SOCIETE D'ETUDES DE RECHERCHES ET D'EXPLOITATIONS MINIERES

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REPORT ON 1977 EXPLORATION PROGRAM

MT. PELION WOLFRAM MINE, TASMANIA.

BY

D.J. CASEY

W.P. AYLING

AMG REFERENCE POINTS ADDED

78/SYD/01
JANUARY, 1978.

SEREM (AUSTRALIA) PTY. LTD.

MINERAL EXPLORATION

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1. INTRODUCTION

The Mount Pelion wolframite deposit is situated on the south-eastern side of the Upper Forth River valley, in rugged, mountainous, isolated terrain (Figure 1). Access is via a sealed road from Launceston or Devonport via Mole Creek or Sheffield as far as Lemonthyme Power Station. A gravel road continues from the power station to the mine, a distance of 26.2km. The first part of this section (12.5km) is maintained in reasonable condition by the J.T. GUNN TIMBER CO. The second half (13.7km) was improved from a poor four-wheel drive track to a fair two-wheel drive road during the recent exploration programme by SEREM at a cost of A$35,000.

This road improvement was funded by SEREM as part of their agreement obligations with BUKA and TRIAKO and supervised by KIBUKA personnel. Roadwork was commenced by the AVOCA TRANSPORT COMPANY on 24th August with an anticipated completion early in October. However, due to virtually continuous rain the work was not completed until the end of November. This delay in improving the road affected the commencement of the drilling programme and handicapped the programme considerably until early November.

2. EXPLORATION TITLES AND AGREEMENTS.

SCAMANDER MINING CORPORATION N.L. and LOUISA MINING CORPORATION N.L. by virtue of an Agreement between them dated June 30, 1976, hold three Tasmanian Mining Leases covering 80 ha (210 acres), which are valid for 21 years, over the Mt. Pelion lodes: No. 60M/69 (granted 01.04.1969); 60M/71, and 59M/71 (granted 01.10.1971). These leases were the subject of an Option Agreement between these companies and KIBUKA MINES PTY. LTD. (acting on behalf of TRIAKO MINES N.L. and BUKA MINERALS N.L.) dated June 2, 1977. The option which was to be exercised on July 2, 1977, according to this Agreement, was extended to February 15, 1978.

These leases were then offered to SEREM (AUSTRALIA) PTY. LTD. as part of an option package, which also included the Tasmanian Exploration Licence 5/77 "River Forth" (it expired on November 4, 1977, and was held

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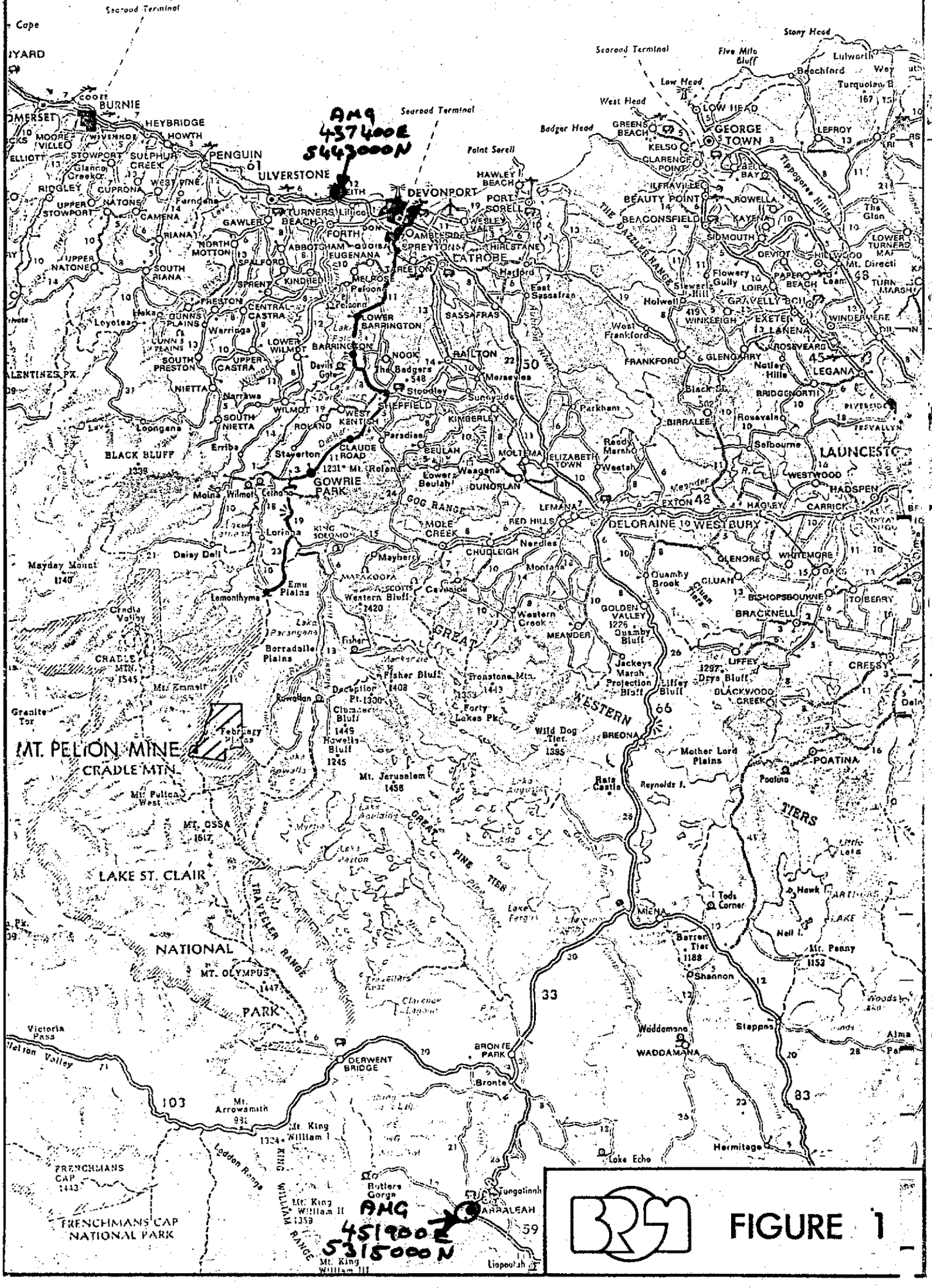

FIGURE 1

AMG REFERENCE POINTS ADDED

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by BUKA in trust for TRIAKO-BUKA). An area of common exploration interest was also defined as all that area extending in any direction for a radius of 20km from the 240m (780ft) Adit Level portal of the old Mt. Pelion workings. This latter Option Agreement between SEREM-TRIAKO-BUKA was signed on July 26, 1977, and provides for geological examination of the area and a reassessment of the feasibility of establishing a wolfram mining project there. The geological examination which has been carried out is the subject of this report. By providing A$35,000 towards the upgrading of the access road to the minesite, SEREM has until January 30th, 1978, to exercise its option to acquire a one-third share in the area (with the remainder to be held 33.3% by TRIAKO, 33.3% BUKA). Upon exercise, SEREM will earn its interest by providing the first A$330,000 towards "mine development, machinery, equipment, access and other costs directly related to bringing the property into production". Any excess expenditure required will be contributed by each party in proportion to its interest in the joint venture (i.e. one-third each).

It should be noted that there are mining leases over two old prospects within E.L. 5/77: the *Birthday (Douglas)* Prospect owned by J. Hiscock; and the *Lone Pine* Prospect owned by the Dunstan-McCoy syndicate.

