ENERGY EXPLORATION LTD.

EL4472 – GREATER LOCK

AREA A
SURRENDER REPORT

2011

Prepared by JLC Exploration Services

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Title holder	ENERGY EXPLORATION LTD
Titles/Tenement	EL 4472 AREA A
Mine/Project Name	GREATER LOCK
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Target Commodity or Commodities	Coal and other commercial minerals
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EXECUTIVE SUMMARY:

EL 4472 comprising three separate areas (A, B & C) was granted on 22/4/2010 to Energy Exploration for a period of 12 months with the primary goal of assessing the potential for additional coal resources in proximity to the Lock Coal deposit.

During the first year of this license, Energy Exploration has sourced historical data and initiated a review programme to identify regions that warrant implementation of field work.

The assessment to date has determined that Area A has low potential and areas B & C warrant further consideration.

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1.0 INTRODUCTION

The Lock Coal resource occurs within Jurassic sediments deposited within the Polda Basin, an almost fully concealed structural half graben which extends east to west across the Eyre Peninsula of South Australia, including the continental shelf. A major fault zone marks the northern side of the feature and is the locus where conditions favourable to coal deposition have occurred during the Jurassic and Tertiary time periods.

Energy Exploration has been evaluating the shallower coal resources located in cental Eyre Peninsula some 16km west of the Lock town site. EL 4472 Areas B & C were selected to expand the region of evaluation to the west north west and east southeast of the Lock Coal resource (held under EL 4142).

Area A lies about 10 km to the north Area B and the bounding fault to the Polda basin. It non contiguous with area B because of an intervening nature reserve. It was selected on the basis of historical reports of lignite in drill holes. As such it has a different geological setting.

Assessment to date has determined that Area A has much less potential than areas B & C to hold additional coal resources. Accordingly it has been offered for relinquishment and a separate technical report has been prepared herein presented as an appendix.

Areas B & C have been assessed in the context of data held by Energy Exploration on the Jurassic Lock Coal resource which is the primary commercialisation target. Tertiary coal potential is also being evaluated.

2.0 LOCATION & ACCESS

The project area is located in Central Eyre Peninsula of South Australia near the village of Lock 140 km north of Port Lincoln. Sealed road access from Port Augusta to Lock is either westerly along the Eyre Highway, and then southward from Kyancutta along the Tod Highway, or southward along the Lincoln Highway then westerly from Cowell along the Birdseye Highway. The locality is serviced by the Port Lincoln-Ceduna railway line parallel to the Tod Highway. Lower order roads also service the region. (see figure 1)

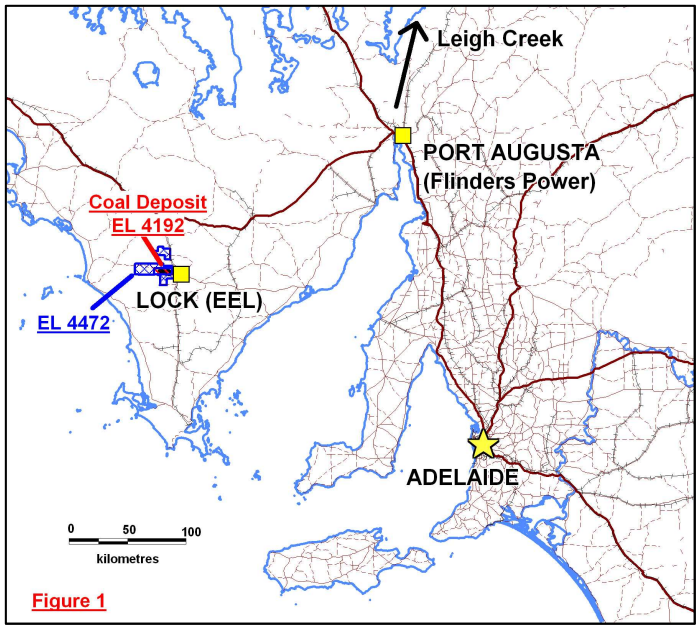

Figure 1: EL4472 Location

3.0 TENURE

EL 4472 was granted on the 21/4/2010 for a term of one year. It comprised three sub-adjacent areas A (98 km^2) B (204 km^2) and C (142 km^2). The total area being ~443 km^2.

