Newton, Bayda

From: Schiefelbein, Kelvin
Sent: Friday, 22 November 2019 10:31 AM
To: Confidential
Cc: Wynn, Damien; Newton, Bayda; McNally, Tim
Subject: MRE response ISHR inspection
Attachments: 22.11.19 MRE Response - Kelvin Schiefelbein - ISHR Inspection of Single Entry 909 on 1-11-19 - Issued 15-11-19.docx

Regards,

Kelvin Schiefelbein
Underground Mine Manager
AngloAmerican 100 YEARS
E Confidential
D
M

COAL
GRASSTREE MINE
Private Mail Bag, Middlemount, Qld, 4746
Australia
T Confidential
www.angloamerican.com.au
A member of the Anglo American plc group

METALLURGICAL COAL

Anglo American Metallurgical Coal Pty Ltd

Kelvin Schiefelbein.
Underground Mine Manager - Grasstree Mine
Private Mail Bag
MIDDLEMOUNT QLD 4746
E: Confidential
P:
M:

Stephan Woods,
Industry Safety and Health Representative
CFMEU
PO Box 508,
Spring Hill, QLD 4004

22 November 2019

Dear Stephen,

Thanks for your inspection of the 1/11/19, and for the following inquiries of the 15/11/19.

Many of these matters were already raised and discussed on the day of the inspection, but for the point of the record, please find a written response.

I will address your enquires item by Item below.

Item 1

1. Why was the incident on 30th October, 2019, involving the withdrawal of coalmine workers from the 909MG single entry and the rest of the mine to places of safety, not reported to ISHR's or inspectors as per notification provisions under s198(1) & (2)(b) of the CMSHA?

TARP TRIGGER UNDER MINE VENTILATION TARP TARP.001.PHMP.GTM.006
LOSS OF FANS AT SHAFT 7 ONLY TRIGGERS YELLOW TARP. GAS LEVELS ON ANY SENSOR DID NOT REQUIRE WITHDRAWL UNDER TARP. BASED ON CURRENT INVESTIGATION RESULTS NO FORMAL TRIGGER OCCURRED THAT REQUIRED WITHDRAWAL

It is the practice of the mine to withdraw personnel in the single entry to a place of safety which is out-bye of any hazard that is identified, and remain there in the panel (part of the mine) until the hazard is remedied.

- The people withdrawn do not leave the panel (single entry).
- They remain in the panel (single entry) to remedy the situation.
    - In some cases they withdraw to out-bye of water, or abnormal loads.
    - In this case they have withdrawn to the commencement of the single entry
        - This is the same as when people withdraw to the start of single entry in a development section when the auxiliary fan fails.
    - A risk management principle of single entry work is that all CMWs deal with hazards from the out-bye position.

<u>These matters are not reported to the ISHR or Inspectors as the personnel are not withdrawn from the panel (part of the mine)</u> and therefore a "High Potential Incident of a type prescribed by regulations (CMSHA s198(1) & (2)(b)" has not occurred.

AngloAmerican

Schedule 1C Types of high potential incidents for section 198(2)(b) of the Act

section 13

1 an unplanned ignition of gas, dust, or a combination of gas and dust

2 the spontaneous combustion of coal or other material in an underground mine

3 the entrapment of a person

4 an electric shock to a person

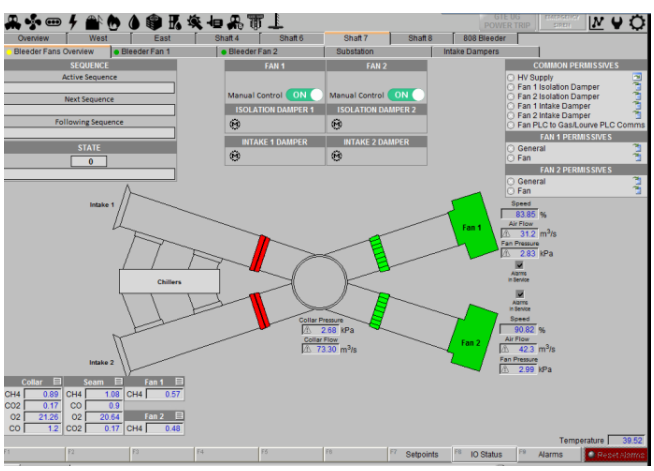
5 an unplanned event causing the withdrawal of a person from the mine or part of the mine

