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No. 8110

EL 1457

KINGS BLUFF

**PROGRESS REPORTS TO LICENCE
EXPIRY/SURRENDER, FOR THE PERIOD
3/3/1988 TO 6/6/1988**

Submitted by
Hallmark Gold NL
1989

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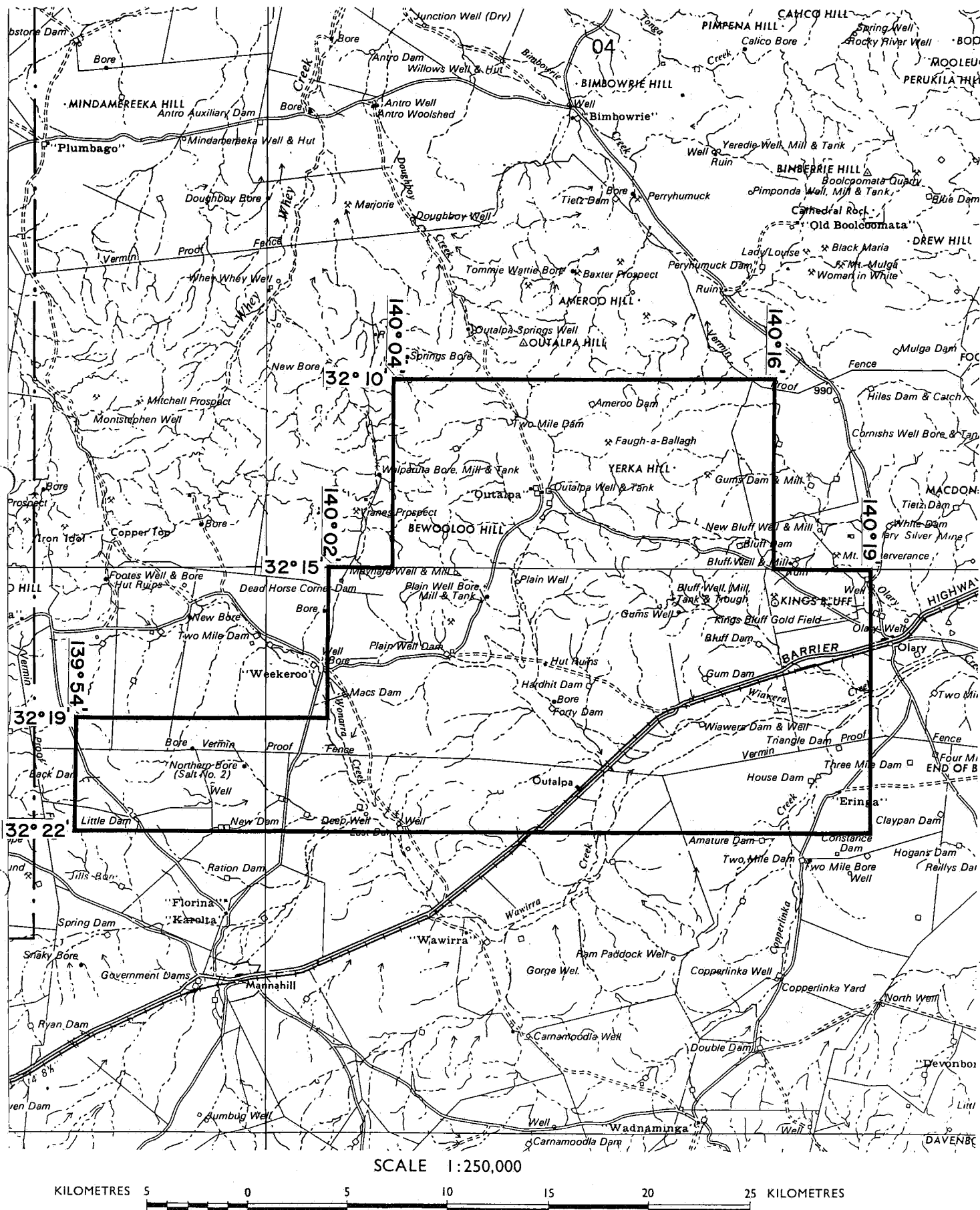
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Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



APPLICANT: HALLMARK GOLD N.L.