3. PREVIOUS GEOLOGICAL WORK.

Previous geological exploration is well detailed in 77/SYD/12 and will not be repeated here. The main deficiency in the previous work is that no systematic sampling of the vein had been attempted. Because of the erratic nature of the mineralisation, no accurate idea of the grade of the mienralisation was known. The grade is a critical factor in evaluating the potential of the deposit, so that one of the aims of SEREM's exploration was to try to establish this. In addition, the southern limit of the vein was not known, nor was the depth to which it could extend. The lateral and vertical extent of the vein was also tested by SEREM's programme. As the Forth River forms the boundary of the Cradle Mountain - Lake St. Clair National Park in which mining is not permitted, the northerly extension of the vein is presently of academic interest only. It has been reported on the western side of the Forth River in the National Park.

4. ECONOMIC GEOLOGY.

Wolframite mineralisation at the Mt. Pelion mine occurs in a quartz vein which cuts Precambrian quartzite. The strike of the quartz vein varies somewhat (Plate 1) but is generally 170-175° with a dip of 75° to the east. The wallrock dips to the north at 25° and strikes 95°. As exposed in the adit, the vein splits and rejoins several times (Plate 2) so that the mineralisation actually occurs in a zone rather than a single vein. Average thickness of the vein fissure is 35cm. Further details on the geology and mineralisation are given in 77/SYD/12.

5. RATIONALE OF SEREM PROGRAMME.

The programme was prepared to prove up an economic orebody (the Tunnel Lode) both in tonnage and grade. At the time of planning, preliminary feasibility studies indicated that 100,000 tonnes of vein material at an average grade of 0.58%WO_3 would be necessary for an economic orebody. Accordingly, the exploration was designed to establish if these requirements existed. A drilling programme was carried out to determine if the tonnage was present while a systematic sampling programme at 5 metre intervals along the adit was used to calculate the grade. Each of these phases of the programme is discussed below.

6. PERSONNEL.

The following SEREM personnel worked on the Mt. Pelion Project in the field:

G. Eijkelboom	30.10.77 - 9.11.77
D. Casey	17.10.77 - 2.11.77
	9.11.77 - 29.11.77
W.P. Ayling	30.10.77 - 17.11.77
	28.11.77 - 10.12.77

In addition, N. McCoy, the owner of the Mt. Pelion Mineral Lease prior to SCAMANDER was employed as a field assistant from 17.10.77 - 10.12.77.

7. SAMPLING.

Some difficulty was experienced in selecting a suitable method of bulk sampling the vein in the adit. Two methods were considered - to take out a strip along the full length adit say, one metre wide by 0.5m deep, or to take a number of samples at 5 metre intervals from the vein, each sample weighing about 1 tonne.

It was recognized that the larger sample would be the more accurate but the logistics and cost of crushing and transporting the 200 tonne sample produced meant that this approach was impractical (Table 1 for estimated cost) if not impossible. In the event, the delay in repairing the road would have caused great problems in transporting the larger tonnage of ore.

THYSSEN MINING CONSTRUCTION OF AUSTRALIA were awarded the contract to take the bulk samples while AMDEL carried out the analyses.

The samples were excavated by drilling 4 off 32mm holes in 2 pairs 1.5m apart along the adit, with 1 metre between the holes across the adit. The holes were drilled at 30° to the horizontal with the intention of producing a wedge shaped sample. The samples were caught on steel plates placed below the sample point on the floor of the adit, the broken material loaded into 200 litre drums labelled with the sample number and moved to the adit portal. It was intended to estimate the volume of vein quartz in each sample from the geometry of the hole which had been excavated and then to calculate the grade of WO_3 in each sample from the assay results. Both THYSSEN and another contractor who quoted on the work claimed that it would be possible to produce a regular excavation by a drill pattern as indicated. However, the excavations were generally irregular, probably largely due to the effect of the bedding of the country rock. A total of 27 samples was taken (Plate 2).

The 200 litre drums containing the samples were transported to Brambles Quarry in Burnie, the material put through a Jaques Crusher, sample by sample and reduced to 1.5" (38mm) size. A 200kg sample of the material was taken from each sample by selective shovelling, bagged, and despatched to Amdel for assay. To determine the amount of vein quartz in each sample, a small sample as representative as possible, separated into vein and country rock, was taken and the percentage of quartz calculated by volumetric displacement in a graduated container.

TABLE 1.

ESTIMATED COST OF ALTERNATE SAMPLING METHODS.

	A. SAMPLE OF FULL LENGTH OF ADIT (200 tonnes)		B. 5m SAMPLE INTERVALS (30 tonnes)	
Mining:	say $10,000		11 days	$7,950
Transport:	320hrs @ $20/hr = $6,400		38.5hrs @ $20/hr	770
Crushing:	42% of value of ore=$4,600		18 hrs @ $50/hr	900
	Total:	$21,000	Total:	$9,620

Amdel have carried out the following programme: each sample was crushed to 12.7mm and riffled in two; one half was retained. The second half was crushed to 9.5mm and two 15kg subsamples cut out for assay and possible mineralogical examination. A study of the beneficiation of the Mt. Pelion ore may be undertaken at a later date if it is considered necessary.

The results of the assays are incorporated in Table 3.

8. DRILLING.

ASSOCIATED DIAMOND DRILLERS were contracted to perform the drilling, using a trailer-mounted Mindrill F30 rig. Drilling commenced on 10th November, 1977, and terminated on the 9th December, 1977. Holes were precollared in HQ and then drilled in NQ and BQ to completion. Core recovery was excellent, always being greater than 95%. Thick glacial overburden in MP4 created difficult drilling conditions which caused the hole to be abandoned at 31m before the vein was reached. The first three holes were surveyed by the acid etched tube method, a total of 381m was drilled. Locations are shown on Plate 1.

The aim of the programme was to test the lateral and vertical extent of the Tunnel Lode by drilling four holes; locations are shown on Figure . The vein was intersected in three holes, with significant wolframite mineralisation in MP2. As shown in Table 2, the total true vein thickness varies from 20cm to 71cm. Drill logs of the four holes are incorporated in Appendix 1. Drill sections of M.P. 1-3 are shown in Figs. 2-4.

TABLE 2.

HOLE NO.	DEPTH VEIN	TRUE THICKNESS	MINERALISATION
MP1	74.94-75.39	0.20m	pyrite, minor arsenopyrite
MP2	116.12-117.15	0.48m	good wolframite in basal 0.20m
MP3	48.40-49.00	0.45m] 0.71m	minor pyrite
	49.47-49.37	0.26m]	rare SnO_2, wolframite
MP4	not reached		

The country rock consists of quartz muscovite schist with some biotite; it is more or less silicified, and in places has been altered to grey quartzite. Mineralisation is restricted to a vein composed of milky quartz and generally occurs near the edges of the vein but not in the country rock. Thin tourmaline rich veins also commonly intersect the silicified schist and quartzite but they are not an indication of the main vein.

The tendency of the main vein to split as seen in the adit was confirmed in MP3. Overall thickness of the main vein averaged 0.46m compared with 0.35m in the adit. Two small veins were intersected in MP2 up to 80m above the main vein; and the lower one (67.68-67.90m) carried significant cassiterite and wolframite values. However, true thickness of less than 10cm is well below a mineable width.

Glacial overburden consisting of gravels up to boulder size with some clay matrix was encountered in MP3 to 17m and to 31m in the abandoned MP4. Plate 3 indicates that the mineralised vein has been partially eroded by this glacial valley with a subsequent loss in ore reserves.

