



## SUMMARY

The area covered by the Barrow Creek Joint Venture (BCJV), located approximately 200 km south of Tennant Creek, is being explored for economic gold mineralisation.

This report describes the exploration activity and results obtained from EL9085 during the second year of tenure to 11/11/98. In this time, a joint venture agreement between Normandy Gold Pty Ltd and Normandy NFM Ltd was formed consolidating all exploration tenements in the Tanami-Arunta region, including the existing BCJV Project area. As a result of this agreement, exploration of the JV properties is managed by Normandy NFM Ltd. Hand over of tenement management caused disruption to planned field programmes due to the need for a period of tenement review and rationalisation. As a result, no in-ground work was completed within the anniversary year.

A review of exploration licences in the Barrow Creek Project Area was undertaken in order to establish a rank order of prospectivity, with a review to tenement rationalisation. A high prospectivity for gold mineralisation was given to EL9085 and as such, it is a priority for exploration efforts in the upcoming year of tenure.

Proposed work for the third year of tenure includes the follow-up of a vacuum arsenic anomaly defined during year one of tenure and further drilling in the untested north of the tenement where prospective stratigraphy and structures are interpreted to exist.

## TABLE OF CONTENTS

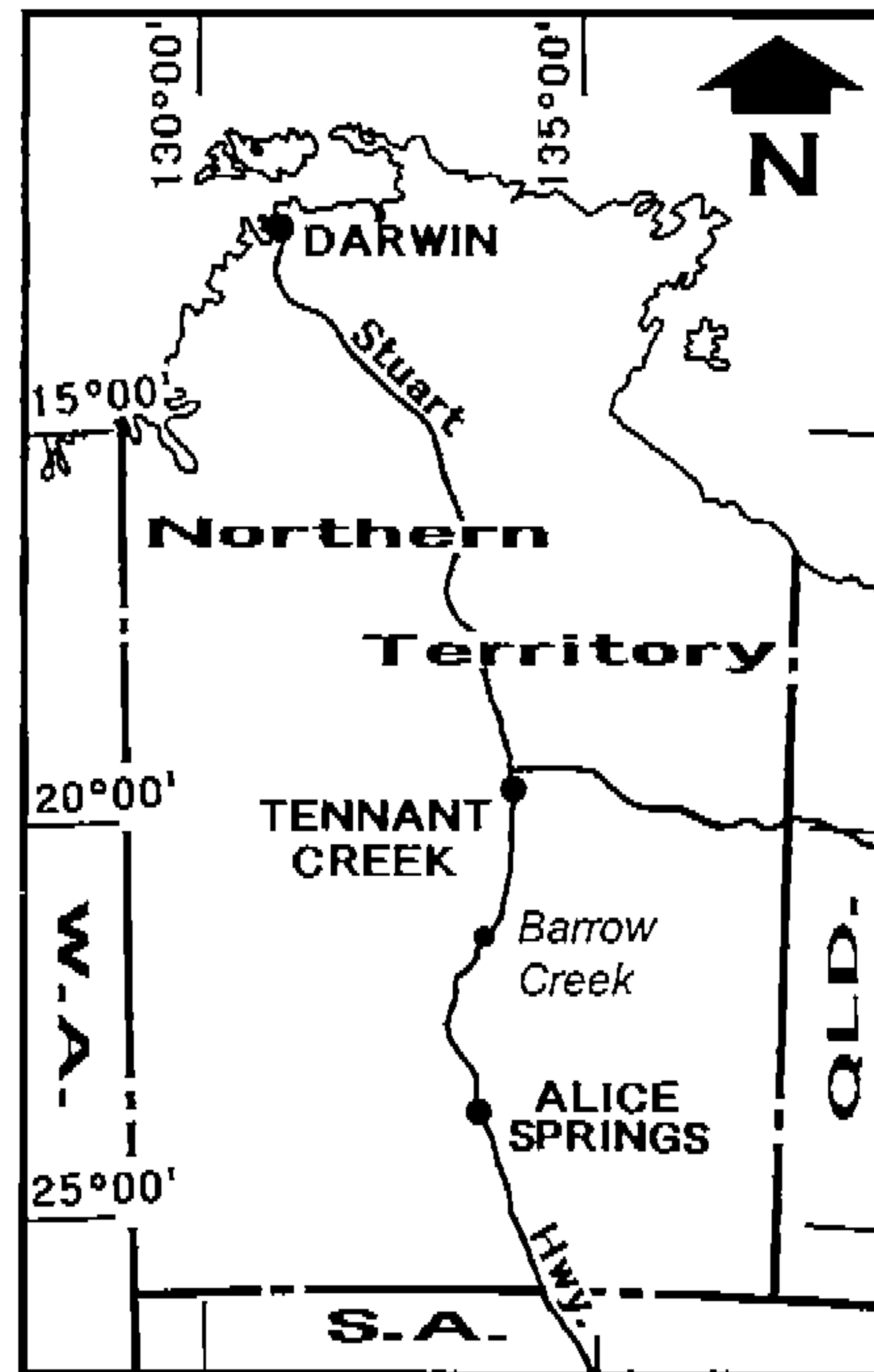
|   | <b>Page Number</b> |
|---|--------------------|
| <b>1. INTRODUCTION .....</b>                                  | <b>1</b>           |
| <b>2. TENEMENT DETAILS .....</b>                              | <b>1</b>           |
| <b>3. LOCATION, ACCESS AND PHYSIOGRAPHY .....</b>             | <b>2</b>           |
| <b>4. PREVIOUS EXPLORATION .....</b>                          | <b>2</b>           |
| 4.1 PREVIOUS EXPLORATION BY OTHER COMPANIES.....              | 2                  |
| 4.2 PREVIOUS EXPLORATION BY NORMANDY GOLD LIMITED .....       | 2                  |
| <b>5. GEOLOGY.....</b>  | <b>3</b>           |
| 5.1 REGIONAL GEOLOGY.....                                     | 3                  |
| 5.2 LOCAL GEOLOGY.....  | 3                  |
| <b>6. WORK UNDERTAKEN .....</b>                               | <b>4</b>           |
| <b>7. EXPENDITURE INCURRED FOR THE REPORTING PERIOD .....</b> | <b>4</b>           |
| <b>8. FORWARD PROGRAMME .....</b>                             | <b>4</b>           |
| 8.1 PROPOSED WORK .....                                       | 4                  |
| 8.2 PROPOSED EXPENDITURE.....                                 | 4                  |
| <b>9. REFERENCE LIST / ANNUAL REPORT BIBLIOGRAPHY .....</b>   | <b>5</b>           |

