LEGEND INTERNATIONAL INVESTMENTS PTY LTD

Annual Report on EL 25794

from 11 June 2014 to 10 June 2015

Central Australia, Northern Territory

Tenement Holder: Legend International Investments Pty Ltd

Distribution:

- **Department of Mines and Energy, NT**
- **Legend International Investments Pty Ltd, Darwin**

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SUMMARY

Exploration Licence (EL) 25794 is located about 1280 km south of Darwin, and 120 km north of Alice Springs Australia. Originally, it had 450 sub blocks (1215 km^2) on the Hermannsburg (1:250 000) sheet. EL was granted to Legend International Investment Pty Ltd on 11 June 2008 for a period of six years, and will expire on 10 June 2016.

Geology of EL 25794 is dominated by Palaeoproterozoic rocks of the Arunta Block along with possibility of Amadeus Basin stratigraphy, now covered by Quaternary sediments. These rocks are represented by Narwietooma Metamorphics, Mount Hay Granulite, Mount Chappell Metamorphics, Bunghara Metamorphics and Forty Five Augen gneiss, probably intruded by granites at depth.

During the year under review, a drilling program was undertaken to test the REE mineralisation below surface with in Quaternary alluvial cover. In December 2014, a total of 29 AC holes for 555 m were drilled. From each meter interval, sandy loam and geological material samples were retrieved for assaying. To date, only 25 drill samples have been assayed. Drilling samples assayed to date have not met the expectation as shown by soil survey program. A cursory examination of the assay data shows that REE concentrations are low. It may be noted that samples assayed mainly belongs to upper horizon of the stratigraphic pile and have been collected from shallow drill holes. It is believed that REE mineralisation is confined to thick Quaternary sedimentary pile, where mineralisation occurs in the lower part. Drilling undertaken to date also shows that northern part of the tenement has thicker stratigraphic pile and it thins out towards south. Therefore, it is recommended that drilling should concentrate on the northern part of the project area and samples retrieved from the lower part of the drill holes should be assayed for REE mineralisation.

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1.0 INTRODUCTION

EL 25794 is located in central Australia, about 1280 km south of Darwin and approximately 120 km northwest of Alice Springs (Figure 1). Legend International Investments Pty Ltd is exploring the project area for REE mineralisation. This report covers the exploration activities undertaken during the reporting period year ending on 10 June 2015.

