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EL 2672

MABEL CREEK

PARTIAL SURRENDER REPORT FOR THE PERIOD 3/12/99 TO 2/12/2000

Submitted by

Redfire Resources Ltd
2001

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PRIMARY INDUSTRIES AND RESOURCES SA

REDFIRE RESOURCES Ltd.
ACN 009 423 858

MABEL CREEK EL 2672 (OPAL)

PARTIAL SURRENDER REPORT

to 2 December 2000

Prepared for:
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January 2001

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1 INTRODUCTION

Exploration licence 2672 is part of a project targeted at locating and developing large-scale opal deposits within the Coober Pedy region of South Australia. This is the partial relinquishment report for this project, covering work carried out to 2 December 2000.

Project work to date includes compilation of geological and opal occurrence data, aerial photograph geological interpretations, Digital Terrain Modelling, and field reconnaissance of target areas. Native title negotiations have been commenced with public advertising of intention to explore, and initiation of discussion with claimants to reach an agreement in order to use ground disturbance exploration techniques.

2 LOCATION AND ACCESS

The licence is situated in central South Australia, approximately 900 kilometres north-west of Adelaide (see Figure 1). EL 2672 (non-reduced area) is fully contained within the Murlocoppie (SH 53-2) 1:250 000, and within the Mabel Creek (5740), and Algebullcullia (5840) 1:100 000 sheets.

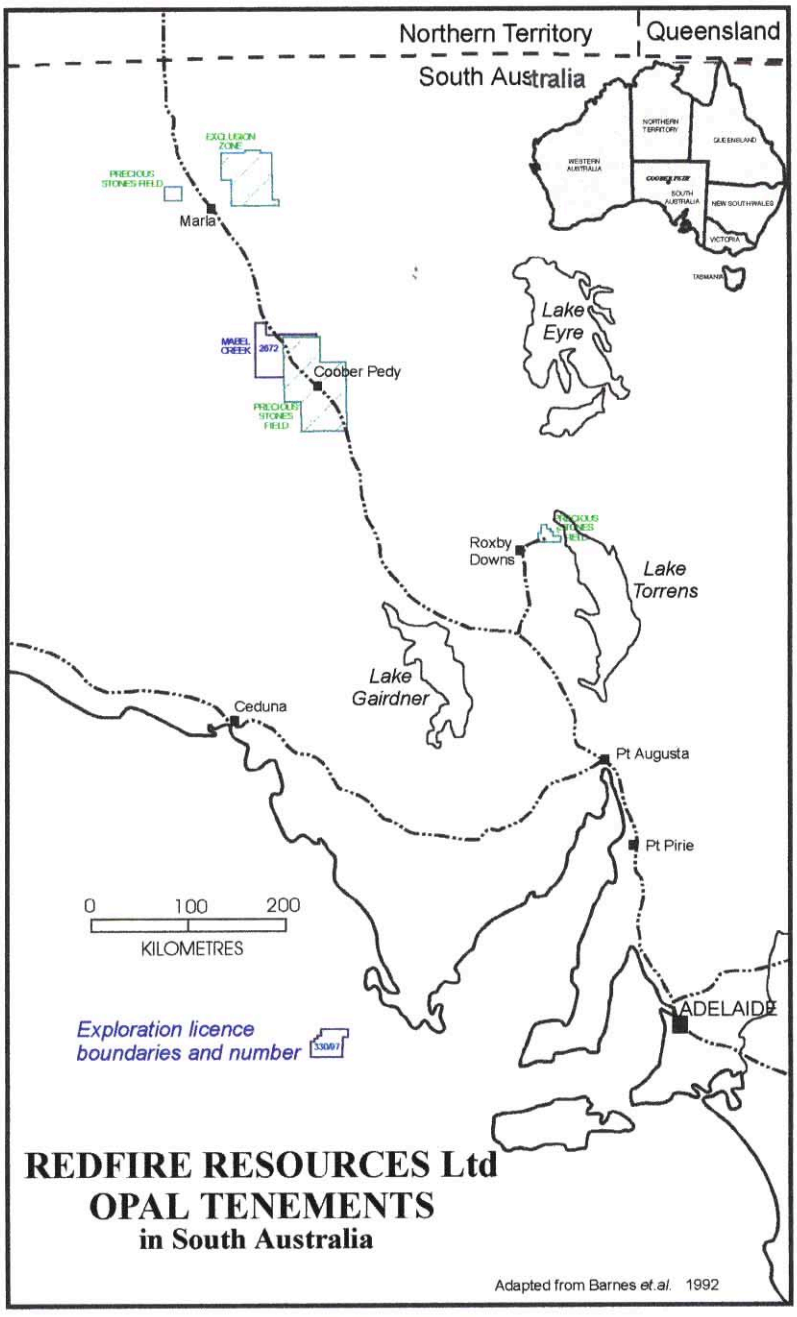


Figure 1.

