ACACIA RESOURCES LIMITED

1996 FIRST ANNUAL REPORT FOR
EXPLORATION ON

EL 8612 - MT MABEL

VOLUME 1 OF 1

Author: R J Squire
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Original: NT Dept. of Mines and Energy
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SUMMARY

Work within Exploration Licence 8612 comprised compilation of previous explorers’ data and a site reconnaissance visit. Part of the compilation involved importing the geological, geophysical and geochemical data into Mapinfo to enable more efficient interpretation. An Authority Certificate was received from the Aboriginal Areas Protection Authority (AAPA) and identified no sacred sites within EL 8612.
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Appendix 1.0 Environmental Register
1.0 INTRODUCTION

1.1 Tenement Status

Exploration Licence 8612 was granted to Acacia Resources Limited (Acacia) on the 29th of August 1995 for a period of six years (Figure 1.1.1). The tenement forms part of the Mt Fitch Joint Venture between Compass Resources N.L., Guardian Resources N.L. and Acacia; Acacia is the current manager of the joint venture. This report covers all work carried out and results received by Acacia Resources between the 29th of August 1995 and the 28th of August 1996.

1.2 Location and Access

EL 8612 is situated approximately 15 km SW of the Batchelor township, approximately 90 km south of Darwin (Figure 1.1.1).

Access to the tenement is via sealed roads to Batchelor and then via sealed roads towards Litchfield National before heading south along several fire tracks property boundary fences.

1.3 Physiography

The EL consists mainly of an undulating to flat landscape which drains into the Finniss River. Vegetation consists mainly of medium sized gums and a grassy understorey. Small patches of rain forest occur around semi-permanent water holes in major drainages.

Average rainfall for the area is 1456 mm/year, nearly all of which falls between the months of November and March. The area is largely inaccessible during these months.
2.0 REGIONAL GEOLOGY

2.1 Regional Geology

Exploration Licence 8612 is situated in the Rum Jungle Region of the Pine Creek Geosyncline (Figure 2.1.1) on the southwestern edge of the Waterhouse basement Complex (Ahmad, et al., 1993). The oval-shaped complex consist predominantly of granite, granodiorite, quartz-monzonite, quartz-monzodiorite and rare tonalite and monzonite, and are unconformably overlain by the Early Proterozoic Geosynclinal Sequence (Ahmad, et al., 1993).

Outcropping Crater Formation almost completely surrounds the Rum Jungle and Waterhouse Complexes, and probably conformably overlies the Namoona Group sediments (Nicholson, et al., 1994). The Crater Formation (up to 600m thick) forms the basal sequence of the Mt Partridge Group and comprises two major arenaceous and rudaceous sequences, separated by an 18 to 60m thick shale band (Ahmad, et al., 1993). The Coomalie Dolomite conformably overlies the Crater formation and has a reported maximum thickness of 1000m in the Embayment area (Paterson, et al., 1984). The Coomalie Dolomite comprises stromatolitic magnesite, dolomic marble and minor calcareous para-amphibolite and metalutite (Ahmad, 1993). Most of the U, Pb-Zn-Ag and Cu deposits in the Rum Jungle Region are situated in the transitional zone between the Coomalie Dolomite and overlying Whites Formation (formerly referred to as the Masson Formation; Ahmad et al., 1993).

The Whites Formation is a 300 to 500m thick sequence of calcareous, pyritic and carbonaceous argillites. Overlying the Whites Formation are the sediments of the Wildman Siltstone, which include the Acacia Gap Quartzite Member and the Mount Dean Volcanic Member. The Wildman Siltstone comprises lutites, quartz sandstone and minor felsic to intermediate volcanics.

The Archaean and Early Proterozoic rocks of the Rum Jungle Region are regionally metamorphosed to grades ranging from lower greenschist to amphibolite facies (Ferguson, 1980 and Pietsch, 1989). Granitoid intrusion in the Pine Creek Geosyncline resulted in contact metamorphism being superimposed on the regional metamorphic assemblages in many areas and was followed by widespread retrogressive metamorphism (Ahmad, et al., 1993). Metasomatic replacement processes are common in the Rum Jungle Region and are probably associated with granitoid intrusions (Ahmad, et al., 1993).

