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Ref: 60100965.LTR01.00

Michelle Keo

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Dear Michelle,

Response to NSW Department of Planning Peer Review

The Department of Planning (DoP) has commissioned independent reviews of the greenhouse gas, air quality and noise assessment provided in the Environmental Assessment for the Bayswater B Power Station (reference: S09/01052 '*Bayswater B Power Station (Concept Plan Application MP 09_0118) – Submissions Report'*).
The DoP requires the Proponent to respond to the following noise issues identified in Heggies Pty Ltd (Heggies) peer review:

Noise:

- *Sections 2 and 4.3 of the Heggies Report – further justification of the modelling approach with respect to the background noise surveys (Section 2) and clarification on whether CONCAWE meteorological categories were employed in the modelling (Section 4.3).*

The following response is made to comments in sections 2 and 4.3 of the Heggies Noise Impact Assessment Peer Review.

Section 2

Heggies' comments:

'The Noise and Vibration Assessment (NVA) Appendices D and E show the background noise surveys coincided with periods of unstable weather, resulting in several periods of daytime and night-time noise logger data being discarded'.

AECOM's response:

Three of the five noise monitoring locations (R3, R4 and R5) experience background noise levels at night of less than 30 dB(A) and therefore the RBL's for these locations at night were set to 30 dB(A) in accordance with the DECCW's INP recommendations.

For location R2 the lowest background noise levels were measured during the night-time period and during this time seven valid measurements were achieved (refer to AECOM's Noise and Vibration Assessment Report, Appendix D), this is acceptable for INP criteria determination.

For location R1 the lowest background noise levels were measured during the daytime period and during this time five valid daytime measurements were achieved (refer to AECOM's Noise and Vibration Assessment Report, Appendix D).

Heggies' Comments:

'In addition, some of the loggers appear to have been located near roadways and adjacent to building facades that may give rise to enhanced noise levels'.

AECOM's response:

Table 1 in AECOM's report (reference: 60100965.RPT01.03, Revision 3, issued 16 September 2009) is incorrect, typographical error. None of the loggers were placed closer than 10 m from a reflecting to façade. Further, as background noise is generally generated by many sources and so is incident from all directions, façade corrections are not applicable.

Location R3 noise logger was the only logger located close to a roadway (approximately 7 m back from the kerb). This was due to the inaccessibility of the local tertian at location R3. However, during the evening and night-time periods background noise levels of less than 30 dB(A) were measured at this location, which suggest that the background noise levels measured at this location were not influenced by nearby traffic. Therefore, the RBL for this location at night was set to 30 dB(A) in accordance with the DECCW's INP recommendations. The night-time RBL drives the most the most stringent criteria for this location, so the daytime noise levels are less significant.

Heggies' comments:

'Moreover, only single 15minute daytime and night-time operator-attended noise measurements were conducted at locations R1 to R5 with the observed LAeq(15minte) level forming the basis for estimating the existing industrial amenity level (LAeq(period)) for each locality. Operator-attended noise measurements were not conducted in the evening'.

By adopting a somewhat minimalist approach to the background noise monitoring programme it follows that the incomplete or uncertain noise logger data (not supported by an adequate number of operator-attended noise measurements) must be foregone and default background noise levels used in the absence of any alternative and reliable data source (ie other EA results or the like)'.

AECOM's response:

The RBLs for three measurement locations (R3, R4 and R5) have already been set to 30 dB(A) in accordance with the DECCW's INP recommendations. For the two locations (R1, and R2) where the RBLs were set to a higher levels, the RBLs were based on long term unattended noise surveys supplemented by attended measurements.

In addition, it is understood that based on previous noise studies undertaken by others in the vicinity of Locations R1 and R2 regulatory authorities have set noise goals for this area as follows.

Operational noise criteria in the vicinity of Location R1 Lake Liddell has been set at 37 dB(A) (based on previous studies by others) compared to 40 dB(A) set in AECOM's assessment.

Operational noise criteria in the vicinity of Location R2 Antiene Estate has been set at 38 – 39 dB(A) during the night-time period (based on previous studies by others) compared to 40 dB(A) set in AECOM's assessment.

Heggies' recommendation of adopting the default background noise levels (RBL of 30 dB(A)) at Locations 1 and 2 during the day, evening and night-time would result in an intrusive criteria of 35 dB(A) (i.e. RBL plus 5 dB(A)). Heggies' recommendations are deemed to be conservative, however the predicted noise levels presented in AECOM's noise assessment report indicates that the project would comply with the intrusiveness criteria of 35 dB(A) at all the assessment locations (including Locations 1 and 2).

