

**SUMMARY**

- ❖ Both raw and processed data from the recent Aeromagnetic survey over 550 sq km of Nagambie Resources' exploration tenements in the Nagambie area have been received, and interpretation has commenced.
- ❖ Six new East-West trending structures have been identified, bringing to 13 such structures that have the potential to host gold mineralisation.
- ❖ Known gold deposits at the Nagambie Mine, Wandean and at Balaclava Hill, south of Rushworth, are related to such thrusts. It is considered that other, until now unknown thrusts, may well control hidden gold mineralisation.
- ❖ Interpretation of publicly available gravity imagery has shown that deep crustal faults also exist beneath the East-West structures. These faults affect the deep basement volcanic rocks which are believed to be the source of the gold mineralisation.
- ❖ Known gold mineralisation in the region is coincident with the intersection of the deep, gravity-interpreted faults and the more shallow, aeromagnetic-interpreted structures.
- ❖ The prospectivity of the Nagambie area of the northern Melbourne Structural Zone is greatly enhanced through the improved understanding of the mineralising processes that have occurred in the region.
- ❖ The Company's exploration strategy has been modified to target the structural intersections, allowing for greater focus and more efficient use of exploration funds.
- ❖ To date, Nagambie Resources has identified 25 such structural intersections, of which 16 have been selected for immediate investigation.

**COMMENTARY**

The Company Chairman, Mike Trumbull said: "We expected to locate additional East-West structures with the Aeromagnetic survey and we did – six of them.

*"What is even more exciting is that Geoff Turner, our Exploration Director, has been able to explain why the currently-known gold deposits in the Nagambie region exist where they do, and where the undiscovered gold deposits are most likely to occur. We have pegged more ground to the east as a result and now hold or have priority over close to 1,000 sq km.*

*"Coincident deep faulting and more shallow faulting results in the "plumbing systems" that can allow the gold mineralisation to travel upwards from great depths and form economic near-surface gold mineralisation.*

*"We now believe that we have completely "cracked the code" that bedevilled our bigger exploration predecessors such as Barrick and Newcrest. Further, the coincident-faulting focus will greatly reduce the areal extent of exploration work that will be required going forward."*

**NAGAMBIE RESOURCES**

*Underwater storage of sulphidic excavation material (PASS) in the two legacy gold pits at the Nagambie Mine represents an excellent environmental fit with the construction of CBD high-rise buildings, the Melbourne Metro rail tunnels and the Western Distributor road tunnels.*

*The discovery and development of shallow, open-pit and heap-leachable gold deposits is being methodically advanced. The Company has tenements encompassing historic Victorian goldfields at Nagambie, Clonbinane, Rushworth and Redcastle.*

*Quarrying, washing and screening of sand deposits at the mine to produce various sand and quartz aggregate products is planned.*

*Recycling of the overburden and tailings dumps produces road base material and road topping gravel for local roads.*

*The first landfill site is planned to take advantage of the 17 Ha of engineered black plastic under the mine tailings pad.*

**SHARES ON ISSUE**

368,279,776

**ASX CODE: NAG**

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**Board**

Mike Trumbull (Exec. Chairman)  
Geoff Turner (Exploration Dir.)  
Kevin Perrin (Finance Director)  
Alfonso Grillo (Company Sec.)

