

KLF Holdings Pty Ltd Recycling Facility

Noise compliance report - Quarter 4 2021

Prepared for KLF Holdings Pty Ltd
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KLF Holdings Pty Ltd Recycling Facility

Noise compliance report - Quarter 4 2021

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Client

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1 Introduction

EMM Consulting Pty Limited (EMM) has been engaged to complete quarterly attended compliance noise monitoring for the Camelia Waste Recycling Facility (the site) on behalf of KLF Holdings Pty Limited (KLF). This quarterly monitoring is a requirement as detailed in the site's Environment Protection Licence (12700) dated 20 July 2021.

This report presents the results and findings of Quarter 4 2021 attended noise monitoring conducted during the day, evening and night periods of 20 and 21 December 2021.

The following documents were referenced as part of this assessment:

- KLF Holdings Pty Ltd Environment Protection Licence (EPL) 12700 (20 July 2021);
- AS 1055.2018 Acoustics - Description and measurement of environmental noise; and
- Environment Protection Authority (EPA), Noise Policy for Industry (NPfI), (2017).

Several technical terms are discussed in this report. These are explained in the glossary.

2 Noise limits and monitoring requirements

Noise assessment criteria for the site are provided in the site’s EPL. The noise assessment criteria are specified for day, evening and night periods at locations which are representative of residences potentially most impacted by site noise. Pages from the site’s EPL pertaining to noise are shown in Appendix A.

2.1 Noise limits

Condition L3.1 of the site’s EPL nominates noise limits KLF Camelia, which are reproduced in Table 2.1.

Table 2.1 Noise limits

| Location | Noise limits, dB $L_{Aeq,15min}$ | | | Noise limits, dB L_{AFmax} |
|---|----------------------------------|---------|-------|------------------------------|
| | Day | Evening | Night | Night |
| 523-530 John Street Rydalmere | 50 | 48 | 43 | 59 |
| 28 & 30 Sylvie Street Rydalmere, 33 Nowill Street Rydalmere | 50 | 48 | 43 | 59 |
| 37-45 John Street Rydalmere | 50 | 48 | 43 | 59 |
| 22 & 24 Milton Street Rydalmere, 33 & 35 John Street Rydalmere | 50 | 48 | 43 | 59 |

Notes: 1. Day is the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sunday and public holidays. Evening is the period from 6 pm to 10 pm. Night is the period from 10 pm to 7 am Monday to Saturday and 10 pm to 8 am Sunday and public holidays.

2.2 Meteorological conditions

Condition L3.2 of the EPL states the meteorological conditions which the noise limits apply under:

- L3.2 Noise-enhancing meteorological conditions:
- a) The noise limits set out in condition L3.1 apply under the meteorological conditions listed in the table below.
 - b) For those meteorological conditions not referred to in condition L3.2(a) table, the noise limits that apply are the noise limits in conditions L3.1 table plus 5 dB.

The table from Condition L3.2 is reproduced in Table 2.2 below.

Table 2.2 Applicable meteorological conditions

| Assessment period | Meteorological conditions |
|-------------------|---|
| Day | Stability Categories A, B, C and D with wind speeds up to and including 3 m/s at 10 m above ground level. |
| Evening | Stability Categories A, B, C and D with wind speeds up to and including 3 m/s at 10 m above ground level. |

Table 2.2 **Applicable meteorological conditions**

| Assessment period | Meteorological conditions |
|--------------------------|---|
| Night | Stability Categories A, B, C and D with wind speeds up to and including 3 m/s at 10 m above ground level; or Stability category E and F with wind speeds up to and including 2 m/s at 10 m above ground level. |

Condition L3.4 specifies the source of meteorological data to be used and method for determining stability categories:

- L3.4 For the purpose of condition L3.2:
 - a) The meteorological conditions are to be determined from meteorological data obtained from the meteorological weather station identified as Bureau of Meteorology AWS at Sydney Olympic Park, NSW (Station no 066212).
 - b) Stability category shall be determined using the following method from Fact Sheet D of the Noise Policy for Industry (NSW EPA, 2017):
 - i. Use of sigma-theta data (section D1.4).

3 Assessment methodology

3.1 Attended noise monitoring

To quantify noise emissions from the site, 15-minute attended noise surveys were completed at monitoring locations as per Condition L3.1 of the site’s EPL. Three attended noise monitoring locations were chosen to represent the most affected residences in proximity to the site, it is anticipated that any residences located further from the site would experience lesser or similar noise levels. The attended noise monitoring locations and their coordinates are listed in Table 3.1 and shown in Figure 3.1.

