Addendum

Date: Monday, 15 February 2021

Jackson Environment and Planning Pty Ltd

Suite 102, Level 1, 25 – 29 Berry Street, North Sydney NSW 2060

FAO: Mark Jackson

Project Name:	**Kariong Sand and Soil Supplies - Air Quality Assessment – RTS Addendum**
Reference:	**18.1021.L3V2**

The following letter has been prepared by Northstar Air Quality Pty Ltd on behalf of Jackson Environment and Planning Pty Ltd and provides a response to a 'Request for Additional Information' by NSW Department of Industry, Environment & Planning (DPIE) dated 4 February 2021. DPIE has requested the following:

> *The Department notes the amended Air Quality Impact Assessment (AQIA) advised the predicted 24-hour maximum particulate concentration (cumulative) for both PM_{10} and $PM_{2.5}$ would exceed the relevant criteria at receivers R1 and R3 due to the existing exceedance of background emission concentrations.*
>
> *Please provide information about the cumulative emissions at R1 and R3 with breakdowns of background and incremental concentrations.*

The discussion overleaf provides the requested information.

If you require any further information or clarification, please do not hesitate to contact the undersigned at your convenience.

For and on behalf of

Northstar Air Quality Pty Ltd

Martin Doyle

Director & Air Quality Scientist

Reviewed by: GCG

A revised air quality impact assessment (AQIA) was submitted in response to submissions made by Government Agencies and the public relating to the proposed Kariong Sand and Soil Supplies Facility (SSD 8660). That AQIA incorporated a range of additional particulate control measures proposed by the proponent, and also adopted a number of conservative assumptions in the assessment, in response to issues raised. Of specific interest to DPIE are the predictions of 24-hour average PM_{10} and $PM_{2.5}$, and examination of these particulate size fractions forms the basis of this letter.

The dispersion modelling results provide a prediction of the potential impact on air quality resulting from the operation of the proposal on a day-to-day basis, in line with the relevant air quality criteria. These concentrations are termed the proposal 'increment'.

To those incremental predictions are added existing concentrations of particulate matter, as measured at the DPIE Wyong air quality monitoring station (AQMS). This is often termed 'baseline', or 'background' air quality and is intended to represent the existing environment of the area, without the impact of the proposal.

The total impact (increment + background) is termed the cumulative impact, and it is this concentration which is compared to the relevant air quality criteria. It seeks to provide an answer to the question '*can the proposal be operated to not result in exceedances of the air quality criteria?*'

In some instances, exceedances of the relevant criterion are experienced without the addition of the proposal increment. These may be due to other operations in the area, or a result of natural causes such as bushfires or dust storms. In these instances, a further question '*can the proposal be operated to not result in additional exceedances of the air quality criteria?*' may be asked.

In the specific case of the AQIA submitted to support the Kariong Sand and Soil Supplies (as updated and presented in 18.1021.L2V4, dated 10 December 2020), one exceedance of the 24-hour average PM_{10} criterion was measured at the Wyong AQMS) during the selected assessment year of 2015. No exceedances of the relevant 24-hour average $PM_{2.5}$ criterion were experienced in 2015.

As requested by DPIE, the following graphs present the predicted cumulative 24-hour average PM_{10} and $PM_{2.5}$ concentrations which are made up of the existing background and predicted increment at receptors R1 and R3. The exceedance of the 24-hour average PM_{10} criterion can be seen on 6 May 2015, with the minor incremental concentration added to that. Also shown are the daily varying background PM_{10} and $PM_{2.5}$ concentrations, and the predicted incremental concentrations which do not result in any additional exceedances of the relevant air quality criteria.

It is noted that the exceedance of the PM_{10} criterion on 6 May 2015 was the result of a state-wide dust storm that originated from the Victorian Mallee and Southern NSW regions and travelled throughout NSW during 5 and 6 May 2015 (NSW Air Quality Statement, 2015). Events such as these are not typical of the area, as shown in the following figures.

Figure 1 - Predicted maximum cumulative 24-hour PM_{10} concentrations at Receptor R1

