

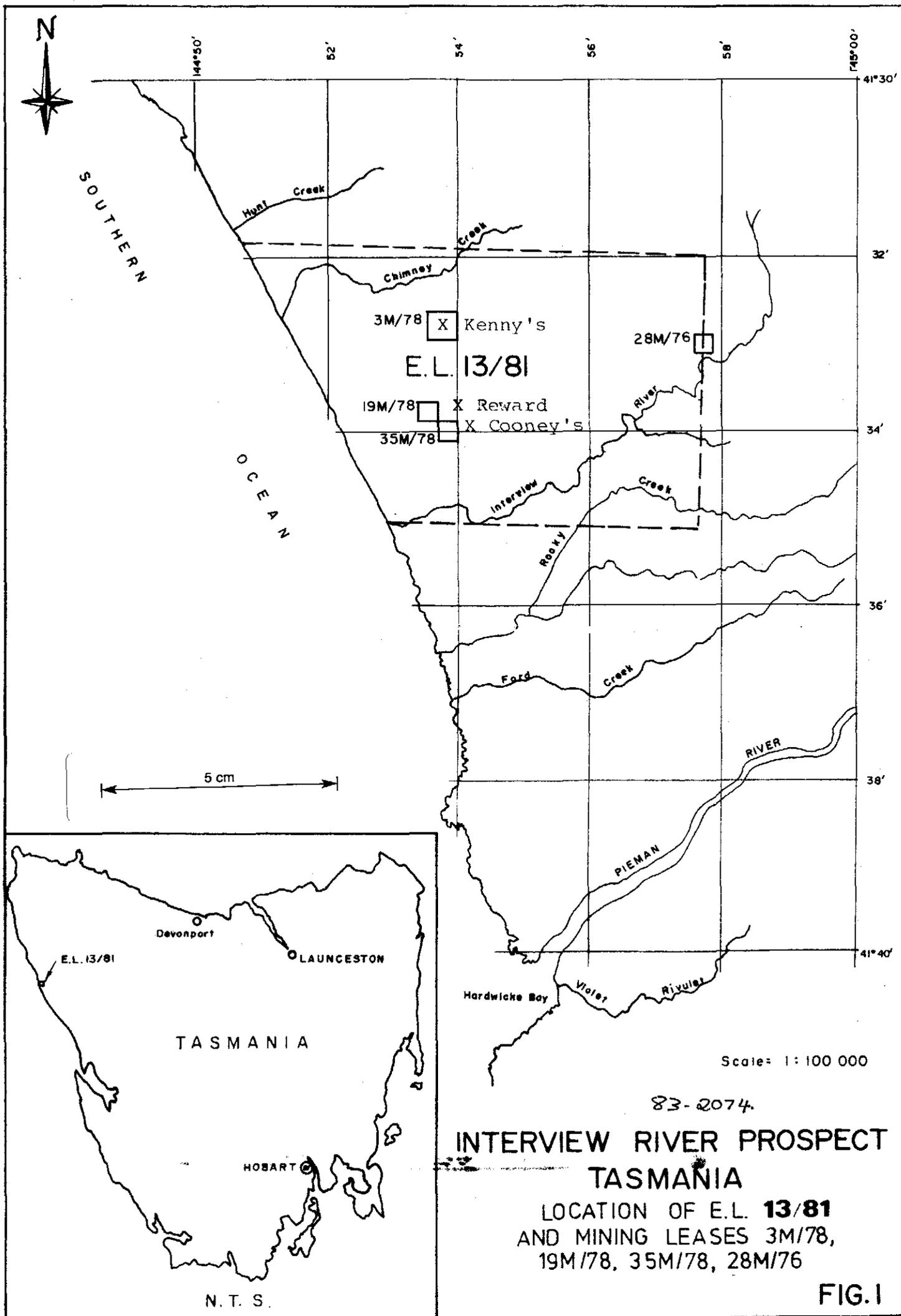
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ABIGNANO LIMITED

PROGRESS REPORT - APRIL 1982THE INTERVIEW RIVER (TAS.)
TUNGSTEN/TIN AND COPPER MINERALIZATIONEXPLORATION LICENCE NO. 13/81
(PREVIOUSLY E.L. 1/73)**OPEN FILE**

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83-2074
INTERVIEW RIVER PROSPECT
TASMANIA
 LOCATION OF E.L. 13/81
 AND MINING LEASES 3M/78,
 19M/78, 35M/78, 28M/76

FIG.1

SUMMARY

Geological investigations of the E.L. 13/81 area at the Interview River on the west coast of Tasmania have indicated that quartz veins in granite contain high grade tungsten mineralisation. Some tin is present.

Present indications are that a quartz vein system extends over a length of some 2,500 metres and that it may contain tungsten to the value of \$125 million (in-ground value). This is based on 1.6 million tonnes of ore containing 1.4% WO_3 . Evaluation of the prospect would cost approximately \$1,700,000.

A copper prospect to the east of the granite contains high grade sulphide ore and further investigations appear warranted.

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EXPLORATION LICENCE NO. 13/81 (PREVIOUSLY E.L. 1/73)C O N T E N T S
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1. INTRODUCTION

Within E.L. 31/81, a Devonian age granite intrudes Pre-Cambrian meta-sedimentary formations named the Interview Siltstone and the Lagoon River Quartzite. The granite forms part of a north-westerly trending batholith 2km wide and extending some 10km from the Pieman River in the south, through the E.L. to the Lagoon River in the north.

Stress fracturing of the granite (during cooling of the magma) has provided avenues for hydro-thermal solutions with the formation of numerous quartz-tourmaline veins, some of which carry wolframite and scheelite in association with pyrite and arseno-pyrite.

Several quartz-pyrite veins occur in fracture zones and shear zones within the Interview Siltstone in the eastern part of E.L. 13/81.

Copper mineralization in the form of chalcopyrite has been found associated with two of these veins.

2. LOCATION AND ACCESS

E.L. 13/81 lies on the north-west coast of Tasmania and takes in Chimney Creek and the Interview River. The location is best illustrated on the Regional Geology Map (Map No. 7041-3).

Access is by light plane or by four wheel drive vehicle from the north via Murrawah, Sandy Cape and then along the beaches for 20km to the Interview River. During the winter months from June to September, there is no reliable means of access due to wet conditions and flooding of the rivers and creeks which intersect the beaches.

Because of the limited access Abignano Ltd commissioned a report from Stephenson Maunsell & Partners, consultant engineers, on an alternative access track to E.L. 13/81. Details are contained in their report titled "Access Track Construction to Interview River Prospect", September 1981.

Permission from the National Parks & Wildlife Service and the Lands Department has been obtained for construction of this track, should it be considered necessary.

