PROJECT MINING CORPORATION

FINAL REPORT ON EL 1633, NORTHERN TERRITORY

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SUMMARY

Exploration Licence No.1633, of 43.25 square miles in the Hatches Creek district, was held by Project Mining Corporation for a period of twelve months beginning on January 27th, 1978. The Company's main objective was to re-examine an area south of the Hatches Creek Wolfram Field to check the possibility that rocks mapped as porphyry might in fact be older than the Hatches Creek Group, with an unconformity between the two units. Field examination showed that much of the "porphyry" consisted of sandstone and volcanic rocks of the Hatches Creek Group. Prospecting both on the ground and by helicopter failed to reveal any significant radioactive anomalies and in view of these results, and the stratigraphic checks, the Company did not seek renewal of any part of the Licence Area after the end of the first year's term.

During the field works, floaters of granite were found in Mia Mia Creek (i.e. on a different drainage system from the area where granite had been mapped previously) but no outcrops were located.

1. INTRODUCTION

1.1 Tenure

Exploration Licence No.1633, Northern Territory, was granted to Project Mining Corporation for an initial period of twelve months beginning on January 27th, 1978.

1.2 Area

E.L. 1633 contained an area of 43.25 square miles.

1.3 Location

This is shown on Figure 1. The centre of the Exploration Licence is about four miles south of the Hatches Creek Wolfram Field, which is approximately 300 miles north-east of Alice Springs and about 175 miles south-east of Tennant Creek.

1.4 Access

Road access to Hatches Creek from the sealed Stuart Highway is shown on Figure 1. The Hatches Creek Wolfram Field has not been permanently inhabited for several years and the section of the road between Murray Downs, Hatches Creek and Epenarra is used intermittently and in late 1978 some parts of this road were in a poor state of repair; this applied particularly to several creek crossings south-west of Hatches Creek, which were trafficable by four wheel drive vehicles only.

Within E.L. 1633 access is difficult. The western part consists of an elliptical-shaped depression ringed by steeply dipping quartzite ridges which are breached by streams in only a few places. One such gap, at the north-eastern end of the "ellipse" can be negotiated by four wheel drive vehicles when water holes are low or empty. The tracks around the old workings on the Hatches Creek Field are in poor condition but provide starting points for foot traverses and a track leading south from the Field to Elkedra Station provides access to the eastern part of EL 1633. On the present survey a helicopter was used to provide transport to the western part of EL.1633.

2. PREVIOUS INVESTIGATIONS

Officers of the Aerial Geological and Geophysical Survey of North Australia (AGGSNA) mapped the Hatches Creek Wolfram mines and their surroundings in 1940, and Hossfeld (1953) named the sequence of quartzite and interbedded

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volcanic rocks which constitute the Davenport and Murchison Ranges as the Hatches Creek Group. Hossfeld followed the AGGSNA (1941) belief that sheared sedimentary and igneous rocks in a roughly elliptical-shaped area south of Hatches Creek (part of EL 1633) were older than the Hatches Creek Group and separated from it by a strong angular unconformity. Hossfeld referred to these older rocks as the "Bottom Series".

In 1956 a geological field party from the Bureau of Mineral Resources, Geology and Geophysics, mapped the Davenport and Murchison Ranges on a regional scale (Smith, Stewart and Smith, 1961) and another party from the same organization mapped the Hatches Creek Wolfram Field (Ryan, 1961). Also in 1956, the Geophysical Branch of the Bureau, conducted an airborne scintillometer and magnetometer survey by DC 3 aircraft of the Davenport and Murchison Ranges and also used an Auster aircraft to make a scintillometer survey of Hossfeld's "Bottom Series". This latter survey found a few radioactive anomolies, which were later examined by local prospectors but no significant uranium anomalies were found.

The 1956 regional geological party used air photographs which were taken in 1949 and in the area covered by EL 1633 some of these photographs showed little more than a grey blur. The field party examined Hossfeld's "Bottom Series" and concluded that :

(i) there was not strong angular unconformity between the "Bottom Series" and the Hatches Creek Group;

(ii) some of the "Bottom Series" belonged to the Hatches Creek Group;

(iii) the remainder of the "Bottom Series" consisted of porphyry which intruded the Hatches Creek Group;

the evidence of intrusion was based on the occurrence of the porphyry in the core of a dome, similar to other more definite intrusions in domes in the Davenport Range. An exception to this general conclusion was provided by small outcrops of granite, which were found some four miles south of the eastern part of the Wolfram Field.

3. PRESENT SURVEY OF EL 1633

RC 9 area photographs taken in 1963 were used and were much better than the earlier (1949) series of photographs.

