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KAJEENA MINING COMPANY PTY LTD

FINAL REPORT

EXPLORATION LICENCE 10060

KULGERA AREA, NT

by

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30 October 2006

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EXECUTIVE SUMMARY

This final report summarises the work carried out in EL 10060 to the end of December 2005 and presents the details of the work undertaken from January 2006 until 4 July 2006 when the licence was surrendered.

Exploration work consisted of;

- Detailed review and evaluation of the mineral potential of EL 10060 including open file magnetics, gravity and radiometrics interpretation and depth to basement assessment.
- Field investigation of the geology, geophysical anomalies and features identified during the review.
- Completion of field consultation and clearances by the CLC.
- The collection of three drainage samples.
- The planning and implementation of a program of surface lag sampling involving the collection of sixty (60) samples.
- The surrender of the licence on 4 July 2006 following a review of results.

An interpretation of the aeromagnetics showed that the western and central portions of EL 10060, under younger cover, had a linear magnetic signature, quite different from the subcrop/outcrop in the east and east of the area, which is dominated by intrusions of the non-prospective Proterozoic Kulgera Suite.

Nickel, copper and chromium occurrences to the south of EL10060 in South Australia, held under title mostly by Rio Tinto, are associated with major north-trending structures. These structures are interpreted from gravity and magnetics data to trend into the central portion of EL10060.

A program of surface lag sampling, involving the collection of sixty (60) samples on four broadly-spaced (~5 km) north-south lines, failed to detect any base metal, nickel or gold anomalism associated with the interpreted magnetic structures and bodies. As a consequence the tenement was surrendered on 4 July 2004.

1 INTRODUCTION

Kajeena Mining Company Pty Ltd was the holder of EL 10060, near Kulgera in the southern part of the Northern Territory. The Exploration Licence was surrendered on 4 July 2006.

This final report summarises all the exploration work carried out within EL 10060 during the life of the licence. The full details of the work undertaken is presented in previous annual reports by Duncan (2003) and Dugmore (2004, 2005).

EL 10060 formed the Kulgera Project. The work that was undertaken was directed at a detailed evaluation of the mineral potential of the area and the implementation of surface sampling programs to follow-up targets.

The exploration rationale was partly based on significant exploration activity for copper, gold and especially nickel on the immediate South Australian side of the border. Reports of work that has been completed, in conjunction with an interpretation of open-file magnetic and gravity data, suggested potential for these commodities within EL 10060.

2 LOCATION & ACCESS

EL 10060 was located on the border between South Australia and Northern Territory (Figure 1). The centre of the area was approximately 40 km southwest of Kulgera. Access was south from Kulgera via the Stuart Highway, then either via station tracks through Mount Cavenagh Station or the Victory Downs road. Vehicle access over most of the tenement was good via station tracks and fence lines.

The region is semi-arid with long hot summers reaching 40°C + for much of January and February, winters are milder with temperatures ranging from 0°C overnight to high 20°'s during the day. Rainfalls are generally late summer with 250-300mm a year the average. Land usage is for pastoral properties with beef the main stock.

Low scrubby vegetation and gentle sand dunes form the topography for the main part with small hills and some ridgelines present.

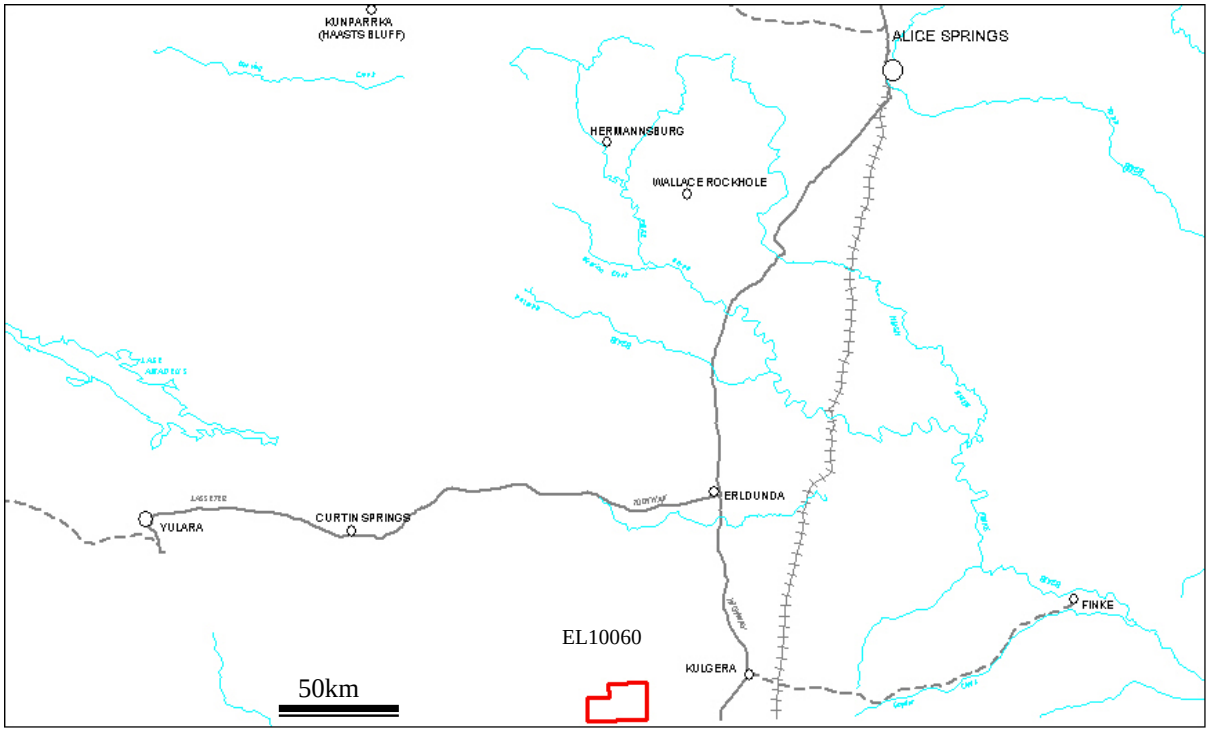

Figure 1. Location Map

3 TENURE DETAILS

The Kajeena Mining Company Pty Ltd ("Kajeena") was the holder EL 10060. An area of 372 blocks was originally granted to Kajeena on 13 December 2001 for a period of 6 years to 12 December 2007. Some 182 blocks were relinquished at the end of year 2 on 12 December 2003. A further 93 blocks was relinquished on the anniversary of year 3 on 12 December 2004 with the remaining 97 subblocks being surrendered on 4 July 2006 (Figure 2).