Exploration licence 2672 is located approximately 55 kilometres north-west of the township of Coober Pedy, and is adjacent to the western margin of the Coober Pedy Precious Stones Field. Access to the project area is via the sealed Stuart Highway that traverses the north-eastern flank of the licence, or the old unsealed Stuart Highway that traverses the eastern portion of the licence. Further access to the remainder of the licence area is via station tracks and fence lines traversing the region.

3 LAND USE AND VEGETATION

The area is situated in an arid zone typical of central Australia. Rainfall is very low, averaging 150 mm per year, with temperatures quite high in the summer months (mean average for January above 35 degrees Celsius). All creeks are ephemeral, and no permanent surface water exists (water holes in major creeks often hold water throughout the year, however can dry out in drought years).

Vegetation is sparse upon the gently undulating gibber covered plains of the Stuart Range, being mostly grasses with few bushes and trees. The edge of the Stuart Range, characterised by the 'breakaway' country, lies within the most eastern portion of the licence. This is marked by an abrupt change in elevation (40 to 50 meters relative) over a short distance as numerous dissecting creeks drain eastwards off the escarpment.

Sheep and Cattle grazing are the main agricultural activities in the region, with the stations of Mt Willoughby, Mabel Creek, Mount Clarence and Giddi Giddinna included within the licence area.

4 TENEMENT

Exploration licence 2672 was granted to Redfire Resources Ltd on the 3 December 1999. This licence was renewed for a further 12 month period over a reduced tenement area comprising a 45% reduction (1363 square kilometres to 748 square kilometres) of the south western portion of the licence (see Figures 3 & 4).

5 NATIVE TITLE

There is a registered Native Title claim (SC 95/7 – Antakirinja) covering the areas of Exploration licence 2672. Under regulations within the Mining Act (1971), negotiations must be made with identified claimants in order to carry out ground disturbance operations. These Native Title proceedings are in progress, which has included public advertisement of intention to negotiate for right to explore (Part 9B, section 63M) in April 2000.

An agreement has been drafted in order to allow exploration to be carried out on the licences, with amendments being made in line with negotiations with the claimants.

