EDEN CREEK Pty Ltd

EXPLORATION LICENCE 8211
CHILLING CREEK
LITCHFIELD PROJECT
NORTHERN TERRITORY

FINAL REPORT

Covering the Period
26 October 1993
to
25 October 1999

Compiled By P J Hogarth

January 2000

Distribution
☐ Department of Mines and Energy, Darwin
☐ Paladin Resources NL (2)

Accession No: 1837
20 January, 2000

Ms Diana Miranda
Mining Registrar
Department of Mines and Energy
Centrepoint Tower
Smith Street Mall
DARWIN  NT  0800

Dear Ms Miranda,

EXPLORATION LICENCE 8211 – FINAL REPORT

We enclose a final report for Exploration Licence 8211 in the Daly River locality of the Northern Territory. The licence expired on its sixth anniversary on 25 October 1999.

A disk containing all available digital data for the licence is enclosed in a pocket in the back of the report.

A statement of expenditure for the final twelve-month term of the licence is attached to this letter together with a metadata form.

We confirm that rehabilitation of sampling and drilling sites has been completed. An existing track was used to gain access to the site. This was subject to minor earthworks to allow access for a drilling rig in 1997 and has otherwise been left as found. Some steel grid markers have been left in place to allow re-establishment of the drilling grid if required.

Please contact me if you require further information about this report.

Yours sincerely,
Paladin Resources NL

[Signature]

PADDY HOGARTH
Tenement Manager

Encl.
SUMMARY

Exploration Licence 8211 was explored for gold between October 1993 and October 1999. During this period the following exploration activities were undertaken:

- Acquisition and reprocessing of NTDME aeromagnetic data
- Geological mapping
- Rock chip sampling
- Soil sampling
- Stream sediment sampling
- Ground magnetic survey
- Trenching
- Reverse circulation drilling

The work was undertaken by Paladin Resources NL, parent company of the licence holder, Eden Creek Pty Ltd.

Encouraging gold values observed in surface sampling were not repeated in reverse circulation drilling. Best results from the five holes drilled were 0.61 g/t over three metres (CCRC-02, 78-81m), 0.37 g/t over six metres (CCRC-03, 18-24m) and 0.35 g/t over three metres (CCRC-04, 42-45m).

As results were not sufficiently encouraging and no targets were identified for further exploration, renewal of the licence was not sought beyond its sixth anniversary on 25 October 1999 and the licence duly expired on that date.
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3.5 inch disk in pocket inside back cover
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1. INTRODUCTION

Exploration Licence 8211 in the Daly River locality (Figure 1) was granted to Eden Creek Pty Ltd on 26 October 1993. Eden Creek Pty Ltd was subsequently acquired by Paladin Resources NL (Paladin) as a wholly owned subsidiary and exploration of the licence has been managed by Paladin as the Litchfield Project. The exploration target within the area was structurally controlled gold ore bodies in the vicinity of the Giants Reef Fault which transects the licence area.

The licence reached its expiry date on its sixth anniversary on 25 October 1999. Follow-up RC drilling of gold-in-soil anomalies had been disappointing with the highest gold value encountered by drilling being 0.61 ppm. There were no clear targets in EL 8211 for further exploration. Over the six-year term of the licence there had also been a significant fall in the world gold price and, as a consequence, a substantial downturn in investor interest in gold exploration. Accordingly it was decided not to seek renewal of the licence beyond 25 October 1999.

This report is a record of all exploration activities carried out during the life of the licence. The locations of individual work programmes are shown in 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 8, References. Sampling, drilling and ground magnetic data has not been included in printed form in this report, but all available data is provided in digital form as Microsoft Excel files in Appendix 1 (3.5 inch floppy disk inside back cover). A list of the files is included as a cover page to the Appendix.

