

D. WHITE'S NOTES FOR IPC HEARING
at
MOSS VALE SERVICES CLUB
on
26TH February 2019

I would like to thank the Commissioners for the opportunity to speak today. The principal focus of my presentation will be on that part of Hume Coal's mining proposal that says they will place 100% of the waste materials from the Coal Preparation Plant (CPP) into underground openings soon after they are produced.

This is a subject that I do not believe has been adequately addressed either in the Proponent's EIS, in Hume Coal's responses to my objections to the EIS, in the Independent Expert's comments or, ultimately, in the Department of Planning's final summary report. This is despite that fact that, in my view, this aspect of the proposal is as significant a fatal flaw as the regional ground water depletion or the highly questionable "pine feather" mining method.

At first I was very frustrated by this apparent lack of attention to such a "mission critical" aspect of the project plan. However, I have eventually come to the view that this is the result of the lack of exposure by all concerned to underground fill placement systems – both because such systems are non-existent in other coal mines, and also because nobody involved has had much, if any, underground base metal mining experience. This is despite the fact that Hume Coal blithely states in its EIS that such a method is "common practice in the base metals industry"!

Given this situation, I am willing to bet pounds to peanuts that my 40+ years as a mining engineer in the base metals industry (**CV provided**), with considerable exposure to underground fill systems in places like Mount Isa and Cobar, makes me more of an expert on this subject than anyone else currently associated with this project.

I will keep the remainder of my presentation fairly brief as I have been told to assume that the Commissioners have read my objecting submission regarding the Hume Coal EIS, which I have also sent to the IPC. My main points are:-

- I am certain there is not one mine in Australia that places 100% of its waste products underground soon after they are produced. This conclusion is supported by extensive enquiries within the industry;
- There are only two instances where this approach has been considered in coal mines in Australia. One was only for partial placement of CPP waste back underground to reduce truck movements through the local village – the Metropolitan Mine at Helensburgh (and this was only adopted after several years of extensive test work), and the other as an option at Centennial Coal's Lithgow mine, where it was rejected by

a highly reputable engineering firm on the basis of complexity, cost and worker safety (relevant papers already provided to the IPC);

- I have no doubt that any mine that does place a significant quantity of mine waste back underground as fill has the safety net of a tailings dam within their operation. This enables them to dispose of any processed fill material if there is an unexpected interruption to underground placement (which often occurs for a variety of reasons). It also provides an outlet for any portions of the waste stream that must be removed to make the filling system viable from an engineering standpoint – due to factors such as pumpability over long distances, suitability for safe placement in the underground openings, and suitability for timely recovery of sufficient process make-up water (as apparently envisaged by Hume).
- The strong possibility (if not inevitability) of the need for a tailings dam to be located in the Sydney Water Catchment is a significant red flag for this project proposal.
- There is also a high possibility that the proposed filling system will not work at all. What happens then? A mine on care and maintenance while the whole operation is rejigged? Installation of a large tailings dam? Mine closure? In any case, this would create a major environmental and social nightmare.

The following points are only slightly less critical in the overall scheme of things, but still highly concerning and an important element of your final decision regarding this project:-

- The need for large stockpiles of waste is highly likely given that the early production is from high waste content areas and the openings for fill placement will be limited – not dealt with in the Hume EIS;
- The fill process plant is likely to be large and complex creating negative impacts on the project economics and an increased environmental concern;
- Surface water management will be greatly complicated by such large stockpiles and processing facilities;
- There are real questions as to whether fill material can be successfully and continuously pumped for up to 10 km from the fill plant to the placement site;
- There is significant risk of pipe failure in the fill system creating safety hazards and the need to divert fill to a (non-existent) tailings dam;
- The physical placement of fill in headings will be a significant engineering and worker safety challenge given the flow characteristics of both hydraulic and/or paste fill and the proposed mine geometry (expand on this given time);
- There is a high risk of groundwater contamination from additives introduced to the fill before placement;
- The Southern Highlands is a known seismically active area which can cause liquefaction of placed fill and unexpected bulkhead failure;
- The Hume Coal project plan depends heavily on the timely recovery of entrained water from the fill to maintain the CPP operation. This is a highly unlikely prospect proposed mine geometry and the poor percolation characteristics of co-placed mine

fill. Where then do they then get make-up water? Even more groundwater from the aquifer?

In conclusion, I have to say I am highly conflicted in making this presentation. I have been involved in a number of mining project development initiatives over the past 20 years - including the BHP Hartley Platinum project in Zimbabwe, the recently-opened CBH Resources Rasp mine at Broken Hill, the potential rejuvenation of the Malachite Resources Conrad mine on the New England Tableland, and the Argent Minerals Kempfield project near Trunkey Creek in central-west NSW.

I have actually prepared a comprehensive EIS for a State Significant mining development – the Argent Minerals Kempfield Project - in the full expectation that this project would proceed, and that I would be actively involved in its development. Therefore, there is no way I could be considered anti-mining. However, this particular Hume Coal project is the wrong one in the wrong place at the wrong time and, if the Precautionary Principle has any teeth at all, the chances of things going wrong in the fill system (as well as many other areas) are much too high to let it proceed.

I also have to say that, if I was the project development manager for such a project, I would not be willing to recommend to the principal that it proceed unless and until I had a lot more certainty about a wide range of key issues - including the structural geology and the resulting ground water model, the relatively unique mining method being put forward, and the proposed fill placement system with no known precedent and which has a lot of safety and environmental risks attached. I trust the Commissioners, with their obvious experience in the industry, will form a similar view.

Thank you for allowing me the chance to talk to you. If any of the Commissioners have any questions, I would be happy to try to answer them.