5 July 2024

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Attention: Harry Egan
Aurizon Operations Limited
121 Woodstock Street
Mayfield, NSW 2304

SLR Project No.: 630.30321

Client Reference No.: L02

RE: Aurizon Port Services NSW Expansion Response to Feasible Mitigation Measures

Aurizon Operations Limited (Aurizon) has requested that SLR Consulting Australia Pty Ltd (SLR) respond to comments from the NSW Environment Protection Authority (EPA) regarding feasible mitigation of the proposed reach stacking operations associated with the proposed expansion of the Aurizon Port Services NSW (APSN) site (the Project) within the Port of Newcastle.

The purpose of this letter is to respond to comments from the NSW Environment Protection Authority regarding possible feasible and reasonable mitigation measures to reduce sleep disturbance L_{Amax} noise levels from the unloading, loading and stacking of cement containers in the southern hardstand area of the Project.

The EPA Request for Additional Information dated 14 May 2024 (reference DOC24/313868-5) notes the following:

> *The EPA acknowledges that the noise enhancing weather conditions and frequency of operations are not likely to be common, however the EPA is still concerned that no specific mitigation measures during container stacking activities at night have been proposed to reduce or mitigate the 6dBA sleep disturbance trigger level exceedance.*
>
> *The EPA therefore requests the Applicant advise on what feasible and reasonable mitigation measures would be implemented to address the potential night- time 6dBA noise exceedance at these locations during container loading and stacking activities. The mitigation measures may be additional controls or equipment modifications, or may include operational procedures specific to container loading and stacking activities. If the proponent believes there are no viable feasible and reasonable mitigation measures or control options, this needs to be assessed and justified.*

SLR report 630.30321-R01-V2.0 *Aurizon Port Services NSW Expansion Noise Impact Assessment* dated 27 March 2023 included an analysis of potential noise mitigation of reach stacking activities at the south of the site. Further analysis of potential noise mitigation measures is provided in **Table 1**.

Table 1 Possible Noise Mitigation Measures

Mitigation Measure	Estimated Source Noise Reduction	Comment on Practicality, Feasibility, and Reasonability
Construction of a noise barrier on eastern and western boundary of operations	Less than 1 dB for a 2.1 m high barrier, up to 5 dB for a barrier in excess of 5 m in height.	The railway line runs along the boundary of the site to the east leaving no room for a barrier of any significant height. The barrier could not be placed to the west of the railway line due to the need for the reach stacker to access the rail line to unload cement containers. As such a noise barrier on the eastern side of the southern hardstand area is not considered a reasonable or feasible mitigation measure for the receivers in Stockton. Trucks enter the southern hardstand area via a southern access point off Dyke Road before being loaded and returning to Dyke Road via a northern access point. This arrangement allows for trucks to enter and exit the southern hardstand area without the need for reversing. As such there would need to be significant gaps in any barrier on the western side of the southern hardstand area to facilitate the entry and exit of trucks and associated sight lines. Such gaps would further reduce the effectiveness of a barrier while still requiring significant capital investment. As such a noise barrier on the western side of the southern hardstand area is not considered a reasonable or feasible mitigation measure for the receivers in Carrington.
Stacking of the ISO containers in a manner to provide shielding.	Marginal	Stacking of the ISO containers in a manner to provide shielding is impractical due to the requirement to access the rail line to the east and load trucks on the western side. The stacking of containers is also not considered a reasonable measure given the additional handling required (and hence additional noise emissions) as well as the likely marginal noise reduction such an arrangement would provide.
Scheduling of loading and unloading to occur only during the day and evening.	Mitigation measure would result in no maximum noise level events occurring during the night-time period.	The scheduling of works to occur only during the during the day and evening period is not considered reasonable or feasible given the need for 24 hour operation due to train timetabling, and customer/supplier requirements. Notwithstanding, handling of containers during the night-time period would only be conducted in response to trains or trucks needing to be unloaded/loaded. No rehandling of containers (if required) would be conducted during the night-time period.

Where a development is predicted to exceed the Noise Policy for Industry (2017) (NPfI) sleep disturbance screening criteria "*a detailed maximum noise level event assessment should be undertaken*". The detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the Rating Background Noise Level (RBL), and the number of times this happens during the night-time period.

The NPfI refers to the NSW *Road Noise Policy* (RNP) for additional information regarding sleep disturbance. Studies from enHealth Council are referenced which include that for short term transient noise events, for good sleep over eight hours the internal L_{Amax} sound pressure level should ideally not exceed around 45 dBA more than 10 or 15 times per night.

The RNP goes on to conclude that from research on sleep disturbance to date:

- Maximum internal noise levels below 50 dBA to 55 dBA are unlikely to cause awakening reactions; and that
- One or two noise events per night, with maximum internal noise levels of 65 dBA to 70 dBA, are not likely to affect health and wellbeing significantly.