2.0 TENEMENT STATUS

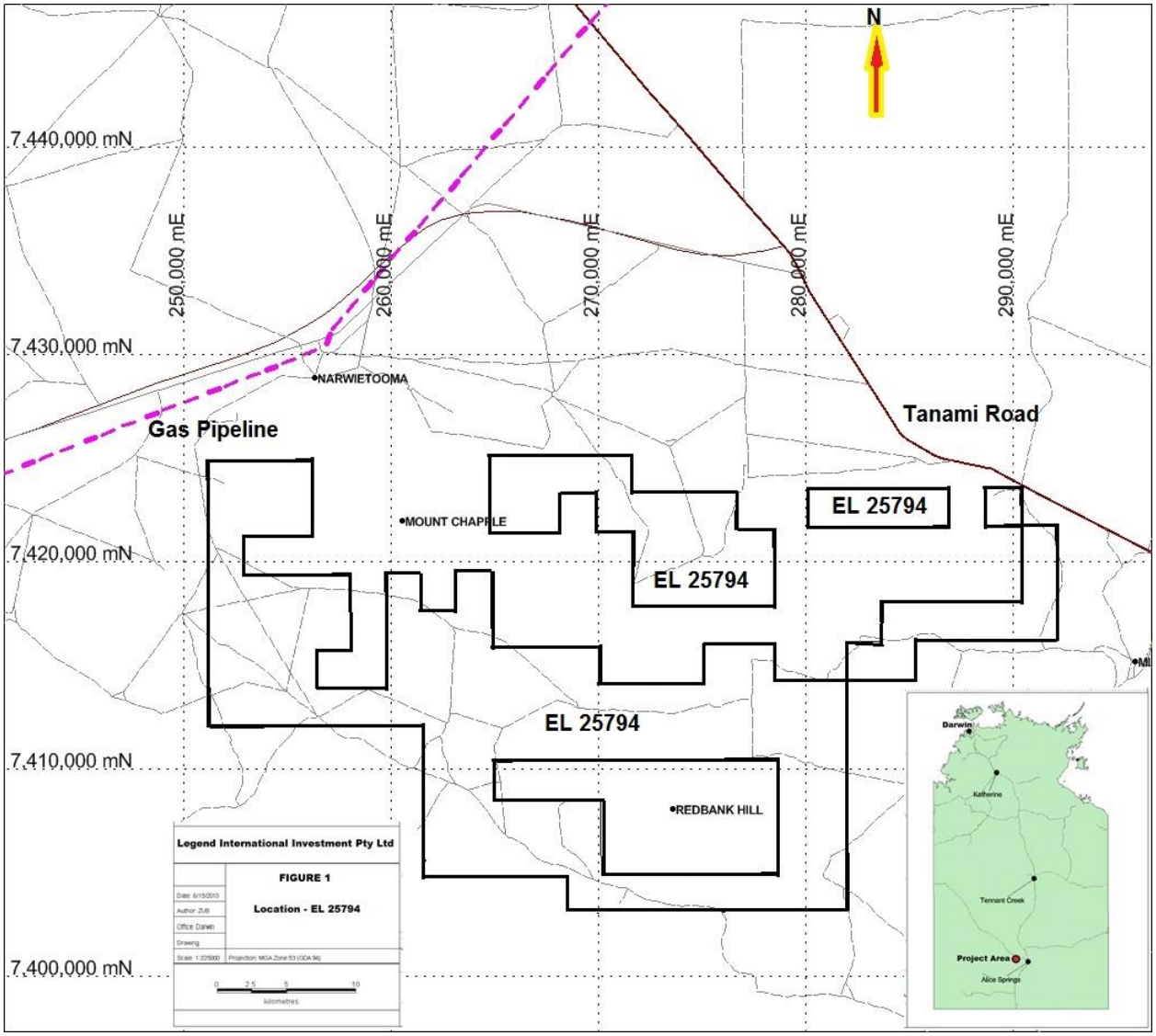
The EL was applied for on 7 December 2006 by Legend International Investments Pty Ltd and was granted on 11 June 2008 for a period of 6 years. Originally, it had 450 blocks (1215 km^2), and in 2012 and 2013 a total of 212 blocks were surrendered in order to meet the NT Mining Act requirement. Another lot of 93 blocks were surrendered in 2014, leaving behind 119 blocks. After renewal of further 2 years period in 2014, the licence is expected to expire on 10 June 2016.

Underlying cadastre is covered by a number of pastoral properties such as PPL 1150, PPL 1145, PPL 1019 and PPL 1128.

3.0 LOCATION AND ACCESS

EL 25794 is situated in central Australia and is located about 1280 km south of Darwin and 120 km NW of Alice Springs (Figure 1). Part of the tenement is intersected by Tanami Road in the east and Gas Pipeline in the west. Stuart Highway and Darwin to Adelaide Railway line are located about 100 km east of the project area. Three topographic high points Mt Chappell, Mt Zeil and Redbank are located within the licence area. Tenement is situated in the central part of Hermannsburg (1:250 000) sheet. It also covers area in Narwietooma, Hermannsburg, Glen Helen and Gosses Bluff (1:100 000) sheets. Access to the project area is gained by Stuart Highway then by Tanami Highway. Four wheels drive station tracks provide access to various parts of the tenement. The project area is mainly covered by red sandy plans with occasional sand dunes in the north whereas rocky ridges are present towards south. The area experiences a continental desert climate with annual rain fall of about 100 millimetres. Summers are dry and hot with maximum temperature over 50°C whilst winters are relatively cooling (maximum 30°C). Winter season is the most suitable for exploration.