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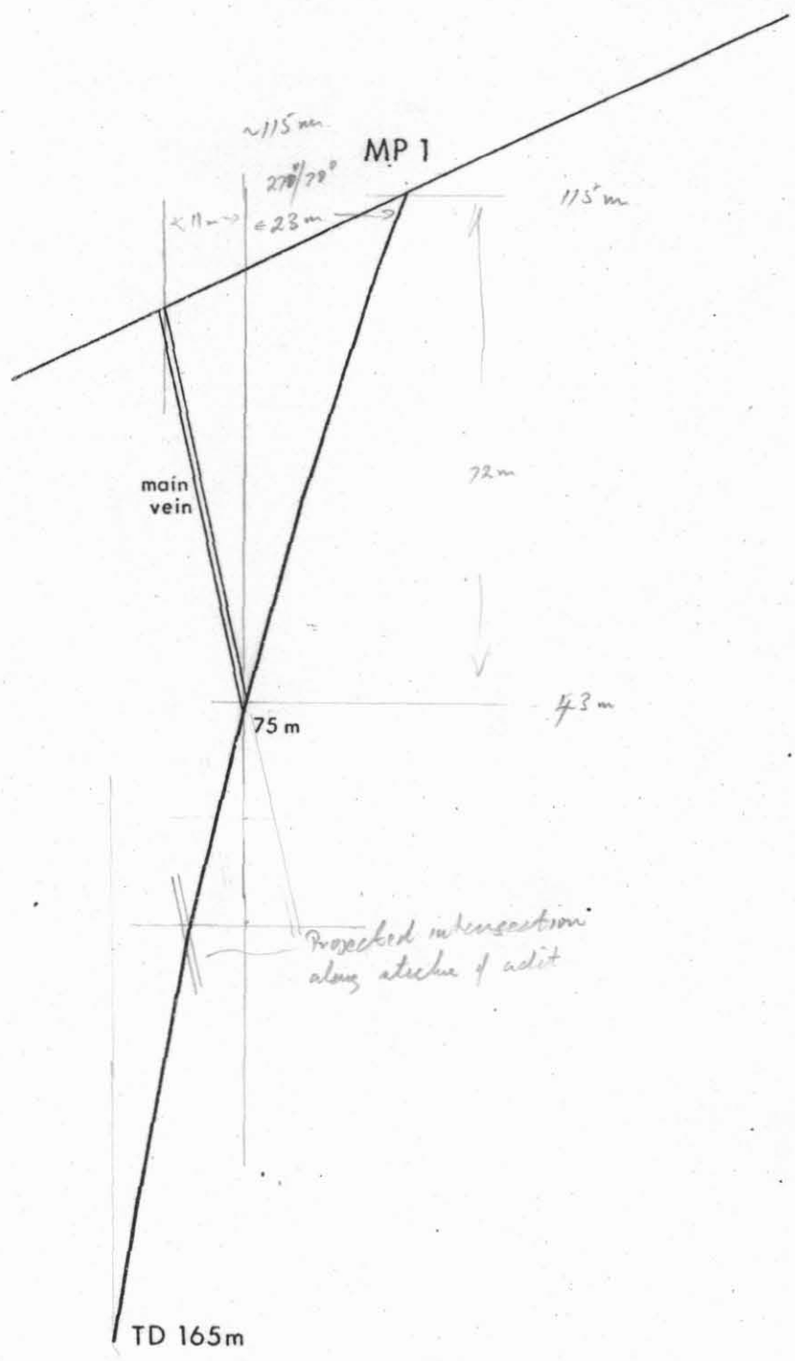

1000 ?

SCALE 1:500

ACID TUBE SURVEYS

	meas.	corr.
0		70°
30m	76°	72°
60m	78°	74·5°
90m	79°	76°
120m	82°	79·5°
165m	84°	81°

5 cm

BRGM

FIGURE 2

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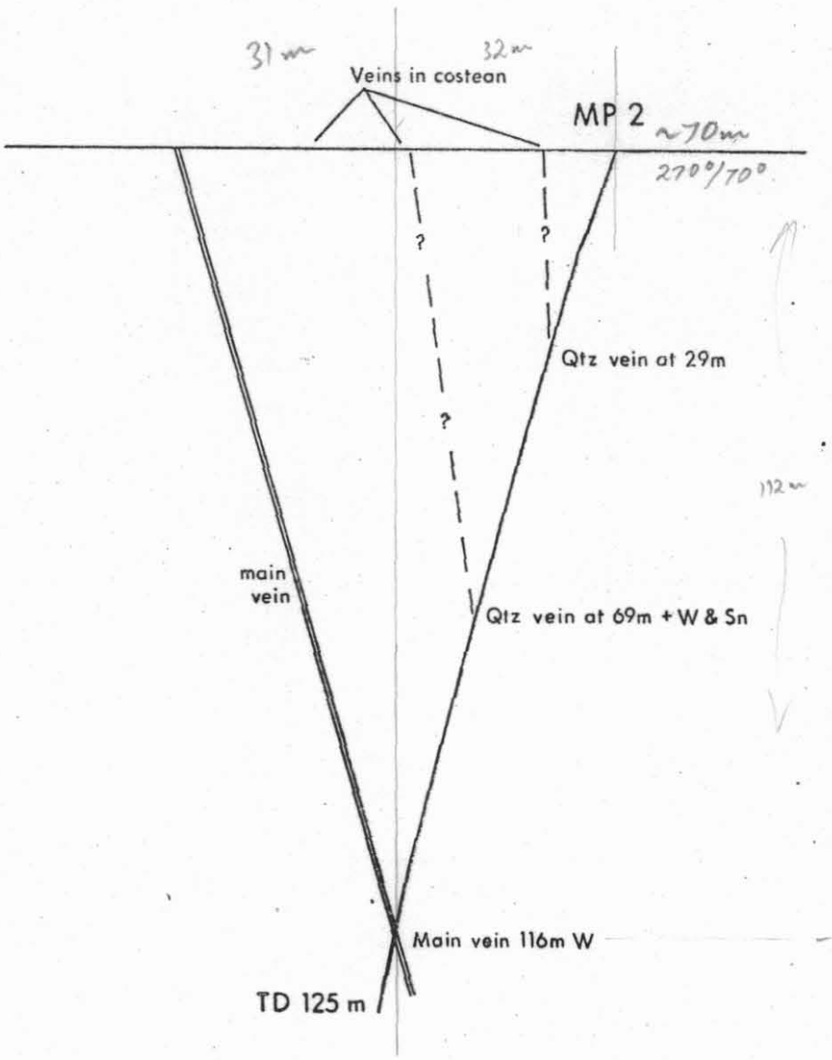

SCALE 1:~~500~~ 1000 ?

ACID TUBE SURVEYS

	meas.	corr.
0		70°
30m	77°	74°
60m	79°	76°
120m	81°	78·5°

5 cm

FIGURE 3

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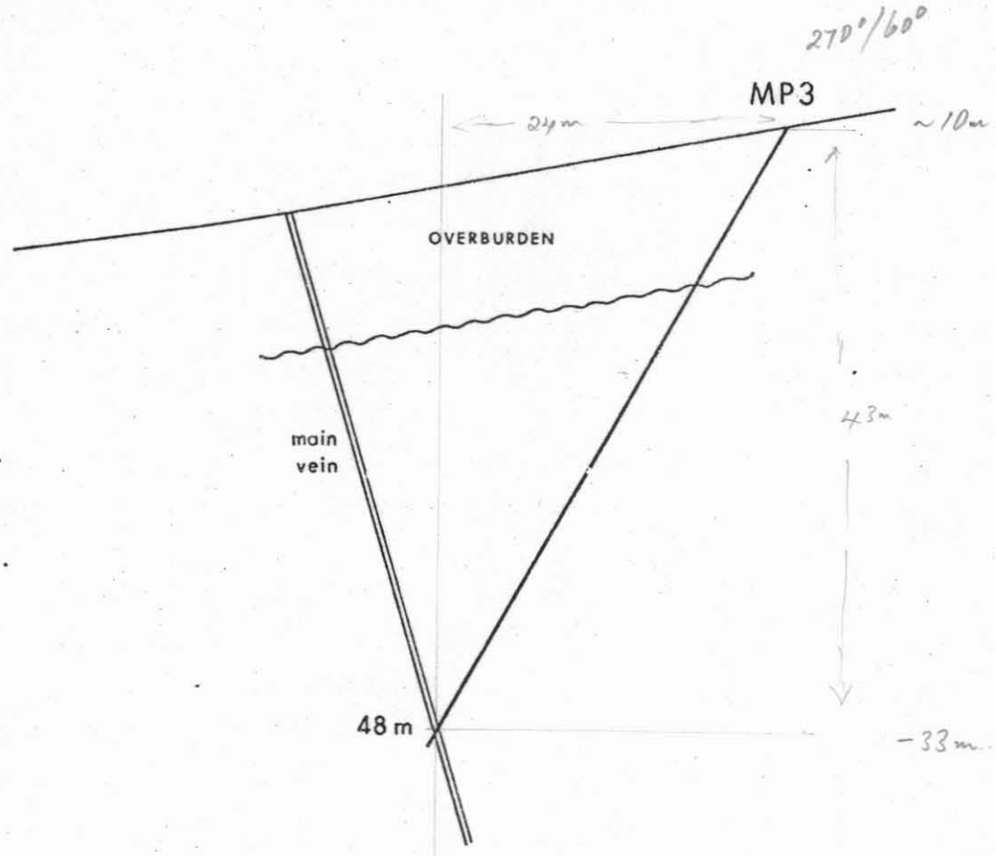
011