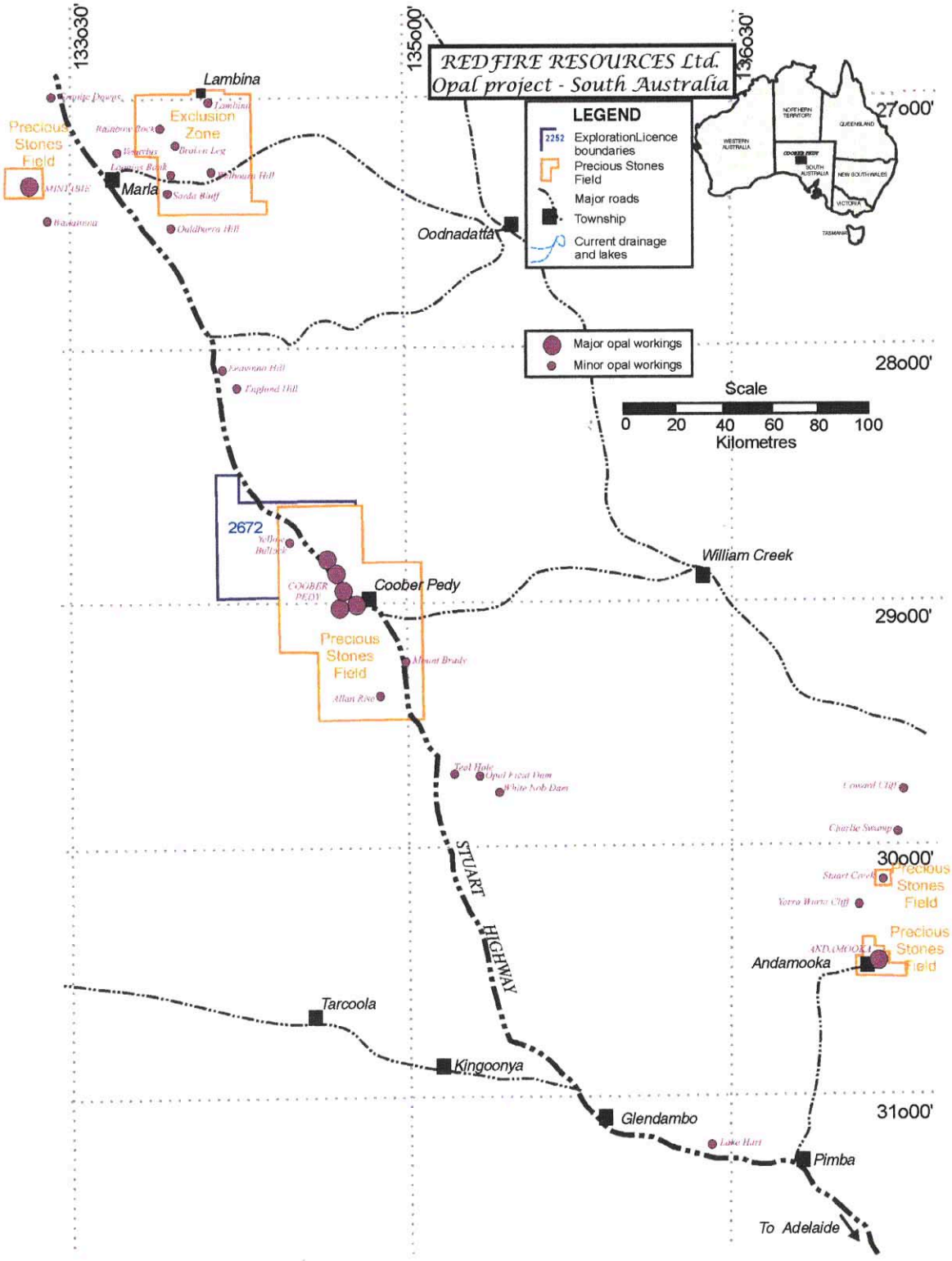
6 REGIONAL AND TENEMENT GEOLOGY

Within the Coober Pedy region, rocks vary in age from Archaean (granitoids and metasediments) at depth to recent alluvium and aeolian sand deposits at the surface. The

lithologies of interest for opal formation are Cretaceous (Bulldog Shale) to Tertiary (Russo Beds) in age, and are outcropping or thinly covered by latter Tertiary and Quaternary sediments along the eastern margin of the Stuart Range.

The Stuart Range (and extensions) trends in a general north-westerly direction extending from near Pt Augusta in the south, to past the Northern Territory border in the north. It encompasses the opal fields of Andamooka, Coober Pedy and Lambina (Seven Water Holes), as well as many smaller workings between these fields (Figure 2). The range is an elevated (40 to 50 metres relative) tableland characterised by an abrupt escarpment to the east (the 'breakaways'), and a gentle dipping slope towards the west. The range's western extent is covered by Quaternary aeolian sands characteristic of central Australia.

Figure 2.



All opal discovered in the Coober Pedy region has occurred within areas of the Stuart Range in a weathered marine shale unit (Bulldog Shale). Characteristically this deeply weathered unit forms bleached, porous, kaolonitic claystone (*miner's term - sandstone*) overlying unweathered darker, denser smectitic claystone (*miner's term - mud*). Precious and potch opal is mostly found as veins infilling cracks and joints and occasionally replacing fossils. These are usually found anywhere in the upper bleached zone, rarely in the lower claystone, and occasionally in the overlying red silts termed the Russo Beds (*miner's term - biscuit band*) as eroded fragments from veins in the lower Bulldog Shale.

In general, all areas of deeply weathered Bulldog Shale are prospective for opal formation. The most prospective areas for economical deposits will lie upon the Stuart Range where overlying Tertiary and Quaternary sediments, which become prevalent toward the west, are thin or absent. The area to the east of the Stuart Range is an erosional plain where the soft weathered Bulldog Shale has been removed leaving low potential for opal deposits.

