leaching from open cut mining into catchments
- (c) Poaching of local skilled workers to temporary mining industries
- (d) Inability of local towns to survive after the mines have depleted the resources and left
- (e) Deposition of massive quantities of salt in environment from Coal Seam Methane
- (f) Depletion of aquifers due to water extraction from CSM

(a) Overland flow diversions and waterway diversions on floodplains in MDB

The Haystack Road area of the Brigalow Jimbour Floodplain is a highly productive foodbowl with sedimentary soils, slopes of ~0.02 percent, and progressive and productive farmers.

Haystack Landcare Awards & Recognition

- *Rural Australian Planning Institute Award for Excellence in Community Planning.*
- *Rural Australian Planning Institute Award for Excellence in Planning –Rural Communities.*
- *Rural Australian Planning Institute Overall Award for Excellence.*
- *Queensland BP Catchment Planning Award.*
- *Queensland Arbor Day Award.*
- *2008 Landcare Place Stories Monitoring & Evaluation Award for excellence in the use of Place Stories as a monitoring & evaluation tool.*
- *Recognized Nationally for Promoting Ecologically Friendly Farming Practices.*

Typical slopes for the Brigalow Jimbour Floodplain are 0.02%. Any disruption to the beneficial flooding of the plains is devastating to the whole area adjacent and downstream. The focus of the award winning Brigalow Jimbour Floodplains Group has been to restore the even flow and beneficial flooding. These flows were interrupted by early settlers and roadworks, and have now been largely restored to their natural state which has seen a mammoth productivity boost to farmers and the quality of environmental flows.

With grades of 0.02% at Haystack Rd, any subsidence will cause massive drainage problems and loss of beneficial flooding issues. Subsidence from open cut rehabilitation, underground longwall mining, or coal seam gasification may not occur for 10, 20 or 50 years but will make the floodplain unusable for food production. Productivity on the Brigalow Jimbour Floodplain is massively disrupted by even 0.01m differences in grade, and the sedimentary soils erode quickly with our intense summer rainfall events when grades exceed 0.02%.

There are suggestions that any diversions on the floodplain would be illegal under federal Murray Darling legislation.

(b) Salinity and Sodicity leaching from Open Cut Mining into Catchments

It is estimated (Tolmie et al.2003) that the surface 4.5 metres of soil contain 31 tons/hectare of chlorides (salt) that will be disturbed by mining. Chloride release will significantly impact on local agricultural land and water quality throughout the entire Murray Darling basin.

The subsoils for the next 100 metres are variously sodic and salt laden to add to the environmental issues.

REHABILITATION

We believe it is not possible to economically rehabilitate the premium floodplains. Period.

We have seen reports of some successful rehabilitations overseas that bear no resemblance in scale or to the geological structures here, and there have been no attempts in these soils in Australia.

There can be no certain economical geotechnical resolution to prevent leaching of acid sulphates from the scale of an open cut mine in this area. On Haystack Rd, the highly acidic, sodic and saline subsoils will leach creating a massive logistical problem and serious environmental risk. This is supported by the scientific data which shows that there is in excess of 31 t/ha chloride per hectare in the soils at Haystack within 4.5m of the surface. Given these high concentrations it is entirely probable that similar levels are also present at depths greater than 4.5 m which would exacerbate already serious issues associated with the storage of large quantities of saline soil for prolonged periods during the mining operation and the eventual reclamation of the area to agricultural production. This material must be contained to avoid leaching into the Murray Darling Basin. The soils are alkaline on the surface and strongly acidic at depth.

Again on Australia Talks, Prof Neal Menzies stated: *"I expect that there would be a substantial cost to doing it (rehabilitation) correctly –but exactly how you should do it varies from one situation to another and there is part of our problem in that we don't know how to*



move these Australian soils and replace them without damaging them. The American situation – the soil that their working with - they can move them and they can replace them and achieve good yields but our soils are quite different. One of the great limitations of our soils is that as you go down through the soil profile that surface soil is nice and friable – beautiful garden soil but the soil a metre or so depth is more like plasticine - it would be impossible to grow plants in it. It contains a lot of sodium and that makes the soil disperse so that the first thing that they would have to do would be to take that soil off in layers and put them back in the correct order."

Anthony Fennell, presenter: "Now I know that Neal Menzies from my producer that you're concerned also about the way in which we look at rehabilitation – the timing and planning that goes into our efforts of rehabilitations. Could I get you to talk about that please?"

