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COMPLETION REPORT

GRAVITY SURVEY CENTRAL PLATEAU AREA TASMANIA SEL 13/98

for

GREAT SOUTH LAND MINERALS LIMITED

by

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July 2, 2007

INTRODUCTION

Great South Land Minerals Limited holds exploration licence SEL 13/98 which covers much of central Tasmania, including the broad and undeveloped plateau region.

Gravity data coverage in the region has been extremely variable in spacing and reliability. Large parts of the area north and west of Bothwell; approx 480 000 mE, 5310 000 mN, contained regional stations with spacings of 5 to 7 km. Some road traverses offered higher density. No reliable interpretation of structures between land surface and perhaps 3 km depth is possible with such data and many deductions and inferences based on regional surface geological data may be misleading. See comments in Leaman, 2007.

Since GSLM intended to acquire some additional seismic data and to drill some wells it was considered desirable to obtain other data sets which can offer broader and integrated coverage and so resolve some of the inevitable ambiguities posed in such a green-fields area in which target units and structures are complex and concealed, and presently un-drilled.

The present survey was undertaken in order to remedy these observational limitations and to allow a more comprehensive integration of extant and newly acquired seismic data.

Gravity data have been acquired along any accessible vehicular routes in central Tasmania. A more regular station spacing is an ideal not practically nor economically feasible in central Tasmania and could only be achieved with extensive use of helicopters or walking. The new survey represents a basic infill on readily accessible routes with negligible hand carriage of equipment and no use of helicopters. The nominal spacing has been reduced to less than 1.5 to 2 km across the entire area surveyed with along traverse spacings of 0.5 to 1 km. Some gaps persist where large areas lack any access – such as lakes or reserves.

The survey was undertaken between March and late May, 2007 by Solo Geophysics based in Adelaide, South Australia, and was supervised by Leaman Geophysics.

THE SURVEY

The survey operation was completed with crew (Brian Rau - principal, Todd Sandercock and George Gamtcheff as assistants) as a combined GPS and gravity survey.

The equipment used included a Leica 1200 dual frequency RTK base station for survey control, a Garmin GPS 60 for roving observations tied with a 4W/25W UHF 467.075 MHz radio link. Optical survey support required Sokisha B1 theodolite and 5 m staff.

The resolution of the basic GPS survey component was better than 5 cm horizontally and 3 cm vertically. When observations might lead to errors in excess of 5 cm they were not recorded.

Gravity observations were complete with La Coste & Romberg meter G556 with calibration factors of 1.01388 to 1.01390 for the meter range required. The most recent check calibration was undertaken in November 2005.

The ultimate gravity base for the survey was the National Tie Station at Hobart Airport but, due to construction activities which limited access and re-occupation, a temporary airport base was established outside the buildings and then linked to a new base at Mt Pleasant radio telescope nearby where the base was located at survey mark 9699.9160 RMI (535 927mE, 5260 737 mN, 73 m AHD). This station was then used to anchor the survey and provide control observations. Observed gravity at Mt Pleasant is 980436.97 mgal (Isogal65) or 980423.76 (Isogal84).

A secondary base network was then established linking Bothwell, Steppes, Tarraleah, Ouse, Miena and Bronte Park. The control for this linkage was at Bronte Park: station 100032, Isogal65 of 980209.52 mgal, 457 742.78 mE, 5334 623.73 mN near the junction of Marlborough and Lyell Highways.

Elevation control was based on State survey marks linked to the RTK GPS control station. The fundamental tie and reference was bench mark ST1084 (Bronte Park): 457 774.071 mE, 5331114.96 mN, 677.67 m AHD. Several subsidiary elevation reference points about 5 to 10 km apart were then established across the region.

Several problems were encountered during the survey which limited its coverage and rate of progress. Such problems included locked gates, gates with locks which did not function, restricted access to some private land, deer shooting and refused access at such times, tree falls, eroded tracks and difficulty in tracing land owners.

Much of the access used was relatively new and related to forest activities, both by private forest companies and Forestry Tasmania. Working limitations and the numerous key requirements were often a problem in such areas although no access was denied. Such problems, however, lead to inefficiencies in planning access and work sequences and cost much time.

Downtime due to weather was, fortunately, minimal given the general elevation and exposure of the area.

Total stations observed, 1895.

All gravity observations were taken at ground level and drift corrected using loop corrections followed by correction for tides. Bouguer reductions have been computed by Solo Geophysics using a density of 2.67 t/m^3 and then terrain corrected to a radius of at least 19 km by Leaman Geophysics. The terrain corrections are considered minima and any differences reflect map scales and resolution, or fine details of topographic irregularities very close to the meter. The

latter were not described. Terrain corrections are typically less than 0.6 mgal but some exceed 3 mgal.

The density used allows consistent merging with the Tasmanian gravity data base and the reduced data are fully compatible with that data base. With the exception of some terrain corrections, especially those in excess of 0.4 mgal, the new reduced data has a precision better than 0.01 mgal in Bouguer anomaly. Stations with large terrain corrections, or in difficult to assess locations near the meter, may only have a precision better than 0.05 to 0.1 mgal depending upon the particular topographic feature. No special or local slope surveys were undertaken to define or resolve such problems since there is no justification. The data thus accumulated into the State data base is, in general, of much better quality than any other elements already incorporated. This is a high quality data set acquired in difficult terrain.

All data verification and checking was undertaken by David Leaman of Leaman Geophysics and reviewed and inserted in the official data base by Robert Richardson of Mineral Resources Tasmania.

New data, as acquired during the survey reported here, have been blended with the State Gravity Data Base and basic plots provided in image form. All data are presented in terms of AMG66 zone 55 coordinates and AHD.

The two images provided present raw Bouguer anomalies (as observed, corrected and reduced), and residual Bouguer anomalies (after removal of crustal trends using the method of Leaman & Richardson, 1989 and Roach *et al*, 1994.

Both data bases (raw Bouguer, residual Bouguer) have been supplied to Great South Land Minerals Limited in digital form for practical use, interpretation and plotting in any form required.

REFERENCES

- Leaman, D.E., 2007. An integrated interpretation of seismic, gravity and magnetic data (as available in December, 2006), central Tasmania. SEL, 13/98. Report for Great South Land Minerals Ltd, by Leaman Geophysics, January.
- Leaman, D. E., & Richardson, R. G., 1989. Production of a residual gravity field map for Tasmania and some implications. *Exploration Geophysics*, 20, 180-184.
- Roach, M.J., Richardson, R.G., & Leaman, D.E., 1994. Comparison of regional-residual separation techniques for gravity surveys. *Exploration Geophysics*, 24, 779-784.

Report prepared on behalf of Leaman Geophysics by



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Prospects and Leads

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LEGEND

- Pre-Tasmania Basin (Tabberabberan) Anticlinal Traps
- Earliest Jurassic (Pre-Dolerite) Anticlinal Traps
- Earliest Jurassic (Pre-Dolerite) Fault Block Traps
- Early Tertiary (Post Dolerite) Anticlines and Domes
- Early Tertiary (Post Dolerite) Fault Block Traps
- GSLM Seismic Lines