## LIST OF FIGURES

|  | <b>Scale</b> |
|--|--------------|
| Figure 1 Normandy NFM Tenements (Arunta Region, NT) Showing Location of EL9085 | 1:1,000 000  |
| Figure 2 EL9085 Location and Access Map  | 1:150 000    |

## 1. INTRODUCTION

Exploration Licence 9085 which forms part of the group of tenements forming the Barrow Creek Joint Venture (BCJV), is located approximately 200 km south of Tennant Creek and is being explored for economic gold mineralisation.



## 2. TENEMENT DETAILS

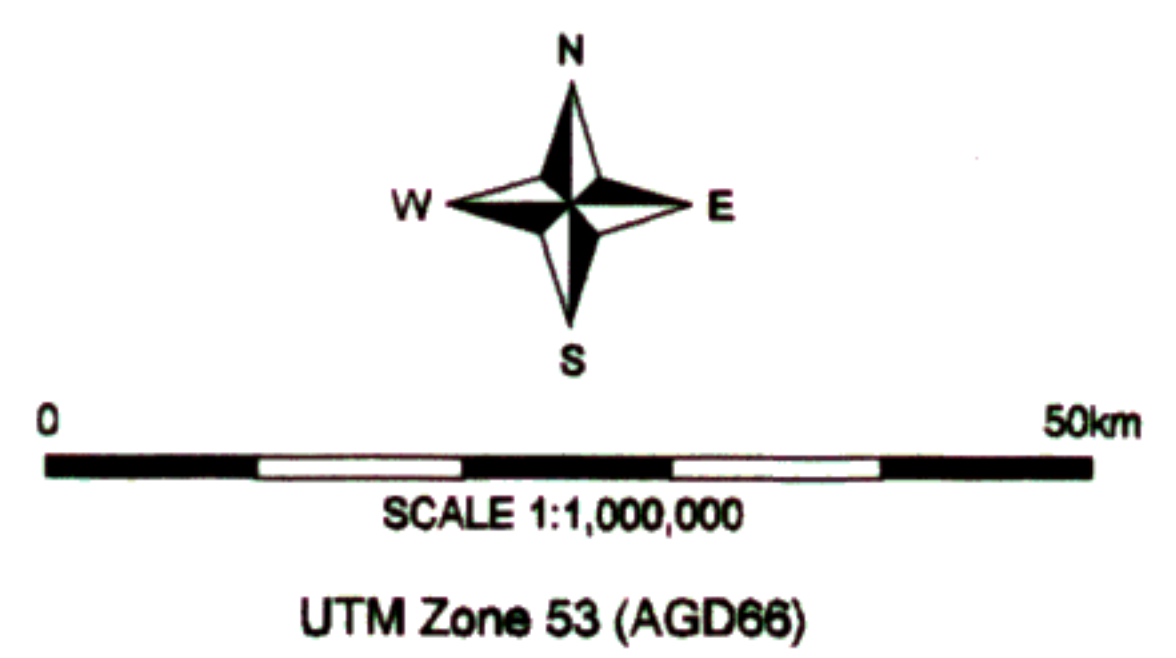
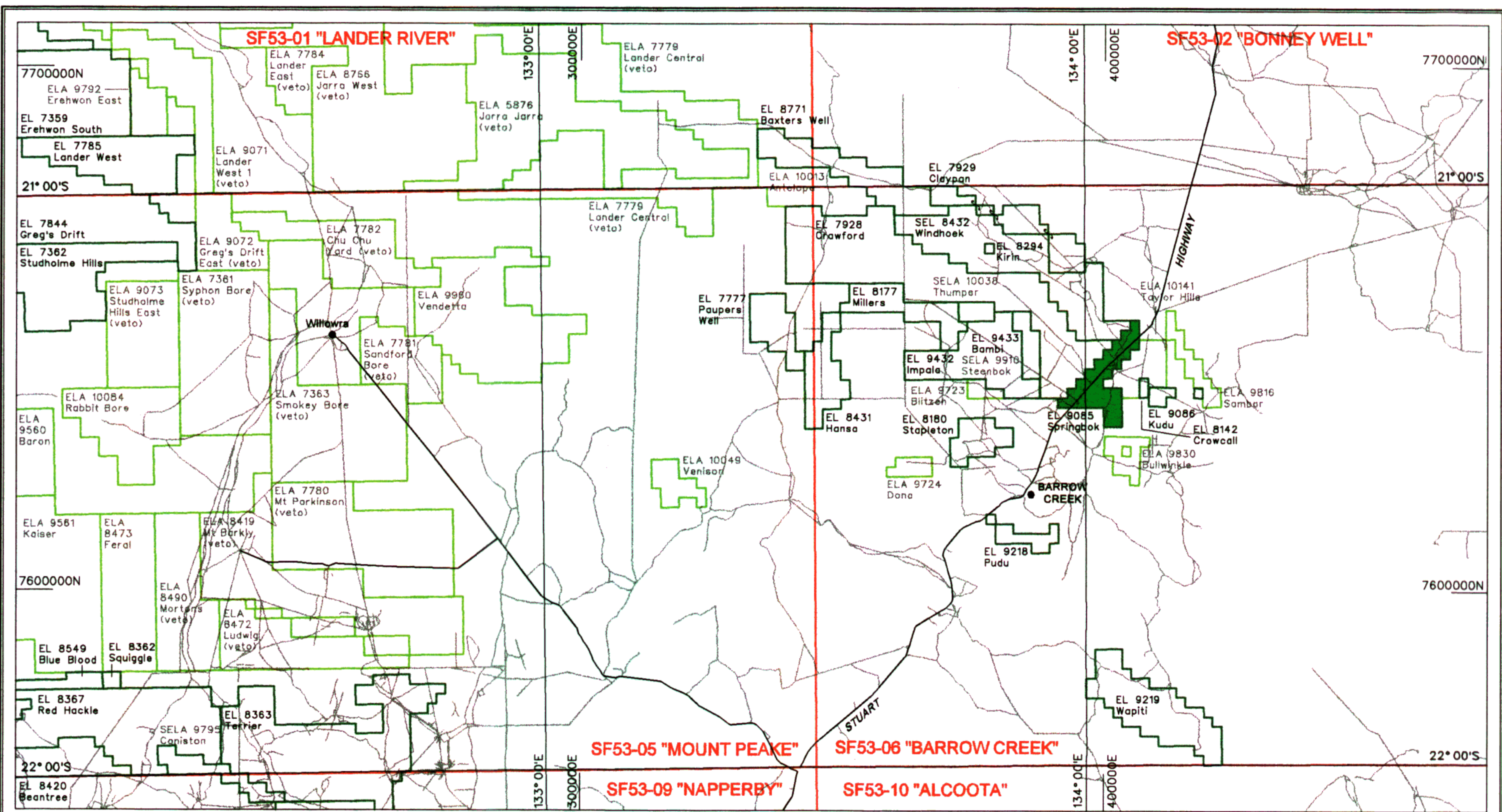
Exploration Licence 9085 comprises 35 graticular blocks and was applied for on 6 February 1995 and subsequently granted to Normandy on 12 November 1996. As part of the licence falls within the BCJV Area of Interest, the licence has been included under the Joint Venture Agreement. Normandy NFM are the operators of the JV and the present breakdown between the JV partners is as follows:

