RE: Increased Goaf Drainage

From: "Griffiths, Trent" Confidential
To: "Johnson, David (Metcoal)" Confidential, "Needham, Gary" Confidential
Date: Fri, 01 May 2020 08:46:12 +1000

Dave,
Excellent question. We are in a really interesting position….

Ideally once Directive was issued on the 8th of April it would have been great to be able to short term increase goaf drainage "venting" to drop the TG by an additional 0.5% however if we had of done that we would have blown our emissions by end of June.
We have an opportunity to push this LW for 4-5 weeks and reduce risk of gas related stoppages at least whilst this fault starts to approach the TG (until MNC get up and running properly) but you are 100% right Dave, after that, say mid June onward, we will potentially have to throttle this LW back to 140,000 ROM tonnes per week……
I'll do up a detailed "brief" for the SLT this afternoon and share from the last 48 hours of meetings / presentations I've had around our Cash Preservation Strategy – we are very close to finalise our strategy and move forward……

Regards,
Trent Griffiths
Site Senior Executive
General Manager

AngloAmerican

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A member of the Anglo American plc group

From: Johnson, David (Metcoal) Confidential
Sent: Friday, 1 May 2020 8:40 AM
To: Needham, Gary Confidential
Cc: Griffiths, Trent Confidential
Subject: FW: Increased Goaf Drainage
Importance: High

Gary:
Overlaying Trent's concerns is the risk that we are heading towards a situation where our business becomes stock-bound as well given the 300kt of product stocks we've already got without Moranbah North having yet turned a drum.
So, the question is, do we fundamentally need to change the way we operate this longwall? For example, might we better off just cutting 12 hours solid on night shift, then stop and aggressively draw gas for 12 hours on day shifts? Or, do we agree to just retreat 10 shears, then stop and aggressively draw? This longwall has demonstrated it can cut well, so perhaps its our time management that needs to be revisited.

Regards
David Johnson
Commercial Manager Grosvenor
Confidential

From: Griffiths, Trent Confidential
Sent: Friday, 1 May 2020 8:00 AM
To: Bachmann, Kate Confidential Mohr, Logan Confidential Niehaus, Wouter Confidential Nowell, Rob Confidential Needham, Gary Confidential Johnson, David (Metcoal) Confidential
Subject: Increased Goaf Drainage
Importance: High

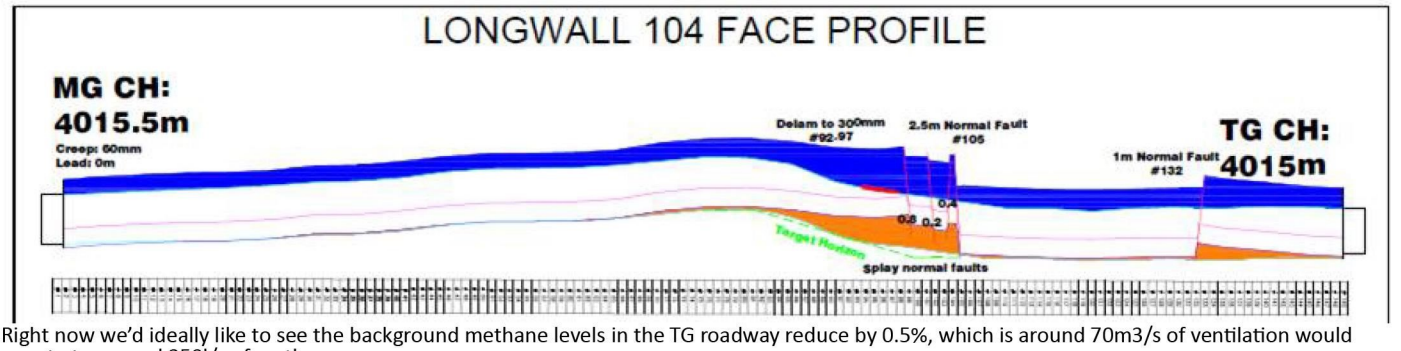
Team,
I had a session with Gary yesterday about the following:

- Gas blowers project status.
- Goaf skis project status.
- "De-bottle Knecking" some more areas of unnecessary resistance on the surface goaf network.
- Venting tracking (leading up to the end of year – end of June).

Gary and his team are doing some great work particularly around the surface pipe and plant network, treating the system as an overall "fluid dynamic network" and piece by piece identifying and correcting areas of increased resistance in the system. There is a section of work that we need to act on with haste (which will involve working in with the LW to isolate the main TG104 pipeline for 4-6 hours to cut and install a valve) before the LW passes this area so we can tie this line into the sister line and then have a parallel circuit back to the plant.
The blowers and additional skids are tracking well and I'm confident come July / August we will have a 17,000l/s capacity system – this is not far away.
Currently we are extracting goaf gas from the 2 x goaves as below:

- **LW103:** 1,498l/s total gas flow (941l/s of methane) all to the plant.
- **LW104:** 7,828l/s total gas flow (4,260l/s of methane), of which:
  - 2,094l/s total gas flow is on venturi.
  - 5,734l/s total gas flow to the plant.

Unfortunately despite a rather small LW104 goaf (and goaf gas reservoir), the methane levels in the TG are almost to the point of bordering on being unmanageable – causing huge issues (with the new Directive enforced of 2.0% trip AFC and shearer) with constant delays which is starting to concern me particularly as this fault system moves closer to the TG roadway – and in turn, increasing risk profile:



Right now we'd ideally like to see the background methane levels in the TG roadway reduce by 0.5%, which is around 70m3/s of ventilation would equate to around 350l/s of methane.
Based on the 1 to 5 ratio we saw in LW103 (particularly from the Venting Trial – see attached report), this would equate to around an additional 1,750l/s of methane to be extracted from the goaf gas reservoir.

At an average purity of around 60%, this would require around 3,000l/s of total gas flow above current extraction levels. So from 8,000l/s to 11,000l/s.
Majority of this additional 3,000l/s (of say 1,750l/s of methane) would require to be on venturi (until such time obviously as the next flowers are installed in the coming months).
Some rough calculations show even with this additional 1,750l/s of methane on venturi for 5-6 weeks show we would still come under our tonnes CO_2eq threshold by end of June by around 30,000 to 40,000 (as we are currently running at around 28,000t per month).

I've asked Gary to set aside some time early next week to generate this discussion further with some members of your teams (relevant cross section approach) and potentially move on this work.
We have all the processes from August last year with the "Reservoir challenging Trial" through:

- Risk Assessment.
- Change Management.
- Communications.
- Detailed tonnes of CO_2eq tracking processes.
- Increased goaf monitoring (and nitrogen injection) for spon comb management.

If you have any questions or concerns please touch base with Gary today so he can begin to compile this with his team ready for session next week.
Thanks.

Regards,
Trent Griffiths
Site Senior Executive
General Manager

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