3. PRELIMINARY WORK

Following an initial inspection of the area by G B Brink (Mining and Exploration Manager) and an assessment of the nature of the tungsten occurrences within the E.L., grid lines were surveyed to allow trenching around the known mineralized veins. A baseline was surveyed, bearing 335° magnetic, to link the Cooney's vein system in the south with Kenny's vein system in the north.

3. Preliminary Work (Cont'd)

During October and November 1981, a series of back-hoe trenches were dug at intervals of 40 metres across the baseline as shown on the geological plans (Map No's 7041-1 & 7041-2).

4. GEOLOGY

The exploration licence area contains two major rock types i.e., the Devonian Interview River Granite in the western part and Pre-Cambrian folded Interview Siltstone and Lagoon River Quartzite in the eastern part. A narrow coastal strip of hornfels belonging to the Interview Siltstone flanks the granite along its western contact while quartzites belonging to the Lagoon River Quartzite have been mapped in the north-eastern part of the area.

The granite is covered in most places by a 1 metre thick horizon of residual soil derived from the granite and having a high humus content.

This peat-like horizon obscures the underlying rocks and makes detailed mapping difficult.

The area has the potential for three types of mineral deposit. These are:

- i. Tungsten/tin mineralization in quartz veins within the granite.
- ii. Copper mineralization in veins within the folded Interview Siltstones.
- iii. Alluvial tin deposits in streams draining the granite.

4.1 Tungsten/Tin Mineralization

Wolframite with minor scheelite occurs as mineral "shoots" within quartz/tourmaline/muscovite/pyrite/arseno-pyrite veins. Trenching was conducted with a view to showing extensions of the known mineralized veins and exposing any other mineralization in veins which were obscured by the peat like soil overlying the granite.

Mapping of the trenches has shown the presence of numerous quartz and quartz-tourmaline veins and extensions of the known mineralized vein systems. The veins show two directions of preferred orientation which are related to fracture pattern in the granite caused by compressive stress which existed during and after emplacement of the quartz veins.

The preferred orientations of the veins are:

- i. Veins striking N20°E (with a variance of 10° in either direction);

AND

- ii. fractures, local shear-planes and veins striking N40°W (320°) (with a variance of 10° in either direction).

The vein systems carrying wolframite strike around N20°E and are commonly offset along fractures striking in the N40W direction though the distance of movement along these

4.1 Tungsten/Tin Mineralization (Cont'd)

planes is generally much less than 3 metres.

Surface mapping has shown the existence of four vein systems containing wolframite (with traces of scheelite and tin).

These are:

- a. Cooney's vein system (in the south);
- b. Tungsten Reward vein (central):
- c. Camp Creek vein (300 metres south of Kenny's shaft);
- d. Kenny's vein (in the north).

A. Cooney's Vein System

The shaft at Cooney's workings is approximately 10 metres deep. At the surface the vein varies between 15 to 30cm in width but divides into three separate veins at the base of the shaft, with widths of 30cm, 20cm and 15cm. These veins have produced high grade ore judging by samples taken in the past and by inspection of material on the dumps. Samples of ore taken when the original shaft was sunk, assayed 27% tungstic acid (WO_3) while recent sampling of dump material gave values between 8% and 10% WO_3 . (As ore from the shaft was hand picked, these values are probably lower than the actual grade of ore mined.)

The veins continue southwards from the shaft in an en-echelon fashion for 90 metres as indicated by a series of old trenches and a second shaft. The veins strike between 15° and 30° with dips from $80^\circ SE$ through vertical to $80^\circ NW$. Due to the collapsed state and flooded condition of the old workings south of Cooney's shaft, exposures of veins are limited.

Inspection of the material adjacent to the trenches indicates that local high-grade intersections of wolframite were encountered.

B. The Tungsten Reward Vein

The shaft here is flooded but dump material indicates a vein up to 30cm in width which carried high-grade wolframite.

Assays of dump material show values around 12% WO_3 . The vein strikes between 20° and 25° and dips at 80° to the west. Near the shaft the vein is offset for 3 metres to the north-west along a shear plane which strikes at 320° and dips to 55° to the south-west. Recent trenching has not uncovered extensions of the mineralized vein in trenches to the north and south.

C. The Camp Creek Vein (300 metres south of Kenny's Shaft)

Shallow surface pits and bull-dozing have exposed a quartz veining showing traces of tin and wolframite over a length of 80 metres. The vein averages 40cm in width and strikes between 350° and 10° with dip being vertical. No high-grade ore is visible in the surface workings, and the tin and wolframite observed occurred as small isolated blebs within the quartz vein.

4.1 Tungsten/Tin Mineralization (Cont'd)D. Kenny's Vein

This vein averages 30cm in width and has a length of approximately 460 metres along a strike of 22°. Dips are from vertical to 80° east.

At Kenny's shaft, material on the dumps indicates the presence of an ore shoot. Samples of dump material show values between 7% and 10% WO₃, which represents material left behind after hand sorting of the ore. An adit 35 metres south of Kenny's shaft has been driven on the vein for 15 metres. According to Mr. M. Munday, who was involved in construction of the adit, a 40cm wide vein containing wolframite was followed for 10 metres where it cut out against a fracture plane striking N40°W. The best ore was apparently obtained from the floor of the adit, but due to back filling, these exposures are now covered.

Other trenches to the south of Kenny's Shaft have collapsed or are flooded and evaluation of veins was not possible.

Summary

The wolframite mineralization appears to occur as discrete lenses or "shoots", (with the strike length of these ore shoots in the order of 5 to 10 metres and grades in the range 10% to 20% WO₃), within the quartz-tourmaline-sulphide veins which are up to 460 metres in length. The locations of known ore shoots are as follows:

Cooney's Vein System

- a. At Cooney's Shaft;
- b. 30-35 metres south of Cooney's Shaft where past records refer to two veins (15cm and 20cm wide) one metre apart which carried high grade wolframite over a strike length of 5 metres.

Kenny's Vein

- a. At Kenny's Shaft;
- b. At the adit 35 metres north of Kenny's Shaft.

Other Tin/Tungsten Mineralization

Approximately 100 metres north-west of the camp, traces of tin, pyrite and scheelite occur in thin 1cm quartz veins within the granite. The granite in this area is slightly altered with chlorite replacing muscovite.

A series of trenches dug across these veins and the granite showed no evidence of a major vein system. Samples IR - 1 to 7 were taken of the material from the trenches and these showed values which are slightly anomalous (up to 130ppm WO₃ and 760ppm Sn). These values would indicate that the mineralization is confined to the thin quartz veinlets and that the granite, while altered, is not mineralized.

One sample (IR-6) of alluvial wash from a trench, 2 metres deep, adjacent to the creek gave a value of 0.55% tin and old alluvial tin workings extend down stream from this location.

4.1 Other Tin/Tungsten Mineralization (Cont'd)

This area offers some potential for alluvial tin, but little potential for primary mineralization. Location of trenches and samples are shown on Map No 7041-5.

