BLACKWOOD CORPORATION LTD
A.B.N. 31 103 651 538
AILERON PROJECT
EL 26071 Mt Gardiner
ANNUAL REPORT
for PERIOD ENDING 18th January 2011

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Map Sheets:
1:250,000 Napperby SF53-09
1:100,000 Reynolds Range 5453

Distribution
Department of Regional Development, Primary Industry, Fisheries and Resources
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SUMMARY

EL26071 was applied for by Matilda Minerals Ltd on 23rd April 2007 and granted on 18th January 2008, comprising 45 blocks covering the northern end of Reynolds Range.

NuPower acquired an interest in EL 26071, Mt Gardiner, as a result of being offered a package of tenements in the Aileron region for joint venture.

Nu Power entered into a Heads of Agreement for a Joint Venture to explore three of their tenements in the Aileron region on 17th March 2008, including EL 26071.

Matilda Minerals went into voluntary administration in October 2008 and Nu Power managed the license and kept it good standing for year 1 and 2 and reported the following:

"Nu Power was attracted to the Mt Gardiner property by an airborne uranium channel radiometric anomaly associated with microgranites and schists of the Coniston Schist on the southern flank of the Reynolds Range in this area and its prospectivity for structurally hosted uranium mineralisation in retrogressively altered granites and secondary calcite-hosted uranium derived from a primary source.

Isolated outcrops of Pre-Cambrian schistose granitic gneiss are present along the southern range front, intruded by Yakalibadgi Microgranite.

Rocks of the Lander Rock Package are the oldest sedimentary rocks present comprising quartz sandstone, siltstone shale and slate, of granitic origin, that outcrop around the northern flanks of the Range. They are highly folded and metamorphosed to lower greenschist facies in the north rising to upper amphibolite-lower granulite facies in the southernmost part of the Ranges. Andalusite-bearing slates in the south part of Mt Gardiner contain a small lens of Wickstead Creek calc-silicates, and similar lenses of cal-silicates form isolated masses in the southernmost part of the license. Amphibolites, probably derived from basalt lava flows, form minor, widespread conformable lenses.

Reynolds Range Group unconformably overlies the Lander Rock Package consisting of quartzite, shale, and carbonate, comprising the Mt Thomas Quartzite, Pine Hill Formation, Algamba Dolomite Member, and Woodforde River Beds. The group is extensively intruded by sills of retrogressively metamorphosed microgranite of the Coniston and Warimbi Schists.

Three sills of microgranite, partly or wholly retrogressed to orthoschist, are exposed in the northern part of Reynolds Range; Yakalibadgi Microgranite, Coniston Schist and Warimbi Schist.

The Yakalibadgi Microgranite outcrops along the southern flanks of the Reynolds Range and it has undergone variable retrogressive metamorphism to a foliated muscovite-biotite-feldspar orthoschist but retains minor zones of porphyritic microgranite and medium grained granite. It intrudes the Lander Rock Beds below the Mt Thomas Quartzite. It appears to not have intruded the Quartzite itself but its elongate shape parallel to the Quartzite suggests that it was emplaced along the unconformity at the base of the Quartzite.

The central part of Mt Gardiner is underlain by Coniston Schist, the source of the uranium channel radiometric anomaly, comprising highly deformed and retrogressive biotite-sericite-quartz orthoschist. Minor relic bodies of porphyry and microgranite are also present. It is separated from the Yakalibadgi Microgranite by the basal conglomerate of the Mt Thomas Quartzite. It is succeeded to the north by the main mass of Quartzite and so appears to have been intruded as a sill, about 600m thick, along the top of the basal conglomerate.

The Warimbi Schist is restricted to the southernmost part of the area and comprises a biotite-sericite quartz orthoschist. It was emplaced as a saucer-shaped lopolith 250m
thick. Centrally the underside of the lopolith lies at the unconformity between the Lander Rock Beds and the Mt Thomas Quartzite but it gradually rises north and south up-section though the Quartzite and breaks out into the overlying Pine Hill Formation. It contains numerous rafts of the Quartzite. Dissected Cainozoic fanglomerates are well developed on the flanks of the Range which, to the south of the Range, grades outwards to extensive Quaternary red earth plains. The red earth plains are overlain locally with Quaternary alluvium of river gravels and sheet wash. Quaternary calcrite is developed locally in some peripheral drainages. Quaternary lag gravels are preserved locally over deeply weathered bedrock. Work to date has comprised a review of the available open file reports of previous exploration and compilation of the various digital geochemical data, airborne geophysical data and Landsat images. It is apparent that some useful open file geochemical data for the area has not been digitized since the information has been presented on often hand drawn base maps prepared from various sources, preceding the advent of GPS, and further compilation of data is required. Although work to date has down graded the prospectivity the existing airborne radiometric anomalies have not been adequately explored or fully explained, and a short program of reconnaissance geological mapping and geochemical sampling is proposed.

Matilda Minerals came out of administration in October 2010, changed its name to Blackwood Corporation Limited was relisted on the ASX in December 2010 as a bulk commodity explorer with a large portfolio of coal tenements in Queensland. Blackwood undertook a reappraisal of the tenement in year three to determine its potential for bulk commodities, notably iron ore and manganese and reports the following:

Most exploration to date on EL 26071 has concentrated on the southern flanks of the Reynolds range within the uraniferous conington Schist and the tertiary drainage which runs to the south. Blackwood have examined the potential for Channel and Detrital iron ore and strata form manganese deposits of the Bootu Creek type and conclude that the northern flanks of the Reynolds Range between Mt Gardiner and Mt Thomas host an iron rich sequence of metasediments which have a number of reported haematite occurrences. Air magnetics are reported to suggest extensive iron occurrences along this range. A reconnaissance program to determine the potential for Channel iron and detrital iron deposits is planned for year 4.

Within this iron rich sequence on the northern flanks of the Reynolds Range lies a dolomite unit some 10 kilometers long and up to 300 meters thick in a geological setting very similar to the Bootu Creek Manganese Mine. The DoR website reports sampling of surface enrichment up to 58% Mn. Blackwood plan a reconisance program to determine the prospects of the Algamba Dolomite for stratabound manganese deposits for year 4.
INTRODUCTION
EL 26701 was part of the Nu Power Resources Ltd Matilda Minerals Arrente Joint Venture Project which comprised three tenements;
   EL 26103 Allungra Creek
   EL 26071 Mt Gardiner
   EL 25819 Aladdin’s Waterhole
EL 26103 and 25819 have been surrendered.

This annual report is concerned with EL 26071 Mt Gardiner. It repeats much of the work reported by Warrick Rafferty For Nu Power Resources Ltd. in his Annual Report to Department of Regional Development, Primary Industry, Fisheries and Resources for Period Ending 18th January 2010. All reporting of uranium exploration and work completed in year one and two is extracted from the latter report by Warrick Rafferty. Blackwood have been solely responsible for the project review and development of bulk commodity targets in year 3.

BACKGROUND
EL26071 Mt Gardiner was granted to Matilda Minerals on 18th January 2008. Nu Power entered into a Heads of Agreement for a Joint Venture to explore three of their tenements in the Aileron region on 17th March 2008, including EL 26071. Matilda Minerals went into voluntary administration in October 2008 and Nu Power managed the license for year 1 and 2 and reported the following:

“The Arunta region is prospective for metamorphic-style uranium deposits of the Mary Kathleen type, shear-mylonite hosted phosphate-rare earth-uranium-thorium deposits similar to Nolan’s Bore and surficial calcrete hosted uranium deposits. The potential for unconformity-related uranium deposits is largely unproven and poorly tested.

The NTGS radiometric surveys show a weak but consistent uranium channel coincident within the Coniston Schist, on the southern flank of the Reynolds Range. The Schist, originally emplaced as a microgranite sill, is described as being retrogressively metamorphosed to orthoschist. It is thought that substantial flow of hydrothermal fluids could have accompanied this alteration with the potential for uranium mineralisation. Calcrites, with the potential for secondary uranium mineralisation derived from the Schist, are mapped on the plains to the south.

Although the area has been explored for gold, base metals and iron, it appears to have never been explored systematically for uranium. Although stream sediment samples taken by Exodus and reported in the NTGS stream sediment geochemical database were assayed for uranium the results are mostly less than detection limit and some sampling by other companies is absent from the database.”