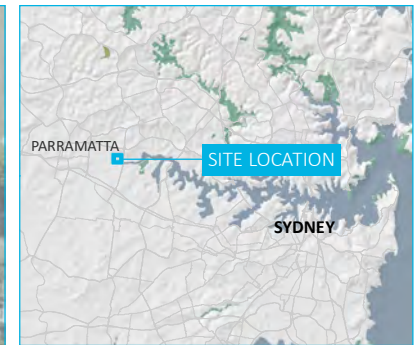
Table 3.1 Attended noise monitoring locations

| Monitoring location | Description | Location | MGA56 | |
|---------------------|---|-----------------------------|-------------|--------------|
| | | | Easting (m) | Northing (m) |
| A1 | Approximately 200 m northeast of the site | 530 John Street, Rydalmere | 319369 | 6255948 |
| A2 | Approximately 225 m northeast of the site | 45 John Street, Rydalmere | 319319 | 6256051 |
| A3 | Approximately 260 m northeast of the site | 24 Milton Street, Rydalmere | 319230 | 6256149 |

3.2 Instrumentation

A Brüel & Kjær Type 2250 sound level meter (serial number 2759405) was used to conduct 15-minute attended measurements and record 1/3 octave band centre frequency and statistical noise indices. The sound analyser was calibrated before and on completion of the survey using a Svantek SV36 calibrator (s/n 106879). The instruments were within their NATA laboratory calibration period during the time of these readings. Refer to Appendix B for calibration certificates.

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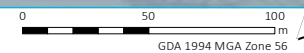
- KEY**
- Noise measurement location - attended
 - Site boundary
 - Named waterbody
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Site locality and attended noise monitoring locations

KLF Holdings Camelia
Quarterly noise compliance
Figure 3.1



Source: EMM (2021); MetroMap (2021); DFSI (2017); GA (2011); ASGC (2006)



3.3 Weather conditions

Weather data for the monitoring period was sourced from the Bureau of Meteorology (BoM) Automated Weather Station (AWS) located at Sydney Olympic Park (Station ID 066212). Wind speeds are stated with reference to a height of 10 m above ground level (AGL).

The presence of temperature inversion conditions was determined for the monitoring period in accordance with the Sigma Theta method specified in Fact Sheet D of the NPfl (EPA 2017). Table 3.2 is an excerpt from Fact Sheet D of the NPfl (EPA 2017) showing the range of vertical temperature gradients for each Pasquill-Guilford stability category.

Table 3.2 Stability categories and vertical temperature gradients

| Stability category | Range of vertical temperature gradient, DT/DZ (°C/100 m) |
|--------------------|--|
| A | $DT/DZ < -1.9$ |
| B | $-1.9 \leq DT/DZ < -1.7$ |
| C | $-1.7 \leq DT/DZ < -1.5$ |
| D | $-1.5 \leq DT/DZ < -0.5$ |
| E | $-0.5 \leq DT/DZ < 1.5$ |
| F | $1.5 \leq DT/DZ < 4.0$ |
| G | $DT/DZ \geq 4.0$ |

Source: NPfl (EPA 2017).

3.4 Site operating hours

The site typically operates from 4:30 am to 4:30 pm on Monday to Friday and from 5:00 am to 1:00 pm on Saturdays (closed Sundays), with hours extended when demand and processing is required.

4 Monitoring data and discussion

The results of the attended noise monitoring are summarised in Table 4.1.

A review of the weather data confirmed that the EPL meteorological criteria (Condition L3.2) was exceeded during 8 of the 24 attended measurements. In accordance with the EPL, the noise limits for those periods were those listed in Condition L.1 plus 5 dB. Details of the average wind speed, wind direction, cloud cover and stability category present during each 15-minute attended measurement are shown in Table 4.1.

During the periods that site was operational, typical activities included:

- Night (10:00 pm to 7:00 am):
 - front end loader;
 - two excavators; and
 - trucks tipping/being loaded out.
- Day (7:00 am to 6:00 pm):
 - front end loader;
 - two excavators;
 - processing plant;
 - one excavator loading processing plant;
 - one excavator loading residual material out; and
 - trucks tipping/being loaded out.
- The site was not operational during the evening (6:00 pm to 10:00 pm):

Site operations were audible during all attended measurements in the night and day periods, including the constant hum of processing plant and “bangs” and “clangs” of material handling. Site contributions were estimated using a combination of operator observations at the time of measurement, filtering of extraneous noise and the application of a low pass filter in order to filter out extraneous noise such as birdsong and insects. The site was not operating during the evening period on the days that monitoring took place.