DME 295/87

AREA: 589 square kilometres (approx)

1:250000 PLANS: OLARY

LOCALITY: KINGS BLUFF AREA - Immediately west of Olary

DATE GRANTED: 7.12.87

DATE EXPIRED: 6.6.88

EL No:1457

EXPIRED

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TENEMENT: EL 1457 (formerly ELA 295/87) - 'Kings Bluff' Mannahill
Prospect, Yunta
Mineral Field.

TENEMENT HOLDER: Hallmark Gold NL

REPORTS: First quarterly report for EL 1457 for period Pgs 3-6
ending 6 March 1988.

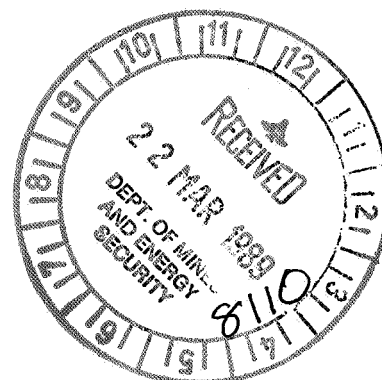
Final report for EL 1457 for period ending Pgs 7-18
6 June 1988.

PLANS: Location of tenements. Pg. 12

Fig 4. Mannahill Gold Project E168/87 and E295/87. Pg. 13
Tenement location and geology.

FINAL REPORTFOR PERIOD ENDING 6 JUNE, 1988FOR'KINGS BLUFF'MANNAHILL PROSPECTE 1457

(FORMERLY ELA 295/87)

YUNTA MINERAL FIELDSOUTH AUSTRALIA

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1. KEY WORD SUMMARY
2. INTRODUCTION
3. EXPLORATION EXPENDITURE AND SUMMARY
4. CONSULTING GEOLOGISTS REPORT AND PLANS

1. KEYWORDS SUMMARY

Title: 'Kings Bluff' Mannahill Prospect, South Australia
Company: Hallmark Gold N.L.
Commodity: Gold
Tenement: E1457 (formerly ELA 295/87)
Year: 1988

KEYWORDS

Review of Previous Gold Exploration

Recommendations

LOCALITY NAMES

Mannahill
Kings Bluff
Yunta
Olary

GOLD PROSPECT NAMES

Golden Dewdrop
Kings Bluff

MAP NAMES

1:250 000 Olary

2. INTRODUCTION

The Company applied for ELA 295/87 in 1987 to augment its main tenement E1436 at Mannahill.

After a preliminary appraisal of previous exploration data and the October 1987 Stock Market collapse, it was decided to rationalize the Company's holdings in the area and ELA 295/87 which had been granted by the Minister in December 1988⁷⁷ as Exploration Licence 1457 was allowed to fall vacant on 6 June 1988.

The enclosed report is a summary of Hallmark Gold N.L.'s geological consultants report on the tenement. As can be seen in the report, the tenement was integrated with E1436 for the purpose of ongoing exploration. No further data analysis or field work was carried out by the Company.

3. EXPLORATION SUMMARY AND EXPENDITURE

Expenditure for the quarter was approximately \$2,850 comprising:

Administration	2,000
Geological	450
Report preparation and drafting	<u>400</u>
	\$2,850
	=====

4.

