

2008

SEL 13/98 Annual Report



Great South Land
Minerals Limited

Great South Land Minerals

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GREAT SOUTH LAND MINERALS LTD
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Great South Land Minerals

SEL 13/98

Annual Report

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Environment

- Acoustic**
- Environmental Management Plan**
- FPP SVA**
- Hydrogeology**



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25 August, 2008

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Attention: Paul Heath

Bellevue – Noise Level Assessment

Great South Land Minerals (GSLM), is proposing to conduct exploration drilling at Bellevue in the Central Highlands. As part of the development application a noise assessment of the area is required. This letter describes the noise survey conducted by Vipac during the previous 4 weeks.

SITE DESCRIPTION

The exploration drilling will use a mobile drill rig similar to that shown in Figure 2. The rig comprises a drill mounted on the back of a truck, with an auxilliary air compressor unit providing additional air for the drilling operation.

The drilling site is nominally located at 465 660E, 5 338 904N (AGD66), which places it on a relatively level area adjacent to Serpentine Road at the southern extremity of Gunns Ltd. property bearing North North West of Lake Echo. The ridge slopes down on the south east quarter to Lake Echo. Six eagle nests have been identified within around 5 km of the drill site. Five of the nests are on steeply sloping hill sides and as such have no direct view of the drill site. A single nest 3.2km to the south west is on a gently sloping hill and may have direct view of the drill site. Figure 3 shows the general area surrounding the drill site.

NOISE LEVELS

Two sets of noise measurements have been made, one at the drill site to establish what the background or ambient noise levels are in the absence of any drilling, and a second set around the drill rig proposed for use at the site to enable calculation of the drill rig sound power level. An acoustic model of the Bellevue drill site has then been built using contour levels at 10m spacing to describe the local terrain and the calculated drill rig sound power level as the source noise level. The model then predicts the sound pressure level in the surrounding area, the output being a noise level contour map of the area. For this work, the most favourable noise propagation weather conditions were assumed, ie. a light wind from source to receiver.

The background measurements were made over a period of 4 days, the sound level meter logging full statistical data and 1/3 octave spectra using a 15 minute interval time. The measured data is summarised in Figure 1 and Table 1.

Sound Pressure Level, dBA		
L10	L90	Leq
34	30	33

Table 1: Summary of Ambient Noise Levels at Bellevue

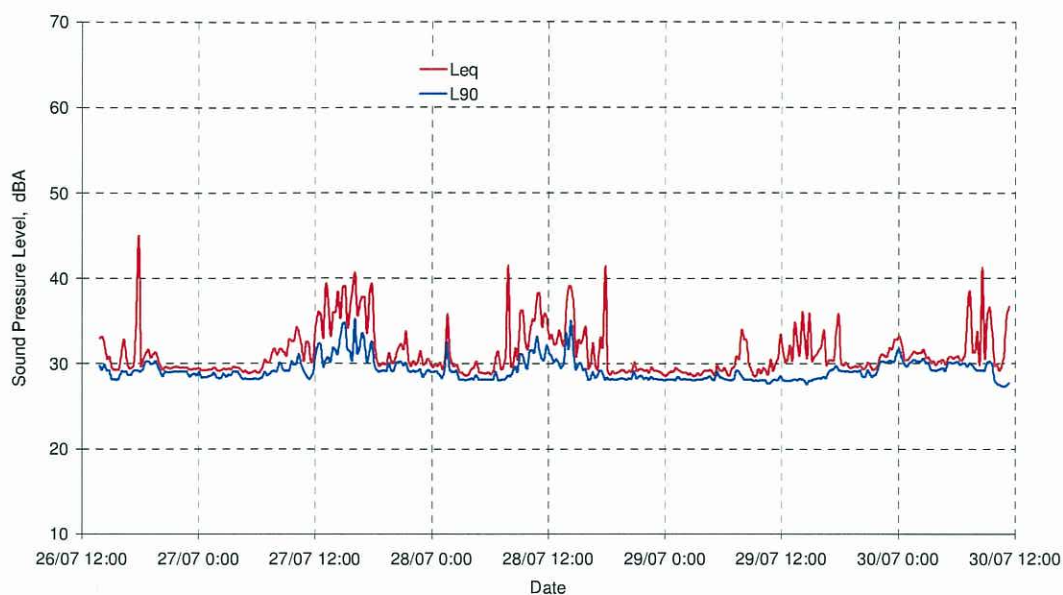


Figure 1: Bellevue Ambient Noise Trend

The predicted noise levels from the acoustic model are shown in Figure 4. *The drill rig noise at the eagle nest locations are predicted to be 25 dBA or less* which is below the existing ambient noise levels of 30 to 33 dBA.

