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Report ARU-10/006

ANNUAL REPORT FOR YEAR ENDING 3/3/2010, EL 26812 (BONYA), NORTHERN TERRITORY, AUSTRALIA

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1:100,000 – Jervois Range 6152
1:250,000 – Huckitta SF 53-11

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SUMMARY

No on-ground exploration activity occurred during the last reporting period.

EL 26812 was granted to Arafura Resources on 4 March 2009 for a period of six years. EL 26812 is part of Arafura's Jervois project area in the eastern part of the Aileron Province in the Arunta Region, Northern Territory. The license area was acquired because this area has potential to host mineralisation styles akin to those on adjacent tenements.

During the last term of grant, Arafura attempted to expedite exploration activities on its Jervois project area tenements via a JV agreement. Under a \$8 million Letter of Intent executed on 17 April 2009, Arafura Resources and Jiangsu East China Exploration (ECE) entered into negotiations for JV covering Arafura's Jervois tenements. Unfortunately ECE did not meet its obligations and on 22 February 2010, Arafura advised the ASX that both parties had agreed to discontinue discussions on the proposed Jervois JV.

To date, Arafura's exploration activities in the Jervois area have primarily focused on exploration and assessment of Fe-V resources at the Unca prospect in the adjacent EL 10215. A small exploration drilling program also investigated the uranium potential of the Lucy Creek prospect in EL 10215 and EL 24716.

INTRODUCTION

Background

EL 26812 is one of four tenements held by Arafura Resources in the Jervois area. These tenements include EL 10215 (Jervois North), EL 26231 (Unca Creek), EL 26318 (Unca Hill) and EL 26812 (Bonya) as shown in Figure 1. With the exception of one small part of EL 10215, these tenements are within the Palaeoproterozoic Aileron Province in the eastern Arunta Region (Figure 2).

The Jervois project area surrounds polymetallic Cu-Pb-Zn-Au-Ag-Bi mineralisation in the historic Jervois mining area (eg Green Parrot, Reward, Marshall, Attutra, Skyes, Coxs, Bellbird etc), currently being explored by Reward Minerals. The project area also contains a number of abandoned W±Cu (eg White Violet, Ultra Violet, Samarkand, Jericho, Xanten, Ashmara Petra and Tashkent) and Cu (eg Bonya and Kings Legend) mines and prospects. Palaeoproterozoic outcrop mapped within EL 26812 is geologically and geophysically similar to rock units that host these deposits (Figures 3 and 4).

Encouraging RC drilling results at the Unca Fe-V prospect in the adjacent EL 10215 (Hussey 2007, 2008) suggests there may also be additional untested Fe-V potential elsewhere in the Jervois region.

Cambrian rocks of the Georgina Basin host uranium/phosphate prospects within the project area (eg Menzies and Palmer 1994, Hussey 2007).

Location and access

EL 26812 (Unca Creek) is located in the Jervois district in the central-southern part of the Northern Territory, about 280 kilometres east northeast of Alice Springs. EL 26812 is about 350 kilometres by road from Alice Springs. Access to the general area is via Plenty Highway, a well formed but mainly unsealed east-west arterial road, intersecting the north-south Stuart Highway about 70 kilometres north of Alice Springs. The tenement is in the northern part of Jervois Pastoral lease and can be reached via station tracks off the Baikal and Bonya community access road which heads west about 17 kilometres north of Jervois on the Plenty Highway.

Topography and drainage

The topography in the general license area is characterised low-moderate relief hills that border extensive flat sandy areas, both of which are dissected by river systems and associated flood plains.

The tenement area spans the Burt Plain and Channel Country Bioregions as defined by Connors (2004a, 2004b). Connors (2004a, 2004b) indicates that most of the EL 26231 is broadly mapped as "tall open shrublands" described as *Acacia kempeana* (Witchetty Bush), *Acacia* tall open-shrubland with *Cassia*, *Eremophila* (*Fuchsia*) open-shrubland understorey and "mixed species low open woodlands" which is described as *Acacia estrophiolata* (Ironwood), *Atalaya hemiglaucula* (Whitewood) low open-woodland with open-grassland understorey. Parts of the tenement are also mapped as "sparse shrublands" which is described as *Acacia aneura* (Mulga) tall sparse-shrubland with grassy understorey or *Acacia stowardii* (Bastard Mulga), *Cassia*, *Eremophila* (*Fuchsia*) sparse-shrubland or as "hummock grasslands", described as *Triodia basedowii* (Hard Spinefex) hummock grassland with *Eucalyptus gamophylla* (Blue Mallee) tall sparse-shrubland overstorey. Major drainages contain good stands of River Red Gums.

Climate

The climate at Jervois is characterised by long hot summers and short mild-cold winters. Temperatures regularly exceed 40°C in summer with frosts in winter. The predominant wind direction is from the southeast. Average rainfall is about 290 mm (Jervois weather station data, 1966-2010), most of which falls between October and March.