Application for extension of the title has been made with respect to continuance of areas B & C (aggregate 346 km^2). It is proposed Area A be relinquished in entirety. (see figure 2)

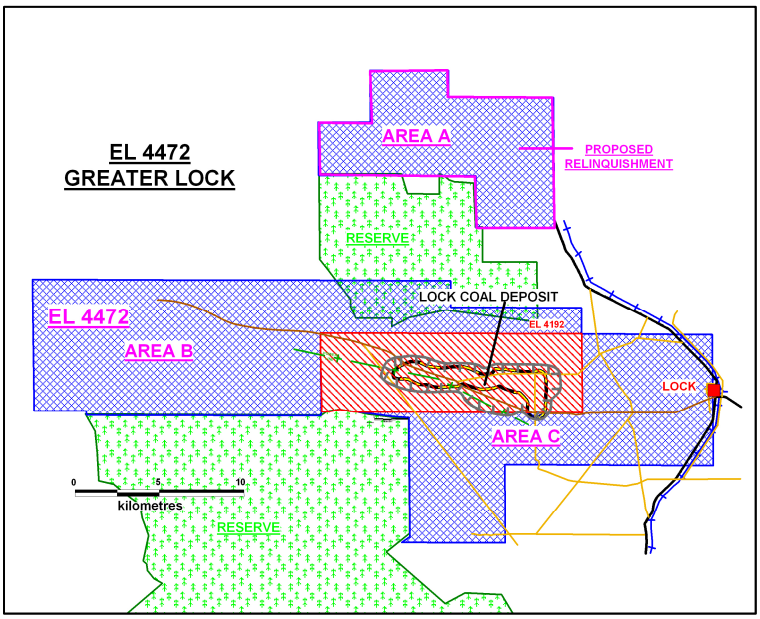

Figure 2: EL 4472 Greater Lock Relinquishment

4.0 REGIONAL GEOLOGY

Geological investigations by Gatehouse 1979 (DME) and Springbett 1980 (ETSA) were instrumental in providing the framework and primary detail of the Jurassic sequence and the geological context of the Lock Coal Resource. Company exploration and overview work by the Geological Survey have progressively developed a general model of the geology of the Polda Basin.

The Polda Basin is a major 230 km long east-west feature on Eyre Peninsula which extends from the west beyond the coastline on the shallow continental shelf to Cleve 75 km to the east of Lock which is expressed as a broad lowland region but is otherwise fully concealed and only known from drilling information. This feature may be about 1500 Ma or older (Parker et al. 1984, Drexel et. al. 1993). It accommodates the Meso -proterozoic Itiledoo Basin and overlying Neoproterozoic-Palaelozoic Polda Basin sequences. The latter thicken to both the east and west away from Lock which seems to be the locus of a narrowed shallow structural saddle.

Regionally the basin is marked by a relatively sharp straight E-W northern boundary, presumably a fault or palaeo-fault scarp, and a gradational southern boundary. The on-shore basin in all being over 150 km long E_W and generally 10->30 Km wide N-S, maximum at ~55 km. The bedrocks are Gawler Craton components of Archaean, Palaeo-Proterozoic and Meso-Proterozoic age. Late Meso-Proterozic (Blue Range Beds) and Neo-Proterozoic (Kilroo Formation) units successively overly the basement (Drexel,et.al. 1993).

Permian - Coolardie Formation

The Permain glacials are diamictitic silts and sandy units which are not present in Area A.

Jurassic - Polda Formation

The base of the Jurassic sequence is generally sandy with minor conglomerate and seems to include patches of local thickening which may be palaeo-stream channel features. It has a relatively short gradational boundary with the overlying coal measures (Drexel& Preiss 1995).

