



EXPLORATION LICENCE (EL) 25245

RELINQUISHMENT REPORT FOR PERIOD ENDING 12 NOVEMBER,  
2008

Submitted by the Titleholder:

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## SUMMARY

Section 32 of the Mining Act requires the submission of a Relinquishment Report prepared by the titleholder for each current Exploration Licence. This Relinquishment Report for EL 25245 offers a summary of activities undertaken on the relinquished area in the past 12 months including any results produced by these activities.

EL 25245 was granted on 13 November 2006 for a term of six years. Tri-Star Energy Company is the sole titleholder and the operator of EL 25245. The work and expenditure program for EL 25245 during its second year required a geological and geophysical review of existing data and information towards determining the location of Permian coals within the Purni Formation and specifically, their depth, thickness, lateral extent and quality. No field activities were intended during the second year and none were carried out.

Tri-Star commenced the review of existing data for the permit area and the Pedirka Basin in general to identify existing seismic, well and bore data, geology, cadastral information and topography. It has been determined from investigations during the reporting period that there are at least three seismic surveys from the 1960s and 1980s that have seismic lines that occur at least in part on the tenure. Currently, a search is in progress for the seismic data from all of these lines to assist in the mapping of the Permian coal seams. The geological investigations and the literature search commenced during the reporting period has indicated that the Purni Formation and its associated coals do not crop out within the area of EL 25245 but may occur at depth throughout the tenure.

Tri-Star has met all work and expenditure commitments for EL 25245 for the second year of the term.

## INTRODUCTION

EL 25245 was granted to Tri-Star Energy Company on 13 November 2006, and covered an area of 450 sub-blocks. On 20<sup>th</sup> October 2008, Tri-Star Energy Company has confirmed and relinquished 389 sub-blocks and retained 61 sub-blocks.

EL 25245 is located approximately 50 kilometres southeast of Finke in the southern Northern Territory, and the tenure's southernmost boundary meets the border between the Northern Territory and South Australia, as shown in Figure 1. EL 25245 is geologically located over the Pedirka and Eromanga Basins, as shown in Figures 2 and 3. Figure 4 shows the surface geology of the tenure.

The topography of the tenure area, shown in Figure 6, is varied and includes the floodplains of the Finke River, Coglein and Peebles Creeks and by the north northwest-trending sand dunes of the Simpson Desert that average less than 20 metres in height as well as claypans, small dry lakes and swamps. The elevation above sea level increases towards the north-western and south-western ends of EL 25245. The tenure is traversed by some roads and tracks to properties, dams and water bores in the area.

EL 25245 is located on the Finke 1:250,000 map sheet (SG53-6), and its Finke (5846) 1:100,000 map sheet; and the McDills 1:250,000 map sheet (SG53-7), and its Mc Dills (5946) 1:100,000 map sheet.

Tri-Star's exploration rationale and objectives for EL 25245 consider the evaluation of the coal potential of the Permian Purni Formation, which contains coal seams that are likely to be correlatives of Upper Permian coal measures found in Queensland's Bowen Basin. Investigations were intended to locate the subcrop edge of the Purni Formation and at the time of writing this edge is yet to be identified. The coal quality in the permit area and actual location and local lateral extent of the coals, if present, are still to be determined.

## HISTORY OF EL 25245

EL 25245 was granted to Tri-Star Energy Company for six years commencing 13 November 2006, as the sole titleholder and operator. After relinquishing 389 sub-blocks, the permit is now comprised of 61 sub-blocks located approximately 50 kilometres southeast of Finke in the southern Northern Territory.

The 61 retained sub-blocks are as follows:

### 61 Retained Sub-Blocks - Oodnadatta SG53 1:1,000,000 Block Identification Map:

Block 1621 - A to D, F to J, L to O, Q to T, V to Y,  
Block 1692 - C to E, H to K, L to P, Q to U, V to Z,  
Block 1693 - A to D, F to J, L to O, Q to T, V to Y.