SCALE 1:500

ACID TUBE SURVEYS

	corr.
0	60°
30 m	60°
60 m	60°

5 cm

FIGURE 4

012 9. ORE RESERVES AND GRADE

From the time of Serem's original involvement in the Mt. Pelion prospect, a reliable method of calculating the grade of the ore has been a prime consideration. As recorded in 1977/SYD/12, almost no systematic sampling had been carried out in the adit, the longest continuous exposure of the vein, until the Serem point-counting at one metre intervals. The ore grade calculated from 140 samples was 2.96% WO_3, which was considered a little high and there were doubts that the point counting was an accurate technique.

However, as indicated in Table 2 the average grade calculated from the bulk sampling is in fact slightly higher, at 3.15%. It should be noted that the method of sampling was not ideal and that the samples taken for calculation of the percentage of quartz may also have not been precise. In spite of these factors, the close agreement of the two results tends to give some confidence in their reliability.

A point to be stressed is that the grades obtained in the adit sampling can be strictly applied only to Blocks A and C in Plate 3 , which comprise about 50% of the estimated reserve. It is assumed that the same grade applies in the other blocks but this could only be established by further mine development.

Reserves of 100,000 tonnes are based on the three drillholes which intersected the vein, as well as the exposure in the adit. Although the evidence is limited, the reported presence of the vein several hundred metres to the north across the Forth River tends to give some confidence to the interpreted lateral extent and continuity of the vein. Comparison with the Storeys Creek Mine on the east coast of Tasmania would indicate that a considerable vertical extent of the vein is also reasonable.

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TABLE 3.
ASSAY RESULTS IN BULK SAMPLING

Sample Station	Sample No.	Vein Width Sampled (cm)	% WO_3 in Qtz Assay	% WO_3 for lm mining width	% WO_3 Point Count in Qtz	Remarks
MP 15	3	16	4.92	0.74	-	vein split ore, part only sampled
MP 20	4	28	0.59	0.17	-	smaller sample than usual taken about 0.70 tonne
MP 25	5	33	1.23	0.41	3.07	
MP 30	6	20	0.84	0.17	-	one vein in wall not sampled
MP 35	7	34	2.18	0.74	2.99	
MP 40	8	26	9.28	2.41	7.50	
MP 45	9	39	3.57	1.39	-	
MP 52	10	37	9.45	3.50	-	
MP 55	11	33.5	3.95	1.32	-	
MP 60	12	36	3.11	1.12	-	some contamination by country rock from walls
MP 65	13	39	2.50	0.98	-	some contamination by country rock from walls
MP 70	14	31	3.52	1.09	-	
MP 75	15	27	0.76	0.21	-	2 veins; one not fully sampled
MP 80	16	18.5	9.30	1.72	19.72	2 veins; one not sampled
MP 85	17	40	1.79	0.72	2.55	some mineralisation in vein not fully sampled
MP 90	18	31	1.20	0.37	3.27	
MP 95	19	45	2.98	1.34	0.92	
MP100	20	45	1.03	0.46	-	
MP105	21	49	0.63	0.31	-	
MP110	22	31	1.09	0.34	-	
MP115	23	40	0.60	0.24	-	
MP120	24	42	3.45	1.45	13.21	sampled about 30% larger than average

TABLE 3 (CONTINUED)
ASSAY RESULTS IN BULK SAMPLING

Sample Station	Sample No.	Vein Width Sampled (cm)	% WO_3 in Qtz Assay	% WO_3 for 1m mining width	% WO_3 Point Count in Qtz	Remarks
MP125	25	35	0.37	0.13	5.66	
MP130	26	39	13.86	5.41	5.10	
MP135	27	40	0.36	0.14	-	samples about 30% larger than average
MP140	28	47	0.36	0.17	-	samples about 60% larger than average
MP145	29	50	2.31	1.15	-	samples about twice average
			[Av. 3.15%]	[Av. 1.04%]*	[Av. 2.37%]	Average all samples point count 2.96%

* If a mining width of 1.3m were used, average grade drops to 0.80%.

TABLE 4.
CALCULATIONS OF % WO_3 IN QUARTZ VEIN.

Sample Station	Sample No.	% Qtz in adit sample	Amdel % Assay	% WO_3 in Qtz Assay
15	3	24	1.2	4.92
20	4	24	0.145	0.59
25	5	18	0.225	1.23
30	6	24	0.205	0.84
35	7	38	0.840	2.18
40	8	31	2.90	9.28
45	9	41	1.49	3.57
52	10	21	1.97	9.45
55	11	26	1.04	3.35
60	12	12	0.375	3.11
65	13	20	0.500	2.50
70	14	28	0.980	3.52
75	15	25	0.190	0.76
80	16	16	1.50	9.30
85	17	38	0.690	1.79
90	18	30	0.365	1.20
95	19	26	0.785	2.98
100	20	39	0.415	1.03
105	21	24	0.155	0.63
110	22	28	0.305	1.09
115	23	37	0.225	0.60
120	24	37	1.28	3.45
125	25	39	0.150	0.37
130	26	28	3.85	13.86
135	27	33	0.120	0.36
140	28	19	0.075	0.36
145	29	14	0.325	2.31

B.R.G.M. AUSTRALIA
DIAMOND DRILL RECORD

277017

Hole No.	M.P. 1				Prospect: MT. PELION					Purpose: To establish lateral southward continuation of vein from the adit face.
Location	26.6km south of Lemonthyme Power Station, North/central Tasmania.									
Tenement	Mining Lease No. 60M/69; 60M/71; 59M/71.									
Level	---				Co-ordinates: 000N 160E					
Collar R.L.	Approx. 115m				Length (m): 165m					
Survey Depth (m)	0	30	60	90	120	155				Comments: Intersected vein at 75m down hole. True vein width was 20cm. Strike of vein indicated to have changed.
Bearing	270°									
Declination	70°	72°	74.5°	76°	79.5°	81°				
Precollar	HQ 0-3m									
Core Size	NQ 3-15m			BQ 15-165m						
Core Recovery	100%									
Contractor & Machine	Associated Diamond Drillers				Logged by: D.J. CASEY					
Commenced	10.11.77				Completed: 18.11.77					

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277018

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

HOLE No : M.P. 1
BEARING : 270°
INCLINATION : 70°
COLLAR R.L. :
LENGTH : 165m

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 10.11.77
COMPLETED : 18.11.77
SHEET 1 OF 4

