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2010459/0210A/R1/GW

02/10/2012

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ATTN: BRYAN KIDD

Macdonaldtown Gasworks - Acoustic Review of Council & DECCW's Comments

1 INTRODUCTION

This letter provides acoustic review and response for the NSW Department of Planning & Sydney City Council's comments for the proposed remediation activities at Macdonaldtown.

2 ITEM 22 BY DEPARTMENT OF PLANNING

Comment: Will the emission control system operate 24 hours a day?

Response:

Construction activity will be limited to the hours stated in the DECCW Interim Construction Noise Guideline presented below:

- 7:00am-6:00pm Monday to Friday
- 8:00am-1:00pm Saturday
- No Work Sundays and public holidays

It has been confirmed that the emission control system will not operate 24 hours a day and the operation hours will be as above.

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3 ITEM 23 BY DEPARTMENT OF PLANING

Comments: The sound power levels used are at the low end of what would be expected from the proposed equipment.

Response:

Noise Data of Air Emission System

The noise data of air emission system was measured on another remediation work site at Alexandria on 25th May 2010. This office has been advised that same system is proposed to be used on the project site therefore it is the actual noise levels emitted from the proposed air emission equipment.

Noise Data of Excavation /construction equipment

The noise data (Sound Power Level) provided by ALC has been compared against the noise data recommended by Australian Standard AS2436-2010 and detailed below.

Table 1 - Sound Power Levels of Major Equipment

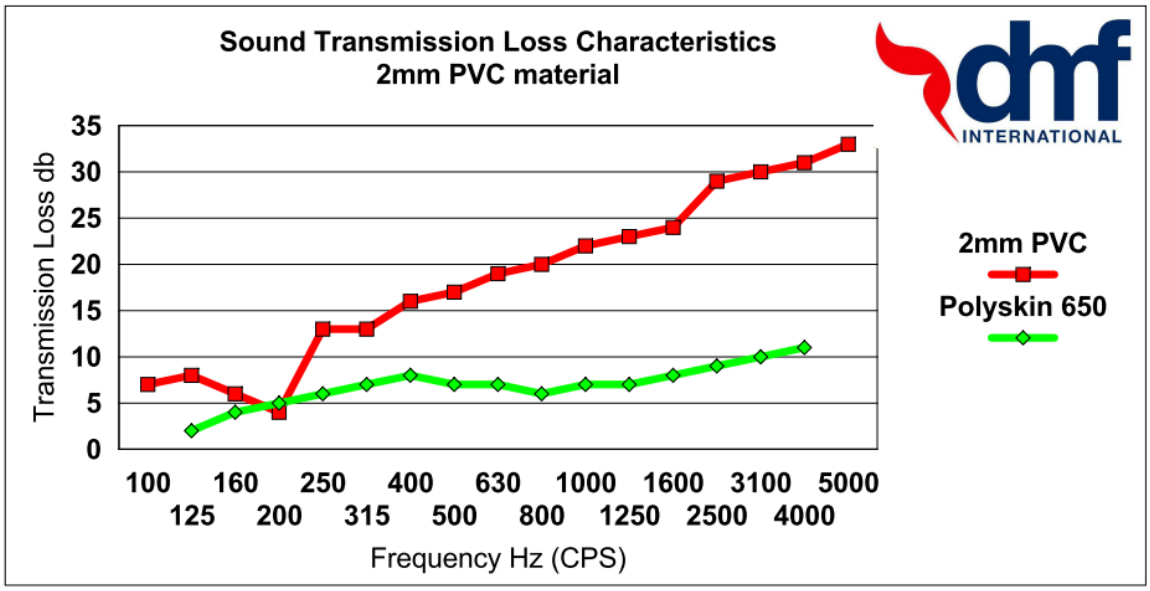
Equipment	ALC -Sound Power Level	Sound Power Level Recommended by AS2436-2010- Typical mid-point
Bored Piling	113	111
20 Ton Excavator with Hydraulic Hammer	120	121
20 Ton Excavator with bucket	107	105 (loader)
Bulldozer	114	108
Bobcat	105	Not available
Truck	108	107 (> 20 Ton)
Angle grinders	114	102
Electric Saw	111	102
Drilling	94	Not detailed
Air compressor	86	Not detailed

It is clear that the noise data used by ALC equal or higher than specified as “typical midpoint” by AS2436-2010.