Site contributions were compliant (below) EPL $L_{Aeq,15min}$ noise limits during all attended daytime measurements.

Site contributions were estimated to exceed the EPL noise limits by 1 dB on 3 of the 8 night-time measurements. A 1 to 2 dB exceedance is considered by the EPA as negligible in accordance with Section 4.2 of the NPfI (EPA 2017). This is because a 1 to 2 dB change in noise level in an environmental context is indiscernible to the human ear.

Typical L_{Amax} noise levels from the site were caused by “bangs” from the excavator bucket impacts and material handling. There were no breaches of the EPL $L_{Amax,15min}$ noise limits for any measurement.

Based on a detailed review and analysis of noise measurement data, there was no evidence of low frequency noise, tonality or any other modifying factors as defined in the NPfl (EPA 2017) at any monitoring location; therefore, modifying factors were not applicable.

Table 4.1 Attended noise monitoring results – Q4 2021, 20-21 December

| Location | Start time (period) ¹ | Total noise levels, dB | | | | Estimated site contribution, dB | | EPL limits, dB | | Meteorological conditions EPL limits apply (Y/N) ² | Exceedance, dB | | Notes |
|----------|-------------------------------------|------------------------|------------------|------------------|-------------------|------------------------------------|-------------------|-----------------------------|-------------------|--|-----------------------------|-------------------|--|
| | | L _{Amin} | L _{A90} | L _{Aeq} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | | L _{Aeq, 15min} | L _{Amax} | |
| A2 | 5:30 am (Night) | 45 | 47 | 53 | 76 | 44 | 57 | 48 ³ | 64 | Calm, Category G, N | Nil | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). Occasional local cars. |
| A1 | 5:45 am (Night) | 43 | 46 | 51 | 64 | 45 | 57 | 48 ³ | 64 | Calm, Category G, N | Nil | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). 1 ferry pass-by (61 dB max). |
| A1 | 6:02 am (Night) | 46 | 49 | 52 | 65 | 43 | 58 | 43 | 59 | 0.4 m/s E, Category F, Y | Nil | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Occasional reverse sirens. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). |
| A3 | 6:19 am (Night) | 46 | 49 | 53 | 70 | 44 | 58 | 43 | 59 | 0.4 m/s E, Category F, Y | 1 | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). 1 ferry pass-by (61 dB max). 1 helicopter (55 dB max). |
| A2 | 7:08 am (Day) | 46 | 49 | 55 | 74 | 48 | - | 50 | - | 1.9 m/s SE, Category C, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). Occasional local cars (66 dB av). 1 ferry pass-by (52 dB max). |

Table 4.1 Attended noise monitoring results – Q4 2021, 20-21 December

| Location | Start time (period) ¹ | Total noise levels, dB | | | | Estimated site contribution, dB | | EPL limits, dB | | Meteorological conditions EPL limits apply (Y/N) ² | Exceedance, dB | | Notes |
|----------|-------------------------------------|------------------------|------------------|------------------|-------------------|------------------------------------|-------------------|-----------------------------|-------------------|--|-----------------------------|-------------------|---|
| | | L _{Amin} | L _{A90} | L _{Aeq} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | | L _{Aeq, 15min} | L _{Amax} | |
| A2 | 7:25 am (Day) | 47 | 49 | 53 | 72 | 48 | - | 50 | - | 1.9 m/s SE, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). Occasional local cars (57 dB av). |
| A1 | 7:47 am (Day) | 49 | 51 | 53 | 70 | 48 | - | 50 | - | 1.9 m/s SE, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). |
| A1 | 8:06 am (Day) | 48 | 50 | 52 | 71 | 46 | - | 50 | - | 3 m/s SE, Category B, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). |
| A3 | 8:32 am (Day) | 46 | 49 | 55 | 80 | 49 | - | 55 ³ | - | 3.6 m/s SE, Category B, N | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). Occasional local cars (73 dB av). 1 turboprop aircraft. |
| A3 | 8:50 am (Day) | 46 | 48 | 54 | 74 | 47 | - | 55 ³ | - | 3.6 m/s SSE, Category B, N | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). Occasional local cars (67 dB av). |

