FINAL REPORT

EXPLORATION LICENCE 2021

BRIDGE CREEK SOUTH

P.S. Thompson
March, 1982

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ABSTRACT

EL 2021 Bridge Creek South, was granted to AAR Limited on the 12th day of July, 1979 for a period of twelve months. An application for a twelve month renewal was granted on the 12th July, 1980. A 50% relinquishment was made on 12th July, 1981.

During 1980-81 the EL was geologically mapped at 1:25,000 scale using colour aerial photographs. Within the area Lower Proterozoic sedimentary rocks belonging to the South Alligator and Finniss River Groups outcrop.

In conjunction with mapping a rock-chip sample and ground radiometric survey were conducted with no encouraging results being obtained.

It is recommended that EL 2021 be relinquished.

INTRODUCTION

This report describes the results of work carried out on EL 2021, Bridge Creek South, between 12th July, 1979 and 30th March, 1982.

The Exploration Licence was granted for all minerals on the 12th July, 1979.
An application for renewal was submitted and granted on the 12th July, 1980.
A 50% relinquishment was made on the 12th July, 1981.
The exploration licence was allowed to lapse in March, 1982.

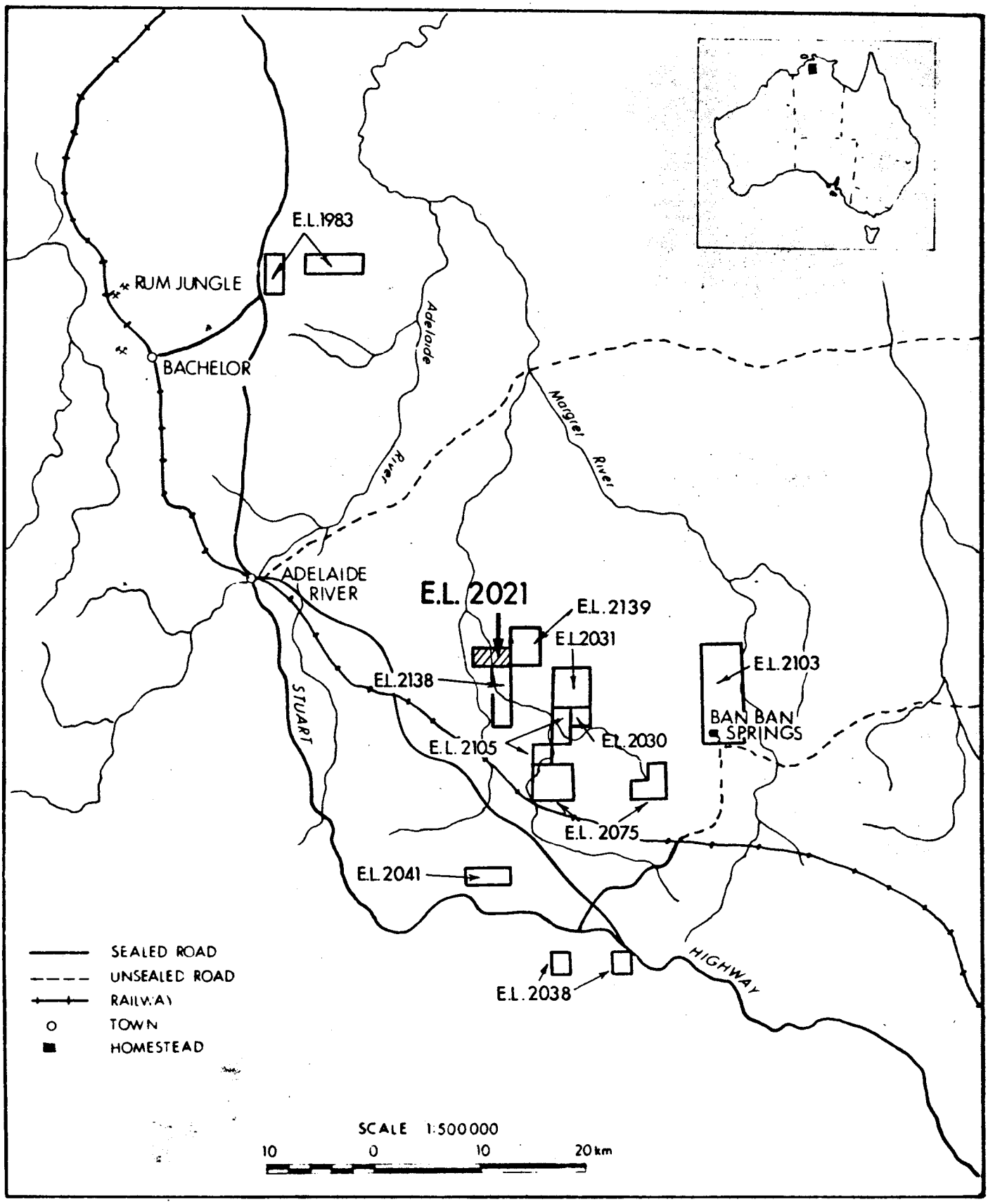
1.1 Location and Access

Exploration Licence 2021, Bridge Creek South is located approximately 150 kilometres south-south-east of Darwin (Fig. 1) The area is contained within the Pine Creek 1:250,000 Geological Sheet and the Batchelor 1:100,000 Geological Sheet areas. A detailed description of EL 2021 is as follows:-

All that piece or parcel of land in the Northern Territory of Australia containing an area of 2.57 square miles (6.66 Km.) more or less, the boundary of which is described as follows:-

Commencing at the intersection of the latitude 13 degrees 18 minutes with longitude 131 degrees 18 minutes thence proceeding to the intersection of latitude 13 degrees 18 minutes with longitude 131 degrees 20 minutes thence proceeding to the intersection of latitude 13 degrees 19 minutes with longitude 131 degrees 20 minutes thence proceeding to the intersection 13 degrees 19 minutes with longitude 131 degrees 18 minutes thence proceeding to the intersection of 13 degrees 18 minutes with longitude 131 degrees 18 minutes.

Access to Bridge Creek South is gained via the Stuart Highway and then by various bitumen and formed-dirt side roads to Howley Creek Siding on the abandoned North Australian Railway and passes approximately two kilometres to the east of the project area. There are no tracks within the EL. All unsealed tracks are trafficable only during the 'dry' season.



