COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF SUPPLY AND SHIPPING.

MINERAL RESOURCES SURVEY.

REPORT No. 1944/8 .

Plans No. 1047, 1048.

GEOLOGICAL REPORT

ON

WILKS CREEK WOLFRAM FIELD, MARYSVILLE, VICTORIA.

- By -

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Mineral Resources Survey Branch

GEOLOGICAL REPORT ON WILKS CREEK WOLFRAM MINE, MARYSVILLE, VICTORIA.

Report No. 1944/8, Plans No. 1047, 1048.

SITUATION AND ACCESS.

The Wilks Creek wolfram mine is situated in the parish of Steavenson, county of Anglesey in central Victoria. It is approximately 4 miles south from the small town of Marysville, a popular tourist resort, and 61 miles by road northeast from Melbourne. The mine is 22 miles by road from the nearest railway at Healesville, 39 miles by rail from Melbourne, and is 3½ miles east from the main road between Healesville and Marysville and is reached by a steep mountain track branching from the main road at a point 2 miles south-west from Marysville. The track becomes impassable to motor vehicles when very wet or under snow.

MAPPING.

Underground and surface mapping was carried out on the 23rd and 24th November, 1943, with compass, tape and Abney level. Old workings on Nos. 2 and 3 reefs, to the south of No. 2 Adit are now shown on the accompanying plan.

HISTORY AND PRODUCTION.

Reports on past production are meagre and fragmentary. Apparently the mine was not worked until some time after 1908, for a description of wolfram deposits near Marysville in that year does not mention that at Wilks Creek. (Dunn, E.J., Rec.Geol.Surv. Vic.Vol.III, Pt.3, p.259).

The mine was worked during the last war and closed down in 1918 or 1919. Records of production from the Marysville area are:-

1918 - 2.5 tons concentrates valued at £429.
1919 - 1.25 " " " " £223.

These figures may include a very small production from the Opas Creek deposits a few miles to the east, but at least 2.1 tons of concentrates were produced at Wilks Creek in 1918. This tonnage of concentrates was produced from 200 tons of ore, presumably from No. 1 Adit level, and contained 69 to 70% WO_3.

Since the reopening of this mine by the Minerals Production Directorate, Department of Supply and Shipping, the following results have been obtained:-

Period 1943	Ore Tons	Ore WO_3%	Concentrates Tons	Concentrates WO_3%	Recovery %	Proceeds Sale of Concentrates.
to 21 July	97	0.84	0.99 }	67.7 x	91.1	£A 667
19 Aug.	75	0.98	1.09 }			
15 Sept.	80	0.88	0.74	69.1	72.8	258
13 Oct.	63	0.62	0.49	68.6	86.6	186
10 Nov.	72	0.65	0.64	67.6	90.0	231
8 Dec.	65	- }	0.80	70.5	-	291
20 Dec.	20	- }				
	472	-	4.75 /	68.5	ø	£A 1,633

x Calculated from separate assays of Table and Jig Concentrates. / Equivalent to 5.01 tons of concs. cont. 65% WO_3. ø Average recovery to 10th November equals 86.4%.

With the exception of 11 tons from No. 2 Adit all the above ore was won from No. 1 Adit level.

GENERAL GEOLOGY.

The area in the immediate vicinity of the mine is occupied by a rock which in the hand specimen resembles biotite granite, but which has been described as acid lavas of Devonian age. The volcanic rocks are intermediate in character between rhyolite and dacite and have been described in detail by E. S. Hills (The Geology of Marysville, Victoria. Geol. Mag. Vol. LXIX. No. 814 April 1932). These rocks overlie Silurian sandstones and shales which outcrop 2 miles west from the Mine and also at Marysville.

ECONOMIC GEOLOGY.

The wolfram deposits at Wilks Creek consist of three narrow parallel quartz reefs striking N.27°W. and dipping to the northeast at 75° to 80°. In addition to wolfram and scheelite, both tourmaline and pyrite are present and the concentrates contain tin in amounts varying from a trace to 1.5%.