Table 4.1 Attended noise monitoring results – Q4 2021, 20-21 December

| Location | Start time (period) ¹ | Total noise levels, dB | | | | Estimated site contribution, dB | | EPL limits, dB | | Meteorological conditions EPL limits apply (Y/N) ² | Exceedance, dB | | Notes |
|----------|----------------------------------|------------------------|------------------|------------------|-------------------|---------------------------------|-------------------|-------------------------|-------------------|--|-------------------------|-------------------|---|
| | | L _{Amin} | L _{A90} | L _{Aeq} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | | L _{Aeq, 15min} | L _{Amax} | |
| A1 | 6:30 pm (Evening) | 50 | 53 | 58 | 62 | n/a | - | 53 ³ | - | 4.2 m/s E, Category A, N | Nil | - | Site not operating. Other noise included persistent birdsong & cicadas (dominant) and distant traffic (constant). Occasional local cars. |
| A2 | 6:49 pm (Evening) | 44 | 46 | 54 | 74 | n/a | - | 53 ³ | - | 3 m/s ENE, Category A, N | Nil | - | Site not operating. Other noise included persistent birdsong & cicadas (dominant) and distant traffic (constant). Occasional local cars. |
| A2 | 5:31 am (Night) | 43 | 45 | 52 | 76 | 44 | 56 | 43 | 59 | Calm, Category D, Y | 1 | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Occasional reverse siren. Other noise included persistent birdsong (dominant), hum of other industry and distant traffic (constant). Occasional local cars (71 dB av). |
| A1 | 5:48 am (Night) | 45 | 48 | 52 | 64 | 43 | 58 | 43 | 59 | 0.6 m/s WNW, Category D, Y | Nil | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent cicadas & birdsong (dominant), hum of other industry and distant traffic (constant). 1 ferry pass-by (48 dB). |
| A1 | 6:06 am (Night) | 46 | 48 | 52 | 69 | 43 | 58 | 43 | 59 | Calm, Category F, Y | Nil | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent cicadas & birdsong (dominant), hum of other industry and distant traffic (constant). |

Table 4.1 Attended noise monitoring results – Q4 2021, 20-21 December

| Location | Start time (period) ¹ | Total noise levels, dB | | | | Estimated site contribution, dB | | EPL limits, dB | | Meteorological conditions EPL limits apply (Y/N) ² | Exceedance, dB | | Notes |
|----------|-------------------------------------|------------------------|------------------|------------------|-------------------|------------------------------------|-------------------|-----------------------------|-------------------|--|-----------------------------|-------------------|--|
| | | L _{Amin} | L _{A90} | L _{Aeq} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | | L _{Aeq, 15min} | L _{Amax} | |
| A3 | 6:26 am (Night) | 46 | 48 | 51 | 65 | 44 | 58 | 44 | 59 | 0.6 m/s W, Category F, Y | 1 | Nil | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent cicadas & birdsong (dominant), hum of other industry and distant traffic (constant). Occasional local traffic. |
| A2 | 8:05 am (Day) | 49 | 52 | 56 | 73 | 48 | - | 50 | - | 1.9 m/s WSW, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Occasional reverse sirens. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). Occasional local cars. |
| A2 | 8:35 am (Day) | 49 | 51 | 56 | 76 | 48 | - | 50 | - | 2.5 m/s SW, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Occasional reverse sirens. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). Occasional local cars (67 dB av). |
| A1 | 8:56 am (Day) | 48 | 51 | 54 | 72 | 45 | - | 50 | - | 2.5 m/s WSW, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). 1 ferry (50 dB). |