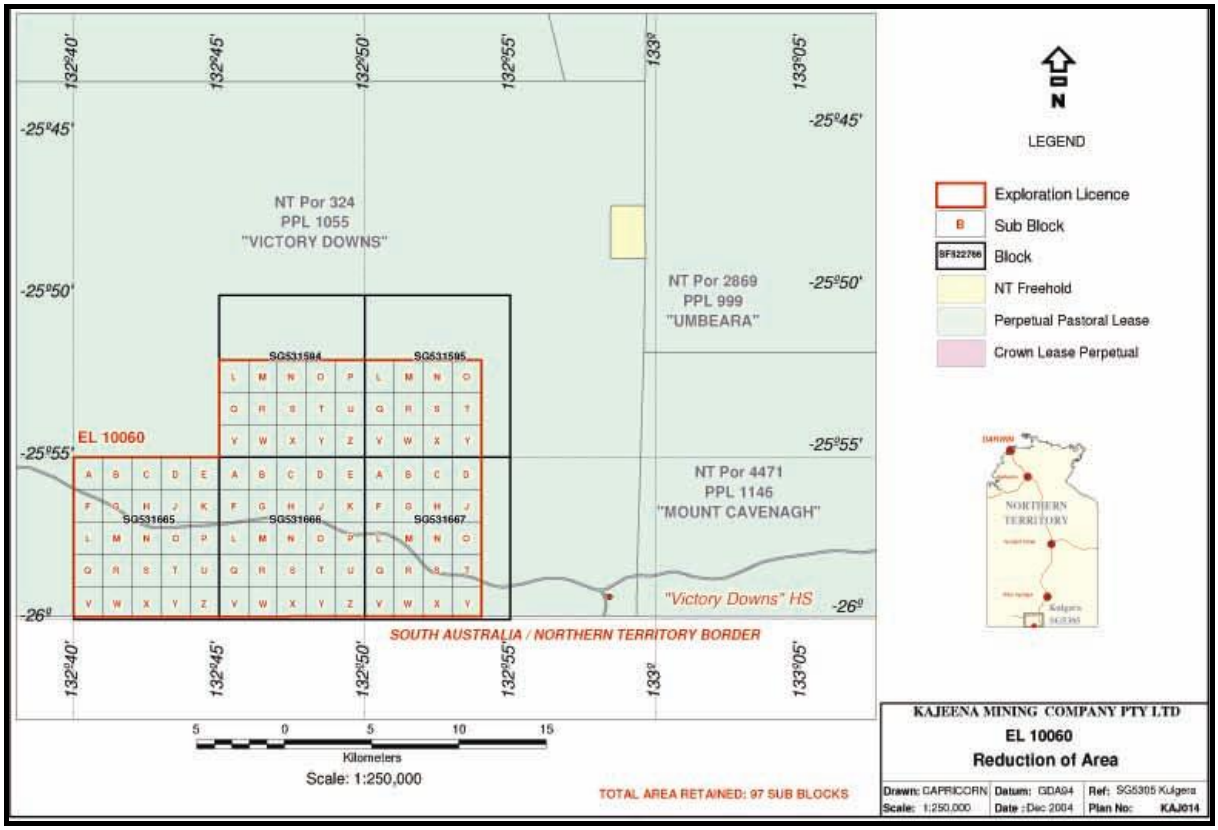

Figure 2. Sub-blocks comprising EL 10060 at time of surrender

4 REGIONAL GEOLOGY

EL 10060 includes rocks from two distinct geological provinces

- northeastern limit of exposure of the Mesoproterozoic Musgrave Block and
- southern margin of an outlier of the western Mesozoic Eromanga Basin

Exposed basement rocks of the Musgrave Block within the SE corner of EL 10060 include:

- Kulgera Suite Granites which intruded the terrane syn- or post-tectonically at 1190-1150 Ma with
- Minor Granulites of the Fregon terrane comprising quartzo-feldspathic and peraluminous (felsic) gneisses and minor amphibolites and tonalitic and granite gneisses. These gneisses have a protolith age of 1600-1500 Ma and peak metamorphism at 1200-1160 Ma for the Musgravian Event.
- Swarms of dolerite dykes (Alcurra Dyke Swarm) related to the opening of the Amadeus Basin dated at ~1080 Ma and equivalent to the Giles Complex in SA.

The Fregon terrane forms the hanging wall of the Woodroofe thrust, a major northeast trending, and north-directed tectonic feature of the Musgrave Block seen in the northwest portion of EL10060.

The northwest corner of EL10060 may contain rocks, under younger cover, of the Mulga Park terrane comprising foliated porphyritic granites showing upper greenschist/amphibolite facies metamorphism, and unfoliated garnet-bearing granite intrusives.

Rocks of the Fregon terrane host a number of mineral occurrences across the border in South Australia, notably copper, nickel and chromite associated with ultramafics and the metasediments in which they intrude. There are no known mineral occurrences within EL 10060 due to the extensive alluvial cover obscuring most outcrop.

Cainozoic sediments form a surficial cover over most of EL10060 estimated at 90%.

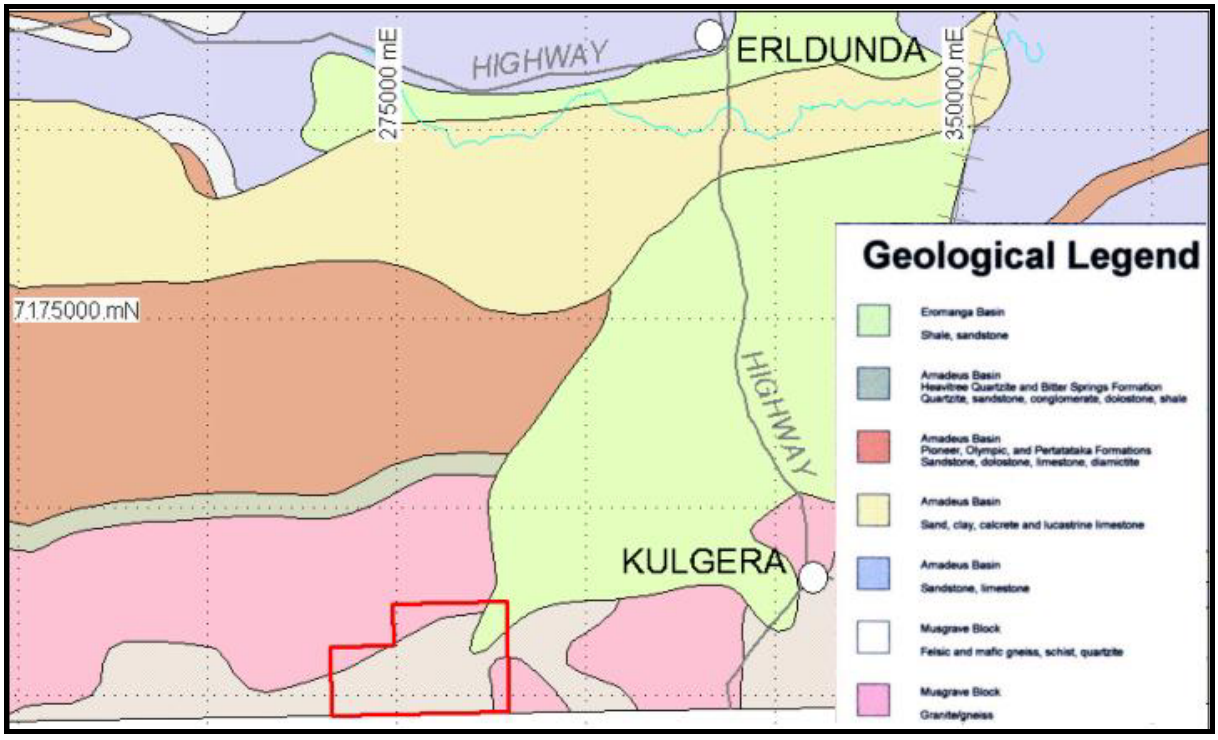

Figure 3. Regional Geology

5 SUMMARY OF WORK BY PREVIOUS EXPLORERS

Details of previous exploration have been presented in the 2003 annual report and are included in the report by Duncan (2003). In summary, very little effective exploration appears to have taken place within and in the vicinity of EL 10060 on the NT side.

