

**Aberfoyle Resources Limited**

A.C.N. 004 664 108

**Exploration Division**

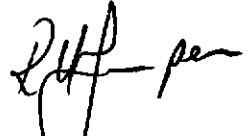
**EXPLORATION LICENCE 8718  
'MOUNT PEAKE CREEK'  
(Mount Peake and Barrow Creek 1:250 000 sheets)**

**ANNUAL REPORT ON EXPLORATION  
FOR THE YEAR ENDED  
28 AUGUST 1997**

Distribution:

Aberfoyle Resources Ltd, Perth (1)  
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## SUMMARY

Aberfoyle Resources Limited is currently exploring the gold potential of Exploration Licence 8718, 'Mount Peake Creek' with the Early Proterozoic sequences present on the licence seen as being potential host rocks. Mineralisation in the Granites-Tanami Province to the west is often associated with magnetic anomalies and as such Aberfoyle's exploration is directed towards the testing of such magnetic features.

A Joint Venture was entered into between Aberfoyle and Western Mining Corporation (WMC) in April 1997, covering tenements immediately adjacent to EL 8718. Lengthy delays in finalising of Joint Venture terms and agreements along with further delays associated with transfer of past exploration data to Aberfoyle lead to a postponement of field exploration during the third year of tenure.

An Aberfoyle geologist re-evaluated all data pertaining to EL 8718, including new data sourced from WMC. Subsequently a revised programme and budget were proposed which will involve comprehensive vacuum and RAB geochemical drilling of all remaining magnetic targets.

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MPC 11	EL 8718 - Mount Peake Creek Simplified Geology	1:100,000

## 1. INTRODUCTION

### 1.1. Location and Access

EL 8718 is located approximately 280km NNW of Alice Springs on the 1:250 000 series Mount Peake and Barrow Creek mapping sheets (SF53-5, 6). The licence occurs within the Anningee and Mt Stirling Pastoral Leases in an area between the abandoned 'Old Mount Peake' and present day Barrow Creek settlements.

Access to the area is obtained by travelling north from Alice Springs along the Stuart Highway, turning west just north of the Stirling Station turn off and then via station tracks (Plate MPC 26).

### 1.2. Tenure

EL 8718 covered an initial area of 1397km<sup>2</sup> of pastoral lease land and was granted on the 29 August 1994 to Aberfoyle for a period of six years.

The expenditure commitment for the third year of tenure on EL 8718 was \$50 000.

## 2. GEOLOGY

### 2.1. Regional Geology

The Mt Peake Creek Project area lies in the north-east of the Northern Province of the Arunta Inlier, the largest Proterozoic terrain in central Australia.

Due to its size (~200 000km<sup>2</sup>) geological complexity and cover by extensive Cainozoic Basin sediments, the Arunta Inlier is poorly understood in terms

of geology, geochemistry and geochronology and therefore, subject to only vestigial exploration for mineral deposits to date.

A three-fold stratigraphic sequence for the Arunta Inlier has been proposed by Stewart et al (1984) and Shaw et al (1984) which, from oldest to youngest is detailed below:

- mafic and felsic metavolcanics and minor metapelites metamorphosed up to granulite facies
- dominantly immature metasediments of turbidite origin, metamorphosed to amphibolite facies (Lander Rock Beds)
- platform-style sediments (shale, carbonate, quartzite) that overlie and are locally unconformable to the other two divisions.

Lithologies of the Northern Province are dominated by very low-*P*, high-*T* metamorphic facies rocks which have been extensively intruded by voluminous granites (Zhao and Bennett, 1995).

#### 2.1.1. Structure

The Arunta Inlier is located on the southern margin of the Northern Australian Orogenic Province and as such is considered to be part of a major ensialic Proterozoic Mobile Zone.

The majority of granulite facies rocks within the Arunta have been dated between 1880 and 1050Ma with major tectonic events correlated to the Barramundi Orogeny active between 1890Ma in the Mt Isa Inlier and 1854Ma in the East Kimberley.

Four main ductile phases of deformation have transformed the rocks of the Arunta Inlier:

- D1 - layer parallel shears
- D2 - NE trending, long wavelength upright folds
- D3 - macroscopic E-W to NW-SE trending folds with penetrative axial planar cleavage
- D4 - small scale NE trending folds

### 2.1.2. Mineralisation

Gold mineralisation within the Arunta Inlier is primarily controlled by a combination of favourable structure and lithology.