The coal measures at Lock mainly comprise a multiple stack of high ash coal and clay/silt layers that are weakly indurated. The intervening fine sediments are commonly described as carbonaceous. They are hard (relative to Tertiary lignite), and are brown when fresh but rapidly blacken when exposed to air and may emerge in this state from a drill hole.

Tertiary - Polpena Formation

The Tertiary sequence has a much sandier provenance and is composed of less consolidated gravelly beds, coarse sands, discontinuous lignite and greenish to grey clay deposits that are indicative of a braided channel fill sequence with swampy depressions in-filled buy mud and peat (Drexel& Preiss 1995).

The upper surface of the Tertiary sequence has been affected by a tropical ferruginous lateritic weathering profile with white/brown clays and sands being typical.

Late Tertiary-Recent

The landscape in the vicinity of Lock in the not so distant past was formerly a desert dominated by a WNW-ESE oriented parallel dune set. Field observations indicate that the dunes as seen today are only a relict preserved by exhumed calcrete layers deposited at former still stand water table levels within the original dune and present day vegetation which is now destroying the calcrete.

5.0 PRIOR EXPLORATION

Exploration of the Polda Basin has a long history. Water bores first detected lignite in circa 1910-12 and Jurassic coal 1962-74. Subsequently understanding of the basin has evolved over the last 45 years.

Investigation of the coal resources near Lock was undertaken by SA Government 1979-84 first as the Geological Survey (precursor to PIRSA) and later by ETSA (now subdivided and privatised). Company exploration for coal and both off-shore and on-shore drilling to test petroleum potential was also undertaken.

Major exploration for coal was undertaken regionally by Esso and CRA (now RioTinto) during the same period with only the latter being active in area A.

6.0 ASSESSMENT

PIRSA exploration drill hole datasets were examined and drill holes with appreciable basement cover identified and the concealed stratigraphy drawn up in plan form. The original drilling information where relevant was sourced directly by reading records at PIRSA office.

Selected geological sketch profiles were hand drawn in cartoon format to summarise the data during the work. It became self evident that the dominant cover unit was Tertiary Polpena Formation without evidence of commercially significant lignite intercepts.

Close examination of CRA drill holes 80LRM 28 and 81LRM 47 which occur within Area A led to the realization that relicts of Jurassic Polda Formation were probably present in each hole (68-EOH 66m and 53-92.5m respectively) but no significant coal was present there either.

The derived data was composited on to a plan presented herein as figure 3. Using the depth to basement information surrounding Area A, the major feature is a relatively flat floored palaeovalley which discharged southward cut into the basement which is in-filled with Polpena Formation above a thin infill of Jurassic Polda Formation.