Matilda Minerals came out of administration in October 2010, changed its name to Blackwood Corporation Limited was relisted on the ASX in December 2010 as a bulk commodity explorer with a large portfolio of coal tenements in Queensland. Blackwood undertook a reappraisal of the tenement in year three to determine its potential for bulk commodities, notably iron ore and manganese and reports the following:
Most exploration to date on EL 26701 has concentrated on the southern flanks of the Reynolds range within the uraniferous conington Schist and the tertiary drainage which runs to the south.

Blackwood have examined the potential for Channel and Detrital iron ore and strata form manganese deposits of the Bootu Creek type and conclude that the northern flanks of the Reynolds Range between Mt Gardiner and Mt Thomas host an iron rich sequence of metasediments which have a number of reported haematite occurrences. Air magnetics are reported to suggest extensive iron occurrences along this range.

**LOCATION AND ACCESS**

Exploration License 26071 (Mt Gardiner) is located 200km NNW of Alice Springs and 90km NW of the Aileron Roadhouse on the Stuart Highway, (Figure 1). The license covers some 35km of the northern part of the length of the northwest trending Reynolds Range that stretches over 100km from the Stuart Highway southeast of Aileron to Coniston Station in the northwest.

The northern flank of the Range is accessible by the Pine Hill Road that leaves the Stuart Highway near Aileron, crossing tributaries that drain northwards into the Lander River. This unsealed road continues around the northern end of the range has far as the Warburton River where it meets a track from Napperby Station that passes, via Napperby Creek, northwestwards between the Warburton River and the southern flanks of the range. Fence lines, tracks to waterholes and yards and disused tracks extend from both roads into the foothills of the range, (Figure 2).

The main part of the range is inaccessible by vehicle due to high relief and rough terrain and much of the previous exploration reconnaissance work was carried out by helicopter.
Figure 1 - Location of EL 26071, Mt Gardiner, Pastoral Leases, NT.
TOPOGRAPHY AND DRAINAGE

The northern end of the Reynolds Range (Figure 2) is a northwest trending belt of mountains foothills and deeply incised valleys rising steeply from altitudes of around 650-700m ASL on the adjoining plains to in excess of 1000m ASL at Mt Gardiner (999m) and Mt Thomas (1113m) at its northwestern end. The Anmatjira Range, much lower in elevation, lies parallel to the Reynolds Range some 15km to the north, across the Lander River.

The northern flank of the Range is drained by tributaries of the Lander River. The southern flank is drained by Tower Creek, a major tributary of the Warburton River and the headwaters of Napperby Creek in the extreme southeast in the Harverson Pass area.
Figure 2 - EL26071 Mt Gardiner, Location and Access
CLIMATE AND VEGETATION

The climate is typical of the central arid zone of central Australia. Summer seasons are long and maximum daily temperatures may exceed 40°C during the height of summer. Winters are short and cool when temperatures may retreat to less than 0°C with frosts. Mean maximum and minimum summer and winter temperatures from the Yuendumu Weather Station, 100km west of Reynolds Range, are 36.5°C, 22.4°C and 22.0°C, 6.2°C, respectively.

The average annual rainfall in the Napperby/Reynolds Range area, derived from the Yuendumu Weather Station is 360mm. The heaviest rainfalls occur during the monsoon season from October to March from the effects of low pressure systems to the north but reasonable falls of rain can occur at any time of the year.

Vegetation in the exploration license comprises three distinct varieties. The uplands consist of hummock grassland of Weeping Spinifex (Triodia clelandii) with low open woodland of mixed species overstorey. Tall open mulga shrubland with open woolybutt grassland understorey flanks the Lander River and northern foothills of the range while low open woodland of mixed mulga species with an open grassland understorey flanks the Warburton River and its tributaries.

CONCLUSIONS AND RECOMMENDATIONS BY NU POWER RESOURCES YEAR 2

The nature of the low order uranium radiometric anomaly coincident with the Coniston Schist suggests that it is due to high background levels of radionuclides in this lithology. This downgrades the prospectivity of the area for primary uranium deposits. The potential for secondary calcrete hosted deposits has not been tested although the published mapping shows several occurrences of calcrete below the southern flank of the range.

Examination of existing digital geochemical data from NTGS shows that while regional geochemical sampling has been completed here previously and the samples were assayed for uranium, most of the results are less than detection limit. This work however does not adequately explain the anomaly. Review of the open file reports also suggests that not all open file data has been compiled and more, useful, data is still available for compilation.

It is recommended that:

- Compilation of the remaining open file data is completed so that all data for the area can be adequately reviewed and a decision made whether more work is required.
- Reconnaissance fieldwork is carried out to locate the radiometric anomaly on the ground along with sufficient geological mapping and geochemical sampling (rock chips and stream sediments as required) to determine the nature of the anomaly.
- Areas of calcrete are mapped and sampled for secondary uranium mineralisation.

CONCLUSIONS AND RECOMMENDATIONS BY BLACKWOOD CORPORATION YEAR 3

- Blackwood undertook a reappraisal of the tenement in year three to determine its potential for bulk commodities, notably iron ore and manganese and concluded the following:
  - Most exploration to date on EL 26071 has concentrated on the southern flanks of the Reynolds range within the uraniferous Coniston Schist and the tertiary drainage which runs to the south.
Blackwood have examined the potential for Channel and Detrital iron ore and strata form manganese deposits of the Bootu Creek type and conclude that the northern flanks of the Reynolds Range between Mt Gardiner and Mt Thomas host an iron rich sequence of metasediments which have a number of reported haematite occurrences. Air magnetics are reported to suggest extensive iron occurrences along this range. A reconnaissance program to determine the potential for Channel iron and detrital iron and stratabound manganese deposits is planned for year 4. Within this iron rich sequence on the northern flanks of the Reynolds Range lies a dolomite unit with surficial manganese in a shallow marine sequence similar to the Bootu Creek Manganese Mine. The Northern Territory DoR website reports sampling of surface enrichment up to 58% Mn.

Blackwood plan a reconnaissance program to determine the prospects of the Algamba Dolomite for stratabound manganese deposits for year 4.

**Planned Exploration Year 4**

Nu Power Resources undertook exploration for Uranium in year 1 and 2 of this tenement and have expressed interest in continuing to explore for U and REE. They are targeting the southern flank of the range which hosts the Coniston Schists and the southern tertiary drainage.

Blackwood have identified exploration targets for iron and manganese and plan a program to investigate the prospectivity of the northern flanks of the Reynolds Range where the iron rich strata lies.

**Blackwood’s Program For Year 4**

**EXPLORATION TECHNIQUES**

Airborne EM was used by BHP to define the extent of manganese mineralisation at Bootu Creek. Early drilling used the BHP EM survey as a guide to the manganese mineralisation, but the technique was unable to locate the seams accurately. Airborne EM was followed up by ground EM, in the form of SIROTEM, which saved on exploratory drilling by more accurately pinpointing the EM response of the manganese seams. SIROTEM and other ground-based EM instruments (e.g., Geonics EM-31, EM-34 terrain conductivity meters) can provide variable depths of exploration down to about 60 m and these instruments have all been used with some success in attempts to locate manganese seams in the Tomkinson Creek Province. In general, aerial EM, followed up by ground-based EM, has proven to be a useful exploration technique for Mn mineralisation in the region, particularly under alluvial cover, and is able to greatly improve the targeting of drilling programs.

**Blackwood plan a staged program as follows:**

**Stage 1**
- Satellite image to help define target horizons
- Helicopter supported reconnaissance including rock chip sampling to determine prospectivity for iron ore and manganese deposits in the Pine creek and Thomasa Quartzite formations


Stage 11
- Airborne EM TO target channel iron and manganese deposits
- Ground based EM, SIROTEM TO locate drill targets

Stage 111
- RC Drilling to test iron and manganese targets

**TENURE**

**EXPLORATION LICENSE**

Exploration license (EL) 26071 was applied for by Matilda Minerals Limited on the 23/04/07. The title was granted on 18/01/08 for a period of six years with the first anniversary date being 18/01/09. It comprised 45 blocks covering an area of 142.7 square kilometres, (Figure 3).

As there was no requirement to relinquish ground at the end of the year 1, NuPower decided not to voluntarily reduce the tenement area and retained all 45 blocks for year 2. Matilda Minerals, the title holder, came out of administration in October 2010 and took over management of the EL at that time.