The two most successful configurations for economic mineralisation discovered to date are detailed below:

- The earliest mineralisation episode discovered in the Arunta to date is layer parallel (syn-D1?) and is known to occur in the Granites Mine and Dead Bullock Soak. Auriferous deposits occur within thick turbidite sequences where BIF, chert and carbonaceous shale have acted as effective chemical and physical traps for gold bearing hydrothermal solutions that migrated along concordant slip zones.
- The Callie and Tanami Mine deposits are hosted in post-D2 brittle fracture zones consisting of cross-cutting quartz vein stock works and sheeted vein systems near fault zones or in fold closures thus requiring rocks amenable to brittle fracture (dolerite, greywacke, ?quartzite).

## 2.2. Local Geology

More than 80% of EL 8718 as mapped is overlain with Quaternary cover. The majority of the surface outcrop lies within the triangle defined by Mud Hutt Well, Mt Peake Creek Bore and Middle Well (Plate MPC 26). In this region, the Adelaidian to Early Cambrian Central Mt Stuart Formation and

associated Amesbury Quartzite member are mapped (Offe and Stewart, 1974).

In the northern portion of the tenement, north-easterly trending, brecciated quartz veins cut across the surface. A perpendicular set crops out in the south-eastern extremity of the tenement area.

Ground reconnaissance during the 1996 RAB drilling programme (Plate MPC 26) revealed that the outcrop/subgroup is comparable to that mapped by the BMR. In providing access tracks for the drill rig, a small area of laterite was excavated near line 6 but no basement lithologies were uncovered. During drilling, basement lithologies of granite and pegmatite were intersected in abundance. Line 10 provided the only exception with mica schists, contact metamorphic ?skarn, chloritic shears and amphibolites intersected. Lander Rock Beds outcrop to the west and south-west of the project area on adjacent tenements now subject to a joint venture between WMC and Aberfoyle. It is thought that the mixed provenance schists intersected on Line 10 form part of this, the lowest Proterozoic unit in the Arunta Inlier (see Section 2.1 above).

### 3. WORK COMPLETED

#### 3.1. Previous Work

Year Ended 28 August 1995

##### *Past Work Summary*

A search of the NTDME's Darwin office records was conducted by Bichard Exploration Services Pty Ltd on behalf of Aberfoyle Resources to reveal the history of company exploration in the general area of EL 8718.

### *AAPA Site Clearance*

Aberfoyle Resources applied to the Aboriginal Areas Protection Authority (AAPA) for an Authority Certificate covering the entire area of EL 8718. The application was made on 13 October 1994 and the Certificate issued on 28 March 1995.

### *Regional Geophysical Data Acquisition and Imaging*

Aberfoyle Resources acquired existing geophysical datasets relevant to EL 8718. These include a BMR airborne magnetic survey of the Mount Peake 1:250 000 sheet flown in 1976, a NTGS commissioned airborne magnetic survey of the Barrow Creek 1:250 000 sheet flown in 1981 and regional BMR gravity data. These data sets were gridded and imaged using ER Mapper software.

### *Airborne Magnetic and Radiometric Survey*

Geoterrex were contracted to fly that part of EL 8718 that lies on the Mount Peake 1:250 000 sheet to gather magnetic and radiometric data, as the poor quality of existing magnetic data did not allow accurate targeting of surface or sub-surface geochemical exploration. The resulting image was patched into existing Mount Peake and Barrow Creek datasets.

### Year Ended 28 August 1996

#### *Landsat TM Imaging*

Landsat TM data was purchased for Mt Peake Creek and processed using ER Mapper software. From the Landsat image, a 'supervised classification' was performed with the aid of ground reconnaissance.

#### *Access Track Clearing*

To enable rig access to the planned drill sites in the western portion of EL 8718, approximately 21.5km of new tracks were cleared by the station owners under the supervision of Aberfoyle staff.



### *Ground Magnetic Traverses*

A field crew completed and modelled seven ground magnetic traverses over proposed drill lines using two Scintrex magnetometres tracked by a differential GPS system.

### *RAB Drilling*

A total of 2185 metres from 76 holes was completed on EL 8718. RAB drilling was centred on seven lines which traversed magnetic features delineated by an airborne magnetic survey flown during the first year of tenure. Samples were submitted to Amdel Laboratories for gold and base metal assay.

### *Rehabilitation*

At the completion of drilling, each RAB hole was plugged using a plastic 'octoplug', filled with cuttings from around the collar and tamped firm. All rubbish was removed and each site left in a tidy condition.

