

AGL - ROSALIND PARK GAS PLANT

LOT 35, MEDHURST ROAD, MENANGLE, NSW, 2586
ANNUAL NOISE COMPLIANCE MONITORING – 2021
RWDI # 2200822.02
January 17, 2022

SUBMITTED TO

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1 INTRODUCTION

Noise monitoring of the AGL Upstream Investments Pty Ltd Rosalind Park Gas Plant (RPGP) was carried out by RWDI Australia Pty Ltd (RWDI) in order to assess compliance with the relevant noise limits set by the NSW Environment Protection Authority (EPA) Environment Protection Licence conditions (Licence No. 12003) and the Department of Planning and Environment's Conditions of Consent (DA No. 282-6-2003-i).

Noise monitoring was undertaken in accordance with the *NSW Industrial Noise Policy*.

This Annual Noise Compliance Monitoring Report is based on quarterly noise monitoring conducted by RWDI on Tuesday, 30 March 2021, Friday, 25 June 2021, Tuesday, 28 September 2021, Friday, 17 December 2021, Saturday, 18 December 2021 and Tuesday, 21 December 2021. The report has been prepared to satisfy the EPA's Licence Condition R1.9 (Licence No. 12003).

2 SITE DESCRIPTION

Two receiver locations were identified in the RPGP Environmental Impact Statement (EIS) as follows:

- R1: Medhurst Road, Gilead (approx. 0.9 kilometre [km] north of RPGP)
- R7: Mount Gilead, Gilead (approx. 1.1 km southeast of RPGP)

The approximate monitoring locations are shown in **Figure 1**.

3 NOISE LIMITS

The noise limits identified in the EPA's Licence Condition L5.1 (Licence No. 12003) apply to daytime, evening and night time periods and are expressed as $L_{Aeq,15min}$ noise levels. The noise limits are summarised in **Table 1**.

Table 1: Noise Limits (EPA Licence No. 12003)

| Location | Daytime ($L_{Aeq,15min}$) | Evening ($L_{Aeq,15min}$) | Night ($L_{Aeq,15min}$) |
|--------------------|--------------------------------|--------------------------------|------------------------------|
| R1 – Medhurst Road | 35 | 35 | 35 |
| R7 – Mount Gilead | 37 | 36 | 36 |

Notes:

- Daytime = 7:00 am – 6:00 pm Monday-Saturday; 8:00 am – 6:00 pm Sunday
- Evening = 6:00 pm – 10:00 pm
- Night = 10:00 pm – 7:00 am Monday to Saturday; 10:00 pm – 8:00 am Sunday