|                           |       |
|---------------------------|-------|
| Normandy Gold Pty Limited | 42.5% |
| Normandy NFM Limited      | 42.5% |
| Yuendumu Mining Company   | 15%   |

**TABLE 1: Tenement Summary, EL9085 (Springbok)**

| Application Date | Grant Date | Expiry   | Blocks | Km <sup>2</sup> |
|------------------|------------|----------|--------|-----------------|
| 6/2/95           | 12/11/96   | 11/11/02 | 35     | 113             |

The tenement, located on the Neutral Junction pastoral lease (NT POR. 3375), has the Stuart Highway and associated Travelling Stock Reserve (NT POR. 4338) passing through the centre of the licence.




**Normandy NFM Limited**  
 NORTH FLINDERS EXPLORATION  
 EL 9085 - SPRINGBOK  
**TENEMENT LOCATION PLAN**

13 OCT 98

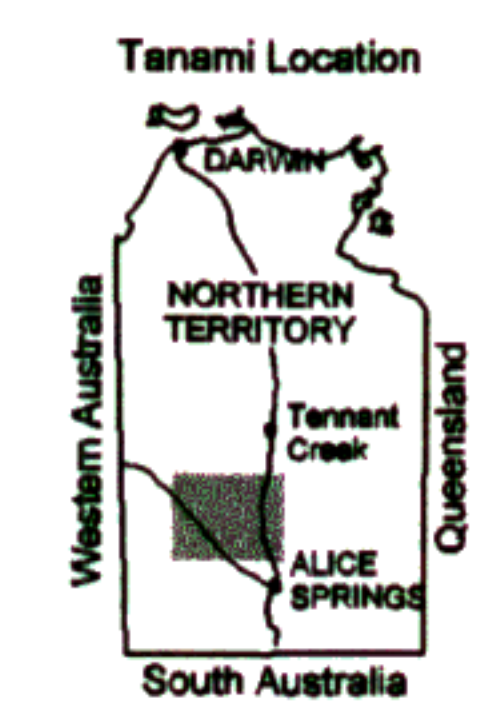


FIGURE 1

### 3. LOCATION, ACCESS AND PHYSIOGRAPHY

Exploration Licence 9085 is located approximately 200km south of Tennant Creek and 30km north of the Barrow Creek Hotel (refer Figure 1). Access is via station tracks from the Stuart Highway (Figure 2).

The Springbok area consists mostly of valley plain colluvial detritus with two channels, associated with Taylor Creek, running roughly north-south through the licence. Isolated subcrop and outcrop occurs in the south of the licence area.

### 4. PREVIOUS EXPLORATION

#### 4.1 Previous Exploration by Other Companies

Within the Barrow Creek area, Kewanee Australia Pty Ltd undertook a broad exploration programme between 1970-1974 within the Crawford-Osborne Range area. Several targets were delineated by a combination of airborne magnetics, radiometrics and EM survey techniques. Targets generated by this method were followed up with geological mapping, sampling and a combination of percussion, reverse circulation and diamond drilling. This work delineated a sub-economic Cu-Ni resource (Prospect D), but grade was considered too low to warrant further investigation and the ground was relinquished in 1973. Kewanee Australia Pty Ltd also targeted the Millers pegmatite hosted tin/tantalum prospect within EL 9085 with rock chipping, soil sampling and geological mapping but with disappointing results.