Matilda was renamed as Blackwood Corporation Ltd. and resisted on the ASX in December 2010. Matilda was granted an extension of time to make an application for a waiver of reduction until the 17th February 2011.

Figure 3 – EL 26071 Mt Gardiner Application
LAND TENURE
Most of the exploration license lies within Napperby Station. The northern fringes belong to Coniston Station and parts of the eastern fringes are covered by Pine Hill Station, (Figure 1). Details of the pastoral leases are as follows:
- Coniston Station, PPL 1096 – NT parcel 00690
- Napperby Station, PPL 1177/1178 – NT parcel 00748
- Pine Hill Station, PPL 1030 – NT parcel 00725

NATIVE TITLE
There is no Exploration Agreement in place between Matilda Minerals Ltd, holder of the Exploration License, and the CLC on behalf of Traditional Owners.
There are no Native Title Claims over the area.
In the absence of an Exploration Agreement, Native Title issues are considered according to Item 18 of the Schedule 2 Conditions provided during the grant process for EL 26071 Mt Gardiner. Article 6a requires Matilda Minerals and NuPower to convene a meeting with registered Native Title Claimants before commencing exploration activities unless the activity is of a reconnaissance nature. In the absence of any Native Title Claimants no such meeting has been held.
A registered ILUA, Reynolds Range ILUA, Registration No. D12005/002 to the CLC dated 28/10/2005 surrounds and abuts the Exploration License but does not cover it.

ABORIGINAL SACRED SITES
An inspection of the AAPA Register of Sacred Sites shows three unconfirmed recorded sites in the vicinity of Mt Gardiner itself

GEOLOGICAL SETTING
(Taken largely from unpublished report by Arafura Resources NL ARU-06/004)

REGIONAL GEOLOGY
The Arunta Region in central Australia covers an area of 200 000 square kilometres and is dominated by medium to high grade Palaeo- and Meso-proterozoic poly-metamorphic rocks. The Arunta Region is unconformably overlain by sediments of the Neoproterozoic to mid-Palaeozoic Ngalia, Georgina, Amadeus and Wiso Basins (Buick et al., 1999).
The Arunta Region can be sub-divided into three, largely fault bounded terranes with distinct geological histories: the Aileron (northern), Warumpi (southern) and Irindina (central) Provinces, (Figure 5), (NTGS website; italicised names from Shaw et al., 1984). The Aileron Province is relevant to this report (Figure 5).
The Aileron Province comprises greenschist to granulite facies metamorphic rocks with protolith ages in the range 1865 – 1710 Ma. It forms part of the North Australian Craton and is geologically continuous with the gold-bearing Tanami Region to the south and the Tennant Region to the north. The Aileron Province consists of three broad stratigraphic
divisions which have been intruded by granites (Stewart, 1991). The majority of rock units in the Aileron Province were deposited or emplaced prior to the Strangways Orogeny, 1740-1690 Ma (Hand & Buick, 2001)

Figure 4 - Geological Regions of the Northern Territory with approximate location of EL26071 (Ahmad & Scrimgeour 2004)
STRATIGRAPHY

Palaeoproterozoic
The Lander Rock Package is a suite of dominantly quartzose and pelitic sediments with a facies transition in the northwest, to alternating pelites and psammites, in the Mt Stafford Beds, (Table 1). Major outcrops occur in the Lander River Valley north of the Reynolds Range and in the vicinity of Harverson Pass (Figure 6). The metamorphic grade varies from lower greenschist facies in the northwest of the Reynolds Range to granulite facies in the southeast. Minor sills or dykes of mafic rocks occur in the package. The timing of deposition of the Lander Rock Package still remains unclear although granite intrusives and inherent zircon derived U-Pb SHRIMP ages provide a rough estimate of 1806-1840 Ma (Hand & Buick 2001).

Figure 5- Generalised geology of the Reynolds-Anmatjira region (modified after Stewart, 1981)

The Reynolds Range Group is sub-divided into four stratigraphic units (Buick et al. 1999). The basal Quartzite Unit, the Mt. Thomas Quartzite, is a mature orthoquartzite that unconformably overlies the Lander Rock Package in the northwest of the Reynolds
Range (Figure 6). The unit varies in thickness from ~200 metres to 550 metres cropping out along the length of the range. The lower units are predominantly conglomeratic with minor pebbly arkose rocks. The upper intervals are pelitic and generally ferruginous. A lateral facies change occurs from the northeast to the southwest across the range from basal conglomerates into homogenous pelitic rocks. Relict sedimentary structures indicate a high-energy, intertidal depositional environment (Buick et al., 1999).

The Lower Calcsilicate Unit forms the basal unit of the group in the southern margin of the Reynolds Range. This unit can be age constrained as an equivalent to the Mt Thomas Quartzite and by the intruding Napperby Gneiss metagranitoid. The unit is composed of finely layered, carbonate-poor calcsilicate rocks rich in clinopyroxene, plagioclase and grossular-andradite garnet locally interlayered with white quartzites and rare marbles. The unit is strongly metamorphosed and intensely deformed lacking sedimentary structures (Buick et al., 1999).

The Pelite Unit which was previously part of the Pine Hill Formation achieves a minimum thickness of 500 metres to 600 metres. Pelitic rocks are interlayered with thin sheets of fine grained siltstone and sandstone interpreted as storm deposits (Buick et al. 1999).

The Upper Calcsilicate Unit encompasses the previously defined Algamba Dolomite Member and the Woodforde River Beds. The unit achieves a maximum thickness of about 250 metres to 300 metres along the length of the Reynolds Range except in the central part where the maximum thickness is only 20 metres. The unit occurs as a series of lenses within the Pelite Unit dominated by interlayered limestone and dolomite locally intercalated with pelites and psammites. Stromatolites and sedimentary structures, i.e. climbing ripples, are preserved where rocks are metamorphosed at a regional low grade (Buick et al., 1999).

**Tertiary**

Geological research in Tertiary basins, (Senior et al., 1995), has defined three weathering events which affected Arunta igneous and metamorphic basement rocks and lacustrine and fluviatile Tertiary sedimentary rocks.

**Quaternary**

Further uplift in the Reynolds and northern Arunta Region has resulted in deposition of red earth and alluvium from uplifted areas and continued movement of colluvium down present-day hill-slopes. Calcrete has precipitated along stream channels, evaporites have formed in playa lakes, and sand plains and Aeolian dunes have developed in low lying areas (Stewart, 1981).
IGNEOUS ROCKS

Palaeoproterozoic

The Harverson Granite is located east of the southern part of EL 26071 (Figure 6). It is a coarse-grained, weakly deformed, K-feldspar megacrystic granite with an S-type composition. The granite intrudes the Lander Rock Package and produced a contact aureole characterised by andalusite in metapelites. The granite is grossly discordant to structural trends in adjacent country rocks (Buick et al., 1999). SHRIMP U/Pb determinations on zircon gave an age of 1818±8 Ma (Collins & Williams, 1995). The Mt. Airy Orthogneiss is located east of the southern part of EL 26071. It is a coarse-grained, porphyritic, granitic, megacrystic K-feldspar augen gneiss with microgranite dykes. The orthogneiss intrudes the amphibolite-grade Lander Rock Package (Buick et al., 1999). The Mt. Airy orthogneiss has not been dated but has been assigned a probable age of about 1820-1800 Ma (Buick et al. 1999).

The Yakalibadgi Microgranite overlies the Coniston Schist and intrudes the Lander Rock Package in the northwest Reynolds Range. Both the Coniston Schist and the Yakalibadgi Microgranite are interpreted as shallow level intrusives derived from a granitic protolith (Buick et al., 1999). The Yakalibadgi Microgranite was probably intruded during the time of major granite emplacement into the Reynolds Range Group, around 1780 Ma (Collins & Williams, 1995).

Mesoproterozoic

The Coniston Schist is located in the northern part of EL 26071 (Figure 6). It is an approximately 500 metre thick conformable layer of quartz-rich orthoschist directly above the Mt. Thomas Quartzite. Intensely developed foliation is characterised by sericite±biotite wrapped around augen of quartz and, rarely, feldspar. Foliation was developed during regional metamorphism at ~1590 Ma (Buick et al., 1999). The Warimbi Schist is located in the southern part of EL 26071 (Figure 6). The schist occurs as a series of sills and lopolith-like bodies with a maximum thickness of about 1000 metres. The least deformed parts are a poorly foliated micro-adamellite rich in meta-sedimentary enclaves. More commonly it is an intensely deformed quartz augen orthoschist where foliation is defined by clots of recrystallised biotite (Buick et al., 1999). The Napperby Gneiss crops out in the Yalyirimbi Ranges some 20km south of EL 26071.