7 PREVIOUS EXPLORATION AND MINING

Exploration licence 2672 is the first tenement to be granted for opal exploration over this area. No previous records for opal exploration exist for this tenement area.

Previous exploration for other commodities has focussed on base metals and coal within the Coober Pedy region. Relevant information for the relinquished area is summarised in Table 1, with drill results given in Appendix I.

Company	Year of drilling	Target Mineralisation	Envelope No.	Summary of operations
AFMECO	1981	Base Metals/ Uranium	3838	4 drill holes within the licence areas to depths of 205 m
BHP	1993, 1994	Base Metals	8647	3 drill holes within the licence area to depths of 296 m

8 TARGETS

Photogeological studies and Digital Terrain Modelling interpretations have identified prospective target zones within the licence area. The higher potential target zones have been retained within the remaining licence area, with only low potential for opal deposits existing within the relinquished area.

9 WORK COMPLETED to 2 December 2000

Work completed within the licence area for the first 12 month period includes:

- Literature reviews.

- Continuing research of information (unpublished) for the region from local opal miners.
- Aerial photograph geological interpretations.
- Digital Terrain Modelling.
- Drill hole research and interpretations.
- Field reconnaissance of licence areas (December 1999 & March 2000).
- Native Title proceedings initiated.

10 RESULTS

Literature reviews and research have not indicated that opal workings exist within the relinquished area.

Photointerpretations of the licence area has depicted geomorphological similarities to opal producing regions within the Coober Pedy Precious Stones Field (Figure 3). Field reconnaissance of this area did not locate opal workings or highly prospective areas for opal formation (intensely weathered shale with opal *floaters*). Any potential opal resources within the relinquished ground are 'blind' targets or 'hidden' deposits as they show no outcropping opal mineralisation, which is typical of the majority of located opal-producing sites within the state.

Digital Terrain Modelling (DTM) of the project area indicates a higher topographic region (higher portions of the Stuart Range) in the north of the relinquished area (Figure 4).

Drill hole research and modelling of Bulldog Shale intersections has shown that the Bulldog Shale is present throughout the licence area, and thickens to the north and north-east (Appendix I).

Field reconnaissance was carried out in order to check target zones generated by the remote geological interpretations. This was carried out by traversing the licence area utilising the existing public roads, and stopping at sites of good geological exposure to observe opal potential. No samples were collected during this survey.

An agreement between Redfire Resources Ltd and the Antakirinja Native Title claimants is currently being prepared and negotiated in order to carry out ground disturbance exploration operations.

11 CONCLUSIONS AND RECOMMENDATIONS

Photointerpretations, Digital Terrain Modelling, drill hole research and field reconnaissance of the licence areas indicates there is low potential for opal deposits in the relinquished licence area.

No further work for opal exploration is recommended within the relinquished ground.

Figure 3

REDFIRE RESOURCES Ltd.

