PARTIAL RELINQUISHMENT REPORT FOR THE PERIOD ENDING (11-10-18)

EL 31012

ARMOUR ENERGY
A.C.N. 141 198 414
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Summary

Ripple Resources is a fully owned subsidiary of Armour Energy Ltd. Armour has been exploring the gas and oil resources of the McArthur Basin, and has made a significant gas discovery in the Glyde sub basin.

Ripple had selected Exploration Licences within areas inside the Armour Energy permits, and has been cooperating with Armour in order to evaluate these ELs for their base metal potential.

The NT government announced an effective moratorium on hydrocarbon exploration until their new policy on reservoir stimulation had been implemented. As Ripple work was designed as a basin wide petroleum style evaluation under cover, much of the expenditure was to be shared with Armour. The moratorium along with earlier long running disputes following a takeover attempt stymied Ripples exploration work.

Most of Ripples Exploration Licences have been surrendered during 2017, and only ELs 30494, 30810 and 31012 remain within the Barney Creek project.

These ELs were retained because of the potential for shallower mineralisation, not requiring the style of program originally planned by Ripple.

A reassessment carried out during the year has confirmed shallow potential within ELs 30494 and 31012, but not EL 30810. Shallow drilling is planned within EL 30494, and follow up soil and rock sampling is planned for EL 31012.

In September 2018, 28 blocks were offered for relinquishment. Twenty-seven blocks remain.

1.0 Introduction

Ripple Resources Pty Ltd was set up by DGR Global Ltd for the purpose of exploring for base metals within areas of the McArthur and Mount Isa basins that were being examined by Armour Energy Ltd for gas and oil. After the float of Armour Energy, Ripple Resources was sold to Armour at cost. Since that time, Armour has been providing funding and much of the operating resources for Ripple.

Armour Energy began a restructure by bringing in American Energy Partners (AEGP) as a major shareholder, and as the manager and funds provider for the NT petroleum exploration.

AEGP was committed to paying a substantial sum to Armour Energy which will fund Ripple Resources as a separately managed entity. Since that time, AEGP withdrew from the commitment due to the death of the principal and CEO. Efforts to raise money and continue joint hydrocarbons and mineral exploration in the NT have been badly affected by the NT government moratorium on well stimulation. Ripple has surrendered almost all tenements in the Northern Territory, but has retained those few that were believed to offer shallower potential.
2.0 Location and Access

Fig. 1 Location and access map

The three remaining ELs extend over 150 km in a north south direction. Access is best made via tracks from the Tablelands Highway and the Borroloola Bing Bong road. Within much of the EL, access requires four-wheel drives and motorcycles.

3.0 Licence Details

EL 31012 was granted on the 20th September 2016 for 5 years. Prior to the September relinquishment it covered 55 blocks with an area of 181 sq kms.

Native Title and Heritage clearances have been handled concurrently with overlapping EP 171 and EP 176.
4.0 Geology and Previous Exploration

Much of the region is obscured by flat lying cover sequences of various ages. These obscure the most prospective Proterozoic dolomitic shale sequences, which are faulted and gently folded. The formations of prime interest are the Barney Creek Formation in the far west and the lower Wollogorang Formation in the central and northern areas. Most mineralisation of note lies between the Coxco and the Caranbirini member of the Lynott Formation, but some bitumen – galena- sphalerite infills extend up as far up sequence as the Bessie Springs sandstone in the Roper Group. In the south, within ELs 29954 and 55, BHP drilling has revealed bitumen chalcopyrite galena sphalerite infills within thick strongly organic dolomitic shales of the McDermott formation. The McDermott formation is interpreted as being too deep to explore within EL 30494. As a rule, formations with hydrocarbon shows as shown in Fig.2 are those with mineralisation. The mineralised rocks in this area are often dangerous to drill due to gas, and fresh rock can be quite inflammable.

The economically significant lead zinc copper deposits are part of the Mt. Isa – McArthur metallic province, which is the most productive zinc district in the world. Locally, the HYC mine is the only producer, with a global resource of over 200 million tonnes of lead zinc with minor copper. New exploration by Rox Resources (Teck) has enhanced the nearby Myrtle and Teena deposits by means of deeper drilling and larger richer intercepts. They are typical of the basin hosted deposits which are normally richest in the structurally lowest sites, within the most organic dolomitic shales.

Other zinc-lead copper deposit types are known, and are mainly of the porosity infill type, where hydrocarbons and metals have migrated into trap sites usually in solution breccias or decarbonated dolomitic shales. Locally, these include the Coxco, Cooleys and Ridge deposits. Century in Queensland is the largest known deposit of this type, and until recently was the world’s largest source of zinc. At Century, the stratiform sulphide mineralisation occurs in a matrix of live oil occupying secondary porosity sites, and adjacent smaller mines have produced pitch as well as silver lead. Renewed exploration at Walford Creek (in Queensland, close to the NT border) has discovered significant Mt. Isa style copper cobalt phases that overprint the silver lead zinc. This style is also present in breccias at Cooleys, but is not economically significant.

Within EL 31012, the main work was done by BHP (CR1995-0407 and CR1993-0365). BHP took stream samples flew EM and drilled two holes – GM21c (70m) and GM22 (54m).
Fig. 2 Stratigraphic column - note that the >200m thick McDermott formation black dolomitic shales and evaporites have been removed from this official version, despite its widespread distribution about 150m above the Siegal volcanics. It is considered too relevant to ignore.

5.0 Work Conducted During the Reporting Period

5.1 Reassessment for Shallow Potential

Publicly available data and reports on the results of previous exploration in the general area were reviewed with the purpose of confirming shallow potential within the three remaining ELs.
Around EL 31012, the compilation revealed a persistent unexplained Zn Mn Ni Pb As Cu Pb (Co) anomalous trend that partially lies within the EL.

This trend apparently is sourced in Mesozoic mudstones that are close to paleohills of late Proterozoic basalts. BHP drilling nearby reported weathered ferruginous mudstones a few metres above the basalts. I personally have seen thin beds of botryoidal iron and manganese in the anomalous area, dipping very shallowly southwards. The actual peak anomaly itself has not been followed with normal soil and rock sampling. As it lies within the EL, this should be undertaken.

The metal signature is typical of an ultimate ultrabasic to basic source, and may have been chemically reworked from the basalts. Asbolite has this exact signature and can be expected in this weathering environment. The black botryoidal manganiferous beds I saw may actually have been the cobalt nickel copper zinc mineral asbolite.

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**Fig.4 Polymetallic Target within EL 31012**
6.0 Statement of reasons for relinquishment

As a condition of the Exploration Licence, a 50% reduction of the blocks was required to remain compliant.

Relinquished blocks are as follows-

SE531130

SE531129

Total 28

Fig. 5 Map showing Location of SE531129 & SE531130
7.0 Results and Conclusions

EL 31012 contains an unexplained polymetallic trend and geology consistent with an asbolite source. It should be followed up with soil and rock sampling mainly to locate the best cobalt grades.

8.0 Copyright

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