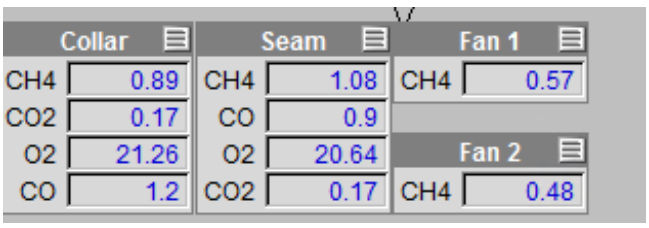
Item 2

2. The Single Entry MP requires the shaft 7 fans to trip at 2%. Why did they not trip on the 30th if the methane sensor at the base of shaft 7 reached above 2%?

The fans set up on the surface are set up to allow for dilution at the collar of the shaft. This means that air passing through the fan is diluted with surface airflow (approximate dilution is 40%).

Gas sensors on the intake side of the fan are set to trip at 2% in compliance with the management plan and risk assessment covering the operation of this fan. This trigger level was not reached during the restarting of the fans on the 30th/10/2019.





Screen shot 17/11/19 showing relative ratios of collar, seam, and fan concentrations.

Item 3

> 3. What is the risk management principle for the requirement in the MP for shaft 7 fans to trip at 2% methane?

Shaft 7 ventilates the single entry of LW909 and for practical purposes is treated as a device to provide auxiliary ventilation to this single entry.

The trip set points established for the Shaft 7 fans are set to comply with the requirements for the establishment of an auxiliary fan as per section 231 of CMSHR's.

Item 4

> 4. Could you please forward a copy of the initial investigation report, and the formal investigation LFI, that involved the withdrawal of coal mine workers incident on 30th October, 2019?

Yes a copy of an investigation LFI (when completed) will be forwarded. At this point in time the investigation is still in progress. The investigation is centered on the over-ride of a methane sensor on the man transporter and not upon a withdrawal. (as per item 1)

Item 5

> 5. We previously raised the complaint of the operation of mobile plant in high methane with the methanometer bypassed during withdrawal from 909MG. Could you please forward us the results of your investigation into this matter?

As per item 4, we are conducting an investigation into this matter.

Item 6

> 6. How does the 909MG single entry comply with s296(2) of the CMSHR if there is not two escapeways or a refuge?

As the 909MG Single Entry is a “Single Entry” CMSHR s 296(3)(b) applies. E.g. The requirements for two escapeways (s296 (2) does not apply)

Division 4 Escapeways and refuges

296 Escapeways

(1) The site senior executive for an underground mine must ensure the mine has at least 2 trafficable entrances (***escapeways***) from the surface that are separated in a way that prevents any reasonably foreseeable event happening in 1 of the escapeways affecting the ability of persons to escape through the other escapeway.

(2) The site senior executive must also ensure each ERZ1 at the mine where a person works has 2 escapeways leading to the surface or a refuge.

Current as at 1 September 2017 Page 209

Authorised by the Parliamentary Counsel

Coal Mining Safety and Health Regulation 2017
Chapter 4 Underground mines

[s 297]

(3) Subsection (2) does not apply to an ERZ1—

(a) where an inspection is being carried out under the mine’s safety and health management system and no-one else is working; or

(b) in a single entry drive or shaft that is being sunk.

Item 7

7. In the event of loss of the single escapeway in the 909MG single entry, how is aided escape provided for in the SHMS via shaft 7?

As noted during discussions, this would constitute an emergency situation.