Noise levels from the drilling operation will be clearly perceivable by humans when they are 5 dB above background, which at Bellevue will be around 35 dBA. This contour is highlighted on the contour map by a solid red line. All Eagle locations are outside this area.

Should you have any queries, please do not hesitate to call this office directly.

Yours faithfully

VIPAC ENGINEERS & SCIENTISTS LTD

Bill Butler

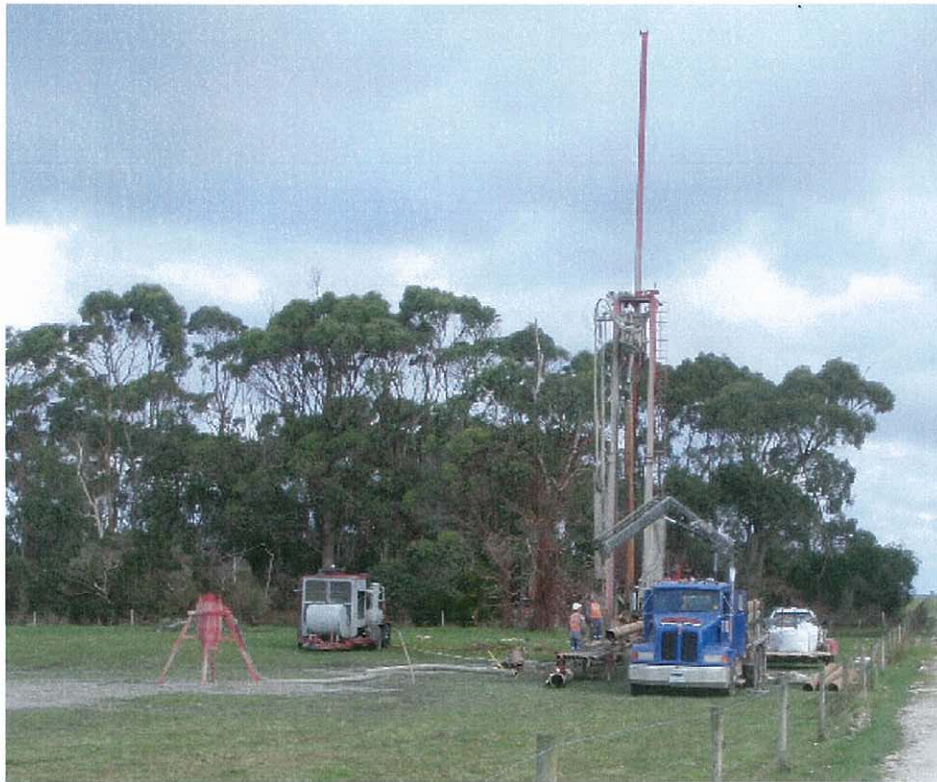


Figure 2: Mobile Drill Rig



Figure 3: Ariel View of the Drill Site

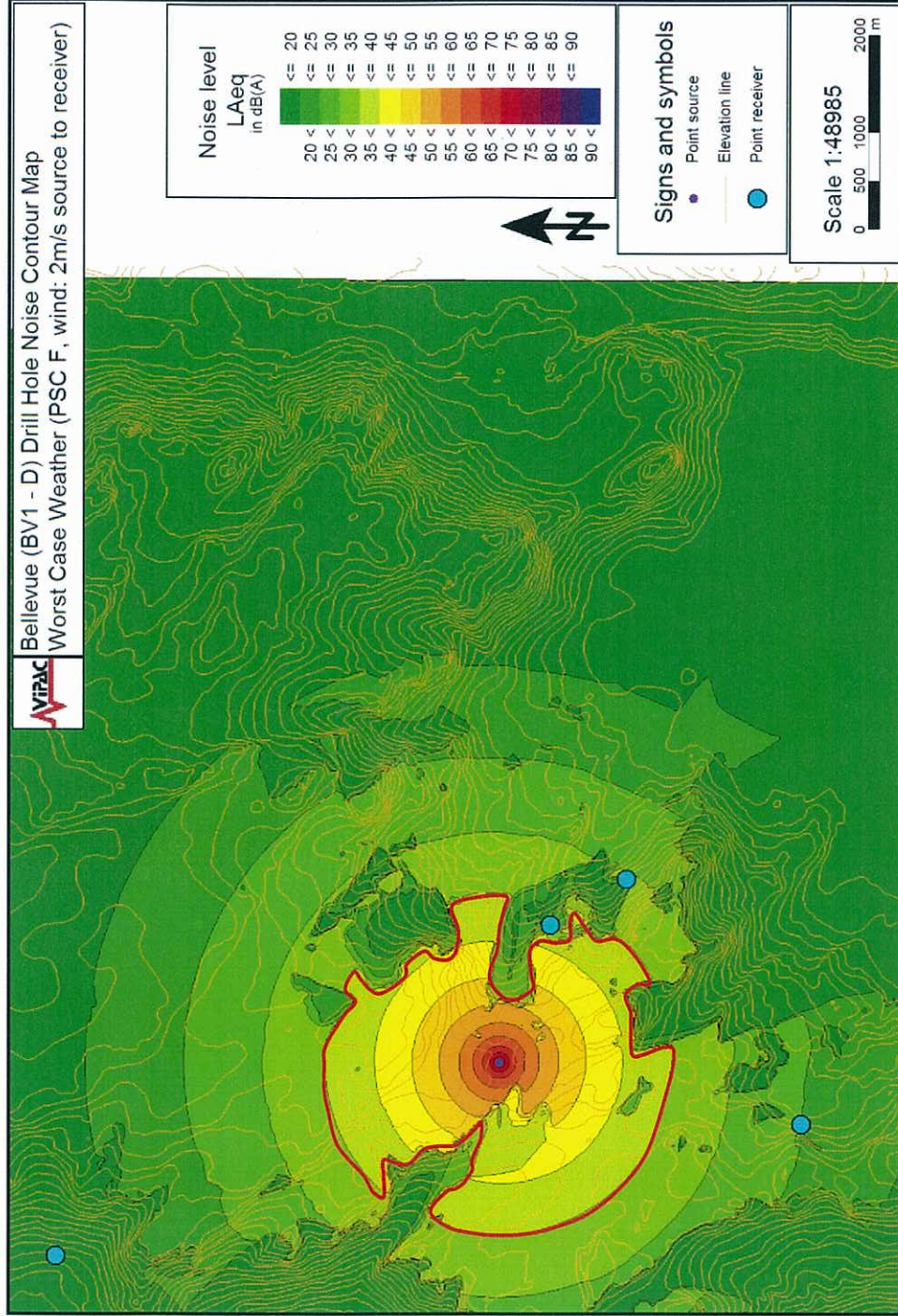


Figure 4: Noise Contour Map – Predicted Drill Rig Noise Levels

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S M M A R Y

Measurements and analysis of noise at proposed drill sites during the night and day indicate that noise mitigation measures are unnecessary, except possibly at the Bracknell site.

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BRIEF: Examine acoustic impact of drilling operations on nearest neighbours at various proposed drilling sites and recommend noise mitigation measures to minimize environmental noise nuisance..

INTRODUCTION Noise annoyance depends on the following factors:

1. the level of the existing ambient noise
2. the level of the new noise
3. whether the new noise has tonal components
4. whether the new noise has impact/impulsive components
5. the time of the day the new noise occurs
6. whether the new noise carries unwanted intelligence such as warning announcements or signals
7. the level of noise annoyance is also dependent on the listener's perception of whether the noise is regretfully caused, imposed in ignorance or inflicted as an act of aggression.

Noise measurements were conducted at the proposed drilling sites at various times. Noise measurements and analysis were also conducted at the Moomba region in SA, in the vicinity of an operating drill rig similar to the one proposed for the Tasmanian operations.