Table 4.1 Attended noise monitoring results – Q4 2021, 20-21 December

| Location | Start time (period) ¹ | Total noise levels, dB | | | | Estimated site contribution, dB | | EPL limits, dB | | Meteorological conditions EPL limits apply (Y/N) ² | Exceedance, dB | | Notes |
|----------|-------------------------------------|------------------------|------------------|------------------|-------------------|------------------------------------|-------------------|-----------------------------|-------------------|--|-----------------------------|-------------------|--|
| | | L _{Amin} | L _{A90} | L _{Aeq} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | L _{Aeq, 15min} | L _{Amax} | | L _{Aeq, 15min} | L _{Amax} | |
| A1 | 9:12 am (Day) | 48 | 50 | 53 | 71 | 45 | - | 50 | - | 3 m/s WSW, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts and steady state industrial hum. Other noise included persistent birdsong & cicadas (dominant), hum of other industry and distant traffic (constant). 2 ferries (50, 50 dB). |
| A3 | 9:37 am (Day) | 49 | 52 | 58 | 73 | 47 | - | 50 | - | 2.5 m/s W, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts. Steady state industrial hum is masked by local ambient noise. Other noise included persistent birdsong & cicadas (dominant), activity from other industry and distant traffic (constant). Occasional local traffic. |
| A3 | 9:54 am (Day) | 49 | 52 | 58 | 73 | 47 | - | 50 | - | 1.7 m/s W, Category A, Y | Nil | - | Site audible. Persistent debris handling, scoop impacts. Steady state industrial hum is masked by local ambient noise. Other noise included persistent birdsong & cicadas (dominant), activity from other industry and distant traffic (constant). Occasional local traffic. |
| A2 | 7:51 pm (Evening) | 43 | 48 | 56 | 76 | n/a | - | 53 ³ | - | 3.6 m/s ESE, Category D, N | Nil | - | Site not operating. Other noise included persistent birdsong & cicadas (dominant) and distant traffic (constant). Occasional local cars. |
| A1 | 8:09 pm (Evening) | 42 | 45 | 50 | 70 | n/a | - | 53 ³ | - | 3.6 m/s E, Category D, N | Nil | - | Site not operating. Other noise included persistent birdsong & cicadas (dominant) and distant traffic (constant). Occasional local cars. Helicopter (58 dB). |

- Notes:
1. Day is the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm Sunday and public holidays. Evening is the period from 6 pm to 10 pm. Night is the period from 10 pm to 7 am Monday to Saturday and 10 pm to 8 am Sunday and public holidays.
 2. Weather data for the monitoring period was sourced from the Bureau of Meteorology (BoM) Automated Weather Station (AWS) located at Sydney Olympic Park (Station ID 066212). Wind speeds are stated with reference to a height of 10 m above ground level (AGL).
 3. In accordance with Condition L3.2, where meteorological conditions exceed those specified in Condition L3.2, the EPL limits for these periods are those listed in Condition L3.1 plus 5 dB.

5 Conclusion

EMM has completed a review of operational noise from the KLF Holdings Camelia site for Quarter 4, 2021.

Attended noise monitoring was conducted during the day, evening and night periods on 20 and 21 December 2021. The applicability of noise limits was assessed with reference to weather data from the BoM's Sydney Olympic Park AWS.

The site was operational during all day and night period attended measurements. The site was not operational during the evening.

Attended noise monitoring observations and results demonstrate that operational noise from the site was audible during all attended measurements. Site contributions were estimated to exceed the EPL noise limits by 1 dB on 3 of the 8 night-time measurements. A 1 to 2 dB exceedance is considered by the EPA as negligible in accordance with Section 4.2 of the NPfI (EPA 2017). Noise contributions from the site were compliant with (below) relevant EPL $L_{Aeq,15min}$ noise limits for all other measurements.

Maximum L_{Amax} noise events measured from the site also satisfied the EPL L_{Amax} noise limits during attended measurements during the night period.

Glossary

Several technical terms are discussed in this report. These are explained in Table G.1.

Table G.1 **Glossary of acoustic terms**

| Term | Description |
|----------------------------|--|
| dB | Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear. |
| L _{A1} | The 'A-weighted' noise level which is exceeded 1% of the time. |
| L _{A1,1 minute} | The 'A-weighted' noise level exceeded for 1% of the specified time period of 1-minute. |
| L _{A10} | The 'A-weighted' noise level which is exceeded 10% of the time. It is approximately equivalent to the average of maximum noise level. |
| L _{A90} | Commonly referred to as the background noise level. The 'A-weighted' noise level exceeded 90% of the time. |
| L _{Aeq} | The energy average noise from a source. This is the equivalent continuous 'A-weighted' sound pressure level over a given period. The L _{Aeq,15 minute} descriptor refers to an L _{Aeq} noise level measured over a 15--minute period. |
| L _{Amin} | The minimum 'A-weighted' noise level received during a measuring interval. |
| L _{Amax} | The maximum root mean squared 'A-weighted' sound pressure level (or maximum noise level) received during a measuring interval. |
| L _{Ceq} | The equivalent continuous 'C-weighted' sound pressure level over a given period. The L _{Ceq,15 minute} descriptor refers to an L _{Ceq} noise level measured over a 15-minute period. C-weighting can be used to measure low frequency noise. |
| Day period | Monday – Saturday: 7 am to 6 pm, on Sundays and Public Holidays: 8 am to 6 pm. |
| Evening period | Monday – Saturday: 6 pm to 10 pm, on Sundays and Public Holidays: 6 pm to 10 pm. |
| Night period | Monday – Saturday: 10 pm to 7 am, on Sundays and Public Holidays: 10 pm to 8 am. |
| Temperature inversion | A meteorological condition where the atmospheric temperature increases with altitude. |
| Vibration Dose Value (VDV) | Vibration Dose is a parameter that combines the magnitude of vibration and the time for which it occurs. VDV is a cumulative measurement of the vibration level received over a 15-hour or 9-hour period (Day and night). |

It is useful to have an appreciation of the decibel (dB), the unit of noise measurement. Table G.2 gives an indication as to what an average person perceives about changes in noise levels in the environment. Examples of common noise levels are provided in Figure G.1.