The primary means of escape is that of any single entry in the mine. (Early warning and timely response)
Emergency pods and communications have been positioned and are routinely checked.
A Zero tolerance to risks which may cause a loss of access is applied, and CMW’s are required to withdraw out bye of any hazards should they arise.
CMW’s in the single entry are to complete familiarization before commenting work in the single entry.
Regarding shaft 7 - Under the Grasstree Emergency Management Procedure: A FARP (first

action response plan) has been developed to describe how aided escape could occur should this eventuality arise.
An exercise was conducted - a Dry Run mobilization of a crane was conducted, to ensure the potential of this alternative for aided escape was verified.

- A crane with suitable rope length to reach the bottom of the shaft
- An man riding basket
- Additional provisions are installed and routinely checked.

Grasstree mine still requires all underground coal mine workers self-escape as per industry norms.
Item 8

> 8. The scope in the "MP.GTM.007 Single-Entry Drive Created by Longwall Retreat" does not include development mining. Is this document going to be reviewed prior to development mining in 909MG?

Yes the document is reviewed for development mining in MG909. There have been a number of risk assessments / consultation meetings already.

Item 9

> 9. It was mentioned that a recent Level 2 exercise was conducted that involved the 909MG single entry. Could you please provide the report?

Yes a Level 2 exercise was conducted in 2018 to verify and validate the training and provisions in the single entry.
We will forward you a copy in due course.