## 3.2. Work done by Aberfoyle in the 12 months to 28 August 1997

As reported by Hughes and Thompson, 1996, it appears the most prospective areas to date exist along the western portion of the licence. Coincidentally, Aberfoyle's Exploration Licence 8717 'Ingallan Creek' to the west shows prospective areas along the eastern margin. Investigations into this area resulted in Aberfoyle Resources entering into a Joint Venture in April 1997 with Western Mining Corporation (WMC) on Exploration Licences 7557, 7558, 7559, 8869, 8870 and 8874, collectively called the Ti Tree Project. This area falls immediately between Aberfoyle's EL 8718 and 8717, and as such Aberfoyle will manage these licences collectively.

Lengthy delays in the finalising of Joint Venture terms and agreements along with further delays associated with WMC passing information on to

Aberfoyle lead to a postponement of field exploration during the third year of tenure.

Re-evaluation of all data pertaining to EL 8718 including new information acquired from WMC from exploration on adjacent tenements (geochemical sampling, airborne and ground geophysics and drilling) has led to a revised programme and budget, which will involve comprehensive vacuum and RAB geochemical drilling of all remaining magnetic targets.

4. EXPENDITURE

Aberfoyle Resources expended a total of \$18,198.79 on exploration of EL 8718 during the third year of tenure. A breakdown of this expenditure appears below;

EL 8718  
MT PEAKE CREEK  
EXPENDITURE SUMMARY FOR 12 MONTHS  
ENDED 28/8/97

<u>COST CENTRE</u>	<u>\$</u>
Geology	5,545.54
Geophysics	5,125.11
RAB Drilling	1,523.05
Access	1,575.00
Other Services	3,134.05
Administration	<u>1,296.04</u>
	\$18,198.79

5. PROPOSED PROGRAMME AND BUDGET

**EXPLORATION LICENCE 8718 'MT PEAKE CREEK'**

**PROPOSED PROGRAM/EXPENDITURE FOR YEAR 4**

**28/8/97 TO 29/8/98**

EL 8718 covers the eastern end of a well defined granite dome, bounded by folded, faulted magnetic metasediments.

RAB drilling during the second year of tenure on EL 8718 Mt Peake Creek identified attractive fine grained metasediments of the Lander Rock Beds, and work on immediately adjacent ground (EL 7559) by WMC (this tenement is now subject to a Joint Venture between WMC and Aberfoyle) has shown these rocks to be gold and arsenic anomalous.

It is proposed, in the 12 months to 29/8/98, to complete geochemical exploration of the areas of elevated magnetic character surrounding the domal granite on EL 8718.

Proposed work includes approximately 750 vacuum drilled geochemical samples on 86 traverses and approximately 100 RAB holes/2000 metres on 9 lines. RAB holes will be planned in detail following ground magnetometer traverses.

A summary of estimated expenditure is shown below;

**EL 8718**

**Proposed Expenditure for the 12 months ending 28/8/98**

<u>Cost Centre</u>	<u>\$</u>
Geochemistry	25,000
Ground Magnetics	2,000
Access	2,000
RAB Drilling	<u>50,000</u>
TOTAL	\$79,000

## 6. REFERENCES

*Drown, C. G., 1995:* Exploration Licence 8718 'Mt Peake Creek' (Mount Peake and Barrow Creek 1:250 000 sheets) annual report on exploration for the year ended 28 August, 1995. Aberfoyle Resources unpublished internal report.