The Early Proterozoic sequence of the Rum Jungle Region underwent deformation during the peak of the Top End Orogeny, and subsequently during granitoid intrusion, resulting in tight to isoclinal folding, faulting and shearing (Ahmad, et al., 1993). Later movement during the Middle Proterozoic and Phanerozoic mainly caused reactivation of older faults and minor tilting. The Giants Reef Fault is the major fault in the region and is interpreted as a post-Early Proterozoic expression of the Western Fault Zone which extends over 200 km and is part of the laterally extensive faults on the Halls Creek and Fitzmaurice Mobile Zones (Ahmad et al., 1993).
2.2 **Local Geology**

2.2.1 **Stratigraphy:**

Outcrop in EL 8612 is sparse, silicified and poorly preserved. However, the EL is situated along the contact between the basement and Crater and up stratigraphy into the Coomalie Dolomite. The Coomalie Dolomite is present in the central portion of the tenement, and comprises stromatolitic, tremolitic, silicified and saccharoidal dolomite. Minor cherty quartz units (most likely secondary), are interbedded with the dolomite and occasionally exhibit intense small scale folding. Zones of sericite alteration have been logged on various drill holes within the dolomite (Coles, 1988).

Graphitic to pyritic shales of the Whites Formation have been mapped within the southwest block, increasing in thickness to the west.

The presence of domal, stratiform and conical stromatolites have been observed elsewhere within the Coomalie Dolomite (Crick and Muir, 1980; Squire, 1995b). Crick (1987) suggests the Whites Formation represents a facies change from the intertidal to supratidal evaporitic conditions of the Coomalie Dolomite to an intertidal to subtidal environment.

Transported cover blankets much of the prospect and may be separated into two distinctly different types. The Cretaceous transported cover comprises fine to moderately coarse quartzose sands, silts and clays, though large clasts have been intersected at the base during RAB drilling (Squire, 1995a). The colour is generally pale cream, though colloidal iron has been observed near surface. The Tertiary transported cover is the most commonly observed transported material and may overlie the Cretaceous cover. It comprises ferruginous clays and sand with minor silicified scree.

2.2.2 **Regolith**

The regolith developed in EL 8612 is typical of that in a monsoonal environment (i.e. periodic cycles between very wet and humid conditions and very hot and dry conditions). The characteristic regolith profile comprises saprolite (clay), saprock (weathered bedrock), bedrock and transported cover (Cretaceous and Tertiary). The thickness of the regolith units varies significantly with rocktype. The depth of weathering is greatest over the sericite altered units within the dolomite, and also contains the thickest development of Cretaceous cover. The cherty quartz units within the dolomite and the interbedded sandstone units within the Whites Formation are the least weatherable, and generally control the development of local topographic highs and provide the scant outcrop.

2.2.3 **Structure**

Folding has been observed in the outcropping cherty quartz units with wavelengths ranging from 5 mm to several metres. The folding is interpreted to result from a contrast in competency between the surrounding rocks. Strong hydrothermal brecciation has been observed and appears closely associated to the mineralisation, which is incongruent with the ductile deformation.
3.0 WORK COMPLETED 29 AUGUST 1995 TO 28 AUGUST 1996

3.1 Compilation of Previous Explorers' Data

Pre-1977 Bureau of Mineral Resources (BMR) and Territory Enterprises Pty Ltd (TEP)
- A significant amount of exploration was conducted by both the BMR and TEP in the Rum Jungle Region between 1950 and 1977. Though a lot of this data has been located for tenements to the north (EL 6640, ERL 125, AN 364, ERL(A) 146 and EL 8620) attempts are still being made to locate data pertaining to EL 8612.

