OPEN FILE

TITLE	FIRST ANNUAL REPORT EXPLORATION LICENCE 6028
PERIOD	5 JULY 1988 - 4 JULY 1989
TENEMENT HOLDERS & OPERATORS	AUSTRALIAN ENERGY & GOLD NL
AUTHOR	M G MULRONEY
DATE	JULY 1989

1:250,000 Pine Creek SD52-89
1:100,000 Pine Creek 5270

COPY NO: 1
REP.016

DISTRIBUTION:

1. Northern Territory Department of Mines
2. Australian Energy & Gold NL - Darwin
3. Australian Energy & Gold NL - Perth
4. Spare

CONTENTS

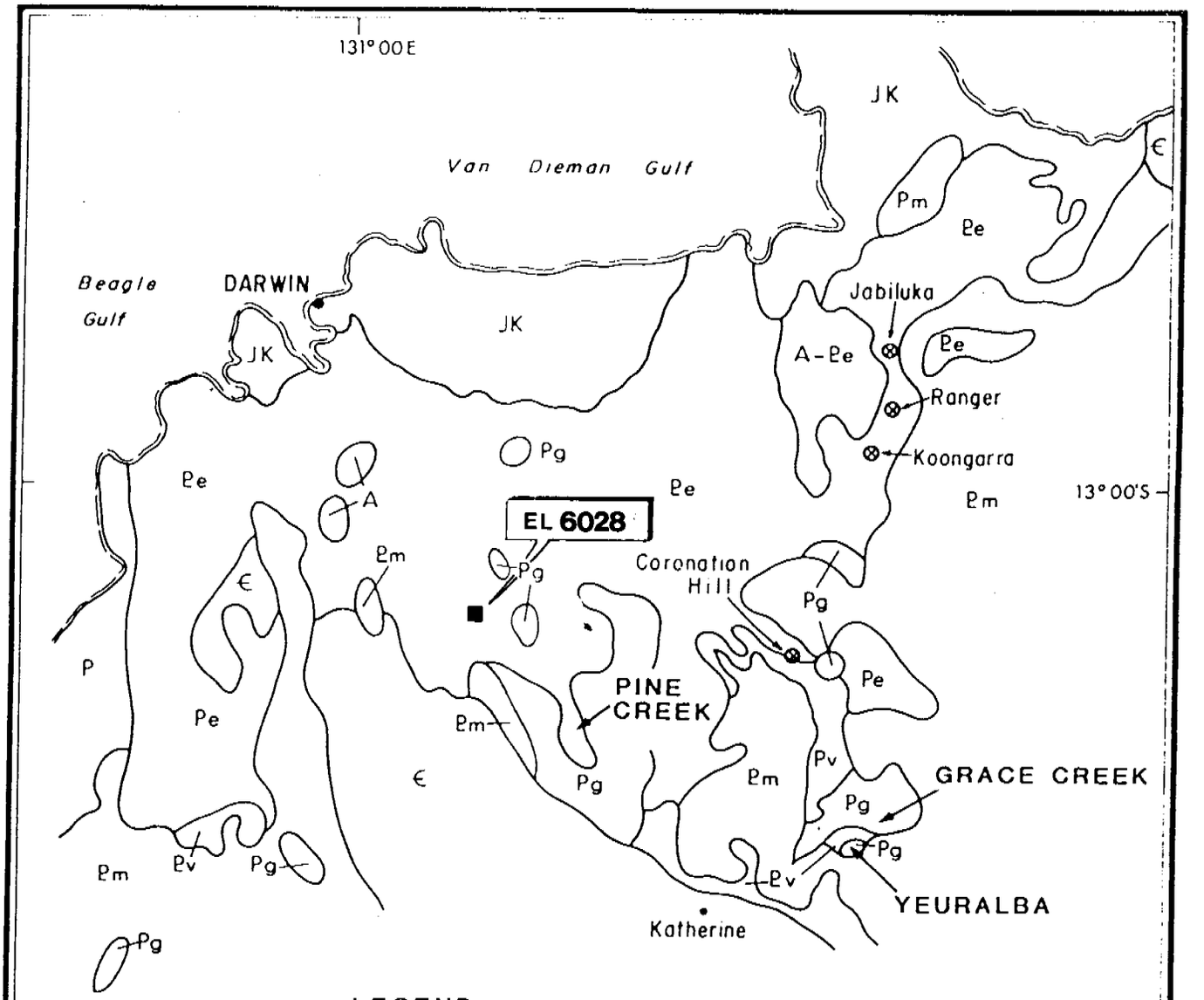
LIST OF DRAWINGS

Drawing Number	Title	Scale
AEG 26-1	Location Plan	1:2,140,000
AEG 26-2	Tenement Plan	1:20,000
AEG 26-3	Interpretative Geology	1:20,000