CONSULTING GEOLOGISTS REPORT AND PLANS

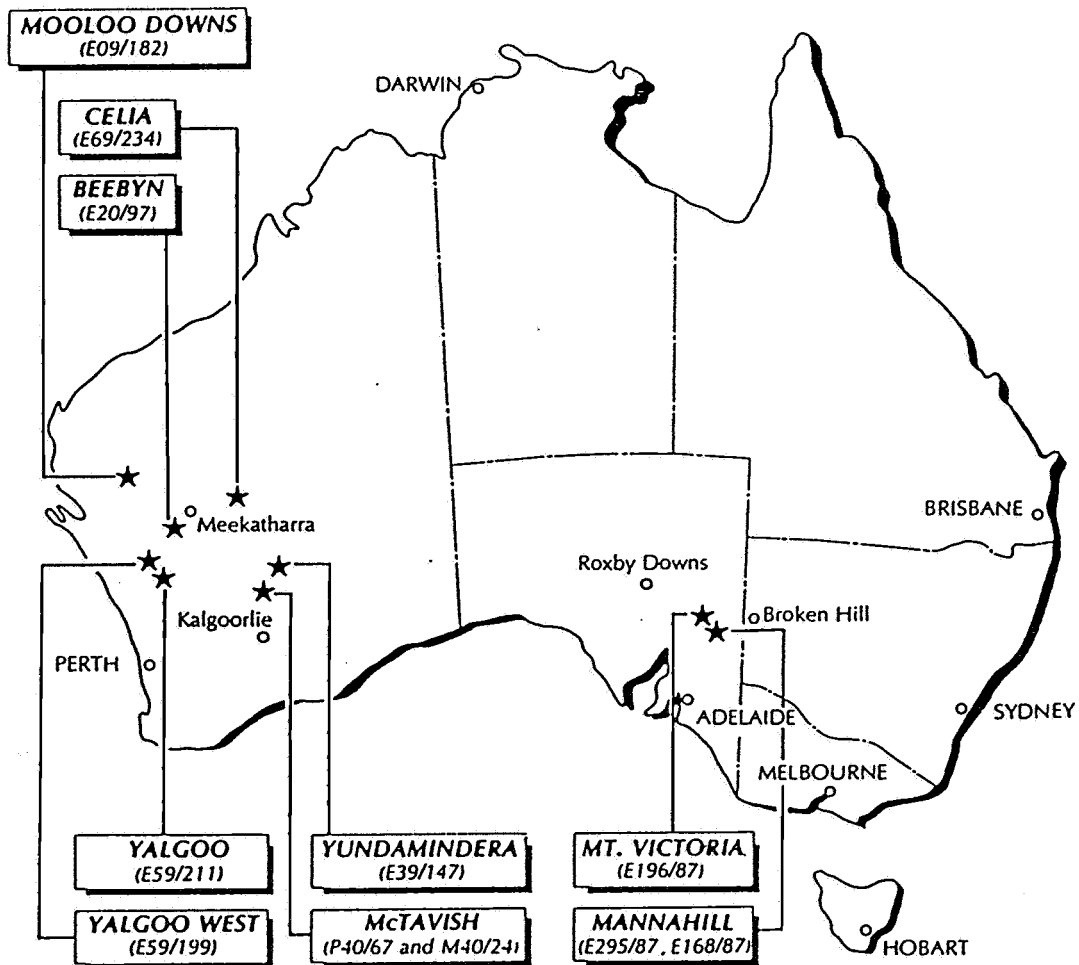
Mackay and Schnellmann Pty. Ltd.

E - Exploration Licence or Application for E.L.