The retained permit area is located over surface lands that have not extinguished native title, which are comprised primarily of Perpetual Pastoral Leases, as shown in Figure 7.

Currently, office-based coal exploration activities continue on the tenure with preliminary results confirming the need for further investigation.

## REGIONAL GEOLOGY

The Pedirka Basin is an intracratonic basin located across the border between the Northern Territory and South Australia in central Australia, with the majority of the basin area occurring in the Northern Territory. The geologic units it contains are Permian-Carboniferous in age and are correlative with sediments of the Cooper and Officer Basins.

The eastern part of the Pedirka Basin is covered by a thin section of units of the Simpson Basin, which are Triassic in age. The sections of these two basins are then in turn overlain by a thicker succession of Eromanga Basin units, which are Jurassic-Cretaceous in age. Where the Simpson Basin section is absent, the Pedirka Basin is directly overlain by sediments of the Eromanga Basin.

The primary structural features of the Pedirka Basin are the Eringa and Madigan Troughs separated by the McDills Anticline.

Table 1 provides a stratigraphic table of the Pedirka Basin, and the overlying Simpson (where present) and Eromanga Basins. These basins are also overlain by a shallow section of fluvial and Aeolian units of the Eyre Basin, which is found at the surface.

## PERMIT GEOLOGY

EL 25245 is geologically located over the central western part of the Pedirka Basin. The section thins to the northwest. The tenure is located over the Eringa Trough and updip on the north-western section. The northern zero edge of the Pedirka Basin that runs in a general east-west direction is located approximately 75 kilometres north northeast of the northern boundary of the tenure.

Within the tenure area, units of the Pedirka Basin are overlain by a substantial section of Cretaceous-Jurassic units of the Eromanga Basin. It is believed that Simpson Basin units are absent from the stratigraphic section in this area, as EL 25245 is located west of that basin's western margin.

Our preliminary studies to date indicate that the entire tenure is likely to have the Purni Formation present with its associated coals with seams striking northeast-southwest and dipping to the southeast at between one to three degrees. Seismic data indicate that shallowest Purni Formation coals are likely to occur towards the south-western end of the tenure.

## RELINQUISHMENT AREA GEOLOGY

The relinquishment area contains a section of Pedirka Basin units including the Permian coal of the Purni Formation. The retained area of EL 25245 to the west of the relinquishment area contains coals at the shallowest depths. The depth to the coals rapidly increases to the east and to the greatest extent within the relinquishment area where overburden is expected to be over 300 metres in thickness.

## EXPLORATION OBJECTIVES AND RATIONALE

The objective of Tri-Star Energy Company's exploration program on EL 25245 and adjoining tenures is to identify a deposit of Permian age coal from the Pedirka Basin that can be economically extracted and sold at a profit. The product target of the exploration program is the coal that occurs in the upper portion of the Purni Formation. Tri-Star Energy Company is conducting its exploration for the target coals from a basin-wide perspective, as we currently hold 11 granted Exploration Licences for coal, located over the central and western parts of the basin.

Tri-Star Energy Company's exploration rationale included a literature search where access to all available literature from previous private and governmental basin studies, mineral and petroleum exploration to understand what was currently known about the coals of the Purni Formation in existing reports.

Tri-Star Energy Company also conducted a geological and geophysical data review to determine what data are available for further interpretation. Tri-Star Energy Company is collecting all available data to include in our data sets, which will assist with the identification and mapping of shallow coal seams and key formations, as well as determining the most prospective areas, where the coal is shallowest, and assist with finding the updip limit of the Pedirka Basin coals. Tri-Star Energy Company will gather all available seismic data from the Northern Territory and South Australian Governments in preferably SEG-Y format. If this seismic data format is not available, Tri-Star Energy

Company has the capability to scan hard copy seismic sections to obtain a Tiff file from which a SEG-Y format can be created. Where necessary, old analogue seismic data that has navigation data can be transcribed and reprocessed to allow its use in the exploration program. The SEG-Y seismic data was imported into Tri-Star Energy Company's SMT mapping package and a decision was made to map all or parts of the Pedirka Basin based upon the gathered and loaded data.