Figure 1: Location of Project Area



4.0 GEOLOGICAL SETTING

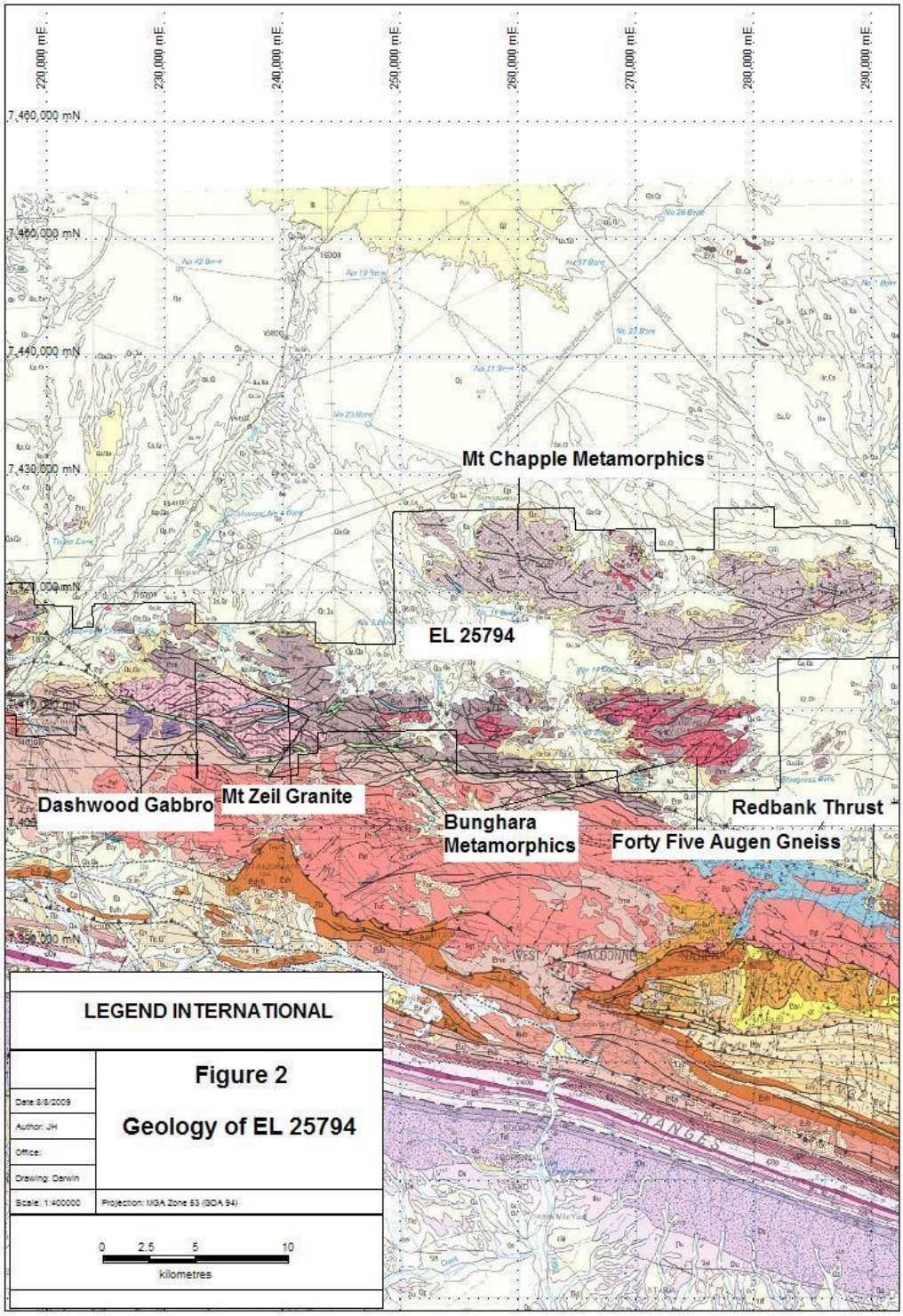
The project area is situated within northern part of the Arunta Block which is overlain by rocks of Amadeus Basin. It is a Palaeoproterozoic fault-bounded sequence of igneous and metamorphic rocks that forms a deep depocentre within the Northern Australian Craton. The oldest rocks of the northern part of the Arunta Block comprises mafic and felsic granulites of the Strangways and Narwietooma Metamorphic complexes, which are partly underlain by Madderns Yard Metamorphic Complex (Warren and Shaw, 1995). During Strangways Orogeny (1760-1750 Ma), these rocks were down-wrapped to depths in excess of 20 km, and as a result of that deformed and metamorphosed.

The Strangways Complex forms part of the southern Arunta Block which consists of Palaeoproterozoic volcanics and sedimentary rocks. These were strongly deformed and metamorphosed to granulite and amphibolite facies, and intruded by granites (Warren and Shaw, 1995). An episode of migmatisation occurred during Neo-Palaeoproterozoic followed by wide spread thrust-faulting ad associated retrogressive metamorphism occurred in Neoproterozoic (Alice Springs Orogeny).

The geological mapping done so far indicates that the Strangways Complex consists essentially of high-grade metamorphics – granulite of mafic and felsic and pelitic compositions, including pyroxene granulite, cordierite granulites, charnockites, anorthosite and migmatites. The metamorphics comprised of amphibolites, gneisses, schists, marbles, pegmatites and meta-dolerites. Common mineral assemblages are quartz-hypersthene-cordierite-biotite and garnet.

