GEMPART(NT)P/L

EL 28886 Partial Relinquishment Report 2

Delmore Downs

ALCOOTA SF53-10

Utopia 5853

AWMackie

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SUMMARY

A program of regional reconnaissance of western licence area combined with acquisition, image processing, modelling and interpretation of Perenti Heliborne 500m l.s. SKYTEM geophysical survey, located, digital data for massive sulfide - prospective near-surface conductors and/or coincident, discrete AMAG anomalies possibly indicative of magnetite associated Cu-Au-U mineralisation was implemented during second year of tenure. Previous modelling, image processing and interpretation of 500m l.s. TMI/Radiometric regional, located, digital data revealed a west north west trending splay of Delny Shear Zone locally known as the Perenti trend, traversing across the licence area (overlain by extensively cropping out, metapelitic, Aileron Province leden schist, 1770Ma intruded by Ida Granite, 1803Ma).

Detailed geophysical analysis of AEM data showed the western or PPL 1126 Delmore Downs part of licence area has no obvious near surface conductors possibly indicative of economic massive sulfide base metal – gold mineralisation consequently the licence area was partially relinquished 15\textsuperscript{th} February 2015.

AEM sub surface Conductor Areas 1, 2&3 were further refined during 2015 through detailed geophysical analysis involving (1) advanced forward modelling and (2) computational depth to magnetic basement estimations allowing reduction of licence area by 15 sub blocks to 16 sub blocks.
1 INTRODUCTION
EL 28886 butts up to central-western boundary of ALCOOTA. Research by GA (2012) deemed south east Arunta region highly prospective for iron oxide copper-gold (uranium) deposits based on premise uranium/thorium-enriched granites enhance hi-regional geothermal heat flow/conductivity, promoting preferential metal solution movement via regional structural conduits to be deposited in preferred thermodynamic trapsites.

2 LOCATION and ACCESS (Fig1)
EL 28886 Partial Relinquishment overlies 59 sub blocks (189 sqkm) of Palaeoproterozoic Aileron Province. Access from Alice Springs is north via Stuart Highway 70km to Plenty Highway turnoff, east for 110km along Plenty Highway to Dneiper - Mt Swan turnoff, north for 70km to MacDonald Downs Station, then 32km west to Delmore Downs homestead traversing licence area.

3 TENURE
EL 28886 Delmore Downs comprising 90 graticular blocks,(272 sqkm) was granted to Gempart (NT) P/L for 6 years on 14th February 2012. A waiver of reduction was successfully applied for in February 2014. The licence area was partially relinquished to 31 sub blocks(98sqkm) 15th February 2015. The licence area was reduced by 15 sub blocks to 16 sub blocks February 2016.

4 PREVIOUS EXPLORATION
1970 - 1980
In 1970 CPM (AP2162) conducted an IP survey along the Perenti Cu prospect shear zone (a single traverse 1828m long). Three inclined core drill holes were collared to test resultant IP anomalies namely DDNT - 12 - 3, 2 and 1, 170m, 127.4m and 1.86,4m TD respectively (Total 484.32m).

A brief log of drillhole 3 is as follows:
0 - 143m foliated quartz-chlorite-biotite-feldspar granite
143 - 157.6m quartz reef + chlorite + 2% chalcopyrite + specular hematite
157.6 - 170m chlorite-rich granite + chalcopyrite/quartz veins + hematite.

14.6 m of core was split from 143 to 157.6m assayed for Cu, Pb, Zn, Ag and Au returning 11.9m averaging 0.6% Cu. DDNT-12-2 was spilt from 133 - 152m (16 samples) assayed for Cu, Pb, Zn, Ag, Au returning 9 m averaging 0.37% Cu. The following is an abridged log:

0 - 133m foliated granite
133 - 136.15m breccia, chlorite-hematite matrix with red feldspar+ quartz fragments
136.15 - 142.2m quartz reef + 2% disseminated chalcoprytie minor fluorite
142.2 - 143.7m breccia
In 1971 Kratos Uranium NL (AP 2587) conducted an airborne radiometric survey along northwest - southwest flight lines 1609m apart over an area of 944sqkm covering EL 28886. 15 anomalies delineated however only 11PR, located 3km east of Mt Swan homestead was followed up (1740 cps at 30m) comprising Waite Formation overlying granitic gneiss assaying thorium 105ppm, uranium <40ppm.