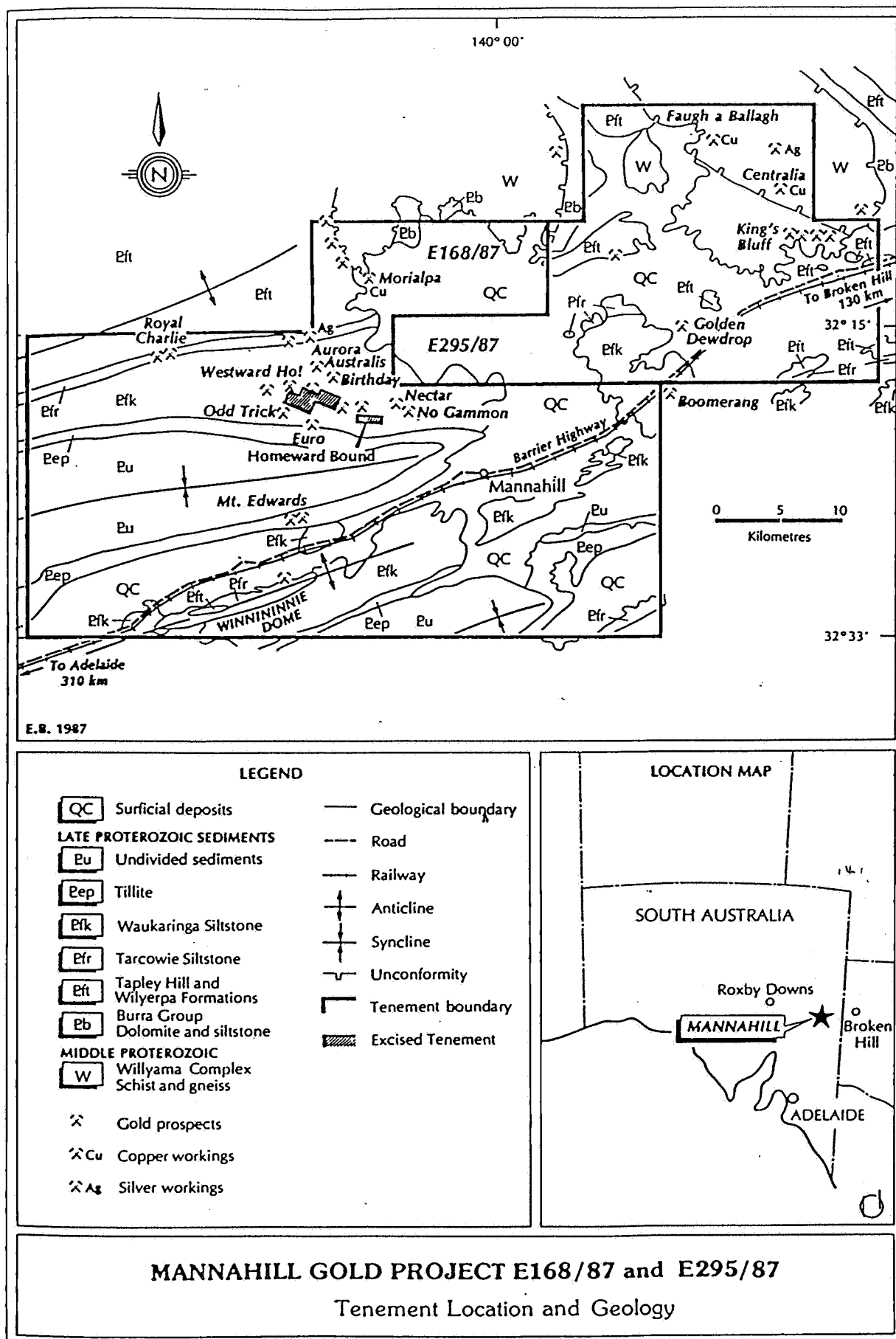
P - Prospecting Licence

M - Mining Lease

0 500
Kilometres



LOCATION OF TENEMENTS



Prepared by Mackay & Schnellmann Pty. Limited

Figure 4

MANNAHILL GOLD PROJECT

Introduction

Hallmark Gold N.L.'s Mannahill gold project comprises Exploration Licence 1436 of 1311 square kilometres in the Olary district of South Australia. The company recently applied for a further 590 square kilometres (ELA 295/87) to cover possible strike extensions of the Mannahill gold mineralization to the northeast (figure 4).