Heggies' comments:

*'**Recommendations**: Unless demonstrated by further background noise surveys conducted in accordance with the INP, the Proponent shall adopt an RBL of 30 dBA throughout the daytime, evening and night-time at all residential assessment locations. Project compliance with an intrusive criterion of 35 dBA (ie RBL plus 5 dBA) will also ensure Project's industrial amenity contribution is minimised to around 32 dBA'.*

AECOM's response:

We concur with Heggies in that compliance with an intrusiveness criteria ($L_{Aeq, 15min}$) of 35 dB(A) will ensure that the amenity contribution ($L_{Aeq, period}$) will be controlled to approximately 32 dB(A).

Section 4.3

Heggies' comments:

'The INP requires an assessment of prevailing wind, temperature inversion (and combinations as appropriate) that have the potential to enhance noise emissions from the Project.

Initially the noise assessment relies on the meteorological analysis presented in EA's Air Quality Assessment with regard to frequency of occurrence of seasonal winds and atmospheric stability. However, the Proponent does not progress the analysis in accordance with the INP's requirements leading to the inappropriate conclusion that temperature inversions are not a feature of the area. The Bengalla meteorological tower is potentially an excellent source of air temperature data relevant to the Project locality. It is unfortunate that the observed temperature gradients over an extended period (from direct temperature measurements) have not been presented for this Project. In any case, the Proponent has conferred with the DECCW in regard to this matter and advises assessable weather conditions are as follows:

- *Source to receiver winds 3 m/s; and*
- *F-class atmospheric stability (ie temperature inversion range 1.5oC/100 m to 4oC/100 m).*

It appears the Proponent has (perhaps not unreasonably) interpreted the DECCW's request to be generally equivalent to the INP's default meteorological parameters applicable to non-arid areas in the Hunter Valley, and applied the following noise enhancing weather conditions:

- *Source to receiver winds 3 m/s; and*
- *F-class stability plus source to receiver winds 2 m/s.*

The Project's SoundPlan noise model utilising the CONCAWE algorithms has relatively less flexibility to adjust meteorological parameters by comparison with alternative noise propagation algorithms. It is assumed (but not confirmed) that the Proponent has applied the SoundPlan CONCAWE meteorological (MET) categories as presented in ***Table 7****.*

Table 7 Proponents Application of SoundPlan CONCAWE meteorological (MET) Categories

MET Category	Description	Atmospheric Stability	Wind Speed (all directions)	Temperature, Relative Humidity
4	Calm	C, D, E	0 m/s	10°C, 70%
5 (or 6)	Wind	C, D, E	3 m/s	10°C, 70%
6	Inversion and Drainage	F, G	2 m/s	10°C, 70%

It should be noted that MET Category 6 results in the highest noise enhancement available within CONCAWE. However, experience suggests that MET Category 6 enhancement may marginally (say 2 dBA) understate the noise enhancement by comparison with the RTA's Environmental Noise Model (ENM) utilising a 3°C/100 m plus 2 m/s wind speed. Adding 2 dBA to the Proponents intrusive noise levels gives a maximum intrusive emission of 35 dBA under noise enhancing conditions and remains within the recommended PSNL of 35 dBA.

Furthermore, if the DECCW's intention for the Project was to apply 4oC/100 m plus 3 m/s wind speed then the Proponents highest intrusive noise level of 33 dBA may be understated by at least 4 dBA and therefore at least 2 dBA above the PSNL of 35 dBA'.

AECOM's response:

The assessment presented in AECOM's noise assessment report of prevailing wind and temperature inversion for the site was based on information provided by the Project's Air Quality Consultant (Katestone Environmental).

An assessment of the prevalence of temperature inversion effects was carried out for the site by Katestone Environmental which found that significant temperature inversions do not occur at the site for more than 30% of winter night-time periods.

In any case, regardless of the findings from the meteorological assessment, DECCW requested AECOM to model adverse meteorological conditions. As requested by DECCW, the following separate weather conditions were modelled employing the CONCAWE algorithm within the SoundPLAN modelling software:

- Source to receiver winds 3 m/s (in all directions) and
- F-class stability plus source to receiver winds 2 m/s (MET Category 6)

Heggies' suggests (based on their experience) that SoundPLAN underestimates (say 2 dB) noise enhancement for MET Category 6 compared to RTA's Environmental Noise Model (ENM) software.

As suggested by Heggies adding a 2 dB to AECOM's predicted noise levels (resulting in a maximum intrusive emission of 35 dB(A)) the noise levels will remain within the criteria of 35 dB(A).

I trust this is of assistance, if you need to discuss the above please do not hesitate to contact the undersigned.

Yours sincerely,

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