LOCATION MAP.

E.L. 2021 Bridge Creek South

Figure 1

1.2 Topography and Climate

Broad, flat 'black soil' plains occur in the western half of the EL. These give way to steep sided razor-back ridges in the eastern portion of the area which rise up to 80 metres above the surrounding plains.

Climate is sub-tropical. The monsoonal season occurs from November to April, during which most of the annual rain falls in torrential storms. Rainfall averages more than 1,200mm annually. Humidity is constantly high and temperatures range from 30-40^{o}C. During the remainder of the year the humidity is lower with daily changes in temperature ranging from 30^{o}C during the day to 10^{o}C or less at night.

1.3 Tenement Situation

Exploration Licence 2021 was granted to AAR Limited on the 12th day of July, 1979 for a period of 12 months with a minimum expenditure of $5,000. An application for renewal was granted on the 12th July, 1980. A 50% relinquishment was made on the 12th July, 1981.

Implementation of exploration programmes in the licence area is being undertaken by Mines Administration Pty. Ltd., a wholly owned subsidiary of AAR Limited.

1.4 Previous Work

The earliest geological investigations of the Pine Creek region resulted from the discovery of gold in 1872. A number of the mining fields and mines were mapped with aerial photographs by the Aerial, Geological and Geophysical survey of Northern Australia between 1935 and 1939.

The BMR has carried out a number of regional mapping programmes which have included the E.L. The area was studied at 1:63,360 scale in the Burnside Geological Series and at 1:250,000 scale in the Pine Creek Geological Sheet (Malone, 1962).

Walpole et. al (1968) compiled all the existing data pertaining to the Katherine-Darwin Region and proposed a geological evolution of the Pine Creek Geosyncline. More recently mapping of the Batchelor area at 1:100,000 scale (1977) and the entire Pine Creek Geosyncline at 1:500,000 scale (Needham et. al. 1980) has included the EL.

United Uranium and Australian Mining and Smelting tested the uranium potential of the Burnside area in the 1950's and 1960's. More recently Nord Resources (1978) tested an area to the south for uranium and tin. CRAE (1959, 1977-79) and Comalco (1975) also tested the carbonaceous shales for gold and base metal mineralization. The relevant references for this work are presented in the bibliography.