In the project area mainly rocks of the Narwietooma Metamorphic Complex (Figure 2) are present which, in turn, are overlain by Cainozoic lithologies. The Mt Chappell Metamorphics is the most common unit and forms the Mt Chappell massif and low hills to the east. It is predominantly mafic to intermediate granulite and gneiss along with minor metasediments. In places, felsic granulite and orthopyroxene-bearing gneissic granites are also present. Another formation in the Narwietooma Metamorphic Complex is Bunghara Metamorphics. Main outcrops are around Mt Heughlin where it forms low rounded massifs and series of small hills further east. The unit consists of meta-igneous rocks and very minor sediments. Mafic to intermediate granulites, dark toned on aerial photographs are predominant

Figure 2: Geological Setting of the Project Area



(Warren and Shaw, 1995). More basics rocks appear to be migmatic. Metamorphic facies range from granulite to upper amphibolite. Retrogressive garnet occurs in mafic to intermediate meta-igneous rocks.

The Mt Hay Granulite forms most of the Mt Hay Massifs and Ceilidh Hill to the east. It consists of fine-grained mafic granulite and minor interlayered metamorphosed felsic gabbro-anorthosite granulite and minor calc-silicate rocks. Felsic granulite is also present which may form up to 10% of the unit. Quartzose metasediments occurs as thin recessive bands within migmatic layers containing garnet and biotite-sillimanite intergrowths. Calc-silicate rock forms a small lens west of Ceilidh Hill. The Mt Hay Granulite passes gradationally into the Mt Chappell Metamorphics, and encloses the main part of the Anburla Anorthosite.

Metamorphosed igneous rocks within the Narwietooma Metamorphic Complex are represented by the Anburla Anorthosite and that forms three separate bodies in the Hermannsburg (1:250 000) sheet area. The unit ranges in composition from essentially monomineralic plagioclase-rock to a lithology containing plagioclase and approximately 40% ferromagnesian minerals. Many outcrops have dark bands a few mm thick comprising of hornblende, enclosing pyroxene.

The forty five Augen Gneiss forms the southern part of the Redbank Hill. It consists mainly of quartzo-feldspathic gneiss with large augen of K-feldspar and aggregates of unfoliated granite inclusion in a foliated matrix. Dyke-like tongues of non-foliated microgranite dated at 1760$\pm$ 11 Ma, cut gneiss which is dated at 1754$\pm$ 9 Ma (Warren and Shaw, 1995). The augen gneiss contains a variety of country rock xenoliths and minor rafts and pods of mafic rocks, and is cut by Redbank Shear Zone, formed during Alice Springs Orogeny.

The Mt Zeil Granite forms a large body of intrusive complex on the northern side of the Redbank Thrust Zone (Figure 2). It also crops out on the north-eastern side of the Mt Heughlin massif. It consists of homogeneous to migmatitic medium-grained granodiorite and granite along with medium-grained granitic gneiss and augen gneiss. Thin layers of mafic granulite parallel to the gneissic foliation contain high level of Nb, LHREE and Zr (Warren and Shaw 1995). It is cut by Redbank type mylonite zones and pegmatites (Black and Shaw, 1992). The Dashwood Gabbro is present in the south-western part of project area. It comprises altered gabbro, dolerite, and ultramafic rocks.

In the project area, unconsolidated Quaternary sediments form a surficial covers. These are ferruginised alluvium and sand along with drainage channel deposits. During drier periods, aeolian reworking spread sheet and dune sands. Close to hills there are coarse sand and gravel

and, as they spread out, they contain more silt and sand. Fans are currently spreading over the clayey units. Some calcrete and Silcrete outcrops may also be present.

5.0 PREVIOUS EXPLORATION ACTIVITY

Project area is situated in the centre of Australia continent which has seen little exploration since today. Part of the project area has been explored under historical ELs (EL 519, EL9566, EL 1323, EL 754, EL 755).

Earliest record of uranium exploration is covered under EL 754 which involved geological mapping, radiometric survey and water sampling for sedimentary uranium deposits (Hughes and O'Sullivan, 1973). Historical EL 754 covers eastern part of the project area. Overall results were disappointing and eventually EL 754 was dropped.

Western part of the project area was explored under EL 755 which involved drilling of 74 augers holes to determine the presence of calcrete development, which might host uranium mineralisation. However, all sample retrieved showed low concentration of uranium. The average value was 1 ppm to 2 ppm of uranium (Scott, 1973).

CRE conducted exploration for uranium under EL 519 which covered western part of the current tenement area. During this campaign geological mapping, review of sedimentation processes and gamma-logging of open water bores (Hughes and O'Sullivan, 1973) were undertaken. Results of this investigation were not encouraging and tenement was surrendered.