LOGGED BY : D.J. CASEY

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
0	3.30	3.3		Soil and rubble							
3.30	6.00	2.7	100	Schist light grey weathered brown in part broken qtz-muscovite-minor biotite foliated with cremulations developed in part - some silicification - pyritic.							
6.00	26.55	20.55	100	Quartzite light grey-white silicified schist fractured with numerous qtz filled fractures, minor weathered surfaces - pyritic especially in fractures - arsenopyrite also common, occ. thin qtz veins 2-3cm thick e.g. at 18.2.							
26.55	30.10	3.45	100	Silicified quartz mica schist light grey in which presilicification textures recognizable in part some thin pyrite veins and arsenopyrite.							
30.10	32.40	2.30	100	Schist brown grey biotite quartz mica foliated with occasional bands and blebs of white quartz.							
32.40	41.30	9.30	100	Schist grey-lt. grey mainly silicified massive rarely less silic. some foliation fractured in part with pyrite and with fractures.							
41.30	43.95	2.65	100	Schist grey-brown biotite muscovite quartz schist foliated with foliations developed by layers of biotite.							CBA 20° at 42.95.
43.95	49.98	6.03	100	Schist grey quartz muscovite with minor biotite and chlorite pyrite in part.							
49.98	67.20	18.22	100	Schist grey-dk. grey biotite quartz muscovite, minor chlorite, pyrite disseminated and in thin veins, foliation well developed in upper part of interval where biotite in layers but less in lower half [illegible]							

277019

DLE No : M.P. 1
ARING : 270°
CLINATION : 70°
LLAR R.L.:
NGTH : 165m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 10.11.77
COMPLETED : 18.11.77
SHEET 2 OF 4

LOGGED BY : D.J. CASEY

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
				distributed, rare garnet, porphyroblasts in this part of interval; occ. small lenses of quartz throughout.							
67.20	71.85	4.65	100	Quartzite grey massive with minor mica and some biotite muscovite quartz schist from 67.6 to 68.9.							
71.85	74.94	3.09	100	Quartzite light grey and light brown silicified schist with occasional traces of original texture and rare micaceous layers; fractured in part with iron staining along fractures massive very thick bedded, sl. pyritic; 4cm quartz vein at 74.20 trace pyrite and thinner quartz veins at base of interval grading from quartzite.							
74.94	75.39	0.45	100	Quartz vein with milky white pyrite vein through it, minor arsenopyrite and occ. thin crystals.							split crushed and panned half retained A0074.
75.39	83.60	8.21	100	Quartzite light grey, some light brown silicified schist with ac. remnant textures and rare unaltered bands of mica pyritic.							
83.60	84.50	0.90	90	Quartzite grey with black tourmaline and pyrite filling fracture for almost the whole interval.							
84.50	91.40	6.90	100	Quartzite light grey and silicified mica schist with occasional bands of unaltered mica remaining pyritic massive.							
91.40	92.30	0.90	100	Quartzite grey with some mica schist, some brecciation in interval, minor quartz veins and							

277020

OLE No : M.P. 1
EARING : 270°
ECLINATION : 70°
OLLAR R.L. :
ENGTH : 165m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 10.11.77
COMPLETED : 18.11.77
SHEET 3 OF 4

LOGGED BY : D.J. CASEY

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
				thin pyrite-arsenopyrite veins also.							
92.30	102.95	10.65	100	Schist light grey-light brown quartz mica silicified and grades to quartzite very thick bedded to massive with foliation mainly obliterated by silicified minor biotite and chlorite in schist with rare garnet porphyroblasts, lower part of interval mainly quartzite pyrite seams 1-2m wide common as are quartz veins 203cm. ?result of silicification.							
102.95	109.60	6.65	100	Schist brown grey biotite quartz muscovite with rare garnet porphyroblasts, minor chlorite, well foliated quartz vein from 107.60-107.90 mixed with country rock tourmaline in stringers within quartz with pyrite and trace chalcopyrite, vein quartz also at 109.04-109.25 similar.							
109.60	114.80	5.20	100	Schist light grey quartz mica silicified grading to quartzite in part iwth minor biotite in places massive. Vein quartz 114.15-114.28 with pyrite which also occurs through interval.							
114.80	117.10	2.30	100	Quartzite light grey with some silicified schist, narrow vein 1cm of quartz pyrite tourmaline and biotite with trace arsenopyrite, veins almost the entire interval.							
117.10	139.45	22.35	100	Quartzite light grey to grey massive minor pyrite occ. gradations to vein quartz and to silicified schist massive; possible quartz vein from 117.80-118.10 with tourmaline vein through it, minor pyrite.							

420

277021

LE No : M.P. 1
ARING : 270°
CLINATION : 70°
)LLAR R.L. :
NG"H : 165m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 10.11.77
COMPLETED : 18.11.77
SHEET 4 OF 4

LOGGED BY : D.J. CASEY

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zr	Ag	Remarks
39.45	145.85	6.40	100	Schist grey biotite quartz muscovite with some silicification but schist only generally fairly well developed; quartz-tourmaline vein at 141.80 with some disseminated pyrite through interval, minor quartzite beds.							CBA 60° at 143.50
45.85	148.55	2.50	100	Schist lt. grey silicified quartz mica grades to quartzite in part massive tourmaline seam at 147.60; disseminated pyrite in part and thin veins with abundant pyrite fairly common.							
148.55	149.12	0.57	100	Schist as above but with foliation contorted and almost parallel to axis of core, minor quartz veins with associated pyrite.							
149.12	165.00	15.88	90	Schist dark grey-grey quartz muscovite with some biotite silicified and grades to quartzite in places, tourmaline rich vein with arsenopyrite to pyrite at 151.8m about 20cm long, garnet porphyroblasts in upper part of interval, pyrite seams 1-2m wide fairly common, as are narrow tourmaline-pyrite and arsenopyrite rich veins.							1.6m of last 3m lost

023

B.R.G.M. AUSTRALIA
DIAMOND DRILL RECORD

277022

Hole No.	M.P. 2				Prospect: Mt. Pelion				
Location	26.6km south of Lemonthyme Power Station, North/central Tasmania								
Tenement	Mining Lease No. 60M/69; 60M/71; 59M/71.								
Level	----				Co-ordinates: 182 N 160E				
Collar R.L.	Approx. 70m				Length (m): 125m				
Survey Depth (m)	0	30	60	90	120				
Bearing	270°								
Declination	70°	74°	74°	76°	78.5°				
Precollar	HQ								
Core Size	NQ		BQ						
Core Recovery	100%								
Contractor & Machine	Associated Diamond Drillers				Logged by: D.J. CASEY				
Commenced	20.11.77				Completed:				

Purpose: To test vertical extension of vein below adit level.

Comments: Vein intersected 116.12m to 117.15m (1.03m): True width of vein 48cm.

277023

OLE No : M.P. 2

EARING : 270°

ECLINATION : 70°

OLLAR R.L. :

NGTH : 125m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

LOGGED BY : D.J. CASEY

PROSPECT : MT. PELION

DRILLED BY : A.D.D.