SUMMARY

Exploration carried out during the year included a literature review and an aerial photograph interpretation of the tenement area.

Ground follow-up involving geological mapping and rock-chip sampling of prospective areas is planned.



LEGEND

MESOZOIC	JK	Sediments
PERMIAN	P	Sediments
LOWER PALAEOZOIC	€	Sediments
MIDDLE PROTEROZOIC	Pm	Shelf sediments, felsic to mafic volcanics
EARLY PROTEROZOIC POST OROGENIC IGNEOUS ROCKS	Pg	Granite
	Pv	Volcanics, minor sediments
EARLY PROTEROZOIC	Pe	Pine Creek Geosyncline sediments and volcanics
ARCHAEAN	A	Basement rocks

0 50 100 km

N

PINE CREEK GEOSYNCLINE

AEG 26-1

Prepared by Mackay & Schnellmann Pty Ltd

1. INTRODUCTION

The report outlines the work carried out over Exploration Licence 6028 during the first year of tenure. Gold and base metal production is continuing from the Mt Bonnie Mine, located approximately 2 kilometres to the west-northwest of the tenement. Exploration during the first year of tenure included a literature review and an aerial photographic interpretation using colour aerial photograph enlargements.

2. LOCATION AND ACCESS

The Exploration Licence is located approximately 135 kilometres southeast of Darwin and approximately 2 kilometres east of Mount Bonnie Minesite (Drawing AEG 26-1).

Access is via the Stuart Highway from Darwin to the Mount Bonnie Mine turnoff, via the mine access road to the Mount Bonnie Minesite. Access to the tenement area is limited to occasional rough bush tracks along the western boundary of the tenement.

