1. **DATE: 30/01/2019 TIME: 5:33pm LOCATION: MG104 C Hdg 26-27ct**

Made By: W. Niehaus Company Position: UMM

Made To: Richard Gouldstone Time: 6:43pm Date:30/01/2019

Made To: Steve Woods Time: 8:27pm Date:30/01/2019

An incident occurred in MG104 Development Panel on the 30th of January at 5:33pm.

The Continuous Miner was producing in C Hdg 26-27ct with the face at 99m from the last open ct. A floor heave event occurred releasing CH4 gas into working face in MG104. The Gas release event caused the Continuous Miner to trip power on the GB gas sensor and the development crew withdrew from the area.

Hand held Gas Detector at the continuous miner recorded peak readings of 5% CH4.

The outbye general body gas sensor at the dogleg read a peak of 0.45% CH4.

The internal Methane monitors in the Auxiliary fans recorded peak readings of 2.36% and 2.97% CH4 respectively. Ventilation at working face with both aux fans running was 30m3sec

*The area has been quarantined with mining operations suspended until the investigation has been completed*.

*Once Investigation has been completed the findings and actions will be communicated prior to mining operations recommencing*

1. **DATE: 17/02/2019 TIME: 12:45pm LOCATION: MG104 C Hdg 27-28ct**

Made By: W. Niehaus Company Position: UMM

Made To: Neville Atkinson Time: 3:05pm Date:17/02/2019

Made To: Jason Hill Time: 3:28pm Date:17/02/2019

Made To: Les Marlborough Time: 3:11pm Date 17/02/2019

An incident occurred in MG104 Development Panel on the 17th of February at 12:45pm.

The Continuous Miner was producing in C Hdg 27-28ct with the face at 188m from the last open ct. A floor heave event occurred releasing CH4 gas into working face in MG104. The Gas release event caused the Continuous Miner to trip power on the GB gas sensor and the development crew withdrew from the area.

Hand held Gas Detector at the continuous miner recorded peak readings of 3.1 and 1.9% CH4.

The outbye general body gas sensor at the dogleg read a peak of 0.43% CH4.

The internal Methane monitors in the Auxiliary fans recorded peak readings of 3.3% and 2.2% CH4 respectively. Ventilation at working face with both aux fans running was 28m3sec

*The area has been quarantined with mining operations suspended until the investigation has been completed*

1. **DATE: 18/03/2019 TIME 2:35pm LOCATION: LW103 return sensors**

Made By: Wouter Niehaus Company Position: UMM

Made To: Les Marlborough Time: 2:59pm Date:18/03/2019

Made To: Jason Hill Time: 3:01pm Date:18/03/2019

At 2:25pm the shearer was cutting out the TG to shield #130 at this time a goaf fall occurred flushing between the TG shield and the installed support in the TG. This fall restricted ventilation flow across the LW face and resulted in the goaf gasses flushing into the roadway. The ventilation was restored when the restriction was cleared by the shearer and gas levels returned to normal background levels.

As per the attached graphs the CH4 readings in the TG recorded 2.57% CH4 on the inbye sensor and 2.71% on the outbye sensor in the LW TG

*OTHER INFORMATION/DETAIL:*

*Citect Graphs showing Production and Gas Information leading up to event. Clear indication of the ventilation restriction in the LW return resulting in the increased CH4 levels*

*Peak at Inbye Sensor 2.57% CH4 at 2:34pm*

*Peak at Outbye Dogleg Sensor 2.71% CH4 at 2:56pm*

1. **DATE: 21/03/2019 TIME 5:17am LOCATION: LW103 return sensors**

Made By: Wouter Niehaus Company Position: UMM

Made To: Les Marlborough Time: 10:10am Date:21/03/2019

Made To: Jason Hill Time: 10:15am Date:21/03/2019

At approximately 5:04am the shearer had cut out the TG area and was parked at shield #129. While advancing the TG shields stone rilled in from above shield #149 and closed off the face ventilation. The resulting restriction in the face ventilation and the scouring of the goaf resulted in the goaf gasses flushing into the roadway.

As per the attached graphs the CH4 readings in the TG recorded 2.62% CH4 on the inbye sensor and 2.85% on the outbye sensor in the LW TG.