Internal noise levels in a dwelling, with the windows open, are commonly 10 dB lower than external noise levels. Therefore, based on the studies from enHealth Council, for a good sleep over eight hours the external noise levels should not exceed around 55 dBA more than 10 or 15 times per night when assuming a conservative 10 dB loss for open windows. The first conclusion from the RNP suggests that maximum external noise level of 65 dBA when assuming a conservative 10 dB loss for open windows are unlikely to cause awakening reactions, with the second suggesting that one or two events per night with external noise levels of 75 dBA to 80 dBA are not likely to affect health and wellbeing significantly.

A review of on-site train movements requiring the unloading of ISO containers between January 2023 to May 2024 shows a total of 56 train unloading events having occurred either wholly or partially during the hours of 10 pm – 7 am. This equates to an average of 3 train unloading events occurring per month with an average number of 12 ISO containers being unloaded per train.

Based on the foregoing a detailed maximum noise level assessment for the operation of the reach stacker in the southern hardstand area is provided in **Table 2**.

Table 2 Detailed Maximum Noise Level Assessment

NCA[1]	Maximum Noise Level L_{Amax} (dBA)					Comments
	External Sleep Disturbance Goals		Project Related Maximum Noise Events		Existing Maximum Noise Level [4]	
	Good Sleep[2]	Awakening Response[3]	Predicted	Frequency		
NCA1 (R3, R4)	55 (should not occur more than 10 to 15 times per night)	65	58 to 61	An average of 12[5] maximum noise level events over a night-time period while unloading a train an average of 3 times per month. Likely to be no greater than 10 events over a night-time period while loading trucks	60-77	**Good Sleep**: The Reach Stacker staking ISO containers or loading them onto trucks is the only source predicted to exceed 55 dBA at residential locations. While unloading a train maximum noise events would occur on average 12[5] times over the course of a night-time period due to the number of stacking movements required. While loading trucks maximum noise events are unlikely to exceed 10-15 times due to the lower frequency of truck loading events. **Awakening Response**: Maximum noise levels are not predicted to exceed the 'awakening response' level during the unloading/loading of a train or trucks. **Existing maximum noise levels**: Measured maximum noise levels during the night-time period were typically around 60-77 dBA with maximum events frequently surpassing 70 dBA in Carrington and were typically around 60-75 dBA with maximum events frequently surpassing 65 dBA in Stockton. The majority of the predicted maximum noise levels from the development are similar to or lower than the existing maximum noise levels and are likely to occur less frequently than existing maximum noise events from nearby road networks and other industrial activities.
NCA3 (R6)	55 (should not occur more than 10 to 15 times per night)	65	61	An average of 12[5] maximum noise level events over a night-time period while unloading a train an average of 3 times per month. Likely to be no greater than 10 events over a night-time period while loading trucks	60-75	

Note 1: NCA1 captures residential receivers in Carrington, and NCA3 captures residential receivers in Stockton.

Note 2: Based on RNP guidance that for a good sleep over eight hours the indoor lama sound pressure level should not exceed around 45 dBA more than 10 or 15 times per night. This equates to an external noise level of around 55 dBA when assuming a 10 dB loss for open windows for ventilation.

Note 3: Based on RNP guidance that maximum internal noise levels below 50 dBA to 55 dBA are unlikely to awaken people from sleep. This equates to an external noise level of around 65 dBA when assuming a 10 dB loss for open windows for ventilation.

Note 4: Existing maximum noise levels have been taken from the unattended noise monitoring for the initial noise impact assessment (refer SLR report 630.30321-R01-V2.0).

Note 5: Noting that not all unloading/loading events would generate the predicted LAmax level.

A review of **Table 2** indicates that although the operation of the reach stacker has the potential to exceed 55 dBA L_{Amax} an average of 12 times three nights a month, maximum noise levels are unlikely to cause awakening reactions. Maximum noise levels in the area already routinely exceed those predicted from the project, and as such given the relatively infrequent occurrence of maximum noise level events, noise levels from the Project are unlikely to have an adverse impact on the acoustic amenity of the surrounding residential areas. Furthermore, maximum noise levels are predicted to be significantly below the noise levels where RNP guidance suggests one or two events per night would be unlikely to affect health and wellbeing significantly.

It should be noted that no noise complaints have been received by Aurizon for the unloading/loading of ISO containers at the southern hardstand area of the project to date, and existing ISO container loading and unloading operations within this area are largely the same as those proposed.

Finally, SLR are aware of numerous projects where maximum noise levels have exceeded the NPfI sleep disturbance screening noise goals while still being approved on the basis of the surrounding existing environment already containing noise levels above the sleep disturbance screening criteria. One such example would be SSD 30628110 where predicted potential L_{Amax} external noise levels from trucks operating on the site of up to 67 dBA (2 dB over the RNP 'Awakening Response' suggested sleep disturbance noise levels) would occur multiple times during the night-time period.

On the basis the Project is unlikely to have an adverse impact on the acoustic amenity of the surrounding residential areas due to existing noise levels, relatively infrequent occurrence of maximum noise levels events, is unlikely to cause awakening reactions and limited ability to implement additional mitigation measures, the residual exceedance of the NPfI sleep disturbance screening criteria is considered justifiable.

I trust the above meets current requirements. If you have any questions or require any further information please do not hesitate to contact me on 02 4037 3200 or at pmarshall@slrconsulting.com.

Regards,

SLR Consulting Australia

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