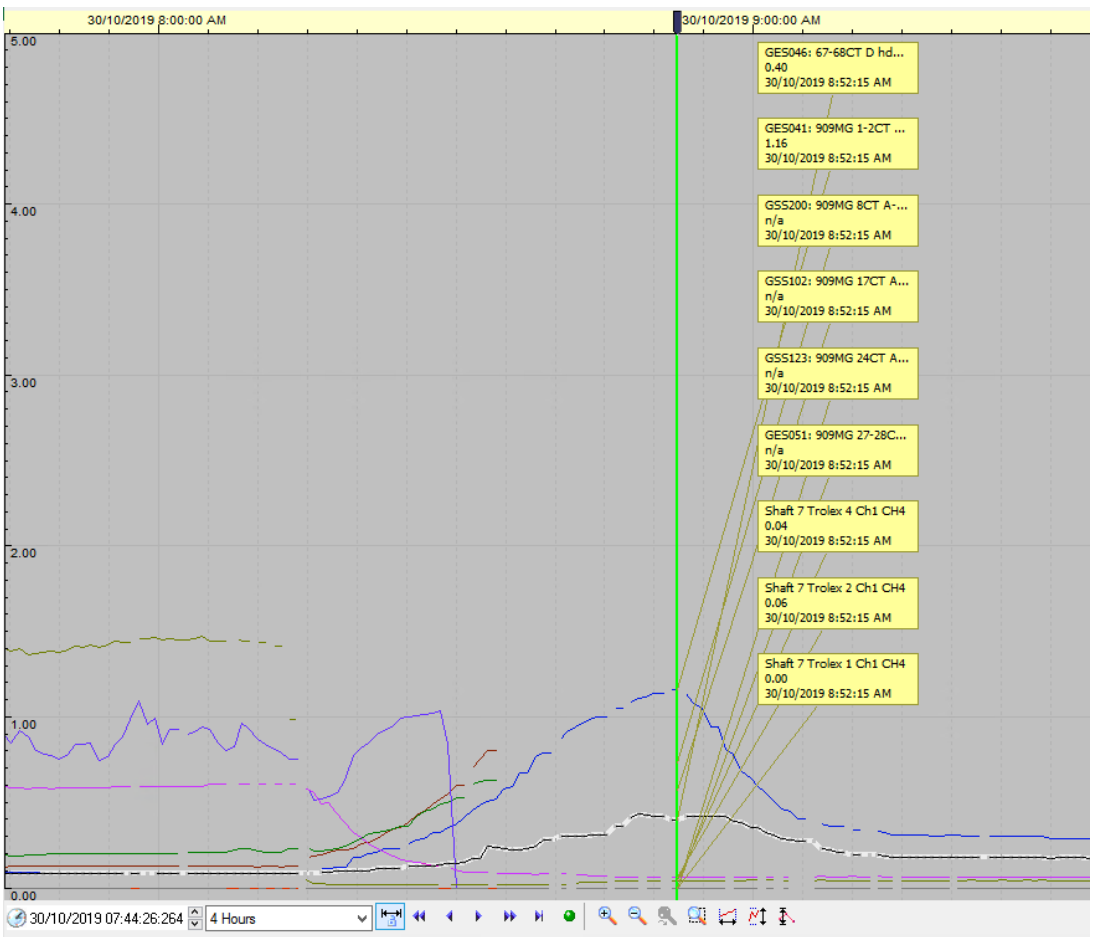
Item 10

> 10. During failure of the shaft 7 fan, the air reverses with methane concentrations above 1.25%. This prevents the primary escape way from being trafficable using mechanised equipment. How does this comply with section 298(2) of the CMSHR?

Development work in the panel requires gas levels to be below 1.25% for power to be applied. In this case while development operations are being undertaken roadway would be compliant as a primary egress.

As discussed during your visit the gas concentration recorded during the ventilation reversal was found to be peaked 1.16% and around 0.6% after stabilizing. (eg less than 1.25%)

Also regulation 298 (2) removes the requirement for mechanized travel in workings being driven in either single or two heading developments.



Item 11

> 11. Has any modelling been done to determine how long it takes for the environment to become irrespirable due to total loss of ventilation?

The ventilation arrangement has been determined by risk assessment to achieve the reasonable and acceptable situation by allowing the single entry to down cast due to fan failure. This keeps the roadway ventilated.

After the ventilation reverses and stabilizes, the gas concentration reduces to lower than previously observed as the goaf seals tend to breathe inwards towards the goaf due to the pressure change. E.g. the pressure on the goaf seals is reversed and fails to safety when down casting.

Should the single entry become unventilated due to a total strata failure then this is a different matter and would be the same in any other part of the mine. A total failure of ventilation is a serious matter. Emergency procedures would be undertaken, and an increased number of SCSRs could be utilized to enable personnel to go to the bleeder shaft where they could seek aided escape.

Limit	Goaf Drainage status	Time (h)
Time to reach 5% CH4	ON	3.30
	OFF	0.28
Time to reach 15% O2	ON	22.53
	OFF	1.93