Table G.2 **Perceived change in noise**

| Change in sound pressure level (dB) | Perceived change in noise in surrounding environment |
|--|---|
| up to 2 | not perceptible |
| 3 | just perceptible |
| 5 | noticeable difference |
| 10 | twice (or half) as loud |
| 15 | large change |
| 20 | four times (or quarter) as loud |

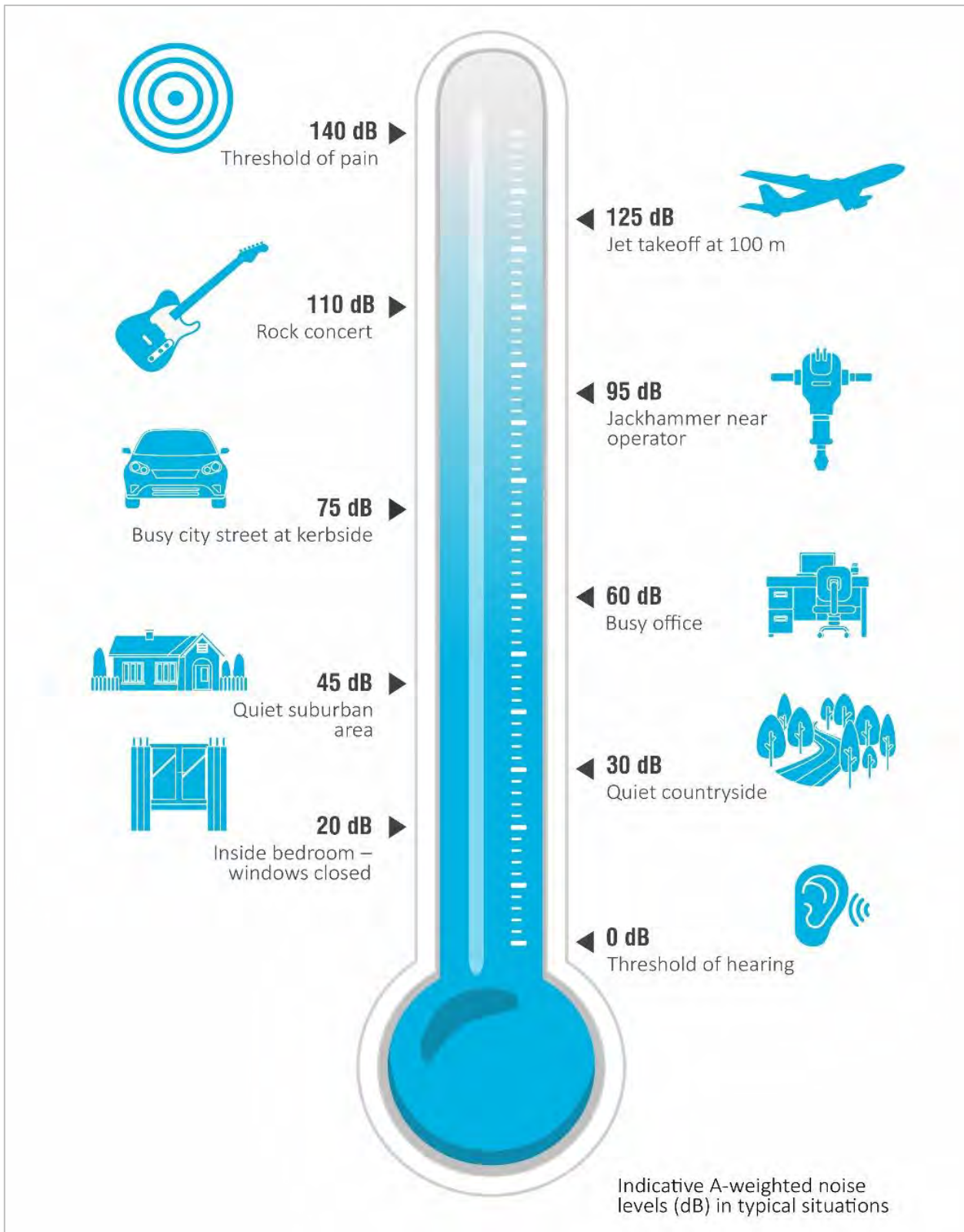


Figure G.1 Common noise levels

Appendix A

EPL 12700

Environment Protection Licence

Licence - 12700

the exception of the maximum threshold values for contaminants specified in the 'Other Limits' column