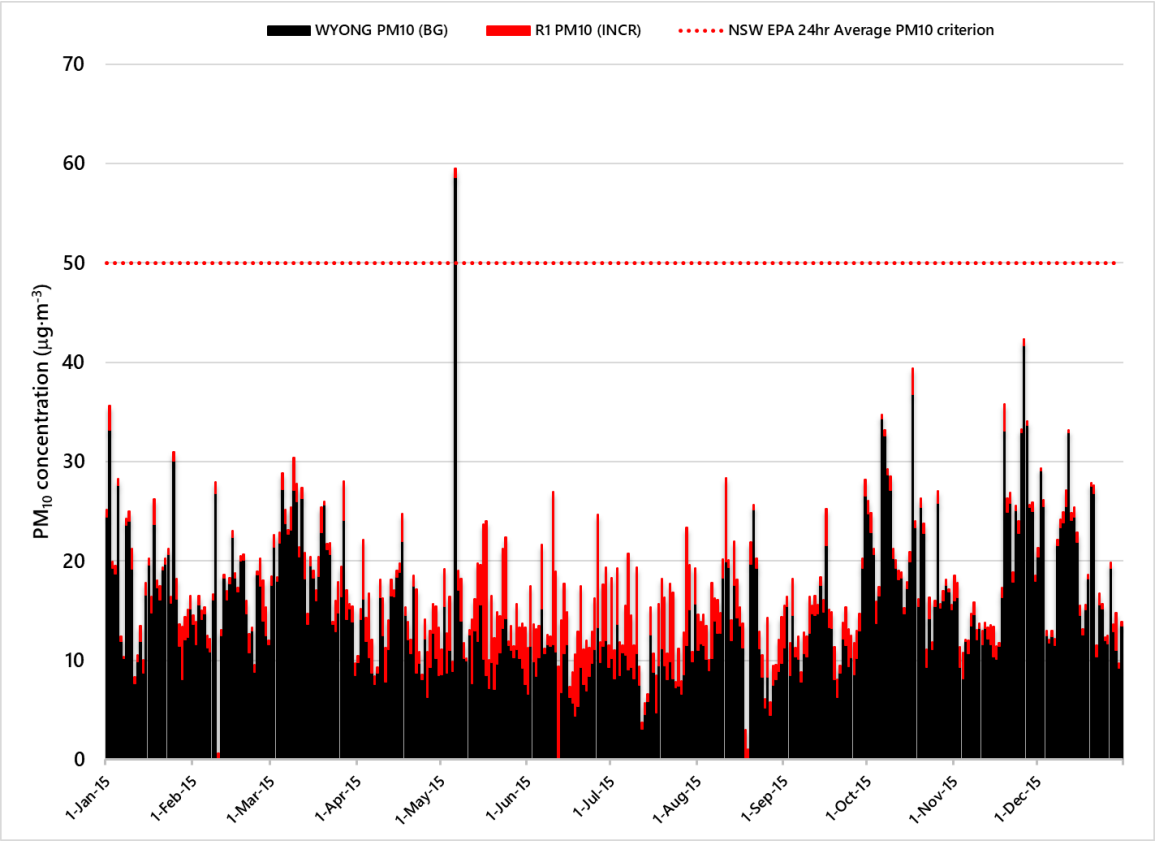

Figure 2 - Predicted maximum cumulative 24-hour PM_{10} concentrations at Receptor R3