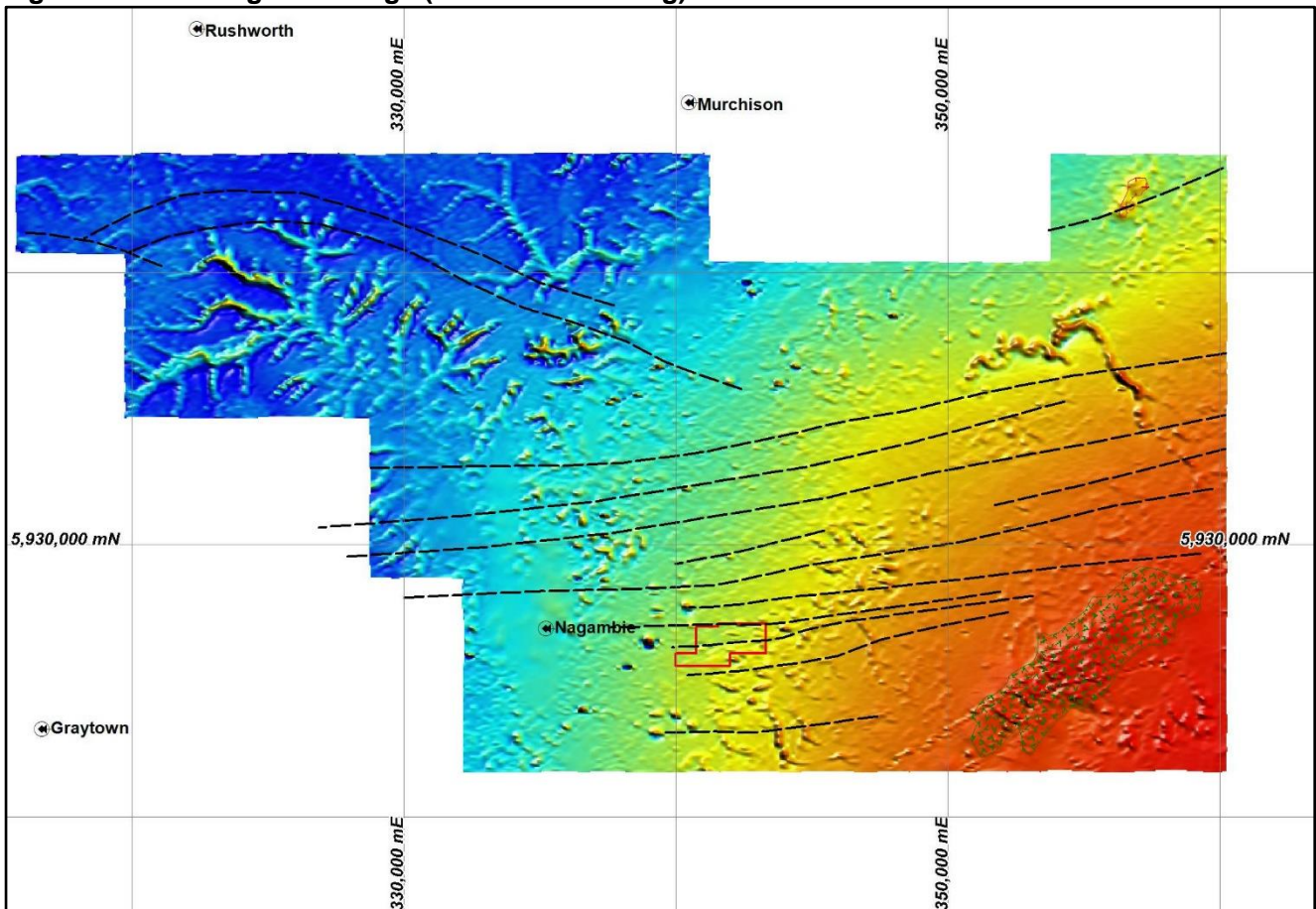
James Earle CEO

## NAGAMBIE REGIONAL AEROMAGNETIC SURVEY

Nagambie Resources has received the raw data and processed imagery of the extensive aeromagnetic survey of 550 sq km of its tenements in the Nagambie area.

Subsequent in-house re-processing and imagery enhancements using proprietary software has led to the development of significant insights into the mineral potential of the region. While data analysis is continuing, the Company has identified a further six potential thrusts, bringing the total number of potential mineralising structures to 13, as shown in Figure 1. Prior to the aeromagnetic survey, seven thrusts had been identified, including the Nagambie Mine Thrust and the Wandean Thrust which are known to host significant gold mineralisation.

**Figure 1 Aeromagnetic Image (without enhancing)**



Blue = low magnetic intensity; Red = high magnetic intensity. MIN 5412 shown for reference location  
Structures interpreted from various enhancements shown as black dashed lines.