TENURE

Mining/Mineral Rights

Exploration Licence 26812 (Bonya) is 100% held by Arafura Resources Limited (ACN 080 993 455) under Miners Right number 13249. Arafura Resources retains all Mineral Rights to this tenement.

The original application of 35 sub-blocks (103.3 square kilometres) was granted to Arafura Resources Limited on 4 March 2009, for a period of six years (Figure 1).

Land Tenure

The land tenure under EL 26812 (Bonya) includes Perpetual Pastoral Leases 962 (Jervois).

- Jervois Station, PPL 962 – NT Portion 00366 is owned by Jervois Pastoral Company Pty Ltd. PMB 36 Alice Springs NT 0872.

EL 26812 surrounds but does not include the Bonya Community area.

Native Title

There are no registered native title claims over the land which is the subject of this licence.

In the absence of instructions to the Central Land Council from potential native title claimants in the area, the licence is not subject to an existing Native Title Exploration Agreement between Arafura Resources and the CLC in respect of exploration titles in other areas of the Northern Territory.

In the absence of an Exploration Agreement, Native Title issues are addressed in accordance with Item 18 of the Schedule 2 Conditions which attached to the grant document for the licence. This requires that Arafura convene a meeting with registered native title claimants before commencing exploration activities other than reconnaissance. As there are no registered native title claimants at present there is no compulsion to convene such a meeting.

Site Clearances

Apart from an inspection of the AAPA register, no site clearances have been completed within the license area. This is because on ground exploration activity has not yet commenced on EL 26812.

GEOLOGICAL SETTING

Regional Geology

The Arunta Region contains more than 200 000 km² of metamorphic rocks in the southern parts of the NT and has been subdivided into three distinct geological regions by the NTGS, the Aileron, Warumpi and Irindina Provinces (Figure 2). The Arunta Region is unconformably overlain by sediments of the Neoproterozoic to mid-Palaeozoic Ngalia, Georgina, Amadeus and Wiso Basins.

The Aileron Province predominantly consists of Palaeoproterozoic sedimentary and igneous rocks that have undergone greenschist to granulite facies metamorphism (Stewart *et al* 1984, Shaw *et al* 1984, Collins and Shaw 1995, Scrimgeour 2003). Basement is not exposed, however Nd isotopic data (eg Sun *et al* 1995, Zhao and McCulloch 1995) and SHRIMP U-Pb dating of inherited igneous zircon cores (eg Worden *et al* 2006a, 2006b, 2008) indicates an early Proterozoic-Archaeon crustal component is present at depth. The majority of the preserved metasedimentary and igneous rock units in this region were deposited or emplaced prior to the 1740-1690 Ma Strangways Orogeny (e.g. Scrimgeour 2003, Hussey *et al* 2005, Clau  -Long *et al* 2008a, 2008b). This event appears to have affected the entire Aileron Province to some degree, as opposed to the Mesoproterozoic 1595-1570 Ma Chewings Event that appears to be localised within the central and southern(?) parts of Aileron Province (eg Hand and Buick 2001, Fraser 2004). The 1800 Ma Stafford and 1790-1770 Ma Yambah Events also appear to be present throughout the Aileron Province, with extensive bimodal igneous activity, associated sedimentation and localised Low Pressure-High Temperature metamorphism.

Most of the exposed Aileron Province was metamorphosed to greenschist or lower amphibolite facies conditions during the 1740-1690 Ma Strangways Orogeny, with an apparent localised abundance of 1810-1700 Ma igneous activity and deformation in parts. The central-southern parts of the Aileron Province preserves an east-west zone of granulite facies metamorphic rocks associated with the Strangways Orogeny. Regions of the Aileron Province have also been subject to younger (1640-1500 Ma) periods of magmatism and localised metamorphism.

Current views on the depositional and tectonic setting of the Aileron Province are based on recent geochemical, isotopic and igneous studies and the contained mineral systems. These favour a rifted continental crust or evolving backarc setting in the early parts of the depositional history [eg Hussey *et al* 2005, Hoatson *et al* 2005], with a prolonged tectonothermal convergent event in the Strangways Orogeny. Hussey *et al* (2005) and Hoatson *et al* (2005) argue for contiguous sedimentation and bimodal igneous activity during Stafford Event. This Event is thought to be responsible for the development of localised(?) deep-marine basins in the Arunta Region. An assessment of Pb and Nd isotopic data indicates a more primitive and less evolved crust towards the south and southeast (Huston *et al* 2003, 2006).

The Warumpi Province in the south and southeast of the Arunta Region (Figure 2) contains a younger package of metasedimentary and volcanic rock types with protoliths in the range 1690-1600 Ma (Scrimgeour 2003, Scrimgeour *et al* 2005). The Province was variably metamorphosed in the 1640 Ma Leibig Orogeny, 1570 Ma Chewings and the 1150 Ma Teapot Events.

