ACACIA RESOURCES LIMITED

1996 FIRST ANNUAL REPORT FOR EXPLORATION ON

EL 8620 - TUMBLING WATERS

VOLUME 1 OF 1

Author: R J Squire Report No. 08.8396

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SUMMARY

Work within Exploration Licence 8620 comprised familiarisation with the ground and compilation of previous explorers’ data. Part of this compilation involved importing the geological, geophysical and geochemical data into Mapinfo to enable more efficient interpretation.

A regional mapping exercise was extended to incorporate the Tumbling Waters tenement, identifying numerous prospective units and contacts. The regional mapping exercise also improved the understanding of the regional stratigraphy and controls on mineralisation within the region.
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Appendix 1.0 Environmental Register
1.0 INTRODUCTION

1.1 Tenement Status

Exploration Licence 8620 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 are the current managers 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 8620 is situated approximately 15 km NNW 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 to Browns Shaft and unsealed roads along the abandoned North Australia Railway. Access within the tenement is good, with a number of four wheel drive tracks remaining from previous exploration in the area.

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 8620 is situated in the Rum Jungle Region of the Pine Creek Geosyncline (Figure 2.1.1) on the southwestern edge of the Rum Jungle 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, dolomitic 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 (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 Phanerzoic 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 8620 is sparse, silicified and poorly preserved. However, detailed mapping of the scant outcrop indicates the EL is situated along the contact between the basement and Crater and up stratigraphy into the Coomalie Dolomite.

The Coomalie Dolomite is present to the west, 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.

Graphitic to pyritic shales of the Whites Formation have been mapped along the southern and western boundaries, 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 is up to 26m thick and 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 8620 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

Uranerz Australia Limited
- Gridding and mapping were conducted over the current tenement, the results for which have been incorporated into Section 3.2

Central Electricity Generating Board Exploration (Australia) Pty Limited (CEGBEA) (changed name to Power Resources (Australia) Pty Ltd) and Compass Resources N.L.
- Exploration Licence 4879, comprising 95 blocks, was granted to CEBBEA on 25 May 1986 for six years (Starkey, 1987). EL 4879 was reduced to 47 blocks in 1988 (Fordyce, 1988), then to 23 blocks in 1989 (Fordyce, 1989) and finally to 12 blocks in 1990 (Boots, 1990). The 12 remaining blocks currently form ERL 125 which is part of the Mt Fitch Joint Venture between Acacia Resources, Compass Resources and Guardian Resources.
- All known previous survey results were compiled at more natural scales (rather than 1:4880) ranging from 1:1,000 to 1:50,000, however, most of this data fell outside of the current tenement (Starkey, 1987).
- Coloured aerial photographs were produced at 1:25,000 (Starkey, 1987).
- In early 1989 a helicopter-assisted Bulk Leach Extractable Gold (BLEG) stream sediment sampling programme was undertaken (Boots, 1990). Large (5 kg) samples were collected from 2 sites within the current tenement, however both results returned below detection values for Au (Figure 3.1.1).

3.2  Regional Mapping

A regional mapping exercise was completed by Dougal Johnson (Terrasearch) during a 4 week visit in May 1996. Geological mapping was extended from Mt Fitch Northeast (AN 364), which Dougal mapped 18 months earlier, down through Mt Fitch (ERL 125), Tumbling Waters (EL 8620) and Embayment (ERL 146) and across to Area 55 (EL 6640). Within EL 8620 mapping covered the western half of the tenement up to the granite contact (Figure 3.2.1). Previous geological mapping by Uranerz covered parts of the tenement and a series of traverses were made to check the previous mapping.

Significant finding from the mapping exercise included:

- The mica schist and sericitic units within the Coomalie Dolomite may not be lithologically controlled (i.e. bedding), rather an alteration effect following deformation where fluids could penetrate.
- Small scale intense folding may be due to polycinal kinks and drag folds along major faults associated with D5 deformation in the Pine Creek Inlier. Slumping may also be present.
3.3 Database Management

A significant amount of time was spent importing old and new data into Mapinfo. All 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.

Due to the varying detection limits between and within the various elements, samples "below detection" were assigned a value equal to half their detection limit plus 0.1 (i.e. <20ppm is stored as 10.1ppm, and <1ppm is stored as 0.6ppm).

4.0 ENVIRONMENTAL ISSUES

Environmental disturbance was near zero. Pre-existing tracks were used within the tenement and no substantial disturbance was undertaken. Several areas were burnt off to enable geological mapping, however this was conducted by the Batchelor, Adelaide River and Tortilla Flats (BART) Volunteer Fire Brigade, following notification of the local landowners.

An Environmental Register has been established for EL 8620 (Appendix 1.0).
5.0 CONCLUSIONS

Compilation of previous explorers' data within Exploration Licence 8620 indicates the area is relatively under-explored compared to the tenements ERL 125 and ERL(A) 146 adjacent to it.

The 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 8620 - Tumling Waters
Expenditure for the period 29.8.95 to 28.8.96

Regional Office - Staffing and Support $3,080
Tenement Costs not included
Burning-off permit (BART Volunteer Fire Brigade) 150
Vehicle and Camp Costs 730
Overheads 15% 1,160

TOTAL EXPENDITURE $5,120
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 identified by recent mapping.

