

Proposed diamond drilling programme, All Nations mine, Moina.

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Abstract

Quartz-wolframite veins trending about 105° and dipping 75-80°S are dislocated by a low angle reverse fault (strike 090°, dip 20°-25°N). Although the displacement of the veins along the fault surface is not known, two inclined drill holes are proposed to test beneath the fault for vein mineralisation over an area from 30 m S to 90 m N of the present workings.

INTRODUCTION

At the request of the lessees of mining lease 24M/60, an inspection of the All Nations quartz-wolframite vein deposit was undertaken to evaluate possible diamond drilling targets. During intermittent production between 1905 and 1942, 36 t of wolfram were won from mines in the All Nations area. Recent development at the All Nations mine has reportedly produced about 3 t of wolfram.

LOCATION AND ACCESS

The All Nations mine is situated approximately 1.5 km east of Moina [DQ243060] and is readily accessible by vehicle track from the Cradle Mountain Road.

PREVIOUS LITERATURE

Early reports of the mine were prepared by Twelvetrees (1913), referring to the Lady Barron workings, Reid (1919) and Keid (1943). A detailed investigation of the All Nations mine and the surrounding area was made by Nixon (1954) who also prepared plans of the workings.

MINE WORKINGS

Recent development has slightly altered the mine workings as described and illustrated by Nixon (1954). Access to the eastern end of the workings is now by a decline beginning about 10 m north-west of the entrance to the No. 1 tunnel/open cut. A cross cut has been driven south for about 8 m from a point about 3 m west of the western inclined raise. The cross cut passes through a fault zone for most of its length, without intersecting significant veining.

The shaft near the entrance to No. 2 tunnel is reported to have been deepened to 7.5 m below the level of No. 2 tunnel and the lode driven on both west and east of the shaft. These workings were not inspected due to deep water.

GEOLOGY AND MINERALISATION

The stratigraphic succession in the All Nations area consists of Cambrian quartz porphyry (the Bull Creek Volcanics) unconformably overlain by a lenticular pebble conglomerate (the Roland Conglomerate) in turn overlain by tubicolar quartzite and shale (the Moina Sandstone), both of Ordovician age. Bedding generally dips 25°-35° N-NW. Approximately 4 km east is a stock-like body of Devonian granite (the Dolcoath Granite) which probably extends westwards at relatively shallow depths beneath the All Nations

mine and at least to below the Shepherd and Murphy mine at Moina (Collins, 1975). The mineralisation is probably genetically associated with this granite.

Quartz veins with wolframite and minor cassiterite, bismuth, molybdenite, muscovite and pyrite intersect all three rock types in the area. The veins range from 1 cm to 40 cm in width, with a general E-W strike and steep south dip.

At the All Nations mine the veins occur entirely in quartzite and shale, strike about 105° , and dip 75° - 80° S. The veins occur in an *en echelon* pattern with their extremities overlapping. At least three parallel veins are recognised with an average thickness of about 20 cm. The veins are dislocated at the eastern end of the workings by a low angle reverse fault striking about 090° and dipping 20° - 25° N. This thrust fault consists of a brecciated zone with included vein fragments and a series of parallel faults over a thickness of about 2 m. Slickensides on fault surfaces trend 025° - 035° . Drag on bedding indicates the hanging wall moved south relative to the footwall (Nixon, 1954). The magnitude of the displacement along the fault surface is not known.

The fault is also reported to have been intersected at the end of a 10 m drive east of the deepened main shaft.

There is no evidence to indicate that the displaced veins, if located below the fault, would be narrower, or of lower grade than the veins mined above the fault.

Ore reserves are seriously depleted because of the thrust fault. Reserves in the eastern end of the workings are essentially nil. Only limited reserves remain at the western end of the lode above the fault where the wolframite is reported to be finer grained than in the eastern end, and the vein lower grade.

CONCLUSIONS AND RECOMMENDATIONS

Quartz-wolframite veins at the All Nations mine are dislocated by a low angle reverse fault. The displacement of the veins along the fault surface is not known. It is proposed that inclined (-30°) drill holes be sited on the surface, to the north of the inclined raises at the eastern end of No. 2 tunnel, in an attempt to locate either the displaced veins or other veins which may have been faulted into approximate juxtaposition. Although the proposal involves essentially 'blind' drilling, the two holes are designed to test below the fault for vein mineralisation within a reasonable distance of the present mine. The holes will provide coverage from 30 m S to 90 m north of the veins mined above the fault (fig. 1).

