

*most of the time we are informed of projects
first speaker average yield of 2L/s
for bores is misleading. Averages in any
study are misleading.*

Thank you for the opportunity to express my view with regard to the impacts of the proposed Hume Coal Project on our community.

I am a full time resident of the Southern Highlands of NSW and have two commercial water licences with a total capacity of 130 megalitres that draw from the world class aquifer that immediately overlies the coal seam Hume Coal wish to mine. I have invested, like others, substantially in land and infrastructure proximal to the proposed development and have put on hold, also like many other agritourism investors, an already approved dairy and cheesery development in Sutton Forest. The success of this business, like others depends upon water and the security of such a supply to enable us, like others, to provide the 6 million people in the region a rural experience and product. The dairy site is adjacent to three wineries with cellar doors, which are all sustainable agritourism businesses and depend on water and a clean environment to ensure their sustainability. I am also involved in other agritourist activities in the area near to Hume Coal's proposed development which currently brings 150 to 180 bed nights per week to the region.

I am a strong supporter of the mining industry with around 40 years experience in the business, predominantly in mine development and financing. By way of qualification my background includes:

- BSc(hons) Coal Project, MBA
- Supervising Geologist coal operations comprising two underground and six open cut coal mines, Queensland
- Senior Coal Consultant, New Zealand
- Site Management for a greenfields Feasibility Study and Gold mine Development, WA
- Minproc Engineers, Involved at a senior technical level in numerous project evaluations worldwide
- General Manager Development and Director public company – Responsible for development of two mines over a three year period
- Managing Director, public company responsible for formulating the tailings retreatment and potential reopening of Woodlawn Mine, NSW (this now being undertaken by Heron Resources after a corporate take over)
- Ongoing involvement as a consultant with regard to the mine development of a metals project in Eastern Australia

My experience is most relevant in relation to providing a view of the Hume Coal Project. As I said in most instances I am a strong supporter of the mining industry. As a local resident early on I was invited to meet with Hume Coal management due to my significant coal mining, mine development and corporate experience, where I was asked to be on the Community Liaison Committee. Following that discussion and certain concerns I expressed that remained unanswered I declined the opportunity. My concerns remain as follows:

- Firstly, I could not see how the Company could safely mine the coal located beneath a world class aquifer exhibiting extraordinary transmissivities, without the Company;
 - Risking the lives of its personnel; or

BRUCE ROBERTSON (8)

- Pumping the aquifer dry over an increasingly large area as the mine progressed through its 19 year proposed initial mine life. I deemed their development as a threat to sustainable businesses I have invested in. The uniqueness of this aquifer allows me to be licensed to pump 6 litres per second on a continuous basis without impact. The sustainable flow rates are phenomenal. There are operating commercial bores that have much greater sustainable flow rates than ours. This world class aquifer is at risk if mining beneath it was to proceed. There are no other aquifers of such quality that could replace this unique southern highlands water supply.
- Secondly, coal is a commodity. If we consider the competitiveness of this proposed coal operation on the world market then very simply two fundamental parameters allow a coal mine to remain competitive:
 - Mining Method determining percentage of the mineable coal recovered, and
 - Ratio of development tonnes to operational tonnes of coal won.

These two key parameters are totally independent of the quality of the coal when determining mine competitiveness. It does not matter whether it is coking or steaming coal product in terms of where the operation sits on the cost competitiveness curve. Typically coal mining methods and their mine recoveries are as follows:

Mining Method	Mineable Coal Reserve Recovery	Ratio Development Tonnes to Operational Tonnes Mined
Open cut	90-95%	Not applicable
Underground-Longwall	80-85%	Very Low
Underground-Bord and Pillar/Wongawilli	60-66%	Moderate
Pine Feather (Hume)	35%	High

The proposed Pine Feather method is a feasible mining method only if it is considered independent of:

- where the operation sits on the cost curve, as well as
- ignoring environmental, and
- operational risks given the unique hydrological and structural project setting.