First phase of geological mapping was conducted by Bureau of Mineral Resource, Geology and Geophysics during 1960's (Quinlan and Forman, 1968). Second phase of geological mapping of the area was undertaken by Bureau of Mineral Resources, Geology and Geophysics in 1995 (Shaw and Warren, 1995). During this exercise, geology of the project area was revised as part of Hermannsburg (1:250 000) project. This led to sub-division of main geological stratigraphy which forms the basis of our geological understanding of the area today.

Large part of the tenement was explored under EL 1323 by Esso Australia in 1977. A detailed photogeological assessment was undertaken and spectrophotometer survey of the area was conducted. During geophysical survey, a number of radiometric anomalies were identified; however, none of these were investigated. Granites in the area appear to be radioactive and host radioactive anomalies.

In 1978, exploration program further pursued EL 1323 for the presence of uranium mineralisation. Two airborne radiometric surveys were flown which identified additional uranium anomalies which were checked during ground-truthing. However, geochemical and petrological

studied showed that uranium mineralisation has little economic significance (Fraser, 1978) and eventually tenement was surrendered.

Part of EL 25794 was explored under Mt Hay/Sixteen Mile project by Rio Tinto Exploration Pty Ltd (Home et al., 1998). This project was investigated for Ni-Cu-PGE mineralisation. Exploration program included geological mapping, rock sampling/assaying, airborne magnetic, radiometric and EM survey, downhole conductivity and magnetic susceptibility logging and drilling. No sign of significant mineralisation was encountered and area was surrendered.

6.0 EXPLORATION ACTIVITY YEAR ENDING 10 JUNE 2015

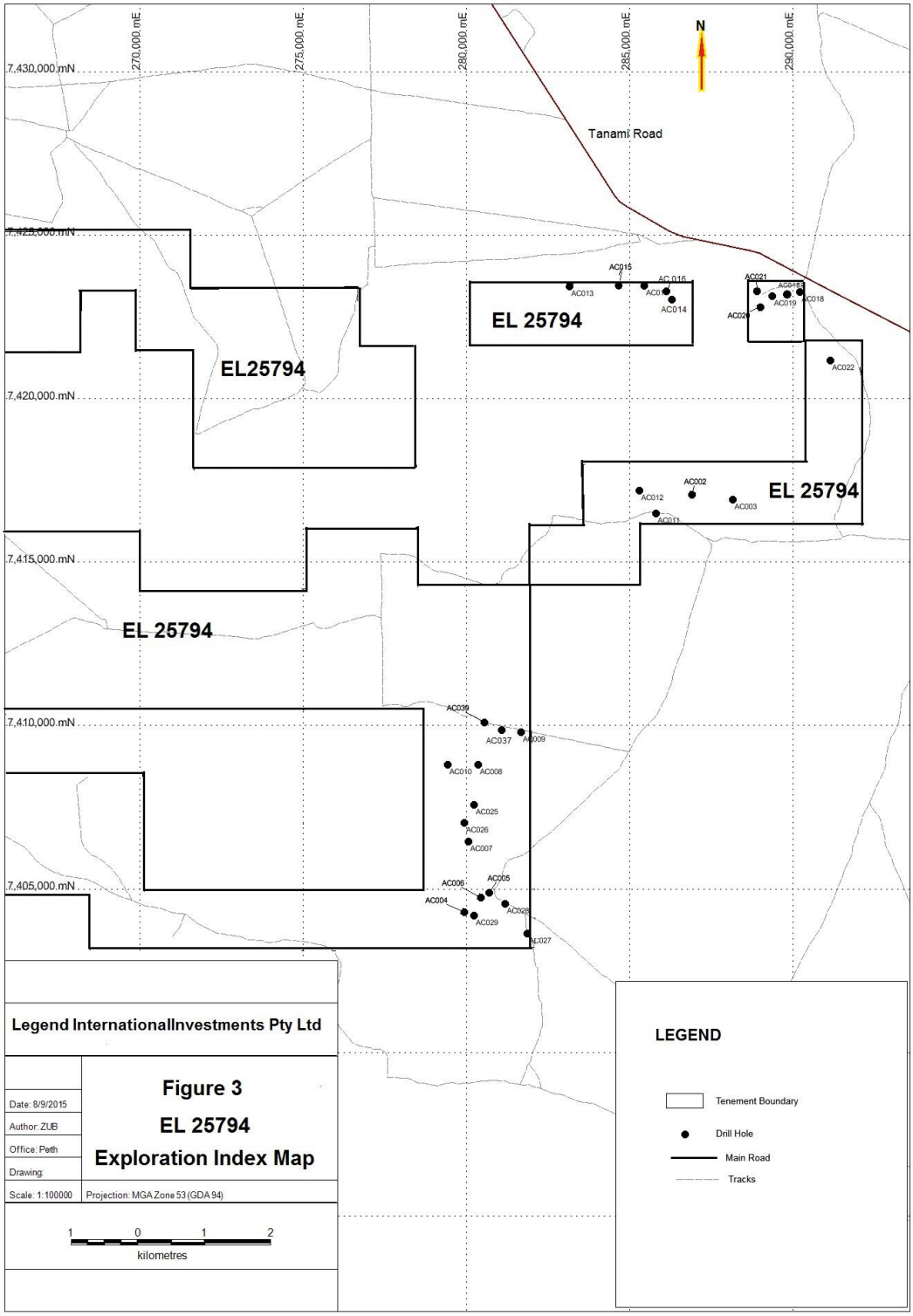
During the period under review, a program of Air core (AC) drilling was undertaken to test the REE potential of the project area. For this purpose 29 holes were drilled for a total of 555 meters within EL 25794. Figure 3 shows the location of drill holes and all drilling data are given in Appendix 1. To date, a total of 25 retrieved samples during drilling were assayed for REE mineralisation. Assay data along with analytical methods are given in Appendix 1.