Significantly more work has been carried out on the immediate South Australian side of the border. Major exploration models that have been used to guide exploration on the Musgrave Province in SA in the past include ultramafic hosted nickel sulphides, PGE, stratiform chromite cumulates, stratiform titaniferous magnetite cumulates, laterite nickel deposits, stratabound Pb-Zn-Ag, VHMS in basement meta-volcanics, Broken Hill style Pb-Zn-Ag mineralisation, diamonds in kimberlites along major structures.

The nearest reported occurrence of mineralisation to EL 10060 was by T.S. Minerals Pty Ltd in 1968 which began investigation on ALBERGA of reported occurrences of allanite (cerium epidote) in pegmatites of the Kulgera Suite. They found no prospect of economic interest. The company then switched to evaluation of heavy mineral sands and rare earth sands in creeks south of Victory Downs homestead. The average heavy mineral content of the sands tested was 38%. The average TiO2 content of the heavy mineral fraction was 4.4%. Zircon ranged from 1.6% to 8.6%. Beneficiation trials showed that high-grade ilmenite and iron oxides could be recovered. The rare earth sands yielded concentrations of yttrium, cerium and lanthanum up to 20 times the normal level for granites.

6 WORK COMPLETED BY KAJEENA MINING

6.1 Summary of Work Done

No field work had been undertaken within EL10060 prior to Year 3 with work mainly consisting of a review of previous work and an evaluation of the exploration potential of the area. (Duncan, 2003).

During Year 3 (Dugmore, 2004) of the tenure of EL10060, Kajeena carried out the following work;

- A full review and evaluation of the mineral potential of EL 10060 including magnetics and radiometrics interpretation.
- Preparation of a GIS-based project
- Field investigation of the geology, geophysical anomalies and features identified during the review
- A drainage sampling program involving the collection of three samples

Interpretation of open-file aeromagnetic data showed that the current portion of EL 10060, under younger cover, has a linear magnetic signature, quite different from the subcropping and outcropping eastern portion of the area which is dominated by intrusions of the Kulgera Suite.

A field visit did not reveal widespread or even local alteration in the outcropping parts and no mineral occurrences were located. Only three drainage samples were taken, the results of which were not anomalous in any of the base or precious metals. It was concluded that little potential exists for a significant base or precious metal deposit in the relinquished portion of EL 10060.

Following a substantial tenement relinquishment at the end of Year 3 work during Year 4 (Dugmore, 2005) involved the planning of a surface lag sampling program and the negotiation of access and undertaking of field clearances by the CLC.

During the first half of Year 5 (2006), following agreement with the CLC, the program of surface lag sampling was undertaken, involving the collection of sixty (60) samples on four broadly-spaced (~5 km) north-south lines.

6.2 Rationale

Results of the review undertaken by Geo Discovery Pty Ltd showed that EL 10060 was amenable to surface lag sampling. Further interpretation of aeromagnetic data revealed that the highly magnetic signature of the geology together with a linear nature was suggestive of a magnetic stratigraphy possibly prospective for base metals, including nickel and gold.

Significant current exploration activity to the west of EL10060 and across the border in South Australia, particularly for nickel, together with encouraging results for nickel and gold being achieved by companies such as Rio Tinto, Independence Gold, Goldsearch and Mithril Resources also warranted investigation into the potential for these commodities.

6.3 Magnetic Interpretation

The magnetics for the area around EL 10060 is shown in Figure 4.

Rankin and Newton (2002) have carried out, probably the most comprehensive recent interpretation of the Musgrave Block. Their interpretation shows the predominance of interpreted magnetic intrusions within EL 10060 (Figure 5).

Of most interest are the numerous occurrences of nickel, copper and chromium to the south in South Australia. These occurrences appear to be related to an interpreted major north-trending structural zone which trends into the southern portion of EL 10060. Two separate alteration zones of magnetic overprint and hematite? have also been interpreted to trend into the southern part of EL 10060.

Interpretation by Geodiscovery Pty Ltd reveals EL 10060 to have more linear magnetic signature compared with the regional area which is characterised by circular magnetic granites of the non-prospective Proterozoic Kulgera Suite.
Further processing of magnetics data is currently being carried out by Geoimage to provide Naudi depth-to-basement data, which will be used to determine the shallower portions of Proterozoic basement amenable to cost-effective exploration.

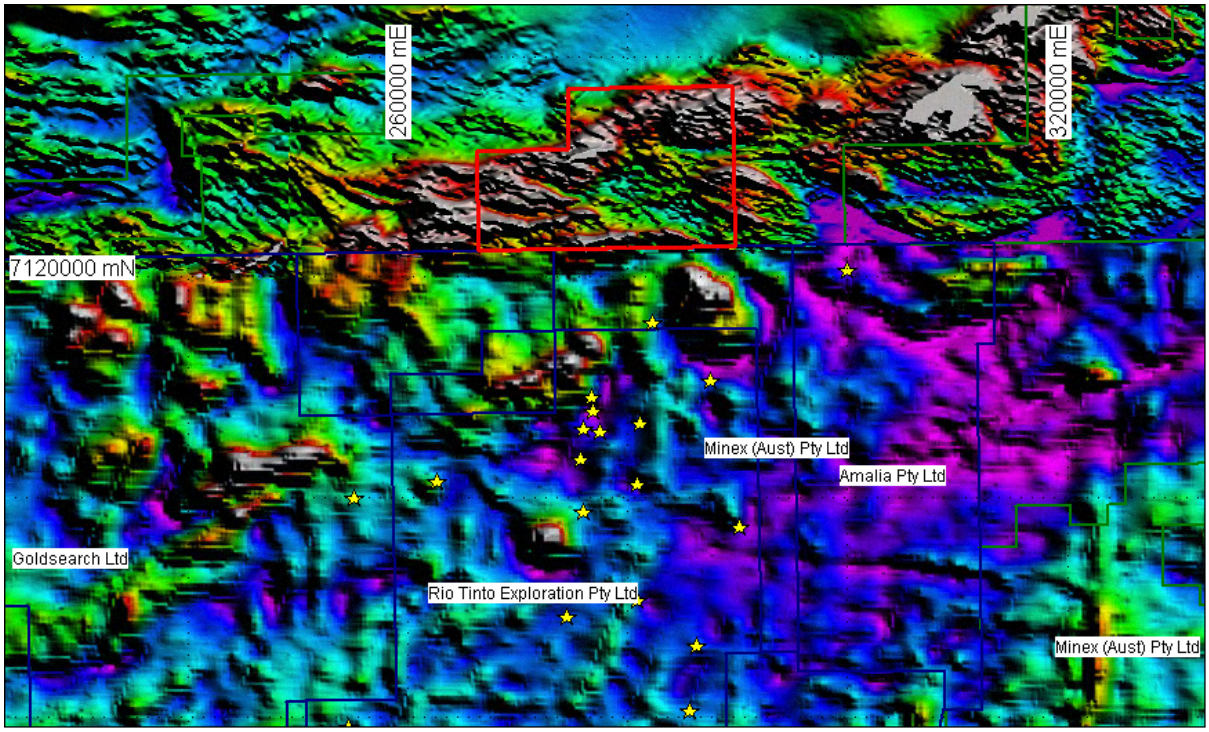

Figure 4. Magnetics for EL 10060

(Stars are mineral occurrences in SA)