An alternative proposal is for two holes to be drilled from the cross cut in No. 2 tunnel level. An horizontal, 30 m long hole drilled south and an inclined (-35°) 120 m long hole drilled north from beneath the fault would provide the same coverage as the two surface holes. This proposal may require extension of the cross cut by about 3 m.

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[26 April 1978]

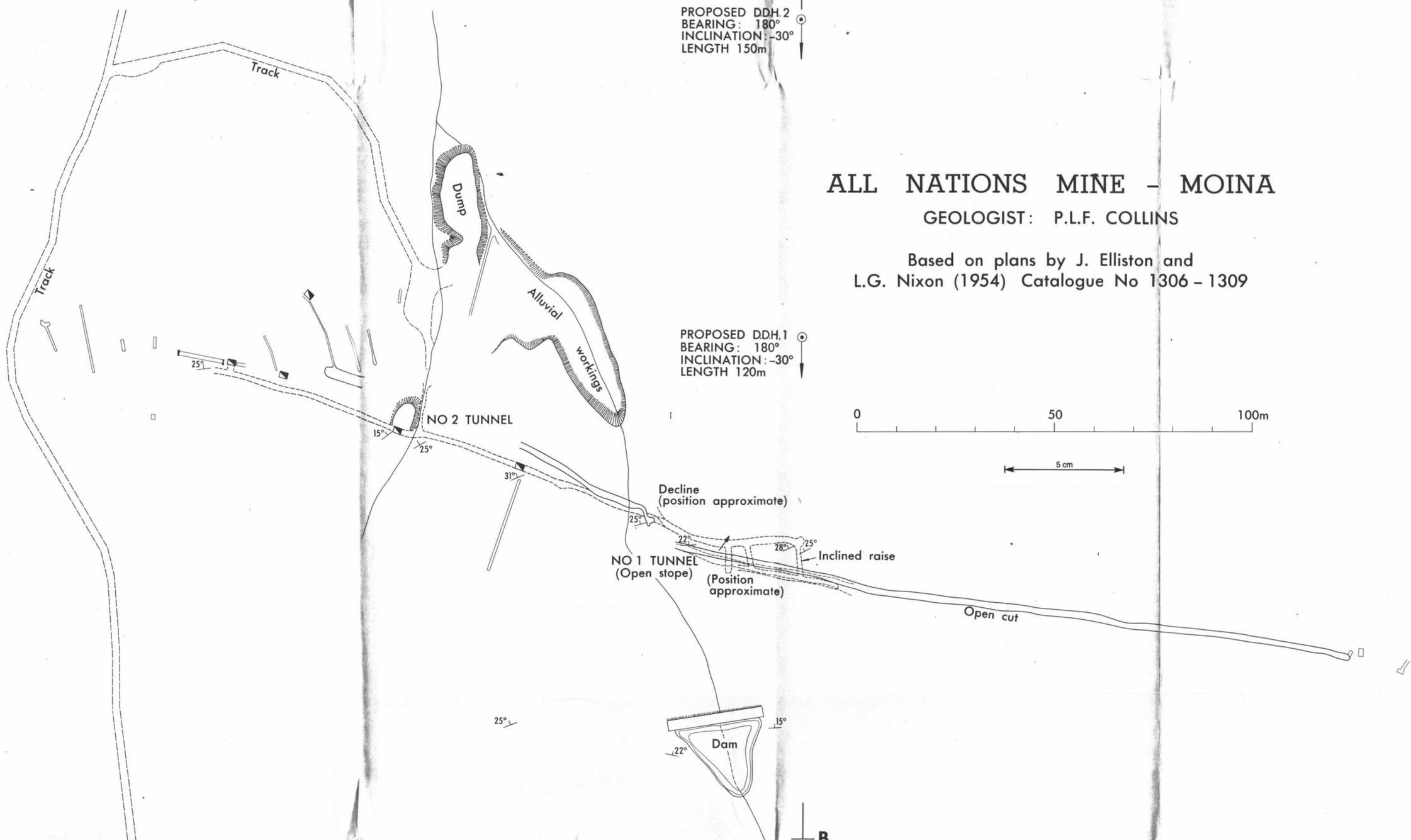
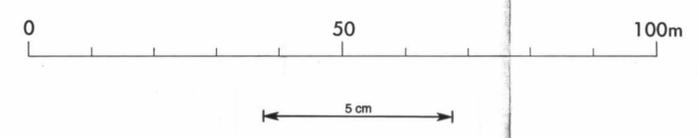
ALL NATIONS MINE - MOINA