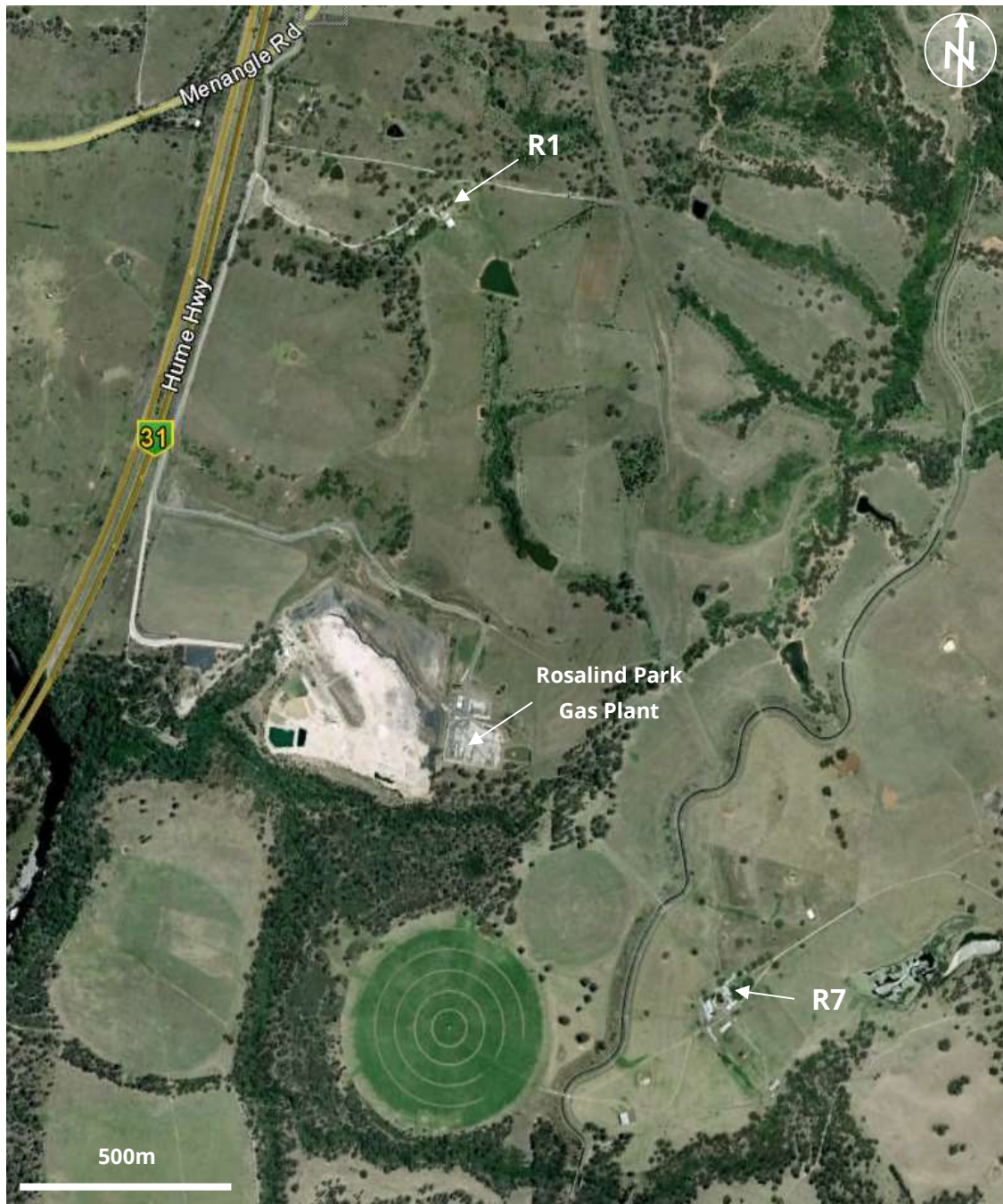


Figure 1: Noise Monitoring Locations

4 MONITORING PROCEDURE

Noise monitoring was conducted at both identified receivers for the three time periods defined in **Table 1** to assess compliance for the day, evening and night periods. The measurements were conducted in suitable meteorological conditions (low wind speeds and no rain) with the percentage of cloud cover during each site visit summarised in **Table 2**.

This Annual Noise Compliance Monitoring Report is based on quarterly noise monitoring conducted by RWDI on Tuesday, 30 March 2021, Friday, 25 June 2021, Tuesday, 28 September 2021, Friday, 17 December 2021, Saturday, 18 December 2021 and Tuesday, 21 December 2021. The report has been prepared to satisfy the EPA's Licence Condition R1.9 (Licence No. 12003).

Table 2: Summary of Cloud Cover during 2021 Noise Monitoring

| Location | Assessment Period | % Cloud Cover |
|---------------------|-------------------|----------------|
| 30 March 2021 | Day | 5 % |
| | Evening | 0 % |
| | Night | 0 % |
| 25 June 2021 | Day | 0 % |
| | Evening | 0 % |
| | Night | 85 % |
| 28 September 2021 | Day | 40 % |
| | Evening | 40 % |
| | Night | 5 % |
| 17-18 December 2021 | Evening | - ¹ |
| | Night | - ¹ |
| 21 December 2021 | Day | - ¹ |

Notes:

- Daytime = 7:00 am – 6:00 pm
 - Evening = 6:00 pm – 10:00 pm
 - Night = 10:00 pm – 7:00 am
1. Observation of cloud cover not made at time of measurement

All measurements were carried out during typical operating conditions with one compressor unit operating at the RPGP site.

All attended noise measurements were conducted at a location representative of the most affected point within the 30 metre (m) perimeter surrounding the house for both identified noise sensitive receiver locations as listed in **Table 1**.

5 MONITORING RESULTS

Table 3 summarises the 2021 noise results expressed as $L_{Aeq,15min}$ noise levels.

The plant was generally found to be inaudible or only barely audible. When the plant was barely audible, the measurement data was used to estimate the noise contribution from the plant.

Noise emission limits identified in EPL 12003 apply under all meteorological conditions except:

- during rain and wind speeds (at 10 m height) greater than 3 metre per second (m/s); and
- under "non-significant weather conditions".

Gilead is considered a non-arid area (annual average rainfall greater than 500 millimetres [mm]) according to the *INP* and as such, strong temperature inversions (G-class Pasquill-Gillford stability category) are considered to be a "non-significant weather condition". Therefore, the noise limits set out in **Table 1** do not strictly apply to strong temperature inversions (G-class Pasquill-Gilford stability category).