Neal Menzies: *"Yes, there is certainly an issue of time limits of doing the research that to me it is unfortunate that mining leases are being granted and mines going ahead without a real knowledge of how to restore the land and after mining. One of things we do know from overseas is that first attempts rarely work well – farmers are left with land may only be able to achieve 20-30% of the original yield – so that there is an experimental phase that necessary –and then even once the system is re-established it typically takes a number of years for the structure in the soil to regenerate after the shifting and replacement. I guess there is one way to think about this that if you ever drive through a road cutting and look at the soil that's exposed - it's cracks that goes right through from the surface down deep into the soil to allow water to soak in - to allow gas exchange and those are disturbed in the process of digging up the soil and moving it and it takes many years to re-establish."*

One system for compacting land for building is to deposit large soil mounds (surcharging or preloading) on the area to be compacted. At Eagle Farm and Lytton in Brisbane, mounds as low as 4-5 metres compact the soil beneath to a depth of 20 metres, and caused subsidence of 100-600mm. The bulk of the subsidence and compaction occurred in the first month. Mullock heaps >50 metre high will compact the underlying soils to an equivalent depth. This will cause natural subsidence and be irreparable with current technologies (or any foreseeable technologies).

We clearly need to protect our premium food producing lands as a matter of national importance not just for food security, but for national security. An underfed neighbor is going to be a discontented neighbor, and recently we saw just how quickly that can arise with the advent of food riots in 37 countries and food shortages in places that have never suffered before.

Australia desperately needs a national food production policy that determines whether we feel as a nation that it is appropriate, particularly in light of the above comments, that we sacrifice our best agricultural assets for a one off financial injection from mining activity.

(c) Poaching of Local Skilled Workers to Temporary Mining Industries

There is much comment and innuendo regarding the loss of local skilled workers to the mining industry, and the impacts of drive in/drive out workers and their camps on the local infrastructure.

Personal comments from Mr Peter Bellgrove, owner of Ainsworth Motors in Chinchilla show this. Ainsworth Motors are a long established and respected car dealer and farm machinery dealer . He stated he had lost all his trained mechanics to the gasfields (5 or 7 in total) and his workshop manager was a tradesman only months out of his apprenticeship with Ainsworth. Ainsworth's are doing the training that the gas companies will not do.

This has a serious effect on the ability of these companies to service the agricultural sector, and further depletes the agricultural sectors capacity to maintain the communities when mining leaves or hits another bust cycle.

Many other local businesses find the miners procuring their services from Brisbane and procuring their labour from the pool that these businesses have apprenticed and nurtured through the good and bad times

(d) Inability of Local Towns to Survive after the Mines have Depleted the Resources and Left

Provincial towns like Dalby and Chinchilla have survived and steadfastly grown and developed in stature since settlement by Europeans nearly one and a half centuries ago. Whilst the activity ebbs and wanes with seasonal conditions and commodity prices, progress has been consistent.

As we have seen again recently, mining industries are prone to extreme boom and bust cycles with all the inherent dangers to government and community planning and relationships. Indeed, Warra had a mining boom from 1915 to 1919. We went from one hotel to five, billiard rooms, houses, stores and all that associated with a mining boom town. But then it crashed, and Warra was back to where it began.

The current proposals are far more damaging than the loss of the previous boom times.

This time, the proposals are that the mines destroy the base that sustains the industry in these provincial towns.

In good seasons and boom times, all agricultural land can make an economic return.

In the downturns however, it is the premium areas like Haystack and Jimbour that sustain the towns and the state. Our communities, and indeed the state, cannot afford to unnecessarily sacrifice these perennial production areas that underpin our society for the sake of a one off capital injection and 25 years of royalty injection, royalty that is still available from less productive and less strategically important country. If this eventuates, history will judge harshly those on whose watch these irresponsible (and totally unnecessary) actions were allowed to be perpetuated.

Queensland Deputy Premier Paul Lucas has frequently urged our communities to understand that mining is a temporary industry, and to make preparations for our survival after mining leaves. This cannot be done if the heart of our production systems has been unnecessarily and irresponsibly sacrificed?

Recently, the Qld Motor Traders Assn wrote to the State Government highlighting this issue.

