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| Mine Name | Mine ID | Operator | Activity Type | Region | Activity Date |
| Grosvenor Coal Mine | M102976  | Anglo Coal (Grosvenor Management) Pty Ltd | Inspection | Central | 21/09/2016 |

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 the Mine Record and displayed on Safety Notice Boards.

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.

Site Safety & Health Reps Consulted: Jason Horne

On Wednesday 21st and Thursday 22nd September 2016, I conducted an inspection and assisted in an ongoing investigation at Grosvenor underground coal mine. I was accompanied by Inspector of Mines Jacqui Vinnicombe who was conducting a review on site to examine geotechnical aspects of the current investigation into the recent strata failures. Inspector Vinnicombe will be issuing a separate Mine Record Entry detailing the inspection findings from the areas examined in the underground where failures occurred and her investigation findings. This MRE will detail my activities and findings.

1.0 Opening meeting

An opening meeting was conducted with the SSE Wayne Bull and the UMM Richard

Livingstone Blevins where we explained the purpose of our inspection and requested several documents

## 2.0 Surface activities

Inspector Vinnicombe then left to discuss the content of documents previously provided with the relevant Technical services personnel. 

I attended the pre-start briefing for the oncoming production shift and received a copy of the shift plan. The information was concise and it was also noted that the Continuous mine drivers and Shearer drivers attended this meeting.

After the meeting concluded I examined a number of plans/reports in the meeting room. The weekly bag sampling record had a large number of bag samples not recorded as being taken on the given dates. This will be discussed further at the close out meeting.

The pre-start meeting for the production crew had commenced in the muster area where all activities on the plan were discussed. Respirable dust monitoring was also being undertaken this shift and persons were being fitted with monitors. This was detailed in the plan, however this stated that this was for a minimum of 4 hours. AS 2985 the Australian Standard: Workplace atmospheres- Method for sampling and gravimetric determination of respirable dust. Section 8.3 Sampling clearly defines this expectation — Unless special circumstances dictate otherwise, sampling times should be as long as is reasonably practicable (not less than 4h) and should be representative of the working periods of individuals exposed . The expectations of this monitoring procedure need to be defined to ensure that all coal mine workers are aware of this and do not think that they only have to wear a monitor for 4 hours.

The incident on the previous day shift where a coal mine worker had squashed his fingers was also mentioned.

The TARP board was displaying the following TARP levels reported:

* Level 1 : < 60% CH4 Surface goaf wells
* Level 1 : > 100ppm MGIOI 23 c/t seal
* Level 2: MG 102 belt clip
* Level 2: > 2.5% CH4 LW Return - spikes shearer in TG.

I then examined a number of statutory reports and conveyor inspection reports. These had been generally completed to an acceptable standard however a number critical matters were not being included in some of the reports. The following matters were noted and will be discussed further at the close out meeting:

* No Stonedust application rate on some Longwall reports.
* TARP levels triggered by tell-tale movement not recorded on the statutory report.
* Action taken to dilute CH4 to an acceptable level on the Longwall. No record of the unacceptable level or resultant level or the actions implemented.
* MGIOI — Fines build up at 8 c/t tripper. No record of the actions implemented to correct
* LTA clearance at MG 101 trippers return rollers. No detail of why this is LTA and the record of the actions implemented to correct this.

There were a number of examples where the detailed reporting of hazards was noted for senior and oncoming officials, and oncoming coal mine workers who needed to be aware of these matters:

* Longwall - Cavity at MG #3 -#4
* Longwall — Faults and greasybacks at 53 - 54, 63 - 64, 59, 73, 56 — 65, throws up to 300 mm. Greasybacks - 109, 45 - 47, 40 — 42.
* Longwall — Reviewed Dust TARP.
* Development — JSA in place for Backspooling.
* Longwall — BSL tight along chain pillar rib.

The electronic notice board also included the bonus scheme for the mine. This showed the monthly bonus payment that had been achieved for each individual underground coal mine worker. However it stated that there were "Safety penalties" within this for the "monthly production incentives" . This will be discussed further at the close out meeting.

The SSHR monthly inspection report from an inspection conducted in the Longwall on



05/09/16 was sighted. This stated that "Dust increased immensely during production " and Canopy sprays not in use. Had been turned off manually. Dust suppression at crusher and bootend ok

3.0 Underground inspection of Longwall 101

The Inspectors travelled underground accompanied by UMM Bull, Technical Services Superintendent Malcolm Smyth and Geotechnical Engineer Andrew Seccombe.