COMMENCED : 20.11.77

COMPLETED :

SHEET 1 OF 5

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
0	6.00	6	-	Overburden							
6.00	9.00	3	100	Quartzite and silicified lt. br.-lt.grey broken and weathered becoming less weathered towards base; traces of schistosity in places and minor mica although usually oxidised; tourmaline vein from 7.50-7.72 true width 1cm with chilled quartz margin dipping at 75° to axis of hole.							
9.00	9.30	0.30	100	Massive tourmaline vein with minor feldspar and vein quartz at top of interval; fractures in vein at 75-80° to hole.							
9.30	10.00	0.70	100	Quartzite lt. grey-grey with some oxidised pyrite cubes and tourmaline veins in fractures dominantly at 75° to hole.							
10.00	10.17	0.17	100	Tourmaline vein with some vein quartz associated.							
10.17	11.52	1.35	100	Quartzite and silicified schist lt. grey-lt. brown fractured with oxidation along fractures remnant schistosity and occasional micaceous layers.							
11.52	23.05	11.53	100	Silicified Schist lt. grey with some mica quartz schist in places, rare garnet porphyroblasts towards base of interval, thin tourmaline veins up to 1cm wide quite common; rock grades to quartzite in places; from 11.52 to 18 metres rock is broken and fractured, minor pyrite generally in thin layers and veins.							
23.05	23.23	0.18	100	Quartz vein with tourmaline vein at 5cm wide in it, probably final stage of silicification, angle of tou[illegible] in [illegible] in [illegible]							

120

277024

OLE No : M.P. 2

EARING : 270°

ECLINATION : 70°

OLLAR R.L. :

ENGTH : 125m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

LOGGED BY : D.J. CASEY

PROSPECT : MT. PELION

DRILLED BY : A.D.D.

COMMENCED : 20.11.77

COMPLETED :

SHEET 2 OF 5

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
23.23	28.75	5.52	100	Quartzite lt. grey massive with minor silicified schist recognizable tourmaline not uncommon in veins and dissem. also minor pyrite; qtz vein 10cm wide 28.25-28.35 with tourmaline at edge.							
28.75	29.37	0.62	100	Quartz vein milky white with tourmaline at edge of vein and in quartzite country rock traces of wolfram; vein/country rock country contact 75° to hole at top and 70° at base; part of contact sampled at top and bottom; true thickness?							split crushed and panned at 0075
29.37	30.70	1.33	100	Quartzite with some stringers of vein quartz mixed lt. grey-grey massive tourmaline rich in patches and veins; whole interval somewhat fractured.							
30.70	42.53	11.83	100	Quartzite lt. grey with some silicified qtz mica schist and occ. remnant schistosity; some quartz beds approx. parallel to this schistosity e.g. 32.32, 2-3cm thick; scattered thin tourmaline veins and minor pyrite.							CBA at 35.50m 35°
42.53	42.80	0.27	100	Quartz-tourmaline rock gy-black becoming darker towards base with increase in tourmaline % minor feldspar and rare pyrite.							
42.80	43.94	1.14	100	Quartzite lt. grey massive occasional traces of schistosity before silicification and rare mica bands; thin tourmaline veins not uncommon with arsenopyrite and feldspar.							
43.94	46.90	2.96	100	Quartzite lt. grey massive occasional remnant schistosity and patches of veins of tourmaline minor pyrite.							

277025

HOLE No : M.P. 2
BEARING : 270°
DECLINATION : 70°
COLLAR R.L. :
LENGTH : 125m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

LOGGED BY : D.J. CASEY

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 20.11.77
COMPLETED :
SHEET 3 OF 5

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
46.90	50.25	3.35	100	Quartzite lt. grey fractured ?fault quite pyritic along fractures, some tourmaline veins also; less broken in lower 1.5m.							
50.25	61.28	11.53	100	Quartzite lt. grey massive minor fracturing and traces of silicified schist pyrite veins and layers not uncommon very thin minor tourmaline veins also less common than pyrite, trace chalcopyrite and w. tourmaline veins at 55.8 m arsenopyrite there also.							
61.78	62.05	0.27	100	Quartzite lt. grey massive, disseminated pyrite, fractured, with some clay on fracture surfaces.							
62.05	67.68	5.63	100	Quartzite lt. grey massive occaisonal remnants of schistosity e.g. 62.5-63, pyritic in part with tourmaline vein 65.05-65.15 almost all tourmaline.							CBA 25°
67.68	67.90	0.22	100	Quartz vein milky white blades of wolfram common as are tin crystals often in small vugs assd. with quartz crystals and pyrite, lt. green mineral WO_3 Sn say 60:40 Q/Quartzite contact at base of vein is at 60° to core.							split and crushed A0076.
67.90	70.97	3.07	100	Quartzite and silicified schist lt. grey, schist is foliated mica quartz with foliation well developed at 70m, quite massive; minor pyrite in small fractures and tourmaline vein at 70.55; thin qtz. veins in places, e.g. 68.35.							CBA at 70m 30°
70.97	71.50	0.53	100	Silicified Schist grey quartz-mica with dark layers of mica common.							CBA at 71.1 30°
71.50	86.60	15.10	100	Quartzite and silicified schist lt. gy. massive but with some remnants of schistosity, thin veins with pyrite not uncommon, in places some [illegible]							

27702

OLE No : M.P. 2
BEARING : 270°
DECLINATION : 70°
COLLAR R.L. :
LENGTH : 125m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

LOGGED BY : D.J. CASEY

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 20.11.77
COMPLETED :
SHEET 4 OF 5

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
86.60	88.33	1.73	100	Quartzite lt. grey with tourmaline stringers throughout; basal 0.35m of interval largely tourmaline.							
88.33	95.50	7.17	100	Quartzite lt. grey massive with some traces of silicified schist.							
95.50	101.00	5.50	100	Schist grey-dark silicified, well foliated qtz mica with mica altered to clay in part, garnet porphyroblasts common below 98.5m, minor dissem. pyrite, quartz tourmaline vein at base of interval.							CBA 15° at 98.80
101.00	111.75	10.75	100	Quartzite lt. grey to dk. grey and silicified schist well foliated with occ. mica bands, pyrite fairly common and occ. tourmaline veins, Quartzite grades to qtz in places.							
111.75	116.12	4.33	100	Silicified Schist dk. grey with some lt. grey quartzite, qtz. vein from 112.85 to 113.20 with tourmaline pyrite and arsenopyrite, tourmaline common throughout interval.							
116.12	117.15	1.03	100	Quartz vein , white, massive, vein quartz with small vugs upper contact (48° to core axis) has thin tourmaline crystals, minor molybdenite, a pale yellow mineral (fluorite). Pyrite, arsenopyrite tourmaline decrease in abundance towards centre of vein. Basal 20cm very rich in wolframite (20%) minor molybdenite, pyrite, associated fluorite, basal contact 30° to core axis. From 116.93m to 116.98m silicified shist within vein, indicating possible split of vein.							Sample: split, crushed panned. 116.12 to 117.15

030

277027

LE No : M.P. 2

ARING : 270°

CLINATION : 70°

ELLAR R.L. :

NGTH : 125m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

PROSPECT : MT. PELION

DRILLED BY : A.D.D.

COMMENCED : 20.11.77

COMPLETED :

SHEET 5 OF 5

LOGGED BY : D.J. CASEY

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
117.15	119.70	2.55	100	Silicified Schist: grey/brown, foliated quartz-mica schist. Thin grey quartzite lenses with associated pyrite. Rare thin tourmaline filled fractures.							

[redacted]

B.R.G.M. AUSTRALIA
DIAMOND DRILL RECORD

277028

Hole No.	M.P. 3			Prospect: MT. PELION					
Location	26.6km south of Lemonthyme Power Station, north/central Tasmania.								
Tenement	Mining Lease No's: 60M/69; 60M/71; 59M/71.								
Level	---			Co-ordinates: 308N 135E					
Collar R.L.	approx. 10m			Length (m): 60m					
Survey Depth (m)	0	30	60						
Bearing	270°								
Declination	60°	60°	60°						
Precollar	HQ 0-3m								
Core Size	NQ 3-13.5m	BQ 13.5-60m							
Core Recovery	100%								
Contractor & Machine	Associated Diamond Drillers			Logged by: W.P. AYLING					
Commenced	28.11.77			Completed: 1.12.77					

Purpose: To test north extension of vein from adit portal, under alluvium.

Comments: Vein intersected from:
48.40 to 49.00 (0.6m) and
49.47 to 49.84 (0.37m).
True width of veins respectively are 45cm and 26cm.

Glacial alluvium was 13m thick.