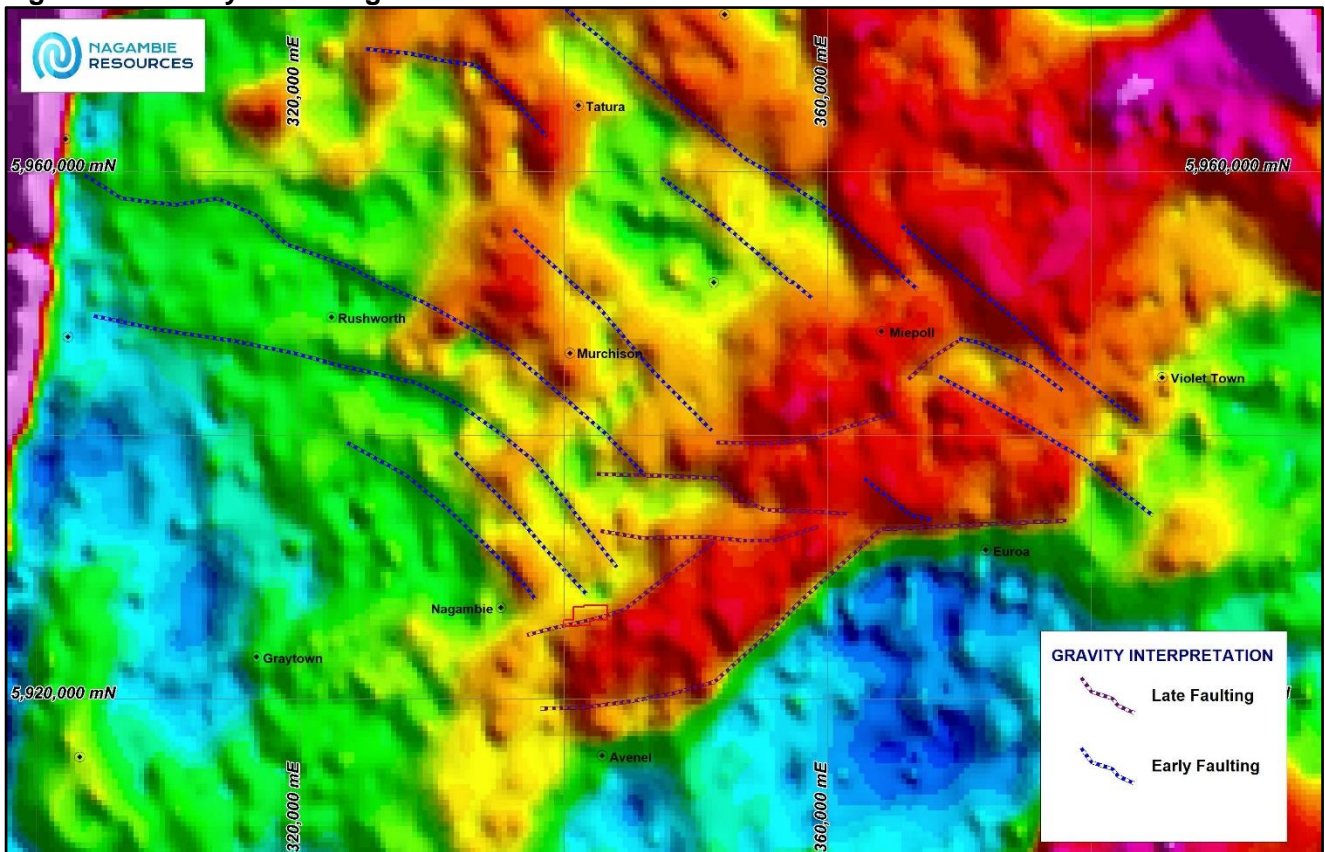
Dendritic patterns in Figure 1 show buried streams containing ironstone gravel deposits. The high magnetic intensity in the south-east corner is related to the Strathbogie Granite in this area.

## GRAVITY DATA

Concurrent with the studies of the aeromagnetic data, the Company acquired regional gravity datasets that are in the public domain. Interpretation of such enhanced gravity imagery has led to the identification of deep crustal structures that may be the precursors of the fluid pathways allowing the mineralising fluids to carry gold (and other metals) from the deep volcanic crustal rocks through to the overlying Devonian sediments at the surface.