EL 1436

The property is 310 km north-northeast of Adelaide on the Barrier Highway and covers many old gold mines of the Mannahill Goldfield. These include the Aurora Australis, Birthday, Nectar, No Gammon, Trojan, Odd Trick, Euro, Klondyke and Royal Charlie gold prospects. Excised from the tenement are the Westward Ho! and Homeward Bound workings (figure 4).

Regional studies have identified the Mannahill area as containing a rock assemblage which is lithologically and environmentally similar to the Telfer gold deposit in Western Australia. At Telfer, in a series of closely spaced deposits, gold ore bodies of the order of 36.75 million tonnes at a grade of about 3.24 g/t Au have been found by Newmont Australia Ltd.

Similar geological characteristics to those at Telfer are recognized in the Mannahill exploration licence (Newmont 1987, CRAE 1981). Gold mineralization in both of these regions occurs mainly within mildly-metamorphosed Late Proterozoic sedimentary sequences comprising siltstones, dolomitic siltstones, sandstones, shales and carbonate units which have been deformed into series of basin and dome structures. Stratiform and stratabound ferruginous quartz veins commonly contain gold-pyrite-arsenopyrite-chalcopyrite-carbonate mineralization with thicknesses generally between 1 and 3 metres. The quartz and lode mineralization appears to be best developed as shallowly dipping drapes over anticlinal structures. Hydraulically prepared fractures between layering in the sediments may act as traps for migrating metal-charged fluids in these low temperature metamorphic regimes.

Geology

The tenement is situated at the eastern end of the regionally extensive Umberatana Group, a Late Proterozoic mildly-metamorphosed sequence of siltstones, sandstones, carbonates, tillites and shales. The sediments overlie older, more dolomitic, Burra Group sediments but are commonly observed in direct unconformable contact with highly-metamorphosed quartz-mica schists and paragneisses of the Middle Proterozoic Willyama Complex (figure 4).

Rock exposures are generally poor within the tenement block with the exception of east-west trending tillite-arkose sequences and the siltstones of the Winnininnie Dome. Thick sequences of Waukaranga Siltstone and Tarcowie Siltstone underlie most of the property and have been identified from suboutcrop, mine workings and drillhole information. These units occur in a series of anticlines, synclines and dome structures and locally by complex cross and parasitic folding.

In the northern part of the property, the sediments include siltstones and pyritiferous shales of the Tapley Hill Formation which lies on a quartz veined, faulted and brecciated unconformity with the Willyama Complex.

A large intrusive granitoid pluton occurs approximately 25 km south of the southern boundary of the EL. The BMR gravity plan for Olary shows a large positive anomaly under the central part of the EL 1436 and this is interpreted as a probable shallow granitoid.

Mineralization

Preliminary estimates of production by early miners from the Mannahill Goldfield (including the Royal Charlie mine) indicate approximately 300 000 g of gold were won from 10 000 t of ore. South Australian Department of Mines and Energy staff are currently preparing detailed statistics which should become available by mid-1988.

Gold mineralization within the EL commonly comprises pyrite, arsenopyrite, siderite, galena, chalcopyrite, gold, silver

and bismuth in stratiform and stratabound reefs which are generally oxidized and gossanous at the surface.

The mineralization occurs as follows:

Royal Charlie : At the Royal Charlie prospect area the gold mineralization occurs within a thick, moderately-dipping stratabound quartz-pyrite-arsenopyrite-carbonate-silver lode within the Tarcowie Siltstone. A very small excision (90 metres by 40 metres) occurs over the main shaft.

At the Birthday and Aurora Australis prospects the gold-quartz mineralization appears to be best developed in parasitic anticlinal arches and local deformation sites within a broad domal structure in the Waukaringa Siltstone.

At the Nectar/No Gammon prospects poor outcrop has hampered geological interpretation. The Mining Records indicate gold-quartz mineralization in structurally-controlled crosscutting and saddle reefs within calcareous siltstones.