Opals - South Australia

EL 2672

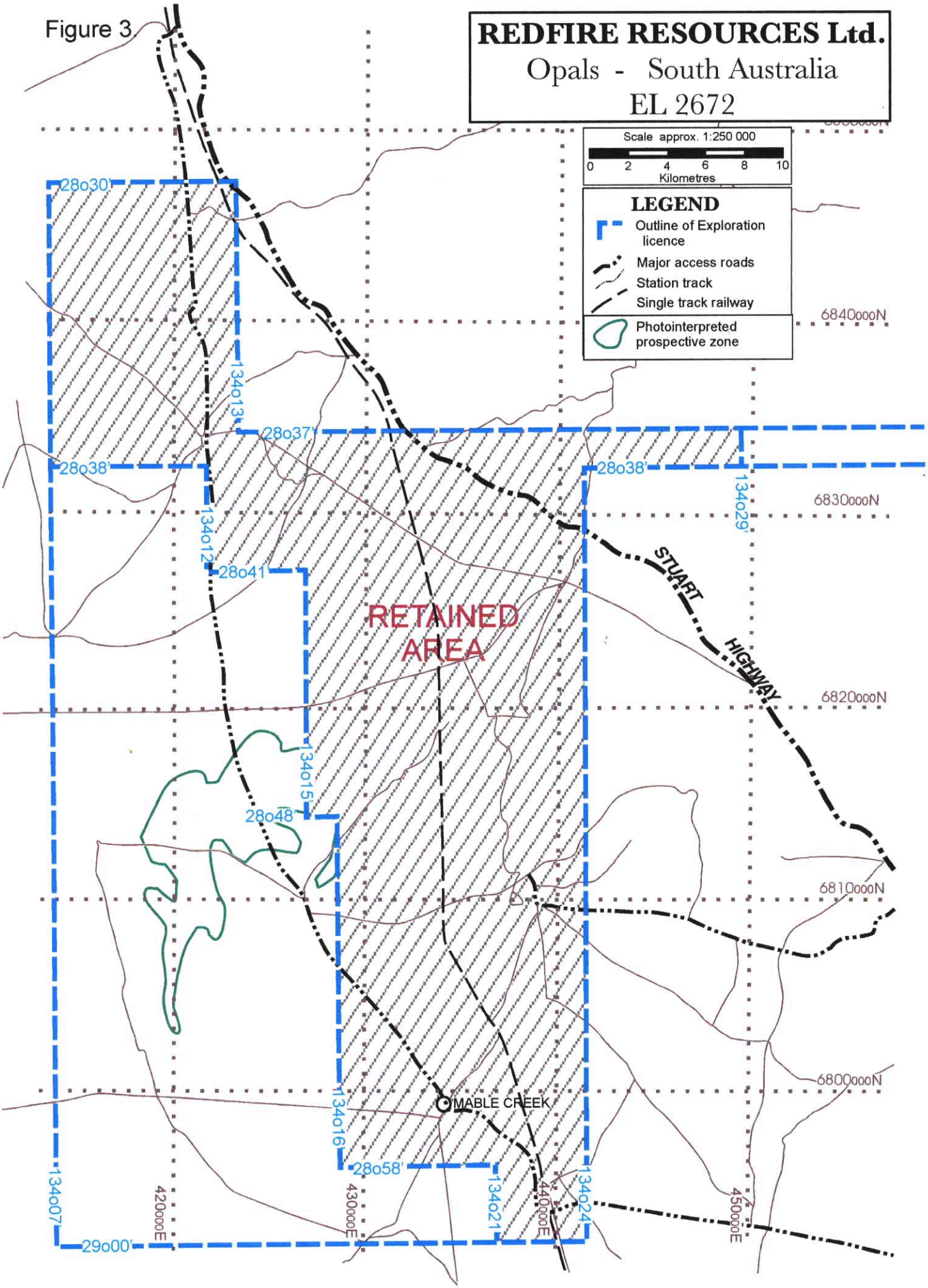
