MARGARET RIVER JOINT VENTURE
NORTHERN TERRITORY

FINAL REPORT
EXPLORATION LICENCE 8706

Covering The Period
7 September 1994
to
23 June 1999

Compiled by: P.J. Hogarth

Perth Western Australia
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Department of Mines and Energy, Darwin
Paladin Resources NL, Perth (2 copies)

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SUMMARY

Exploration Licence 8706 was explored for gold between September 1994 and June 1999. During this period the following exploration activities were undertaken:

- Geological mapping
- Rock chip sampling
- Soil sampling
- Stream sediment sampling
- Ground magnetic survey
- Acquisition and reprocessing of multi-client aeromagnetic data
- Collection of gravity data
- Shallow RAB drilling
- Percussion drilling (5 holes)
- Acquisition and digitising of historical exploration data.

The work was undertaken by the Licence holder, Paladin Resources NL, and Acacia Resources Ltd under the terms of a joint venture agreement.

Geochemical Exploration did not reveal any extensive anomalies although there are isolated gold values of interest (soil – up to 1250ppb). The one anomaly tested by five percussion drill holes returned results in the range 0.12ppm to 0.47ppm over 3-metre intervals.

Following withdrawal of Acacia from the joint venture the licence was relinquished in June 1999.
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1. Margaret River Joint Venture, Exploration Licences 8706 and 9162
2. Exploration Licence 8706, Exploration Index Map.

MAPS

1. Margaret River JV, EL's 9162 and 8706, Regional Geology.

APPENDIX

1. Digital Data (on 3.5" floppy disk inside back cover).
1. INTRODUCTION

Exploration Licence 8706 of 54 blocks was granted to Paladin Resources NL on 7 September 1994. The exploration target was gold mineralisation in quartz reefs or stockworks within carbonaceous and sulphitic units of the South Alligator Group.

Exploration was conducted by Paladin during the first year of tenure and was thereafter subject to a joint venture with Acacia Resources Ltd with Acacia acting as manager. Acacia withdrew from the joint venture on 11 June 1999. Following a review of exploration results Paladin relinquished the licence unconditionally on 23 June 1999.

This report is a record of all exploration activities carried out during the life of the licence. The location of individual work programmes on the licence are shown on Figure 2. Reference should be made to annual reports and partial relinquishment reports submitted during the term of the licence for details and tabulated results of individual programmes. All reports previously submitted to the Department of Mines and Energy in Darwin are listed in Section 10, References and all available digital data is enclosed as Appendix 1 (3.5 inch floppy disk inside back cover).

2. LOCATION AND ACCESS

Exploration Licence 8706 is located 30km north east of the Brocks Creek Mine and treatment facilities and approximately 45km east of the township of Adelaide River in the Northern Territory (Figure 1).

The licence area can be accessed via the Stuart Highway from Darwin, turning east along the Fountain Head Road 10km north of Hayes Creek. Follow the Fountain Head Road from the Stuart Highway approximately 30km to the Ban Ban Springs Homestead. The lease is accessed by turning east from the homestead, following station tracks a further 10km. Ban Ban Springs homestead is well signposted on the Stuart Highway North of Hayes Creek.

The licence areas fall within Ban Ban Springs and Mount Ringwood Station pastoral titles. Alternate access to the tenement can be gained from tracks leading east from the Mount Ringwood Station Homestead.

3. TENURE

Exploration Licence 8706 of 54 graticular blocks was granted to Paladin Resources NL on 7 September 1994. Table 2 below shows the history of the licence.

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<td>6 Sept 97</td>
<td>54*(1)</td>
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<td>6 Sept 98</td>
<td>43*(2)</td>
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<td>6 Sept 99</td>
<td>22</td>
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<td>14,743</td>
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</tbody>
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(1) Full waiver granted  
(2) Partial waiver granted
Figure 1 shows the blocks retained and surrendered during the life of EL8706. The licence was unconditionally relinquished on 23 June 1999.

