



MINUTE

Mine: Hume Coal Project
From: Garvin Burns – Chief Inspector of Mines
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IPC Assessment of Hume Coal Project – Request for additional information

Background

In August 2018, the then Deputy Chief Inspector of Mines provided information to the Department of Planning regarding aspects of the design of the Hume Coal Project. Additional information has been requested by the Independent Planning and Assessment Commission.

The Resources Regulator has expertise regarding risk management practices applied to mining operations and mine subsidence, and this expertise is engaged to ensure the regulator can fulfill its function as prescribed in section 152 of the Work Health and Safety Act 2011 (WHS Act), and in the case of subsidence, specific sections of the Mining Act.

The Resources Regulator, in fulfilling its function, is primarily focused on ensuring mine operators who are undertaking mining activities implement and maintain effective risk controls to reduce the risk to workers as low as reasonably practicable.

1. Comment on the proposed Hume Coal mining method and its safety.

The Pine Feather method has not been previously utilised in NSW, however generally replicates the modern Wongawilli method, with the notable addition of “wing pillars”, and significantly deeper plunges.

While previous advice identified some non-specific work health and safety concerns relating to the proposed mining method, it cannot be inferred that the method is unsafe on the basis it has not been previously applied in NSW, or that Hume Coal cannot or would not implement appropriate controls to manage risks to workers arising from implementing this method of mining.

There is no information contained within the Hume Coal submission which suggests to the Resources Regulator that Hume Coal may not possess the necessary expertise and capacity to identify and implement the required controls to manage these risks.

The use of remote controlled mining equipment offers significant safety advantages to underground workers.

The use of high-precision inertial navigation systems to control mining equipment also offers a level of surety regarding roadway and pillar dimensions being formed to design specification.

The potential for accumulations of flammable methane gas in plunges and the entries to plunges during mining operations will require judicious management of ventilation and ignition sources, however it is noted the in-situ gas content is low within the planned extraction area.

Underground mining has inherent risks, regardless of the extraction method or the mineral being mined. Examples of these relevant to the Hume Coal project include:

- ground and strata failure;
- inrush and inundation;
- airborne contaminants;
- fire and explosion; and
- subsidence

Inherent risk cannot be the sole determinant as to whether a mining operation will be safe or unsafe. Such a determination must be based on the adequacy of risk controls identified in Principal Hazard Management Plans and implemented by the mine operator to manage these risks as low as reasonably practicable.

2. Is the proposed mining method classified as second workings? What implication does this have for Hume Coal?

Parallel drives, or plunges, are considered secondary extraction. This is consistent with the definitions for first workings and secondary extraction applied by the Department of Planning, and the descriptions in Schedule 3, clause 16 of the Work Health and Safety (Mines & Petroleum Sites) Regulation 2014 (WHS(M&PS)R).

The mine operator will be obligated to submit High Risk Activity notifications in accordance with section 33 of the Work Health and Safety (Mines & Petroleum Sites) Act 2013 (WHS(M&PS)A). A notification would typically be submitted prior to the commencement of secondary extraction in each panel.

It is the position of the Resources Regulator that it is not appropriate to make a determination an activity has an unacceptable level of risk, solely on the basis it is a prescribed high risk activity.

Prescribed high risk activities are those undertaken as part of mining operations that the regulator considers have inherent risks requiring specific and comprehensive risk treatments and that have foreseeable consequences, based on historical precedent.

Notification provides the Resources Regulator an opportunity to review proposed risk controls for the activity, and to intervene in a timely manner if a view is formed the identified controls are not adequate to protect workers.

It is not considered such an application has any implications for Hume Coal, apart from the requirement to prepare and submit a notification three months prior to the commencement of extraction, with supporting information as specified in Schedule 3 of the WHS(M&PS)R. This requirement is in place for all existing underground coal operations in NSW, regardless of the secondary extraction method.