3. TENURE

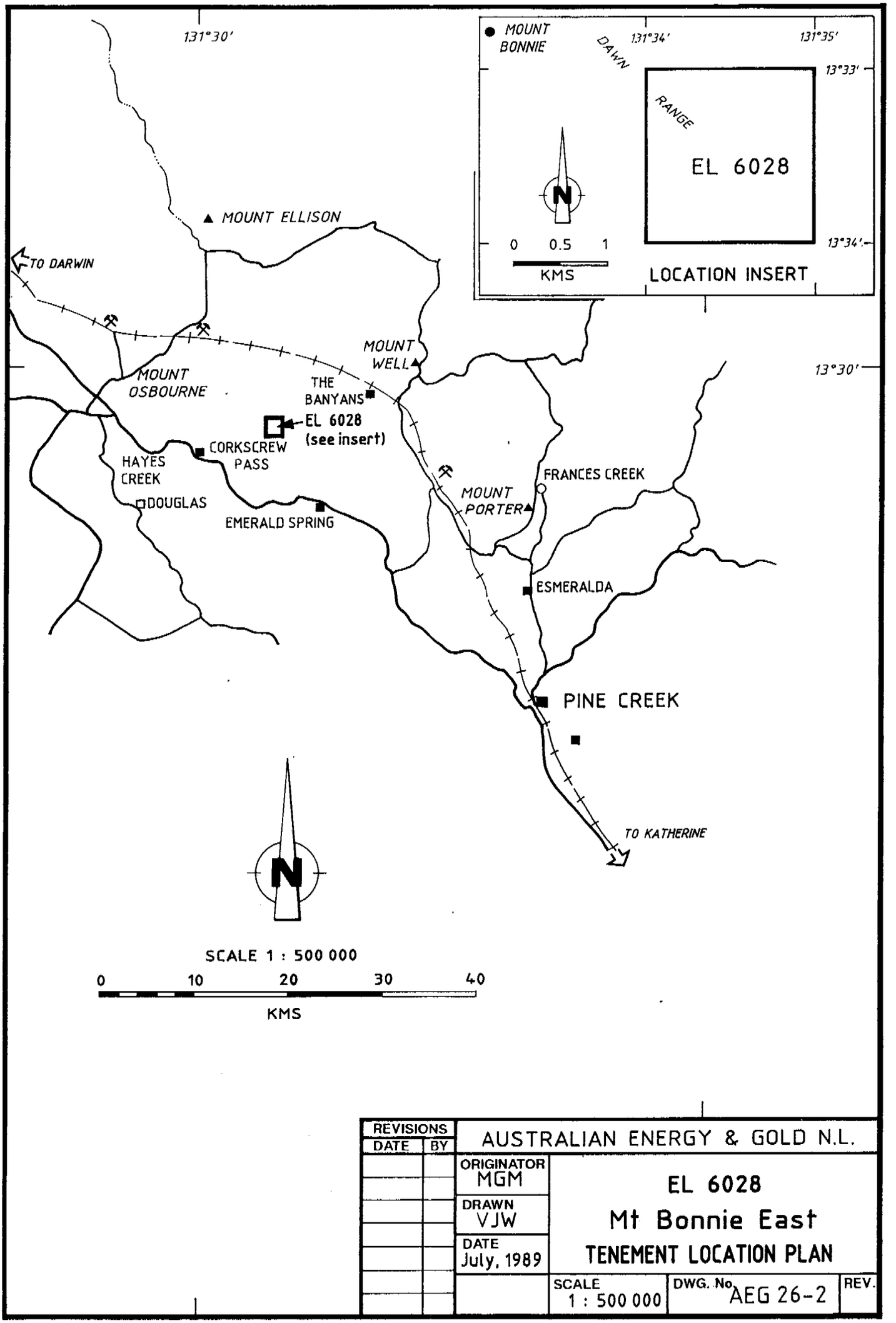
Tenement	Area	Granted	Period
EL6028	1 Block (3.22km^2)	5 July 1988	2 years

A number of existing tenements occur within the Exploration Licence and are excised from the granted area. This effectively reduces the area available for exploration to just less than 1.5km^2 (Drawing AEG 26-2).

4. ENVIRONMENT AND ECOLOGY

This region has a monsoonal climate with an average rainfall of 1,500mm per year, which is precipitated between December and May. From June to September, high temperatures and little rain prevail resulting in high evaporation rates.

The average mean temperature is 27°C. Day temperatures are high throughout the year with maximum summer temperatures in excess of 44°C common.



REVISIONS DATE	BY	AUSTRALIAN ENERGY & GOLD N.L.			
		ORIGINATOR MGM	EL 6028 Mt Bonnie East TENEMENT LOCATION PLAN		
		DRAWN VJW			
		DATE July, 1989			
			SCALE 1 : 500 000	DWG. No AEG 26-2	REV.

Prevailing winds are the southeast trade winds for the dry season and the northwest monsoon for the wet season.
Relative humidities average 40% to 75% respectively during these periods. The area is subject to tropical cyclonic effects.

Drainage patterns are a combination of closely spaced dendritic and broad open swales. Surface water is not permanent and the drainage systems flow only during the monsoon season. The vegetation consists of predominantly wet season grasses and eucalyptus woodlands.

5. PREVIOUS WORK AND PRODUCTION

No evidence of previous mining activity has been located within the tenement. Extensive early mining activity occurred to the northwest at Mt Bonnie, Iron Blow and Yam Creek mining centres. Mining activities included both alluvial mining by mainly chinese itinerants and hardrock mining of shallow, rich oxidised gold deposits. Considerable alluvial mining was also carried out late last century at the Margaret gold diggings located to the south of the tenement.

