

19 May 2020

Mark Stevens  
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**RE: Vickery Extension Project Greenhouse Gas Assessment – Scope 3 Calculation Check**

Dear Mark,

Todoroski Air Sciences have previously conducted a peer review of the *Vickery Extension Project Air Quality and Greenhouse Gas Assessment (Ramboll, 2018)* (the Report).

Whilst the review of the Report considered greenhouse gas emissions, the focus was on potential dust impacts and the review concluded that overall the Report presents a generally satisfactory assessment of the potential dust impacts that may arise in this case due to the Project.

I have been asked to specifically check the Greenhouse Gas (GHG) calculations related to Scope 3 emissions for the consumption of the project coal by the end user. I note that the Scope 3 emissions are not accounted to belong to the actual project, rather the end user of the coal, where the coal is consumed (thus the Scope 3 emissions for a coal mine would be similar to the Scope 1 emissions for the end user of the coal, apart from some small variations that may arise due to site specific variables the mine cannot know, and only the end user can know).

I note that other consultants have made incorrect calculations of the Scope 3 emissions factors at unrelated New South Wales (NSW) Mines, and thus I assume the request for me to check the calculations here stems from this recent issue.

I note that the original GHG estimates in the Report were recently updated to reflect some curtailment of the open cut pit for the Amendment Report. This reduced the total amount of coal produced over the life of the mine, and of course also reduced the corresponding GHG emissions. For reference the original vs. revised Scope 1 and 3 emissions are approximately 3.1 million tonnes of carbon dioxide equivalent emissions (Mt CO<sub>2-e</sub>) (previously 3.2 Mt CO<sub>2-e</sub>), and 367 Mt CO<sub>2-e</sub> (previously 390 Mt CO<sub>2-e</sub>).

The Scope 3 emissions from the consumption of coal will be much higher than the emissions generated by mining the coal. In this case the Scope 3 emissions total 367 Mt CO<sub>2-e</sub> over the life of the mine and the Scope 1 emissions total 3.1 Mt CO<sub>2-e</sub>, which is less than 1% of the Scope 3 emissions.

Over the life of the Project, the total Scope 3 emissions associated with Energy Production (i.e. using the product coal by the end user to generate electricity and heat) total 365.4 Mt CO<sub>2-e</sub>. This calculation is based on a total of 150 Mt of coal produced over the life of the Project and means that approximately 365.4/ 150 = 2.436 kg CO<sub>2-e</sub>/kg coal was used to calculate the result.

This is the same as the NGERs (2018) emissions factor for Bituminous Coal (soft coal) that is produced at the site (i.e. 27 (GJ/t) x (90 + 0.03 + 0.2)(kg CO<sub>2-e</sub>/GJ) = 2,436 kg CO<sub>2-e</sub> /t coal = 2.436 kg CO<sub>2-e</sub>/kg coal).

I thus conclude that for the Vickery Extension Project Greenhouse Gas Assessment the calculations for the Scope 3 emissions for the end use of the coal (energy production) use the correct emissions factor.

Please feel free to contact me directly if you would like to discuss or clarify any aspect of this review.

Yours faithfully,  
Todoroski Air Sciences



Aleks Todoroski

## **References**

Ramboll (2018)

"Vickery Extension Project Air Quality and Greenhouse Gas Assessment", prepared by Ramboll, June 2018

