Appendix H

NIA Regulator and Community Response

(Global Acoustics 2019)



Global Acoustics

Noise and Vibration Analysis and Solutions

1 February 2019

EME Advisory Pty Ltd
Greenwich NSW 2085
Attention: Eryn Bath

Dear Eryn,

Regarding: ProTen Rushes Creek Poulty Production Complex NIA regulator and community response

1 INTRODUCTION

This letter addresses submissions relating to potential noise impacts generated by the proposed Rushes Creek Poultry Production Farm (the Development) and should be read in conjunction with the Noise Impact Assessment (the NIA) undertaken in January 2018 (Global Acoustics report 16285_R01.pdf).

Section 2 below addresses government agency submissions, and Section 3 addresses community submissions. To avoid repetition, submissions are grouped together where the same issue is raised by more than one stakeholder.

2 REGULATOR SUBMISSIONS

2.1 Operational Noise Sources included in Scenario 3

The NSW Department of Planning and Environment (DPE) submission, in relation to noise, said:

> *'The NIA has assessed three operating scenarios…. it is not clear if Scenario 3 includes the continuous noise sources in Scenario 1 in addition to noise impacts from bird collection. The NIA must assess the worst-case operational scenario of continuous operation and bird collection on noise sensitive receptors. This should include an assessment of sleep disturbance.'*

Three operational scenarios were considered in the NIA:

Scenario 1 assessed the worst-case continuous noise when all 20 tunnel ventilation fans on the poultry sheds are running.

Scenario 2 assessed feed silo refilling combined with the worst-case continuous noise source operations (i.e. Scenario 1).

Scenario 3 assessed worst-case intermittent noise from bird collection.

As queried by the DPE, Scenario 3 did not include the worst-case continuous noise source operations (i.e. scenario 1). ProTen has subsequently advised that the ventilation fans will operate during bird collection, with the fans on individual sheds being switched only off once the shed has been emptied of livestock.

On this basis, to ensure the assessment of worst-case intermittent noise combined with worst-case continuous noise, Scenario 3 has been remodelled including the bird collection sources and all 20 ventilation fans on each shed operating continuously as per Scenario 1 (this is a conservative approach as not all ventilation fans will operate during bird collection - as one shed is emptied the fans will cease operating). Table 1 presents revised operational Scenario 3 model predictions for neutral and enhancing atmospheric conditions. No exceedances of the noise criterion are predicted.

Table 1: CALCULATED $L_{Aeq,15minute}$ OPERATIONAL NOISE LEVELS - SCENARIO 3 (dB)

Receptor ID	Neutral	Source to Receiver Wind	Inversion	Criterion	Exceedance
R15	<20	22	22	35	Nil
R16	<20	<20	<20	35	Nil
R17	21	24	24	35	Nil
R20	22	26	26	35	Nil
R21	24	28	29	35	Nil
R22	<20	<20	<20	35	Nil
R23	<20	<20	<20	35	Nil
R24	28	33	31	35	Nil
R25	29	34	29	35	Nil

Note:

1. *Results in bold type exceed the operational noise criterion (if applicable).*

One sleep disturbance scenario was assessed for night time bird collection. The sleep disturbance assessment included all operational sources from Scenario 3 combined with revving engines/impact noise. The sleep disturbance scenario has been remodelled including all 20 ventilation fans on each shed operating continuously as per Scenario 1 (again, this is a conservative approach as not all ventilation fans will operate during bird collection - as one shed is emptied the fans will cease operating). Table 2 presents sleep disturbance model predictions for neutral and enhancing atmospheric conditions. No exceedances of the sleep disturbance criterion are predicted.

Table 2: CALCULATED $L_{A1,1minute}$ SLEEP DISTURBANCE NOISE LEVELS (dB)

Receptor ID	Neutral	Source to Receiver Wind	Inversion	Criterion	Exceedance
R15	20	22	22	45	Nil
R16	<20	<20	<20	45	Nil
R17	21	25	25	45	Nil
R20	22	27	27	45	Nil
R21	27	32	33	45	Nil
R22	<20	<20	<20	45	Nil
R23	<20	<20	<20	45	Nil
R24	32	37	35	45	Nil
R25	35	40	35	45	Nil

Note:

1. *Results in bold type exceed the sleep disturbance noise criterion (if applicable).*

The results in Table 2.1 and Table 2.2 present predicted worst-case noise impact for bird collection activities and also include worst-case continuous noise sources. It should be noted that while some ventilation fans will be operating during bird collection it will typically be far fewer than the number modelled. The sheds that have been emptied of livestock will have their ventilation turned off, and other sheds may have only some ventilation fans operating on an on-demand basis depending on the stage of the production cycle and weather. Therefore, model predictions are considered conservative.