4. REGIONAL SETTING

EL8706 is located in the central Pine Creek Geosyncline. The geosyncline contains Early Proterozoic metasedimentary rocks resting on a gneissic and granitic Archaean basement. The metasediments represent a preserved basinal sequence up to 14km thick (Needham et al., 1980). These rocks were tightly folded and metamorphosed to greenschist facies (in some places' amphibolite facies) at about 1890 to 1870 Ma (Ferguson, 1980).

The geosynclinal sequence is intruded by transitional igneous rocks including predeformational dolerite lopoliths and dykes, and post deformational granites. Largely undeformed platform cover of Middle and Late Proterozoic, Cambro-Ordovician and Mesozoic strata rest on these with marked unconformity.

EL8706 lies in the central part of a neck of metasediments, assigned to the South Alligator Group, which in the tenement has been intruded by the Margaret Granite. To the south west of the licence the Burnside Granite similarly intrudes rocks of the South Alligator Group. Surrounding the Burnside Granite are a number of gold mines including Acacia's Brocks Creek Gold Mine.

5. TENEMENT GEOLOGY AND MINERALISATION

EL8706 lies around the margins of the Margaret Granite and contains large areas of Early Proterozoic sediments (Taylor, 1995). The tenement is extensively covered by soil, with Burrell Creek (Pfb) and Mt Bonnie (Pso) Formations intruded by granitic rocks of the Margaret Granite (pgg). Minor hornfelsing is apparent around the Margaret Granite. In the eastern and south-eastern portion of the licence area, Quaternary alluvium (Qa) and deep humic soils (Qf) occur in low ground and along the Margaret River. (Map 1)

Reconnaissance mapping reported by Paladin noted that "metasediments intruded by the Margaret Granite consisted mainly of Burrell Creek Formation (north, east and south of the granite), but also of Gerowie Tuff and Mt Bonnie Formation south west of the granite." (Bout, 1995). Gerowie Tuff comprises chert/tuff and siltstones and greywackes. Carbonaceous shales are present at the faulted, unconformable contact of Burrell Creek and Mt Bonnie Formations in the south of the tenement.

Quartz veining is not abundant throughout the eastern and northern portions of the licence. Quartz veins are, however, abundant in the south western portion of the tenement where sediments outcrop more regularly, across mapped anticlinal features. Lithologies mapped in this area suggest that the cores of the anticlines are Mt Bonnie and Gerowie Tuff units.

There are no known gold workings in the tenement. A nearby tin prospect lies NE of Ban Ban Springs Station Homestead, to the south of the tenement.
6. PREVIOUS WORK

Systematic research has not been undertaken to establish what work, if any, has previously been carried out on the ground. Paladin does not possess reports or records of any previous work and the writer does not have access to information necessary to establish what previous tenure if any may have existed over the ground. As already noted there are no known gold or other workings in the licence area.

7. INVESTIGATIONS UNDERTAKEN DURING THE PERIOD OF TENURE

7.1 Paladin Resources NL, 1994-95

7.1.1 Airborne Magnetics

High resolution multi-client aeromagnetic data, covering the tenement and surrounding areas, was purchased from World Geoscience. The survey was flown by Aerodata Holdings Ltd during the period December 1987-March 1988. The data was used to provide an in-house interpretation of the physical structure in geology of the area.

7.1.2 Geological Mapping

Reconnaissance geological mapping was undertaken in October 1994 at a scale of 1:25,000. The mapping covered the metamorphic sediments surrounding the Margaret Granite and was, where possible, carried out along east-west traverses in order to intersect potentially mineralised folds trending northwest to north.

A total of 124 rock chip samples were taken during the reconnaissance phase of the mapping.

More detailed mapping was carried out in June 1995 on the gridded area in the southwest of the licence area. Mapping was carried out both to separate areas of outcrop / subcrop from black soil plains and establish some geological control over the gridded area.

7.1.3 Stream Sediment Sampling

As part of the field work in October 1994, 108 stream sediment samples were taken during mapping. The samples were all -200 mesh fraction, sieved on site. Only one sample proved anomalous (48ppb).