In 1973 Neptide Minerals conducted a rockchip sampling traverse commencing from 10km east of Delmore Downs to about 10km south of Macdonald Downs homestead collecting 54 samples of which MCI assayed Cu 1000ppm, Pb 2000 ppm.

Otter Exploration NL moved into the area in 1977 pegging EL 1452 Bundey River and EL 1453 Mt Ida conducting 1km line space (altitude 120m) aerial radiometric survey (north - south orientation) over a 1725sqkm area covering EL 28886 and southern half of EL 28838. Radiometric anomalies delineated by GAD-4/GSP3 were followed up by rockchip sampling. Br6-2 (Anomaly C2) assayed 10 ppm Uranium, 65ppm Thorium total count 794cpc (Figure 4j)

Three anomalies were delineated on EL 1453 namely C25, C27, C38 followed up by rockchip sampling assaying 46, 36 and 215ppm uranium respectively located 5km south of EL 28886. Uranium occurs as uraniferous leucoxene within quart-feldspar-mica-micro-gneiss or within quartz reefs associated with contact zones. Ledan Peak Bore assayed 250ppb Uranium. Scheelite mineralisation occurs within epidotised calcsilicate rock near anomaly C38 (2.65%W) 10km south west of Delmore Downs homestead.

Disseminated copper mineralisation in quartz breccia within northwest trending shear zone cutting granite occurs at the Perenti Cu prospect. Delmore Downs wolframite workings are within pegmatite cutting a roof pendant of garnet gneiss near a granite contact.

Anomaly DA7 sample MTD4.10.1 assayed 55ppm U, TC 970 cps located 3.4km south southwest of Delny homestead.

In 1983, Uranerz P/L conducted 26.7 line km of detailed scintillometry and collected 50 rockchip samples from EL 3308 an area covering 20km from west to east, of Delny - Mt Sainthill Fault Zone butting up to the eastern boundary of EL 28837. They also conducted a radon survey across Delny - Mt Sainthill Fault Zone comprising 2 x 3.5km north south traverses. They concluded all radiometric anomalies identified were Thorium based?

Anomalous rockchips included, 0090 - 4.25%Cu, 0095, 0082, 0089 > 1000ppm Ce > 1500ppm Th-magnetic granite, 0086-3525ppm Th, 0079-410ppm U-quartzofeldspathic gneiss, 0113, 0114, 0115, 0116 >150ppm U, 0.3% Th epidote-magnetite granite.
In 1984 Geopeko farmed into EL 3308 flying a 150m l.s., N-S AMAG/Radiometric survey over the area after which they withdrew from the joint venture.

Track Minerals P/L conducted a program of drainage (62) and rockchip sampling (31) over EL 5902 also during 1989 covering the current licence area of EL 28886. All samples were assayed for Cu, Ag, Au while rockchips were also assayed for Pb, Zn and As for no anomalous results. Three rockchipping traverses were undertaken namely T1, 3km west of Tower Rock where granite with very large feldspars, schists and metaseds are exposed. T2 is located 2km north west of Camel Dam comprising muscovite quartzite with tourmaline, mica schist, ferruginous quartzite, banded (chlorite/muscovite bands) ferruginous quartzite, chlorite schist/ferruginous metasediment becoming dominantly ironstone followed by quartzite, ferruginous schist and quartzite with muscovite + tourmaline.
EL 9806 was granted to TGNL November 2002 covering current licence area of EL 28886. Nine rockchip samples (Figure 4k) were collected from what is currently south east corner of EL 28886 overlying west north west Perenti trend (obstensively sheared brecciated, ferruginous ledan Schist) namely ALK070 - 078 the standout of which is ALK076 comprising weathered regolith/vein quartz (GDA 94, 476959mE, 7520423mN) assaying Ag 2ppm, Au 11ppbm Cu 21ppm, Pb 72ppm. Interestingly a bismuth assay of 3.64% or 36400ppm for the above rockchip sample was not followed-up?

Bluekebble P/L were granted EL 26368 March 2008 the eastern half of which was relinquished in July 2011. The area was subsequently applied for by Gempart (NT) P/L i.e EL 28838. Bluekebble reprocessed 500m l. s NTGS radiometric data defining several strong uranium anomalies within EL 28838 licence area requiring investigation.