Unmetamorphosed Neoproterozoic to Palaeozoic marine and terrestrial sedimentary rocks of the Georgina, Ngalia and Amadeus Basins surround and unconformably overly the Arunta Region. Contemporaneous Neoproterozoic to Cambrian strata of the Harts Range Group (Buick *et al* 2001, Maidment *et al* 2004, Buick *et al* 2005) are also caught up within the eastern parts of the Arunta Region in the newly defined Irindina Province (Scrimgeour 2003). This revision and reinterpretation of the Arunta Region has significant geological implications and has come about largely as a result of several extensive chronological, metamorphic and metallogenic studies in the eastern Arunta Region (eg Miller *et al* 1998, Mawby *et al* 1998, 1999, Hand *et al* 1999a, b, Buick *et al* 2001, Scrimgeour and Raith, 2001, Hussey 2003, Maidment *et al* 2004, Buick *et al* 2005, Clau  -Long and Hoatson, 2005, Close *et al* 2005, Hussey *et al* 2005).

Geochronological and metamorphic studies have shown that the rocks of the Harts Range Group in the Irindina Province are variably metamorphosed to transitional granulite facies in the (480-450 Ma) Ordovician Larapinta Event. This high-grade event is followed by lower-grade Devonian to Carboniferous deformation and granite and pegmatite intrusion. Interestingly, the high-grade Larapinta Event appears to have had little influence on the thermal history of the surrounding rocks of the Aileron Province, and apart from rare exceptions appears to be largely restricted to the Irindina Province (Maidment 2004, Close *et al* 2005, Hussey *et al* 2005, Claoué-Long and Hoatson, 2005).

Many of the fault bounded contacts between the various units within the Arunta and surrounding regions are attributed to the (390-300 Ma) Devonian-Carboniferous Alice Springs Orogeny. Most of the fault movements within the adjacent Georgina Basin also appear to be related to the Ordovician Larapinta Event and Devonian-Carboniferous Alice Springs Orogeny.

Localised carbonatite occurs at Mud Tank (730 Ma), Mt Bleechmore and also in the Casey Inlier area in the central and southern parts of the Aileron province. The carbonatite ages the latter two regions are unknown but it is conceivable that both are about 730 Ma. A small potassic alkaline igneous complex, the Mordor Igneous Complex that has lamphyrophyric affinities (Barnes *et al* 2008) was emplaced in the southern-central parts of the Aileron Province at 1132 Ma (Claoué-Long & Hoatson, 2005). Preliminary isotopic constraints on the Nolans Bore P-REE-Th-U deposit (Maas *et al* 2009, Korsch *et al* 2009) suggests the deposit may have formed at about 1244 Ma from carbonatitic or alkaline igneous sources. This age is unusual and not recognised elsewhere in the Arunta Region.

Local Geology

The reader is referred to Freeman (1986), Freeman *et al* (1989), Zhao and Bennet (1995), Maidment (2004), Hoatson *et al* (2005), Claoué-Long and Hoatson (2005) and Dunster *et al* (2006) for details on the geology and geochronology of the region. In the absence of more detailed recent publications which describe the geology of the Jervois region, Freeman (1986) and Freeman *et al* (1989) will be relied on to provide an insight to the local geology and nomenclature. The author was part of an NTGS team working on revisions to the Jervois Range 1:100 000 and HUCKITTA 1:250 000 map sheets and has drawn on previous mapping experience and unpublished NTGS data.

Figure 3 details the surface geology in the vicinity of the EL 10214 and 10215. The geological map is from a geo-located scanned copy the HUCKITTA 1:250 000 Geological Map Sheet (Freeman 1986).

Previously, the Arunta Province (domain/inlier/block) was divided into three major subdivisions based on coarse structural and stratigraphic considerations (Stewart *et al* 1984, Shaw *et al* 1984). The three structural provinces were divided into the Northern, Central and Southern Domains, separated by major east-west tectonic zones. In the eastern parts of HUCKITTA near the licence areas, the Delny-Mount Sainthill Fault Zone was used to separate the Northern from the Central Tectonic Domain (Freeman 1986). The Delny-Mount Sainthill Fault Zone is now used in part to separate the Aileron Province in the north from the Irindina Province in the south (Figure 2). The rocks of the Harts Range Group in the south have been metamorphosed to transitional granulite facies in the Ordovician Larapinta Event (Hand *et al* 1999a, b, Buick *et al* 2001, 2005, Maidment 2004) while the contemporaneous units in the Georgina Basin that unconformably overlie greenschist to amphibolite facies rock units of the Aileron Province immediately north of this fault zone are essentially unmetamorphosed. Claoué-Long and Hoatson (2005) found localised thermal affects coeval with the Larapinta Event in the Attura Metagabbro region. This is atypical but not unexpected given the presence of calcite-fluorite-bearing veins and faults near this locality. Similar veins are commonly associated with galena ($\pm$ Zn $\pm$ Cu) mineralisation in the Jinka region to the west and are interpreted as the hydrothermal basement expression of the MVT deposits that occur in structurally similar to features in the Georgina Basin sediments (Hussey *et al* 2004, Hussey and Frater *unpublished NTGS data*).