Westward Ho!/Eudanda Hope Mines (Excised) : Gold with variable pyrite-arsenopyrite-siderite-barite occurs in stratabound quartz reefs within partings in the Waukaringa Siltstone. Tight folding is common in and adjacent to the mineralized horizon.

Winnininnie Dome : In the southern part of the EL the Winnininnie Dome structure exposes the basal part of the Tarcowie Siltstone and the top of the underlying Tapley Hill Formation. Stratiform gold mineralization occurs in gossanous ironstone and strike parallel quartz veins within the Tarcowie Siltstone.

Morialpa Copper Prospect : Mineralization in this northern part of the tenement consists of arsenopyrite-pyrite-malachite-chalcopyrite in strike extensive crosscutting quartz veins within quartz-muscovite schists of the Willyama Complex.

The Morialpa Quartz Reef Prospect lies along the poorly exposed faulted contact of the Willyama basement rocks and the younger Tapley Hill Formation. Quartz-

ironstone segregations reflect structural movement along this fault zone.

Previous Exploration

Base metal exploration was conducted by Elvire Pty Ltd in 1971. During a reconnaissance survey to the northwest of Morialpa, a series of previously unmapped gold workings were located on the quartz-veined, faulted unconformity between the lowermost pyritic shales of the Tapley Hill Formation and the underlying Willyama Complex basement. A stream sediment copper anomaly also occurs in this area.

At Morialpa several strike-extensive gossanous quartz reefs were tested for copper. Only minor gold exploration (rock chip sampling of a 70 metre zone) has been conducted in this portion of the property.

Newmont Pty Ltd drilled the Westward Ho! gold-quartz lodes in 1978 (excised from EL 1436). Grades up to 18.7 g/t Au over 1.54 m were obtained on the western end of this area. Inferred strike extensions marked by lines of old workings immediately to the west on the Hallmark property are as yet untested.

CRA Exploration Pty Ltd conducted limited soil sampling on the Winnininnie Dome area in 1979-80 as part of a regional strategy to locate Telfer-type mineralization. Deficiencies in laboratory techniques made the results unassessable. This was thought to be due to high carbonate content in the soils. Limited check fire assays were carried out at another laboratory and indicated several gold anomalies in soils on the eastern end of the Dome. However these have not been followed up.

CRAE also obtained promising open-hole drill intersections from the Nectar/No Gammon zone to the north east. Eleven vertical holes (average depth 19m) were drilled to test a soil geochemical anomaly. Importantly ten of these holes intersected gold mineralized quartz lodes over a strike of 150m. Intersections including 3.5 g/t Au from 5 to 6 m depth and 3.0 g/t Au from 4 to 5 m depth in different holes. No follow up drilling was carried out on these intersections.

Australian Anglo American Limited (Anglo) carried out a brief assessment of the Winnininnie Dome area in 1985-86. Investigations were of a reconnaissance nature comprising stream sediment (arsenic) and rock chip (gold) geochemistry. Of 29 rock chip samples of quartz reefs and gossanous ironstone, seven were anomalous between 0.08 g/t Au and 1.66 g/t Au in the Western Dome area. Significantly, an extensive arsenic anomaly was also delineated in stream sediments in this area. Recommended follow-up geochemical testing was not carried out by Anglo at that time.

Western Mining Corporation Limited (WMC) carried out reconnaissance exploration in the Royal Charlie area in 1986 as part of a broader survey. Rock chip and soil sampling was conducted over a 200 metre strike of the Tarcowie Siltstone. Rock chips (to 58 g/t Au) and soil samples (to 97 ppb Au) delineated strong gold geochemical anomalies over the full extent of tested strike and were reported to be very encouraging. No follow up surface geochemistry or RAB drilling has been undertaken in this zone.

Field investigations by Hallmark Gold N.L. revealed numerous previously unmapped prospecting pits for several kilometres to the east of the Royal Charlie area. These occur in subcropping quartz-ironstone reefs within the Tarcowie Siltstone. No gold assays have been undertaken in this zone to date, however a silver value of 890 g/t Ag (Elvire 1971) is reported from a pit 11 km east of the Royal Charlie (figure 4).