Petroleum Hydrocarbons C6-C9 150mg/kg; Petroleum Hydrocarbons C10-C36 1600mg/kg; Polycyclic aromatic hydrocarbons 80mg/kg; Polychlorinated biphenyls (individual) 1mg/kg. No Acid Sulfate Soil or Potential Acid Sulfate Soil is to be received at the Premises. Soil thresholds will be subject to review from time to time.

- L2.2 The height of any stockpile of waste or any processed substance must not exceed four (4) metres.
- L2.3 The licensee must install and maintain a visible permanent stockpile marker that shows the permitted height of stockpiles, being four metres.
- L2.4 The authorised amount of waste permitted on the premises cannot exceed 6,500 tonnes at any one time.
- L2.5 Any waste that is not listed in table L2.1, including asbestos waste, that is found after receipt at the premises must be:
- stored in an isolated and appropriately sign-posted area;
 - removed from the premises within one business day of receipt of the non-conforming waste to a place that can lawfully accept that type of waste; and
 - details (date, amount, type of waste, disposal location, disposal dated) must be logged in a register that is kept at the premises.

L3 Noise limits

- L3.1 Noise generated at the premises must not exceed the noise limits (in dB(A)) at the times and locations in table below.

| Location | Day | Evening | Night | Night |
|-------------------------------|-----------------|-----------------|-----------------|--------|
| - | LAeq(15 minute) | LAeq(15 minute) | LAeq(15 minute) | LAFmax |
| 523-530 John Street Rydalmere | 50 | 48 | 43 | 59 |

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| | | | | |
|--|----|----|----|----|
| 28 & 30 Sylvia Street Rydalmere, 33 Nowill Street Rydalmere | 50 | 48 | 43 | 59 |
| 37-45 John Street Rydalmere | 50 | 48 | 43 | 59 |
| 22 & 24 Milton Street Rydalmere, 33 & 35 John Street Rydalmere | 50 | 48 | 43 | 59 |

L3.2 Noise-enhancing meteorological conditions

- The noise limits set out in condition L3.1 apply under the meteorological conditions listed in table below.
- For those meteorological conditions not referred to in condition L3.2(a) table, the noise limits that apply are the noise limits in condition L3.1 table plus 5dB.

| Assessment Period | Meteorological Conditions |
|-------------------|--|
| Day | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level |
| Evening | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level |
| Night | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level; or Stability category E and F with wind speeds up to and including 2m/s at 10m above ground level. |

L3.3 For the purpose of condition L3.1;

- Day means the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays.
- Evening means the period from 6pm to 10pm.
- Night means the period from 10pm to 7am Monday to Saturday and the period from 10pm to 8am Sunday and public holidays.

L3.4 For the purposes of condition L3.2:

- The meteorological conditions are to be determined from meteorological data obtained from the meteorological weather station identified as Bureau of Meteorology AWS at Sydney Olympic Park, NSW (Station no 066212).
- Stability category shall be determined using the following method from Fact Sheet D of the *Noise Policy for Industry* (NSW EPA, 2017):
 - Use of sigma-theta data (section D1.4).

L3.5 Noise measurements must not be undertaken where rain or wind speed at microphone level will affect the acquisition of valid measurements.

L3.6 To assess compliance:



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a) with the LAeq(15mins) and LAmax noise limits in condition L3.1 and L3.2, the noise measurement equipment must be located:

(i) approximately on the property boundary, where any residence is situated 30 metres or less from the property boundary closest to the premises; or where applicable,

(ii) in an area within 30 metres of a residence façade, but not closer than 3 metres where any residence on the property is situated more than 30 meters from the property boundary closest to the premises; or, where applicable,

(iii) in an area within 50 metres of the boundary of a National park or a Nature Reserve,

(iv) at any other location identified in condition L3.1.

b) with the LAeq(15 minutes) or the LAmax noise limits in condition L3.1 and L3.3, the noise measurement equipment must be located:

(i) at the reasonably most affected point at a location where there is no residence at the location; or,

(ii) at the reasonably most affected point within an area at a location prescribed by condition L3.5(a).