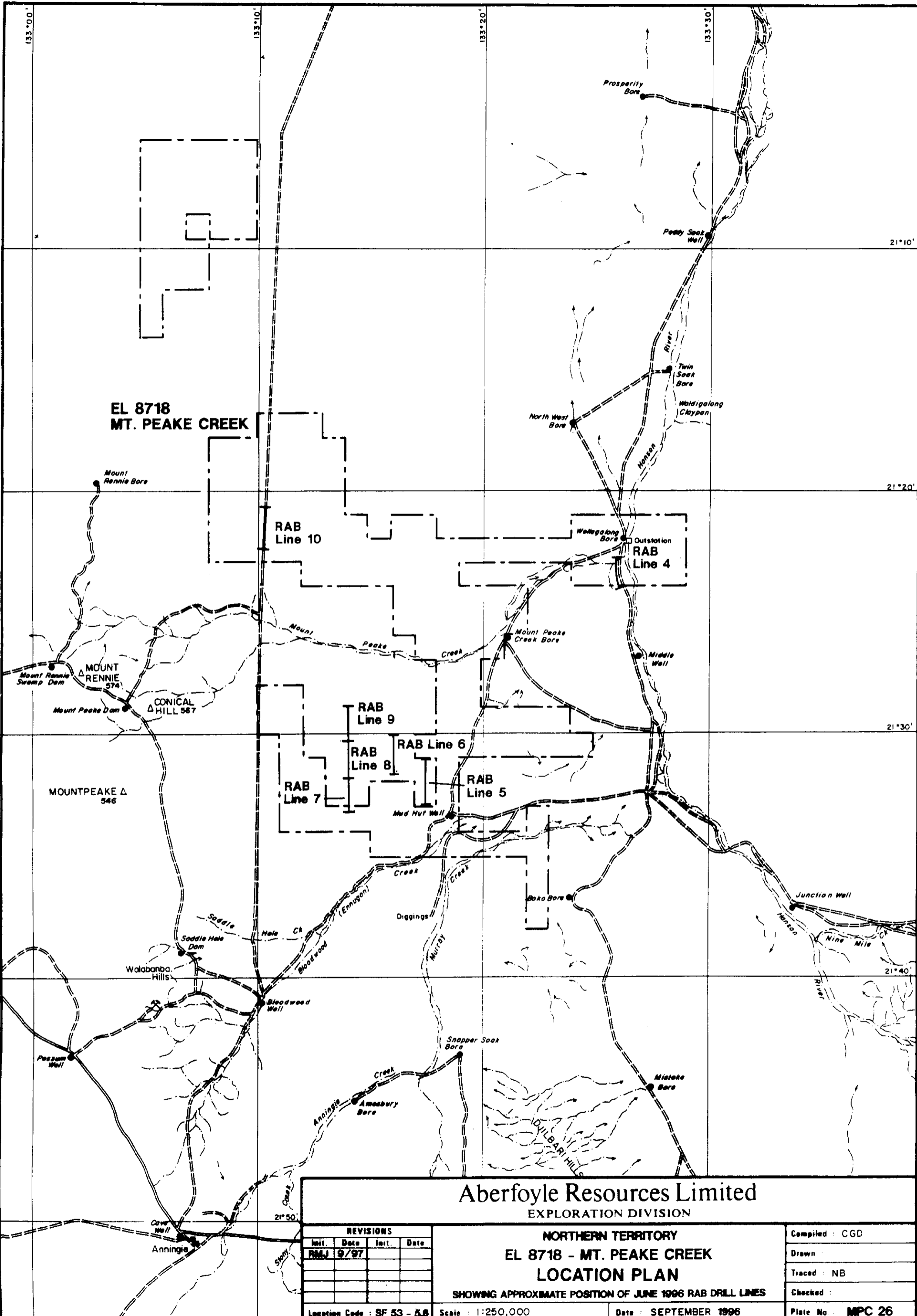
*Hughes, S. L. M. and Thompson, A. D., 1996:* Exploration Licence 8718 'Mt Peake Creek' (Mount Peak and Barrow Creek, 1:250 000 sheets) Annual report of exploration for the year ended 28 August 1998. Aberfoyle Resources unpublished internal report.

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*Shaw, R. D., Stewart, A. J. and Black L. P., 1984:* The Arunta Inlier: a complex ensialic mobile belt in central Australia, Part 2. Tectonic history. Australian Journal of Earth Science, 31:457-484.

*Stewart, A. J., Shaw, R. D. and Black, L.P., 1984:* The Arunta Inlier: a complex ensialic mobile belt in central Australia. Part 1: Stratigraphy, correlations and origin. Australian Journal of Earth Science, 31:445-455.

*Zhao, J. X. and Bennet, V. C., 1995:* SHRIMP U-Pb zircon geochronology of granites in the Arunta Inlier, central Australia: implications for Proterozoic crustal evolution. Precambrian Research, 71:17-43.



EL 8718  
MT. PEAKE CREEK

**Aberfoyle Resources Limited**  
EXPLORATION DIVISION

NORTHERN TERRITORY  
EL 8718 - MT. PEAKE CREEK  
LOCATION PLAN

SHOWING APPROXIMATE POSITION OF JUNE 1996 RAB DRILL LINES

REVISIONS			
Init.	Date	Init.	Date
RMJ	9/97		

Location Code : SF 53 - 5,8

Scale : 1:250,000

Date : SEPTEMBER 1996

Compiled :	CGD
Drawn :	
Traced :	NB
Checked :	
Plate No :	MPC 26

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