Such structures fall into two distinct groups - northwest to southeast striking, and east-west striking. This pattern of deep crustal fractures fits the latest regional model of the development of south-eastern Australia geology, developed by the Geological Survey of Victoria.

Figure 2 Gravity Data Image



1<sup>st</sup> Vertical Derivative image of Bouguer Gravity data (Geoscience Australia).

Blue = low density crustal lithologies (for example granites); Red = high density crust (for example volcanics). MIN5412 shown in red outline for location reference.

## **IMPORTANCE OF THE TWO DATASETS**

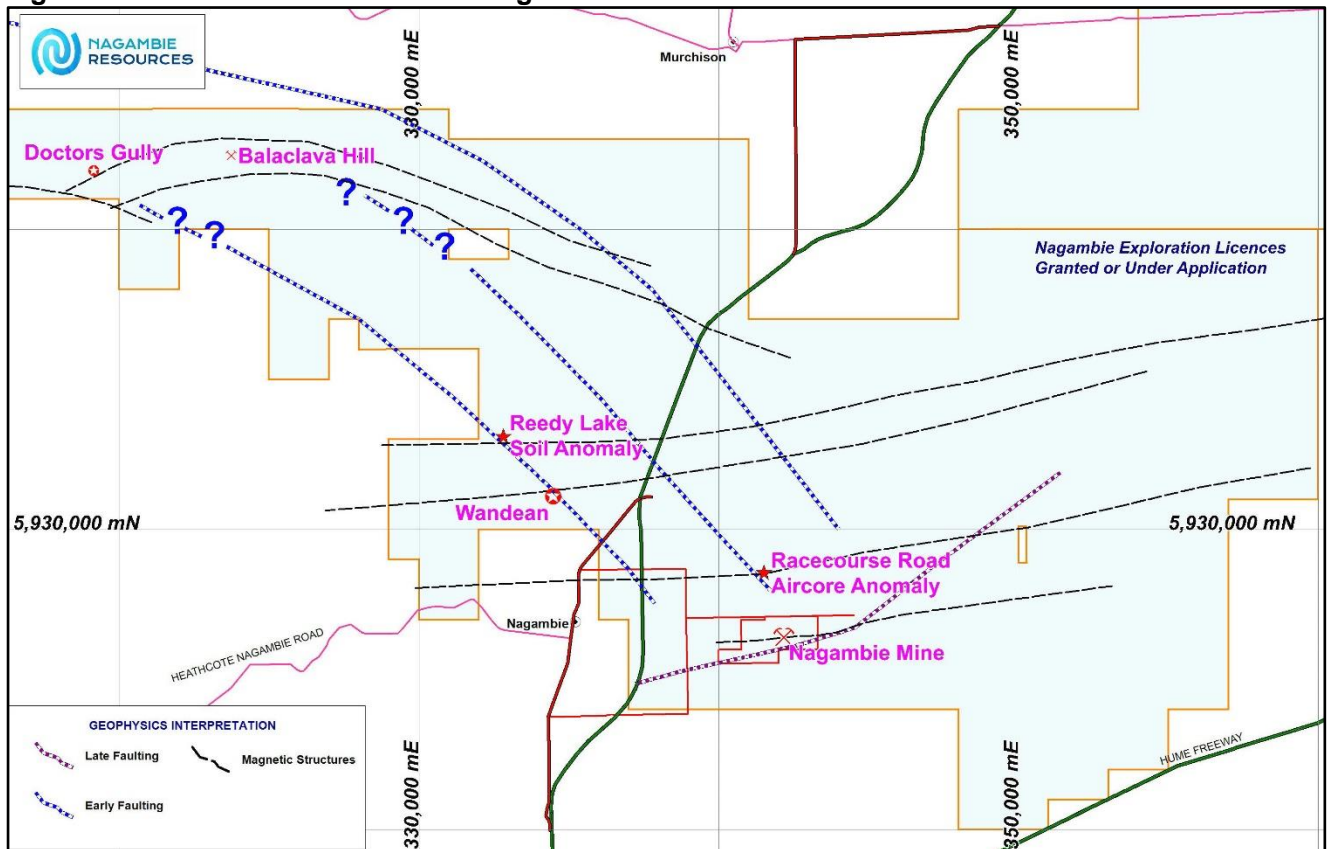
Surface thrust faults identified from the enhanced aeromagnetic imagery generally trend roughly east-west in the Nagambie-Rushworth Region. The deeper crustal structures identified from the gravity imagery strike northwest-southeast as well as east-west.