2.2 Emergency Generators

Gunnedah Shire Council have asked for the noise implication of emergency generators to be considered. Generators were not considered in any of the operational scenarios in the NIA. The client has advised that:

> *'Emergency standby diesel generators will be installed for the rare occasion when power from the electricity grid is lost. Based on experience at their other poultry production farms around Australia, ProTen anticipates that the generators will only be required between one and a maximum of five days per year. They will be tested as per the manufacturer's recommendations. There will be three generators at each PPU, each with a maximum standby rating of 390 kilovolt-amps (kVA), positioned near the amenities facility. The generators will be contained within lockable acoustic enclosures with vertical air discharge and will meet the relevant emission standards in Schedule 4 of the Protection of the Environment Operations (Clean Air) Regulation 2010 (Clean Air Regulation).'*

The generators will only be used on site for emergency backup power. Each PPU will be powered by solar and grid electricity and only when these sources fail will the emergency backup generators be required. The client has advised this is likely to only be between one and a maximum of five days per year.

Technical data provided by the generator supplier reports a sound power (L_{WA}) of 97 dB for a generator with the acoustic enclosure. This sound power needs to be considered in relation to the modelled continuous noise sources for each PPU. Each shed within a PPU will have up to 20 ventilation fans operating during regular operation. Given one ventilation fan has a sound power of 87 dB, each shed (20 fans) will have a sound power of 100 dB which is double the sound power of one generator (in logarithmic units a source that is 3dB higher has twice the acoustic energy).

Each PPU will have an average of 14 sheds which have a total sound power of 111 dB. The total sound power for three generators operating at one PPU (i.e. 102 dB) will cause an increase of less than 0.5 dB to the sound power of each PPU, and to offsite noise levels.

An increase in PPU sound power levels of less than 0.5 dB will not be noticeable offsite and noise levels will remain in compliance with operational noise criteria at each receptor considered in the NIA. On this basis, and given the fact that the generators will only be used on the rare occasion when power from the electricity grid is lost (anticipated to be between one and a maximum of five days per year), no further assessment is warranted.

3 COMMUNITY SUBMISSIONS

3.1 Operational Noise

Several community responses related to operational noise from site including continuous and intermittent noise sources, the size of the farm and the modelling methodology.

While noise modelling is a predictive tool it is widely used and is the accepted method for assessing noise impacts from proposed developments. Where possible modelling should be based on actual noise measurements of similar operations or equipment.

The 2018 NIA including modeling undertaken using CadnaA, noise prediction software developed by DataKustic. Modelling considered the height and location of each source and receiver and takes into account topography, meteorological effects, ground type, air absorption and barrier effects. The model was set up using the specific design of the Development including the layout, type and number of noise sources and location of Noise Sensitive Receivers (NSR).

Measurements were undertaken at the existing ProTen Bective Poultry Production Farm to measure sound power data for equipment that will also be used at the Development. Sound power measurements of existing noise sources allows for accurate predictive modeling. For example the sound power can be measured directly for a single (or bank) of ventilation fans on one development site and this data can then be used to predict noise levels based on the number and location of ventilation fans on another development site.

Modelled results in the NIA predict that operational noise level will comply with relevant noise limits at NSR considered. The continuous operation of ventilation fans are predicted to be the highest contributor to operational noise levels. This is primarily due to the number and location of ventilation fans

3.2 Road traffic noise

Numerous community responses related to road traffic noise, particularly related to 'accelerating' and 'compression braking'. Particular areas of concern were traffic entering/exiting the site onto Rushes Creek Road and the 70 degree bend approximately 4km south of the site entrance road. One resident also stated that:

> *'The consultant incorrectly advises "that the increase in traffic would likely cause an insignificant increase in road traffic noise levels and is unlikely to be noticed."'*

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The NIA considered road traffic noise impact for traffic generated on the Oxley Highway and Rushes Creek Road. In relation to road traffic noise impact on the existing arterial road, the Oxley Highway, the NIA stated that:

> *'Traffic generated by the Development is predicted to increase heavy vehicles on Oxley Highway by up to 8% and total traffic counts by up to 2%. Considering traffic generated by the Development is predicted to be evenly spread across the production cycle, this increase in traffic would likely cause an insignificant increase in road traffic noise levels and is unlikely to be noticed.'*

This is a justification for no further assessment for the impact on the Oxley Highway and should not be confused with assessment of traffic impacts on Rushes Creek Road.

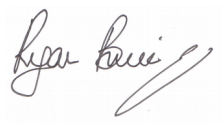
Road traffic modelling for Rushes Creek Road in the NIA predicts that the Development will increase existing day period noise levels by 1dB and night period noise levels by 3 dB. A 3 dB increase represents a doubling of noise which reflects the approximate doubling of heavy vehicle movements assessed for the night period. Model predictions from the road traffic assessment demonstrate compliance with relevant criteria from the NSW Road Noise Policy.

While the majority of activities will be carried out between 7:00 am and 7:00 pm, live bird collection and transport from the Development Site may occur any time between 7:00 pm and 4:00 pm. While attempts will be made to transport the birds during cooler times of the day/night, given the very large number of birds to be collected and transported from this Development and also the numerous other boiler production farms in the region, transport contractors cannot guarantee transport times. For this reason it is not possible to restrict heavy vehicle movement to the day period only.

Given the proximity of a few houses to Rushes Creek Road, heavy vehicle drivers should be asked to be aware of their impact on the surrounding area and limit compression braking where possible.

We trust this information meets your requirements. If you have any questions or need further details please contact me.

Regards,



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