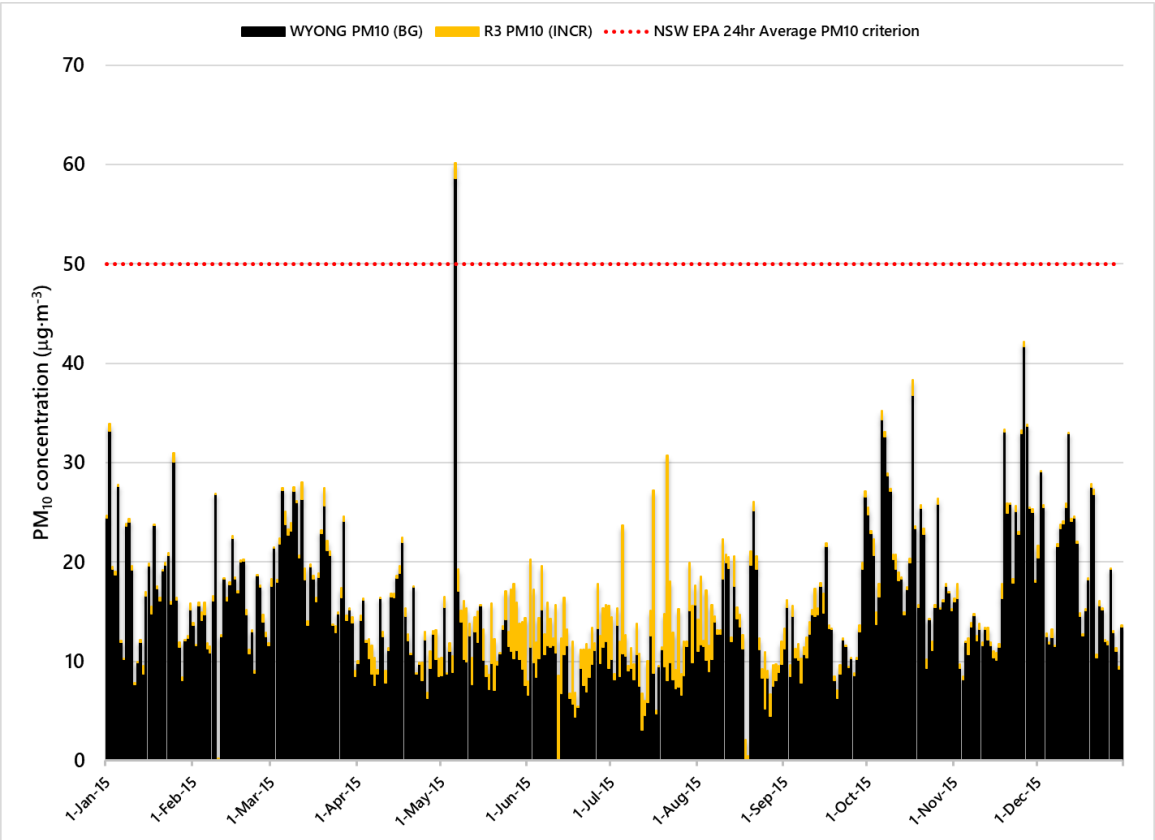

Figure 3 - Predicted maximum cumulative 24-hour $PM_{2.5}$ concentrations at Receptor R1

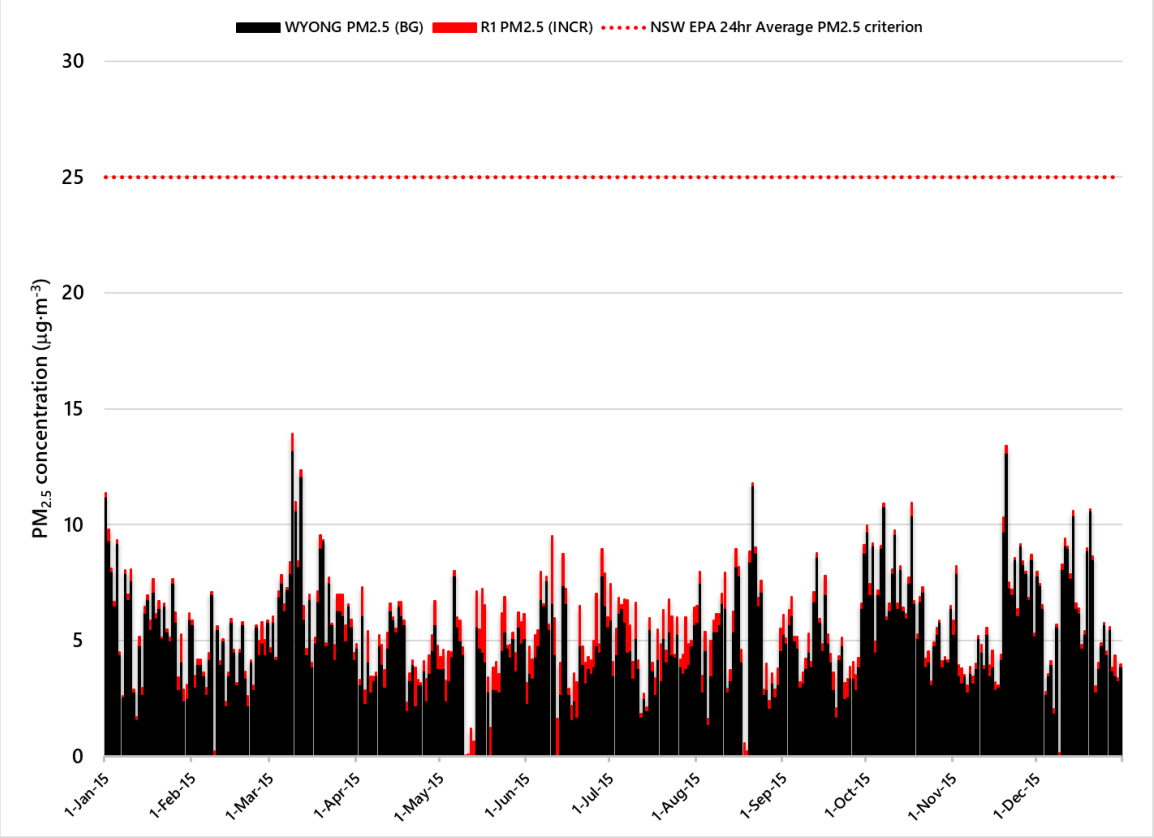

Figure 4 - Predicted maximum cumulative 24-hour $PM_{2.5}$ concentrations at Receptor R3