The westernmost of the three reefs is known as No. 1 and has been traced along the strike for about 1,500 feet. This reef is intersected by No. 1 Adit from which a drive extends along the vein for 480 feet. No. 2 Adit is driven on the south end of the reef for 250 feet and is at a level 70 feet above No. 1 Adit level (see Plan).

On the No. 1 level the reef is 3 inches wide where it is intersected by the adit and maintains this width with slight variations for 140 feet along the drive to the south. From about this point the reef widens to a maximum of 14 inches at 240 feet south from the adit, and then thins gradually to only 3 to 4 inches in the face 480' from the cross-cut. The reef is 'frozen' to the hangingwall, but breaks cleanly from the footwall which exhibits vertical slickensiding.

A winze has been sunk vertically to 62 feet below the No. 1 level and from 50 feet in this winze a drive has been carried south for 70 feet. The winze measures 8 x 5 feet and was sunk in the hangingwall of the reef which passed across the winze into the opposite side at about 50 feet equivalent to a dip of about 80°. The water level in the winze stood at 10 feet below No. 1 level and consequently it was not possible to examine the 50 feet level and the following information was obtained from the manager. The reef narrowed from 8 inches at the top of the winze to 5 inches at the bottom. Values were good all the way down. At 6 feet south from the winze the vein widened and for the remaining 64 feet of the drive averaged 8 inches but values were much lower and an increase in the amount of pyrite present caused a drop in the grade of concentrates.

In No. 2 Adit, which is 770 feet southeast from and 65 feet above the portal of No. 1 Adit, the reef is narrow and averages 4½ inches in width with a maximum of 6 inches. The reef branches at a point 87 feet from the portal, and the spur diverges to the northwest at a small angle. The actual point of bifurcation is obscured by timber, but apparently the spur follows a pre-ore fault for 3 or 4 feet to the west and then changes its direction to a strike sub-parallel to the No. 1 reef. The branch is exposed in the adit for a length of 30 feet and has a constant width of 10 inches.

GRADE OF ORE.

No. 1 Reef.

(a) No. 1 Level. The table on page 1 shows that the average value of the ore, together with wall-rock unavoidably included, treated in 1943 has been a little less than 1 per cent WO_3. Such information as is available suggests that the ore mined prior to 1919 was about the same grade. Visual examination indicates that values are very low in the narrow part of the reef, but are good in unstoped areas between 140 feet and 450 feet south of the adit. Near this latter point the reef is intersected by a number of faults of small displacement. It is noteworthy that tourmaline is present in barren or lean zones.

(b) No. 2 Adit. Here values are so low as to be negligible. Examination under ultra-violet light of 200 feet of reef from the face back to the timber near the portal showed minute specks of scheelite in three places only. Wolfram is equally scarce. Eleven tons of stone won from 101 feet of driving in this adit were transported to the mill, but was not treated separately so its value cannot be ascertained, but the manager stated that it was very poor. The branch reef appears to be barren.

(c) The drive 50 feet below No. 1 Level. There is no direct evidence regarding the value of the ore on this level, but, as mentioned above, the manager stated that the values were low over 64 of the 70 feet driven.

No. 2 Reef.

The main adit was continued east to intersect No. 2 reef, but was abandoned in hard ground 130 feet beyond No. 1 reef. At 75 feet east of No. 1 reef the cross-cut intersected a strong fault with strike N.40°W. and dipping southwest at 80°, and a vertical fault on a parallel strike occurs 20 feet further east. Neither fault shows any mineralization although one or the other was supposed to represent the continuation of No. 2 reef fissure.

A short adit intersects No. 2 reef about 120 feet above No. 1 level. At this point the reef is between 3 and 4 inches wide and carries very low values only.

ORE RESERVES.