Local meteorological data sourced from the Campbelltown (Mount Annan) Bureau of Meteorology (BoM) weather station indicated that wind speeds at 10 m height were no greater than 3 m/s and high strength (G-Class) temperature inversions were not present during most of the monitoring monitoring. Evening and night measurements during the June (at R1 only) and September (at both R1 and R2) monitoring were subject to high strength (G-Class) temperature inversions. As such, noise limits are not applicable to the corresponding evening and night measurement results.



Table 3: Summary of 2021 Noise Monitoring

| Quarterly Monitoring Date | Assessment Period | R1 Medhurst | | | R7 Mt Gilead | | |
|---------------------------|-------------------|---------------------|--|---------------------------------|---------------------|--|---------------------------------|
| | | Measurement Period | Measured $L_{Aeq,15min}$ due to RPGP (dBA) | $L_{Aeq,15min}$ Criterion (dBA) | Measurement Period | Measured $L_{Aeq,15min}$ due to RPGP (dBA) | $L_{Aeq,15min}$ Criterion (dBA) |
| 30 March 2021 | Day | 5:40 pm – 5:55 pm | Inaudible | 35 | 4:47 pm – 5:02 pm | Inaudible | 37 |
| | Evening | 9:05 pm – 9:20 pm | Inaudible | 35 | 8:17 pm – 8:32 pm | 34 | 36 |
| | Night | 10:47 pm – 11:02 pm | Inaudible | 35 | 10:00 pm – 10:15 pm | 33 | 36 |
| 25 June 2021 | Day | 4:39 pm – 4:54 pm | Inaudible | 35 | 5:40 pm – 5:55 pm | Inaudible | 37 |
| | Evening | 8:34 pm – 8:49 pm | Inaudible | 35 | 7:42 pm – 7:57 pm | 34 | 36 |
| | Night | 10:45 pm – 11:00 pm | Inaudible | 35 | 10:00 pm – 10:15 pm | 36 | 36 |
| 28 September 2021 | Day | 5:42 pm – 5:57 pm | Inaudible | 35 | 4:55 pm – 5:10 pm | Inaudible | 37 |
| | Evening | 8:58 pm – 9:13 pm | Inaudible | 35 | 8:09 pm – 8:24 pm | 31 | 36 |
| | Night | 10:48 pm – 11:03 pm | Inaudible | 35 | 10:00 pm – 10:15 pm | 32 | 36 |

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| Quarterly Monitoring Date | Assessment Period | R1 Medhurst | | | R7 Mt Gilead | | |
|---------------------------|-------------------|---------------------|--|---------------------------------|---------------------|--|---------------------------------|
| | | Measurement Period | Measured $L_{Aeq,15min}$ due to RPGP (dBA) | $L_{Aeq,15min}$ Criterion (dBA) | Measurement Period | Measured $L_{Aeq,15min}$ due to RPGP (dBA) | $L_{Aeq,15min}$ Criterion (dBA) |
| 17-18 December 2021 | Evening | 9:42 pm – 9:57 pm | Inaudible | 35 | 8:42 pm – 8:57 pm | Inaudible | 36 |
| | Night | 12:34 am – 12:49 am | Inaudible | 35 | 11:42 pm – 11:57 pm | Inaudible | 36 |
| 21 December 2021 | Day | 12:35 pm – 12:50 pm | Inaudible | 35 | 1:42 pm – 1:57 pm | Inaudible | 37 |

Notes:

- Daytime = 7:00 am – 6:00 pm
- Evening = 6:00 pm – 10:00 pm
- Night = 10:00 pm – 7:00 am



6 CONCLUSION

The results of the noise monitoring of the Rosalind Park Gas Plant conducted in 2021 in accordance with the *NSW Industrial Noise Policy* show compliance with the relevant operational noise limits set by the NSW EPA's Environment Protection Licence conditions (Licence No. 12003) and the Department of Planning and Environment's Conditions of Consent (DA No. 282-6-2003-i) at both receiver locations for day, evening and night time with typical operating conditions.

APPENDIX A: GLOSSARY OF ACOUSTIC TERMINOLOGY

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

dB(A) – A-weighted decibels. The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the “A” filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.

Frequency – Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.

Impulsive Noise – Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.

Intermittent Noise – The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Sound Absorption – The ability of a material to absorb sound energy through its conversion into thermal energy.

Sound Level Meter – An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure level.

Sound Pressure Level – The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.

Tonal Noise – Containing a prominent frequency and characterised by a definite pitch.