<table>
<thead>
<tr>
<th>STRATIGRAPHIC UNITS</th>
<th>AGE (Ma)</th>
<th>THICKNESS (m)</th>
<th>CODE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>Lander Rock Package</td>
<td>1806-1840</td>
<td>Unknown</td>
<td>Pll</td>
<td>Pelitic, calcareous or psammite rocks with greenschist to granulite metamorphic grade</td>
</tr>
<tr>
<td>Reynolds Range Group</td>
<td>1812-1785</td>
<td>Maximum 1650m</td>
<td>Prt, Prp, Pra, Po</td>
<td>Mature quartzite, pelite, and carbonate, greenschist to granulite grade.</td>
</tr>
<tr>
<td>Harverson Granite</td>
<td>1818</td>
<td>Unknown</td>
<td>Pgh</td>
<td>Porphyritic muscovite-biotite granite, deuterically</td>
</tr>
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Stewart et al., 1980
Buick et al., 1999
<table>
<thead>
<tr>
<th>Location</th>
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<td>Mt Airy Orthogneiss</td>
<td>1820-1800</td>
<td>Unknown</td>
<td>Pgr</td>
</tr>
<tr>
<td>Yakalibadgi Microgranite</td>
<td>1780</td>
<td>Unknown</td>
<td>Pgk</td>
</tr>
<tr>
<td>Napperby Gneiss</td>
<td>1590</td>
<td>Unknown</td>
<td>Pgn</td>
</tr>
<tr>
<td>Coniston Schist</td>
<td>1590</td>
<td>500m</td>
<td>Ppc</td>
</tr>
<tr>
<td>Warimbi Schist</td>
<td>1590</td>
<td>1000m</td>
<td>Ppw</td>
</tr>
</tbody>
</table>

**METAMORPHISM & STRUCTURAL GEOLOGY**

The Arunta Region was shaped by two major intervals of tectonism. The first tectonic interval occurred during the Palaeo- to Mesoproterozoic, 1880-1560 Ma, and was associated with multiple episodes of regional medium to high temperature metamorphism and magmatism (Hand & Buick, 2001). The second tectonic interval occurred in the early to mid-Palaeozoic, about 490 to 300 Ma, and was associated with north-south intraplate extension and subsequent north-south convergent deformation (Hand & Buick, 2001). Regional structures produced during each period of tectonism in the Reynolds Range Region are discussed by Hand & Buick (2001).

The first tectonic interval is defined by three main tectonic events, the Stafford Tectonic Event about 1820 Ma, the Strangways Orogeny about 1780-1770 Ma, and the Chewings Orogeny about 1595-1560 Ma.

The Stafford Tectonic Event is spatially associated with the 1818 Ma Mt. Stafford and Harverson Granites (Figure 7). In the northwest Reynolds Range, the Lander Rock Package around the Harverson Granite is characterised by the growth of andalusite and cordierite (Dirks et al., 1991; Vry & Cartwright, 1998).
Figure 6 - Regional distribution of metamorphism inferred to be associated with the Mt. Stafford Tectonic Event (from Hand & Buick, 2001)
The Strangways Orogeny produced much of the metamorphic and structural character in the central province of the Arunta Inlier during northeast-southwest shortening between about 1780-1720 Ma. The most obvious product of the Strangways Orogeny in the Reynolds Range region was the emplacement of the granitic precursors of the Warimbi Schist and Napperby Gneiss at about 1785 Ma (Hand & Buick, 2001). Also, the Reynolds Range Group was deposited after the Stafford Tectonic Event and was unmetamorphosed until metamorphism by the Strangways Orogeny. The northwestern part of the exposed Reynolds Range Group preserves the best evidence of Strangways associated metamorphism due to relatively low grade metamorphism during the Chewings Orogeny (Hand & Buick, 2001).

Contact metamorphic assemblages formed in the Reynolds Range Group around the granitic precursors of the Warimbi and Coniston Schists during intrusion around 1785 Ma (Collins & Williams 1995). Contact aureoles in meta-pelites adjacent to the Warimbi Schist are andalusite and cordierite bearing. The stability of assemblages indicate maximum P-T conditions of 550°C and 3.5 kilobars (Xu et al., 1994; Mahar et al., 1997). Scapolite porphyroblasts in anorthite-bearing marbles adjacent to the Coniston Schist also give maximum temperatures of 550°C (Buick & Cartwright, 1994).

Contact metamorphic assemblages formed in the Reynolds Range Group around the granitic precursors of the Warimbi and Coniston Schists during intrusion around 1785 Ma (Collins & Williams 1995). Contact aureoles in meta-pelites adjacent to the Warimbi Schist are andalusite and cordierite bearing. The stability of assemblages indicate maximum P-T conditions of 550°C and 3.5 kilobars (Xu et al., 1994; Mahar et al., 1997). Scapolite porphyroblasts in anorthite-bearing marbles adjacent to the Coniston Schist also give maximum temperatures of 550°C (Buick & Cartwright, 1994).

Figure 9 - Metamorphic zones defined by mid-Palaeozoic metapelitic shear zone assemblages in the Reynolds-Anmatjira Range region (from Hand & Buick 2001)

Proterozoic structures in the Reynolds Range are heavily dissected by southeast and east trending shear zones associated with the 400-300 Ma Alice Springs Orogeny (Hand & Buick, 2001). Micaceous greenschist to lower amphibolite assemblages are dated to 330-320 Ma (Cartwright et al., 1999). Collins and Teyssier, (1989), interpret the overall geometry of the Reynolds-Anmatjira Ranges to have formed in a transpressional setting with a northeast-plunging lineation representing a component of sinistral movement during the Alice Springs Orogeny, resulting in juxtaposition of granulites against lower grade rocks in the southwestern Reynolds Range (Dirks et al., 1991).

The metamorphic grade increases to the southwest so that shear zones in the southwest of the Reynolds Range contain kyanite, staurolite and sillimanite-bearing assemblages in metapelite.

MINERALISATION

Open file company reports and descriptions of the Reynolds Range region by the NTGS indicate numerous occurrences of mineralisation. These include copper-lead-zinc, gold, tungsten, tin, tantalum, rare earth elements, mica, nickel, chromium, semi-precious stones, talc, iron and uranium. A variety of mineralisation styles have potential in the Reynolds Range region but few mineralisation styles have yielded positive results.

The most significant resource discovered to date is the Nolan’s Bore Phosphate-Rare Earth Element-Uranium deposit currently being investigated by Arafura Resources NL within EL 23671. In addition, Poseidon Gold discovered numerous zones of gold-arsenic-antimony mineralisation that include the Assegai, Sabre Falchion, Claymore, Yataghan, Scimitar and Rapier prospects, located north of Mount Thomas (see Sec, Previous Exploration for details).

Blackwood have examined the potential for bulk mineral potential deposits, specifically Channel and Detrital iron ore and strata form manganese deposits of the Bootu Creek type and conclude that the northern flanks of the Reynolds Range between Mt Gardiner and Mt Thomas host an iron rich sequence of metasediments which have a number of
reported haematite occurrences. Air magnetics are reported to suggest extensive iron occurrences along this range. Within this iron rich sequence on the northern flanks of the Reynolds Range a manganese occurrence has been recorded in a dolomite unit some 10 kilometers long and up to 300 meters thick in a geological setting very similar to the Bootu Creek Manganese Mine.

The DoR website reports sampling of surface enrichment up to 58% Mn. For details of iron and manganese mineral occurrences see section ... (Blackwood Exploration Year 3)
Figure 7 - Geology of Mt Gardiner Region (Napperby SF53-9, 1:250,000 Sheet)
STRATIGRAPHY REYNOLDS RANGE
Units of the Lander Rock Package (Pll) are the oldest sedimentary rocks at Mt Gardiner comprising impure mica-quartz sandstone, siltstone shale and slate, derived largely from a granitic terrain, that outcrop around the northern flanks of the Range. They are highly folded and metamorphosed to lower greenschist facies in the north rising to upper amphibolite-lower granulite facies in the southernmost part of the Ranges. Andalusite-bearing slates (Pll) are present in the south part of Mt Gardiner that contain a small lens of Wickstead Creek (Pli) calc-silicates (marble, gneiss and schist). Similar lenses of cal-silicates form isolated masses in the southernmost part of the license. Amphibolites, probably derived from basalt lava flows, form minor but widespread conformable lenses up to 7km long.

