DOC19/411951-20

Ms Sally Munk
Principal Planning Officer
Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ms Munk

DA 401-11-2002-i MOD 11 - Use of Non-Standard Fuels – HiCal50 - Carbon Anode Material
Boral Cement Berrima

I am writing in response to your email and attached supplemental Response to Submissions (RTS) dated 23 August 2019 to the Environment Protection Authority (EPA) seeking comment on the above development modification. This modification relates to the use of carbon anode material (HiCal50) in the Number 6 Cement Kiln at Boral Cement Limited's (Boral) Berrima plant.

The EPA provides comments in the attachment to this letter **(Attachment A)** to assist the Department of Planning, Industry and Environment in the assessment of the proposal. These comments relate to the following matters:

- Additional copper conditions for HiCal50, beyond the current approved fuel specification are no longer required; and
- A HiCal50 fuel rate condition during start-up is considered appropriate for the proposal.

If you have questions regarding the above, please phone the contact officer on (02) 4224 4100.

Yours sincerely

10/09/19

PETER BLOEM
Manager Regional Operations Illawarra
Environment Protection Authority

Attachment A
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ATTACHMENT A

Additional copper conditions for HiCal50, beyond the current approved fuel specification are no longer required

The proposal by Boral for a copper concentration of 65 mg/kg for HiCal50/coal blended material does not appear to add material value above the current approved fuel specification within the consent. Having considered additional information presented by Boral, and previously identified measures that reduce the risk of dioxin and furan formation (including the low chlorine content of the fuel, current monitoring requirements, kiln combustion temperatures), EPA no longer considers that additional conditions for copper within HiCal50 beyond the current approved fuel specification are required. The current copper fuel specification for HiCal50, and proposed fuel blend could manage residual risks of dioxin and furan emissions during start-up.

A HiCal50 fuel rate condition during start-up is considered appropriate for the proposal

Boral advises that the proposed fuel rate condition of 135 kg/hr would negatively impact the ability to start the Kiln. Boral contends that a 4% HiCal50 limit is adequate in managing HiCal50 during the proposed start-up conditions. EPA considers that emissions of air pollutants from changes in fuel use are dependent on both the rate of fuel use and the composition of the fuel. Conditions on the composition of the proposed fuel would be covered by the current fuel specification, and the proposed 4% HiCal50 limit. However, neither of these conditions cover the rate of fuel use during start-up. If the current proposed fuel rate condition has process implications, Boral should propose an alternative fuel rate that is consistent with their development application, with supporting justification.

In arriving at this decision the EPA makes the following observations:

- Boral are proposing to utilise HiCal50 during start-up in a 96 per cent coal, 4 per cent Hical50 mix. It is noted that the proposed mix is to be combusted within the kiln upon the kiln achieving temperature of 850 deg C, however preheater temperatures will be lower (< 300 deg C). Diesel fuel is used when kiln temperatures are below 850 deg C.
- With regards to process conditions (that is, temperature profiles) during start up, the previous additional information provided by Boral used an example of temperature profiles through the kiln during a historical cold start condition. The additional information states:
    - Typically, the diesel rate gets up to 35 litres per minute (diesel is used during start-up prior to the introduction of coal). When the preheater temperature reaches 240 deg C, the diesel is reduced to approximately 10 litres per minute and the coal is introduced at a rate of 3.31 tonne per hour
    - This rate is continued for approximately four hours. At this point the pre-heater exit temperature reaches 300 deg C and the coal usage is progressively increased towards > 12 tonne per hour via the kiln.
    - Based on the example start-up regime, the coal/HiCal50 Blend at 96 per cent Coal and 4 per cent Hical50 would equate to 132 kilogram per hour of HiCal50 for four hours
    - During normal operation the use of HiCal50 would be ~1 tonne per hour (based on current coal use of 26 tonne per hour).
- In its submission dated 1 July 2019 Boral advised that;
    - *Typically the diesel rate gets up to 35 litres per minute. In this example at about 18:00 on the 6/06/2019 when the preheater temperature reached 240o C the diesel is reduced to approximately 10L/min and the coal is introduced at a rate of 3.31 t/hr.*
    - *This rate is continued for approximately 4 hours. At this point the preheater exit temperature reaches 300oC and the coal usage progressively increases towards >12t/hr via the kiln burner. See graph below. It is interesting to note in this example that there was a minor feed hiccup for coal but the residual temperature in the preheater stayed above the 300oC.*
- In EPA's response dated 1 August 2019 it was stated that "*EPA has considered this aspect of the EPL and recommends the consent include a condition that no more than 135 kilogram per hour of HiCal50 can be processed when the outlet of the pre-heater strings is less than 300 deg C.*"
- In its submission dated 22 August, Boral advises that having a 135 kg/hr limit on HiCal50 during start up conditions will introduce an impracticable limiting factor for heat within the system, which will negatively impact the ability to start the kiln. It is not EPA's intent to recommend conditions that will impact the ability to start the kiln. The recommended rate was based on information previously presented by Boral (in the example above).