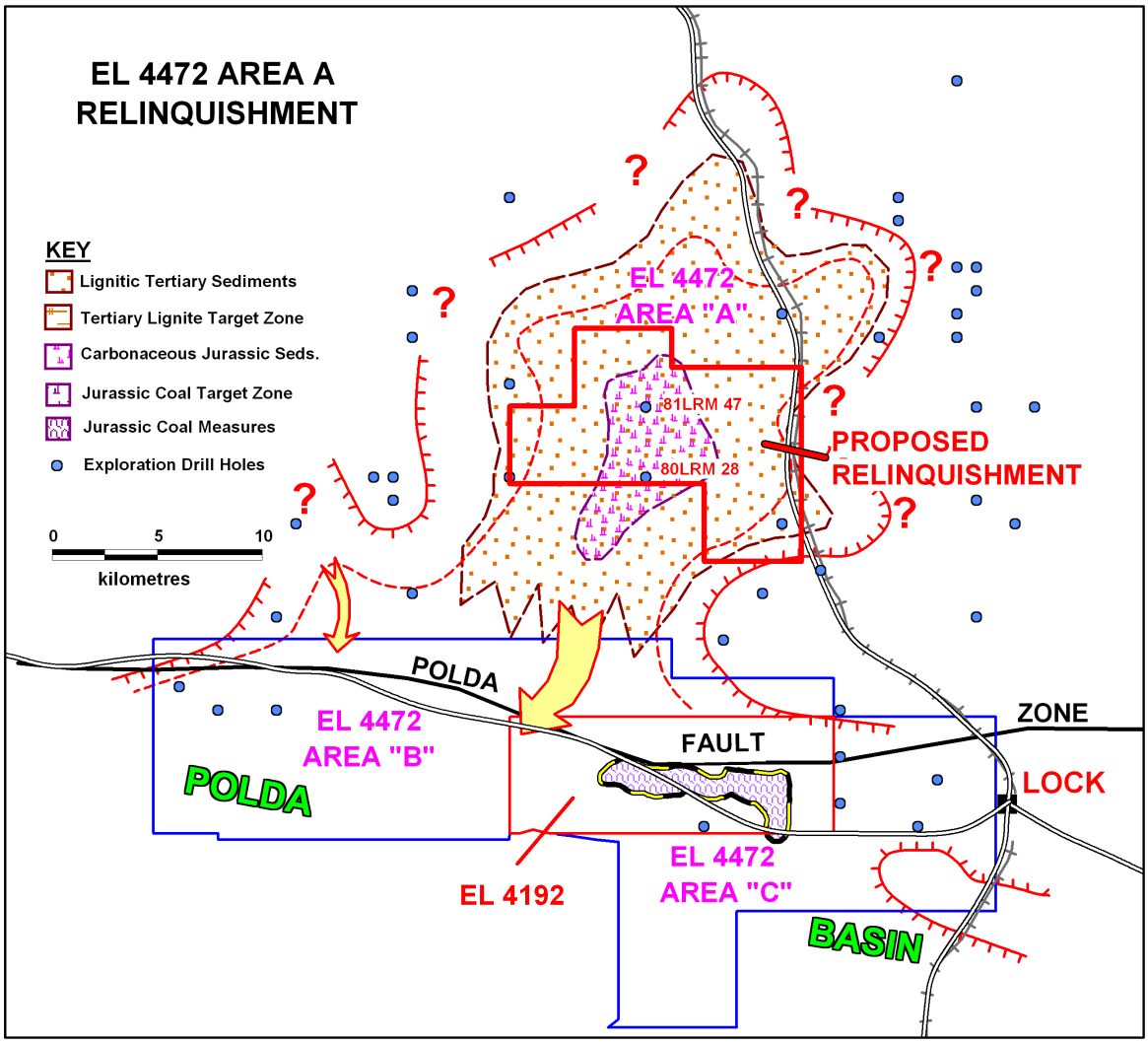

Figure 3: Geological Interpretation EL4472 Area A

6.0 CONCLUSIONS & RECCOMENDATIONS

Since there is little evidence of either significant intervals of Jurassic or Tertiary Lignite coals the potential for commercial coal resources is considered low and therefore Area A should be relinquished.

References:

CRA Exploration Pty Limited. 1985. Progress and Final Reports to Licence Surrenders for the Period 8/7/80 to15/5/85 of EL 670, EL 687, EL 688, EL 1032 and EL 1054. *Department of Mines and Energy*. Open File Envelope No. 3467.

Drexel, J.F. & Preiss, V.W. 1995: The Geology of South Australia, Volume 2, The Phanerozoic, *Department of Mines and Energy*. Bulletin 54.

Gatehouse C. G, 1980. A Report on the Relinquished Areas of EL 280 outside the area of EL 434. (South Australia), *South Australian Department of Mines and Energy*. Report Book Series. No. 80/56.

Springbett G.M., 1980. Polda Basin Coalfield - Lock Coal Deposit, South Australia. Geological Report, The Electricity Trust of South Australia. Coal Resources Branch (unpub.). In South Australia. *Department of Mines and Energy*. Open File Envelope No. 3384.