1977-88 Uranerz Australia Pty Ltd (and Mines Administration Pty Ltd (MINAD))
- EL 1298 was pegged by MINAD in May 1977 to cover sequences prospective for unconformity style uranium deposits and to a lesser extent base metal mineralisation. Subsequently ELs 2712 and 3192 - 3197 were pegged to cover prospective portions of EL 1298 relinquished under the Mining Act 1939. Work completed within the current tenement EL 8612 are summarised from Uranerz (1978), Uranerz (1979), Uranerz (1980), Uranerz (1982), Coles (1983) and Coles (1988).
- An airborne magnetometer and spectrometry survey was flown by Geometrics International Corporation of Sydney over several licences east of 130°52'E in 1978 (Coles, 1988).
- A regional grid, orientated to true north, was then established over the prospective contact between the White's Formation and the Coomalie Dolomite.
- The Riverside V240N area is situated in the southwest block of EL 8612 and was the focus of intense exploration. Work completed between 1977 and 1983 included 1.7 km² of geological mapping identifying a series of ridges of brecciated and silicified dolomite with minor schists (Figure 3.1.1).
- Three line kilometres of gridding was completed and a 3 kilometre footborne radiometric survey (SRAT) conducted. The survey was conducted over a black soil plain between the V225N and V240N areas, identifying 3 anomalous zones (which was later verified by RAB drilling; Figure 3.1.1).
- A Radon (ROAC) survey totalling 717 cups was conducted between V223N and V248N from V197E to V203E at 100m x 25m station spacings; anomalous areas are indicated in Figure 3.1.1.
- Three costceans totalling approximately 153m, and revealed important structural information though failed to identify additional anomalous.
- Rotary Air Blast (RAB) drilling totalled 2836m from 254 holes and identified a zone of anomalous uranium (and copper) mineralisation (Figure 3.1.1).
- Two percussion holes (totalling 220m) and 10 percussion/diamond holes (totalling 458.3m and 541.6m respectively) were completed on four sections in the V240N area. The holes were targeted at coincident RAB, SRAT and ROAC anomalous zones, however apart from two minor radiometric anomalies in RIV 82-17, no uranium anomalousism was encountered at depth.
3.2 Aboriginal Areas Protection Authority - Authority Certificate

An Authority Certificate was received from the Aboriginal Areas Protection Authority (AAPA) for several of Acacia's leases in the Batchelor/Rum Jungle Region. No Sacred Sites were identified within EL 8612 (Figure 3.2.1).

3.3 Database Management

A significant amount of time was spent importing old and new data into Mapinfo. All available geological, geochemical and geophysical data was entered in a manner enabling it to be effectively utilised and displayed. Interpretation of all available data is now possible.

4.0 ENVIRONMENTAL ISSUES

Environmental disturbance was near zero. Pre-existing tracks were used within the tenement for a site inspection and no substantial disturbance was undertaken.

An Environmental Register has been established for EL 8612 (Appendix 1.0).
5.0 CONCLUSIONS

Open file searches of previous explorers' data within Exploration Licence 8612 indicates little work has focused on base metal exploration and that the tenement is under-explored compared to other tenements to the north.

Previous regional mapping exercise identified numerous prospective units and contacts similar to those in adjacent tenements which require systematic soil sampling. The recent availability of aerial radiometric and magnetic data by World Geoscience Corporation may also aid interpretation and generally improve the prospectivity of the region.
6.0 EXPENDITURE STATEMENT

Exploration Licence 8612 - Tumbling Waters
Expenditure for the period 29.8.95 to 28.8.96

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<th>Item</th>
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<td>Regional Office - Staffing and Support</td>
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<tr>
<td>Tenement Costs</td>
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<tr>
<td>Vehicle and Camp Costs</td>
<td>$430</td>
</tr>
<tr>
<td>AAPA - Sacred Site Clearance</td>
<td>$610</td>
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<tr>
<td>Overheads 15%</td>
<td>$668</td>
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<td><strong>TOTAL EXPENDITURE</strong></td>
<td><strong>$5,018</strong></td>
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7.0 **PROPOSED PROGRAM AND BUDGET**

The proposed program for the second year of tenure will consist of acquisition and interpretation of the recent multi-client aerial magnetic and radiometric data flown over the Rum Jungle region by World Geoscience Corporation. A rock chip programme will also target favourable units as identified by mapping in tenements to the north.

<table>
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<tr>
<td><strong>Staffing</strong></td>
<td>0.20 man months @ $30,000/month</td>
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<tr>
<td><strong>Geophysical</strong></td>
<td>Acquisition and interpretation</td>
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<tr>
<td><strong>Assays</strong></td>
<td>30 @ $16.00 ea (Soils/rock chip)</td>
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<td><strong>Consumables</strong></td>
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<td><strong>Overheads</strong></td>
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<td><strong>TOTAL</strong></td>
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8.0 REFERENCES


Figure 2.1: Tectonic Setting of the Pine Creek Geosyncline (from Ahmad, et al., 1993).
APPENDIX 1.0