In 2009 Nupower Resources Ltd (NUP) investigated a large radiometric (U-Th) anomaly coincident with cropping out Mt Swan Granite (1713Ma) over three southern-most blocks of EL 28838 (Figures 4e and 4f). The intense uranium anomaly overlying southwest corner of what was formerly EL 26876 gave spectrometer uranium values ranging from 3.9 - 17 ppm U, 1 - 197ppm Th. Three rockchip samples of porphyritic-biotite-hornblende granite were assayed for U, Th, Ce and La the best of which 20059 returned values of 51.5, 129, 260 and 116 ppm respectively.

Toro Energy Ltd (TOE) were granted EL 26542 June 2008 over the current licence area of EL 28886. In July 2010 a heliborne SKYTEM electromagnetic survey comprising 74,500m l. s. flight lines orientated east north east, 3km long (226.5 line km) was flown over northwest Perenti trend to determine the nature and degree of ground conductivity ie presence of potential IOCGU/massive sulfide basemetal deposits (Figure 4h). An MMP was approved to followup SKYTEM anomalies however adverse findings of a site clearance survey negated access to half the area.

5. GEOLOGY Figure 3.

EL28886 overlies 272 sq km of southeast Arunta Inlier a major ensialic Palaeoproterozoic to Mesoproterozoic mobile belt of multiply deformed polymetamorphic basement terrane covering 200 000 sqkm of central Australia. The licence area assigned to Jinka Domain, a belt of high-T,low-P metamorphic rocks (considered stratigraphic equivalents of Strangways Metamorphic Complex - SMC) located north of Delny Shear Zone cropping out along northern margin of eastern Aileron Province, the largest of three fault bounded terranes which collectively define Arunta Inlier, comprising green schist to granulite facies metamorphic rocks with protoliths ranging from 1865 - 1710 Ma forming part of North Australia Craton geologically continuous with gold-bearing Tanami and Tennant regions to the north.

West-northwest trending faults are dominant structures of southeast Aileron Province including the licence area. They are northwest extensions of Delny Fault Zone (DFZ) characterised by retrograde schist zones 5km wide on HUCKITTA. The fault zone has a high angle reverse movement essentially vertical reactivated several times since the Palaeoproterozoic. The last documented reactivation ie
during Carboniferous Alice Springs Orogeny resulted in exhumation of granulite facie rocks regionally juxtaposed against amphibolite facie metasediments north of DSZ.

The oldest rocks cropping out within the licence area are 1810-1800Ma Delmore Metamorphics comprising calcisilicate, pelitic gneiss, epidote quartzite, anthophyllite-chlorite-cordierite rock and rare epidosite deemed time equivalents of lower SMC cropping out extensively on ALICE SPRINGS hosting metamorphosed VHMS basemetal deposits hence unit is prospective. Correlation further confirmed by a single 1810-1800Ma age population obtained from metasediments of both regions, similar sedimentary protoliths and apparent early regional hydrothermal alteration of sediments.

The Delmore amphibolite facies siliclastic meta-sediments are unconformably overlain by 1770-1750Ma Ledan Schist cropping out over 40km, trending west north west across licence area ie wedged between Ida/Mt Swan Granites to south and 1780Ma unnamed granite to north.

Ledan Schist comprising quartz-muscovite +/- biotite +/- andalusite schist+metapsammite is a member of the informally named Ledan package (1770 - 1730Ma) along with conformably overlying Utopia Quartzite, time equivalent Mendip Metamorphics and granulite facie metasediments of Anira Metamorphics cropping out further west on ALCOOTA. Interestingly, Ledan package unconformably overlies Strangways Metamorphic Complex and correlates with upper Hatches Creek Group taken together form part of an intracratonic basin which formed north of an inferred plate margin during rollback of north - dipping subduction zone to the south and southeast, an event which produced the magmatic-dominated Oonagalabi (1765 Ma) succession on ALICE SPRINGS (AGES 2008).

The Strangways Orogeny (1735 - 1690Ma) metamorphosed Ledan package rocks to upper greenschist facies. The older SMC time equivalent rocks i.e. Kanandra Granulite reached granulite facies (770 - 850°C, 6Kbar) were deformed twice imparting two gneissic fabrics, refolded about northwest to north northwest trending fold axes accompanied by migmatitic melting and granitic intrusion. Importantly tectono-metamorphic relationships observed in Delny (immediately south licence area) and Mapata Gneisses mirror those of the Kanandra Granulite.