*OTHER INFORMATION/DETAIL:*

*Citect Graphs showing Production and Gas Information leading up to event. Clear indication of the ventilation restriction in the LW return resulting in the increased CH4 levels*

*Peak at Inbye Sensor 2.62% CH4 at 5:17am*

*Peak at Outbye Dogleg Sensor 2.85% CH4 at 5:32am*

*LW103 is currently Retreating past LW102 Install face and as a result encountering a Super Stress Notch*

1. **DATE: 5/04/2019 TIME 3:30am LOCATION: LW103 return sensors**

Made By: Wouter Niehaus Company Position: UMM

Made To: Paul Brown Time: 6:48am Date:5/04/2019

Made To: Jason Hill Time: 7:56am Date:5/04/2019

At approximately 3:30am stone rilled in from above shield #149 and partially closed off the LW103 face ventilation. The resulting restriction in the face ventilation and the scouring of the goaf resulted in the goaf gasses flushing into the roadway. As per the attached graphs the CH4 readings in the TG recorded 2.63% CH4 on the inbye sensor and 2.86% on the outbye sensor in the LW TG. The LW panel has been on Maintenance for the preceding 24hrs due to a Tripper Drive removal on LW103 panel belt. A Ventilation change was completed on Thursday the 4th of April to reduce the TG Gas concentration. Current Face location is CH 2600m. At the time of the incident CMW’s were installing Standing support outbye of the LW face in the TG roadway and were withdrawn from the roadway to a safe place.

1. **DATE: 20/04/2019 TIME: 4:02pm LOCATION: LW103**

Made By: Trent Griffiths Company Position: SSE

Made To: Peter Herbert Time: 5:16pm Date:20/04/2019

Made To: Stephen Woods Time: 5:21pm Date:20/04/2019

At around 3:47pm the shearer on the LW103 face was stopped at 126 roof support travelling to the MG (cutting bidirectional) due to the requirement to manually advance the TG gate end shields due to some deteriorated TG roadway conditions. The methane levels at this point in time in the LW TG Return were 1.82% at the inbye monitor (located approximately 400 metres outbye of the face) and 2.10% on the outbye monitor (at B3-B4).

When the TG gate end roof supports were lowered, advanced and set, combined with the goaf flushing in; resulted in a peak of 2.23% at the inbye methane monitor and subsequently 2.50% on the outbye monitor (which tripped power to the shearer as per the General Body TARP requirements) approximately 13 minutes later. The methane levels at this monitor were 2.5% for approximately 1 minute. Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

 *Production was stopped until detailed analysis was undertaken to assess the event including 12 hour and 4 hour trending of barometric pressure, shearer speed, shearer position, TG drive methane monitor, shearer methane monitor, MG drive methane monitor, inbye TG methane monitor, outbye (B3-B4 TG103) methane monitor and the TG gate end shield movements.*

*After analysing this data and in consultation with the Undermanager and LW Electrical Coordinator (with the LW103 face ERZ Controller), arrived at the conclusion that the spike on the inbye TG methane monitor (then subsequently the B3-B4 sensor around 13 minutes later due to the time taken to travel the length of the TG roadway) was a result of the TG gate end shields movement and subsequent goaf flushing.*

*No further changes made to the ventilation, goaf management or gas monitoring controls. Note that the next goaf well to come on line is approximately 21 metres behind the current face position and is expected to come online in the next 5-8 shears which will provide additional goaf drainage capacity.*

*Note the purple trend line highlighted in the red area in Figure 1 and 2 below indicates the 149 roof support DA ram stroke (showing direct relationship to roof support movement and then inbye sensor “spike”).*

1. **DATE: 21/04/2019 TIME: 3:07pm LOCATION: LW103**

Made By: Trent Griffiths Company Position: SSE

Made To: Peter Herbert Time: 5:15pm Date:21/04/2019

Made To: Stephen Woods Time: 5:27pm Date:21/04/2019

The shearer on the LW103 face had been stopped at 90 roof support travelling to the TG (cutting bi-directional) since 12:25pm whilst the preliminary investigation was underway on the exceedance that occurred at 12:40pm when the outbye (B3-B4) monitor reached 2.50% for approximately 2 minutes.

However despite no production for over two hours, at 2:42pm the inbye methane monitor (located approximately 200 metres outbye of the face) began to increase from 1.83%. At 3:01pm the flow on the TG goaf well (GR03L002 – located around 30 metres inbye the face that came online the previous night shift) dropped significantly from 1,100l/s for reasons unknown. At 3:05pm the inbye methane monitor peaked at 2.29% and then at 3:18pm (takes around 13 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.67% and tripped power to the shearer (as per the TARP requirements). The methane levels at the outbye monitor were 2.5% or greater for approximately 53 minutes.