INSTRUMENTS The main instruments used for the noise measurements are described in the field notes, pages A 2 and B 2.

RESULTS

The main results are given in the appendix on pages A 5, a 9, A 10, B 9 and B 10.

In the tables, L_n is the noise level exceeded for n % of the sampling time. For example, $L_{10} = 49.3$ dB(A) as in top table, page A 5. This means that for 1.5 minutes out of 15 minutes, the noise level was 49.3 dB(A) or more. For 1 % of the time, that is, 9 seconds, the noise level was 51.3 dB(A). L_{10} is a good descriptor of the average of the higher noise levels encountered. It is used in traffic noise studies. L_{90} is a good indicator of the base or background noise level. $L_{90} = 40$ dB(A) means that for 13.5 minutes, the noise level was 40 dB(A) or more.

L_{eq} is the equivalent 'A' weighted noise level. A fluctuating noise having a $L_{eq} = 45.6$ dB(A) has the same acoustic energy as a steady noise of 45.6 dB(A).

From the drill rig noise measurements and analysis, the likely noise levels were calculated for the nearest houses at the various proposed drilling sites. See page C 1 The calculated results are compared to the ambient and background noise levels measured at the various Tasmanian drilling sites and recorded on page B 9. See page C 1

The Moomba region measurements were conducted at 0814 h and again at 0842h at a distance of 850 m. The first set of noise levels was higher than the second set during which the noise from the drill site was close to the ambient noise level. See Page A 5. The drill was operating on both occasions. We believe the variation in levels to be due to "... temperature gradients close to the ground... and these gradients are greatest in the early morning soon after sunrise" (Fricke, F and Treagus, R "Sound Attenuation Rates Near The Ground", Proceedings Australian Acoustical Society, Annual Conference, November 1987, page 59).