No. 1 Reef.

The ore shoot developed on this level appears in longitudinal section to be rectangular in shape with the lower limit approximately coinciding with the floor of the level. In view of the low values revealed in the winze and 50 foot level the amount of ore below No. 1 level must be very small. There is, however, a possibility of ore below No. 2 stope and this could easily be explored by a winze sunk from the point indicated on the section.

Above the level, the bulk of the ore has been stoped early in the mines history, but two blocks have been left and were being removed at the time of the inspection. (See Plate 2). The old stope appears to have been carried nearly to the surface 65 feet above the level, as evidenced by surface subsidence for 110 feet along the reef in a position coincident with the old stope. The first block above the winze is small and at this point the reef is narrowing in the back of the stope. The block is 24 feet long by 65 feet from the back of the drive to the surface by an average width of 9 inches. At the time of inspection this block had been stoped to a height of 15 feet

above the back of the drive (No. 1 stope) removing 21 tons of ore and leaving probably 62 tons. However, it is possible that portion of this ore has already been extracted from the old rise which is 8 feet south of the winze.

The second block is near the southern end of the drive and is 80 feet long by 65 feet to surface by an average width of 10 inches. Two stopes (Nos. 2 and 3) have been opened in this block, one 45 feet long by 23 feet above the back of the drive, and the other 12 feet by 12 feet. The total ore in this block is 314 tons of which 76 tons had been broken at the end of November, 1943.

In addition to the foregoing a triangular area of narrow reef containing 50 tons of ore probably exists immediately south of No. 3 stope.

A summary of the reserves in No. 1 Reef above the adit level is:-

	Length Feet	Height Feet	Width Inches	Tons	Tons recoverable WO_3
No. 1 Stope	24	65	9	83	
Less tonnage mined				21	
				62	0.6
No. 2 & 3 Stopes	80	66	10	314	
				76	
				238	2.4
No. 3 Stope	60	60	5	50	0.5
	2				
				350	3.5

No. 2 Reef.

Owing to the narrowness and low value of the reef where exposed and the lack of development there are no reserves of ore in this reef.

No. 3 Reef.

The reef is narrow and has not been developed.

SUMMARY.

The wolfram deposits at Wilks Creek consist of three narrow parallel reefs of which only one (No. 1) has been developed. This reef has a maximum thickness of 14 inches and maintains an average thickness of 9 to 10 inches for a length of 250 feet. Values are principally confined to the wider portions of the reef. The centre portion has been stoped for a length of 120 feet from No. 1 level nearly to the surface, a vertical height of 60 feet. Ore reserves are small and are contained in narrowing blocks at each end of the old stope.