At 3:47pm the TG goaf well GR03L002 flow rate increased back to around 1,000l/s. Suction was then reported on the MG goaf well GR03V051A at around 4:00pm and the inbye methane monitor decreased back down to 1.83% and stabilised. Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*Production had been stopped for over two hours due to the initial exceedance at 12:40pm with detailed analysis being undertaken to assess the initial event including 12 hour and 4 hour trending of barometric pressure, shearer speed, shearer position, TG drive methane monitor, shearer methane monitor, MG drive methane monitor, inbye TG methane monitor, outbye (B3-B4 TG103) methane monitor and goaf drainage system.*

*Goaf was behaving well as expected with no flushing observable past 149 roof support. Face conditions were good with no additional floor heave observable in the tailgate roadway and no evidence of any “methane blowers” out of the floor along the face or TG roadway area. Only other task being conducted of note between the two exceedances were some roof supports were advanced further (“double chocked) to avoid face strata deterioration around 130-133 roof supports and also 99-124.*

*Incident Management Team (IMT) activated as per the General Body TARP with key stakeholders to review current controls and propose additional controls prior to recommencing production after the two exceedances at 12:40pm and 3:07pm. IMT concluded and short term additional controls implemented including further reduction of shearer speeds (down to 10m/min in either direction) before SSE giving permission for production to recommence.*

1. **DATE: 21/04/2019 TIME: 12:40pm LOCATION: LW103**

Made By: Trent Griffiths Company Position: SSE

Made To: Peter Herbert Time: 5:15pm Date:21/04/2019

Made To: Stephen Woods Time: 5:27pm Date:21/04/2019

At around 12:04pm the shearer on the LW103 face was stopped at 83 roof support travelling to the TG (cutting bidirectional) due to methane levels in the TG exceeding 2.0% (which stops shearer haulage). At this point in time the inbye TG methane monitor (located approximately 200 metres outbye of the face) was 2.0% and the outbye (B3-B4) monitor was 2.38%. Production then resumed at 12:22pm once the inbye methane monitor fell below 2.0%. At 12:23pm the flow on the TG goaf well (GR03L002 – located around 30 metres inbye the face that came online the previous night shift) dropped significantly from 1,100l/s for reasons unknown. At 12:25pm despite the shearer only travelling 7 roof supports the inbye methane monitor climbed again to in excess of 2.0% thus tripping the shearer haulage again at 90 roof support. At 12:27pm the inbye methane monitor peaked at 2.20% and then at 12:40pm (takes around 13 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.50% and tripped power to the shearer (as per the TARP requirements). The methane levels at the outbye monitor were 2.5% for approximately 2 minutes. Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*Production was stopped until detailed analysis was undertaken to assess the event including 12 hour and 4 hour trending of barometric pressure, shearer speed, shearer position, TG drive methane monitor, shearer methane monitor, MG drive methane monitor, inbye TG methane monitor, outbye (B3-B4 TG103) methane monitor and goaf drainage system.*

*Goaf was behaving well as expected with no flushing observable past 149 roof support. Face conditions were good with no additional floor heave observable in the tailgate roadway and no evidence of any “methane blowers” out of the floor along the face or TG roadway area.*

*Incident Management Team (IMT) activated as per the General Body TARP with key stakeholders to review current controls and propose additional controls prior to recommencing production.*

1. **DATE: 22/04/2019 TIME: 11:00pm LOCATION: LW103**

Made By: Trent Griffiths Company Position: SSE

Made To: Peter Herbert Time: 7:04am Date:23/04/2019

Made To: Stephen Woods Time: 7:07am Date:23/04/2019

The shearer on the LW103 face was travelling to the TG (cutting bi-directional) during some challenging strata conditions (where a cavity existed on the face from approximately 119 to 127 roof support, when at 10:40pm whilst the shearer was at 117 roof support the inbye methane monitor in the TG roadway (located approximately 200 metres outbye of the face) reached 2.0% and tripped the shearer haulage (as per the TARP). The inbye methane monitor however continued to increase peaking at 2.22% at 10:49pm.

Subsequently around 13 minutes after the inbye monitor started to rise, (as it takes around 13 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.55% at 11:00pm. The methane levels at the outbye monitor were 2.5% or greater for approximately 5 minutes.

Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*Despite further shearer speed reduction to 10m/min in both directions that were made after*

*the 2 x exceedances on the 21/4/19, there has been 2 x further exceedances both when the shearer was cutting MG to TG through the cavity area around 119 to 127 roof support.*

*After this latest exceedance at 11:00pm, production was stopped until detailed analysis was undertaken to assess the event including 12 hour and 4 hour trending of barometric pressure, shearer speed, shearer position, TG drive methane monitor, shearer methane monitor, MG drive methane monitor, inbye TG methane monitor, outbye (B3-B4 TG103) methane monitor, roof support movements, roof support leg pressure and goaf drainage system.*

*In particular, understanding what is the “limit” the inbye methane monitor can be to reduce the risk of a further gas exceedance in the TG roadway induced when the shearer moves through the cavity area.*

*Face conditions were good other than the area from around 119 to 127 roof support where the cavity was being managed. No additional floor heave observable in the tailgate roadway and no evidence of any “methane blowers” out of the floor along the face or TG roadway area.*

*Incident Management Team (IMT) activated as per the General Body TARP with key stakeholders to review current controls and propose additional controls prior to recommencing production. Production was stopped until the inbye methane monitor decreased to 1.70% to allow shearer to safely cut out the TG and close the face up around the cavity.*

*Production profile then amended to Uni Di to help manage gas emissions when cutting MG to TG through the cavity area. As of end of night shift, two shears had been successfully completed through the cavity area with no abnormal strata deterioration from the Uni Di cut process.*

1. **DATE: 22/04/2019 TIME: 11:44am LOCATION: LW103**

Made By: Trent Griffiths Company Position: SSE

Made To: Peter Herbert Time: 4:28pm Date:22/04/2019

Made To: Stephen Woods Time: 4:41pm Date:22/04/2019

The shearer on the LW103 face was travelling to the TG (cutting bi-directional) during some challenging strata conditions (where a cavity had started to form on the face from approximately 119 to 127 roof support, when at 11:40am the inbye methane monitor in the TG roadway (located approximately 200 metres outbye of the face) reached 2.0% and tripped the shearer haulage (as per the TARP). Material had rilled onto the sloughing plate on top of the shearer creating slight restriction across the face. As roof supports were being brought in over the top of the shearer through the deteriorated roof area, the inbye methane monitor climbed rapidly to peak at 2.68% at 11:44am. The methane levels at the inbye monitor were 2.5% or greater for approximately 7 minutes.

Subsequently 13 minutes after the inbye monitor started to rapidly rise, (as it takes around 13 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.97% at 11:57am. The methane levels at the outbye monitor were 2.5% or greater for approximately 33 minutes.

Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

 *Prior to the cavity forming from 119 to 127 roof support the additional controls implemented after the 2 x exceedances on Sunday the 21st of April of further shearer speed reduction to 10m/min in both directions were sound as the methane levels in the TG 103 roadway on the inbye methane monitor were kept under 2.05% and the outbye methane monitor under 2.37% (as presented and discussed in the IMT meeting at 7:30am Monday 22nd of May).*

*After today’s exceedance, production was stopped until detailed analysis was undertaken to assess the event including 12 hour and 4 hour trending of barometric pressure, shearer speed, shearer position, TG drive methane monitor, shearer methane monitor, MG drive methane monitor, inbye TG methane monitor, outbye (B3-B4 TG103) methane monitor, roof support movements, roof support leg pressure and goaf drainage system.*

*Face conditions were good other than the area from around 119 to 127 roof support which had started to deteriorate. No additional floor heave observable in the tailgate roadway and no evidence of any “methane blowers” out of the floor along the face or TG roadway area.*

*Incident Management Team (IMT) activated as per the General Body TARP with key stakeholders to review current controls and propose additional controls prior to recommencing production.*

1. **DATE: 24/04/2019 TIME 3:25am LOCATION: LW103 return sensors**

Made By: Wouter Niehaus Company Position: UMM

Made To: Paul Brown Time: 1:50pm Date:24/04/2019

Made To: Stephen Woods Time: 2:20pm Date:24/04/2019

The shearer on the LW103 face was travelling to the TG (cutting Uni‐directional). The shearer was stopped at

#109 roof support due to the inbye methane monitor in the TG roadway (located approximately 200 metres outbye of the face) reading greater than 1.8% methane. The shearer speed was controlled manually due to the Uni‐Di cutting sequence and at the time the shearer was doing the flit run from MG to TG.