The Bonya Schist (-pCo) is the dominant outcropping Palaeoproterozoic unit within the licence areas. It is a polydeformed composite unit that is predominantly composed of pelitic, psammopelitic and calcareous metasedimentary rocks, with subordinate psammitic and quartzite units, and felsic and mafic igneous rocks, all metamorphosed at upper greenschist to lower amphibolite facies conditions.

Rare preserved sedimentary structures in the psammitic and quartzite units in the Bonya Hills indicate that at least parts of the Bonya Schist were deposited in high-energy shallow-water environments. Sedimentary structures have been obliterated in the pelitic units that host the base metal occurrences in the Jervois Mining District.

Recent unpublished NTGS mapping (by the author and Max Frater) has found that some of the mafic and felsic igneous units within the Bonya Schist, as it is currently mapped (Freeman 1986 and Freeman *et al* 1989), are clearly discordant intrusive units. Other igneous bodies are extrusive units. Large bodies of granite-granodiorite are also present throughout the region. Many of these have been differentiated and named based on their localised distribution. The granite-granodiorite bodies clearly intrude the Bonya Schist as plutons or as high-level sills/laccoliths. Field and petrological evidence indicates that most if not all have been deformed and metamorphosed, probably in the Strangways Event. The granitic units are poorly exposed in the eastern and southern parts of the licence area with isolated hills protruding above the plain, but geophysical data indicates they dominate the region. Unnamed metamorphic units, currently mapped as unit pCd, are also present in these areas; these are thought to be similar to parts of the Bonya Schist, based on their geophysical expression. However, differences are evident.

The Bonya Schist has a variable magnetic character depending on the rock types. Most of the mafic igneous rocks in the Bonya Schist have a low magnetic response in comparison to the distinct highly magnetic package that hosts the deposits of Jervois Mining District. This essentially corresponds to a package of magnetite-bearing andalusite and muscovite-biotite schists, with subordinate calc-silicate rocks and localised magnetite bodies. The psammitic and calc-silicate-rich parts of the Bonya Schist in the Bonya Hill have a different geophysical expression to the others mentioned above. A similar geophysical expression is seen elsewhere within the licence areas.

The Attutra Metagabbro (-Pda) occurs in outcrops to the east of the Jervois Mining District as a series of low hills. The unit is described as altered gabbro, dolerite, norite and magnetite rock. The mineral potential of this igneous body was highlighted by Hunter Resources (1989) and Hoatson *et al* (2005).

The named granites in the vicinity of the licence areas include the Jervois (-Pge), Unca (-Pgu) and Xanten (-Pgx) Granites. These range from biotite granodiorite to highly fractionated leucogranite. Outcrops of unnamed or undifferentiated granitoids also occur throughout the Jervois region; these units are thought to be more or less coeval with the named granites noted above. However, unpublished NTGS data indicates the leucocratic Unca Granite is structurally complex and probably older. The Samarkand Pegmatite (Pps) has also been differentiated within the Bonya Hills.

Until recently, there was little in the way of precise geochronological constraints in this region. A pelitic unit from a non-magnetic part of the Bonya Schist several kilometres northeast of the Jervois Mining District has a maximum SHRIMP U-Pb age of 1807 Ma (Claoué-Long and Hoatson, 2005). This unit was sampled near the margin of the 1786 Ma Attutra Metagabbro which also contains 1775 Ma intrusive tonalite bodies (Claoué-Long and Hoatson, 2005). Similarly aged felsic magmas are present elsewhere; for example, Zhao and Bennett (1995) found that the Jervois Granite was about 1770 Ma and a rhyolitic intrusive unit sampled by the author whilst mapping for the NTGS in the Bonya Hills is 1785 Ma (Jon Claoué-Long, *pers comm* 2004). SHRIMP U-Pb zircon dating of granitoids in the adjacent Tobermory 1:250 000 mapsheet also reveals the presence of 1750-1770 Ma igneous activity in the region (Kruse *et al* 2002).

PREVIOUS INVESTIGATIONS

Other Parties

A detailed investigation of the previously completed exploration in Jervois project area has been compiled by Andrew Drummond and Associates as part of the Independent Geologist's Report included in the prospectus for Arafura Resources NL's initial public offering of shares in 2003. This document details all significant investigations concerning EL 10215 and the former EL 10214 which originally encompassed an area larger than the current tenement holdings. The relevant part of Drummond's original detailed report is reproduced here. An abbreviated version appeared in the final prospectus document.