Limited exploration was conducted by Australus Mining Co Pty Ltd, during 1969, for base metal potential in the Crawford Range area. Pegmatites, granites and metadolerites were targeted with disappointing results.

#### 4.2 Previous Exploration by Normandy

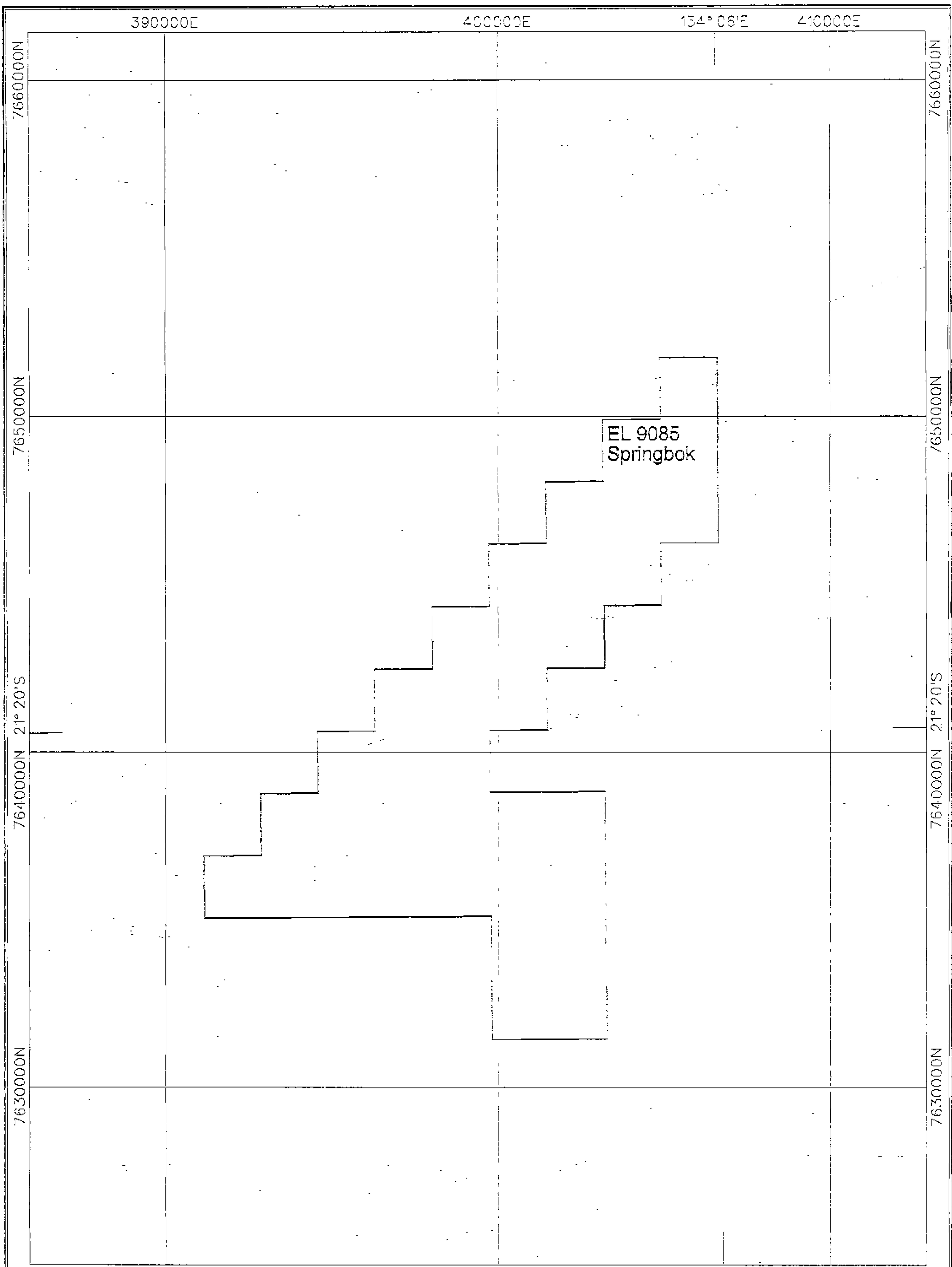
Exploration was previously carried out over EL9085 by Normandy, then known as PosGold Limited, in 1995 as part of a regional gravity survey in the Barrow Creek region. The survey identified a gravity high ridge in the southwest of the licence that was associated with a parcel of tightly folded Arunta Inlier schists and intrusive dolerites. The gravitational response then decreases to the northeast, which was suggested to indicate the presence of a large intrusive granite nearby.