277029

OLE No : MP 3
EARING : 270°
ECLINATION : 60°
OLLAR R.L. :
ENGTH : 60m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 28.11.77
COMPLETED : 1.12.77
SHEET 1 OF 2

LOGGED BY : W.P. AYLING

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
0	13	13	-	Non Core: Alluvial overburden.							
13	34.3	21.3	100	Weathered Silicified Quartzite & Mica Schist grey/brown foliated to massive highly fractured with limonite staining in micaceous foliations and fracture flares. Minor thin tourmaline filled fractures. Several thick (up to 25cm) tourmaline-mica beds with minor vein quartz pods.							CBA at 15m 30° CBA at 34m 37°
34.3	40.0	5.7	100	Silicified Quartzite Grey, massive to weakly foliated micaceous quartzite, fractured, usually tourmaline bearing, with minor pyrite. Minor pyrite on foliation planes, several large tourmaline-mica-pyrite veins up to 10cm thick probably shears, as contacts usually brecciated. Minor quartz veins lenses throughout.							CBA at 38m 36°
40.0	40.4	0.4	100	Quartz Veins: Massive white, mottled, vein quartz upper contact 20° to core axis. Lower contact 20° to core axis, vein barren of any sulphides etc.							sample A0077
40.4	48.4	8.0	100	Silicified Micaceous Quartzite: grey/brown, massive to weakly foliated. Fractured with tourmaline throughout. Numerous thin irregular quartz veins and lenses usually parallel to foliation throughout particularly at 43.41m to 43.48m and at 46.30 to 46.36m. Pyrite developed on foliation planes. A mineral lineation 45° to core axis in plane of foliation (N.B. lineation in o/c roughly parallel to strike dip 17° at adit portal).							CBA at 42m- 33°. lineation 45° in fol. plane. CBA at 48m 34°
48.40	49.00	0.60	100	Quartz vein: White, massive fractured with minor tourmaline, mica, pyrite in fractures. Upper con[redacted] 15° to C[redacted] lower cont[redacted] irregular [redacted] possibly faulted.							Sample A0078

277030

HOLE No : M.P. 3
BEARING : 270°
DECLINATION : 60°
COLLAR R.L. :
LENGTH : 60m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

LOGGED BY : W.P. AYLING

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 28.11.77
COMPLETED : 1.12.77
SHEET 2 OF 2

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
49.00	49.47	0.47	100	Silicified Micaceous Quartzite: grey-brown, foliated to massive micaceous quartzite. Highly fractured with pyrite-tourmaline in fractures. Minor quartz lenses subparallel to foliation.							foliation 37° to C.A. lineation 45° to C.A. in plane of foliation.
49.47	49.84	0.37	100	Quartz Vein: white-massive with small open vugs carrying qtz crystals and rare brown/red cassiterite - mainly in centre of vein. Minor tourmaline-pyrite-arsenopyrite with associated minor wolframite-molybdenite near contacts. Upper contact 50° to c/a lower contact 60° to c/a.							Sample A0079 Bedding to core axis 50° at upper contact.
49.84	60.40	10.56	100	Silicified Micaceous Quartzite: grey-massive to weakly foliated micaceous quartzite. Numerous thin tourmaline filled fractures and irregular quartz veins and lenses. Minor pyrite in fractures and foliation planes. 33.53 to 53.59m at massive tourmaline vein. ACID TUBE SURVEYS 0 - 60° 30m - 60° 60m - 60°							CBA at 50.5m 35° CBA at 60m 40°

013

B.R.G.M. AUSTRALIA
DIAMOND DRILL RECORD

277031

ole No.	M.P. 4	Prospect: MT. PELION	Purpose: To test north extension of vein from adit portal and to determine thickness of glacial alluvium.
ocation	26.6km south of Lemonthyme Power Station, North/central Tasmania.		
enement	Mining Lease No's: 60M/69; 60M/71, 59M/71		
vel	-	Co-ordinates: 400N 130E	
ollar R.L.	approx. 0m	Length (m): 31m	

rvey ptn (m)	0								
earing	270°								
eclination	70°								

ecollar: HQ 0-9m; NQ 9-20m; BQ 20-31m

ore Size: -

-

cre covery: -

ontractor Machine	Associated Diamond Drillers	Logged by: W.P. AYLING	
ommenced	2.12.77	Completed: 9.12.77	

Comments:
Glacial alluvium not penetrated.
Thus a minimum of 30m of overburden in that area.

277032

E No : MP. 4
RING : 270°
CLINATION : 70°
LLAR R.L. :
GTH : 31m

B.R.G.M. AUSTRALIA

DIAMOND DRILLING LOG - ASSAY RECORD

LOGGED BY : W.P. AYLING

PROSPECT : MT. PELION
DRILLED BY : A.D.D.
COMMENCED : 2.12.77
COMPLETED : 9.12.77
SHEET 1 OF 1

Depth (m) From	Depth (m) To	Interval (m)	Recovery %	Description	Sample No.	Interval	Assays (ppm) Cu	Pb	Zn	Ag	Remarks
0	31	M	-	Glacial Gravels: unconsolidated gravels up to Boulder size with some clay matrix. Some gravel consolidated, gravels made up of dolerite and quartzite. Attempt to penetrate gravel unsuccessful.							

020

SEREM - BUKA - TRIAKO JOINT VENTURE
UNDERGROUND MAP
240m (780') ADIT
MT PELION WOLFRAMITE PROJECT
5 cm
0 1 2 3 4 5 6 7 8 metres
SCALE 1:100
W.A
N.T
QLD
S.A.
N.S.W.
V
TAS.
PREPARED BY B.R.G.M. AUSTRALIA
Report No : 78 / SYD / 01
Date : JANUARY 1978
78-1249 R.
Plate 1
FROM ADIT TO THE WINZE (LOCATED AT 39m POINT) IS 1·8m × 1·2m (6'×4') DIMENSIONS
REMAINDER OF ADIT DRIVEN 2·1m × 2·1m (7'×7') DIMENSIONS
timber and galvanised iron lining
240m ADIT ENTRANCE
estimated RL of adit entrance is 238·4m
RL 240·59m
UG 1
1·98m to adit roof
RL 238·61m of adit floor
UG1-2 bearing 173°46' (57·87m)
winze 1·8m x 1·2m (6'×4') dips 76°E sunk in lode to depth 11·4m (37.5')
apparent shift of vein due to excavation of adit roof and western side of adit
RL 241·20m
UG 2
2·10m to adit roof
RL 239·09m of adit floor
(23·73m) UG2-3 bearing 175°34'
short exploratory cross-cut
RL 241·46m
UG 3
2·19m to adit roof
RL 239·27m of adit floor
railway line siding
UG 3-4 bearing 171°27' (43·65m)
RL 242·26m
UG 4
2·29m to adit roof
RL 239·98m of adit floor
F
A
C
E
02/09/71
VALUES SHOWN ARE %WO3 CALCULATED AS 76% OF THE WOLFRAMITE MEASURED BY SEREM POINT COUNTING
AVERAGE ORE GRADE (140 SAMPLES)
AVERAGE VEIN WIDTH (140 SAMPLES, INCLUDING SPLIT VEIN MEASUREMENTS) 35·3 cm
VISUALLY ESTIMATED ORE VALUES (POINT COUNTING)
WOLFRAMITE
< 1%
1-5%
5-10%
> 10%
13• BULK SAMPLE POINT

033

277033

PLATE 2

MT PELION BASE MAP

0 10 20 30 Metres

SCALE 1:500

78-1249 R.