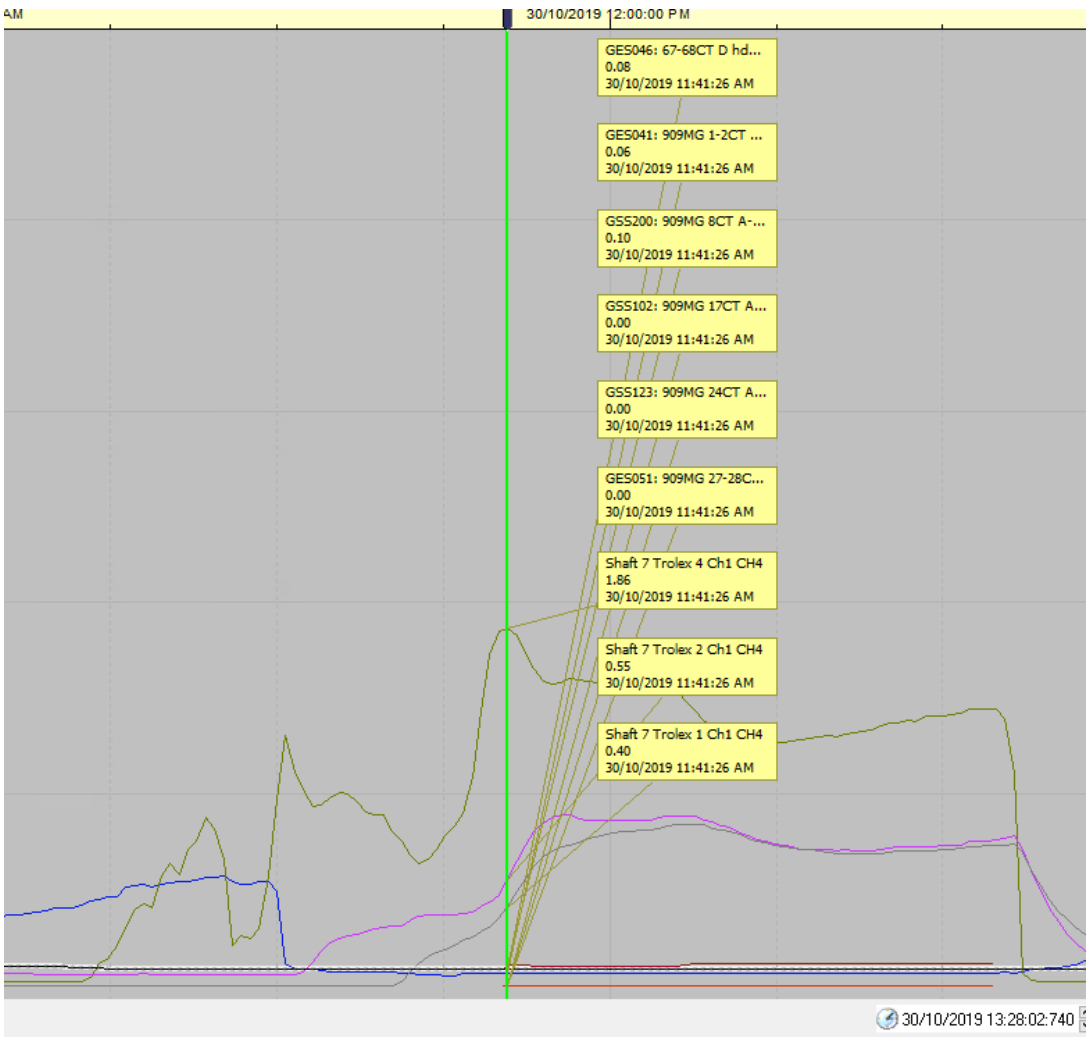
Conservative modelling numbers indicate the following time thresholds would apply to the single entry. It should be noted that these calculations do not take into account the barometric effect associated with turning the fans off and this would add a substantial amount more time oxygen depletion timeframes.