Reynolds Range Group unconformably overlies the Lander Rock Package consisting of a conformable sequence of quartzite, shale, and carbonate. In ascending order this is represented by the Mt Thomas Quartzite (Prt), Pine Hill Formation (Prp), Algamba Dolomite Member (Pra), and Woodforde River Beds (Po). The group is extensively intruded by sills of retrogressively metamorphosed microgranite of the Coniston and Warimbi Schists.

The basal Mt Thomas Quartzite outcrops throughout the Mt Gardiner tenement composed of mature cross-laminated orthoquartzite with lesser shale, conglomerate and pebbly arkose at the base about 235m thick. Abundant haematite is disseminated throughout the upper part of the unit. The unit is thicker in the southern part of the license where it includes pinkish-brown micaceous sandstone.

The Pine Hill Formation, 570m thick, outcropping on the northern side of the Range, contains shale, siltstone, fine-grained sandstone and minor slate. The rocks are weakly cleaved and tightly folded, increasing in metamorphic grade from lower greenschist to lower granulite from northwest to southeast along the Range similar to the Mt Thomas Quartzite and Lander Rock Package. The unit contains a lens of Algamba Dolomite, 425m thick, of fine-coarse-grained recrystallised dolomite and lesser limestone.

Three sills of microgranite, partly or wholly retrogressed to orthoschist, are exposed in the northern part of Reynolds Range in EL27061; Yakalibadgi Microgranite, Coniston Schist (Ppc) and Warimbi Schist (Ppw).

The Yakalibadgi Microgranite outcrops along the southern flanks of the Reynolds Range in EL26071. It has undergone variable retrogressive metamorphism to a foliated muscovite-biotite-feldspar orthoschist but retains minor zones of porphyritic microgranite and medium grained granite. It intrudes the Lander Rock Beds below the Mt Thomas Quartzite. It appears to not have intruded the Quartzite itself but its elongate shape parallel to the Quartzite suggests that it was emplaced along the unconformity at the base of the Quartzite.

The central part of Mt Gardiner is underlain by Coniston Schist, the source of the uranium channel radiometric anomaly, comprising highly deformed and retrogressive biotite-sericite-quartz orthoschist containing quartz and feldspar augen. (Figure 10, Figure 11 and Figure 12) Minor relict bodies of porphyry and microgranite are also present. It is separated from the Yakalibadgi Microgranite by the basal conglomerate of the Mt Thomas Quartzite. It is succeeded to the north by the main mass of Quartzite and so appears to have been intruded as a sill, about 600m thick, along the top of the basal conglomerate.
The Warimbi Schist is restricted to the southernmost part of EL26071. It comprises a biotite-sericite quartz orthoschist with quartz and rare feldspar augen. It was emplaced as a saucer-shaped lopolith 250m thick. Centrally the underside of the lopolith lies at the unconformity between the Lander Rock Beds and the Mt Thomas Quartzite but it gradually rises north and south up-section though the Quartzite and breaks out into the overlying Pine Hill Formation. It contains numerous rafts of the Quartzite. Dissected Cainozoic fanglomerates (Czc) are well developed on the flanks of the Range which, to the south of the range, grades outwards to extensive Quaternary red earth (Qr) plains. The red earth plains are overlain locally with Quaternary alluvium (Qa) of river gravels and sheet wash. Quaternary calcrete (Qi) is developed locally in some peripheral drainages. Quaternary lag gravels (Qg) are preserved locally over deeply weathered bedrock.
Figure 8 - Mt Gardiner Uranium Channel Radiometrics
PREVIOUS EXPLORATION

This section is quoted from Warrick Rafferty For Nu Power Resources Ltd. ANNUAL REPORT EL 26071 MT GARDINER, NT. February 17, 2010.

Blackwood reviewed the project in 2010 for its potential to host bulk commodity resources and attention was drawn to the report by Arafura Resources NL. EL 23571. Unpublished Report ARU-06/004.

This reports Arafura carried out a

‘helicopter reconnaissance survey of ironstone occurrences throughout the Reynolds Ranges that included several airborne radiometric anomalies in the headwaters of Napperby Creek, guided by historical exploration reports, published geological maps and the results of reprocessing of the 1997 NTGS surveys of the Napperby/Hermannsberg and Alcoota/Alice Springs map sheet areas. This covered the entire Mt Gardiner tenement.

Haematitic units of the Mt Thomas Quartzite and Pine Hill Formation have been mapped for a distance of 75km from the Woodforde River to beyond Mt Gardiner and haematite occurrences have been recorded over a distance of 25km along the Reynolds Range centred on Mt Thomas at the southern end of the Mt Gardiner tenement. However magnetic signatures suggest that iron occurrences are more widespread along the Range. Only 10 rock samples were collected. The work showed that most iron occurrences are goethite with haematite only in the upper ferruginous zone of the Tertiary weathering profiles. Other recorded occurrences on the Mt Thomas Quartzite were found to consist of only dark haematite staining. No massive haematite was found.

The reconnaissance was limited and many reported occurrences were not visited including high grade (50% total Fe) haematitic lenses and pods in the Reynolds Range”
Blackwood considered the northern flanks of the Reynolds Range to be worthy of investigation for channel and detrital iron deposits based on this report and the records of haematite occurrences and the reported large magnetic anomaly. Blackwood’s attention was drawn to the potential for manganese thought the NTDoR online geoscience data through the STRIKE web-mapping system.

CRA Exploration Pty Ltd, AP2617, CR19710134
AP2617 was an elongate tenement 120km x 14km orientated NW that completely covered Mt Gardiner. The exploration program was for base metals and uranium and they carried out a regional stream sediment sampling program (169 samples), bore water sampling for uranium, petrology of hand specimens and limited auger drilling in areas of cover. A BMR airborne magnetic anomaly was ascribed to a blue quartzite containing iron minerals, no significant stream sediment anomalies were detected, and visits to minor showings of wolframite, copper, tin and talc found nothing of economic significance.

Exodus Minerals Ltd, EL7343, CR2000246, CR20010270
This license covered the northern three quarters of the current tenement, extending north to include the Lander Rock Beds and further northwest. The license was held by Normandy Gold Pty Ltd who has previously carried out airborne magnetic and radiometric surveys, regional soil and lag sampling, shallow reconnaissance RAB and vacuum sampling, shallow gravity surveys and RC and diamond drilling. A gravity anomaly was attributed to a thickening of the Lander Rock Beds where exploration had identified significant gold prospects at Assegai, Sabre Falchion, Claymore, Yataghan, Scimitar and Rapier (M1, M7). Gold mineralisation in the prospects discovered to date is associated with quartz stringers and fine disseminated sulphides (generally pyrite and arsenopyrite) in sericite alteration zones in Lander Rock Beds. Exodus had done no field work to report but had previously carried out data reviews, geological mapping, reconnaissance geochemistry, grid soil sampling, geophysical interpretation and RAB drilling.

Exodus Minerals Ltd, EL7343, CR20010270
This extensive final report summarises exploration over the period 1992-99 that discovered multiple and extensive gold and base metal geochemical anomalies over a 30km strike length of the Trans Tanami Lineament that also hosts the Granites and Callie gold deposits. This zone lies in the Lander Valley immediately north (about 6km) and parallel to that part of the Reynolds Range covered by the Mt Gardiner license. Significant results from the limited RC and diamond coring include:
  Troutbeck Prospect 1 metre at 75g/t Au in RC drilling
  Sabre Prospect 30 metres at 2.5g/t Au in RAB drilling
    including 6 metres from 29 metres at 4.2g/t gold
    including 2 metres from 44 metres at 15. lg/t gold
  Falchion Prospect 12 metres at 3.9g/t Au in RAB drilling.
This work included 1,557 RAB holes for 13,241m, 54 RC holes for 3,280m, 8 diamond holes for 881m, 2,499 vacuum holes for 6,457m, 17 costeans for 1,971m, 116 stream sediment samples and 1,200 lag samples.