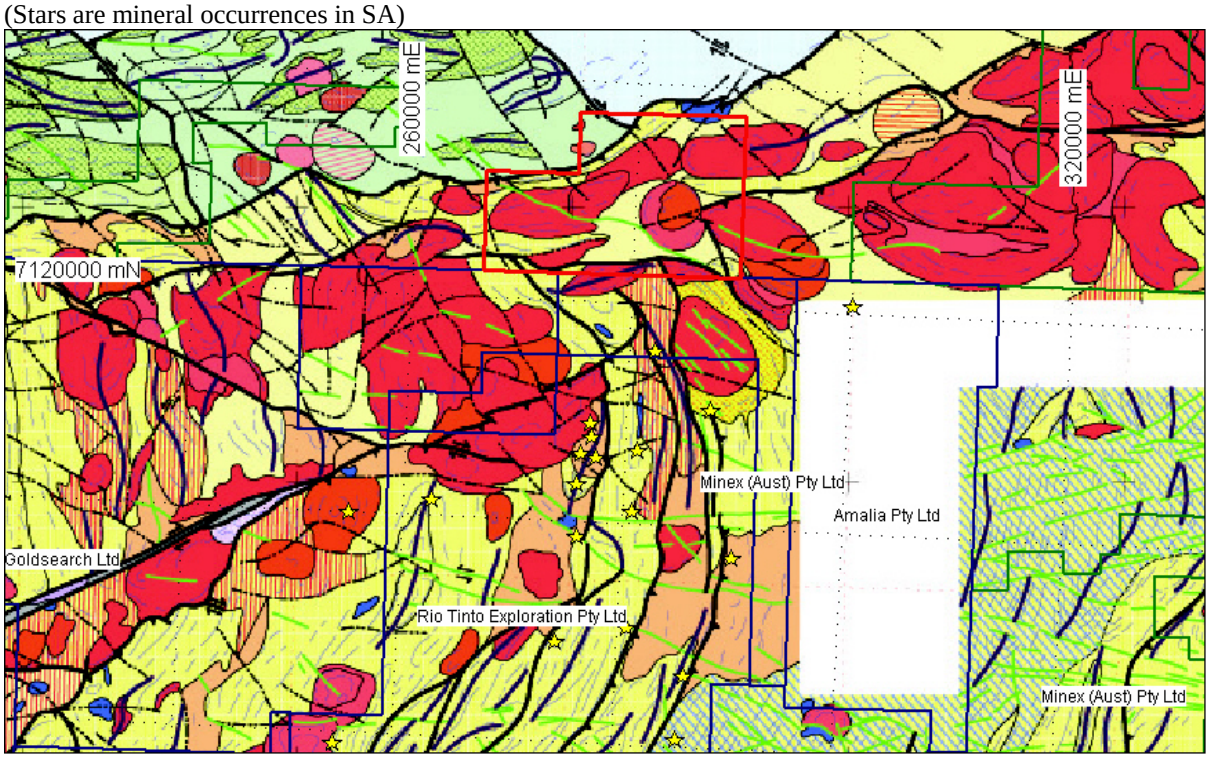

Figure 5. Magnetics interpretation

(from Rankin & Newton, 2002)
(red=magnetic granitoids, orange=weakly magnetic granitoid, pink=nonmagnetic pluton, pale yellow=layered gneiss/granulite, dark yellow=magnetic gneiss/granulite, spotted yellow=hematite alteration?, salmon=demagnetized zone, blue=strongly magnetic to negatively magnetized mafic plug, green=dykes, red stripe=magnetic overprint, pale green=Oliah Gneiss)
(Stars: grey=Ni, dark green=chromium/nickel, pale green=chrysoprase/copper/nickel, yellow=copper, pink=copper/nickel, blue=cerium/ilmenite/lanthanum/yttrium/zircon)

6.4 Gravity Interpretation

Interpretation of the residual gravity data reveals a number of discrete responses in the data within EL10060 (Figure 6).

In particular, a distinct north-south trending structure along which lie numerous nickel and copper occurrences (within SA to the south) strikes through the central west portion of the tenement. The structure separates a relative low-density domain to the west and denser domain to the east, with the latter characterised by three distinct high areas.

Outcrop of cordierite-sillimanite-garnet gneiss in the SE corner of the area may correspond to the gravity high response in this area of the tenement due to the high density of the rocktypes here and shallow basement. The gravity high in the NE of the EL corresponds with outcrop of Jurassic De Souza sandstone overlying a very magnetic, circular feature interpreted to be part of the non-prospective Kulgera Granite Suite. A basement high may occur here.

The anomaly in the central north of EL10060 occurs on a major NE-trending structure interpreted from the magnetics data, which is also host to several mineral occurrences to the south. The anomaly is partially coincident with a very magnetic unit interpreted by Rankin & Newton to be magnetite-bearing gneiss or granulite.