Item 12

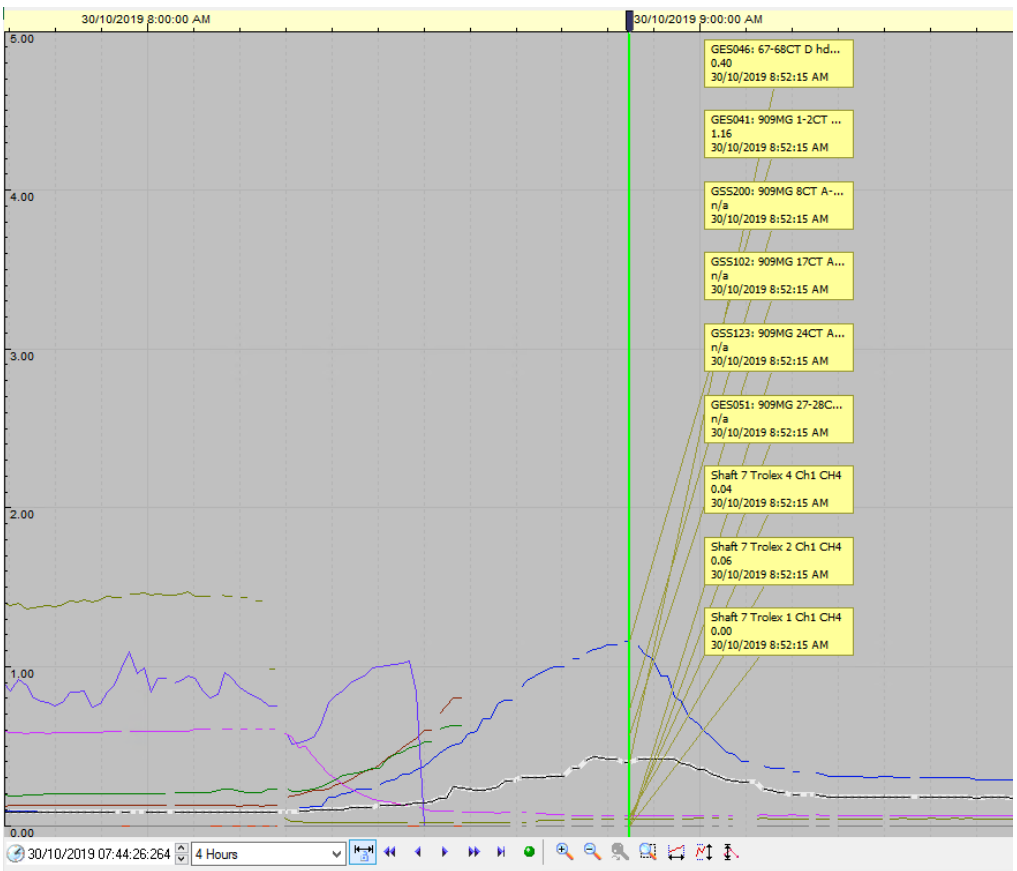
12. Has any modelling been undertaken to determine the length of time it will take with the current emissions with shaft 7 off to reach 2.5% CH_4 described as a dangerous place pursuant to section 366 of the CMSHR 2017.

As per question 11 response.
This is not a likely event with the down-casting arrangement and with the changes in goaf pressure which would occur. The seals would tend to leak inward rather than outward.

There were ongoing fan failures on the day of the 30th but these only occurred when fans were restarted and the resulting pressure changes caused the seals to breathe out. This situation is controlled by slowly ramping up the fans.
A number of fan trips and restarts occurred on the 30th October and this caused pressure to undulate, and consequently gas concentrations to trend up and down with each change.
A slow ramp up did not occur on the 30th October and 1.86% was recorded at the shaft 7 collar.
Following the day of the 30th October slower fan ramping has been undertaken if restarting fans.



Modelling of this type of scenario would be erroneous / misleading.



Item 13

13. Has any type of modelling been undertaken to identify if completing the face and bleeder roadways then turning right in the main gate roadways will increase emissions and general background CH_4 levels of the single entry roadways when shaft 7 fan is off.

The area being mined is extensively drilled and drained though Underground Inseam gas drainage drilling and the area has had an extensive amount of time to drain. Reservoir calculations and validation compliance core results indicate the mining area has been extensively drained (Residual Gas levels of Approx. $2m^3$ per t).

Given this rib emission and direct gas emission from the mining process are anticipated to be low. Given the mining method and the associated rate this is again anticipated to be exceedingly slow and not have a significant effect on general body ventilation concentrations.

Modelling and risk management is applied through the permit to mine process and is routinely applied before permitting mining.

Gas content cores, and analysis is conducted routinely.
The situation would not be different from the rib emissions currently encountered in two heading development gateroads. The majority of the rib emissions occur in the last pillar mined and not in the Outbye.
As above, if the fan is off the ventilation will reverse, the auxiliary fan and power will trip.
This situation has created dangerous accumulations when encountered in MG908, MG907 etc.

We may be able to send you such data when we are soon to commence mining.

Item 14

> 14. How long would it take a crew of men to walk the distance to the entry of 909 m/g.

Self-escape is possible at 4klm per hour and so it is possible to walk out of the single entry in less than an hour.
As stated previously, gas levels peak and then reduce after the ventilation reverses. E.g. it is likely that personnel will be able to drive out after the reversal.

Please call me to discuss the above actions should they require alteration.

Yours sincerely,

Kelvin Schiefelbein
Underground Mine Manager – Grasstree Mine