Other known prospects in the region include: Reward Mine Cu, Pb, Ag), Pine Hill (Cu, Au), Aileron Gold Reefs (Au), Lander (Cu), Ingellina Gap (W), Coniston (Sn), Mt Stafford (Sn), White Hill Yard (Cu), Un-known (Ce, Th, La, Nd, U), Woodforde River (Fe), Mt Freeling (talo).

Dampier Mining Co. Ltd, EL2341, CR19830291
EL2341 covered the entirety of the Mt Gardiner tenement extending 25km to the north of it. Dampier targeted diamonds and to a lesser extent base metals. They carried out a regional bulk heavy mineral stream sediment sampling program throughout the Reynolds Ranges and identified 2 streams with diamond indicators. Following ground magnetics 3 anomalies were drilled. No Kimberlites were found, the initial results were considered spurious and the area was relinquished. There are no assays or heavy mineral grain studies reported and results are summarized on maps.

Colchis Mining Corporation Pty Ltd. EL5511, CR19890020
The area covered most of the current tenement and extended 50km to the southeast of it. Colchis were targeting gold and base metals in the Lander Rock Beds using Tennant Creek and Tanami exploration models. They acquired aerial photographs and prepared excellent geological base maps assisted by Landsat imagery, carried out geological mapping, collected 201 orientation stream sediment samples and 42 rock chip samples mostly from around the main known mineral occurrences at the Reward (Cu, Pb, Zn), Pine Hill (Cu, Au) and Aileron Gold Reefs prospects. Results were disappointing but further work was recommended to complete the regional coverage as well as the Reynolds Range Ironstones, the remainder of the Aileron Gold Reefs retrograde mylonite zone and the granites and gneisses for their REE, U and Th potential.

Colchis Mining Corporation Pty Ltd. EL5511, CR19900366
This final report contained no new data.

Poseidon Gold Ltd. ELs7342, 7344, 7345. CR19920238
This NW trending strip of titles covered a 100km strike length of the Reynolds Ranges including completely the current Mt Gardiner tile. Poseidon were exploring for gold and base metals in the Lower-Mid Proterozoic metamorphics of the Arunta basement. They carried out orientation soil sampling around the Reward Prospect, regional stream sediment sampling and rock chip sampling around the abandoned workings. From this work they identified the optimum size fraction for soil samples and discovered additional gold and base metal anomalies around Reward. They recommended lag sampling in areas not suitable for stream sediment sampling. Tenements were retained.

Central Pacific Minerals NL. EL1316. CR19780108
This title covered the northernmost part of EL26071, extending some 70km to the west of it. There was no direct work in the current title. They completed a carborne radiometric survey of all station roads and tracks, regional stream sediment sampling, soil sampling and rock chip sampling and geological mapping that included the known occurrences of W, Sn, Ta mineralisation. The radiometric survey was disappointing but the stream
sediment sampling identified a W, Sn anomaly in the Ingellina Gap area where Lander Rock Beds are intruded by Anmatjira Granite, some 16km east of the Mt Gardiner tenement. Follow up soil sampling detected a Sn, W anomaly that was not explained.

**CSR Minerals and Chemicals Division. EL1294. CR19790198**

EL1294 covered the southern three quarters of the Mt Gardiner title, extending up to 20km to the east and south of it. Exploration was for uranium; base metals and gold were of secondary importance. From an airborne radiometric survey 49 anomalies were prioritized for follow-up. Results were disappointing and the anomalies were downgraded. They carried our regional stream sediment sampling, heavy mineral concentrate sampling, rock chip and soil sampling. There were no base metal anomalies and stream sediment and heavy mineral concentrate sampling over calc-silicate and carbonate-rich rocks did not detect any Sn-W mineralisation. Secondary uranium mineralisation was discovered in the Napperby Granite in the SW corner of the EL, outside the Mt Gardiner area, was recommended for follow up but the area was relinquished instead.

**PNC Exploration (Aust) Pty Ltd. EL8411. CR19950366**

EL 8411 was a narrow NW trending tenement 85km long that covered only the southern quarter of Mt Gardiner. Exploration was for uranium. Their exploration model was uranium associated with chemical-pelitic metasediments near the base of the Proterozoic similar to the East Alligator Uranium Field particularly in proximity to Archean basement granite and Palaeoproterozoic unconformities. Early reconnaissance discovered uraninite at Napperby Creek associated with metasomatised calc-silicate gneiss of the Wickstead Creek Beds similar to the Mary Kathleen style, secondary U-Pb phosphate (dewindtite) mineralisation at Mt Freeling in metasomatised calcareous sediments and secondary carnotite mineralisation in Napperby Gneiss adjacent to a WNW trending shear zone 5km W of Napperby Creek (Napperby W). This work raised the potential of metapelites in the Mt Dunkin and Mt Freeling areas. Reconnaissance of the Reynolds Range Group-Cover unconformity was hampered by poor exposure. Retrogressive shear zones of talc-chlorite schists, found to be more extensive that previously mapped, are indicative of high fluid flows and were considered prospective. Mapping, ground radiometric and magnetic surveys, rock sampling and petrography were carried out at Napperby Creek. Early success from the reconnaissance was sufficient reason for an airborne radiometric and magnetic survey by WGC that identified 96 anomalies, 23 of which were prioritized for follow up.

**PNC Exploration (Aust) Pty Ltd. EL8411. CR19961087**

PNC followed up 180 airborne anomalies but identified no new areas of significant mineralisation were found in the Napperby Gneiss except for an area of secondary uranium mineralisation in metasomatised quartz-tourmaline rock 5km north of Mt Freeling. One of the highest priority anomalies related to a 1km long 20m wide band of felsic orthogneiss (high U granite sill). Of 30 occurrences of secondary uranium identified, 22 occurred in Napperby Gneiss, mostly adjacent to major WNW trending shear zones. Mt Dunkin was the only new discovery in the Wickstead Creek Beds, very similar to the Napperby Creek prospect. Secondary calcrete hosted uranium was found at Gidyea and Day Creeks of limited extent. One of the most significant airborne anomalies was that which lead to the discovery of the Nolan’s Bore P-REE apatite vein system. Detailed grid mapping was carried out at Mt Freeling, Mt Dunkin and Nolan’s Bore. Detailed ground magnetics and radiometrics were completed at Mt Freeling and
Mt Dunkin. Costeans were dug at Napperby and Mt Freeling. Air photo interpretation was extended, more rock samples were collected and sent for assay and petrography. PNC concluded that the Napperby Gneiss was a good source for secondary calcrete and sandstone hosted uranium, that Nolan's Bore was the most significant mineralized discovery, that ideal conditions for unconformity styles of uranium mineralisation were not evident and that only moderate potential for metasomatic styles existed at Mt Freeling, Napperby Creek and Mt Dunkin that were of limited extent.

Normandy Gold Pty Ltd. EL9277. CR19970304. Exodus Minerals Ltd. EL9277. CR19970763. Exodus Minerals Ltd. EL9277. CR19980769

This tenement covered only the northern few blocks of Mt Gardiner. Normandy took up the ground to explore for stratigraphic repetition of the Lander Rock Beds in which their exploration further to the east in EL7343 had identified significant gold mineralisation associated with quartz stockworks in clay-pyrite altered sediments. Exploration comprised a limited gravity survey and RAB drilling. This confirmed that most of the area is underlain by granites and was therefore not prospective. Only the northern part was considered prospective where the continuation of structures from EL7343 could exist with the potential for slices of the Lander Rocks Beds under cover.

On joint venturing the ground with Normandy, Exodus completed a data review, carried out a geomorphological study to assist with regolith interpretation, a DEM survey and limited vacuum drilling to bedrock. Exodus reached the same conclusion as Normandy that Lander Rocks Beds did not exist under cover, and relinquished the area.

Normandy Gold Pty Ltd. EL7344. CR19930410.

EL 7344 covered only the southern quarter of Mt Gardiner. Normandy acquired the ground to explore for base and precious metals in lower-Mid Proterozoic metamorphics of the Arunta Block. They carried out regional stream sediment sampling (161 samples) and rock chip sampling (14 samples). Results were disappointing and the area was relinquished.

Normandy Gold Pty Ltd. EL9278. CR19970302.

This former EL covered the central part of Mt Gardiner. Normandy were targeting gold in regional structures trending SE along strike from EL7343 in greenschist-lower amphibolite facies sediments of the Lander Rock Beds. Regional gravity demonstrated the continuation of a gravity ridge due to underlying Lander Rock Beds. Vacuum (74 holes, 354m) and RAB drilling (523 holes 333m) identified low order multi-element Au-As geochemical trends in lower greenschist phyllites and greywackes associated with minor limonite-sericite-chlorite alteration. Further work was assigned low priority depending on results from EL7343.