When the two sets of interpreted faulting are compared together, notable intersections are apparent.

- ❖ The Nagambie Mine is at the intersection of an early (NW-SE) gravity structure and a magnetic structure. It is also located where a late gravity structure is roughly coincident with the magnetic structure (the Nagambie Mine Thrust).
- ❖ Wandean is located at the intersection of an early (NW-SE) gravity structure and the interpreted Wandean Thrust (note that the Wandean Thrust and the Nagambie Thrust have been identified in outcrop).
- ❖ Doctors Gully is close to the intersection of two magnetic structures and the north-west projection of an early gravity structure. Nagambie Resources is planning to develop a near-surface gold resource at Doctors Gully.
- ❖ The Racecourse Road Anomaly was located in 2011 through AirCore drilling. Here, significant gold intersections to 1.15 g/t were located in basement rocks. Further work on this prospect has been postponed due to the depth of cover in this area.
- ❖ The Reedy Lake Soil Anomaly was located by roadside soil sampling in early 2015, where anomalous arsenic and antimony values were associated with elevated gold values. This area is now prioritised for further work.

Some identified intersections have been tested by soil sampling in previous years with no evidence of gold mineralisation. However, the coincidence of notable mineralisation with various gravity and magnetic intersections is a significant advance in the targeting strategy for buried gold mineralisation in the region.

Figure 3 Mineralisation at Intersecting Structures



For simplicity, only relevant interpreted structures for Doctors Gully, Balaclava Hill, Reedy Lake, Wandean, Racecourse Road and the Nagambie Mine are shown. Major roads shown for location purposes.

Nagambie Resources has identified 25 such intersections, of which 16 have been selected for immediate investigation.

Some intersections are outside of the current granted tenement area. Nagambie Resources has already applied for a wider area under Exploration Licence Application EL 006421 of 139 sq km to cover additional prospective intersections (refer Appendix 1).

### **IMPLICATIONS FOR FUTURE EXPLORATION STRATEGY**

Understanding the processes in the formation of gold deposits is the key to successful exploration. The aeromagnetic survey results, coupled with the gravity data, has provided fundamental insights into the development of gold mineralisation in the Nagambie-Rushworth region. Gold bearing fluids, sourced from deep crustal volcanic rocks have risen through the major thrust pathways into the overlying Devonian sandstones and siltstones to form deposits in near surface fractures within the folded rocks (refer Photo 1).

Where the deep crustal fractures appear to intersect the (relatively) shallow structures, mineralising fluids may concentrate. At these intersections, the host rocks are likely to be more fractured or folded, presenting better fluid pathways and concentration for gold deposition.

Future exploration can now focus on such structural intersections. This eliminates large areas within the tenement holding, allowing Nagambie Resources to concentrate exploration spending in tightly focussed areas. Such exploration will initially be through soil sampling across the targets to define those areas for specific intensive efforts such as AirCore drilling to basement rocks and Induced Polarisation ground geophysics, all of which techniques were used by the Company to locate the Wandean virgin gold discovery.

Photo 1 of the western wall of the East Pit at the Nagambie Mine clearly shows one of the faults associated with the Nagambie Mine Thrust.

Photo 1 Nagambie Mine Thrust



The rocks for about 30 metres on the northern side of the fault (right hand side in the photo) are severely contorted by the overriding rocks moving upwards against the fault plane. The rock layers on the south side (left hand side in the photo) are gently folded into a wide anticline. Gold mineralisation here was associated with stockworks of thin quartz veins in the folded sandstone and siltstone Devonian rocks. This wall has below economic gold grades - economic grades were extracted from within the pit (now filled with water). The Nagambie Mine Thrust is actually a 100 metre wide zone of similar, parallel faults and folded rocks.