This notification would be considered separately to submissions for approval of modified extraction plans, which consider surface subsidence impacts.

3. Hume Coal plan to store coal rejects underground. Are there any locations in the NSW coal industry where this has been carried out? And if so have any problems been encountered and successfully managed?

The storage of rejects has been previously undertaken in underground coal mines in NSW and is routinely done in underground metalliferous mines. The Resources Regulator is not aware of any incidents where workers have been exposed to risk arising from this type of activity in underground coal mines.

4. Hume Coal plan to install a number of bulkheads to contain material and water. We understand this has been done elsewhere in the NSW coal industry. Could you advise whether this has been successful and if the scenario was comparable to what is proposed?

The use of bulkhead seals is prevalent at underground coal mines in NSW. Bulkheads are designed specifically for each application in consideration of static head pressure, the nature of other material that may be deposited behind the structure, and the strata conditions at the location where the bulkhead is to be installed.

5. Advise whether have there been any examples where the structural integrity of the bulkheads has been compromised.

A key aspect of maintaining bulkhead integrity is the competency of surrounding strata, consequently designers must consider the strata conditions at the location of the proposed installation site. Designs are typically certified.

The failure of a bulkhead or seal is not a notifiable incident under the WHS(M&PS)R unless it is associated with an inrush event that causes a risk to workers. The Regulator

has no records of workers being exposed to risk by this type of inrush event being reported from an underground coal mine.

Experienced inspectors within the Resources Regulator cannot recall of significant failure of bulkheads in modern underground coal mines.

Further to this, sealing of panels is defined in the WHS(M&PS)R as a High Risk Activity (unless sealing arrangements are detailed in a secondary extraction notification), and copies of bulkhead designs are required to be provided as supporting documentation to this notification.

- 6. In its Preliminary Assessment, the Department has indicated that “the combination of an untested mining method and an unconventional method of storing large quantities of water underground is likely to result in serious operational safety risks”. This in turn leads the Department to comment that “additional mine water will be transferred to the surface with the need to transfer into watercourses”. In regard to these aspects, comment on the potential impact of information provided in Part 3 – Mining Design (specifically sections 3.2.1, 3.4 and 3.9) in the Hume Coal document received by Commission on 6 March 2019 which is available on the Commissions website.**

The Chief Inspector and Deputy Chief Inspector of Mines have reviewed the sections detailed above, and have no concerns with the veracity of information provided by Hume Coal, however the following should be noted:

- a. plunges are considered secondary extraction.
 - b. comparisons between other mines which utilise, or have utilised 70 degree breakaways are not appropriate, based on the fact plunge depths at these other operations have been significantly shorter. As stated previously in this memo, the use of modern mining equipment with inertial navigation systems will be a key control in maintaining the dimensions of web-pillars to within design widths.
 - c. the Resources Regulator does not agree Professor Galvin’s assertion that the regulator has the “power to prevent the formation of a pillar – if the regulator considers that it presents a serious risk to health or safety of a person”, apparently on the basis that secondary extraction is a high risk activity. This power is conferred by section 153 of the WHS Act, and could be exercised at any time by an inspector who, in considering pillar design or as-mined pillar dimensions, formed a view that workers may be exposed to serious risk.
- 7. With reference to the Hume Coal proposal, to what extent would the inability of the applicant to conduct geological exploration on land not owned by the applicant and within the mining area prevent an acceptable mine plan being developed and implemented?**

The context of “adequate” in this question is not clear. For example, it is outside the remit of the Regulator to consider adequacy of draft mine plans in terms of maximizing resource recovery, or the business inefficiencies inherent with constant changes to a mine plan.

That being the case, the proposed mining method, along with the ability to conduct in-seam exploration drilling, allows flexibility to alter short and long-term mine design, which is not generally available to longwall mines, notwithstanding localised impacts.

Exploration constraints imposed on underground mining operations by land ownership or imposing natural or man-made features, is in no way considered remarkable.