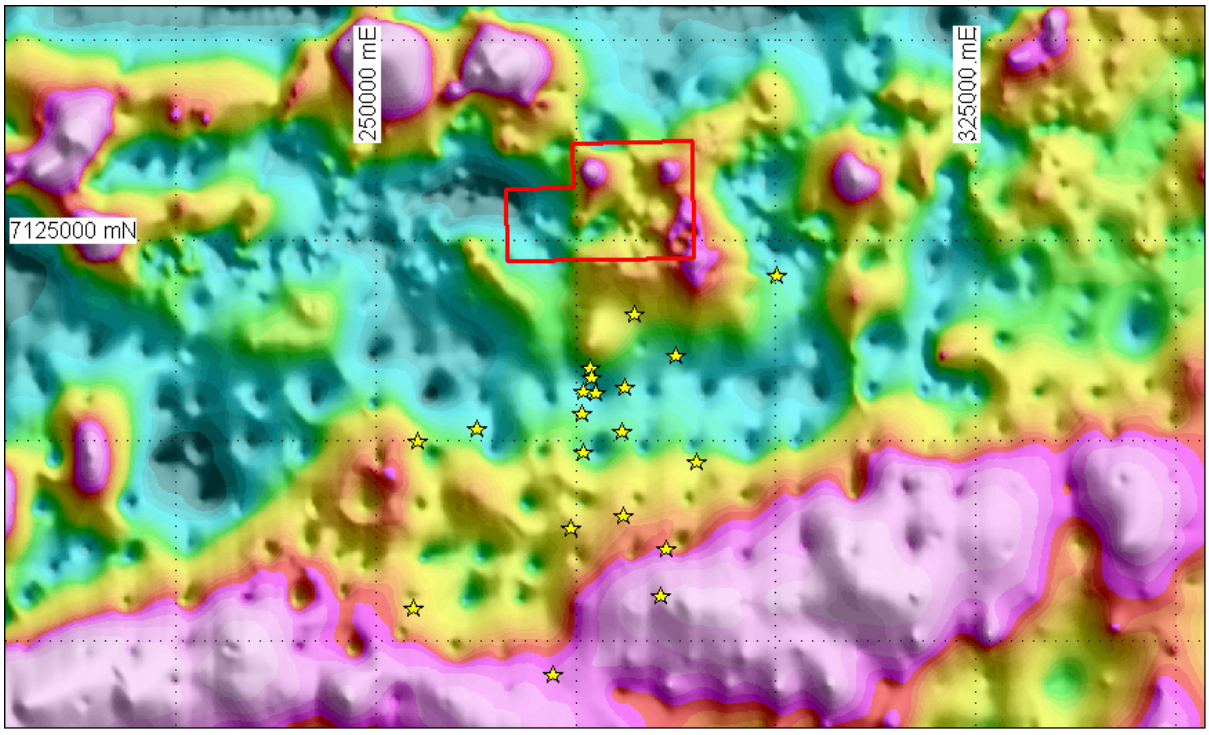

Figure 6. Residual gravity image

(stars are mineral occurrences in SA)

6.5 Radiometrics

Radiometrics data suggests that K-bearing rocks, likely to belong to the Kulgera Granite Suite, dominate outcrop and subcrop in the eastern part of the tenement area and to the west. Outcrop of metasedimentary gneiss in the SE corner of the tenement provides a 'lively' response in the radiometrics shown as pale yellow. There appears to be a band with similar response trending northwesterly between the two 'granite' domains which could be interpreted as intermittently subcropping 'gneiss domain'.

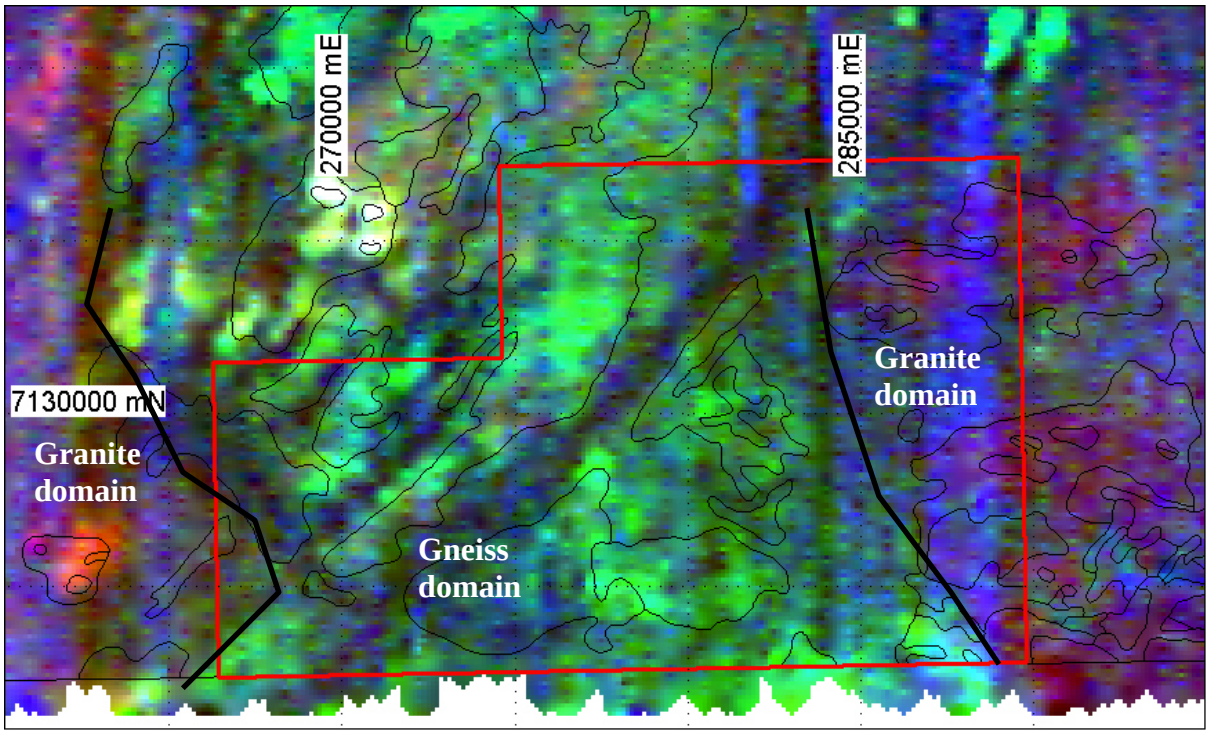

Figure 7. Radiometrics (KTHU) of EL 10060

(reddish areas indicative of higher K-bearing rocks, eg granite)

6.6 Indigenous Agreement

The Kajeena proposed work program for EL 10060 was processed with a field consultation and clearance via the Central Land Council, as per the terms of the Indigenous Land Use Agreement dated 30 April 2002. Unforeseen delays to these clearances meant that the program was not cleared until the end of November 2005, leaving insufficient time to complete the sampling program before the end of 2005. These delays meant that the work program was undertaken in April 2006.

6.7 Lag Sampling Program

Figure 8 shows the location of the sixty (60) lag samples collected. The results are presented in Appendix 1.

The samples were collected at approximately 500 m centres. Residual material was collected, from the top 1-2 cm by broom and scraper, into an approximate 2 kg sample of –6mm/+2mm. Areas of obvious alluvium and tops of sand dunes were not sampled.

The samples were dispatched to Genalysis Laboratory Services in Perth for analysis of Au by Aqua Regia (HCl/HNO_3) digest with a carbon rod finish, and Ag, As, Cu, Ni, Pb and Zn by ICP OES.

The results for Cu, Pb, Zn and Ni are presented in Figures 9 to 12.