Exploration of EL9085 during the first year of tenure included a regional aeromagnetic survey and regolith mapping. The dominant regolith within EL9085 was interpreted to be valley plain colluvial detritus with associated mulga/acacia. Active channels and areas of alluvial sheetwash are present in the centre of the licence. Large areas of depositional cover were identified and subsequent vacuum drilling was required to penetrate the cover to obtain a geochemical sample of the bedrock.

A total of 155 holes for 1435m were drilled in the southern portion of the licence. Northern areas were not sampled due to the depth of alluvial cover that prevented the drill rig from reaching bedrock.

The drilling intersected prospective schists and phyllites of the Bullion Schist in the west of the licence. Siltstones, sandstones and suspected volcanoclastics were intersected in the east of the licence and are thought to represent the overlying Hatches Creek Group.

Anomalous bedrock arsenic results were identified in a north-northwest trending zone within the schists and phyllites of the Bullion Schist. A peak of 917ppm arsenic was returned within this anomalous zone. Other arsenic anomalous values were also recorded to the west of the main zone, peaking at 1,322ppm. Gold results were not as encouraging, with a maximum value of only 8ppb recorded. Geochemistry results in the eastern portion of the grid within the suspected Hatches Creek Group rocks were subdued. Previous experience in the Barrow Creek region has shown that there is often a strong association between arsenic and gold mineralisation.



390000E

400000E

134° 08'E

410000E

7660000N

7660000N

7650000N

7650000N

EL 9085  
Springbok

7640000N 21° 20'S

7640000N 21° 20'S

7630000N

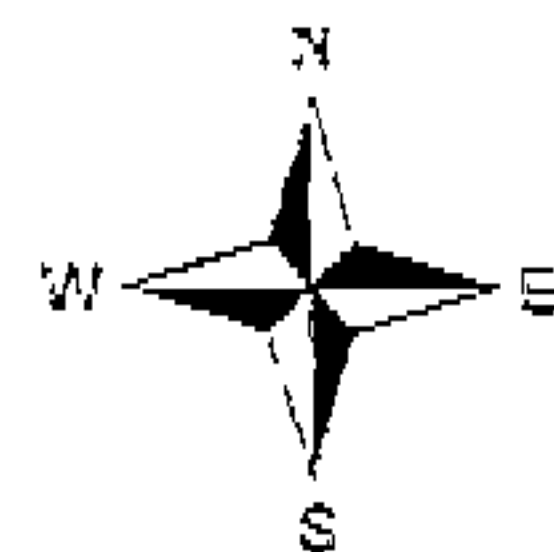
7630000N

390000E

400000E

134° 08'E

410000E



0 3km  
SCALE 1:150,000



Normandy NFM Limited

NORTH FLINDERS EXPLORATION

EL 9085 - SPRINGBOK

LOCATION & ACCESS

## 5. GEOLOGY

### 5.1 Regional Geology

The oldest exposed basement in central Australia comprises metamorphic and igneous rocks of the Arunta Inlier (Haines et al., 1991). Rocks of the Arunta Inlier are interpreted as being at least partly correlative with sedimentary and volcanic sequences of the adjacent Tennant Creek and Granites-Tanami Inliers.

The Arunta Inlier (Early-Middle Proterozoic) is characterised by metamorphosed sedimentary and igneous rocks of low to medium pressure facies. Deformation and regional metamorphism to upper greenschist facies took place between 1810-1750 Ma (Black, 1981). Shaw and Stewart (1975) established three broad stratigraphic subdivisions based on facies assemblages and lithological correlations. From oldest to youngest, these subdivisions are named Division 1, 2 and 3. Using this model defined by Shaw and Stewart (1975), the orthogneiss east of Osborne Range, the calc-silicate rocks west of Crawford Range and the Bullion Schist would be included in Division 2, and the Ledan Schist in Division 3 of the Arunta Inlier.

Unconformably overlying these rocks are the Hatches Creek Group sediments and volcanics. Blake et al. (1987) formally subdivided the Group into the Ooradidgee, Wauchope and Hanlon Subgroups, comprising a total of 20 Formations and two Members. The Hatches Creek Group is a folded sequence of shallow-water sediments with interbedded volcanic units that reach thicknesses of at least 10,000 metres.