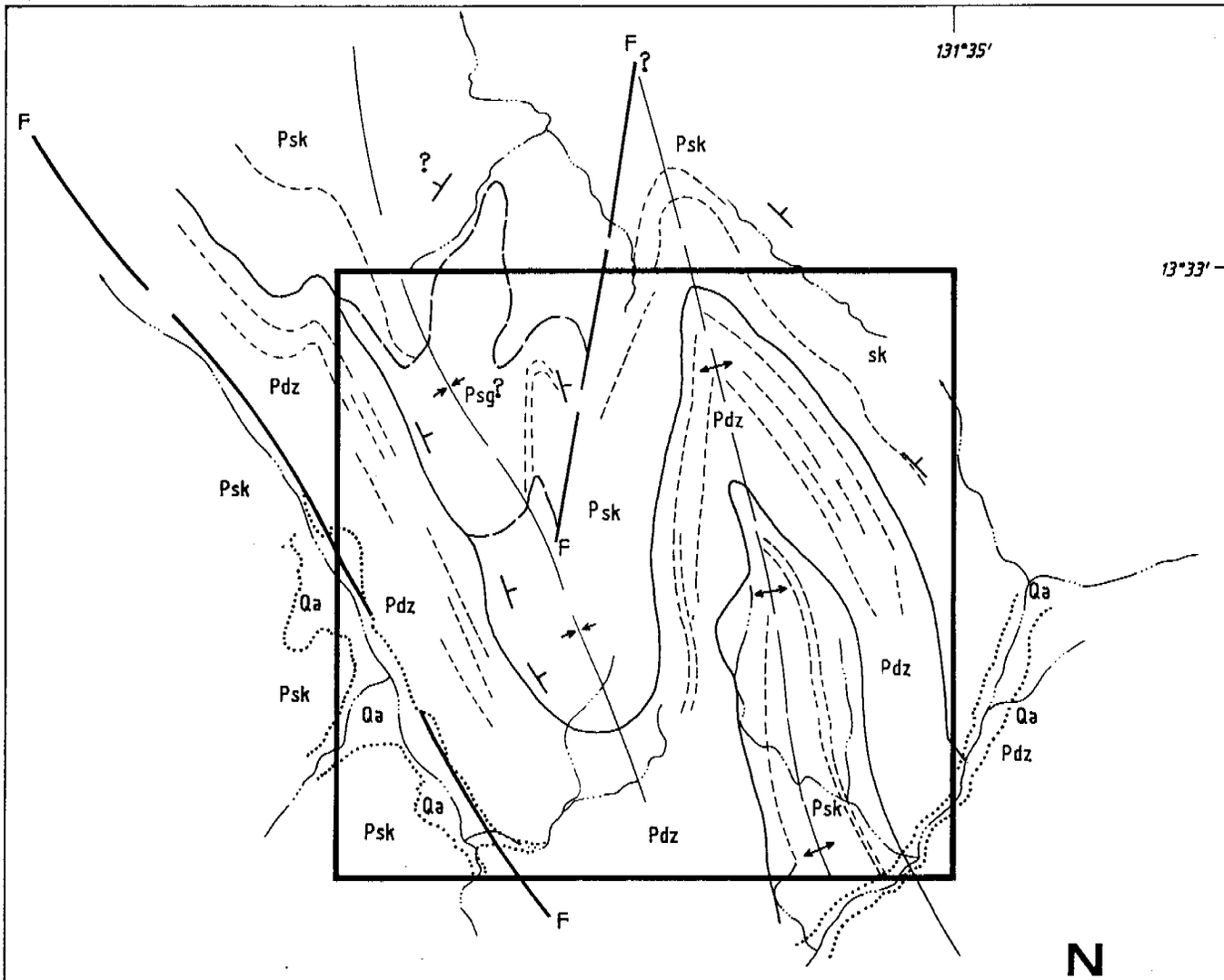
Open pit mining of a small gold deposit has been undertaken in recent time at Mt Bonnie and alluvial gold mining was undertaken at Sandy Creek.

Previous exploration activity with the Exploration Licence appears to be very limited. The pre-existing Mining Leases and Claims are held by various parties and no records of any work being undertaken has been located to date.

6. REGIONAL GEOLOGY

Exploration Licence 6028 lies in the central part of the Pine Creek Geosyncline. The geosyncline consists of a succession of Lower Proterozoic basinal metasediments underlain by Archaean granite and gneiss basement. The sedimentary rocks consist mainly of shale siltstone greywacke, chemical sediments and minor conglomerate with occasional interbedded tuff horizons.