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<td>Geophysical</td>
<td>Acquisition and interpretation</td>
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<td>Assays</td>
<td>30 @ $16.00 ea (Soils/rock chip)</td>
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<td><strong>TOTAL</strong></td>
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<td>$10,155</td>
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8.0 REFERENCES


Boots, M.K. 1990. EL 4879, Mt Fitch Annual Report to the N.T. Department of Mines and Energy for Period Ending 25 May 1990


Figure 2.1: Tectonic Setting of the Pine Creek Geosyncline (from Ahmad, et al., 1993).
1.7 BLEG (ppb)
<0.02 Au pan Concentrate (ppm)

4WD Tracks

Streams/Creeks
APPENDIX 1.0

ENVIRONMENTAL REGISTER
TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER
LAND STATUS RECORD

Project: MOUNT FITCH JOINT VENTURE

Tenement Name: Tumbling Waters Loc. Code: HE 35

Tenement No’s: EL 8620

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 954 and 957 of 100 of Goyder

Land Holders/Occupiers: Mr Norman Edwin Tamblyn, Ms Jessie Elizabeth Tamblyn and Ms Mary Hillson Tamblyn

Address: 44 Mountain View Parade, Rosanna, VICTORIA
35 Leonard Street Victoria Park, VICTORIA Phone:

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease) Land Grant Section 958 of 100 of Goyder

Land Holders/Occupiers: Georgina Buckley, Edmond Frazer Buckley and Henry Rede Buckley

Address: Not known Phone:

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease) Land Grant Sections 960 of 100 of Goyder

Land Holders/Occupiers: Mr Benjamin King

Address: Adelaide Phone:

Contacted By: Billiton Australia Gold Pty Ltd
Land Classification: (Crown, Private, Lease)  Land Grant Sections 2881 of 100 of Goyder

Land Holders/Occupiers: Ms Sonia Tidemann and Mr John Mc Cartney

Address: P.O. Box 57, BATCHelor, NT 0845  Phone: 

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease)  Land Grant Sections 961 of 100 of Goyder

Land Holders/Occupiers: Mr Dennis Carolin

Address: 22 Makogan Rd, BERImAH, NT  Phone: (08) 8947 1176

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease)  Land Grant Section 962 of 100 of Goyder

Land Holders/Occupiers: Mr John Elwall Foster

Address: 8 Short Cres, BEAUMONT, SA  Phone: 

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease)  Land Grant Sections 963 and 981 of 100 of Goyder

Land Holders/Occupiers: Mr E.K. Kerle and Ms M.J. Kerle

Address: Unit 14, 80 Old Mc Millans Road, COCONUT GROVE, NT  Phone: 

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease)  Land Grant Sections 982 and 2943 of 100 of Goyder

Land Holders/Occupiers: W.N. Kean

Address: Norton Street RANDWICK, NSW  Phone: 

Contacted By: Billiton Australia Gold Pty Ltd

Land Classification: (Crown, Private, Lease)  Land Grant Section 2949 of 100 of Goyder

Land Holders/Occupiers: W.N. Kean

Address: RAVENWOOD, QLD  Phone: 

Contacted By: Billiton Australia Gold Pty Ltd
Pastoral Notes:  (Stock, Cultivation, Access, Rainfall)  Annual rainfall for region 1456 mm.

Environmental Notes:  (Flora/Fauna, Erosion, Bushfires, Flooding)
Region subject to flooding during wet season, and burning is conducted by CFA during the dry season

Groundwater:  (Bores/Wells/Dams, streams, drainage, test data)
East branch of the Finnis River runs through tenement.

Aboriginal Notes:  (Sacred Sites, Cultural)
A registered Sacred Site exists over Mt Burton, which extends into EL 8620 (Figure 2). The abandoned North Australian Railway line runs through eastern side of the tenement.

Historic Relics:  (Mine Workings, Equipment, Homesteads etc.)
Abandoned North Australian Railway runs through eastern side of the tenement.

Previous Activity:  (Mining, Exploration, Forestry, etc.)
Sporadic exploration activity between 1950s and 1980s by BMR, TEP, CRAE and Uranerz, though this mainly involved gridding and mapping. Soil sampling did not appear to extend into current tenement.
TENEMENT ENVIRONMENTAL MANAGEMENT REGISTER
PRE-EXISTING ENVIRONMENTAL DISTURBANCE RECORD

Tenement Name: TUMBLING WATERS
No: EL 8620

Exploration Activity Area: MT FITCH JOINT VENTURE

Shafts/Pits/Dumps: N/A

Track/Access: Track adjacent to the abandoned North Australian Railway line now used as main access road in and out of tenement. Several 4WD tracks from exploration in between 1950’s and 1980’s also well maintained.

Line Clearing: Area originally gridded by BMR/TEP in the 1950s and then regridded by Uranerz in the 1980s. All gridding is currently poorly preserved.

Costeaming: A large costean programme was conducted by the BMR, though does not appear to have extended in the current tenement.

Drill Sites: N/A

Other: Camp sites, Cultivation, Forestry, Pastoral: N/A

Location Data: 1:100,000 Sheet: Rum Jungle
AMG Block Co-ords: Approximately:
(see attached plan) 712500mE - 715100mE
8563000mN - 8567500mN

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

Tenement Name: TUMBLING WATERS
No: EL 8620

Report Ref No's: (08.8396) 1996 First Annual Report for Exploration on EL 8620 - Tumbling Waters

Exploration Activities: 1995/96 burning-off and mapping

Grids & Traverses: 1995/96 No gridding undertaken. Used existing grids or aerial photos.

Soil Sampling: N/A

Costeans / Pits: N/A

Drilling: N/A

Drill Traverses: N/A

Drill Pads: N/A

Ground Geophysics: N/A

Access Tracks: Used existing tracks adjacent to abandoned North Australian Railway line together with several 4WD tracks from previous exploration and land holders.

Camps: N/A

Other:

Compiled by: Rick Squire
Date: 24/9/96
Tenement Name: TUMBLING WATERS

Disturbance: Rehabilitation: Date: September 1996

Grids & Traverses: Pegs to be removed on EL expiry. If required.

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