"Temperature inversions have been found to increase sound levels..." (ibid, page 61).

Page C 1 therefore contains two sets of noise level calculations, one for inversion conditions and one for stable calm conditions, which are more likely in Tasmania compared to the climate near Moomba.

Page C 2 shows the results of calculations to determine the reduction in noise levels at Bracknell, for various distances and barrier heights. We assume the barrier consists of 2 or 3 vertical layers of shipping containers.

Due to the proximity of the nearest house (573 m), a noise barrier may be necessary if atmospheric conditions involving inversions occur. However, in the absence of unusual conditions, no barrier is indicated.

Page A 9 gives the results of 1/3 spectrum analysis of the noise at the drill site. The spectra shows a low frequency tonal component in the 63 Hz band. However, this tone was not subjectively annoying and in my opinion does not attract a penalty.

A noise dose meter worn by a site supervisor for 177 minutes indicated an 8 h noise dose of 193%. However, 115 dB(A) was not exceeded. The maximum noise he was exposed to was 105.4 dB(A). Hearing protection is recommended.

ENVIRONMENTAL NOISE GUIDELINES

The World Health Organization (WHO) guidelines for Community Noise suggest that where outdoor living areas are subject to $Leq = 50$ dB(A), the noise levels are judged to cause moderate annoyance. The Guidelines recommend that for bedrooms, Leq should not exceed 30 dB(A) and that the maximum noise level should not exceed 45 dB(A).

The Tasmanian Environmental Guidelines have adopted the WHO Guidelines. For outside bedrooms at night (8 h), Leq should not exceed 45 dB(A) and the maximum noise level should not exceed 60 dB(A).

CONCLUSION

Of all the proposed drill evaluated, the Bracknell drill site may need a noise barrier if temperature inversions occur frequently. The WHO guidelines are likely to be met.

RECOMMENDATIONS

1. It is recommended that where possible, the drill lease be orientated so as to radiate least noise in the direction of occupied houses.
2. It is also recommended that noisy activities be conducted during the daytime. Out of sight out of mind is a strategy that often works in noisy areas. I would suggest that lighting fixtures be fitted with screens to prevent glare to the nearest residents and to make the drill site less prominent at night.
3. About 40 shipping containers be reserved for possible use at Bracknell.

4. Vehicles be fitted with 'intelligent' reversing alarms or alarms that generate a broadband noise rather than a discrete frequency or tone.

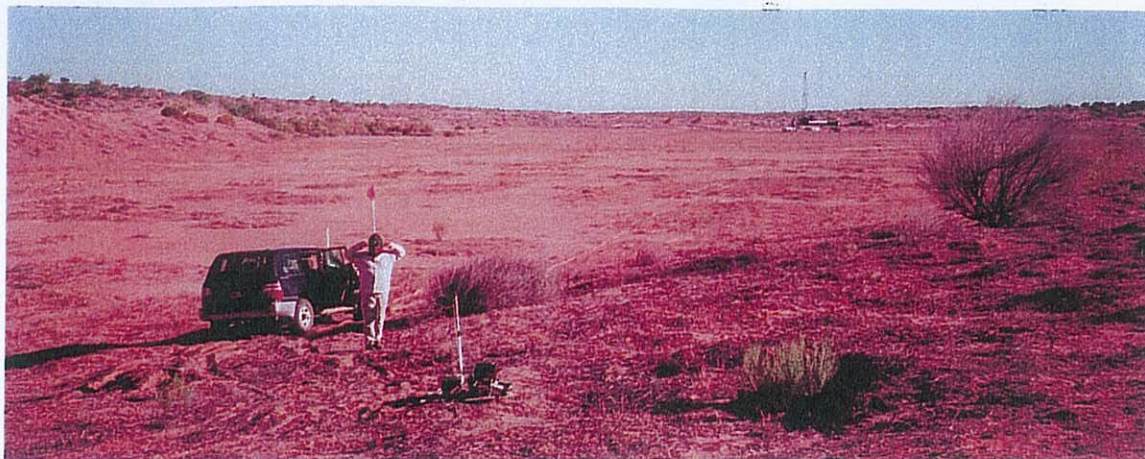
A handwritten signature in blue ink, appearing to read 'Pearu Terts', with a long horizontal flourish extending to the right.

Pearu Terts
2/7/2008

Appendix A

Noise Monitoring of Moomba (SA) Drill Site,

Moomba region SA



850 m from drill rig