The surface of the roads travelled was acceptable as was the appearance of the application of incombustible matter. Statutory inspection boards noted in the districts inspected were compliant.

The Longwall had just passed 19 c/t where a substantial bag stopping had been erected and we entered the conveyor road via the last open cut through at 18 c/t. I raised the matter of the process for erecting seals, moving monitors and the timing of these matters. UMM Bull explained that these were done by a permit system which was issued with the ERZ Controllers daily plan. We discussed the timing of mitigating the risk of Spontaneous combustion in the Longwall goaf by ensuring that these seals were installed in an adequate timeframe. UMM Bull explained that the mine were monitoring the effects of abutment loading as well to determine an appropriate timing of seal construction to mitigate the effects of leakage from damage to seals due to abutment loading. He committed to review this matter and include this with a trigger for ensuring seals were installed in an adequate timeframe to mitigate this risk.

We travelled inbye to the Longwall from the last open cut through and minimal visible airborne dust could be seen from here to the BSL. All cross over sprays, bootend and BSL hood sprays were operating with no impacts/ increase to visible dust being evident. Signage at the BSL was posted requiring persons to contact the Maingate before proceeding, and compliance to this procedure was observed.

At the Maingate drive sprays were operating on the turnaround/AFC side discharge area and no increase in the visible dust in the ventilation stream was observed at the Maingate. The Shearer was at the Tailgate end of the face cutting towards the Tailgate. A canopy spray was operating at #20 shield.

We traveled through the face on the front walkway/pontoons due to weighting on the face and a lack of height enabling the rear walkway to be used. The canopy sprags were deployed throughout the face and UMM Bull informed me that the cut height had been reduced to mitigate the hazard of face slabbing. Good housekeeping standards were being maintained for the Shields with minimal dust on the walkways. However the presence of airborne dust in the ventilation stream was clearly visible with this make increasing as we progressed to the Tailgate.

When approaching the Shearer the Shearer driver and Shield operator were noted to be operating in positions that kept them out of the dust make generated from Shield and Shearer operations. I observed the Shearer cutting in Bi - Di cutting mode whilst cutting towards the Tailgate and completing the double shuffle where the operators maintained this discipline throughout these cutting operations.

I discussed with the ERZ Controller what pre-start checks were undertaken for dust suppression equipment. He informed that this was done by the window crew whose ERZ Controller then informed him of the status of these matters. All dust suppression equipment on the Shearer was operating as required. The Shearer had recently had "Chock washer" fitted as a trial to assist with the housekeeping of the shields. This had just been changed onto the Maingate end of the Shearer and was not operating with the same efficiency as it had whilst on the Tailgate end. The ERZ Controller committed to investigate this at the first opportunity.

I then discussed with the ERZ Controller the environmental conditions on the Longwall with regards to recent Methane issues on the Longwall. He explained about the use of brattice wings to control the methane in the Tailgate drive area and the use of goaf wells at 50 metre spacings in the Tailgate to assist in reducing the general body methane make. I asked if he had inspected the Tailgate which he confirmed and provided his personal gas monitor readings for the Tailgate Generat body from his earlier inspection which was as follows:

* Methane - 1.75%
* Oxygen — 20.1%
* Carbon Monoxide — Ippm  Hydrogen Sulphide — Ippm  Nitrogen Dioxide — 0.1 ppm
* Ventilation quantity — 82 m3/s
* Ventilation velocity — 5.5 m/s

He then took a reading at the rear of Tailgate drive

* Methane — 0.2%
* Oxygen — 20.1%
* Nil other gases detected

Outbye of the Tailgate drive I asked him to measure the ventilation velocity which was 6.1 m/s.

Visible dust that was apparent in the general ventilation stream whilst coal cutting activities were being undertaken appeared visibly excessive and this was still the case when operations stopped due to an outbye conveyor issue. This is a visible comparison to other conventional Longwall operations which have returned compliant personal monitoring samples. I was not surprised by this given the excessive ventilation velocity of 6.1 m/s on the Longwall face. In other operations these velocities are rarely in excess of 3 m/s.

This was compounded by the lack of canopy sprays that were not working. When travelling back through the face it was noted that only the one at #20 shield was operational and these were supposed to be operating on every 20th shield, therefore 6 sprays were not operating. This was discussed on the face, and the window crews ERZ Controller had reported the only sprays working were at #20, #40, & #60 shields. A commitment was made to have all of these made operational immediately. It was believed that these were not operating due to blocked filters which was even more astounding as these are mounted in the rear of the shields and could be worked on at any time whilst production is ongoing. No one was observed working on these prior to this.