Further exploration should take into account the following factors:

- a. The nature of the wolframite mineralization;
- b. The lack of surface outcrop and flooding in the old workings which prevents extensive sampling and assessment of ore grade and reserves;
- c. The observed tendency for mineralization and vein widths to increase with depths (as evidenced by the veins at Cooney's shaft and at the adit at Kenny's Vein).

Recommendations

As the Cooney Vein system and Kenny's Vein are the most promising of the tungsten veins, detailed sampling of in situ vein material should be carried out on the known ore shoots and adjacent areas where exposures can be obtained. This would involve:

- a. De-watering of Cooney's Shaft and adjacent trenches followed by clearing of debris to allow sampling of veins;
- b. Clearing of old prospecting trenches where possible to expose veins;
- c. Removal of back filled material on the floor of the adit at Kenny's to allow sampling of the vein there.

The sampling should be aimed at delineating those parts of the vein which contain high grade wolframite mineralization and in Cooney's Shaft, should test how the mineralization varies with depth.

4.2 Copper Mineralization

The Interview Siltstone formation crops out in the eastern part of E.L. 13/81 and consists of quartzite and banded siltstones which have been intruded locally by dolerite dykes. The whole sequence, including the dykes, has undergone regional metamorphism close to the contact with the granite.

The Copper Reward shaft lies on the western bank of the Interview River near the eastern boundary of E.L. 13/81 as shown on Regional Geology Map (No. 7041-3). Mineral lease No. 28M/76 held by G. Abignano Constructions Pty Limited covers possible extensions of the mineralization to the east.

A quartz vein containing pyrite and chalcopyrite (with subordinate covellite, azurite and malachite) occupies a shear/fracture zone which intersects banded siltstones which strike around 330° and dip 60° to the north-east. The observed outcrop width is 0.1 metre at the surface, but the Copper Reward shaft (sunk on the lode some 80 years ago)

4.2 Copper Mineralization (Cont'd)

revealed that the vein width increased to 0.6 metre at a depth of 6 metres. A representative sample of ore obtained from the bottom of the shaft assayed 10.5% Cu. The vein at the shaft strikes at 275° and dips at 70° south. An inclined shaft 16 metres to the west of the Reward Shaft intersects the continuation of the shear zone 3 metres below the surface, with some quartz showing pyrite and traces of chalcopyrite. From this shaft the strike of the shear zone changes to 250° and marks the contact between a meta-dolerite dyke and banded siltstones. There are no surface indications of quartz or sulphide mineralization to the west of the inclined shaft, but a surface expression of the shear zone does exist.

From the Copper Reward Shaft the quartz-chalcopyrite-pyrite vein can be traced east for a distance of 15 metres along strike (275°) to the bed of the Interview River. The vein has a surface width of 0.1 metre. On the eastern bank of the Interview River extensive alluvial flats up to 5 metres thick obscure possible extensions of the vein.

Mapping has shown five other quartz-pyrite-haematite veins which occupy major fracture zones striking between 270° and 300° magnetic. These veins are named Copper No. 1 to No. 5 and locations are shown on Map No. 7041-4. Detailed description and sample results for each vein are as follows:

Copper No. 1 Vein

The main vein, 1 to 2 metres wide, consists predominantly of quartz with traces of haematite and limonite (after pyrite) exposed over a length of 800 metres, striking between 275° and 285° magnetic and dipping from vertical to 85° south. Good exposures of this vein indicate it does not carry copper mineralization and this is verified by sample IR-16. A 4 metre deep trench dug on the southern side of the main vein shows a second parallel vein, 10-15cm wide, which consists of quartz-chalcopyrite-pyrite and assayed 1.12% copper. This vein lies 1 metre south of the main vein, and along strike gossanous quartz-haematite rock marks possible extensions of the copper mineralization. Samples of the material showed some anomalous copper values as shown in the table below, but the overall results are not indicative of high grade copper mineralization.

Sample locations are shown on Map No. 7041-4

OVER FOR CHART: "COPPER NO. 1 VEIN ASSAYS"

4.2 Copper Mineralization (Cont'd)COPPER NO. 1 VEIN ASSAYS

Sample Number	Description of Sample	Sample Width	Assay in ppm		
			Cu	Ag	Au
IR-10	Qtz-chalcopyrite-pyrite vein	0.15m	1.12%	5.7	0.03
IR-11	Qtz-Haematite-Limonite gossan	0.3m	96	0.2	0.01
IR-12	" "	0.3m	530	0.2	0.01
IR-13	" "	0.3m	127	0.2	0.01
IR-14	" "	0.3m	238	0.2	0.01
IR-15	" "	0.3m	166	0.2	0.01
IR-16	Main quartz vein with haematite along fractures	1.0m	24	0.2	0.01
IR-52	Qtz-Haematite-limonite gossan	0.3m	215	0.9	0.01
IR-53	" "	0.3m	65	0.7	0.01
IR-54	Main quartz vein with haematite	1.0m	116	0.6	0.01
IR-55	Meta-siltstone with limonite vughs	0.3m	245	0.6	0.01

Copper No. 2 Vein

This vein ranges in width from 0.6m to 1.0m and strikes around 300° over a distance of 1000 metres. Dip of the vein is vertical. Two adits have been dug on the vein with a trace of pyrite. No copper mineralization is evident. A representative sample of the quartz-haematite material gave the following results:

(IR-56)	Cu	315	ppm
	Ag	0.6	ppm
	Au	0.02	ppm

Copper No. 3 Vein

This vein is 0.3 to 0.6 metre wide and is parallel to Copper No 2 vein with dip to the south at 75°. Approximately 100 metres of vein is exposed being mainly quartz with some haematite. Dump material from a shaft shows that at depth, the vein is composed of quartz and pyrite. A sample of the quartz-pyrite material (IR-9) assayed:

(IR-9)	Cu	23	ppm
	Ag	0.2	ppm
	Au	0.01	ppm

Copper No. 4 Vein

A 0.3 metre wide quartz-haematite vein runs parallel to the Copper No. 2 and No. 3 veins for a strike length of 60 metres and shows a vertical dip.

4.2 Copper Mineralization (Cont'd)

Dump material near an exploratory shaft shows the vein to comprise quartz and pyrite at depth.