Geological Constraints

The Palaeoproterozoic mafic and felsic gneiss, variable metamorphic lithologies, migmatites and granites are exposed within EL 25794. This sequence occur as EW-trending ridges (Figure 4) with peaks like Mt Chappell, Mt Hay and Mt Zeil, however, northern part of the project area is mainly covered by surficial recent sediments. The Palaeoproterozoic rocks have been deformed and metamorphosed during Alice Spring Orogeny. Red Bank Shear Zone is the most important structural feature of the project area (Figure 2) which separate granulite-facies rocks of the central province from amphibolite-facies rocks of the southern province. It is an anastomosing network of shears, roughly running east-west and probably are significant exploration targets in the project area.

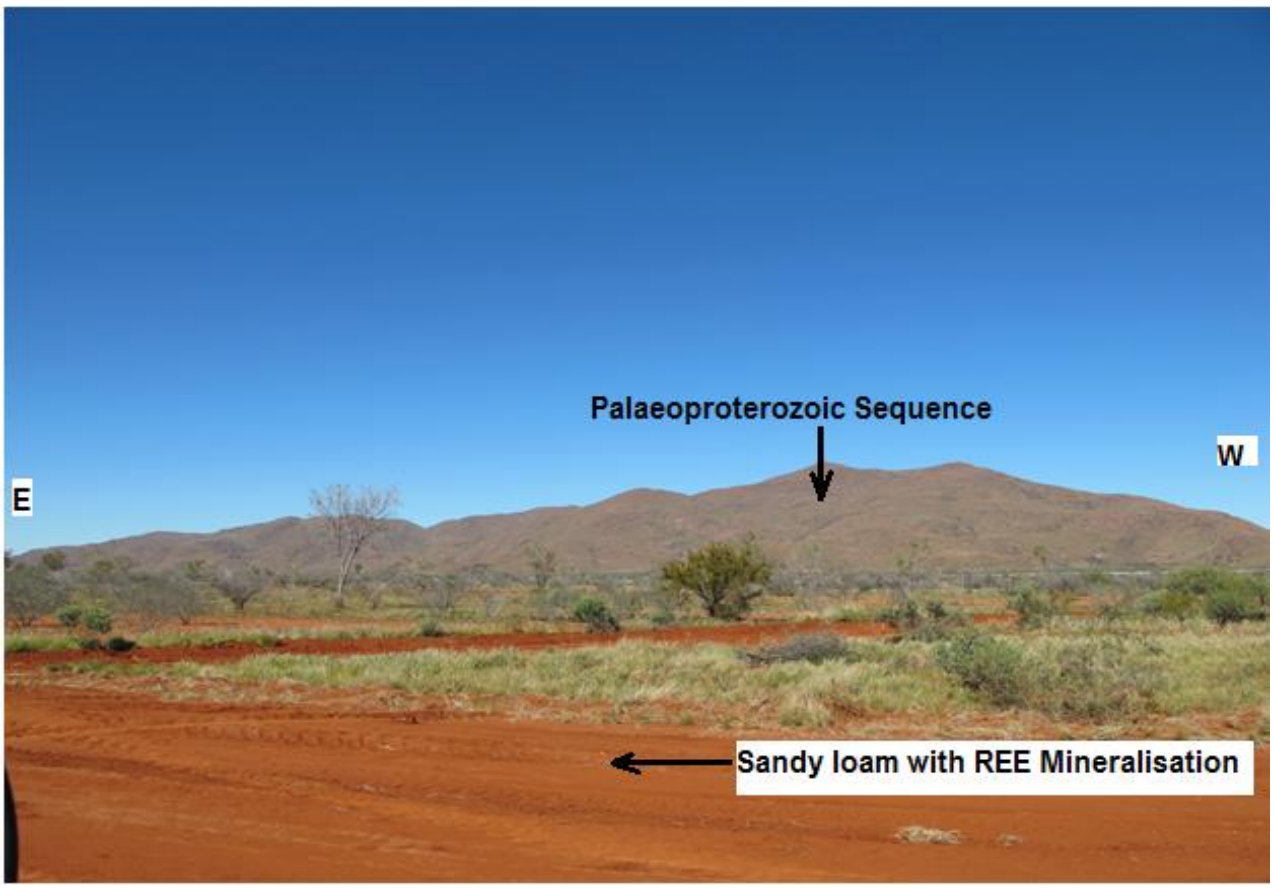
Over 60% of the project area is covered by Quaternary unconsolidated sediments which could be 10’s meter thick in places. Some exploration for sedimentary type uranium mineralisation has taken place without success, but this surficial cover needs thorough testing because further south, a number of uranium deposits have been identified in similar geological setting. In addition, recent exploration by Crossland Uranium Mines Limited has made an important