3. RESULTS OF FIELD INVESTIGATION

Geological mapping of EL 2021 at a scale of 1:25,000 using colour aerial photographs was commenced in August, 1980 (Map I Hassall, 1981b). Base and airphoto interpretation maps had been prepared in January 1980 by Hunting Geology and Geophysics (Australia) Pty. Ltd.

In conjunction with the mapping a foot-borne radiometric survey was carried out on east-west grid lines. 16 line kilometres of gridding were completed. A rock-chip sampling programme was also undertaken. (Sample locations are presented as Map 2 Hassall, 1981b)

3.1 Geology

Rocks of the South Alligator and Finniss River Groups outcrop within EL 2021. The oldest rocks outcropping belong to the Gerowie Tuff which is part of the South Alligator Group. The Gerowie Tuff consists of whitish coloured 'blocky' outcrops which are blue black to grey on fresh surfaces. Lithologically the unit is comprised of interbedded chert and siltstone.

The cherts are blue black in colour on fresh surfaces, extremely indurate and have a conchoidal fracture. The siltstones vary from blue black to grey in colour and are fine grained, well sorted rocks exhibiting various degrees of silicification from moderately to very silicified (Appendix 2. Hassall, 1981b.) Some haematite/goethite after pyrite is present.

Conformably overlying the Gerowie Tuff is the youngest unit of the South Alligator Group - the Kapalga Formation. This formation consists of interbedded and contorted red-brown siltstones and white to blue black coloured chert nodules and layers. The siltstones are well sorted, fine grained, moderately to very haematitic and have haematite/goethite after pyrite. The chert nodules are up to 12 cm in length and have been stretched. The layers may be up to 15 cm thick.

On the extreme western edge of the EL, is an outcrop of Burrell Creek Formation sandstone. The rock is a red-brown poorly sorted, coarse grained feldspathic litharenite which exhibits good fissility. The outcrop is cut by numerous quarts veins ranging from 1 cm to 1 metre in width.

STRUCTURE

The geosynclinal pile was regionally metamorphosed and deformed by a 1 800 M.y. event (Needham et al 1980). As a result of this deformation the sedimentary rocks within the EL are folded about the north-south trending Howley Anticline. The rocks within the project area represent the western limb of this anticline and also a north-south trending syncline (Map 1 Hassall, 1981b). Dips are steep in the eastern part of EL 2021 but tend to decrease to the west.

In most cases faulting has been of minor significance however a fault interpreted from aerial photographs and trending north-west to south east may have offset Kapalga Formation rocks by as much as one kilometre.

3.2 GEOCHEMISTRY

Seven rock-chip samples were collected and assayed for Cu, Pb, Zn and U. As well two of the samples were assayed for Au and As and one for W (Table 2 Hassall, 1981b).

3.3 GEOPHYSICS

During July, 1980 sixteen line kilometres of gridding were completed over the EL. A ground radiometric survey was then conducted along the east-west lines. Readings were taken every 20 metres using a Scintrex GIS-3 spectrometer (Appendix 3 Hassall, 1981b).

4. CONCLUSIONS AND RECOMMENDTIONS

Geological mapping at 1:25,000 scale delineated outcropping rocks belonging to the Gerowie Tuff, Kapalga and Burrell Creek Formations in EL 2021. A geochemical rock-chip sampling programme and a ground radiometric survey were conducted in conjunction with the mapping, with

no encouraging results.

It is recommended that EL 2021, Bridge Creek South be relinquished.

5. REFERENCES

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Willis, K.J. 1979

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APPENDIX 1

EXPENDITURE

BRISBANE.
23RD APRIL, 1982.

MINES ADMINISTRATION PTY LIMITED

STATEMENT OF EXPENDITURE

EL 2021 BRIDGE CREEK SOUTH

FROM INCEPTION TO 31.03.82

REF: AC/MDE

	$	$
Geophysical & Geological Costs		
Salaries and Wages	9,623	
Consultants Fees	594	
Drafting Supplies, etc.	720	
Geophysical Contractor - General	1,856	
Surveying Contractor	1,456	
Surveying Consumables	306	14,555
Drilling Costs		
Laboratory Expenses	179	179
Logistics		
Travelling & Accommodation	1,017	
Vehicle Hire	91	
Communications	7	1,115
		$15,849

G.T. Hall,
ACCOUNTANT.