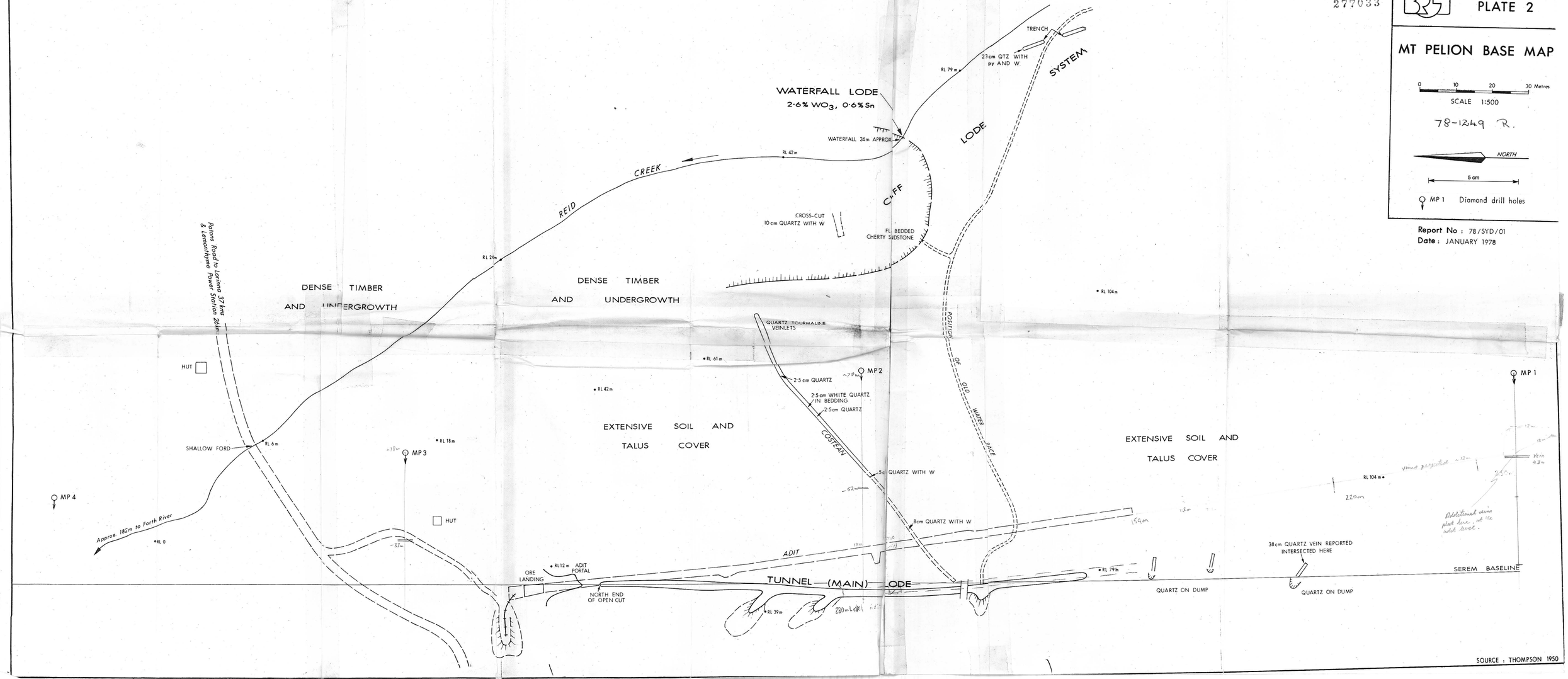
NORTH

5 cm

MP 1 Diamond drill holes

Report No : 78/SYD/01

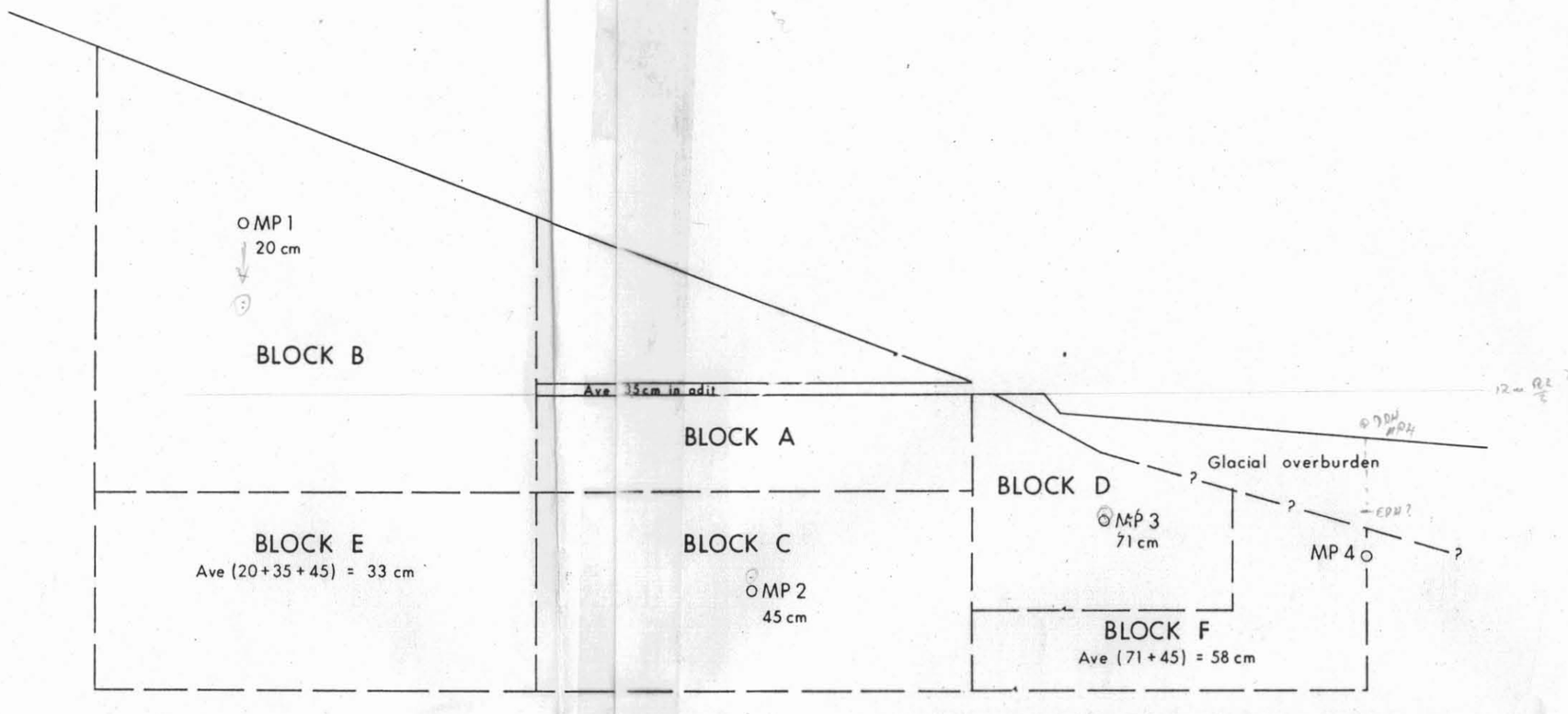
Date : JANUARY 1978



SOURCE : THOMPSON 1950

277035

032



	Area m^2	Vein width m	Volume of Vein m^3	Tonnage t (Vein)
BLOCK A	10,075	0·35	3,526·25	9,168·25
BLOCK B	19,558	0·20	3,911·60	10,170·16
BLOCK C	10,850	0·45	4,882·50	12,694·50
BLOCK D	5,612	0·71	3,984·52	10,359·75
			Total probable	42,393·00 tonnes

100,935 t of mineable material

BLOCK E	10,920	0·33	3,603·60	9,369·36
BLOCK F	5,624	0·58	3,261·92	8,480·99
			Total inferred	17,850·00 tonnes
			TOTAL	60,243 tonnes

5 cm

SCALE 1:2000

MT PELION MINE
ORE RESERVE BLOCKS

PLATE 3

78-1249 R.