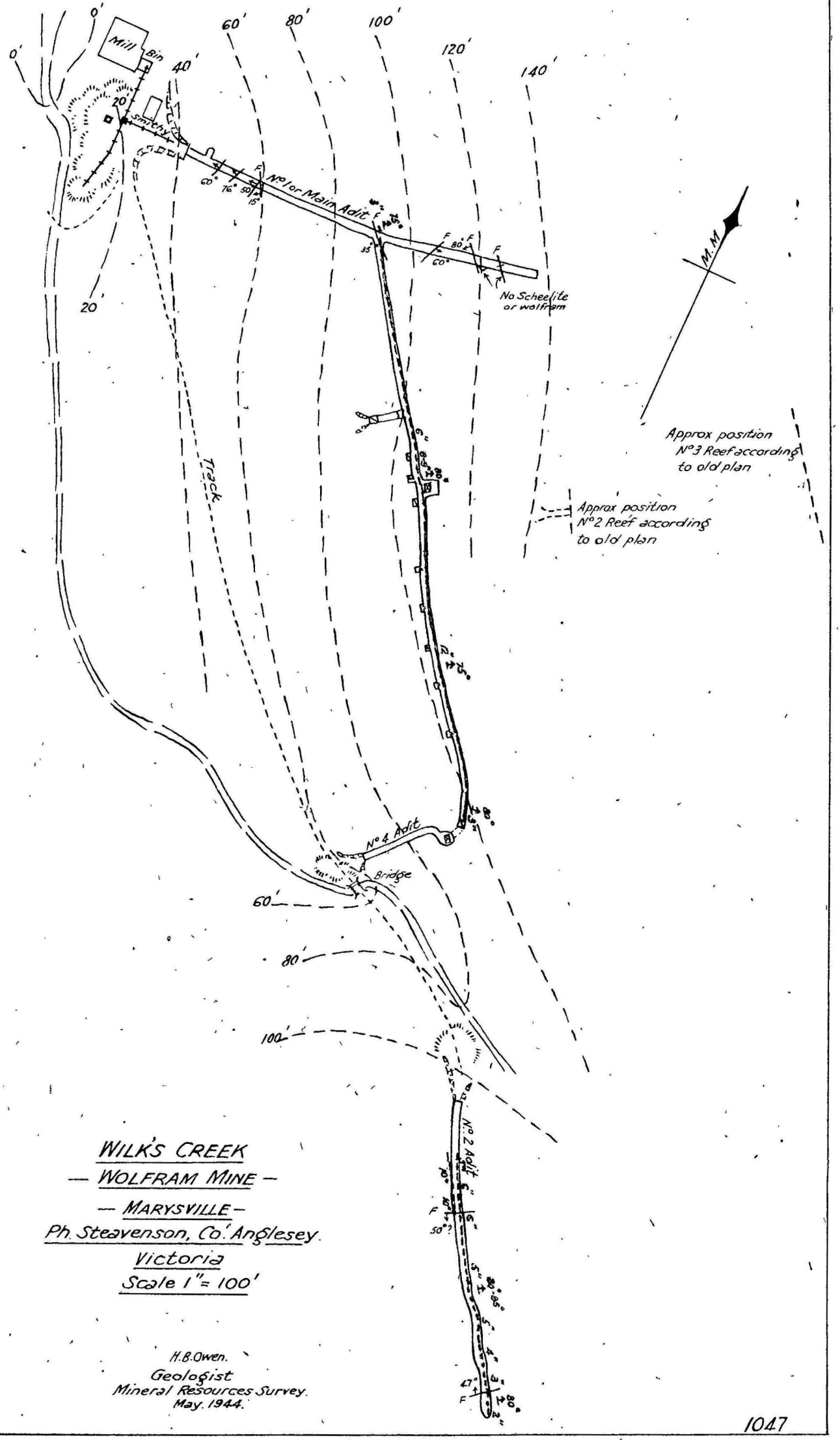
The mine has produced a total of 8.4 tons of concentrates containing 5.4 tons of tungstic oxide (WO_3) from about 790 tons of ore crushed. These results indicate that the average grade of ore crushed, including unavoidable dilution with wall rock, has been 0.7 per cent recoverable WO_3, or about 0.86 per cent total WO_3.

All the ore crushed has been won from No. 1 Reef.

H.B. Owen.

CANBERRA, A.C.T.
17th March,
1944.

H. B. OWEN,
Geologist



WILK'S CREEK
— WOLFRAM MINE —
— MARYSVILLE —
Ph. Steavenson, Co. Anglesey.
Victoria
Scale 1" = 100'