A sample of this material (IR-57) gave the following results:

(IR-57)	Cu	81	ppm
	Ag	0.3	ppm
	Au	0.02	ppm

Copper No. 5 Vein

This vein has a width of 0.6 metre, a vertical dip, and strikes parallel to the No. 2 vein. It comprises mainly quartz with haematite along fractures and a surface sample (IR-70) gave the following assay:

(IR-70)	Cu	103	ppm
	Ag	0.2	ppm
	Au	0.01	ppm

Other Veins

Approximately 1.7km south-west of the Copper Reward on the western side of the Interview River, a 0.5 metre thick quartz pyrite vein is exposed in two shallow pits. The location is shown on Map 7041-5. The vein strikes at 195° magnetic and dips at 60° to the west. A sample of the quartz-pyrite material (IR-58) gave the following assay:

(IR-58)	Cu	34	ppm
	Ag	0.4	ppm
	Au	0.06	ppm

In the base of a creek some 900 metres east-south east of the camp, a 0.3 metre wide vein of quartz-chlorite-pyrite occurs in a shear zone within the Interview Siltstones adjacent to the contact with the granite. A sample of the vein material (IR-68) gave the following assay:

(IR-68)	Cu	2350	ppm
	Ag	1.5	ppm
	Au	0.02	ppm
	WO ₃	20	ppm
	Sn	10	ppm

Summary

Sampling of the above veins indicates that the main copper mineralization is confined to the Copper Reward vein and Copper No. 1 vein. Of these two, only the Copper Reward vein has an ore grade which could be considered economic. However, the limited known strike length of 40 metres is insufficient to indicate a viable ore body. As the eastern extension of the vein is covered by alluvial flats, further exploration would involve geophysical prospecting or diamond drilling

4.2 Copper Mineralization (Cont'd)

Recommendations

At this stage, given the dimensions of the known mineralization, the vein does not represent a primary target for future exploration. However, if exploration or mining equipment were to be employed on nearby tungsten mineralization, some additional investigation of the copper mineralization ought to be considered.

4.3 Alluvial Tin

Four creeks which drain the mineralized area of the granite between Cooney's vein and Kenny's vein carry alluvial tin. The source of the tin is in part from the main tungsten-bearing veins and also from other quartz veins which have been observed to contain traces of tin.

The creeks are:

- a. Kenny's Creek,
- b. Race Creek,
- c. Cooney's Creek,
- d. Spencer Creek and its main northern tributary.

The alluvial wash occurs as relatively thin veneers averaging 1 metre in depth along the base of the creeks and ranging from 1 to 3 metres in width. Samples were taken in the interval 0.5 metre to 1 metre depth. Each sample represents one prospecting dish of wash which was panned and the concentrate sent for analysis. From the assays, tin values in kg/m³ were calculated.

Sample locations are shown on Map No. 7041-6.

INDICATED RESERVES

a. KENNY'S CREEK

Sample No.	Grade (Kg/m ³)
IR-19	0.6823
IR-21	1.2343
IR-22	1.9550
IR-24	0.5402
IR-26	0.5135
IR-27	6.0727*

(*High value due to sluicing of wash upstream?)

Excluding IR-27, the average grade of the wash in the main creek bed is 0.985 kg/m³. The estimated volume of wash between the camp and Kenny's workings is 2000m³ with a further 1000m³ below Kenny's workings to sample location IR-19. Estimated reserves: 3000m³ @ 0.985 kg/m³.

4.3 Alluvial Tin (Cont'd)

Tributaries of Kenny's Creek

Sample No.	Grade (Kg/m ³)
IR-18	0.1541
{ IR-23	0.1163
{ IR-25	0.6047
IR-50	0.8635
{ IR-65	0.8481
{ IR-66	0.0203
IR-67	0.0374

Of these samples, IR-25, IR-50 and IR-65 indicate tributaries which are possible sources of the alluvial tin.

b. RACE CREEK

Sample No.	Grade (Kg/m ³)
IR-28	1.8125
IR-29	2.8693
IR-30	3.0877
IR-31	0.8867
IR-32	2.3361

Average = 2.198 kg/m³

Above sample location IR-32 in the headwaters of Race Creek there is an estimated volume of 1500m³ of wash with an average grade of 2.198 kg/m³.

Estimated reserves: 1500m³ @ 2.198 kg/m³.

c. COONEY'S CREEK & TRIBUTARIES

Sample No.	Grade (Kg/m ³)
IR-33 (Trib)	1.9739
IR-34 (Trib)	4.0913
IR-35	3.0452
IR-48	0.2974
IR-49	1.5634

Due to the distribution of the sample localities it is not possible to average these values. The samples do indicate that grades similar to those at Race Creek (around 2 kg/m³) could be expected. Between Cooney's Shaft and sample

4.3 Alluvial Tin (Cont'd)

location IR-35, there are estimated reserves of 2500m³, (including tributaries).

d. SPENCER CREEK

Sample No	Grade (Kg/m ³)
IR-42	0.7586
IR-43	0.0818
IR-44	0.7546
IR-45	1.0462
IR-46	1.2734
IR-47	0.7342

Average grade = 0.7748 kg/m³

Estimated reserves between sample location IR-43 and IR-47 - 1000m³ @ 0.7748 kg/m³

Main Northern Tributary of Spencer Creek

Sample No	Grade (Kg/m ³)
IR-36	0.0235
IR-37	1.1558
IR-38	2.9242
IR-39	0.2181
IR-40	0.1123
IR-41	0.4401

The only samples to show significant values are IR-37 and IR-38, while values elsewhere along this tributary are below an economic grade. The limited amounts of wash present would indicate that there is little chance of finding a workable deposit on this tributary.

Summary

Indicated tin reserves for each creek are:

- a. Kenny's Creek 3000m³ at 0.985kg/m³) i.e. approx.
- b. Race Creek 1500m³ at 2.198kg/m³) 8,000m³ @
- c. Cooney's Creek 2500m³ at 2kg/m³ (est)) 1.5kg
- d. Spencer Creek 1000m³ at 0.775kg/m³) cassiterite

The reserves are insufficient for any large scale operation but consideration could be given to offering the alluvial tin to Mr M Munday to be worked under a tribute agreement

4.3 Alluvial Tin (Cont'd)

Panning and sampling along the Interview River and other creeks in E.L. 13/81 has shown that the alluvial tin is confined to the four creeks discussed above.

PROGRESS REPORT: MAY 1982

THE INTERVIEW RIVER (TAS.) TUNGSTEN/TIN MINERALIZATION
E.L. No. 13/81

Detailed sampling of in situ vein material was carried out from 23rd April to the 8th May 1982. The sampling was centred on the Cooney's vein system and Kenny's vein which are considered to offer the best prospects for tungsten mineralization. Twelve bulk samples (20-30kg) and twenty smaller samples (3-5kg) were obtained. Adverse weather during the field trip hampered the work carried out, but the end result was a series of samples which should allow a more precise assesment of the mineralization at both Cooney's and Kenny's veins.

5.1 SAMPLE INFORMATION AND OBSERVATIONS

Map No. 7041-7 was constructed to show the geological structure of Cooney's vein system, Kenny's vein and the location of all samples. In some locations, where larger samples were taken, it was necessary to use more than one bag to ensure a representative sample was obtained. In these cases the samples were labelled A and B, eg, IR-CT-83A and IR-CT-83B. These samples should be combined before analysis so that a single assay result is obtained for that location, (ie IR-CT-83).

a. Cooney's Shaft

The shaft was pumped out and the loose debris cleared from the base of the shaft. A geological plan was made of the veins exposed in the floor (see inset Map No. 7041-7).