2 LOCATION AND ACCESS

Exploration Licence 8211 was located 150 kilometres south of Darwin at the western edge of the Pine Creek Geosyncline on the Daly River 1:100,000 Map Sheet. Access from Darwin is by the Stuart Highway to Adelaide River, then west and south along the Daly River Road to the Daly River Crossing. The northern boundary of EL 8211 was about half a kilometre south of the Crossing and the Chilling Creek anomaly is about seven kilometres south of the crossing, accessible by bush tracks (Figure 1).

3. TENURE

Exploration Licence 8211 of 28 graticular blocks was granted to Eden Creek Pty Ltd on 26 October 1993. The area of the licence was progressively reduced over its life in accordance with the terms of the Northern Territory Mining Act. Table 1 on the following page shows the history of the licence and the areas progressively relinquished are shown in Figure 3.
4. GEOLOGY

EL 8211 sits west of the contact between the Litchfield Province and the western side of the Pine Creek Geosyncline. Archaean Litchfield Province amphibolite-grade rocks of the Hermit Creek Metamorphics are interpreted to be located immediately to the east of the tenement. The tenement itself is dominated by the lower Proterozoic Finnis River Group of the Pine Creek Geosyncline sequence.

The Finnis River Group consists predominantly of Burrell Creek Formation low metamorphic grade flyschoid metasediments with the felsic Mulluk Mulluk Volcanics at the base of the sequence restricted to the north west of the tenement (Figure 4). The upper unit of the Finnis River Group is composed of the Chilling Sandstone, a cross-bedded siliceous quartz arenite which forms a syncline at the central western edge of EL 8211. The unconformably overlying Carpentarian sediments are comprised of the Depot Creek and Stray Creek Sandstones of the Tolmer Group.

The clastic sediments of the Finnis River Group are tightly folded into north-south anticlines and synclines. Metamorphism reached greenschist facies. A major north-northeast trending fault system, of which the Giants Reef fault is the most prominent structure, cuts the tenement together with north-east and north-west trending secondary faults and shears.

Post tectonic granites occur to the south of the EL.

Locally, the Chilling Creek Area in the eastern part of the tenement is dominated by siliceous sheared greywacke and strongly foliated shale of the Burrell Creek Formation. The strike of the geology varies between 005° and 020° and is dipping 70-80° to the west.
5. **TARGETS**

The main targets within the licence were structurally controlled gold ore bodies hosted in shale, greywacke, sandstone or conglomerate sequences as in the Goodall, Wolwonga, Union Reef, Mt Todd and other mines in the Pine Creek Geosyncline.

Locally this type of gold mineralisation occurs east of the Giants Reef Fault just inside the eastern boundary of EL 8211 at the Chilling Creek anomaly (*Figure 4*). The anomaly is defined by a central soil anomaly outlining an area of 400 x 100 metres with greater than 20 ppb gold peaking at 150 ppb gold in soil. Spotty low order soil anomalies extend to the north and south along the north-northeast strike of the structure.

The soil anomaly is sourced by weakly ferruginous quartz veins in fractured greywackes and sheared slates of the Burrell Creek Formation. Composite rock chip samples assayed between 0.2 and 17.0 ppm gold.

6. **INVESTIGATIONS 1993-1999**

Table 2 summarises all the exploration operations undertaken on Exploration Licence 8211 from its date of grant in October 1997 to expiry in October 1999. Details of annual work programmes are given following Table 2.

<table>
<thead>
<tr>
<th>TABLE 2</th>
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<tbody>
<tr>
<td>EXPLORATION LICENCE 8211, EXPLORATION STATISTICS</td>
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<tr>
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<tr>
<td>1:25,000</td>
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<td>13.5 km²</td>
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<tr>
<td>Rock Chip Sampling</td>
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<td>Soil Sampling</td>
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<tr>
<td>Stream Sediment Sampling</td>
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<td>Reverse Circulation Drilling</td>
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<td>Drill Samples</td>
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<td>Trenching</td>
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<td>Trench Samples</td>
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<td>Ground Magnetic Survey</td>
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<tr>
<td>Rehabilitation</td>
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</tbody>
</table>
6.1 1993-94

Airborne Magnetics
Aeromagnetic data covering the 1:100,000 map area was purchased and processed by Exploration Computer Services in Perth, Western Australia. The survey was flown by Aerodata Holdings Ltd in 1985 for the Northern Territory Department of Mines and Energy with a line spacing of 500 metres. The data was used to provide an in-house interpretation of the geological structure within EIL 8211 and the surrounding area.