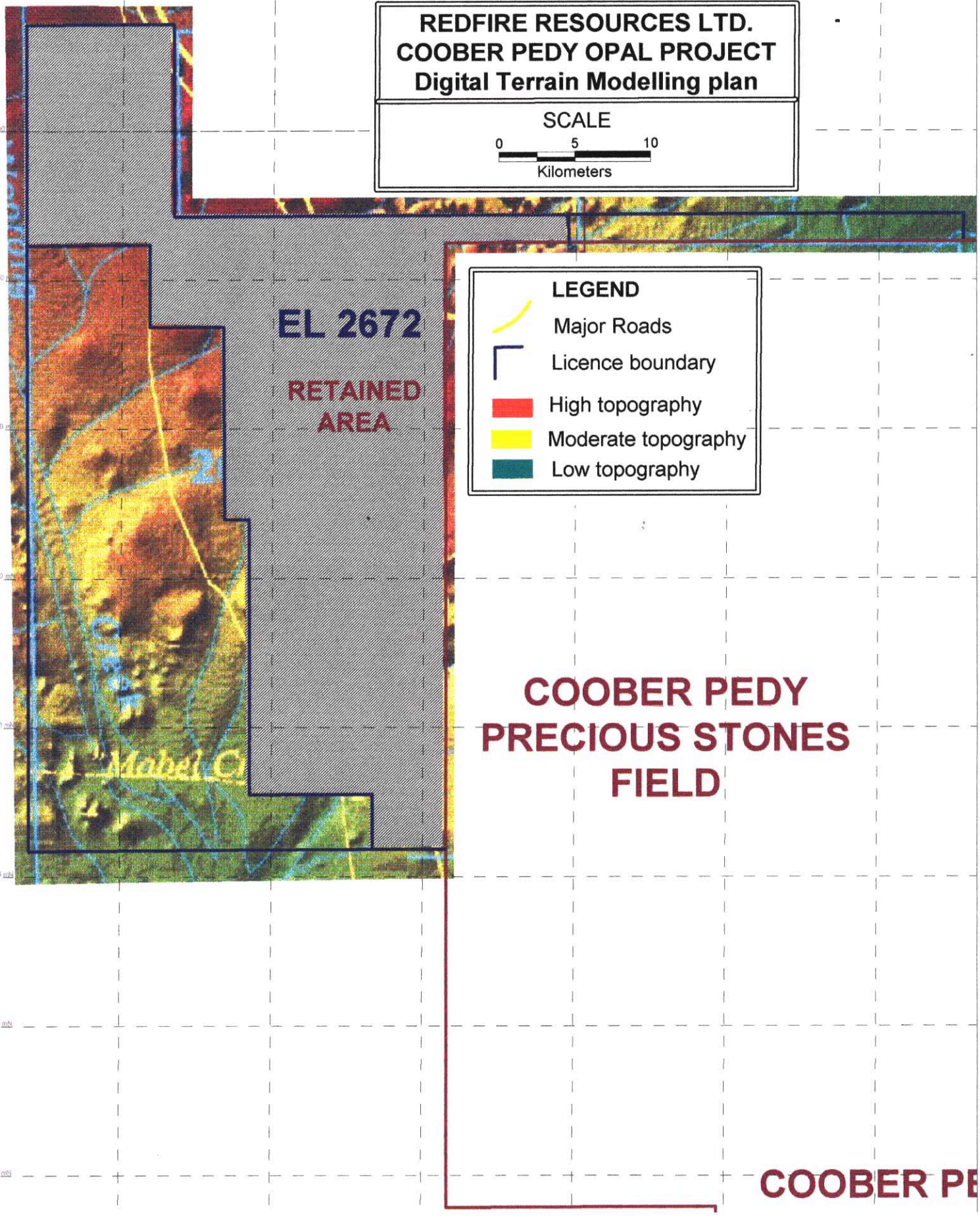
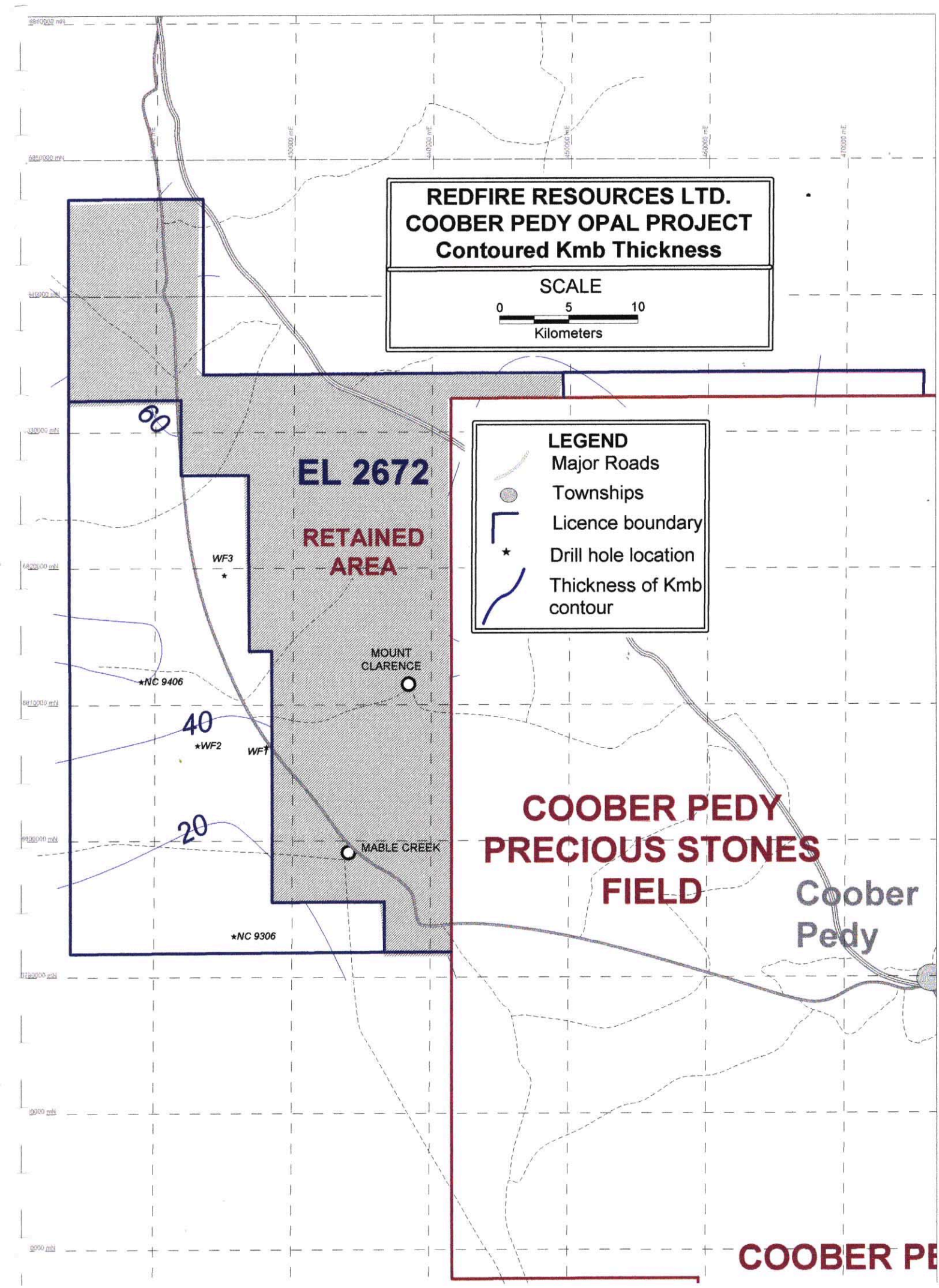