Two parallel veins (approx. 1.2 metres apart) show regular off-sets to the north-west along shear/joint planes which strike at N45°W and dip at 75° and 85° to the south-east. The main vein averages 25cm in width and the second vein 15cm width. Five bulk samples were taken, one from each off-set section of the main vein over a distance of 4 metres. A sixth bulk sample was taken from the second vein and two smaller samples were taken (over 0.6 metre intervals) of the granite between the two veins. Sample locations are shown on the inset of Map No. 7041-7.

The main vein showed quartz - tourmaline - pyrite - arsenopyrite - chalcopyrite and scattered wolframite crystals. The most abundant wolframite was observed in sample IR-CS-79. All samples from the main vein showed evidence of scheelite under the UV. lamp

The second vein showed only traces of wolframite and scheelite and does not appear to be mineralized to the same extent as the main vein (at least where exposed in the base of the shaft).

.../Table

SAMPLE INFORMATION AND OBSERVATIONSa. Cooney's Shaft (Cont'd)

Sample No.	Description	WO ₃	Sn	Au
IR-CS-74	Main vein - 25cm width All bulk samples	6.5%	65ppm	0.01 ppm
IR-CS-75		2.75	45ppm	0.01 ppm
IR-CS-76		2.25	40ppm	-
IR-CS-77		630ppm	25ppm	-
IR-CS-79		9.65%	110ppm	0.01 ppm

Average =

IR-CS-78	Bulk sample Second vein (15cm)	800ppm	50ppm	-
IR-CS-80	Granite between veins	120ppm	170ppm	-
IR-CS-81	Granite Between veins	240ppm	100ppm	-

b. Cooney's Trenches

The trenches dug along the vein immediately south of Cooney's Shaft were pumped out and two parallel veins were exposed. The western vein averages 30cm width and the second is 15cm wide. The relationship of the veins is similar to that in Cooney's Shaft. Six metres of the main vein were bulk sampled at the northern end of the trench, and included two metres of vein which showed coarse tabular crystals of wolframite up to 10cm in length. A smaller sample was made up from material from the second vein over a length of 7 metres.

Sample No.	Description	WO ₃	Sn	Au
IR-CT-82	Bulk sample 30cm vein	2.60%	200ppm	-
IR-CT-83 (A+B)	15cm vein	0.50%	120ppm	-

Other trenches further south in the base of Cooney's Creek and which cut the grid-line 80S were flooded at the time of sampling. Two parallel veins (1 metre apart) were exposed in the northern end of the trenches. The eastern vein averages 20cm width while the western vein averages 15cm width. A bulk sample of the eastern vein was taken over a one metre interval and showed abundant pyrite and some disseminated wolframite (and scheelite).

Sample No	Description	WO ₃	Sn	Cu
IR-CT-84	Bulk sample 20cm vein	240ppm	120ppm	0.01ppm

SAMPLE INFORMATION AND OBSERVATIONSc. Kenny's Adit and Trenches

Backfill material was removed from the easter legs of the portal at Kenny's adit and a vein averaging 40cm in width was exposed. A bulk sample was taken of 2 metres of the vein and showed quartz - tourmaline - pyrite with patches of wolframite adjacent to the margins of the vein. Minor amounts of scheelite occur with this material.

A smaller sample of this vein was taken 5 metres south of the portal within the adit, but no wolframite was observed. Another sample was made of a second narrow quartz-tourmaline vein averaging 10cm wide which outcrops along the roof of the adit and at the end of the tunnel. This vein appeared to be barren.

Sample No.	Description	WO ₃	Sn	Au
IR-KA-85	Bulk sample 40cm vein	4.60%	19ppm	0.01ppm
IR-KA-86(A,B)	Sample of 40cm vein	2.10ppm	720ppm	0.01ppm
IR-KA-87	Sample of 10cm vein	280ppm	13ppm	0.01ppm

A section of 40cm wide vein was exposed in a trench 10 metres south of Kenny's Shaft and a bulk sample taken over a two metre interval. The vein consists of quartz-tourmaline with numerous elongated tabular crystals of wolframite.

Sample No.	Description	WO ₃	Sn	Au
IR-KT-88	Bulk Sample 40cm vein	5.55%	14ppm	-

A two metre interval of the vein was exposed in a trench between 6 and 8 metres north from Kenny's Shaft. The vein averaged 30cm in width and comprises quartz - tourmaline - muscovite with scheelite and traces of wolframite.

Sample No	Description	WO ₃	Sn	Cu
IR-KT-89(A+B)	Sample 30cm vein	3.15%	45ppm	-

Where grid line 2040N intersects Kenny's vein, a 20cm wide quartz - tourmaline - muscovite vein is exposed at the surface. Cleaning along the vein showed part of the vein from 0.9 to 1.0 metre south of 2040N was almost solid wolframite. A series of samples were taken along the vein as follows:

.../Table

SAMPLE INFORMATION AND OBSERVATIONSc. Kenny's Adit and Trenches (Cont'd)

Sample No.	Description	WO ₃	Sn	Au
IR-KT-90	3.5-4.5m south of 2040N	0.34%	18ppm	-
IR-KT-91	2.5-3.5m "	1.00%	160ppm	-
IR-KT-92 (AB&C)	0.5-1.0m "	6.95%	35ppm	-
IR-KT-93	0-0.5m "	0.12%	35ppm	-
IR-KT-94	0-0.5m north of 2040N	360ppm	30ppm	-
IR-KT-95	0.5-1.0m "	570ppm	30ppm	-

Most of the vein contains abundant tourmaline and muscovite with little evidence of tungsten mineralization except for sample IR-KT-92, which contains 0.1m of high grade wolframite.

Clearing of shallow trenches between 23m to 26m north along the strike of Kenny's vein from 2040N exposed a 40cm wide quartz - tourmaline vein showing scattered coarse wolframite crystals with some local rich accumulations. A bulk sample was taken over the interval.

Sample No.	Description	WO ₃	Sn	Au
IR-KT-96	Bulk sample 40cm vein	2.00%	19ppm	-

From 2080N a 40cm quartz - tourmaline vein was exposed at the surface along strike between 6 and 8 metres to the north of the grid line. The vein shows scattered wolframite with local accumulations near the margins of the vein. Scheelite is also present. A sample from the exposed vein is:

Sample No.	Description	WO ₃	Sn	Au
IR-KT-97 (A,B)	Sample 40cm vein	1.50%	11ppm	-

From 5 to 7 metres north along strike from 2160N, a 15cm quartz - tourmaline - muscovite vein is exposed in a cleared area. No visible wolframite was seen in the interval sampled.

