



Rhodes Remediation Projects

Noise Monitoring Data

Noise levels are monitored in the community through the use of:

- unattended noise loggers, a noise measurement device that runs continuously and does not require an operator; and
- weekly operator-attended noise measurements.

Noise goals were set by the NSW Environment Protection Authority (now the NSW Department of Environment and Conservation, or DECC) for the various stages of the projects and are highlighted in the Department of Planning approved Thiess Noise Management Plan. The table below shows the Daytime Noise Contribution Goals for the former Lednez/Union Carbide site project and the former Allied Feeds site project.

| | Daytime Noise Contribution Goals dB(A) | | | |
|--------------|--|---------------------------|----------------------|---|
| | [L _{Aeq, 15 minute}] | | | |
| | Blaxland Rd Rhodes | Meadow Cres Meadowbank | Marquet St Rhodes | Gauthorpe St Rhodes |
| Lednez | 50 | 48 | 58 | 59 (ground level) 70 (at 10 & 20 metres) |
| Allied Feeds | 58 | 55 | not applicable | not applicable |

dB(A) – unit used to measure ‘A-weighted’ sound pressure levels. A-weighting is an adjustment made to sound-level measurements to approximate the response to the human ear

L_{Aeq, 15 minute} - the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a 15 minute measurement period



The Lednez project noise goals came into effect following completion of the Lednez site noise barrier on 27th October 2005.

The Department of Planning approved an amendment of the Allied Feeds project Development Consent conditions allowing an increase to the site-specific allowable noise contribution limits on the 29 May 2006. Formal approval from the Department of Environment and Conservation (now the Department of Environment and Climate Change), as an amendment to the Environment Protection Licence, was also granted.

The data set of environmental noise monitoring information compiled is used by Thiess Services to manage noise emissions from the Rhodes Remediation Project to ensure on-going compliance with current acoustic guidelines and Environment Protection Licence requirements. Where necessary, control options and management practices are implemented with the aim of achieving the regulatory authority established targets.

An outline of ambient noise level monitoring works carried out for the Rhodes Remediation Projects has been provided in the following text. All instruments and monitoring methodology are undertaken with consideration to the requirements of Australian Standard 1259-1990 *Acoustics – Sound Level Meters* (superseded by Australian Standard IEC 61672.1-2004 (in part) *Electroacoustics – Sound Level Meters*) and Australian Standard 2659 *Guide to the Use of Sound Measuring Equipment*.

Unattended Noise Monitoring

Continuous monitoring of noise levels at the nearest residential receptors is undertaken to assess trends and fluctuations to daytime, evening and night time ambient noise levels. The results are used in the identification and minimisation of noise emissions from the Rhodes Remediation Projects.

Unattended noise monitoring is undertaken at the following locations:

- Location 1, Rhodes residential area – Blaxland Road
- Location 2, Meadowbank residential area – Meadow Crescent
- Location 3, Rhodes residential area – Marquet Street
- Location 4, Rhodes residential area – Gauthorpe Street (“Sol Rio” apartments)

The unattended noise monitoring is carried out using Acoustic Research Laboratories (ARL) EL-316 Environmental Noise Loggers. The EL-316 Noise



Loggers are National Association of Testing Authorities (NATA) certified Type 1 meters, commonly used for measuring background noise levels.

Unattended noise loggers were established at the nearest residential receptors on Thursday 1 September 2005. The instruments are set on A-weighted, fast response and log statistical noise levels over 15 minute intervals.

The microphones are positioned at 1.2 metres above ground level and are fitted with windsocks. Each instrument is calibrated using a Rion NC-73 Sound Level Calibrator before and after the measurement period, to ensure the reliability and accuracy of the instrument. There can be no significant variances observed in the reference signal between the pre-measurement and post-measurement calibrations. All instrument sets are within two years of NATA accredited calibration.

Data is downloaded, analysed and reported weekly from each of the three noise loggers.

Inclement meteorological conditions (wind speeds greater than five metres per second or precipitation) can affect the ambient noise level measurements. Noise readings obtained during these conditions are therefore excluded from the data set. Weather conditions used to determine which data should be excluded are monitored concurrently by the on-site meteorological station.

Attended Noise Monitoring

Attended monitoring of noise levels at the nearest residential receptors is required to characterise ambient noise profiles at the monitoring locations and measure noise contributions from the Rhodes Remediation Projects. Results from attended monitoring ensure the site-related noise emissions, and associated impacts, are proactively and effectively minimised by Thiess Services.

As the results of the unattended monitoring are influenced by all local noise sources, short-term noise monitoring is an important component required for determining the contribution of the Rhodes Remediation Projects to residential noise levels. The use of this approach is recommended in the NSW Department of Environment and Conservation's Industrial Noise Policy (January 2000).

Operator attended monitoring is undertaken weekly at each of the residential receptors listed above. A Type 1 RION NA27 Precision Sound Level



Meter (SLM) is used for all attended measurements. The NA27 SLM is checked for calibration before each of the noise measurements using a Rion NC-73 Sound Level Calibrator to ensure there is no variance in the reference signal between the pre-measurement and post-measurement calibrations. The instrument is within two years of NATA calibration.

The instrument is configured to an A-weighted, fast response setting with noise levels measured over a fifteen minute statistical interval. Observations, such as whether or not the sites are audible or inaudible at the receptor, are recorded during operator attended noise monitoring. Often combined impacts from multiple sources are detected during attended noise measurements, and therefore it is difficult to accurately determine the contribution from either site. Where required, additional methods relating to the identification and occurrence of site-related noise sources are adopted.

The following bar graphs illustrate the results from attended daytime monitoring at each of the residential receptors. During the attended measurement interval, the Thiess Services environmental consultant, Parsons Brinckerhoff (PB), attempts to isolate noise contributions from various sources; however, they also note when combined impacts from multiple sources are detected. These individual contributions are then presented in the form of a bar on the graph. If only one source of noise is detected during the measurement, then the bar appears as a single colour, representing one source. If multiple sources are detected during the measurement, then each contribution is represented on the bar using different colours to indicate the level at which the noise was detected. The sources indicated are observed dominant noise influences only and do not include all contributors to ambient noise levels.

The observed and measured contributions for the former Lednez and Allied Feeds sites are then compared to the applicable allowable noise goals, as shown in the table above.