At 3:13am the shearer reached #145 support and the inbye TG sensor increased to 2.36%, at this point the shearer haulage was stopped automatically.

At 3:25am the outbye CH4 sensor peaked at 2.51% CH4 and remained above 2.5% for 40 seconds. Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*Despite further shearer speed reduction to 10m/min in both directions that were made after the 2 x exceedances on the 21/4/19, there has been 2 x further exceedances both when the shearer was cutting MG to TG through the cavity area around 119 to 127 roof support.*

*After the exceedance on the 23/04/19, production was stopped until detailed analysis was undertaken to assess the event including 12 hour and 4 hour trending of barometric pressure, shearer speed, shearer position, TG drive methane monitor, shearer methane monitor, MG drive methane monitor, inbye TG methane monitor, outbye (B3‐B4 TG103) methane monitor, roof support movements, roof support leg pressure and goaf drainage system.*

*In particular, understanding what is the “limit” the inbye methane monitor can be to reduce the risk of a further gas exceedance in the TG roadway induced when the shearer moves through the cavity area.*

*Face conditions were good other than the area from around 115 to 120 and 134 to 140 roof support where the cavity was being managed. No additional floor heave observable in the tailgate roadway and no evidence of any “methane blowers” out of the floor along the face or TG roadway area.*

*Incident Management Team (IMT) activated as per the General Body TARP with key stakeholders to review current controls and propose additional controls prior to recommencing production. Production was stopped until the inbye methane monitor decreased to 1.70% to allow shearer to safely cut out the TG and close the face up around the cavity.*

*Production profile then amended to Uni Di to help manage gas emissions when cutting MG to TG through the cavity area. Prior to this event 9 shears had been successfully completed through the cavity area with no abnormal strata deterioration from the Uni Di cut process.*

1. **DATE: 31/05/2019 TIME 11:50pm LOCATION: LW103 TG area and return roadway**

Made By: Wouter Niehaus Company Position: UMM

Made To: Paul Brown Time: 9:22am Date:1/06/2019

Made To: Stephen Woods Time: 9:32am Date:1/06/2019

• Approximately 11:50pm 31/05/19, a cavity formed over shields 142 to 149, creating a significant blockage to the TG airway

• Airway restriction resulted in significant gas being expelled into the TG return, creating elevated CH4 levels

• Production was halted, and investigation/remediation plans initiated

*OTHER INFORMATION/DETAIL:*

*• IMT formed and action plan generated to re-establish airway*

*• WRAC completed before using shearer to cut away fall material to open up airway, to dilute TG gas levels • Once air-way re-established, changed out real time sensors and consolidating the TG block corner with PUR*

*• Ventilation was restored at 7:20pm 2/06/19 and all sensors were replaced and return to normal functions.*

1. **DATE: 3/06/2019 TIME 3:26am LOCATION: LW103 TG area and return roadway**

Made By: Wouter Niehaus Company Position: UMM

Made To: Paul Brown Time: 9:03am Date:3/06/2019

Made To: Stephen Woods Time: 9:00am Date:3/06/2019

• Approximately 3:26am 3/06/19, a cavity formed over shields 142 to 149, creating a significant blockage to the TG airway

• Airway restriction resulted in significant gas being expelled into the TG return, creating elevated CH4 levels

• Production was halted, and investigation/remediation plans initiated

*OTHER INFORMATION/DETAIL:*

*• All required persons notified.*

*• WRAC reviewed from previous event over the weekend for using shearer to cut away fall material to open up airway, to dilute TG gas levels*

*• Once air-way re-established, investigate the reliability of the TG real time sensors and review plan to consolidating the TG block corner with PUR*

*• Ventilation was restored at 8:00am 3/06/19 and all sensors were returned to normal functions.*

1. **DATE: 5/06/2019 TIME 8:03am LOCATION: LW103 TG area and return roadway**

Made By: Wouter Niehaus Company Position: UMM

Made To: Paul Brown Time: 9:20am Date:5/06/2019

Made To: Stephen Woods Time: 10:340am Date:5/06/2019

• Approximately 8:03am 5/06/19, a cavity formed over shields the TG shields (predominantly #142 to #149), creating a significant blockage to the TG airway

• Airway restriction resulted in gas being expelled into the TG return, creating elevated CH4 levels

• Production was halted, and investigation/remediation plans initiated. The production activities on the LW was directly actioned to establish roof control in the TG area.