Work orders are issued for all these matters and I requested copies of these to discuss further at the close out meeting.

4.0 Close out meetinq

We returned to site the following day to conduct a close out meeting and were firstly provided with a number of documents previously requested. These were reviewed and further information was sought.

I raised with the SSE information displayed on the TV screen at the turnstiles where this displayed the following information:

## HPH's YTD 12

HPI Free day's YTD 108

LEG. HPI Free day's YTD 5

This was explained as by the Anglo reporting metrics. I asked for the information relating to the reported HPH's and was given a summary sheet. This will be reviewed and further information may be sought outside of this MRE.

I discussed the issue with regards to the use of "Safety penalties" in the monthly bonus scheme. When reading this it could be inferred that penalties could be applied for safety performance or reporting of incidents/accidents. SSE Bull explained that this was not the intent and the penalties were imposed for not reporting of matters such as equipment damage. He then got HR Superintendent Matt Norris to explain this process. Mr Norris explained that these penalties were based on equipment damage, incident reporting, and lead and lag indicators. Safety penalties were applied when persons have not reported any of these matters or when a person has been deemed to have deliberately committed damage, not accidentally. I asked if this was in a procedure to ensure that coal mine workers understood this so that this did not create a culture of non-reporting. Mr Norris explained that this was a Policy, but it was not documented. I recommended that this Policy needs to be documented and communicated to all coal mine workers to prevent any misinterpretation.

I then discussed with SSE Bull the matter of acknowledging corrective actions on Statutory and conveyor inspection reports as a number of issues were highlighted, however some were not. The SSE explained that all matters on the Statutory reports are actioned by the Shift Undermanager who enters these in Enablon. These and the conveyor inspection reports are then reviewed by the relevant staff responsible for these areas. We discussed the matters with regards to the conveyor inspection reports where the following was noted over the last month;

* MGIOI — Fines build up at 8 c/t tripper.
* LTA clearance at MG 101 trippers return rollers.

There was only one record of cleaning taking place and no record of the actions implemented to correct this. There was also no detail of why the LTA clearance was an issue and any records of the actions implemented to correct this. SSE Bull and I then spoke to persons responsible for these areas who explained the process for these defects. This however had not prevented the hazards from recurring i.e. A weekly work order for hosing down the tripper drive areas. It would be reasonable to expect that a person who is responsible for monitoring for defects which are continually occurring would have increased the frequency of the corrective action required from the reporting. SSE Bull committed to have this immediately addressed.

I reviewed the gas alarm log in the control room where all alarms had been acknowledged. was also provided with the goafstream analysis trends that had been analysed by an independent consultant for this matter. There were no indicators that abnormal oxidation was occurring from these results.

We commenced the close out meeting which was attended by SSE Bull, UMM Richard

Livingstone Blevins, Production Manager Tim Reeves, and Technical Services

Superintendent Malcolm Smyth. Inspector Vinnicombe included the detail of the geotechnical aspects of this activity in her MRE.

I raised the issue of the lack of detail on ERZ Controllers statutory report for critical matters and the recording of corrective actions taken for hazards identified. The lack of recording of stonedust application rates, lack of recording of what unacceptable levels of methane were found, and not recording TARP for tell-tale movement when these have been triggered are unacceptable. The failure to complete all sections of the weekly check sheet for bag samples was also discussed where 38 of these samples had not been recorded as being taken. A SCP was issued to improve the recording of matters relevant to Regulations 308, 309 and Schedule 5. These matters are imperative to demonstrate that the magnitude of these hazards is communicated to all coal mine workers and that controls are in place to mitigate the potential from these hazards.

We further discussed the methane makes for the Longwall tailgate and I was provided with the trends dating back to 17/08/16 as there had been a number of trips at the Tailgate drive in early September that had resulted in delays that were up to 1.25 hours. I acknowledged that these items were being captured on statutory reports, however it was not evident what further actions had been implemented with regards to the increasing number of these events and actions taken by senior persons when increased TARP levels are activated. The strategy for understanding the methane makes produced from the first Longwall was not clear. However SSE Bull informed that a weekly ventilation review process had been initiated yesterday with regards to these matters. This included all Longwall ventilation matters and a review of the Longwall Active goaf TARP and Sealing TARPS was scheduled to occur mid-October.