The proposed method has no competitive advantage operationally when mining a global commodity such as coal and competing with the rest of the world and hence their unique proposed Pine Feather mining method is by definition economically uncompetitive and therefore unsustainable.

- Thirdly, geological structural considerations are very important in a mine setting such as that proposed by Hume Coal. The Great Dividing Range is an uplifted tectonic regime within which the Hume Coal Project is located. I believe the risks associated with the overlying aquifer within this geological setting have been insufficiently evaluated by Hume Coal. In any coal operation there are zones of structural weakness. Faulting will form conduits to the surface and intersect the aquifer. The project proponent correctly confirms the substantial

hydraulic link between the aquifer and coal seam in various statements, for instance in ES4.9 Subsidence of the EIS as well as when discussing stygofauna under Biodiversity when they state...***"it is unlikely that they(stygofauna) would be restricted to the area affected by drawdown given the high level of groundwater connectivity to adjacent areas."*** Hume Coals study concurs with my concern that where faults intersect the coal seam and are therefore hydraulically linked to the aquifer hydraulic heads of 100-200 PSI will be intersected if the aquifer is not drained. If the aquifer is not drained this may well lead to a situation similar to the Browns Creek Gold Mine (NSW) when at 2.30am on 23 December 1999 a single shot fired (no explosives used in a coal mine) within a drive connected the mine to a large aquifer and 4,000 litres per second of water ingress caused the:

- Mine to shut immediately through flooding with loss of all subsurface infrastructure and mobile equipment; and
- Company to declare bankruptcy.

Thankfully the event happened when minimal workforce (night shift Christmas time) were underground but the mine has never reopened. I view the Hume Coal project as being of identical risk, but worse still is that the project proponent proposes that the work force operates below ~~and~~ the overlying aquifer and down dip of the water and slurry filled workings. By working below slurry filled workings should a major flooding event occur as the mine life progresses then the open mine void at depth is minimal to hold water ingress as the upper workings have been infilled and cemented off, exacerbating the risk to the workforce.

Government approval of such a project could set the mine manager up for criminal conviction should mine flooding trap the workforce with ensuing deaths and no financial recourse to the company which would be immediately placed in bankruptcy by its overseas parent given such an event. The government and community would be left with the site environmental cleanup and memory of deaths from a significant mine catastrophe.

- Fourthly, Hume Coal has been comical in their guarantees of water if the bores of land owners are affected. I am one landowner with 130,000,000 litre annual allocation. The proponents' initial solution was to truck supplies of water to landholders. Assuming a truck holds 30,000 litres and I utilize the annual commercial allocation over a 5 months dry I would require 4,333 truckloads in this timeframe or 866 trucks per month or around 40 trucks each business day. However, I am only one landowner and there are a substantial number of bores affected during the initial proposed 19 year mine life. What if one wishes to irrigate at night to minimise evaporation rates or vary irrigation times from day to day? The Company also said that they would pipe water to landowners. Where is the water coming from and imagine the water pipe network? These poorly thought out solutions proposed to the public over the last few years reflect the substandard technical competence of this project and Hume's own expectation that the project will severely affect the aquifer.
- Fifthly, I expect the mine to be extremely wet, if only in part, but likely throughout given the nature of the sequence and overlying world class aquifer. It is not hard to imagine an a really extensive developed mine with structures connecting to the overlying aquifer having

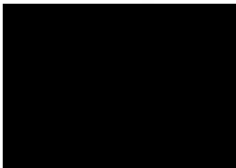
to cope with hundreds if not thousands of litres per second groundwater inflows. I refer to Figure 2.9 p35 of the Executive Summary. From this graph and Section 7.5.1 the average annual supply from groundwater and mine voids is in the order of 440ML/year, equating to 14 litres per second. Given the nature of the overlying aquifer I find this assumption extraordinarily conservative and untested, especially as the mined area below the aquifer approaches plus 20 square kilometres at year 19 of operations, let alone the aquifer drawdown area being much greater than 20 square kilometres. I believe this conservative estimate is misleading and will have a material negative impact and severely underestimate the groundwater contribution to the water balance of the project. Intersecting only one porous fault structure with plus 100 psi head could easily exceed this 14 litres a second conceptual inflow rate. Where is the detailed risk analysis that determines the point at which the project fails environmentally due to water inflows into the mine? How many geological structures of a given flow rate need to be intersected to environmentally critically damage the project? Given the areal extent of the proposed mine it is not hard to see how the mine inflow rate can cause an overwhelming mine water imbalance.