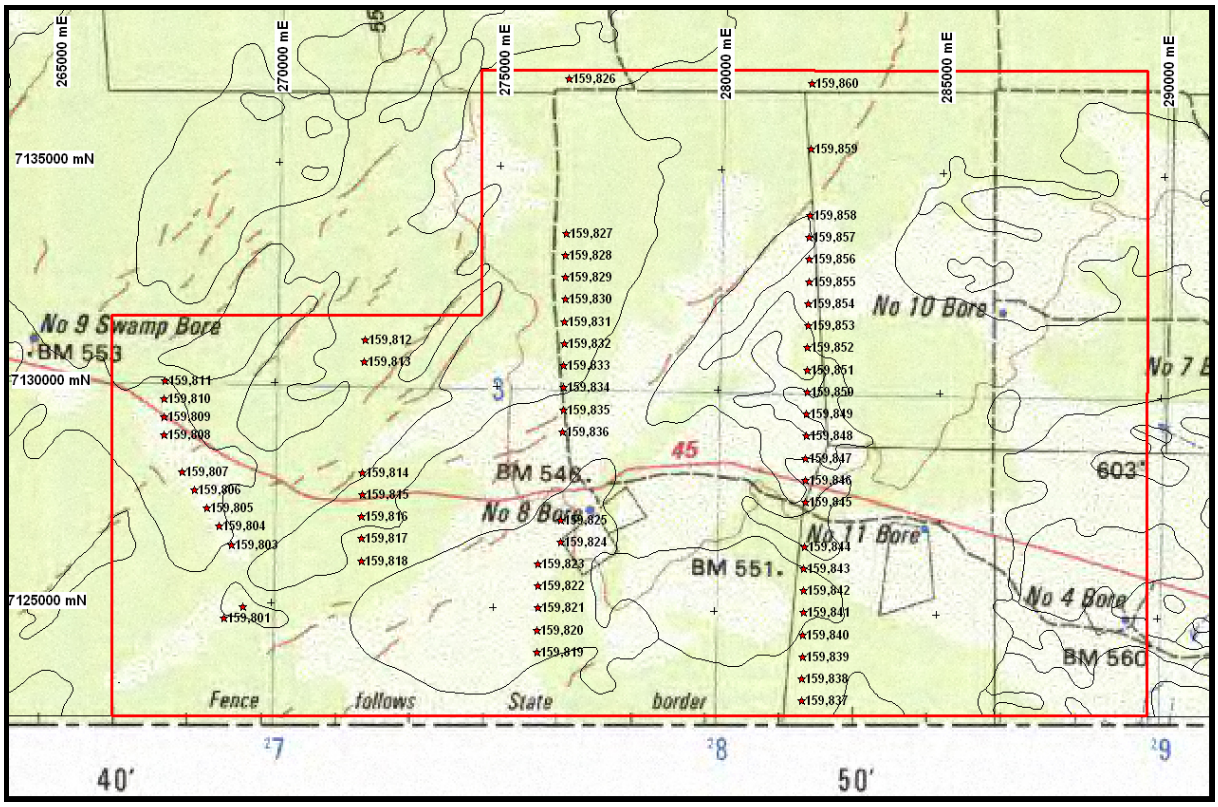

Figure 8. Location of surface lag samples (UTM Zone 53, GDA94)

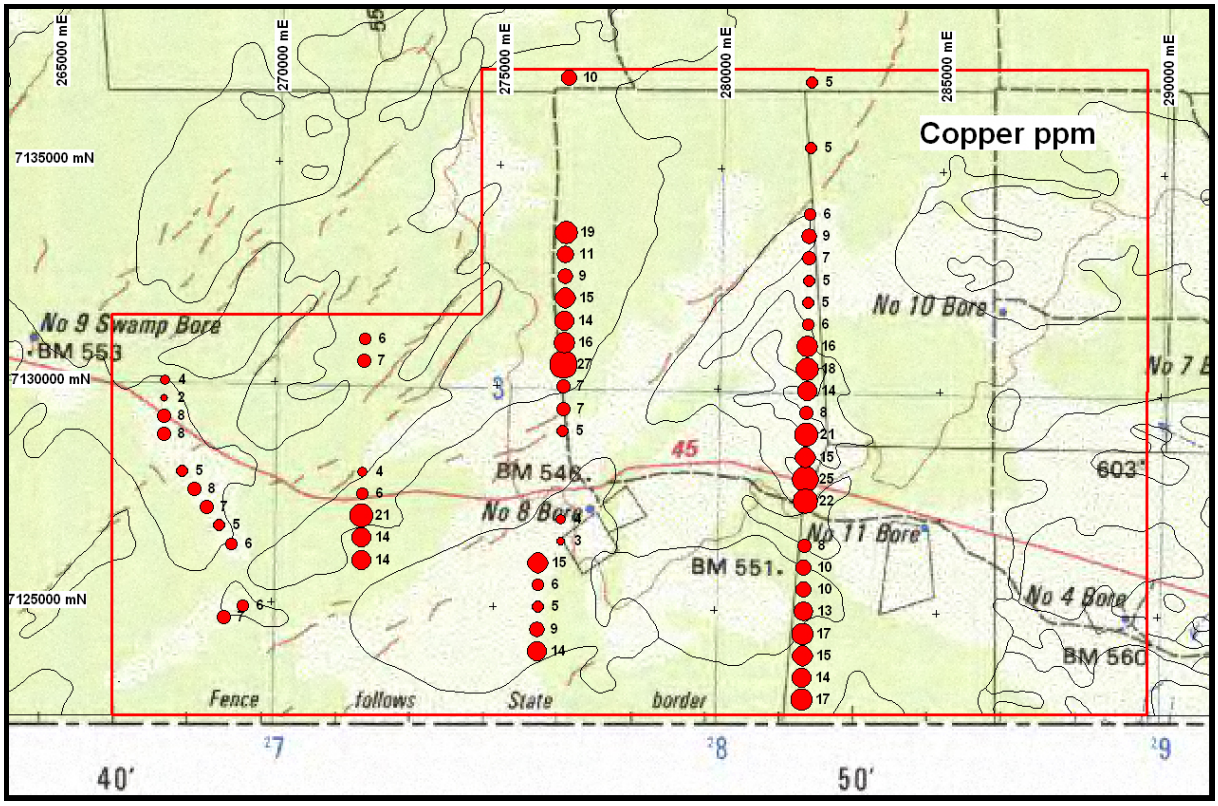

Figure 9. Lag sampling Cu results in ppm. (UTM Zone 53, GDA94)