General examination of the margin of the elliptical-shaped dome failed to show any area where a contact, unconformable or otherwise, was revealed, because the last few metres of ground below the rim of definite Hatches Creek Group sediments were invariably concealed by scree. However, examination of creek

sections, particularly in the west, east and south, showed numerous steeply-dipping bands, 5 - 30 mm. thickness, of thin-bedded silicified quartz sandstone, similar to that in much of the Hatches Creek Group and with strikes changing in conformity with those of the Hatches Creek Group surrounding the dome. Interbedded with the quartz sandstone bands are weathered fine-grained igneous rocks apparently similar to those in a valley in the eastern part of EL 1633 and also in numerous other valleys between sandstone ridges in the Davenport Range; the inclusion of these "valley rocks" in the Hatches Creek Group has not been disputed, and they have been mapped as acid and intermediate type extrusive rocks of that Group. The sandstone bands within the dome cannot be mapped without a detailed survey and/or use of enlarged air photographs, but the prevalence of the bands is indicated in RC 9 photographs - where major faults cut the bands the quartz breccia shows as white patches on the air photographs.

Floaters of greisen were found in Mia Mia Creek, at localities near the stream's exit from the dome. Granite previously mapped in the north-east of the dome is on a different stream system and although no outcrops of granite or greisen were found along Mia Mia Creek, or its tributaries, their presence is clearly indicated.

Radioactivity was tested both from the air and on the ground, by means of a GRS 101A Scintillometer, but no anomalous zones were detected. After comparing results on the ground with those obtained on the same instrument carried on a helicopter, several flight lines were surveyed (Figure 2), from a height of 40 feet above the terrain and a speed of 45 knots. The detecting instrument responded well to changes in rock types. The extrusive rocks gave uniform total counts about 40 per cent higher than uniform counts obtained on quartz sandstone ridges and bands, but no anomalous readings were recorded. The same order of separation and magnitude was found by ground prospecting both within and outside the domed area.

4. CONCLUSIONS

(a) There is a need to revise part of the published Frew River 1:250,000 Geological Sheet.

(b) No significant radioactivity was recorded.