Figure 4.


REDFIRE RESOURCES LTD.
COOBER PEDY OPAL PROJECT
Digital Terrain Modelling plan
SCALE
0 5 10
Kilometers
LEGEND
Major Roads
Licence boundary
High topography
Moderate topography
Low topography
EL 2672
RETAINED AREA
COOBER PEDY
PRECIOUS STONES
FIELD
COOBER PE


REDFIRE RESOURCES LTD.
COOBER PEDY OPAL PROJECT
Contoured Kmb Thickness
SCALE
0 5 10
Kilometers
LEGEND
Major Roads
Townships
Licence boundary
Drill hole location
Thickness of Kmb contour
EL 2672
RETAINED AREA
60
40
20
WF3
WF2
WF1
NC 9406
NC 9306
MOUNT CLARENCE
MABLE CREEK
COOBER PEDY PRECIOUS STONES FIELD
Coober Pedy
COOBER PE

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APPENDIX I

Results of drill hole research

Appendix I Results of drill hole research

Information of previous drill holes performed within the licence area was carried out by researching open file reports available through the Primary Industries and Resources South Australia. This has resulted in the location of only 5 company drill holes within the relinquished licence area (excluding water bore data). The source of this data is located in the body of this report, with results of drilling tabulated below.

Using the available drill data in conjunction with data from the surrounding area, modelling of the thickness of the Bulldog Shale was carried out. The results of these interpretations indicate that the Bulldog Shale (target lithology for opal deposit exploration) is present throughout the relinquished licence area and thickens to the north and north-east within the licence (towards the Stuart Range escarpment).

Hole No.	AMG (E)	AMG (N)	Collar RL (m)	Azimuth	Dip	Total Depth (m)	Bulldog Shale	
							From (m)	To (m)
WF 1	428100	6806900	200.0	0	90	167.5	7.0	41.0
WF 2	423100	6807000	200.0	0	90	189.0	8.0	43.0
WF 3	425000	6819500	220.0	0	90	205.0	0.0	55.0
NC 9306	425800	6793000	200.0	0	90	296.0	None	
NC 9406	419000	6811720	210.0	0	90	273.0	0.0	64.0

AMG coordinates referenced to AGD66, which is within a 2 metre accuracy of AGD84. These locations have been copied and/or converted from lat/long coordinates where this information was available in the researched reports. Some holes were plotted from available plans onto gridded plans in order to get coordinate data, and are therefore less accurate.