7.1.4 Survey Gridding

52.4kms of gridding using wooden grid pegs at 200m or 400m line spacing was laid in. The base line trends at 319°, 5.2km in length and was put in using steel droppers. Cross lines at the northern, more prospective end of the grid are 200m apart and those south of 11200N are 400m apart. Cross lines vary in length from 500m to 3.2kms.
An additional peg placed along the base line resulted in all cross lines north of 13200N to be 50m further to the north than they were planned to be. A GPS reading at 10,000N / 10,000E read 85212901N / 777900E.

7.1.5 Ground Magnetics

A ground magnetic survey was carried out over the gridded area, readings were taken at 5m spacings.

7.1.6 Soil Sampling

Soil sampling was carried out over areas of outcrop, subcrop and residual soil. Samples were taken at 200m x 40m and 400m x 40m spacing along the cross lines. All the samples were sieved through #45 mesh. A total of 781 samples were taken and sent to Assaycorp for fire assay. Initial mapping and rock chip sampling carried out in the area suggested that the soil geochemistry should show good gold anomalism across much of the areas covered with outcrop. Unfortunately, this has proven to be less than expected with only one clear narrow corridor of anomalism detected. Anomalous Au in the order of 50ppb has been detected along at trend of approximately 300° over a distance of 800m between 14850N and 14200N. A second minor anomaly occurs to the south.

7.1.7 RAB and Percussion Drilling

A total of 215 RAB holes (BYR01-215) for 1169m and 5 percussion holes (BYR216-220) for 200m were drilled by Stadcote Pty Ltd of Tennant Creek using a Edson 2000 drill rig.

A composite one metre bottom hole sample were taken from the RAB holes and at 3m intervals down the hole on the percussion holes for a total of 293 samples. A cross-section through the five percussion holes is shown in Figure 3.

7.1.8 Geochemistry

All samples were sent to Assaycorp of Pine Creek for gold analysis using the fire assay method with a detection limit of 0.001ppm.

7.2 Acacia Resources Ltd 1995-96

7.2.1 Compilation of Previous Explorers

All mapping, soil, rock chip, stream, RAB and RC drill sampling and remote sensed data from the previous explorers was entered into Acacia’s MAPinfo GIS database.

The data, highlighted the prospectivity of the Buffalo Yard area. The area containing ferruginous quartz veins, returning values up to 2.02ppm Au, and anomalous geochemistry over an 8km north-west trending zone. Soil/RAB geochemistry had tested only a 2km strike of the anomalous zone, therefore
the area was defined as a high priority target for continued exploration within the tenement.

7.2.2 Gridding and Geological Traversing

A total of 10 line kilometres of cross line griddng was re-established from Paladin Resources, Buffalo Yard Grid. The gridding traversed an area of black soil plains. The surveyed grid baseline was orientated at 319° (magnetic), and covers the south western portion of the licence area.

The grid was marked with wooden pegs on a 200m x 50m spacing.

Geological traverses were completed across the grid lines, over known outcrops of the Burrell Creek and Mt Bonnie Formations.

7.2.3 Soil Sampling and Results

202 soil samples were collected by either power auger or RAB from the gridded area. Samples were collected every 25m along 200m spaced grid lines. Samples were 1.5-2kg in weight, of ~5mm sieved B2 – C horizon soil. A total of 202 samples were submitted for assay, including 8 standards.

The samples collected were dispatched to Assaycorp Ltd in Pine Creek and analysed for low level Au by 50g fire assay and Cu, Pb, Zn and As by AAS.

7.3 Acacia Resources Ltd 1996-97

Work carried out in EL8706 in this reporting period included:

- Purchase of multi-client aeromagnetic (digital data) from WGC, Perth, covering the western portion of the tenement.

- Ongoing acquisition and integration of historical data into Acacia Resources’ MapInfo GIS database system.

- Survey of an 4.4km extension of Acacia Resources Regional Baseline by Airesearch Mapping of Darwin through the tenement.