Tri-Star Energy Company obtained all well data that intersects the Purni Formation and included the depths of the reported formation tops in the mapping package. Note was taken of formation lithology identification and descriptions. Petroleum wells were the most useful well-data source; as such, all government bores, mineral bores and water wells were investigated to confirm if they intersected the target coals.

Synthetic seismograms were created and used where possible from wells that have run a sonic log that are located in areas of interest. A digitized version of the sonic log were created or obtained to correlate with seismic SEG-Y data collected in the area of the well to correct seismic times to reflect actual depth of formations as indicated on the well logs. These allowed corrected SEG-Y times to make bulk-shifts and correlate all seismic lines of the basin resulting in mapping surfaces that are at the correct time/depth. This permitted computation of accurate depths of coal and coal subcrops within the basin to create maps to identify the areas of shallowest coal depths that may have the greatest coal mining potential. These areas were then targeted for more intensive exploration and possible field operations.

## **EXPLORATION ACTIVITIES CARRIED OUT ON THE RELINQUISHED AREA**

In this second year of work, we have studied a wide area of the central and north-western Pedirka Basin so as to establish the geological framework of the Purni Formation coals. However, no field activities were undertaken on EL 25245 during the annual reporting period ending 12 November 2008.

We have undertaken an intensive literature search to find all available information on the Pedirka Basin and its unit of interest. The literature contains less information on this part of the Pedirka Basin or any details about the Purni Formation and its coals in this region.

Tri-Star investigated available information on all drilling done in the Pedirka Basin and in the tenure area. It was found that no petroleum wells have been drilled in the central western Pedirka Basin and none in the area of EL 25245. Additionally, although various water bores have been drilled in the region and within the area of the tenure, no water bores were identified that were drilled deep enough to intersect the Purni Formation to provide any coal depth information. It was found that the water bores either had limited information available or only accessed the aquifers of the Eromanga Basin.

Tri-Star has developed a base map of existing seismic lines within the Pedirka Basin. The investigations during the reporting period determined that there are at least three separate seismic surveys from the 1960s and 1980s that have seismic lines occurring, at least in part, on the tenure. It appears that there may not be any seismic data available for many of these lines, including paper sections. Figure 5 provides a map of the available wells and seismic lines in the area of the tenure and the region in general.

The office-based activities that were commenced on EL 25245 during the reporting period contributed towards but did not complete a comprehensive evaluation of the potential of the permit area. Further work will be necessary to understand the coal potential of this tenure.

## REPORTS LODGED FOR EL 25245 DURING THE REPORTING PERIOD

An annual report for EL 25245 was lodged during the year ending 12 November 2008. Tri-Star Energy Company believes that there were no other reports that were required to be lodged during this period.

## CONCLUSIONS

Tri-Star Energy Company did not conduct any field operations on EL 25245 during the reporting period and all studies were office-based and conducted in Brisbane, Australia and Houston, Texas, USA.

A literature search found useful information on the Pedirka Basin but many of the reports did not relate to this region of the Pedirka Basin but to the central eastern and southern regions.

The study of all available geological and geophysical data from previous drilling (including water bores) and seismic acquisition found that there were no petroleum wells drilled on EL 25245 but that there were a number of seismic lines present. Seismic data for many of these seismic lines were not readily available and Tri-Star Energy Company has now instigated a comprehensive search in an attempt to find the seismic data to assist in the mapping of the coals. No useful information was found from the water bores drilled on the tenure as they were completed in Eromanga Basin aquifers and were too shallow to intersect the Purni Formation.

Further work would be required to determine the location and extent of the Permian coals of the Purni Formation. A mini-sosie geophysical survey would be required to provide the necessary information on the coals within EL 25245 and coreholes will be drilled to determine the nature of the north western updip limit of the coal

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