Drummond reported as follows (edited):

Exploration programmes and results relevant to an appraisal of Arafura's Jervois area are as follows.

Central Pacific Minerals N L (1970-1972) ATP 2283 & 3156. CR1972-0013, CR1978-0104

Tenements overlaid the north-western part of the Jinka Granite and generally west of EL10215. Work was concentrated at the Nabarloo North fluorite prospect, which lies about 15 km west of EL10215, where a resource (pre JORC) of 360 000 short tons (326 000t) at 40% fluorite to a depth of 30 metres was estimated - and apparently open under cover to the east. A later estimate of 123 000t @ 44.5% CaF₂ is presented in the NTGS Huckitta Mineral Deposit Data Series (Prospect 54). They indicate the potential for the hosting of bodies in the eastern Jinka Granite within EL10215, where it is generally concealed under alluvial cover. A separate report on the Bonya Bore area gives a good description of the geology of the various deposits in the Bonya field in EL10215 - including notes on the mineralisation, alteration, structure and a genetic model. However size, grade and resource data are too limited to obtain an impression of potential for a discovery of sufficient size to be economic for Arafura.

Dampier Mining Co Ltd (1976-1977) EL1118. CR1977-0064

The tenement covered the north-eastern part of EL10215 - the latter consisting of reasonably well outcropping Neoproterozoic and Cambrian sediments of the Georgina Basin. The target was lead-zinc mineralisation in the Cambrian units. Cores and cuttings from previous BMR and oil exploration drilling were examined and some Pb and Zn mineralisation was noted. Surface reconnaissance defined favourable sediments and structures. However there is no available record of any follow-up work.

Otter Exploration N L (1977-1980) EL1583. CR1980-0174, CR1978-116

That tenement covered the western halves of Arafura's tenements including the Bonya Tungsten Field. The licence area was originally considered to be prospective for W and Mo mineralisation. Copper and scheelite shows are located to the north of the licence area, and the Molyhil W-Mo deposit was being mined to the west of the licence area at that time.

Subsequently it was realised that the licence area was also prospective for U mineralisation. Traces of uraninite mineralisation were discovered at Molyhil in 1977, and a number of strong anomalies were recorded in the course of a reconnaissance radiometric survey, including one recorded near Thring Bore in the south-west part of the licence area.

Work carried out included additional airborne reconnaissance radiometric surveys, ground reconnaissance mapping and scintillometer surveys, and detailed mapping and sampling. Results were discouraging and the tenement was relinquished.

Otter Exploration N L (1977 - 1980) EL1584. CR1978-0117, CR1980-0121

The tenement covered the eastern half of EL10214, except for its north-eastern corner: it is an area mapped as underlain by granites and Georgina Basin sediments. As for EL1583, Otter's exploration began for Molybdenum style tungsten and molybdenum, but was expanded to uranium. A detailed radiometric survey delineated anomalism near Mt Cornish. Ground follow-up revealed that they were associated with ferruginous and silicified zones in weathered granite near the unconformity with the Neoproterozoic Georgina Basin sediments. The zones may represent a regolith, or fossil soil profile, associated with a pre-Georgina weathering event. The radiometric anomalies were found to be due to Th minerals in the basement granites.

Otter Exploration N L (1977 - 1980) EL1585. CR1980-0252

The tenement covered the north-eastern section of EL10214 and the eastern half of EL10215. It included the Jervois Mine area, exclusive of the claims pegged over the actual deposits.

Systematic airborne spectrometer surveying revealed 24 anomalies. A follow-up field work programme included evaluation of 22 of them, scintillometer traversing of the Arunta Basement/Georgina Basin unconformity, orientation work in the Jervois Mines area, reconnaissance mapping and sampling for U and scheelite mineralisation, and evaluation of selected scheelite prospects. Two of the anomalies proved to be due to concentrations of uranium.

Orientation work in the Jervois Mines area resulted in the discovery of some coffinite U mineralisation in a core sample obtained from the Marshall deposit. Scintillometer work in the Mines area and creek sediment sampling throughout the north-west of the licence area failed to disclose any additional U mineralisation. Several scheelite shows situated outside the main mineralised zone at Jervois (the 'J' structure), were evaluated by means of sampling and magnetometer surveys but results were considered disappointing. Samples (rock and creek sediment) were also analysed for Cu and Zn. An area of apparently fault controlled Zn, W and Cu anomalism was located north of the Jervois Mines. The anomaly lies within the area around the mines excluded from Arafura's tenements, but indicates the applicability of the method.