GEOLOGIST: P.L.F. COLLINS

Based on plans by J. Elliston and
L.G. Nixon (1954) Catalogue No 1306 - 1309

PROPOSED DDH.2
BEARING: 180°
INCLINATION: -30°
LENGTH 150m

PROPOSED DDH.1
BEARING: 180°
INCLINATION: -30°
LENGTH 120m



CROSS SECTION A - B

- ▣ Shaft
- Surface workings
- - - Underground workings
- ↗ Slickensides
- 22° Bedding

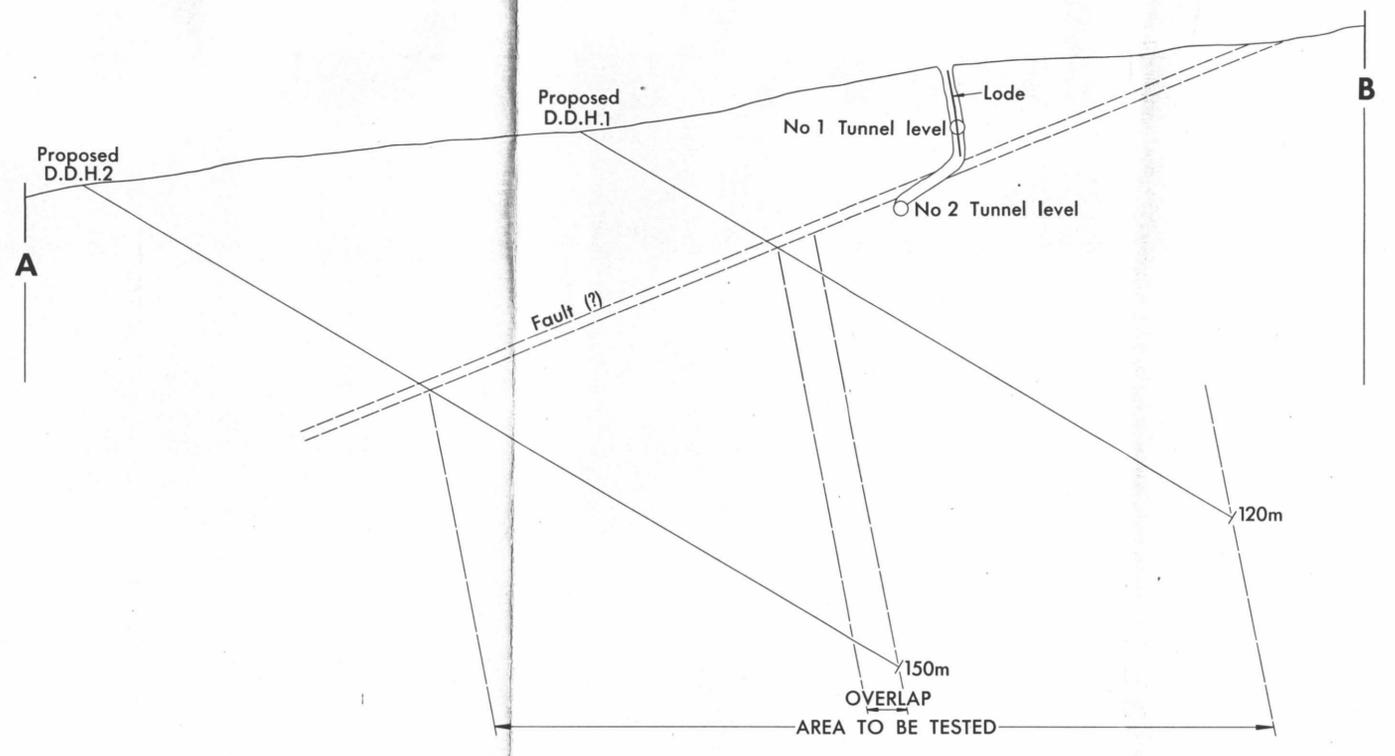


Figure 1