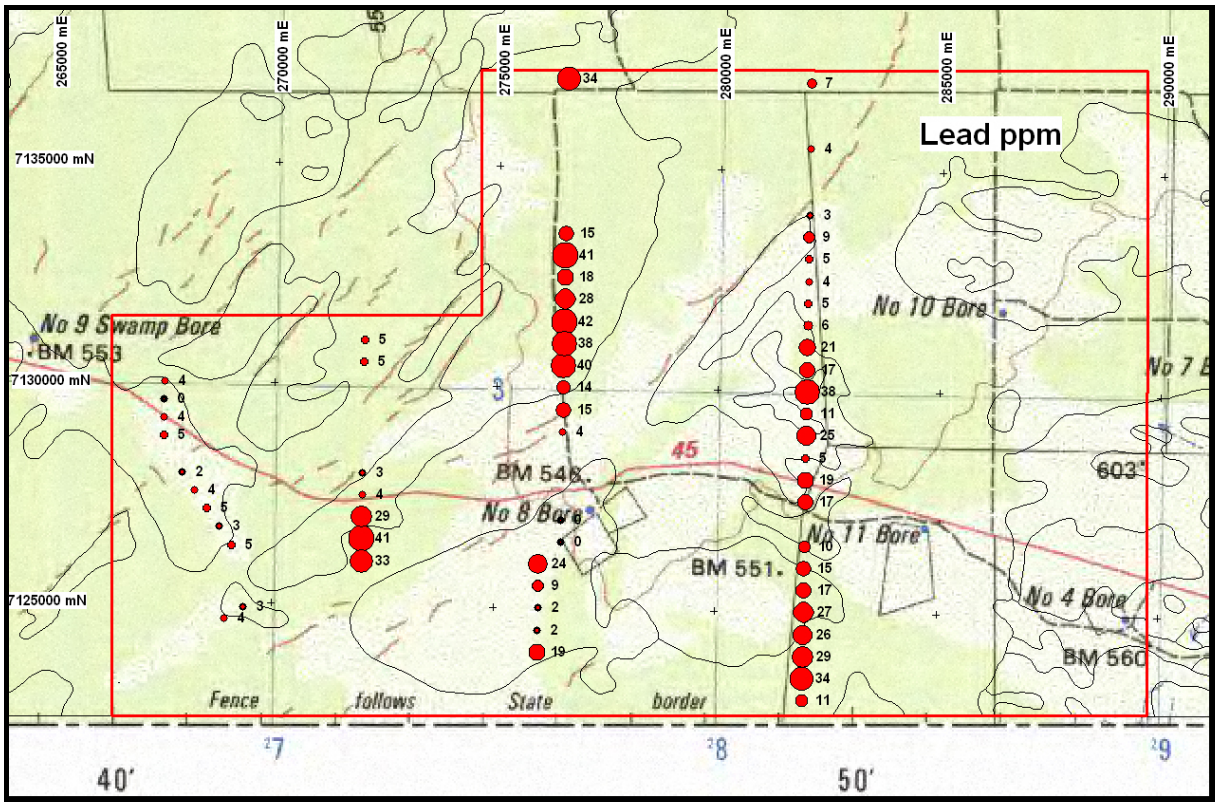

Figure 10. Lag sampling Pb results in ppm. (UTM Zone 53, GDA94)

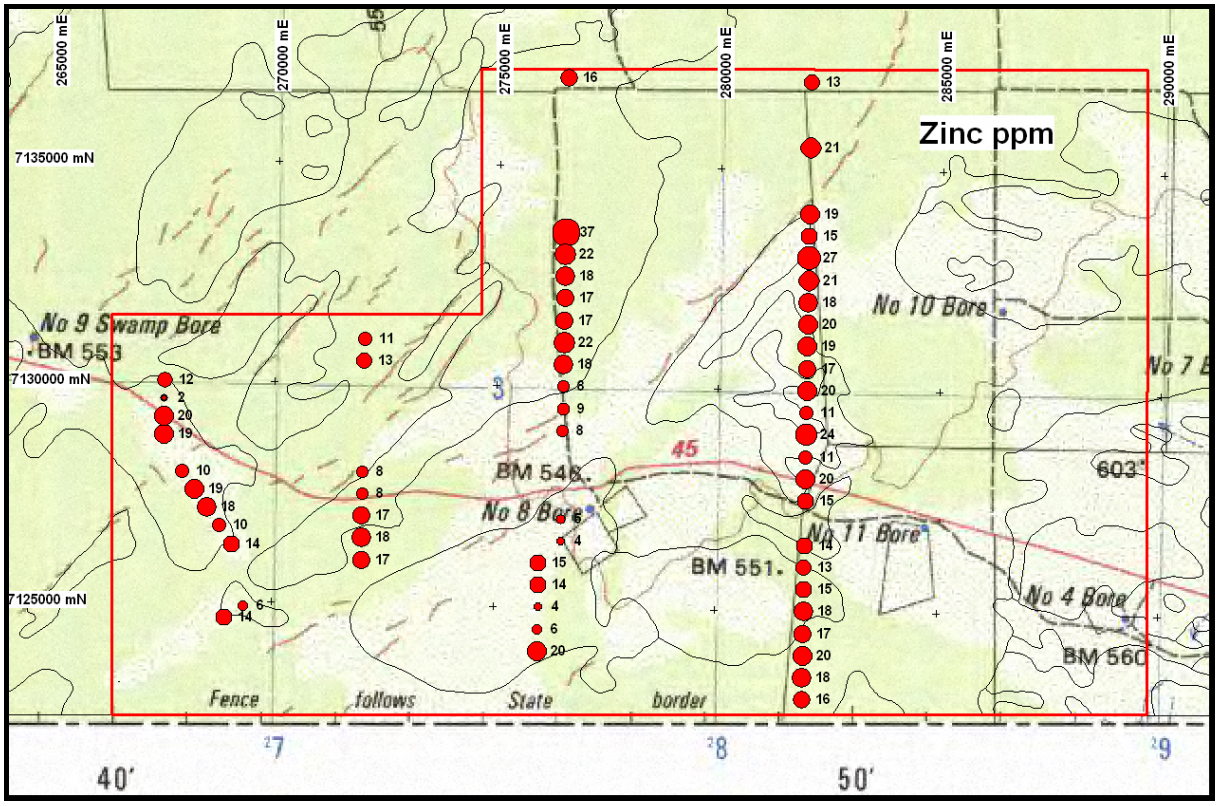

Figure 11. Lag sampling Zn results in ppm. UTM Zone 53, GDA94)