Hunter Resources Ltd (1987 - 1989) EL5171. CR1989-0630

The tenement was taken out to cover the Attutra Metagabbro, a mafic intrusive which outcrops irregularly over a 20x10km area east of the Jervois Mine in both Arafura leases. Work included mapping, an orientation geochemical survey, stream and rock chip sampling and ground magnetics. Sampling was biased towards magnetite-rich rocks and metapyroxenite lenses, as they were considered to have had the best potential to have accumulated PGEs.

Although much of the target area is overlain by younger alluvials, Hunter considered that the cumulate phases which could host PGEs seemed to be only size-restricted lenses unlikely to hold large bodies of ore grade platiniferous rock. Drummond notes that although maximum Pt assay was only 28 ppb, palladium assayed to 215 ppb and so is considerably more encouraging, especially considering its current strong price. Follow-up of magnetic anomalies generated by the NTGS airborne survey may be a worthwhile avenue for Arafura.

Rosequartz Mining N L and Zapopan N L (to 1991) EL6260. CR1989-0816.

The tenement essentially covered the Bonya Schists west of the Jervois Mine and hence much of the western half of EL10215. It was acquired because the area had not previously been explored for Au despite it having been noted at the Jervois Mine and the Bonya workings, and because it was considered to have potential for Broken Hill-style Pb-Zn mineralisation. It covers the Bonya Tungsten Field.

The main exploration technique was stream sediment sampling for BLEG Au and for base metals,

together with rock chips and geological traverses. Zapopan's mapping indicated that mineralisation in the licence area was evident at two stratigraphic levels: Cu-mineralisation was located lower in the sequence associated with garnet quartzites, calc-silicates and quartz flooding; W-mineralisation was located higher in the sequence associated with amphibolites and calc-silicates. Neither seems likely to host an economic deposit. Lead-zinc values were uniformly low. The drainage values highlighted three principal areas of anomalous Au. The two strongest anomalies also have coincident drainage Cu anomalies and elevated Zn.

Drummond considers that the BLEG results are moderately encouraging in that the anomalous values are explicable and average sample spacing is very wide. However the absolute level of anomalism is low as the maximum result from 60 samples was only 0.51 ppb Au. The sampled area has a high degree of outcrop and relatively high topographic relief contrast. It is considered that a major outcropping Au deposit should exhibit a greater BLEG response.

Johannsen (1988 - 1989) EL6326. CR1990-0221.

The tenement was located in the south-western Bonya Hills and hence in the south-western part of EL10215. Johannsen aimed to find apatite-hosted REE mineralisation. Two occurrences of apatite were located by traversing, but the REE assays are too low to be of interest. Nonetheless, Drummond considers the results do indicate potential in that district. Arafura's intended study of the recently flown NTGS airborne radiometrics seems well justified.

Normandy Exploration Ltd (1990 - 1996) ELs 6993, 7287 and 7505. CR1992-0367, CR1993-0169, CR1994-0111, CR1995-0108, CR1995-0253, CR1995-0313, CR1996-0283.

The northern sector of EL6993 essentially covered those parts of ELs 10214 and 10215 which lie east of the Jervois Mine. The southern sector covered interpreted Arunta Block metamorphics under widespread alluvial cover in south-eastern EL10214. The western part of EL7287 covered the eastern-most salient of EL10214. EL7505 covered Bonya Schist around the Bonya Tungsten Field.

Normandy applied for the tenements to target sediment-hosted Broken Hill style mineralisation within Division 2 of the Proterozoic Arunta Group.

The exploration highlighted the Hamburger Hill area where Cu, Pb, Zn and Ag mineralisation was intersected. It lies 3-4km east of the Jervois workings, but outside EL10215. Normandy spent \$1.4 million on its project, of which it seems about half was expended on ground now the subject of Arafura's applications. A massive data base has been created, and Drummond considers that a rigorous appraisal of it by Arafura, in combination with other data available to it, should indicate anomalous areas worthy of follow-up. The Normandy programmes and results away from Hamburger Hill are summarised below, with comments where appropriate on apparent avenues for Arafura.

During 1990, a reconnaissance trip was made to assess the area and determine the most appropriate sampling methods. A series of soil and rock traverses were conducted over areas of shallow sand/soil cover and outcrop. These traverses were located over magnetically high areas or geologically interesting or complex areas. Soil sample traverses were conducted along roads and tracks to assess the suitability of this method in areas of transported cover.

In 1991, a bedrock auger drilling programme was conducted along a series of traverses over similar areas to the initial reconnaissance. The three areas targeted for auger drilling were: east of Jervois Mines in south-east EL10215; south of the Plenty Highway in eastern EL10214; and north of Jervois Homestead in EL10214. The aim of the programme was to test the bedrock beneath variable thicknesses of sand/soil cover. In addition to the auger traverses, rock chip samples were collected during general reconnaissance of the area. Stream development was sufficient for representative stream samples to be collected in south-western EL10215, the Bonya Bore area.