Figure 3: Exploration index map of EL 25794 for 2014 – 15



discovery of alluvial REEs mineralisation towards SE of EL 25794 (ASX Announcement, 13 July 2011). Heavy Minerals containing significant quantities of REEs are wide spread in the alluvial cover at various stratigraphic horizons. These Minerals are xenotime, monazite, zircon and others which have assayed >10% (REO + Y_2O_3). In 2012 Crossland Uranium Mines announced maiden inferred resource of 418 MT tonnes of REE containing 30690 tonnes xenotime, 167235 tonnes of monazite and 219980 tonnes of zircon (Crossland Mines Limited ASX Release, May 2012). High value HREE contents up to 17% are contained in Xenotime. The resource is hosted in loosely consolidated alluvial material and test-work indicates that it can be relatively easily upgraded to a high grade Heavy Mineral TREO concentrate and a saleable zircon mineral

Figure 4: EW-trending rock formations in the project area. Reddish-brown sandy loam which contains much of the REE mineralisation is present in the foreground.



sand by-product, using familiar and low-cost Heavy Mineral Sand (HMS) processing techniques. It may be noted that this type of recent sediments are wide spread within EL 25794, owned by Legend International, where an extensive geochemical survey and assay programs have been conducted successfully (see below). It is expected that these Heavy Minerals have been derived from felsic to mafic-ultramafic rocks of the Arunta Complex.

Geochemical surveys and assay campaigns undertaken by Legend International (Bajwah et al. 2012, 2013) have confirmed the presence of REEs within Quaternary cover of the project area. In this program a high concentrations of Ce up to 9940 ppm, La up to 6550 ppm and Nd up to 2180 ppm from heavy mineral concentrates have been reported. In addition, 41200 ppm of Zr has also been reported from heavy mineral separates.

Drilling

In December 2014, a drilling campaign was undertaken in order to test mineral potential of the project area for REE mineralisation. Geo Drilling of Darwin was hired to conduct the drilling by AC method. For this purpose, a Schramm 450 drilling rig mounted on custom built 6x6 carrier was used as shown in Figure 5. Diameter of drilling bit was 3.25 cm^2. It was planned to drill each hole up to 50 m deep. However, areas closer to hills have thin sedimentary cover and therefore, some holes have to be terminated against basement up to 5 m deep. Each drill holes was filled back and rehabilitated (Figure 6). All drilling data are given in Appendix 1 and shown on Exploration Index Map (Figure 3).

Drilling conducted to date, has shown that norther part of the project area has much thicker sedimentary cover as compared to southern areas. A good stratigraphic profile was intersected in drill holes AC 013, AC015, AC 018 and AC 019. A typical profile will contains fist a few meters of clay (alluvium) and sandy loam which is generally dark-reddish brown and fine grained. It might have some country rock clasts or calcrete fragments. This section will grade into alternating sandy loam and clay rich sandy loam. Here, in some cases, calcrete clasts/fragments may also be present. At a depth of 40 m or more, mud rich area will appear which will ultimately terminate into gravel rich area with water at a depth of 50 m or more. Details of drill logs are given in Appendix 1.