Exodus Minerals Ltd. EL9278. CR19970751, CR19980767, CR19980768, CR19990514.

Following formation of the JV with Normandy, Exodus carried out a review of the Normandy data and completed a geomorphological map at 1:50,000 scale from airphotos that showed that soils were mostly residual or only slightly transported so that regional soil and lag sampling programs would be applicable. Initially they collected 340 sail samples, 330 lag sample and 6 rock chip samples, mostly of quartz vein material. This defined very weak zones of soil gold anomalism along the expected trends of interpreted structures and cross structures with coincident very weak Cu-As anomalism in the lag material.
Follow up prospecting and sampling comprised infill soil (5 samples), lag (1 sample) sampling, 4 rock chip samples and the extension of a previous vacuum drill line with 16 additional soil samples. Results were not significant, priorities lay with EL7343 and the area was relinquished.

**BHP Minerals Ltd. EL2942, CR19830015, CR19830289.**

EL2942 covered the southern quarter of Mt Gardiner and was explored by BHP primarily for diamonds and secondly for base metals. A study of the BMR airborne magnetics showed no kimberlitic-type anomalies. They collected 50 heavy mineral stream sediment samples for kimberlite indicator studies and the same number of conventional stream sediment samples for base metal geochemistry. No indicator minerals were found and the area was relinquished.

**BHP Minerals Ltd. EL2341, CR19830041.**

This report contains additional data to the report by Dampier Mining Co. Ltd, EL2341, CR19830291. Following the discovery of 2 creeks with kimberlite indicator minerals present Dampier/BHP carried out a ground magnetic survey over a 4km square grid. Three anomalies were identified and 10 shallow RAB holes (total of 166m) were drilled. Lenses and magnetic haematite were intersected in mica schists of the Lander Rock Beds. Subsequent loam sampling over the same grid found no evidence of indicator minerals present. Bulk stream samples of 5 and 25 tonnes were taken and screened on site when the loam sampling failed. Results were not reported.

**Homestake Gold of Australia Ltd. EL9672. CR19970791, CR19980817, CR19990496,**

EL9672 covered the northern and southern parts of Mt Gardiner. Homestake explored the area for gold collecting 235,-4mm, BLEG samples and assayed them only for gold, targeting gold mineralisation of Granites-Tanami style. Only one significant anomaly was found (34.6ppb Au) surrounded by 2 much lower values in adjacent drainages in the Harverson Pass area (immediately SE of the Mt Gardiner license) in short drainages close to source.

Follow up in Y2 involved an additional 55 BLEG stream sediment samples including resampling of the previous anomaly, 10 rock chip samples and geological traverse mapping in the Harвerson Pass area. The infill and resampling failed to substantiate the previous anomaly. The rock chip samples, from an iron-rich facies identified during the mapping contained elevated base metals but no gold. Assay of the BLEGs and stream sediment samples for base metals was recommended but seems not to have been done.

In Y3 and the following years exploration concentrated on the Nolan’s Bore Prospect and sampling of goethitic ironstones in the headwaters of the Woodforde River, some 35km SE of Mt Gardiner. It was concluded that the Harverson Pass area was not prospective for gold and no further work was done here.

**Arafura Resources NL. EL 23571. Unpublished Report ARU-06/004.**

Arafura carried out a helicopter reconnaissance survey of ironstone occurrences throughout the Reynolds Ranges that included several airborne radiometric anomalies in the headwaters of
Napperby Creek, guided by historical exploration reports, published geological maps and the results of reprocessing of the 1997 NTGS surveys of the Napperby/Hermannsberg and Alcoota/Alice Springs map sheet areas. This covered the entire Mt Gardiner tenement.

Haematitic units of the Mt Thomas Quartzite and Pine Hill Formation have been mapped for a distance of 75km from the Woodforde River to beyond Mt Gardiner and haematite occurrences have been recorded over a distance of 25km along the Reynolds Range centred on Mt Thomas at the southern end of the Mt Gardiner tenement. However magnetic signatures suggest that iron occurrences are more widespread along the Range. Only 10 rock samples were collected. The work showed that most iron occurrences are goethite with haematite only in the upper ferruginous zone of the Tertiary weathering profiles. Other recorded occurrences on the Mt Thomas Quartzite were found to consist of only dark haematite staining. No massive haematite was found. The reconnaissance was limited and many reported occurrences were not visited including high grade (50% total Fe) haematitic lenses and pods in the Reynolds Range in the Mt Thomas Quartzite and the upper boundary of the Warimbí Schist, limonitic ironstones developed over the Algamba Dolomite along the northern boundary of Mt Gardiner and Tertiary limonitic ironstone laterites of lower grade and limited extent. Samples were not assayed for Fe but base metals were slightly elevated.

Uranium channel radiometric anomalies generally coincided with deeply weathered kaolinitised gneiss, mapped as Napperby Gneiss (outside the area). It was uncertain if the kaolinitisation was due to Tertiary weathering or hydrothermal alteration (and at what stage during evolution of the Arunta Block) or the combined effects of both. It was noted that kaolinitic shear zones, similar to those at Nolan’s Bore, may exist elsewhere in the Napperby and Boothby Gneisses with potential for REE mineralisation. Some weaker anomalies coincide with metasediments of the Mt Thomas Quartzite, carbonates of the Wickstead Creek Beds and overlying Quaternary sediments. Samples of kaolinised Napperby Gneiss and from deeply weathered profiles beneath ferruginous cappings were elevated in REE. U and Th were elevated in the Napperby Gneiss.
EXPLORATION ACTIVITIES BY NUPOWER COMPLETED IN YEAR 2
There was no exploration on this area during this period.

EXPLORATION ACTIVITIES BY BLACKWOOD CORPORATION COMPLETED IN YEAR 3
Blackwood undertook a reappraisal of the tenement in year three to determine its potential for bulk commodities, notably iron ore and manganese and concluded the following:
Most exploration to date on EL 26071 has concentrated on the southern flanks of the Reynolds range within the uraniferous Coniston Schist and the tertiary drainage which runs to the south.
Blackwood have examined the potential for Channel and Detrital iron ore and strata form manganese deposits of the Bootu Creek type and conclude that the northern flanks of the Reynolds Range between Mt Gardiner and Mt Thomas host an iron rich sequence of metasediments which have a number of reported haematite occurrences. Air magnetics are reported to suggest extensive iron occurrences along this range. A reconnaissance program to determine the potential for Channel iron and detrital iron deposits is planned for year 4.
Within this iron rich sequence on the northern flanks of the Reynolds Range lies a dolomite unit some 10 kilometers long and up to 300 meters thick in a geological setting very similar to the Bootu Creek Manganese Mine. The Northern Territory DoR website reports sampling of surface enrichment up to 58% Mn.

Blackwood plan a reconnaissance program to determine the prospects of the Algamba Dolomite for stratabound manganese deposits for year 4.
Regional Geology and Mineral Occurrences

Government regional geological mapping and company gold exploration work has identified several ironstones in the Reynolds Range area in the northern Arunta province. Figure .. shows locations of reported occurrences.
ironstone occurrences in the region of EL 26701. “The Woodforde River Ironstones occur in hills within the upper reaches of the Woodforde River, 34 km to the northwest of Aileron Roadhouse (Stewart 1982). This is approximately 200 km east of EL 26701 (see figure 9 for location). They comprise several low-grade limonite- and goethite-bearing ironstone lenses, which have developed over marble and calcilicate intervals within the Woodforde River beds (Stewart 1981). A chip sample from one of the ironstones at AMG 301680mE 7509910mN assayed 375 ppm Zn and 65 ppm Pb (Stewart et al 1980). Close proximity to granites suggests a possible skarn origin, but there are no data to test this possibility.

**Barney’s Ironstone.** Several ironstone lenses, the largest being 122 m long and 6 m wide, are present at a prospect known as Barney’s ironstone (AMG 268930mE 7531970mN), some 5 km to the southwest of Mount Thomas (Ryan 1958, Stewart 1981). The ironstones are limonitic in composition and are hosted within quartz mica schist, which is assigned to the Lander Rock Beds. The strike of the ironstones is parallel to cleavage. Their genesis is uncertain, but a surficial supergene enrichment process seems to be most likely. For location see figure 11.