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#### **STATEMENT AS TO COMPETENCY**

*The Information in this report has been compiled by Mr Geoff Turner, who is a Fellow of the Australian Institute of Geoscientists, has more than ten years in the estimation, assessment, and evaluation of mineral resources and ore reserves, and has more than 20 years in exploration for the relevant style of mineralisation that is being reported. In these regards, Geoff Turner qualifies as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Geoff Turner is a Director of Nagambie Resources Limited and consents to the inclusion in this report of these matters based on the information in the form and context in which it appears.*

**FORWARD-LOOKING STATEMENTS**

*This report contains “forward-looking statements” within the meaning of securities laws of applicable jurisdictions. Forward-looking statements can generally be identified by the use of forward-looking words such as “may”, “will”, “expect”, “intend”, “plan”, “estimate”, “anticipate”, “believe”, “continue”, “objectives”, “outlook”, “guidance” or other similar words, and include statements regarding certain plans, strategies and objectives of management and expected financial performance. These forward-looking statements involve known and unknown risks, uncertainties and other factors, many of which are outside the control of Nagambie Resources and any of its officers, employees, agents or associates. Actual results, performance or achievements may vary materially from any projections and forward-looking statements and the assumptions on which those statements are based. Exploration potential is conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. Readers are cautioned not to place undue reliance on forward-looking statements and Nagambie Resources assumes no obligation to update such information.*

**DATA AND IMAGERY****Aeromagnetic Survey Details**

Contactors	Thomson Aviation Pty Ltd
Dates of data acquisition	12 October to 19 October 2016
Aircraft	Cessna C210
Typical survey speed	130 knots
Magnetometer	Geometrics G822A
Magnetometer Base Station	Nagambie Skydiving Club aerodrome
Flight line directions	0° and 180°
Traverse line spacing	200 metres
Tie line direction	090° and 270°
Tie line separation	2,000 metres
Total line kilometres flown	4,144.1 km
Positioning	Differential GPS
Terrain Clearance	King KR 495B Radar Altimeter

**Aeromagnetic Data and Imagery (Supplied by Contractor)**

Magnetic data, including raw and levelled magnetic data, altitude and terrain clearance  
 Digital Terrain Model  
 Gridded Total Magnetic Intensity (TMI)  
 Gridded TMI Reduced to Pole (RTP)  
 Gridded 1<sup>st</sup> Vertical Derivative (1VD) TMI  
 Gridded 2<sup>nd</sup> Vertical Derivative (2VD) TMI  
 Gridded 1VD RTP TMI  
 Gridded 2VD RTP TMI