Two areas were targeted for lag sampling; east of the Jervois Mine Leases, over outcropping and sub-cropping Bonya Schist rocks; and between Bonya Creek and Marshall River over outcropping

and sub-cropping gneiss. The lag sampling was confined to the hills and ridges and areas of isolated outcrop. East of Jervois Mine the sample grid extended approximately 20 km north-south and averaged 4-5 km east-west: the length of individual lines depended on the landform. Evaluation of the lag sample results highlighted a coincident Cu, Pb, Zn, Ag, Cd, Co, As and Mo anomaly which defined Hamburger Hill. Drummond notes that although follow-up was concentrated upon this major anomaly, other anomalous areas were also indicated: they have received less intense follow-up.

In western EL10215, there are numerous Cu and W mineral occurrences and old mines. The majority of the mineralisation is hosted within or near the Kings Legend Amphibolite Member of the Bonya Schist and in the pegmatites. The aim of Normandy's programme there was to detect mineralisation outside the known prospects. The target area was the contact zone between the Mascotte Gneiss and Bonya Schist. Normandy's tenement was sampled with a total of 250 samples collected from second and third order streams. Assessment of the data did highlight any anomalous areas requiring follow-up.

An airborne EM survey was flown over selected areas. Anomalies were ground checked and soil sampled, with one area returning a Cu anomaly. A vacuum drilling programme was taken over two prospects 6 km south-east of the Jervois Mine, and within eastern EL10215.

In 1994, regional RAB drilling was completed in the Mt Cornish area of EL10214. The holes were drilled on a 1x1 km grid. The aim of the programme was to provide information on bedrock and to delineate prospective rock types, namely schists or mafic gneisses. The holes intersected granite, quartzo-feldspathic gneiss, amphibolite and unmetamorphosed Mt Cornish Formation sediments. A major NNW-SSE trending magnetic feature also runs through the area and was tested by a line of close spaced holes. RAB drilling was also carried out over anomalies defined by earlier investigations.

A further EM and magnetic survey was flown in 1994 covering Bonya Schist east of the Jervois Mine area and around the Bonya Tungsten Field. Anomalies were interpreted at the former and tested by vacuum drilling. Earlier airborne EM anomalies were followed up by a ground SIROTEM survey and then by RAB drilling in 1995. That drilling programme also tested anomalies which Normandy considered had not been assessed previously.

Drummond re-iterates that Arafura has yet to process and re-interpret the wealth of Normandy's data submitted to the NTDME, and it is beyond a reasonable scope for this Report to do so. However, given the geological setting; the extent of known mineralisation and of cover; the areal limits of several aspects of Normandy's exploration; and Normandy's justified concentration upon its Hamburger Hill discovery, Drummond would be reasonably confident of Arafura's ability to sift out some areas worthy of follow-up from the data it now has at hand.

Aztec/Normandy (to 1993) Various Mineral Leases and Claims. CR1993-0234, CR1994-0160, CR1994-0161, CR1994-0203

Mineral Lease S71 (1973 - 1993). It covered a small molybdenum and tungsten show, of the Bonya Hills skarn type, located about 6 km east of the Jervois Mine. Although no substantial work was done on it, Aztec considered it had no potential. Drummond considers its significance is as a further indicator of mineralisation beyond the main J curve of old workings.

Mineral Lease S14 (1947 - 1993). The lease covered the old Bonya Mine workings. It was considered that the general host, a calc-silicate unit, is the same as that which hosts the Jervois workings. It was estimated for Aztec that there was a potential for 10 000t of secondary Cu ores and chalcopyrite in a quartz reef structure. Grade was not indicated. Apparently no confirmatory work was undertaken, and Drummond stresses that this tonnage figure cannot be regarded as a JORC resource estimate.

Mineral Claims S1-5 (1983-1993). They covered some of the old Bonya Hills Cu-tungsten workings. Work seems to have been confined to inspection of the old workings contained therein.

CRA Exploration Pty Ltd (1993 - 1994) EL8116. CR1994-0588

The tenement covered the Georgina Basin sediments in the central and north-eastern part of EL10215. CRA considered it prospective for unconformity hosted Cu-U-phosphate mineralisation. During the period of tenure the following exploration programmes were undertaken :

- Airborne radiometric and TM Imagery data acquisition, processing and interpretation.
- Collection and multi-element analysis of 42 reconnaissance rock chip samples.
- Geological mapping and air photo interpretation.
- Drilling of six scout percussion holes (aggregate metreage of 530 metres) 500 metres apart.
- Multi-element analysis of percussion drill samples.