I then raised the issues found with regards to the control of respirable dust on the Longwall. The use of the work order system was in place where a work order 00092538 for Equipment LWMGIOI was provided for Longwall operational Dust & Fl checks from the day shift and night shift for the last 24 hours. These both had a Longwall operational dust control checklist attached which had been completed, signed off as complete, and reported on the statutory report as "Fl Checks completed during window" . These are comprehensive checklists however neither of these were complete and also included defective items. 23 items were not recorded as checked(17 n/s & 6 d/s) with front canopy sprays not identified as operational on both shifts(4 n/s & 4 d/s), these appeared to be the same sprays which were identified as needing the filters cleaning out. It was apparent from this and making reference to the TARP for this matter that these controls were not being effectively implemented. This was also evident from the inspection. A SCP was issued to ensure that all persons who are responsible for ensuring these checks are carried out to the standard required to mitigate the production of respirable dust have been trained and deemed competent to ensure these checks are completed correctly in accordance with the TARP metrics for these matters.

The TARP for Longwall Respirable dust & Frictional Ignition was then discussed as the actions required with some of the metrics do not give clear defined actions as to the additional controls or actions that are required to be implemented. The level 2 response actions for an ERZ Controllers are to "Consider through risk management (JSA) what further controls need to be put in place to mitigate dust generation and inhalation". These controls should have been clearly defined with regards to the magnitude of the hazard that is present. This does not also consider how the risk profile of respirable dust exposure increases where a number of "Zone" controls are at an increased trigger level. The interpretation of "Ensure repairs are conducted as soon as possible" does not appear to be understood as per the previous issue with canopy sprays. A Directive is issued to review the TARP for Longwall Respirable dust & Frictional Ignition to define the aforementioned items and other metrics to ensure the implementation of direct corrective actions. This includes ensuring all persons with obligations under this procedure are trained, assessed and deemed competent in the application of their accountabilities.

I raised the use of dust control by defining operational positioning procedures. I was informed that the Longwall has "No go zone procedures for all operators". I explained that there is a difference in these two requirements where the operator positioning requirements need to be developed for all operational sequences and all reasonably foreseeable variations in operating sequences. The sister mine of Moranbah North has developed these which are currently being refined. These need to be developed for Grosvenor. A SCP was issued to develop these.

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| Number | Substandard Condition or Practice | Due Date |
| I | Reporting of Hazards and matters to maintain statutory | 14/10/2016 |

compliance.

To improve the recording of matters on statutory and conveyor inspection reports relevant to Regulations 308, 309 and Schedule 5. This shall require that the reporting of hazards and controls implemented has been effectively documented and is communicated to all coal mine workers.

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| Number | Substandard Condition or Practice | Due Date |
| 2 | Pre-start dust suppression checks | 14/10/2016 |

To ensure that all persons who are responsible for ensuring that the pre-start dust suppression checks as detailed in the work order checklist are carried out to the standard required to mitigate the production of respirable dust. This will require all coal mine workers with obligations for these matters have been trained and deemed competent to ensure these checks are completed correctly in accordance with the TARP metrics for these matters.

 Number Substandard Condition or Practice Due Date

3 Operational positioning procedures for mitigating exposure to 14/10/2016 respirable dust

To develop and implement operator positioning requirements for all coal cutting operational sequences and all reasonably foreseeable variations in these operating sequences. This shall also require that all coal mine workers are trained, assessed, and deemed competent in the application of this procedure.

Number Directive Due Date

Pursuant to section 168 of the Coal Mining Safety and Health Act 1999

##  4 Respirable dust TARP 14/10/2016

To review the TARP for Longwall Respirable dust & Frictional Ignition to ensure that this clearly defines the actions and the additional controls that are required to be implemented to mitigate the increase in risk due to failing controls that are creating an increase in the identified hazard. This requires that these metrics have the implementation of direct defined corrective actions that reduce this exposure. This shall include ensuring all persons with obligations under this procedure are trained, assessed and deemed competent in the application of their accountabilities.

Number Recommendation Due Date

5 The reporting of Safety incidents and the impact on Safety NIA performance.

To document and communicate the Mine Management's interpretation of the use of "Safety penalties" in the monthly bonus scheme. This should leave no doubt in the minds and actions of all coal mine workers as to the expectations of reporting and what a "Safety penalty" is to prevent any misinterpretation and the potential to create a non - reporting culture.

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| --- | --- |
| Shaun Dobson | Jacqui Vinnicombe |
| Inspector of Mines | Inspector of Mines (Mining) |
| Central Region | Southern Region |

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