- Lastly under clause 7.5.6 of the report states that *"There are no potential future projects in the planning process that would influence the assessment of the Hume Coal Project in relation to potential groundwater impacts. Therefore, no cumulative groundwater impacts are predicted."* This is factually misleading. Every landholder who relies on the water has a project in place. Although approved by local planning and the DA has been initiated we have placed our dairy and cheesery development on hold until we see what happens to the mine and our much needed water supply which is pivotal to the business. We purchased the land because of the soil and irrigation licence. Ours is one of many local projects that cumulatively outweigh the benefit of a coal mine in the immediate area.

I object to the mine proceeding based upon the proposed unsafe mining environment, damage to the world class aquifer, a flawed conceptual water balance that does not consider all factors, a flawed mining method, insufficient geological structural data to assess operational and environmental risk associated with the project and the devastating impact this coal mine will have on agritourism and thus our greater community.

Yours sincerely,

Bruce Robertson



While threatened terrestrial species, populations and communities were recorded or are predicted to occur in the project and study area, many of these will not be directly impacted by the project. The project's residual direct impacts can be summarised as:

- the clearing of paddock trees, with an effective clearing area (according to the paddock tree calculator) of 8.3 ha of PCT 731 Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion (low condition); and
- the clearing of paddock trees, with an effective clearing area of 8.3 ha, that represent habitat for the Koala, Southern Myotis and Squirrel Glider.

No threatened aquatic species were recorded or are predicted to occur, due to the absence of suitable habitat. No riparian vegetation will be cleared for the project, and waterway crossings will be designed such that fish passage will be maintained and appropriate scour protection measures implemented.

A total of 101 ecosystem credits and 582 species credits are required to offset the above impacts, in accordance with the FBA. A biodiversity offset strategy has been prepared to source and protect suitable offsets within 12 months of project approval that will compensate for these impacts.

One matter for further consideration was identified in the SEARs, namely the Black Gum (*Eucalyptus aggregata*), which is an endangered species and also an endangered population in the Wingecarribee local government area. The project will not directly or indirectly impact the Black Gum species or population.

Potential drawdown impacts have been predicted for terrestrial vegetation along Belanglo Creek and Wells Creek during periods of prolonged drought. The terrestrial vegetation along Belanglo Creek represents potential Koala habitat (listed as a vulnerable species under the TSC and EPBC Acts), and the terrestrial vegetation along Wells Creek represents Southern Highlands Shale Forest and Woodland (listed as an endangered ecological community under the TSC Act, and critically endangered under the EPBC Act). A monitoring and management procedure will be designed and implemented in accordance with the Biodiversity Management Plan (BMP) to be developed for the project.

Potential drawdown impacts were also assessed for Long Swamp and Stingray Swamp in the study area. These form part of Paddys River Swamps, which are listed as nationally important wetlands under the EPBC Act. These swamps are not predicted to be impacted by the project.

Stygofauna have potential to occur in groundwater systems in the area affected by drawdown, however none were recorded in the project area during surveys. However, should Stygofauna be present in the project area, it is unlikely that they would be restricted to the area affected by drawdown given the high level of groundwater connectivity to adjacent areas.

One individual of the family Bathynellidae was recorded in the south of the study area at Hanging Rock Swamp in Penrose State Forest. This known individual was recorded outside the area affected by drawdown and therefore will not be impacted by the project.