CRA concluded that:

- Airborne radiometric and TM anomalies delineate the phosphatic, organic-rich Arthur Creek Formation/Mount Baldwin Formation Middle Cambrian disconformity.
- Reconnaissance rock chip sampling of that disconformity surface reported assay values of up to 2.08% Cu, 100 ppm U and 11.4% P along a 4 km strike length of turquoise mineralisation.
- Wide spaced scout drill testing of the gently dipping disconformity surface returned no significant assay values.
- A 10-15 metre thick calcareous unit, weakly anomalous in Zn (up to 520 ppm), delineates the base of Arthur Creek Formation.
- The Mount Baldwin Formation is characterised by low order base metal values and has limited potential for stratabound Cu mineralisation.

Drill testing of the disconformity (six percussion holes for a total of 530 metres, drilled 500 metres apart) failed to suggest the presence of substantive zones of Cu-U phosphate mineralisation. Drummond views the work as being essentially first pass, localised and reasonably encouraging.

Reward Minerals (ex Solbec Pharmaceuticals previously Britannia Gold NL) (includes JV with MIM Exploration Pty Ltd.) Jervois Mines Leases, EL9518 and ELA10419. 2000-Present.

This joint venture explored the tenements which host the known Jervois mining field and its principal known trend of mineralisation - the J structure. MIM has withdrawn from the JV and Reward Minerals is continuing to explore the area. Its public reports via Solbec/Britannia (now Reward Minerals) indicates the following results of the JV exploration are of relevance to Arafura.

- While there has previously been an exploration model based on an association between magnetite and base metal mineralisation, Mobile Metal Ian geochemical surveys has indicated potential for deeper mineralisation not associated with magnetite.
- A proprietary MIM Induced Polarity geophysical technique generated new drill targets away from known areas of mineralisation.
- Drilling adjacent to and below old mining areas has returned encouraging results and Britannia noted that at the Marshall-Reward lode that mineralisation was increasing at depth. The mineralisation is apparently more extensive along strike and at depth than had previously been known. This enhances the possibility of the eventual discovery of a large deposit.
- Drilling of the new geophysical targets which had no surface expression has generated success, e.g. hole J3 was reported as intersecting the following copper mineralisation:

4m @ 2.32%	from	202m downhole
2m @ 1.49%	from	252m downhole
9m @ 0.46%	from	261m to bottom of the hole

- While Cu is presumed to be the main target, the drilling has returned interesting levels of Au, Pb, Zn and Ag which may lead to eventually more favourable economics.

A recent public release by Reward Minerals (ASX: 24/1/2008) also indicates an encouraging intersection of polymetallic base metal mineralisation from Bellbird North confirming previous mineralised intersections by Reward Minerals. Cored diamond drillhole RJ110 returned an intersection of 5.7 metres @ 1.55% Cu, 5.80% Pb, 7.47 % Zn and 43 g/t Ag from 86.1 metres. Reward indicates that this target was identified by MIM but was not drill tested by the JV. Although the mineralised intersection is relatively narrow [*“True width of RJ110 intersection (86.13-92.8) is estimated at approximately 4 metres”*] Reward indicates that this intersection is *“coincident with a significant IP anomaly below low tenor outcrop metal values”*. This intersection highlights indicates that geophysical exploration techniques can find blind mineralisation in the Jervois area and should be applicable to exploration in adjacent tenements held by Arafura.

NORTHERN TERRITORY GEOLOGICAL SURVEY

The Jervois Range 1:100,000 map sheet area was the subject of a geophysical survey in 2004 by the Northern Territory Geological Survey (NTGS). This survey was acquired to assist geological mapping of the Jervois Mineral Field in which the author was involved. Data was collected by Fugro along north-south flight line orientation spaced 200 metres apart. Readings were taken at 70 metre intervals for radiometrics and 7 metre intervals for magnetics. The survey was navigated using Differential GPS at an average terrain clearance of 60 metres.

The NTGS conducted regional gravity survey across the eastern Arunta Region in 2006.

INVESTIGATIONS BY ARAFURA RESOURCES ON EL 26812

No on-ground work was done on EL 26812 in the last reporting period.

During the last term of grant, Arafura attempted to expedite exploration activities on its Jervois project area tenements via a JV agreement. Under a \$8 million Letter of Intent executed on 17 April 2009, Arafura Resources and Jiangsu East China Exploration (ECE) entered into negotiations for JV covering Arafura's Jervois tenements. Unfortunately ECE did not meet its obligations and on 22 February 2010, Arafura advised the ASX that both parties had agreed to discontinue discussions on the proposed Jervois JV.

To date, Arafura's exploration activities in the Jervois area have primarily focused on exploration and assessment of Fe-V resources at the Unca prospect in the adjacent EL 10215. A small exploration drilling program also investigated the uranium potential of the Lucy Creek prospect in EL 10215 and EL 24716.

RECOMMENDATIONS

Arafura should recommence exploration work programs in the Jervois area following unsuccessful JV negotiations in 2009.

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