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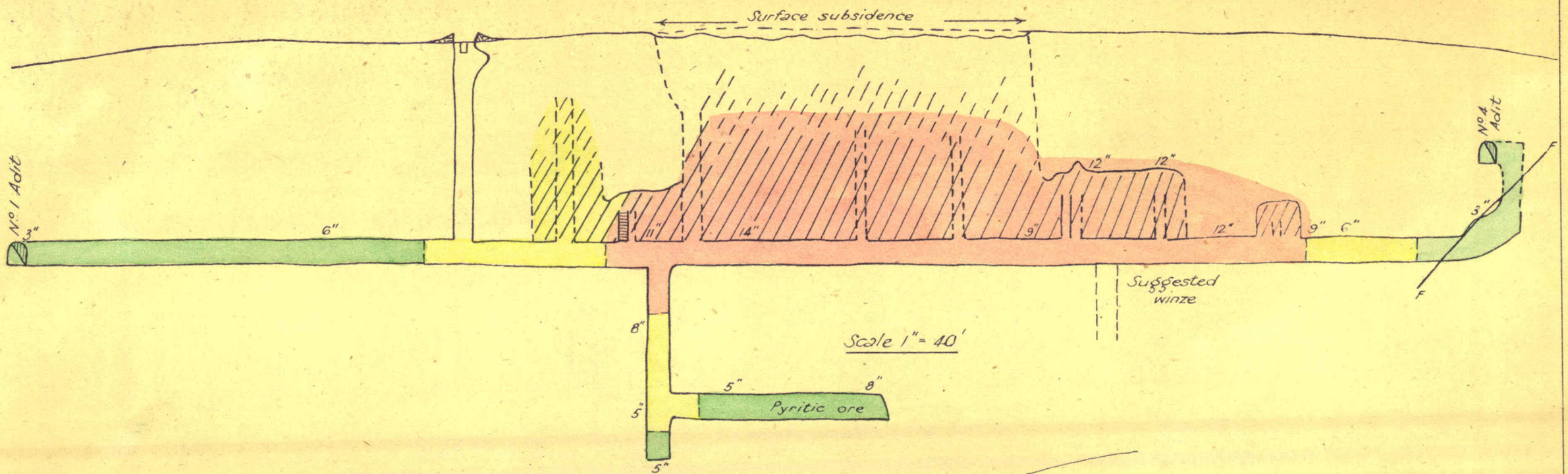
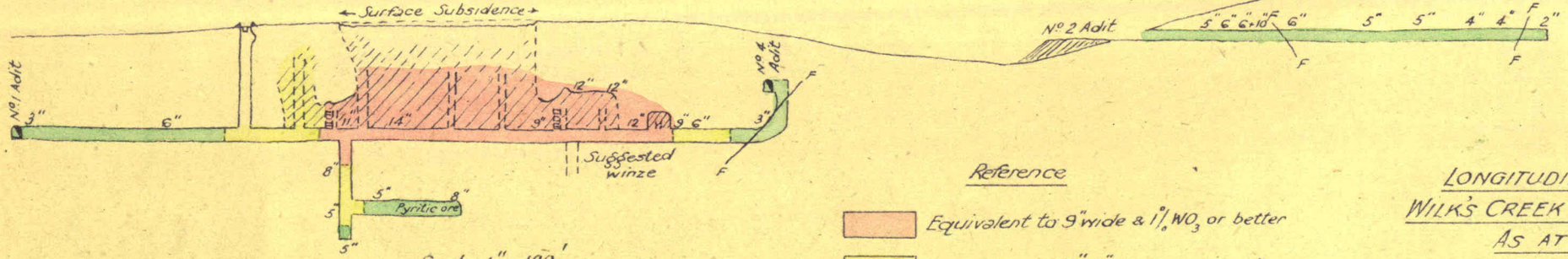
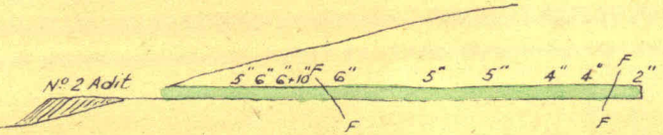
Mineral Resources Survey.
May. 1944.







Reference

Equivalent to 9" wide & 1% WO_3 or better

" " 6"-9" " " " "

Less than 6" " " " " "

LONGITUDINAL SECTION
WILK'S CREEK WOLFRAM MINE
AS AT 24/11/43

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May 1944