**Nagambie Resources In-House Processed Imagery**

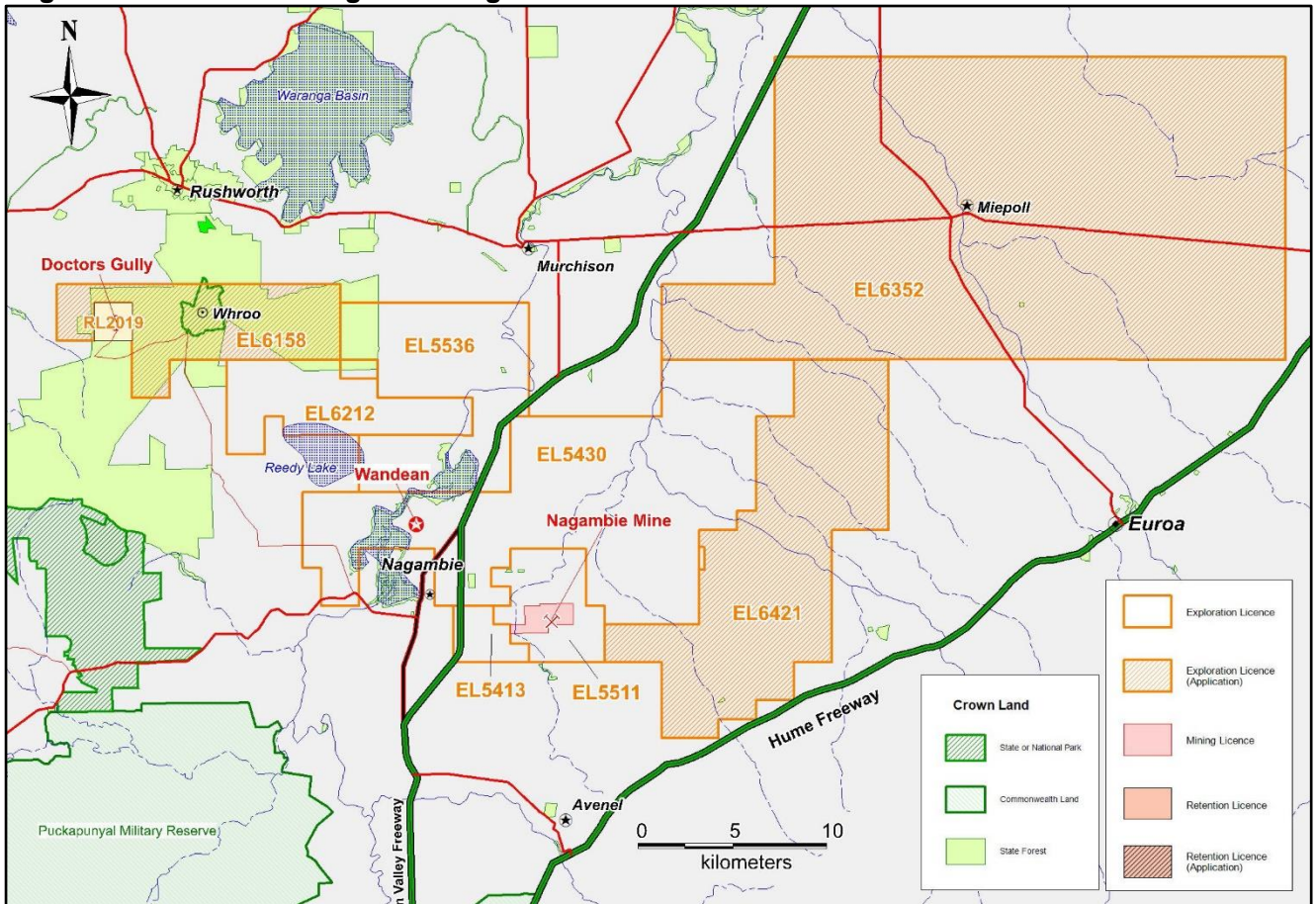
Gridded TMI with Trend Removal  
 Gridded RTP TMI with Trend Removal  
 Gridded 1VD RTP TMI with Trend Removal  
 All gridded images were subjected to data stretching and colour separation to enhance subtle variations in recorded magnetic field.

**Gravity Imagery Used**

Compiled Victorian State Bouguer Gravity Image  
 1VD Bouguer Gravity image reprocessed by GeoScience Australia (MGA94, Zone 55)

**APPENDIX 1**

**Nagambie Resources: Nagambie Region Tenements as at 31 December 2016**



**Nagambie Resources: All Group Tenements as at 31 December 2016**

Tenement Number	Tenement Name	sq km
MIN 5412	Nagambie Mining Licence	3.64
EL 5430	Bunganail Exploration Licence	182.00
EL 5511	Nagambie Exploration Licence	27.89
EL 5536	Wandean North Exploration Licence	75.00
EL 5413	Nagambie West Exploration Licence	9.11
EL 6212	Reedy Lake North Exploration Licence	41.00
ELA 6158	Rushworth Exploration Licence Application	56.03
ELA 6352	Miepoll Exploration Licence Application	456.00
ELA 6421	Pranjip Exploration Licence Application	139.00
		986.03
EL 4987	Clonbinane North Exploration Licence	1.46
EL 4460	Clonbinane South Exploration Licence Application	1.54
ELA 6163	Clonbinane South Exploration Licence Application	78.21
RLA 6040	Clonbinane Retention Licence Application	3.00
ELA 5546	Redcastle Exploration Licence Application	53.66
RL 2019	Doctors Gully Retention Licence	4.00
	<b>Total effective exploration area</b>	<b>1,124.90</b>