Within Delmore Metamorphics and 1780Ma Ida Granite cropping out near southwest/western boundary of EL 28886 the effects of Yambah Event (1780 - 1770Ma) are able to be distinguished from Strangways Orogeny i.e. Delmore Metamorphic, upper amphibolite facies west north west to north west striking S1 fabric assigned to Yambah Event overprinted by east - west trending S2 fabric of Strangways Event which is also co-planar with a gneissic fabric found in Ida Granite. Syntectonic plutons namely 1730 – 1710Ma Mt Swan Granite intrude Ledan Schist They are assigned to high heat production (HHP) group of granites (Zhao and McCulloch subdivision) which intrude 1780 - 1750 Ma Main Group i.e. Crooked Hole and Queenie Flat Granites on central ALCOOTA. HHP granites are enriched in heat producing elements namely uranium, thorium and potassium.

The licence area is dominated by sheared west northwest trending extensively cropping out upper greenschist facies Ledan Schist (1770-1750Ma) comprising essentially quartz - muscovite and/or biotite (andalusite) schists which along with conformably overlying Utopia Quartzite has undergone progressive deformation involving regional shearing - D1a, followed by folding - D1b, producing stretching lineation - L1b. F1b fold axes trend east-south east.
The angular unconformity at base of Ledan Schist locally resting on protolithic volcaniclastics of 1810-1800Ma Delmore Metamorphic quartz - cordierite and quartz - anthophyllite rocks is intensely deformed producing a strong mylonitic fabric and stretching lineation. The above Ledan package rocks (1770 - 1730Ma) are intruded by syntectonic plutons namely Mt Swan Granite (1730 - 1710Ma) butting up to the westnorthwest Perenti trend traversing diagonally across licence area and unnamed granite to the north.

Ida and Mt Swan Granites are both gneissic hiotite granites, the latter displaying large (100mm) phenocrysts of aligned microcline. The northern faulted contact with unnamed granite is sharply defined magnetically whereas Ida/Mt Swan Granite/Ledan package contact is diffuse and strongly magnetic (magnetite-rich skarn?).

Recent research by NTGS (AGES 2013) of Perenti prospect drill core shows a broadly similar style of alteration as ILLOGWA IOCG belt i.e. fluorite-hematite-chlorite-silica considerably upgrading the prospectivity for Cu-Au deposits within licence area.

6. EXPLORATION PROGRAM (Figs 6f,6g,6h,6i,6j)
1. A regional reconnaissance west along MacDonald Downs - Delmore Downs road and environs for 15km was undertaken.

2. Desktop studies included preparation of Geology, TMI, Ternary Radiometrics, Landsat composite images from NTGS GIWS site and review of previous exploration activity.

3. Consultant Geophysicist acquired, image processed, modelled and interpreted 2010 500m l.s. Sandover SKYTEM/Helimag geophysical survey located digital data which failed to delineate any obvious near surface conductors over western (Delmore Downs) part of licence area. Uranium channel ‘spot highs’ were located/ground checked for secondary uranium mineralization with the aid of hand held scintillometer.

4. Detailed geophysical analysis of available located digital data involving advanced forward modelling and complex depth to magnetic basement computational estimates further reducing licence area by 15 sub blocks.

8. CONCLUSIONS and RECOMMENDATIONS
Detailed geophysical analysis of western licence area showed no obvious near surface conductors possibly indicative of economic massive sulfide base metal –gold-uranium mineralization consequently 59 sub blocks were surrendered 15th February 2015.

Further analytical geophysical analysis of sub surface AEM Conductor Areas 1,2&3 resulted in a 15 sub block reduction of 2015 licence area to 16 sub blocks February 2016.
9. REFERENCES

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Pgs Mt Swan Granite 1714Ma
Pgc Copia Granite 1780-1790Ma
Ptu Utopia Quartzite 1770-1780Ma
Pln Ledan Schist 1770-1780Ma
Pgulda Granite 1803Ma
pcfl Delmore Mms 1806Ma

Figure 3

EL28886 PR 2 - U2Th Ratio Anomalies + AEM Conductors over Topography

Figure 6f