The previous exploration companies Newmont, CRAE, Anglo, WMC and Elvire (base metals) each investigated small portions of the area now covered by El 1436. CRAE, Anglo and WMC recommended further work on the Nectar-No Gammon, Winnininnie Dome and Royal Charlie respectively. This was not carried out prior to corporate decisions to relinquish the tenements (Anglo and WMC).

Newmont withdrew from Westward Ho! (excised) concluding that the gold-quartz lode was not economic as a large open cut mine at the prevailing gold price (1977). CRAE withdrew from the Olary region (Waukaranga, Wadnaminga and Mannahill Goldfields) after experiencing severe assay (AAS) difficulties in soil sampling.

Conclusions

Several phases of earlier exploration have been carried out in the general area of Hallmark's large ELA and have provided valuable drilling and geological data as a guide to future work.

Drilling by CRAE (1981) in the Nector/No Gammon zone showed anomalous gold in 10 of 11 holes drilled, warranting follow up work. The lack of outcrop appears to have been a major element in hampering past exploration in this area.

The gold mineralization horizon at Westward Ho! (excised) strikes directly into the Hallmark EL (figure 4) where it is marked by lines of old workings and constitutes an immediate drill target.

Gold mineralization at the Aurora Australis and Birthday lines of workings (figure 4) appears to be related to a broad domal structure within the Waukaranga Siltstone. No systematic exploration has occurred in this area to date.

Previously unmapped gold workings were located by Elvire (basemetals, 1971) to the north of Mordialpa on the Tapley Hill Formation unconformity. The unconformity extends under cover across the northern portion of the ELA and requires detailed exploration.

On the western part of the Winnininnie Dome arsenic anomalous stream sediments and gold anomalous rock chip samples (Fire Assay) delineate a 3km zone requiring detailed follow-up.

Field and literature investigations by Hallmark Gold N.L. and research by Newmont Australia Ltd. (1987) indicate considerable scope for exploration for Telfer-style mineralization within the EL. Of particular significance is a newly discovered geochemically anomalous zone near the Royal Charlie Mine. Values up to 58 g/t Au have been recorded over 200 metres of strike of a quartz-gossan unit in the Tarcowie Siltstone. A significant soil geochemical anomaly also delineates this zone and the area constitutes an immediate drill target. Numerous prospectors' pits occur in subcropping quartz-ironstone reefs within the Tarcowie Siltstone to the east (figure 4).

ELA 295/87

In September 1987 the company applied for a further EL (ELA 295/87) to the east and north of its Mannahill property to cover possible strike extensions of the mineralization. It comprises 590 square kilometres and includes the historic gold workings at King's Bluff and Golden Dewdrop. The licence straddles approximately 20 km of the Barrier Highway.

Geologically, ELA 245/87 comprises the eastward extension of the rock units and structures of EL 1436 described previously (figure 4).

No reporting is yet available from the South Australian Department of Minerals and Energy regarding exploration by Wavrin Holdings Pty Ltd., the immediate-past holder of the property. However, the only previous explorer, CRA Exploration Pty Ltd conducted preliminary investigations for stratabound gold mineralization in the King's Bluff area in 1980, taking only 6 rock samples for gold from quartz veins (grades were from less than 0.04 g/t Au to 2.93 g/t Au).

These quartz veins are generally thin and transgressive rather than stratabound and probably relate to tension joints within a broad, shallowly dipping anticline. Many of the workings occur at the base of a 20 metre thick quartzite unit where the footwall comprises sericitic siltstone and psammites.

The Mining Records (Brown, 1908) show gold production of 20 567 g from 336 tonnes of ore treated (a grade of 61.21 g/t Au) all from King's Bluff and Golden Dewdrop Mines.