![Figure 10 Reynolds Range Iron Rich Strata showing EL 26071](image-url)
Reported Mineral Occurrences EI 26701

![Mineral occurrence map courtesy of Northern Territory DoR online geoscience STRIKE web-mapping system](image)

**Manganese Occurrence Reported on NT Geoscience STRIKE web-mapping system**

Latitude GDA94, -22.212349260926
Longitude GDA94, 132.73413964515

**Iron Occurrences**

**Unnamed 02053 Commodity Iron ore**, Mineral occurrence, Irregular, surficial enrichment

**Barneys F, Commodity Iron ore**, Mineral occurrence, Irregular, surficial enrichment, massive, concordant
Harverson Pass. Commodity Iron ore, Mineral occurrence, Irregular, VEIN, Stratabound, Occurrence described by Stewart (1982) but not shown on the accompanying map. Location approximate

Topography

Figure 12 topographic Map showing locations of iron rich strata and topographic watershed of the Reynolds range which separates the iron rich strata from the Uraniferous intrusives on the southern flank.
Figure 13 – Selected Units of Mt Gardiner Region (Napperby SF53-9, 1:250,000 Sheet. This shows the iron and manganese rich rocks within EL 26071.
The Prospective Units Are:

*Mt. Thomas Quartzite*, the upper unit is composed of a mature orthoquartzite that unconformably overlies the Lander Rock Package in the northwest of the Reynolds Range. The unit varies in thickness from ~200 metres to 550 metres cropping out along the length of the range. The lower units are predominantly conglomeratic with minor pebbly arkose rocks. **The upper intervals are pelitic and generally ferruginous.** A lateral facies change occurs from the northeast to the southwest across the range from basal conglomerates into homogenous pelitic rocks. Relict sedimentary structures indicate a high-energy, intertidal depositional environment (Buick et al., 1999).

*Pine Hill Formation* The Pelite Unit which was previously part of the achieves a minimum thickness of 500 metres to 600 metres. Pelitic rocks are interlayered with thin sheets of fine grained siltstone and sandstone interpreted as storm deposits (Buick et al. 1999). The Upper Calcsilicate Unit encompasses the previously defined Algamba Dolomite Member and the Woodforde River Beds. The unit achieves a maximum thickness of about 250 metres to 300 metres along the length of the Reynolds Range except in the central part where the maximum thickness is only 20 metres. The unit occurs as a series of lenses within the Pelite Unit dominated by interlayered limestone and dolomite locally intercalated with pelites and psammites. Stromatolites and sedimentary structures, *i.e.* climbing ripples, are preserved where rocks are metamorphosed at a regional low grade (Buick et al., 1999).
Figure 14 Geology of Northern flank of Reynolds Range from Napperby 250,000 Geology Map SF53-9
Figure 15 Uranium channel radiometrics and iron rich strata
Exploration Targets
The exploration target is for large tonnage channel and or detrital iron deposits and stratabound manganese deposits.

Channel and Detrital Iron Deposits
Channel iron deposits are an important source of iron ore, approximately almost half of iron ore mined from the Hamerley Iron province in 2007. These deposits are Channel Iron Deposits (CID) formed by the weathering and alluvial concentration of lateritic (iron-rich) soil material in old river beds (palaeochannels). It is the process of mechanical concentration and chemical upgrading of the lateritic material that provides this type of deposit with the economic potential that may be suitable for blend feed or further beneficiation.

The CID deposits relative lack of consolidation and proximity close to the surface in most cases renders them liable to bulk mining with little or no need for drilling and blasting. This then is a significant cost saving to miners, who can offset a lower revenue from Fe percentages in the ore via the ease of extraction. Also, in most cases, beneficiation can increase the in-situ iron grade several percent by washing out the majority of clay, carbonate and hydrous limonite cements.

The search for detrital and channel iron deposits has shifted from the Hamersley’s to the Yilgarn and Gwarler cratons where concentration of lateritic (iron-rich) soil material in old river beds (palaeochannels). Has resulted in significant deposits which can be upgraded by mechanical means tp shippable product.

The number of hematite occurrences and the reported iron rich units within the Pine Creek beds and the Mt Thomas quartzite sequence may be indicative of the potential from channel iron and detrital iron on the northern flanks of the Reynolds range within EL 26071.

Manganese targets
To understand the manganese target5s on EL 26071 it is necessary to look at the deposit styles found in the NT and compare the prospects on EL 26971.

Manganese Deposits in the NT
Classification of the manganese deposits of the Northern Territory
For the purposes of this publication the manganese deposits of the Northern Territory can be divided into three types:
- Sedimentary (stratiform), eg Groote Eylandt;
- Hydrothermally concentrated (low temperature replacement), eg Bootu Creek; and
- Surficial, eg Calvert Hills-Robinson River area.

Sedimentary deposits.
These are stratiform and are hosted in marine terrigenous clastic sediments. The well documented world class *Groote Eylandt* deposit is the holotype. This deposit and several other prospects in the Carpentaria Basin are confined to shallow marine Cretaceous sediments, which are adjacent to Proterozoic terraces.

**Hydrothermal deposits**

These are low temperature epigenetic deposits that form stratabound massive Mn (± Fe) oxide lenses in shallow marine sediments. The Mucketty and Bootu Creek deposits, to the north of Tennant Creek, are examples of this style of Mn mineralisation. Mn (± Fe) oxides replace quartz arenite, siltstone and dolomite and form lenses up to 12 m in thickness. *Massive ore is confined to replaced siltstone and dolomite lithologies.* These deposits are not proximal to volcanic or plutonic rock types like many of the deposits described in Roy (1981) and can be viewed as being distal. They are related to shallow regional hydrothermal activity that has remobilised Mn from sediments and volcanics elsewhere in the sequence.

**Surficial deposits**

These deposits of Mn oxide are small in tonnage and are related to manganiferous carbonate sediments, unconformities, laterite development, or a combination of two or more of the above. Ore grades can be reasonable but are usually patchy in distribution.

**Exploration Rationale Manganese EL 26701**

The geology of the northern flanks of the Reynolds Range is very similar to that which hosts the Bootu creek manganese deposit. The similarities are:

- metamorphosed succession of clastic and carbonate sediments that were laid down in shallow-water saline depositional environments
- same age at paleoproterozoic 1800-1700 MA
- presence of mafic rocks in underlying sequences to supply the source of manganese
- a number of mineral occurrences in the region which suggest hydrothermal activity
The report of surficial manganese on or near the dolomite may be significant as the manganese at Bootu Creek favours the dolomite lenses (Massive ore is confined to replaced siltstone and dolomite lithologies.). Ferenczi (2001) suggested “Manganese oxides, iron oxides and trace metals would have been precipitated when the brine encountered a redox barrier (alkaline and oxidising conditions) and dolomitic siltstone near the base of the
Bootu Formation may have provided an appropriate chemical environment for this to occur.”

Hussey et al 2001, Ferenczi 2001), also noted “The manganese deposits in the lower Bootu Formation show evidence of having been formed by the cumulative influence of a combination of processes, including supergene enrichment. The manganese enrichment is at a similar stratigraphic level at a regional scale and is therefore stratiform. There is clear evidence of hydrothermal and sedimentological origin for at least some of the manganese is also possible.”

Blackwood will investigate the potential for hydrothermal stratabound manganese deposits of the Bootu Creek style, focusing on the dolomitic strata within this shallow marine series of the north flank of the Reynolds range.

GROUND RELINQUISHMENT

EL 26071 Mt Gardiner was granted to Matilda Minerals on 18 January 2008. Relinquishment is not required at the end of the first year and it was decided to retain all 45 blocks for the Second Year. Nu Power as manager of the EL applied for a waiver of reduction 12th February 2010. Matilda Minerals, the title holder, came out of administration in October 2010 and took over management of the EL at that time. Matilda was renamed as Blackwood corporation and relisted on the ASX in December 2010. Matilda was granted an extension of time to make an application for a waiver of reduction until the 17th February 2011.

EXPENDITURE

Expenditure details for year 3, 2010 and the covenant are given as an attachment in Appendix 1
Expenditure for Year 2 was $10,810. The expenditure covenant for Year 2 was $10,000.

ROGER HOBBS BSc AusIMM, SEG
17 February 2011

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**APPENDICIES**

**EXPENDITURE REPORT**