See attachment 1

(e) Deposition of Massive Quantities of Salt in Environment from Coal Seam Methane

Extract from: Management of water produced from coal seam gas production

Queensland Government Discussion paper, May 2009 (attachment 2)

<http://www.dip.qld.gov.au/resources/report/coal-seam-gas-water-discussion-paper.pdf>

Achieving environmentally sustainable outcomes and greater beneficial use of coal seam gas water

Identified concerns

Salinity of CSG water is variable. Total dissolved solids (TDS) values vary from 200 to more than 10 000 milligrams/litre (mg/l). More common TDS values are in the range from 1000–6000 mg/l. (For comparison, good quality drinking water has TDS values of up to 500 mg/l. Some plants are affected by water with TDS as low as 1000 mg/l; and TDS of seawater is about 35 000 mg/l).

Assuming an average salinity of 2500 mg/l, the expected annual production rate of 25 gigalitres (GL) of CSG water in the Surat Basin, will generate 62 500 tonnes of salt per year. Over a 30-year period, this amounts to 1.8 million tonnes of salt. If the industry expands further this volume will increase. A broad estimate of the area required to dispose of CSG water in evaporation ponds, assuming an annual net evaporation rate of one metre and ongoing operations for 30 years, is as follows:

Disposal of an annual volume of 25 GL (the estimated volume resulting from gas production in the Surat Basin for domestic use) in two-metre-deep ponds requires 1250 hectares (ha) in year one and 2500 ha (25 km²) by year 15. If eight-metre-deep ponds are used, 312.5 ha are required in the first year, building up to 25 km² by year 30.

Disposal of an annual volume of 100 GL (based on some estimates of the potential size of a Queensland LNG industry) in two-metre-deep ponds requires 5000 ha in year one, and 10 000 ha (100 km²) by year 15. If 8-metre-deep-ponds are used, initially 1250 ha are required, building up to 100 km² by year 30.

The above estimates are for area only and do not consider design requirements for maximising efficiency of brine concentration, safety, allowance for rainfall, nor maintenance or decommissioning requirements. Exploration activity may also add to the total water produced.

So, the area of evaporation ponds required for disposal of an annual volume of 100 GL of CSG water over 30 years is roughly equivalent to the surface area of Lake Wivenhoe at full supply level. At the end of 30 years, this area could contain up to 7.5 million tonnes of salt.

At a recent meeting with Queensland Gas Company, it was explained that they expect to produce about 2 million tones of salt through the next 20 years.

Their EIS calls for them to:

(a) Sell the salt, or

(b) Place the salt in plastic lined bunkers covered by 1 metre of soil for perpetual safe storage

Given the explosion of dried salt available from capital city desalination plants drawing on ocean water without the possibility of contamination by arsenic and magnesium compounds, plan A (sale) would seem improbable, and their lack of any sales would suggest this is the case.

Plan B has extreme environmental risks. Who is responsible for the maintenance of the bunkers after the miners leave? Particularly given the episodes of great contamination of Central and Northern Queensland rivers over the last two summers, it could reasonably be expected that some of the salt will find its way into the headwaters of the Murray Darling River system.

(f) Depletion of Aquifers due to Water Extraction from CSM

The interconnectivity of our artesian and sub-artesian basins is not well understood, and depletion of water reservoirs that move only metres or kilometers a year will take decades or centuries to have the full effect properly understood. Much of the pastoral industry in Australia relies on these aquifers that sit above the Great Artesian Basin, and we believe the hydrology should be better

See attachment 2 *Management of water produced from coal seam gas production .*
 Queensland Government Discussion paper, May 2009

The unnecessary destruction of the prime farmland such as Haystack Road destroys the production base for the regional communities. The oft touted benefits to rural communities are regularly oversold by those who blindly push mining developments.

When Warra's previous coal mine closed, the farming community carried it through as they did before the mine. If the prime farmland is mined, the local commercial centres will not be able to survive, and when the mines again cease, there will be no industry and no community.

This situation in the Surat Basin heralds the real likelihood that we will go down the path of unfettered mineral development which will destroy our agricultural industries, right at the end of the fossil fuel era and the dawn of understanding the need to protect of our foodbowls.

We are therefore very pleased that the Senate has seen fit to hold this Inquiry, and we look forward to the opportunity to present to the Inquiry should that be requested.

Chair, Haystack Road Coal Committee.