



Mine Name	MineID	Operator	Activity Type	Activity Date
Grosvenor Coal Mine	MI02976	Anglo Coal (Grosvenor Management) Pty Ltd	Investigation - Continued	11/06/2020

*Vision: Our Industries Free of Safety and Health Incidents*

## Mine Record Entry

**This report forms part of the Mine Record under s68 of the Coal Mining Safety and Health Act 1999. It must be placed in one or more conspicuous positions as per s69 of the Coal Mining Safety and Health Act 1999.**

**Note that inspection or audit activities conducted by the Mines Inspectorate are based upon sample techniques. It remains the primary responsibility of Mine Personnel to identify hazards, and risks associated with Operations and ensure those risks are at an acceptable level.**

Today on Thursday 11th June a meeting was conducted in the Grosvenor conference room with myself, Inspector Steven Stook, SSE Trent Griffiths, UMM Wouter Niehaus, and the TSM Logan Mohr. The meeting was requested by myself to discuss the progress of the current incident management and scheduling update meetings for the Inspectorate. This was with regards to the plan and process for the activities to be undertaken to enable the resumption of underground operations due to all persons being withdrawn and excluded from entering the underground workings.

The SSE gave an overview of the power point presentation given to the each of the crews when returning to work. This included specific information on the risk management and implementation of the ventilation changes conducted to mitigate the increasing spontaneous combustion trend in the Longwall 104 goaf. Reference was made to the communication from the IMT minutes from Wednesday 10<sup>th</sup> June 2020 to an incident that occurred post the ventilation change in the early hours of Sunday 7<sup>th</sup> June 2020. The communication included

*On Sunday the 7th of June the decision was made to conduct a major ventilation change (through a detailed ventilation modelling and risk management process) which involved restricting controlled ventilation to the LW104 ventilation circuit to dramatically reduce the pressure across the goaf and in turn, reduce the oxygen ingress to mitigate the accelerated oxidation event in the goaf.*

*This major ventilation change was completed at around 1:15am Monday 8<sup>th</sup> June and the mine is now restricted from any CMW's entering as we monitor the impacts / results of the ventilation change.*

The communication did not detail any of the monitored impacts of the ventilation change specifically the matter reported to the Inspectorate about an ignition of methane at 2:45am Monday 8<sup>th</sup> June in Longwall 104 as analysed by the independent expert used by AngloAmerican. This was discussed at length where spikes of Carbon monoxide and increased pressure were recorded at shaft 9 with the loss of three recently installed tube bundle monitoring points on the Longwall face. There appears to be a lack of clarity on the interpretation of this event, and I requested that the SSE provide the Inspectorate with the detail from the independent expert to clarify the magnitude and interpretation of this event.

The ventilation change also included the Tomlinson boiler injecting inert gas at the borehole GRV004 and the QMRS nitrogen foam generator has been injecting at borehole GRV01.5 which was now blocked after injecting 30kl. This hole was being redrilled with the intention of flushing with a further 30kl which Inspector Stook recommended they consider the impacts of this with

390m of head. The implementation of a second Tomlinson boiler was being undertaken at borehole GRV010 expected to be on line tomorrow.

The total expected impacts of ventilation change have not been seen in the Longwall ventilation split with very little change in the environmental monitoring readings at 3 to 4 cut through in the Tailgate.

The SSE also confirmed that all goaf drainage plant had been shut down on 6<sup>th</sup> June 2020 and bag samples had been taken for these boreholes by gas plant technicians. Due to the large number of samples and activities occurring in this area the ERZ Controllers were now supervising and conducting activities in this area. This would ensure that pressure readings were recorded in these activities.

The SSE also briefed us on the strategies detailed to achieve the objective, *"Identify the source / location of the accelerated oxidation event and implement management strategies to eliminate it."* These strategies were prioritised and some of these have common objectives. The plan for Strategy # 5 - *Strategy of re-entry of mine and re-ventilation - Start scoping potential borehole size and locations for possible re-entry and re-ventilation purposes (and liaise with the Intelligence Team to see if they can be also utilised for tube bundle sampling and inertisation purposes)* was discussed regarding current monitoring capabilities as detailed in Strategy # 1 - *Continue underground environmental monitoring and gas analysis* and Strategy # 2 - *Continue inertisation and monitoring program*. These gas monitoring locations need to be capable of providing a representative analysis of the Longwall ventilation and goaf environment. This is not currently evident as the event on Monday 8<sup>th</sup> June post the ventilation change did not trigger a TARP to indicate this potential. There is also now three less monitoring points since the event.