Geological Mapping
The Chilling Creek ridge on the eastern edge of the licence and the Twin Peaks area in the northern part of the licence were mapped at a scale of 1:25,000 (Figure 4).

Rock Chip Sampling
46 rock chip samples (No's 201-246) were collected at random points in the course of geological mapping (Map 1 and Figure 7).

Grid Survey
A topographic marker on the eastern boundary of the licence was selected as the start point for a local grid and given local grid co-ordinates 10,000 mN, 10,000 mE. AMG co-ordinates for the start point are 8,473,710 mN, 683,770 mE. From there a baseline was laid on a bearing of 190 degrees (magnetic) for a distance of 4,200 metres and 22 cross lines of varying length surveyed at 200 metre intervals. A compass and chain was used by Paladin personnel to lay out the grid.

Soil Sampling
An orientation survey comprising 50 soil samples (No's 1-50) was carried out in the Chilling Creek ridge area (Figure 8). Five different size fractions were collected at each point. These were: Bulk, -1.6mm, -15+40#, -40+120# and -120#. The -1.6mm fraction was submitted for BLEG analysis and the other fractions were assayed for gold by aqua regia / AAS. The results were inconclusive and the -1.6mm fraction was adopted for the remainder of the survey.

391 samples (No's 1001-1300 and 314-404) were collected along the 200 metre spaced cross lines of the Chilling Creek Ridge grid at 50 metre intervals on the cross lines. The samples were collected from hand-dug holes about 20 centimetres deep (Figure 9).

13 samples (No's 301-313) were collected at 40 metre intervals along a line to test a north-south aeromagnetic ridge south of the Twin Peaks (Figure 9).

Stream Sediment Sampling
18 samples (No's 101-118) were collected in an orientation survey carried out in the Chilling Creek Ridge area (Figure 10). Three size fractions were collected at each point. These were: -1.6mm, -120+200# and -200#. The -
1.6mm fraction was submitted for BLEG analysis and the other fractions were assayed for gold by aqua regia / AAS.

Five -200# samples (No's 405-409) were collected from creeks draining the Mulluck Mulluck Volcanics (Twin Peak Hills) in the northern part of the licence (Figure 10).

**Geochemistry**
The rock chip, soil and stream sediment samples were submitted to Australian Laboratory Services Pty Ltd in Alice Springs for gold analysis using method PM 205 (aqua regia / AAS).

### 6.2 1994-95

**Geological Mapping**
Geological mapping at a scale of 1:5,000 was carried out over the Chilling Creek anomaly (Figure 5).

**Rock Chip Sampling**
52 rock chip samples (No's 247-284 and 849-862) were collected at random points in the course of geological mapping (Map 1).

**Soil Sampling**
248 samples (No's 801-848, 1301-1400 and 1501-1600) were collected on the Chilling Creek grid, closing the sample interval over the central part of the grid to 100 x 25 metres (Figure 9).

**Stream Sediment Sampling**
Seven samples (No's 865-871) were collected in the Chilling Creek locality (Figure 10).

**Geochemistry**
All rock chip, soil and stream sediment samples were submitted to Assaycorp in Alice Springs for gold analysis.

**Ground Magnetic Survey**
A ground magnetic survey was conducted on the local grid by consultant Doug Barrett and Associates using two Geometrics G-856 magnetometers, one acting as a base station for diurnal correction. Readings were taken at 5 metre intervals on lines 100 metres apart from 6,800 mN to 8,400 mN. Ground magnetic contours are shown in Figure 11.
6.3 1995-96

Geological Mapping
A 2.5 hectare area covering the Chilling Creek soil anomaly from 7,550 mN to 7,850 mN on the local grid was mapped in detail at a scale of 1:1,000 (Figure 6).