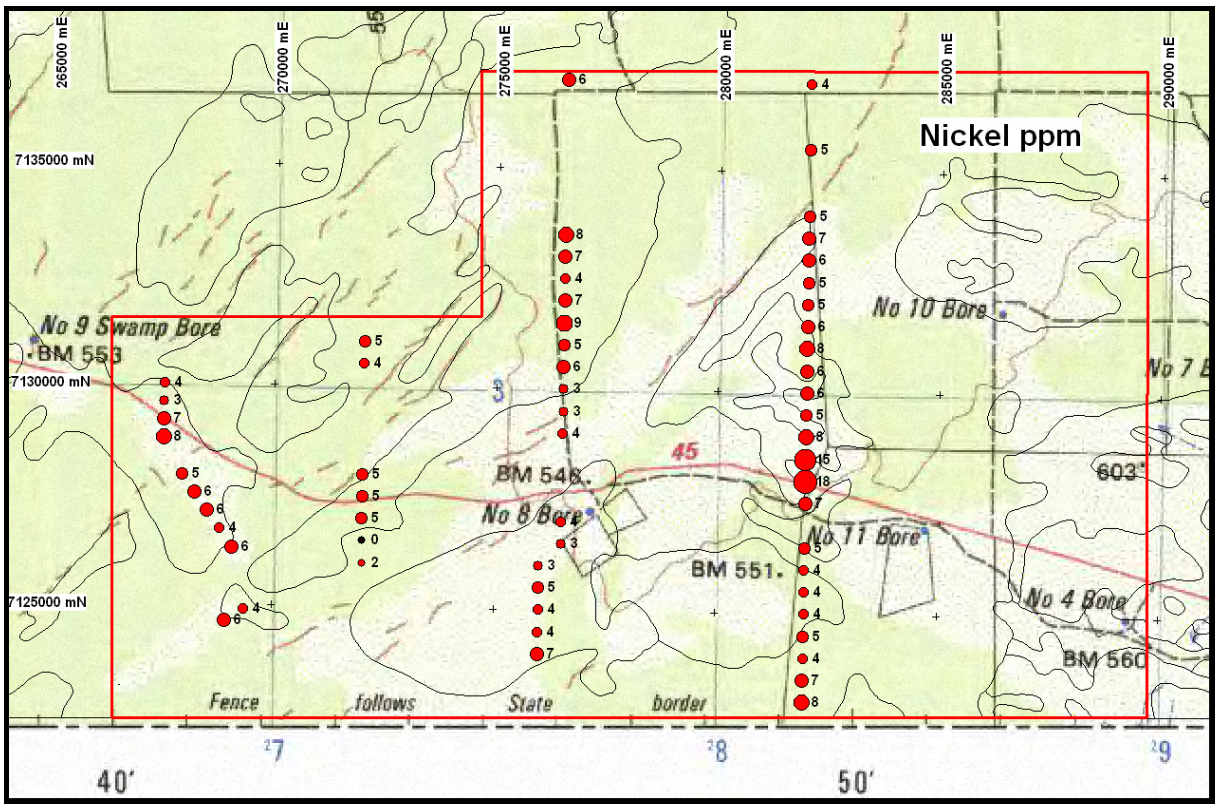

Figure 12. Lag sampling Ni results in ppm. (UTM Zone 53, GDA94)

7 CONCLUSIONS

The results from the lag sampling are not regarded as anomalous in any of the elements analysed and no further work is recommended. Consequently EL10060 was relinquished on 4 July 2006.

8 EXPENDITURE FOR YEAR 5 (2006)

Expenditure for Year 5 of EL10060 was as follows:-

.	**Geoscience Consultants.**	**$ 2,959**
.	**Tenement Maintenance.**	**$ 420**
.	**Geochemistry.**	**$11,082**
.	**Administration.**	**$ 2,169**
TOTAL		**$16,630**

9 REFERENCES

Dugmore, M. (2004) 'Kajeena Mining Company Pty Ltd, Annual Report for the Period Ending 12th December 2004, Exploration Licence 10060, Kulgera Area NT'. (Geo Discovery Group Pty Ltd).

Dugmore, M. (2005) 'Kajeena Mining Company Pty Ltd, Annual Report for the Period Ending 12th December 2005, Exploration Licence 10060, Kulgera Area NT'. (Geo Discovery Group Pty Ltd).

Duncan, G. (2003) '2003 Annual Combined Report on Exploration Licences EL 10055 & 10060– Kulgera Area for the Kajeena Mining Company Pty Ltd.' (Pacific Consulting Services Pty Ltd).

Duncan, G. (2003) 'Report on the Exploration Potential of the Kulgera Project – Northern Territory for the Kajeena Mining Company Pty Ltd.' (Pacific Consulting Services Pty Ltd).

Rankin, L. and Newton, C. (2002) 'Musgrave Block, central Australia: regional geology from interpretation of airborne magnetic data.' (Primary Industries and Resources SA. CD in *South Australia: mineral information pack*).

Appendix 1
Lag Sampling Results

ELEMENTS	Au	Au-Rp1	Ag	As	Cu	Ni	Pb	Zn
UNITS	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION	0.1	0.1	0.5	2	1	1	2	1
METHOD	B/EETA	B/EETA	B/OES	B/OES	B/OES	B/OES	B/OES	B/OES
COMMENTS: 6.3/0603728 (23/05/2006) CLIENT O/N: N. McLEAN 1/1								
SAMPLE NUMBERS								
159801	0.8		X	6	7	6	4	14
159802	0.5		X	4	6	4	3	6
159803	0.5		X	X	6	6	5	14
159804	1		X	3	5	4	3	10
159805	0.6		X	X	7	6	5	18
159806	1.1		X	X	8	6	4	19
159807	0.7		X	X	5	5	2	10
159808	0.8		X	X	8	8	5	19
159809	1		X	3	8	7	4	20
159810	0.7		X	X	2	3	X	2
159811	0.4		X	6	4	4	4	12
159812	0.6		X	7	14	2	33	17
159813	0.4		X	8	14	X	41	18
159814	0.6		X	12	21	5	29	17
159815	0.5		X	2	6	5	4	8
159816	1.4		X	3	4	5	3	8
159817	0.6		X	3	7	4	5	13
159818	0.4		X	3	6	5	5	11
159819	0.6		X	9	14	7	19	20
159820	0.8		X	X	9	4	2	6
159821	1.1		X	X	5	4	2	4
159822	0.6		X	5	6	5	9	14
159823	0.8		X	7	15	3	24	15
159824	0.9		X	X	3	3	X	4
159825	1.1		X	X	4	4	X	5
159826	0.8		X	4	5	4	4	8
159827	0.7		X	6	7	3	15	9
159828	0.5		X	4	7	3	14	8
159829	0.5		X	8	27	6	40	18
159830	0.3		X	2	16	5	38	22
159831	0.7		X	4	14	9	42	17
159832	0.8		X	7	15	7	28	17
159833	0.8		X	X	9	4	18	18
159834	0.5		X	X	11	7	41	22
159835	0.8		X	6	19	8	15	37
159836	0.8		X	X	10	6	34	16
159837	1.9	1.9	X	6	17	8	11	16
159838	1.3	1.1	X	X	14	7	34	18
159839	0.5		X	4	15	4	29	20
159840	0.9		X	X	17	5	26	17
159841	0.4		X	X	13	4	27	18
159842	0.5		X	5	10	4	17	15
159843	0.5		X	2	10	4	15	13
159844	0.4		X	X	8	5	10	14
159845	1.1		X	9	22	7	17	15
159846	1.1		X	3	25	18	19	20
159847	0.8		X	3	15	15	5	11

ELEMENTS	Au	Au-Rp1	Ag	As	Cu	Ni	Pb	Zn
UNITS	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION	0.1	0.1	0.5	2	1	1	2	1
METHOD	B/EETA	B/EETA	B/OES	B/OES	B/OES	B/OES	B/OES	B/OES
159848	0.5		X	5	21	8	25	24
159849	0.6		X	3	8	5	11	11
159850	0.4		X	5	14	6	38	20
159851	0.3		X	6	18	6	17	17
159852	0.4		X	3	16	8	21	19
159853	0.4		X	X	6	6	6	20
159854	0.1		X	X	5	5	5	18
159855	0.4		X	X	5	5	4	21
159856	0.3		X	X	7	6	5	27
159857	0.4		X	2	9	7	9	15
159858	0.3		X	X	6	5	3	19
159859	0.5		X	X	5	5	4	21
159860	0.5		X	4	5	4	7	13
CHECKS								
159801	0.9		X	5	8	7	5	15
159827	0.6		X	7	9	3	16	10
159853	0.9		X	X	7	6	6	27
STANDARDS								
PL-10	19.9		1	17	22	23	46	22
PL-10	20.7		1	14	21	22	45	23
PL-10	20.6		1.1	17	22	23	48	23
PL-10	18		0.9	15	20	21	46	23
BLANKS								
Control Blank	0.1		X	X	X	X	X	X
Control Blank	0.2		X	X	X	X	X	1