Having regard to these factors it is my belief that risk from underground coal mining operations is currently not at an acceptable level and that a further risk assessment needs to be undertaken in relation to the effectiveness of the gas sensors in Longwall 104 prior to operations in the mine recommencing. Until such time as I am satisfied that an effective risk assessment has been undertaken, I believe that risk from underground coal mining operations at the Grosvenor Mine remains at an unacceptable level. The risk assessment that is undertaken should have regard to

1. The explosion occurred when none of the gas monitoring devices and data from these indicated that an explosion was imminent.
2. The risk assessment for this identified the risk of an ignition of methane was unlikely.
3. The presence of ignition and fuel sources being capable of creating an explosion did not identify the potential escalation in these matters and subsequent explosion.
4. The subsequent effects of the explosion have rendered some of these gas monitoring devices inoperable to assess the mine atmosphere.
5. The strategy for reventilation and re-entry does not consider the primary function of boreholes for these activities to be for atmospheric monitoring to gain an adequate assessment of the mine and goaf atmosphere.

I believe that risk from coal mining operations is not at an acceptable level at the Grosvenor Mine because on 8 June 2020 at 2:40am an explosion occurred post ventilation change to the ventilation circuit in Longwall 104. The sensors in Longwall 104 had failed to detect that an explosion was imminent and the risk assessment that had been undertaken on 7<sup>th</sup> June 2020 had identified that the risk of methane igniting in Longwall 104 was low and unlikely.

The SSE is directed to suspend operations in all parts of the underground mine workings at Grosvenor underground coal mine until it can be demonstrated that an acceptable level of risk can be achieved for re-ventilation and re-entry operations to be commenced. This will require the implementation of a sufficient gas monitoring points that provide data that indicates that no potential ignition or fuel sources in explosive concentrations are evident in the goaf and mine workings.

Inspector Stook also raised matters relating to Strategy # 4 - *Develop emergency remote sealing strategy* and made reference to a similar process used at another underground coal mine. He advised them to consider the engineering properties of the products to be used and the need to have an engineered rated device.

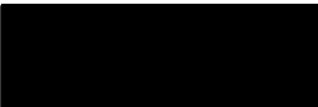


We also further discussed the risk assessment for the exclusion zones at the mine entries that had been implemented at the mine. These were identified to be in accordance with QMRS guidelines for these matters with the exception of the reduction of the zone adjacent to MIA. It was explained that a risk assessment had been conducted to reduce this as the blast zone trajectory was reported not to impact on the MIA due to the position and elevation of this in relation to the mine portal. The UMM also explained that the blast doors were to be closed should a level 3 TARP level occur. The TARP was reported to have been developed from the active goaf TARP which did not include explosibility as this was the identified hazard that the exclusion zones are required to mitigate. This detail was not included in the risk assessment which was required to be reviewed. A section 166 directive was issued to reduce risk to an acceptable level by ensuring that the aforementioned matters were considered in the risk assessment to reduce the exclusion zone defined in the recognised guideline for this matter.

<u>Number</u>	<u>Directive</u>	<u>Due Date</u>
	Pursuant to section 166 of the Coal Mining Safety and Health Act 1999	
<b>1</b>	<b>Blast exclusion zones</b>	<b>13/06/2020</b>
	The SSE is directed to review the risk assessment for the implementation of blast exclusion zones at Grosvenor underground coal mine to ensure that the risk of exposure from any potential projected material is mitigated through the application of adequate controls. This includes the review of the TARP for this matter to ensure adequate trigger points and actions are defined and implemented by the appropriate persons when increases in the risk of an explosion occur,	

<u>Number</u>	<u>Directive</u>	<u>Due Date</u>
	Pursuant to section 167 of the Coal Mining Safety and Health Act 1999	
<b>2</b>	<b>Effective gas monitoring and effective atmospheric representation</b>	<b>14/07/2020</b>
	The SSE is directed to suspend operations in all parts of the underground mine workings at Grosvenor underground coal mine until it can be demonstrated that an acceptable level of risk can be achieved for re-ventilation and re-entry operations to be commenced. This will require the implementation of a sufficient gas monitoring points that provide data that indicates that no potential ignition or fuel sources in explosive concentrations are evident in the goaf and mine workings.	

***Please provide a written status report on each Directive together with the actions taken to address each item by their due dates***

  
**Shaún Dobson**  
 Lead Investigator  
 Deputy Chief Inspector of Coal  
 Mines

**Steven Stook**  
 Inspector of Mines