The Records also include geological data, some of which suggest further potential for significant gold mineralization within the ELA. Thin, barren quartz reefs at the surface have historically led to thick, gold-enriched reefs and lenses at depth, with wider lodges of decomposed quartz-kaolin rock commonly containing the richest lenses of ore.

This property augments Hallmark Gold N.L.'s holding in the Mannahill area and, given the apparently cursory nature of

previous exploration at King's Bluff, a programme of detailed structural mapping and geochemistry is recommended.

Proposed Exploration

Detailed exploration is recommended of all known gold, arsenic and base metal anomalies within the Mannahill ELs to test for large scale stratabound gold mineralization. Specific areas for immediate attention are detailed below with recommended work programmes:

EL 1436

1. Au-As soil geochemistry and rock chip sampling of the Royal Charlie Prospect further to delineate the anomalous zone along strike within the Tarcowie Siltstone.
2. RAB and RC drilling, as warranted, of the anomalies delineated in 1.
3. Detailed mapping and Au-As geochemistry on the Birthday-Aurora-Australis, Nectar-No Gammon-Homeward Bound, and Euro-Odd Trick lines of workings to delineate the extent of gold anomalies discovered by previous explorers.
4. RAB and RC drilling as warranted of the anomalies delineated in 3.
5. RAB drilling of the line of workings immediately to the west of the Westward Ho! Mine.
6. Follow-up rock chip sampling and soil geochemistry of the northwestern section of Winnininnie Dome along the 3 km zone of arsenic anomalies in stream sediments; follow-up RAB drilling as warranted.
7. Follow-up gold-arsenic geochemistry on base metal anomalies and gold workings in the faulted and brecciated unconformity to the north of Morialpa with follow-up RAB drilling as warranted.
8. Geological and geochemical investigations of the strongly cross-folded Tarcowie Siltstone and associated units in the previously unexplored southeastern part of EL 1436.

Proposed Exploration continued

ELA 295/87

9. Structural mapping and geochemical testing for stratabound and structurally controlled gold mineralization in the King's Bluff area.

A first year budget of \$95 000 has been allocated for the project with \$200 000 planned exploration expenditure in year 2.

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FIRST QUARTERLY REPORT

FOR PERIOD ENDING 6 MARCH 1988

FOR

'KINGS BLUFF'

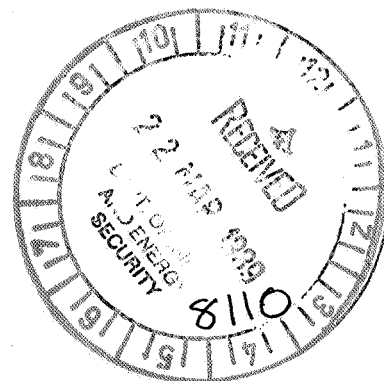
MANNAHILL PROSPECT

E 1457

(FORMERLY ELA 295/87)

YUNTA MINERAL FIELD

SOUTH AUSTRALIA



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1. KEY WORD SUMMARY
2. EXPLORATION SUMMARY AND EXPENDITURE

1. KEYWORDS SUMMARY

Title: 'Kings Bluff' Mannahill Prospect, South Australia
Company: Hallmark Gold N.L.
Commodity: Gold
Tenement: E1457 (formerly ELA 295/87)
Year: 1988

KEYWORDS

Review of Data

LOCALITY NAMES

Kings Bluff
Mannahill
Yunta
Olary

GOLD PROSPECT NAMES

Golden Dewdrop
Kings Bluff

MAP NAMES

1:250 000 Olary

2. INTRODUCTION

No field work was undertaken on the property during the first quarter of licence. The Company commissioned Mackay and Schnellmann Pty. Ltd. of Perth, Western Australia, to undertake an appraisal of all previous exploration in the E.L. and their report will be included in the Second (Final) Quarterly Report ending 6 June 1988.

3. EXPLORATION SUMMARY AND EXPENDITURE

Administration expenditure for the quarter totalled approximately \$1,800.