Sample No.	Description	WO ₃	Sn	Au
IR-KT-98	Sample 15cm vein	3.05%	60ppm	-

A similar 15cm wide vein is exposed in the costean at 2200N. The vein here carries wolframite and scheelite. An extension of this vein is exposed in a shallow pit 50 metres north of 2200N along strike. Traces of wolframite were observed in the vein.

Sample No.	Description	WO ₃	Sn	Au
IR-KT-99	15cm vein at 2200N	150ppm	220ppm	-
IR-KT-100	15cm vein 50m north 2200N	2.75%	17ppm	-

SAMPLE INFORMATION AND OBSERVATIONSc. Kenny's Adit and Trenches (Cont'd)

South of Kenny's adit in trenches near 1960N, a 30cm quartz - tourmaline - pyrite - muscovite vein shows coarse tabular crystals of wolframite along its margins.

Sample No.	Description	WO ₃	Sn	Au
IR-KT-101	0-1m south of 1960N	0.89	<10	-
IR-KT-102	11-12m " "	3.00	20	-
IR-KT-103	14-17m bulk sample from south of 1960N	3.80	350	-

In the trench at 1920N, a 30cm wide quartz - tourmaline vein shows traces of wolframite and scheelite. Extensions of the vein are found between 1920N and 1880N. A sample was obtained 25 metres south along strike from 1920N where clearing of the peat layer revealed a 20cm quartz - tourmaline vein with traces of wolframite.

Sample No.	Description	WO ₃	Sn	Au
IR-KT-104	30cm vein at 1920N	3.50	35	-
IR-KT-105	20cm vein 25m S of 1920N	0.70	<10	-

5.2 SUMMARY

From these samples, especially the bulk samples, a clearer understanding of tungsten ore grades along the major veins will be obtained. This will enable decisions to be made on further development of the prospect.

6. TUNGSTEN MINERALIZATION

ANALYSIS OF SAMPLE RESULTS FROM COONEY'S AND KENNY'S VEINS

6.1 Introduction

The sample results from both Cooney's and Kenny's veins illustrate the highly variable nature of the tungsten mineralization (refer Map No. 7041-7). Values of Cooney's vein range from 0.02% to 9.65% WO₃ while Kenny's vein shows values between 0.02% and 6.95% WO₃. When considering the average grade obtained from a series of samples it is advisable to keep in mind the fluctuating nature of the tungsten mineralization. Descriptions of individual samples are contained in the May progress report.

6.2 Cooney's Vein

A series of bulk samples of vein material taken from the base of Cooney's Shaft (from south to north) over 4 metres of strike length showed an increase in values from 0.06% WO₃ to 9.65% WO₃. The mineralization is controlled by several joint planes cutting across the main vein and small scale movements along these joints have produced an en-echelon effect. Samples were taken of the vein between consecutive joint planes and the results are shown in the following table.

Cooney's Shaft: Main Vein

Sample No.	Strike Length	WO ₃ %	Strike Length x Grade
IR-CS-77	1.5 m	0.06	0.09
IR-CS-76	0.5 m	2.25	1.12
IR-CS-75	0.75m	2.75	2.06
IR-CS-74	0.75m	6.50	4.87
IR-CS-79	0.5 m	9.65	4.83
TOTAL	4.0 m		12.97

Average grade per metre = $\frac{12.97}{4}$ = 3.24% WO₃

A bulk sample of the main vein over a strike length of 6 metres was taken from the old trench workings immediately south of the shaft and it returned a value of 2.6% WO₃.

Combining the value from the shaft with that from the trench gives an average value of 2.8% WO_3 for a vein width of 0.25 metres over an inferred strike length of 30 metres. A second parallel vein, averaging 0.15 m width, returned values of 0.08% WO_3 from the shaft and 0.50% WO_3 from the trenches south of the shaft.

Further south, trench workings and an old shaft indicate the presence of continuing tungsten mineralization. Two parallel veins, 1 metre apart, are exposed at the northern end of these workings and have widths of 20cm and 15cm. A sample from the 15cm eastern vein showed a value of 0.02% WO_3 . This low value may be due to leaching of the vein by water from Cooney's Creek which flows into the trenches at this location. Due to the water level in the trenches no samples could be taken of the veins in the workings.

Reference is made to these two veins along the base of the creek in two earlier reports. A 1901 report by geologist G.A. Waller titled "A Report on Some Wolfram Sections near Pieman Heads" refers to a shaft in the bed of the creek from which a trench 50 feet long and 6 feet deep was dug to the north exposing two veins which contained high-grade wolfram ore. A 1943 report by geologist Q.J. Henderson titled "Interview River Wolfram Deposits" refers to these same veins and states that one of them "makes a shoot of exceptionally high grade wolfram ore over a length of eleven feet with an average width of 4 inches".

The old workings indicate a known strike length of 90 metres for Cooney's vein system with the possibility of extensions to the north and south along strike. An average vein width over this strike length would be 0.25m, with an indicated grade of around 2.8% WO_3 for the northern end of the vein.

6.3 Kenny's Vein

Tungsten mineralization is known to extend over a total strike length of 460 metres. Most of the older workings are centred around Kenny's Shaft and extend for 100 metres north and south of the shaft along strike. For this 200 metre section the vein maintains an average width of 0.4 metres and the profile created by the creek near Kenny's Shaft shows the width of the vein appears to be constant with increasing depth. Tungsten mineralization is again variable and is best illustrated by samples IR-KT-90 to 95 which were taken along 4 metres of vein material.

Sample No.	Strike Length	WO ₃	Strike Length x Grade
IR-KT-90	1.0 m	0.34	0.34
IR-KT-91	1.0 m	1.00	1.00
IR-KT-92	0.5 m	6.95	3.47
IR-KT-93	0.5 m	0.12	0.06
IR-KT-94	0.5 m	0.03	0.01
IR-KT-95	0.5 m	0.05	0.02
TOTAL	4.0 m		4.9

Average grade per metre = 4.9 = 1.2% WO₃

Bulk Samples from this 200 metre section of the vein gave the following results:

Sample No.	Strike Length	WO ₃ %
IR-KA-85	2.0 m	4.6
IR-KT-88	2.0 m	5.5
IR-KT-90 to 95	4.0 m	1.2
IR-KT-96	2.0 m	2.0
IR-KT-103	3.0 m	3.8
		Wt. Av = 3.1%

Fiver smaller samples from the same 200 metre section gave the following results:

Sample No.	Strike Length	WO ₃ %
IR-KA-86	1.0 m	0.02
IR-KT-89	1.0 m	0.34
IR-KT-97	1.0 m	1.50
IR-KT-101	1.0 m	0.89
IR-KT-102	1.0 m	3.00
		Wt. Av = 1.2%

Combining the ten sample results gives an average grade of 2.3% WO₃ to 2.6% WO₃, depending on average being calculated as simple or weighted, for a vein width of 0.4m and a strike length of 200 metres.