4 ITEM 24 BY DEPARTMENT OF PLANNING

Comments: The attenuation from enclosure is optimistic.

Response: The noise transmission loss datasheet for 2mm thick PVC has been provided by a PVC supplier (dmf international) and is presented below. Note that only 2mm thick PVC has been lab tested for acoustic insulating properties, not the 7mm thick PVC as specified.



The noise transmission loss testing data above has been applied to the SPL of a typical excavator to ascertain the noise reduction of 2mm thick PVC.

Source Example

Table 2 - Typical excavator noise SPL spectrum

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	A weight
Sound Power Level (dB)	72	72	70	68	75	62	61	60	76

TL of PVC Enclosure

Table 3 - Transmission Loss of 2mm PVC data

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Sound Power Level (dB)	0	6	11	17	21	26	29	0.0

Result Noise

Table 4 - Resulting SPL spectrum

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000	A weight
Sound Power Level (dB)	72	66	59	51	54	36	32	60	61.2

Noise Reduction by 7mm thick PVC Enclosure

As shown above, the reduction across the SPL spectrum is 76 – 61.2 = 14.8dB. As such, the noise reduction of typical excavator noise shall be at least 14 dB(A). We specified 7mm thick PVC and used only a 3-8 dB(A) reduction in the acoustic report therefore the modelled noise prediction is considered conservative.

Comments: The shielding from enclosure is optimistic.

Response: Noise control C (Barrier factor) is only applied to the plant maintaining negative pressure in the enclosure (fan extractors, generators etc) and other mobile plant operating on the eastern portion of the site only.

Any solid barrier screening the noise source from a receiver shall be able to provide a minimum 5 dB(A) reduction. Our specified 7mm PVC enclosure fully screens the static plant from residential receivers and a 5 dB(A) reduction has been applied to this plant.

Please be reminded that noise controls B & C (barrier factor and attenuation from within the tent) cannot both be applied for the same source.

5 ITEM 25 BY DEPARTMENT OF PLANNING

Comments: Prediction are in some cases greater than 75 dB(A) which is the maximum that ICNG accepts from construction noise. The department will not consider accepting levels greater than this without a commitment to strategies that will be acceptable to surrounding residents.

Response:

Section 3 of AS 2436 states that care shall be taken in applying criteria that normally would be used to regulate noise emitted from industrial, commercial and residential premises to construction, particularly for those activities which are transitory and of short duration. For the control and regulation of noise from construction sites AS2436 nominates the following:

- That a reasonable suitable noise criterion is established.
- That all practicable measures be taken on the building site to regulate noise emissions, including the siting of noisy static processes on parts of the site where they can be shielded, selecting less noisy processes, and if required regulating construction hours.
- The undertaking of noise monitoring where non-compliance occurs to assist in the management and control of noise emission from the building site.

6 ITEM 26 BY DEPARTMENT OF PLANNING

Comments: Apply impulsive penalty to the use of hydraulic hammer.

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Impulsive noise: A weighted fast and impulse response- if difference in A- Weighted maximum noise levels between fast response and impulsive is greater than 2 dB, Apply difference in measured levels as the correction, up to a maximum 5 dB.

Noise measurements of hydraulic hammer by this office indicated that the difference between A weighted maximum noise levels of fast response and impulsive response is between 0.3 to 2.7 dB. It is recommended that attended noise level measurements shall be conducted at the site to check if the difference is more than 2 dB then determine the dB(A) correction.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Consultancy Pty Ltd
George Wei

Senior Acoustic Engineer