Rock Chip Sampling
The Chilling Creek soil anomaly was systematically sampled from 7,600 mN to 7,800 mN on the local grid. 117 rock chip samples (No's 901-1000 and 2001-2017) were collected, each over a 5 x 5 metre area at 5 metre intervals on 20 metre spaced lines (Map 1).

Five rock chip samples (2018-2022) were collected in the locality of a weak soil anomaly at the southern end of the grid (Map 1)

Geochemistry
The rock chip samples were submitted to Assaycorp in Pine Creek for gold analysis using method FA50 with a detection limit of 0.01 ppm.

6.4 1996-97

Rock Chip Sampling
The area that had been systematically sampled the previous year was extended east-west and north-south along the grid. 245 composite samples (No's 2023-92, 2101-50, 2158-70, 2178-85, 2191-2284 and 2291-2300) were collected, each over a 5 x 5 metre area at 5 metre intervals. The total area sampled in this way was extended to 350 x 100 metres (Map 1).

Trenching
Three shallow trenches were excavated by pushing off topsoil and scree to expose underlying bedrock. Each trench was 35 metres long and was sampled for rock chips continuously over 5 metre intervals for a total of 19 samples (No's 2151-2157, 2171-2177 and 2186-2190) (Figures 12 and 13).

Reverse Circulation Drilling
Five RC holes for a total of 470 metres were drilled in October 1997. The drilling rig was supplied and operated by Gaden Drilling. All holes were drilled towards grid east, four angled at 60 degrees and one at 70 degrees. Hole depths varied between 80 and 105 metres. Table 3 on the next page summarises details of the drill holes, their locations are shown in Figure 12 and cross-sections of the two lines drilled are shown in Figures 14 and 15.
### TABLE 3
EXPLORATION LICENCE 8211, REVERSE CIRCULATION DRILL HOLES

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>E</th>
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</table>

Samples were split and bagged in one-metre intervals. 155 three-metre composite samples (No's 2501-2655) were prepared and submitted for analysis.

**Geochemistry**

155 three-metre composite drill samples were submitted to Assaycorp in Pine Creek for gold analysis with a detection limit of 1 ppb Au.

6.5 1997-98

Other than rehabilitation of drill sites and other disturbed areas there was no field activity in EL 8211 during the 1997-98 exploration year. Work concentrated on analysis and interpretation of data collected over the previous four years.

6.6 1998-99

There was no exploration activity undertaken on EL 8211 in 1998-99 and the decision was made not to seek renewal of the licence at the end of the year.

7. REHABILITATION

Two of the three trenches that were excavated were backfilled and levelled as soon as sampling had been completed in October 1997. The third trench was left temporarily as a drilling site and rehabilitated with the other drill sites at the end of July 1998.

In compliance with the guidelines set down by the Department of Mines & Energy, the following activities were carried out:

- All sampling equipment and materials were removed from site;
- Drill holes were plugged 0.5 m below ground level and covered with topsoil;
- Samples were spread over the drill site so as to promote natural re-vegetation;
- The site was left in a tidy condition.
8. REFERENCES

Annual reports


Note: An annual report was not prepared for 1998-99 as no work was undertaken in that period and the licence expired at the end of the period.

Partial Relinquishment Reports


PALADIN RESOURCES N.L.
LITCHFIELD PROJECT, N.T.
PORTION OF EL 8211

GROUND MAGNETIC CONTOURS
CONTOUR INTERVAL 2 nT

Profiles filtered with a 5 point triangular filter.
Grid filtered with a 10 x 10 m matrix smoothing filter.
Grid cell size 20 m.

SCALE

0 100 200 300 400 metres

FIGURE No. 11
APPENDIX 1

DIGITAL DATA

Contents

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