L3.7 A non-compliance of conditions L3.1 and L3.2 will still occur where noise generated from the premises is measured in excess of the noise limit at a point other than the reasonably most affected point at the receiver locations referred to in conditions L3.6(a) or L3.6(b).

NOTE to Conditions L3.6 and L3.7. The reasonably most affected point is a point at a receiver location or within an area at a receiver location experiencing or expected to experience the highest sound pressure level from the premises.

L3.8 For the purposes of determining the noise generated from the premises, the modifying factor corrections in Table C1 in Fact Sheet C of the *Noise Policy for Industry* (NSW EPA, 2017) may be applied, if appropriate, to the noise measurements by the noise monitoring equipment.

Note: **Definition of Terms for noise limits**

- Noise Policy for Industry - the document entitled "*Noise Policy for Industry*" published by the NSW Environment Protection Authority in October 2017.

- Noise – 'sound pressure levels' for the purposes of conditions L3.1 to L3.8.

- LAeq (15 minute) - the value of the A-weighted sound pressure level of a continuous steady sound that, over a 15 minute time interval, has the same mean square sound pressure level as a sound under consideration with a level that varies with time (Australian Standard AS 1055:2018 *Acoustics: description and measurement of environmental noise*).

- LAFmax – the maximum sound pressure level of an event measured with a sound level meter satisfying Australian Standard AS IEC 61672.1-2013 *Electroacoustics - Sound level meters - Part 1: Specifications* set to 'A' frequency weighting and fast time weighting.

L4 Hours of operation

L4.1 The hours of operation of the use of the premises is permitted 24 hours per day, Monday to Sunday, except those activities restricted by conditions L4.2 to L4.8.

L4.2 **Truck Movement**

Between 10pm to 7am: A maximum of 8 truck movements per hour are permitted to deposit waste material on the premises.

Appendix B

Calibration certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: SLM 26291 & FILT 5615

Equipment Description: Sound Level Meter

Manufacturer: B & K

Model No: 2250 **Serial No:** 2759405

Microphone Type: 4189 **Serial No:** 2888134

Preamplifier Type: ZC0032 **Serial No:** 16037

Filter Type: 1/3 Octave **Serial No:** 2759405

Comments: All tests passed for class 1.
(See over for details)

Owner: EMM Consulting
Level 3, 175 Scott Street
Newcastle, NSW 2300

Ambient Pressure: 1007 hPa \pm 1.5 hPa

Temperature: 24 °C \pm 2° C **Relative Humidity:** 53% \pm 5%

Date of Calibration: 05/02/2020 **Issue Date:** 05/02/2020

Acu-Vib Test Procedure: AVP10 (SLM) & AVP06 (Filters)

CHECKED BY: *JKB* **AUTHORISED SIGNATURE:** *Jack Kiehl*

Accredited for compliance with ISO/IEC 17025 - Calibration
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.



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Accredited Lab. No. 9262
Acoustic and Vibration
Measurements

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C28814

EQUIPMENT TESTED: Sound Level Calibrator

Manufacturer: Svantek
Type No: SV-36 **Serial No:** 106879
Owner: EMM Consulting
Suite 01, 20 Chandos St
St Leonards NSW 2065

Tests Performed: Measured output pressure level was found to be:

| Parameter | Pre-Adj | Adj Y/N | Output: (db re 20 µPa) | Frequency: (Hz) | THD&N (%) |
|-------------------------------|---------|---------|------------------------|-----------------|-----------|
| Level 1: | NA | N | 94.08 | 1000.00 | 1.78 |
| Level 2: | NA | N | 114.04 | 999.98 | 0.63 |
| Uncertainty: | | | ±0.11 dB | ±0.05% | ±0.20 % |
| Uncertainty (at 95% c.l.) k=2 | | | | | |

CONDITIONS OF TEST:

Ambient Pressure: 1005 hPa ±1.5 hPa **Relative Humidity:** 54 % ±5%

Temperature: 23 °C ±2° C

Date of Calibration: 15/02/2021 **Issue Date:** 15/02/2021

Acu-Vib Test Procedure: AVP02 (Calibrators)

Test Method: AS IEC 60942 - 2017

CHECKED BY: **AUTHORISED SIGNATURE:**
Jack Kielt

Accredited for compliance with ISO/IEC 17025 – Calibration
Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.



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