Drill holes in the south-western part of the project area will generally terminate into basement with shallow depths (5 – 10 m). In this area, stratigraphic profile is dominated by a thin veneer of clayey sandy loam with common rock fragments. In middle of the profile, sandy loam will

Figure 5: Schramm 450 drilling rig mounted on custom built 6x6 carrier

Figure 6: Rehabilitation of drill hole

dominate with some calcrete fragments and terminates with gravel base which sits on the Palaeoproterozoic basement.

Assaying

To date, only 25 sandy loam samples have been assayed for REE mineralisation (La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Sc and Y). These samples were assayed by JiangXi Jung Yun Non-ferrous Geological Test Ltd Co, Tong Zhan Road 14, Xiangtong County Nanchang Jiangxi Chian 330201. All assay data and analytical methods are given in Appendix 1.

Assay results have been disappointing and REE concentration encountered during soil sampling and assaying program (Bajwah et al, 2012; Bajwah et al, 2013) did not reflect into the drill samples. So far, only a limited number of samples have been assayed and it is likely that they do not represent the stratigraphic horizons deemed necessary for REE mineralisation. A cursory examination of data shows that samples assayed were selected form shallow stratigraphic horizon. It is believed that REE mineralisation is confined to lower part of the stratigraphic column.

7.0 DISCUSSIONS AND RECOMMENDATIONS

Drilling samples assayed to date have not met the expectations as shown by soil survey program. A cursory examination of the assay data shows that REE concentrations are low. It may be noted that samples assayed mainly came from the upper horizon of the stratigraphic pile, and have been collected from shallow drill holes. It is believed that REE mineralisation is confined to thick Quaternary sedimentary pile, where mineralisation occurs in the lower part. Drilling undertaken to date also shows that northern part of the tenement has thicker stratigraphic pile and it thins out towards south. Therefore, it is recommended that drilling should concentrate on the northern part of the project area and samples retrieved from the lower part of the drill holes should be assayed for REE mineralisation.

8.0 REFERENCES

Black, L.P., and Shaw, R.D., 1992, U-Pb zircon chronology of prograde Proterozoic events in the Arunta Block, central Australia. Australian Journal of Earth Sciences 31 (1), 49-60.

Bajwah, Z.U., Li, M., Yao, Y., 2012, Annual Report on EL 25794 from 11 June 2011 to 10 June 2012, Central Australia, Northern Territory. Legend International Investments Pty Ltd, Annual Report to Northern Territory Department of Mines and Energy Darwin.

Bajwah, Z.U., Li, M., Yao, Y., 2013, Annual Report on EL 25794 from 11 June 2012 to 10 June 2013, Central Australia, Northern Territory. Legend International Investments Pty Ltd, Annual Report to Northern Territory Department of Mines and Energy Darwin.

Edgoose, C., Scrimgeour, I., Close, D., and Meixner, T., 2001, The SW Arunta – a terrain getting by the minute. Abstract: Annual Geoscience Exploration Seminar, Alice Springs, Northern Territory Geological Survey Record, GS 2001 - 0006

Fraser, N., 1977, Annual report on Razorback Exploration Licence 1323. Annual report. Department of Mines and Energy Annual Report CR 1978-0027

Fraser, N., 1977, Finalreport on Razorback Exploration Licence 1323. Annual report. Department of Mines and Energy Annual Report CR 1978-0119

Hoatson, D.M, 2001, Metallogenic Potential of mafic-ultramafic intrusions in the Arunta Province central Australia – Some new Insights. AGSO Research Newsletter 29.

Home, D.P., Wilkinson, D.L., and McCoy, A.D., 1977, Mt Hay/Sixteen Mile Project, combined final for period ending 14 September 1997. Final report, Department of Mines and Energy Annual Report CR 1998/0009

Hughes, F.E, and O'Sullivan, K.N, 1973, EL 754 Derwent, NT, Final report. Department of Mines and Energy Annual Report CR 1973-0122

Lally, J.H., and Bajwah, Z.U., 2006, Uranium Deposits of the Northern Territory. Northern Territory Geological Survey Report 20.

Quinlan, T., and Forman, D.J., 1970, Hermannsburg NT, 1:250 000 Geological Series Explanatory Notes. Bureau of Mineral Resources, Geology and Geophysics

Scott, A.K., 1973, Report on investigations in EL 755 Dashwood, NT. Department of Mines and Energy Annual Report CR 1973-0214

Warren, R.G., and Shaw, R.D., 1995, Hermannsburg (1: 250 000) Explanatory Notes and Geological Map. Northern Territory Geological Survey and Australia Geological Survey Organisation