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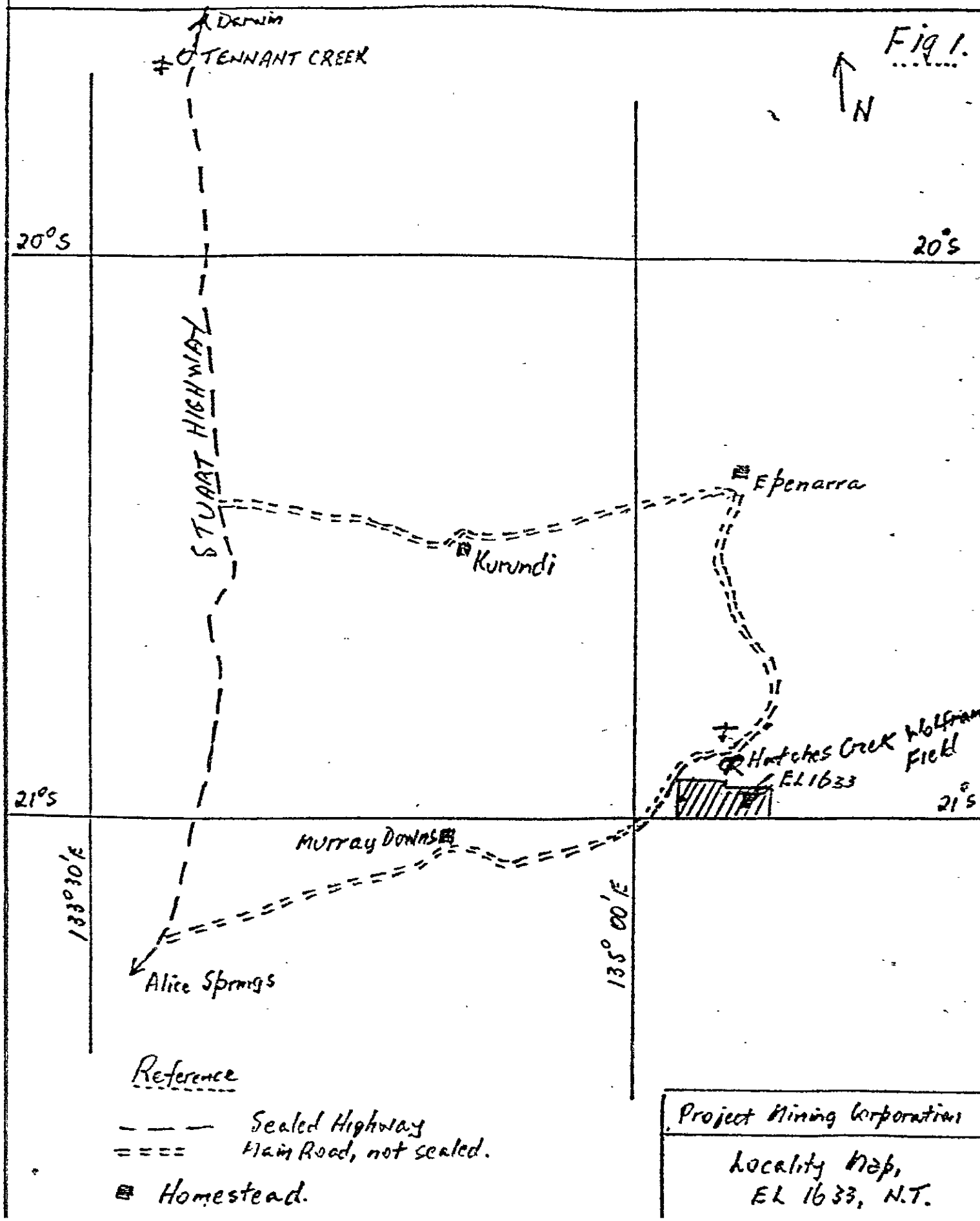
Darwin
TENNANT CREEK
Fig 1.
N
20°S
20°S
STUART HIGHWAY
Epenarra
Kurundi
Hatches Creek Wolfram Field
EL 1633
21°S
21°S
Murray Downs
133°30'E
135°00'E
Alice Springs
Reference
Sealed Highway
Main Road, not sealed.
Homestead.
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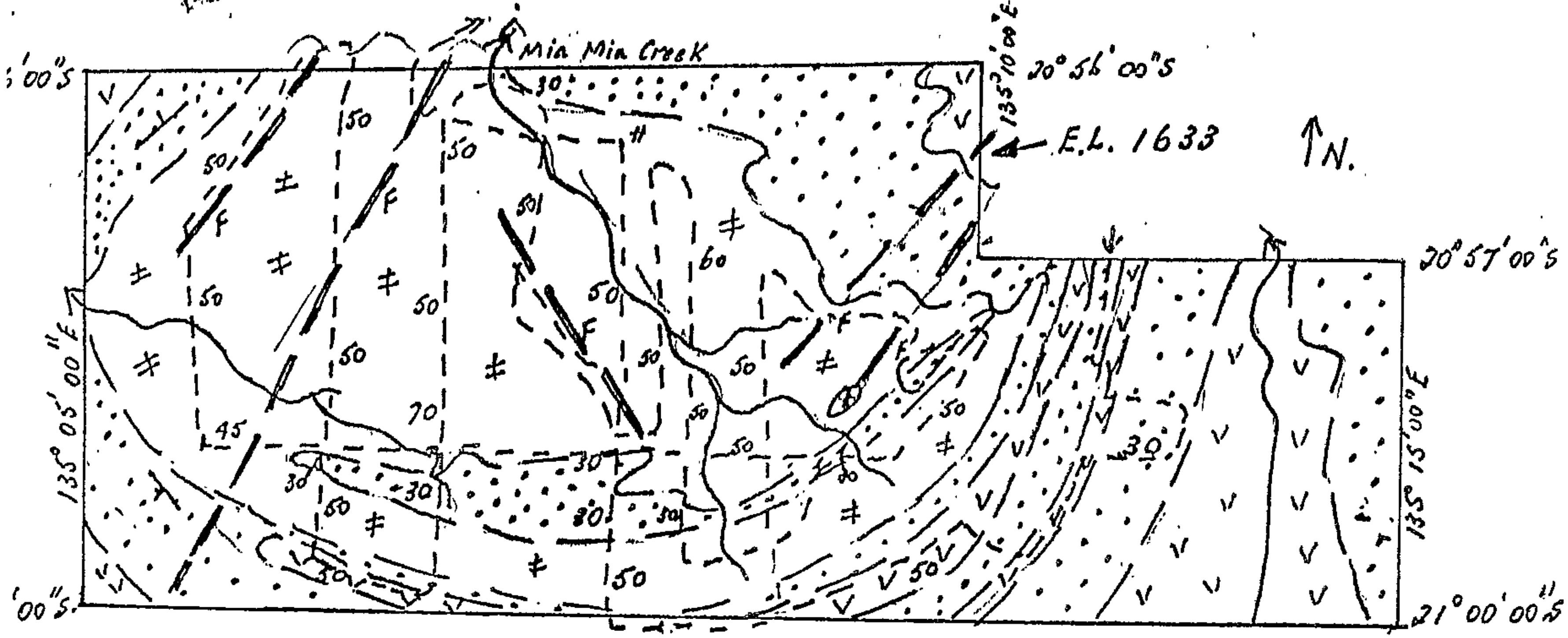
Locality Map,
EL 1633, N.T.

FIG 2.



Reference:

F — Fault.
→ — Stream
— — Geological Boundary, approximate
- - - - Holicopter Traverses, in Bell FB5, 90feet, 45Kts.
30 — Counts per second, Airborne GRS 101A Scintillometer.

Precambrian — Hatches Creek Group:

+	Granite
· · ·	Sandstone
V V	Acid and Intermediate Volcanic
#	Sandstone and Volcanics

Scale 1:15000, Approximately

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Geological Sketch Map.
E.L. 1633, N.T.

June, 1974