*OTHER INFORMATION/DETAIL:*

*• All required persons notified.*

*• WRAC reviewed from previous event over the weekend for using shearer to cut away fall material to open up airway, to dilute TG gas levels*

*• Once air-way re-established, investigate the reliability of the TG real time sensors and review plan to consolidating the TG block corner with PUR. This process has been ongoing for the past several days and controls reviewed after every event to ensure effectiveness has been maintained.*

1. **DATE: 5/06/2019 TIME 8:47m LOCATION: LW103 TG area and return roadway**

Made By: Wouter Niehaus Company Position: UMM

Made To: Paul Brown Time: 4:44pm Date:6/06/2019

Made To: Stephen Woods Time: 4:49pm Date:6/06/2019

• Approximately 8:47pm 5/06/19, whilst pumping cavity fill material in the TG of LW103. The air path in the LW ventilation circuit was restricted. The a cavity over shields 142 to 149, creating a significant blockage to the TG airway and some of the ventilation was passing over the shields through the void above the shields.

• The Air path restriction resulted in significant gas being expelled into the TG return, creating elevated CH4 levels

• No Production activities were being undertaken at the time of the incident and only strata control activities were undertaken at this time.

• No prior indications were observed that the air path was reducing and activities were stopped once the change was noticed.

*OTHER INFORMATION/DETAIL:*

*• All required persons notified.*

*• Power was removed from the LW equipment action taken to increase ventilation in the LW circuit.*

*• Ventilation was restored at 8:00am 3/06/19 and all sensors were returned to normal functions.*

1. **DATE: 12/06/2019 TIME: 03:02pm LOCATION: LW103 TG area and return roadway**

Made By: Stephen Bullough Company Position: Compliance Superintendent

Made To: Paul Brown Time: 4.23pm, message on phone. Paul rang back 4.29pm Date:12/06/2019

Made To: Stephen Woods Time: 4.25pm, message on phone Date:12/06/2019

The shearer on the LW103 face was travelling to the TG (cutting bi-directional), when at 2:52pm whilst the shearer was at 113 roof support, the inbye methane monitor in the TG roadway (located approximately 70 metres outbye of the face) reached 2.2% and tripped the shearer haulage (as per the TARP). The inbye methane monitor however continued to increase peaking at 2.35% at 2:54pm.

Subsequently around 8 minutes after the inbye monitor started to rise, (as it takes around 8 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.53% at 03:02pm. The methane levels at the outbye monitor were 2.5% or greater for approximately 3 minutes.

Reported panel ventilation reduced 8m3/s from prior day shift readings. The goaf had flushed in to rear of 149 roof support and across to the adjacent rib.

Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*The CH4 shearer slow function worked as intended and slowed the shearer from 2:37pm at 57 roof support when the inbye shearer CH4 sensor located at CH1900 (Face at CH1970 at time of event) reached 2.0%.*

*The CH4 shearer halt function worked as intended and stopped the shearer at 2:52pm at 113 roof support when the inbye shearer CH4 sensor located at CH1900 (Face at CH1970 at time of event) reached 2.2%.*

*Production recommenced after gaining permission at 4:30pm 12/6/19 and CH4 levels stabilised below 2%.*

*The barometer prior to the event was trending down and reached 991hPa at 2:45pm, the minimum for the 12-hour period. Production recommenced as the barometer was beginning to rise.*

*Face conditions were not affected by cavities or strata deformation at the time of the event*

1. **DATE: 15/06/2019 TIME: 03:31pm LOCATION: LW103 TG area and return roadway**

Made By: Trent Griffiths Company Position: Site Senior Executive

Made To: Mick Scully Time: 4:03pm Date:15/06/2019

Made To: Stephen Woods Time: 4:11pm Date:15/06/2019

The shearer on the LW103 face was travelling to the TG (cutting bi-directional), when at 3:20pm the shearer was paused at 135 roof support due to the methane levels on the inbye monitor exceeding 1.7%. Whilst the shearer was still parked at 135 roof support the inbye methane monitor in the TG roadway (located approximately 200 metres outbye of the face) reached 2.07%.

Subsequently around 9 minutes after the inbye monitor started to rise, (as it takes around 9 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.53% at 03:31pm due to a variance between the inbye and outbye monitors of around 0.46%. The methane levels at the outbye monitor were 2.5% or greater for approximately 3 minutes.

Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*The shearer halt function at 115 roof support when the inbye shearer CH4 monitor located around 200 metres outbye of the face reaches 1.90% in this situation was not adequate due to the variance between the inbye and outbye TG methane monitors increasing up to 0.46%.*

*Face conditions were not affected by cavities or strata deformation at the time of the event. Goaf drainage system operating at maximum capacity with no issues identified.*

*Incident Management Team formed post event and both the inbye and outbye methane monitors were recalibrated using the same calibration gas cylinder. Variance reduced to around 0.25% (which is historically acceptable on a falling barometer with impact of the adjacent goaf emissions into the TG roadway).*

*Short term controls implemented (above the General Body TARP requirements) to reduce the shearer halt function at 115 roof support when the inbye shearer CH4 monitor reaches 1.80% (along with 30% speed reduction when inbye monitor exceeds 1.8% with shearer halt at 2.0% - irrespective of shearer face position) and will be reviewed in follow up IMT meeting on Monday 17/6/19 after further data analysis.*

1. **DATE: 22/06/2019 TIME: 03:15pm LOCATION: LW103 TG area and return roadway**

Made By: Trent Griffiths Company Position: Site Senior Executive

Made To: Stephen Smith Time: 3:39pm Date:22/06/2019

Made To: Stephen Woods Time: 3:45pm Date:22/06/2019

The shearer on the LW103 face had just cut out the TG for the first time (cutting bi-directional) and was at approximately 130 roof support, when at 2:38pm a cavity had begun to form at around 148 and 149 roof support resulting in a sudden spike of methane over the TG drive from 1.0% to exceeding 2.0% and dropping face power.

Power was restored to the face and at around 3:10pm the gate end shields were advanced to try and close the TG end of the face up as much as possible. As soon as these shields were advanced, with the shearer still positioned at approximately 130 roof support, a plug of methane was scoured from the goaf behind the TG roof supports resulting in an increase on the inbye TG methane monitor from 1.70% to 2.72%. The methane levels at the inbye monitor were 2.5% or greater for approximately 7 minutes.

Subsequently around 10 minutes after the inbye monitor started to rise, (as it takes around 10 minutes for contaminants to travel the length of the TG roadway) the outbye methane monitor peaked at 2.69% at 03:25pm. The methane levels at the outbye monitor were 2.5% or greater for approximately 9 minutes.

Notifications made, preliminary investigation conducted.

*OTHER INFORMATION/DETAIL:*

*All current General Body TARP controls (shearer slow down by 30% when inbye monitor exceeds 2.0% and shearer halt when inbye monitor exceeds 2.20%) are working to an acceptable level including the PLC controlled shearer halt function that restricts the movement of the shearer past 115 roof support calculated back from the variance between the inbye / outbye monitors and the last 6 hours of data of the inbye monitor “increase” from the shearer movement into the TG roadway.*

*Unfortunately the position of the shearer at around 130 roof support coupled with the deterioration of the roof at 148 and 149 roof support and gate end shield movements made it difficult to minimise the sudden scouring of methane from the goaf behind the TG gate end supports. Short term whilst managing the cavity in front of 148 and 149 roof supports, we will endeavour to move the shearer further to the MG before advancing the TG gate end shields to avoid restricting / amending the ventilation path further (and risk of goaf methane scouring).*

On 15 Jun 2019, at 7:53 am, BROWN Paul (Mines) <Paul.Brown2@dnrme.qld.gov.au> wrote:

This message originated outside Anglo American

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Thank you Trent, acknowledging receiving your form 1A.

Setting aside a number of other exceedances that have recently involved cavities spalling material causing significant ventilation restrictions and changes, taking a closer look at this exceedance are you satisfied your thresholds (trigger points) are set to the correct levels?

I understand they have worked as intended however you have still had an exceedance and the flow on effect being downtime (1.5hrs) waiting for it to reduce to below 2%.

I am not saying you should be slowing the shearer speed over the whole cut cycle (in this case would make no difference) but should you consider reducing the trigger points to avoid reaching the 2.5% and therefore reducing your exposure to this risk and potential downtime.

What if the shearer slow function activated below 2.0%, I’m not going to suggest a value but if it activated earlier would it prevent some of your exceedances? Are your triggers linked to a falling barometer? Have you adapted your cut rate to suit the Diurnal periods? Is your reduced shearer speed with the current trigger points still too quick?