The sediments include ridge-forming quartzites, felspathic, lithic and minor conglomeratic arenites and friable arenite, siltstone, shale and carbonate. The Ooradidgee Subgroup consists mainly of fluvial sediments and sub-aerial volcanics which partly interfinger. The Wauchope Subgroup is characterised by large volumes of volcanics and sediments probably both marine and fluvial in origin. The Hanlon Subgroup may be entirely marine and lacks volcanics (Blake et al., 1987).

Deformation and regional metamorphism took place between 1810-1750 Ma (Black, 1981). Folding was about NW trending axes while metamorphism to upper greenschist facies took place. Later intrusion of both the Arunta basement and the Hatches Creek Group by granitoids of the Barrow Creek Granitic Complex took place around 1660 Ma (Blake et al., 1987). Contact metamorphism and metasomatism are often observed.

Sedimentation associated with the Georgina Basin commenced during the Late Proterozoic with the Amesbury Quartzite and was terminated during the Early Devonian after deposition of the Dulcie Sandstone. The Georgina Basin sequence was mildly affected by the Carboniferous Alice Springs Orogeny.

A long erosional period followed with subsequent deep weathering during the Tertiary produced silcrete and ferricrete horizons. A thin veneer of Quaternary sands and soils overlays much of the area, except where recent and active alluvial sedimentation is present.

### 5.2 Local Geology

Surface geology within the licence consists mostly of valley plain colluvial detritus with two colluvial channels running roughly north south through the licence which are associated with Taylor Creek. Isolated subcrop and outcrop occurs in the south of the licence and consists of Bullion Schist in the west and probable Hatches Creek Group and Ali Curung Granite in the east.



## 6. WORK UNDERTAKEN

Work completed within EL9085 during its second year of tenure was restricted to a detailed review of previous exploration conducted on the tenement in order to assess the prospectivity of the Springbok area. The review was also completed in order to rank Springbok against other exploration licences within the Barrow Creek Project with a view to tenement rationalisation. A high prospectivity for gold mineralisation was given to EL9085 and as such, it is a priority for exploration efforts in the upcoming year of tenure.

## 7. EXPENDITURE INCURRED FOR THE REPORTING PERIOD

**TABLE 2: Details of Exploration Expenditure for the Year to 11/11/98**

| <b>COST CENTRE</b>                          | <b>EL9085 TOTAL</b> |
|---|---------------------|
| Employee Costs                              | 5 695               |
| Operating Costs/ Regional Office Allocation | 810                 |
| Field Costs                                 | 2 238               |
| <b>TOTAL</b>                                | <b>\$8 743</b>      |
| COVENANT                                    | \$9 780             |

## 8. FORWARD PROGRAMME

### 8.1 Proposed Work

Anomalous bedrock arsenic results returned from previous vacuum drilling form a north-northwest trending zone in the south of the licence area. Previous experience in the Barrow Creek region has shown that there is often a strong association between arsenic and gold mineralisation. These results will be followed up in the upcoming year of tenure in order to ascertain the true tenure of the anomaly. Interpretation of aeromagnetic data will also aid in the identification of any structural features associated with the arsenic anomaly and help to generate new targets.

Additional drilling will take place in the untested northern portion of the licence, targeting structural features identified within favourable host-lithologies. This area of the licence, despite containing extensive alluvial cover in part, is considered to hold significant potential for economic gold mineralisation.

### 8.2 Proposed Expenditure

The completion of the proposed exploration programme on EL9085 is anticipated to result in an expenditure in excess of \$20 000 for the 12 month period to 11/11/99.

---

## 9. REFERENCE LIST / ANNUAL REPORT BIBLIOGRAPHY

### References

Blake, T.U.; Stewart, A.J.; Sweet, I.P. and Hone, I.E., 1987. Geology of the Proterozoic Davenport Province, Central Australia. Bureau of Mineral Resources, Australia, Bulletin, 226.

Black, L.P.; 1981: Age of the Warramunga Group, Tennant Creek Block, Northern Territory, BMR Journal of Australian Geology and Geophysics, 6, 253-257.

### Reports to NT DME

Morris, T ; 1997. First Annual Report for EL9085 (Springbok) for the period 12/11/96 to 11/11/97, Normandy Gold, Tennant Creek. Normandy RN 22066.