Gold and base metal mineralisation at the adjacent Golden Dyke and Mt Bonnie Mines is hosted within the Koolpin and Mt Bonnie Formation lithologies. The mineralisation is present as stratabound mineralisation in chemical sediments and carbonaceous sediments adjacent to favourable structural features.



LEGEND

Qa	Alluvium	
Pdz	Dolerite	ZAMU DOLERITE
Psg	Dark brown Shale, siltstone	GEROWIE TUFF
Psk	Buff to brown Shales	KOOLPIN FORMATION

Interpreted Anticline — Lithological Trend

Interpreted Syncline — Lithological boundary

F Fault, approximate Fault — Lithological boundary, inferred

Interpreted Dip & Strike — Outcrop Boundary

Drainage

SCALE

0 500 1000

METRES

REVISIONS DATE	BY	AUSTRALIAN ENERGY & GOLD N.L.			
		ORIGINATOR MGM	E.L. 6028		
		DRAWN VJW	INTERPRETIVE GEOLOGY		
		DATE July, 1989	Mt Bonnie East		
			SCALE 1 : 20 000	DWG. No. AEG 26-3	REV.

7. WORK COMPLETED

A thorough literature review of the area covered by the Exploration Licence was undertaken. Numerous early production reports are available describing the mining of alluvial and shallow hardrock ore at Mt Bonnie, Iron Blow, Golden Dyke and the Margaret diggings. No records were located to indicate that any previous mining activity has been undertaken within the boundaries of the current tenement.

A review of previous exploration in the tenement area did not locate any evidence of recent exploration programmes. No record of exploration within the current Mining Leases and claims was located. Given the areas proximity to the Mt Bonnie mine, it is probable that considerable prospecting activity has taken place.

An aerial photographic interpretation was undertaken using 1:60,000 colour aerial photographs and a 1:20,000 colour aerial photograph enlargement (Drawing AEG 26-3). The interpretation suggests that the tenement is underlain by sediments of the Koolpin Formation which has been extensively intruded by dykes and sills of Zamu Dolerite. The contact between the two units is quite variable from a subdued colour change in the overlying soil colour to a prominent linear contact with possible quartz veining as seen in the western part of the tenement. In the western central portion of the tenement, a distinct iron rich sedimentary wedge occurs and this has been tentatively assigned to the Gerowie Tuff Formation. The lithological units appear to strike north-northwest with variable dips around prominent gold structures.

Structurally, both the sediments and dolerite intrusives are tightly folded around north-northwest trending axes. A broad anticline-syncline pair can be readily defined, however complex drag folding appears to occur in the core of the syncline along the western side of the tenement. The complexly folded area is associated with an iron-rich sedimentary unit. A prominent strike fault occurs along the western limits of the synclinal structure.

8. FUTURE WORK

Future work will include ground inspection of the anticlinal feature projected through the eastern portion of the tenement. The iron-rich unit and quartz veining along the dolerite contact located in the western side of the tenement is covered by pre-existing tenements. Geological mapping and rock chip sampling will be

REFERENCES

STUART-SMITH PG, NEEDHAM RS, BAGAS L and WALLACE DA, 1987
Pine Creek, Northern Territory, 1:100,000 Geological Map Commentary, BMR

MacLEOD M, 1988 Java Black Mining NL, Memorandum for the Information of Shareholders, D D Middleton & Associates.

EXPENDITURE EL 6028

MAJOR ACTIVITY	STAFF SALARIES	STAFF WAGES	CONSULT/ CONTRACTORS FEES	VEHICLES	TRAVEL OTHER	ACCOMMO-DATION	FIELD ACCOMMO-DATION	FIELD EQUIPMENT	OFFICE EQUIPMENT	OTHER	SUB TOTALS
GEOLOGY	849	120	2604					128	23		3724
GEOCHEMISTRY											
GEOPHYSICS											
ACCESS											
GRIDDING											
DRILLING											
- diamond											
- other											
DRAFTING	187										187
METALLURGY											
ENGINEERING											
ENVIRONMENTAL											
TENEMENT MAINT			20								20
SUBTOTALS	1036	120	2624					128	23		3931

TOTAL	3931
LOCAL OFFICE OVERHEADS	2089
HEAD OFFICE OVERHEADS	1505
GRAND TOTAL	7525