Extract from form 1A

The CH4 shearer slow function worked as intended and slowed the shearer from 2:37pm at

57 roof support when the inbye shearer CH4 sensor located at CH1900 (Face at CH1970 at

time of event) reached 2.0%.

The CH4 shearer halt function worked as intended and stopped the shearer at 2:52pm at 113

roof support when the inbye shearer CH4 sensor located at CH1900 (Face at CH1970 at

time of event) reached 2.2%.

Production recommenced after gaining permission at 4:30pm 12/6/19 and CH4 levels

stabilised below 2%.

If you don’t believe it would make any difference with any changes to your trigger points or reduced shearer speed and you would still have the same exceedance and downtime, what work is being done to increase your goaf drainage?

I understand Grasstree is pulling in excess of 14000lt/sec and still having to slow the shearer at times. I do understand there is also a balance to consider with increasing your risk of spon com by increasing your goaf drainage but on a falling barometer and shearer heading toward the TG goaf fringe is overtaking you.

Within the next couple of weeks, can you provide me with a response as to what is the strategy going forward to reduce your exposure to exceedances at Grosvenor please. Please CC in Regional Inspector Peter Herbert into this response.

Regards

<image002.png>

Paul Brown

Inspector of Mines

Mines Inspectorate | Resources Safety and Health

Department of Natural Resources, Mines and Energy

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P: 0476836045

E: Paul.Brown2@dnrme.qld.gov.au

A: Level 5, 44 Nelson Street, Mackay QLD 4740 | PO BOX 1801

W: www.dnrme.qld.gov.au

From: Griffiths, Trent [mailto:Trent.Griffiths@angloamerican.com]

Sent: Saturday, 15 June 2019 8:01 AM

To: BROWN Paul (Mines) <Paul.Brown2@dnrme.qld.gov.au>

Cc: Niehaus, Wouter <Wouter.Niehaus@angloamerican.com>; HERBERT Peter <Peter.Herbert@dnrme.qld.gov.au>

Subject: Re: FORM 1A Notice of Confirmation\_12.06.2019\_1502\_Hours\_LW103 TG CH4 Exceedance

Paul,

Some great questions, appreciate the feedback.

Will send through response next week.

Regards,

Trent Griffiths

Site Senior Executive

General Manager

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A member of the Anglo American plc group

**From Incident Report 6th May 2020**

Longwall Production Crew — Commenced work activities in LW104

• Dropping rocks off the roof supports

• Trying to get tips up to get the shearer underneath TG roof supports

• Turned shearer on at #139 roof support at 10:48

• Operating the roof supports at the TG end of the face in particular from

#140 to #149 shields to improve clearance to allow the shearer to pass

Undermanager arrives at longwall face. Conditions noted during inspection (from post event statement):

• Goaf was right at back of #149 roof support

Cavity was from #144-149 and had not propagated into roadway

General Body gas at TG Drive was 0.6% CH4

1.4% CH4 at around midface in rear walkway

IN DIRECT OPPOSITION THAT IT IS SUDDEN FALLS IN TAILGATE OF GOAF THAT CAUSES ELEVATED METHANE

• Roof was heavy in TG roadway

Duster was running approximately 10m outbye of face

A lot of buildup (of material) at TG Drive from cavity

Venturi running at — #90 roof support and also one running in TG Drive area

Butcher's flaps in front of legs of TG roof supports

Shearer at #145 roof support. Crew trying to get tip of #145 up

Deputy contacted Longwall Coordinator to update on the plan and organize three prop setters and a chain saw down to last open cut through (35c/t) in case required to assist in getting tips up.

Deputy and Undermanager returned to TG end of face and communicated plan to crew.

Shortly after, advanced past #145 roof support and cut into tailgate and back out.

Pushed TG and advanced roof supports.

Got tips up on #145 and #146 roof support

Shearer stopped at #120 roof support.

Crew working on double chocking roof supports from #125 to #138. Material observed dropping from above the roof support.

Deputy walked to Maingate to contact Longwall Coordinator and advise that pumping was not required.

Sequence of Events for roof support movements over an approximate 44 second period (as recorded from the Joy PRS Data System):

• PRSI 37 Adjacent advance

• PRS137 Adjacent set

• PRS137 Adjacent sprag set

• PRS137 Tip up

PRS136 sprag Extended

PRS136 Adjacent advance.

PRS136 Tip Down (note — button press for 0.1 second only)

WHEN THE IGNITION OCCURRED TIP DOWN OPERATES 0.1SEC