- 20 line km of cross line gridding to the east of the new regional baseline extension at 400m line spacing.

- 6 line km of infill gridding to 200m spaced lines along portions of the Buffalo Yard grid in the SW corner of the tenement.

- In total 1533m of shallow posthole RAB geochemical drilling, and soil sampling utilising a mechanical auger was completed along grid lines, concentrating on the folded and faulted Burrell Creek Formation on the southern side of the Margaret Granite.
• 380 samples, including 10 standards and 2 duplicates were collected from the posthole work, and 11 samples, including 1 standard were collected from the auger work and dispatched to Assaycorp Laboratories, Pine Creek for low level gold assay and base metal analysis (As, Ag, Cu, Pb and Zn).

7.4 Acacia Resources Ltd, 1997-98

Work carried out in EL8706 in this reporting period included:

• 22 rock chips were collected and dispatched to Assaycorp in Pine Creek for low level gold analysis and selected base metal analysis (As, Cu, Pb, Zn).

• Aeromagnetic data was merged with other datasets and regridded in more detail to prepare for a more detailed interpretation of the geology.

• 20 gravity measurements were taken as part of an Honours thesis through the University of Tasmania. Acacia provided all logistical support for the programme. The measurements were taken with a Worden type gravity metre (scale constant 0.137), and tied to several regional base stations with loop times of 2 to 5 hours. The raw data was Bouguer and free air corrected (assuming Bouguer density of 2.67g/cm³). No terrain correction was used, and locations were established with a DGPS to ~10cm accuracy. The data was modelled in conjunction with aeromagnetics, but the results are currently under a confidentiality arrangement.

7.5 Acacia Resources Ltd 1998-99

In the period September 1998 to June 1999 Acacia continued regional studies and interpretation of geological and geophysical data to identify targets for further investigation. Some time was spent in the field by geological staff on ground familiarisation, but no surveys, mapping or sample collection took place. Acacia elected to withdraw from the project in early June 1999.

8. REHABILITATION

With the exception of the first year of the licence all field work in EL8706 has been managed by Acacia Resources Ltd.

Acacia’s annual report list the following rehabilitation activities:

• Sample sites repaired immediately after sampling. Auger holes were filled and RAB holes plugged and covered with soil.

• Existing tracks used – no new tracks constructed.

• No earthmoving operations.

• Fly camp sites restored to condition upon entry.

Some grid markers (star pickets / galvanised fence droppers) have been left in place so that the grid can be re-established if required.
9. EXPENDITURE

MARGARET RIVER JOINT VENTURE
EXPLORATION LICENCE 8706
EXPENDITURE HISTORY

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Total          | 116,446 | 23,815  | 59,248  | 27,175  | 14,743  | 241,427  |

10 REFERENCES

Becker, E.; 1996; Internal Paladin Report on Summary of Exploration Work Central Pine Creek Project, on EL's 8706 and 9126. Acacia ref. 08.7980.


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Clark, H.; 1997; Brocks Creek Project, Margaret River JV; Exploration Licence 8706 – Stallion; Partial Relinquishment Report. Acacia ref. 08.8943.


Martin, N.; Margaret River JV Project, 2nd Group Annual Report for EL8706 (Stallion) and EL9162 (Mare) for the Year Ended 6th September 1998 (EL8706) and 4th July 1998 (EL9162). Acacia ref. 08.9641.

Spurway, C.; 1996; Second Annual Report for EL8706, for the Year Ended 7th September 1996. Acacia ref. 08.8413.

Stephens, D.; 1998; Brocks Creek Project, Margaret River JV; Exploration Licence 8706 – Stallion; Partial Relinquishment Report. Acacia ref. 08.10017.

Stream sediment and scattered rock chip samples were collected throughout the licence.

- Shallow RAB 1997
- Soil 1996
- Ground magnetometer 1994-95
- Rock chip 1994-95
- Soil 1994-95
- Shallow RAB 1994-95
- Percussion drilling 1994-95 (5 holes)
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