Taking the whole strike length of Kenny's vein (460m) and averaging the fifteen sample points gives a grade of 2.2% to 2.3% WO₃. The width of the vein at the surface is 0.3m in the south, 0.4m in the centre, and 0.15m in the northern exposures, giving an average width of 0.3m for the total strike length.

6.4 Summary

Possible ore reserves for Cooney's and Kenny's veins are:-

- A) Cooney's Vein:- Average grade: 2.8% WO₃
Average width: 0.25 metres
Strike length: 90+ metres
Open to the north and south
- B) Kenny's Vein:- Average grade: 2.2% WO₃
Average width: 0.3 metres
Strike length: 460 metres
Open to the north

Subsection:-

200 metre section of vein centred on Kenny's shaft.	Average grade: 2.3% WO ₃
	Average width: 0.4 metres
	Strike length: 200 metres

Other Mineralization

Assays were made for tin on the samples from both veins. Values are generally low and average 86 ppm Sn for Cooney's vein and 92 ppm Sn for Kenny's vein. The highest value obtained was 720 ppm Sn from Kenny's vein. Judging by these results, a wolfram concentrate of 70% WO₃ would contain less than 1% Sn and would not be subject to any penalties in regard to tin content.

Several samples were tested for gold but the results were negative.

Note:

The samples on which the grade have been calculated present only a small proportion of the veins and due to the variable nature of the tungsten mineralization the results give only an indication of the grade rather than measuring a true grade over the entire strike length.

The previous sampling was governed by the condition of the old workings and because of the collapsed and flooded state of the trenches only limited sections of the veins were exposed. To arrive at an accurate value for tungsten grade would involve dewatering the old trenches, cleaning out debris to expose the vein, followed by stripping out the vein along strike to a depth of at least one metre. Vein material from say 10 metre intervals could be crushed on site and split down to 30-50 Kg bulk samples. In this way a true grade could be established at the surface. If an economic grade were proved then drilling would be used to test for extensions of the veins at depth.

7. PROGRESS REPORT: FEBRUARY 1983

7.1 Preliminary

In August 1982 it was decided to gain more data on the Interview River wolframite prospect by extending the adit at Kenny's Creek near the northern end of the exploration area. Preparations were made accordingly and driving of the adit extension commenced in September 1982. A crew of three, consisting of a miner plus offsider and a general hand, was employed. Driving was by means of drilling and firing, followed by hand mucking into a drambie which ran on wooden rails.

7.2 Adit Driving and Observations

Owing to the relative closeness of the adit to the natural surface (approximately 13 metres at its deepest point), the granite was in a state of being fairly to very weathered. This caused a great deal of overbreak and where the adit should have measured 1.5 metres by 2 metres, it actually measures 5 metres by 4 metres in one place. Timbering was necessary for most of the adit's length.

The ore vein was followed where possible, but small scale movements on both vertical and horizontal planes made this sometimes difficult. Plan No. 7041-8 is a surveyed plan of the adit and surrounds just prior to cessation of driving.

As may be seen on the plan, two quartz veins run parallel for much of the observed length. The western vein is generally a clear, hard quartz about 0.15 metres wide and carries tourmaline, mica and sulphides but generally no wolframite. The eastern vein, up to 0.4 metres thick, and averaging about 0.3 metres, consists of rusty, friable quartz with abundant tourmaline, mica, sulphides and wolframite.

The attitude of the quartz vein system is near-vertical with a tendency to an easterly dip on a strike of about 205°.

Displacements of the vein system were invariably to the east (when facing south) but the old surface workings indicate that some westerly "jumps" also have been encountered.

Generally, the jumps are on vertical joint planes striking 150° with displacements ranging from a few centimetres to just over 1 metre. Between survey stations E₂ and E₃ the displacement has caused the juxtapositioning of the western vein with the tungsten bearing main vein.

Towards the end of November, the veins were "lost". However, interpretation of surface exposures and trench intersections had indicated that the vein system was either faulted or did consist of a number of broadly parallel vein sets. The latter was hoped for, the former anticipated. Accordingly the miners were instructed to continue driving in a southerly direction while veering towards the east. Near the end of January 1983, the vein system was intersected at almost exactly the predicted spot. Samples taken from the various veins indicate that the westerly vein here carries some 2.0% WO₃, the main vein a rich 10.7% and a third vein, just being exposed in the eastern wall, carries 0.8% WO₃. The two "minor" veins also carry approximately 0.35% tin.

It was intended to drive northerly along the newly-intersected veins until the truncating fault or sheer was intersected. This would have confirmed beyond doubt the geological, structural interpretation. However, budgetary considerations led to the decision to cease work temporarily and appraise the work done to date as well as to determine the most suitable method of proving the prospect in terms of quantity, quality, structure and overall potential.

7.3 Interpretation of Possible Structures

From the data gained to date, i.e. mapping and sampling of old workings, exploratory trenches and the newly extended adit, a number of possible structures may be interpreted. Reference to Plan No's 7041-1, 2 and 7 will reveal that old workings are situated roughly on a north-south trending line. Exploratory trenches centred on the Kenny's and Cooney's Workings, as well as the intermediate Reward Workings, have indicated extensions to the several vein systems worked at those localities. The adit at Kenny's Workings has proved conclusively that the vein system there is much more consistent and predictable than previously assumed. It seems clear that previous miners were frustrated in their efforts to mine the vein mainly through lack of understanding of the mineralisation.

Based on the results of mapping and the more recent results of the adit, the following interpretations are considered valid.

7.3.1 Single Vein System

Observations at Kenny's Workings indicate a single vein system which consists of a number of parallel quartz veins. The veins appear to be of different age, the western vein probably being younger than the main, tungsten bearing vein. This is deduced from the fact that the former has been less affected by joint plane movements than the latter.

Exposures within the adit reveal minor displacements (on joint planes?) of the vein system and a more significant movement on a fault plane; the latter has resulted in a displacement of some 8 metres (refer Plan No. 7041-8).

Approximately 200 metres south of this fault surface mapping indicates a major displacement of the vein system to the east, in fact as much as 250 metres may be measured on Plan No. 7041-2. Similar observations can be made in respect of the relative positions of the Reward and Cooney's Workings. Hence, it appears that the area between Kenny's and Cooney's consists of a number of fault blocks, each in the order of some 500 metres length and a total observed length of approximately 2,500 metres.

However, additional work is needed to verify this hypothesis and also the persistence and continuance of the vein system, both laterally and vertically.

7.3.2 Multiple Vein Systems

Although the recent observations within Kenny's Adit have indicated that fault displacements of the vein system in the order of 10 metres do occur, the apparent displacement of some 250 metres further to the south could indicate that, in fact, a number of semi-parallel vein systems exist.

If the major displacement in question, as indicated on Plan No. 7041-2, is not a displacement but an expression of a parallel vein system, it could have shown up in the exploratory trenches south of Kenny's Adit, (1840 N, 1800 N), but not in trenches 1680 N and beyond.