ENVIRONMENTAL REGISTER
TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER
LAND STATUS RECORD

Project: MOUNT FITCH JOINT VENTURE

Tenement Name: Mt Mabel    Loc. Code: HE 38

Tenement No's: EL 8612

Registered Holder(s): Acacia Resources Limited

Date Granted: 29/8/95    Term: 6 years    Area: Figure 1

Bond/Security: $5,000

JV Partners (if any): Compass Resources NL/Guardian Resources NL

Land Classification: (Crown, Private, Lease) Land Grant Section 6, 15 and 16 of 100 of
Waterhouse

Land Holders/Occupiers: The Manager, camp Creek Station

Address: C/- 8 Gregory Street FANNIE BAY NT 0820    Phone:

Contacted By: Billiton Australia Gold Pty Ltd

Pastoral Notes: (Stock, Cultivation, Access, Rainfall)
Ground is part of Camp Creek Station. Annual rainfall for region 1456 mm.

Environmental Notes: (Flora/Fauna, Erosion, Bushfires, Flooding)
Region subject to flooding during wet season, and periodic burning-off is
conducted by the CFA and/or Camp Creek Station during the dry season.

Groundwater: (Bores/Wells/Dams, streams, drainage, test data)
The Finniss River runs through eastern part of the tenement.

Aboriginal Notes: (Sacred Sites, Cultural)
No registered sacred sites have been recorded on this tenement.

Historic Relics: (Mine Workings, Equipment, Homesteads etc.)
Camp Creek Homestead is situated within the northeast block

Previous Activity: (Mining, Exploration, Forestry, etc.)
No data was found within the current tenements.
TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER
PRE-EXISTING ENVIRONMENTAL DISTURBANCE RECORD

Tenement Name: MT MABEL
No: EL 8612

Exploration Activity Area: MT FITCH JOINT VENTURE

Shafts/Pits/Dumps: N/A

Track/Access: Well maintained property boundary tracks, fire breaks and old exploration tracks provide sufficient access within the tenement.

Line Clearing: Several lines were used by Uranerz for geological, geochemical and geophysical surveys and have rehabilitated naturally.

Costeaming: Uranerz backfilled the costeans they excavated.

Drill Sites: Drill sites for RAB, Percussion and Percussion/diamond have rehabilitated naturally.

Other: Camp sites, Cultivation, Forestry, Pastoral:
Camp site at/near Camp Creek Homestead was not located.

Location Data: 1:100,000 Sheet: Rum Jungle

AMG Block Co-ords: (see attached plan)
Approximately:
705650mE - 709500mE
8543000mN - 8547000mN

Compiled by: R Squire
Date: 24 September 1996
### TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER
#### ACACIA RESOURCES' ENVIRONMENTAL IMPACT RECORD

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<th>MT MABEL</th>
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<td>Report Ref No's:</td>
<td>(08.8407) 1996 First Annual Report for Exploration on EL 8612 -Mt Mabel</td>
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<tr>
<td>Exploration Activities:</td>
<td>1995/96 Field site reconnaissance visit made in which no active field work conducted</td>
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<tr>
<td>Grids &amp; Traverses:</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Soil Sampling:</td>
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<td>Costeans / Pits:</td>
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<tr>
<td>Drilling:</td>
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<td></td>
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<tr>
<td>Drill Pads:</td>
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<td>Ground Geophysics:</td>
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<tr>
<td>Access Tracks:</td>
<td>Existing tracks were used for site inspection.</td>
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<td>Camps:</td>
<td>Field camp/office was at Carravillage Caravan Park in Batchelor.</td>
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<td>Other:</td>
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<td></td>
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<tr>
<td>Compiled by:</td>
<td>Rick Squire</td>
<td>Date:</td>
<td>24/9/96</td>
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TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER
ACACIA RESOURCES' REHABILITATION RECORD

Tenement Name: MT MABEL
No(s): EL 8612

Disturbance: Rehabilitation: Date: September 1996

Grids & Traverses: N/A

Soil Sampling: None completed to date.

Costeans/Pits: None completed to date.

Drilling: None completed to date.

Drill Traverses: None completed to date.

Drill Pads/Access: None completed to date.

Ground Geophysics: None completed to date.

Access Tracks: To be maintained during the licence tenure

Camps: Carravillage caravan park in Batchelor used for accommodation during all field work.

Inspected / Clearance: (Mines Dept.) (Landholder)

Bond/Security released:

Compiled by: Rick Squire
Date: 24/9/96

Follow-up Inspection Report: September 1997