Therefore, a programme for further exploration and evaluation of the mineralisation in the area should include provision for testing the possibility of multiple vein systems.

7.4 Grades

During construction of the adit endeavours were made to keep the country rock and vein rock separate. This has only been partially successful; approximately 25 tonnes of the ore have been stockpiled on the eastern side of the adit entrance. Samples taken from this stockpile indicate an average grade of about 5% WO₃. The several samples taken from the main vein in-situ indicate an average grade of 4.9% but values vary from 0.2% to 10.7%. The newly intersected vein system appears to be a good deal richer than previously encountered material and previously barren associated veins here carry some WO₃ and Sn.

7.4.1 Samples and Assays

Samples taken from the adit extensions during construction were all assayed for WO₃, some for tin also and one sample was assayed specifically for molybdenum.

Sample numbers, descriptions and assay results are tabulated below and are also shown on Plan No. 7041-8.

SAMPLE NO.	DESCRIPTION	WO ₃	Sn
IR-KA-106 *	Main vein	6.7%	N.D.
107	West vein	97 ppm	N.D.
108	West vein	120 ppm	30 ppm
109 *	Main vein	3.7%	25 ppm
110 *	Main vein	5.0%	25 ppm
111 *	Main vein	2.1%	16 ppm
112 *	Ore stockpile	5.0%	<10 ppm
113 *	Ore stockpile (fines)	5.4%	65 ppm
114	Country rock (granite) Mo = < 1ppm	N.D.	N.D.
115 *	Main vein	0.2%	N.D.
116	West vein	95 ppm	N.D.
117 *	Main vein (brecciated)	5.7%	N.D.
118	Wall rock (granite)	175 ppm	N.D.
119	Wall rock (granite)	88 ppm	N.D.
120	Wall rock (granite)	50 ppm	N.D.
121	Wall rock (granite)	24 ppm	N.D.
122	Wall rock (granite)	13 ppm	N.D.
123	West vein	2.0 %	0.33%
124 *	Main vein	10.7 %	0.06%
125	East vein	0.8%	0.38%
126	Selected ore	56.7%	1.25%
127	Selected ore	50.2%	0.03%

KEY: N.D. = NOT DONE

The samples marked with an asterisk represent the "main" vein and average 5% WO₃ over a mean width of about 0.3 metres.

At the southern end of the adit additional quartz veins, one on either side of the main vein, were encountered and these carried some tungsten and tin as well. This is in contrast to earlier findings and careful mapping is required to verify this.

7.5 Reserves

At this stage it is not possible to indicate the reserves of tungsten ore present. However, the work carried out to date allows an insight into the possible targets. There is strong evidence now to suggest that the old workings to the north of Kenny's Adit connect with the mapped vein exposures south of the adit. This results in a continuous strike length, ignoring joint plane movements and minor faulting, of some 500 metres.

If the faulted, single vein system theory is adopted and it is assumed that 500 metres is the norm for fault blocks, then the total vein length is about 2,500 metres. Note that the apparent fault line is approximately at right angles to the strike direction and therefore faulting would neither significantly add to or subtract from the total vein length.

If the Kenny's and Cooney's Workings are at or near the extremities of the same vein system it is reasonable to assume that ore grades would be similar along the length of the vein as observed grades are equally good in both places. The same argument holds for vein thickness.

Based on the above observations and assumptions, the following parameters may be established:

- a. Vein length 2,500 metres
- b. Average vein width 0.30 metres
- c. WO₃ content in vein (grade) 5%
- d. S.G. of vein (5% WO₃, 5% Fe(As)S, 10% tourmaline, 5% mica, 75% quartz) 3.0
- e. S.G. of granite 2.6
- f. Mining dilution factor 4.0
- g. S.G. of 1.2 metre wide stope 2.7

Based on these parameters, the following values result for each metre of depth over the length of the vein:

- (i) Volume of vein $2,500 \times 0.3 \times 1 = 750 \text{ m}^3$
- (ii) Mass of vein $750 \times 3.0 = 2,250 \text{ tonnes}$
- (iii) Mass of WO₃ in vein $2,250 \times 0.05 = 112.5 \text{ tonnes}$
- (iv) Mass of 1.2 m wide stope $2,500 \times 1.2 \times 2.7 \times 1 = 8,100 \text{ tonnes}$
- (v) Derived average grade of stope $= 1.4\% \text{ WO}_3$

Hence, a single vein system 2,500 metres long would yield 8,100 tonnes of ore grading 1.4% average and 112.5 tonnes WO₃ per vertical metre.

The current price for wolfram is about \$80/unit, i.e.: \$8,000/tonne. Assuming 70% recovery the value of each vertical metre of the vein would then be 112.5 x 0.7 x \$8,000 = \$630,000 and the value of each tonne of stoped ore \$78.

On lenticular ore bodies a generally adopted assumption concerning depth is half the strike length. However, such an assumption is not considered valid in this case but the proposition that the vein system may persist to a depth of 200 metres, or more, should be considered. If such were the case then the following values would be pertinent.

- 1. Total mass of ore 200 x 8,100 = 1,620,000 tonnes
- 2. Total mass of WO₃ 200 x 112.5 = 22,500 tonnes
- 3. Total value of WO₃ 22,500 x 0.7 x \$8,000 = \$126,000,000

In summary, if a single vein system is continuous between Kenny's and Cooney's Workings, the target value is approximately \$125 million.

If, however, there exist multiple vein systems, the target value could well be a multiple of \$125 million.

7.6 Recommendations

In view of the progressive success of exploration activities to date, a growing understanding of the mineralisation and correspondingly increasing confidence that an economic deposit may be present within the Interview River exploration licence area, additional exploration should be undertaken to investigate the prospect's potential thoroughly.

Suggested initial drilling sites are shown on Plan No's 7041-1, 2 and are selected to investigate the areas of known near-surface mineralisation. It is intended to drill at approximately 200 metre intervals along the strike and to intersect the vein system some 50 metres below the surface. This initial, fully cored programme should be extended if drilling is successful in delineating the projected targets.

7.6.1 Recommended Programme and Expenditure

It is recommended that further investigations be carried out in stages, the relative success of one stage determining the implementation of the next. Stages and estimated expenditures are envisaged as follows:

STAGE 1

<u>Item</u>	<u>Expenditure</u>
a. Appropriate geophysical survey	\$ 50,000
b. Initial core drilling programme consisting of inclined holes at 200 metre intervals to intersect the vein system 50 metres below the surface.	\$100,000
	<u>\$150,000</u>

STAGE 2

<u>Item</u>	<u>Expenditure</u>
a. Construct access road.	\$100,000
b. Extended drilling programme on closer spacing and greater depth.	\$300,000
	<u>\$400,000</u>

STAGE 3

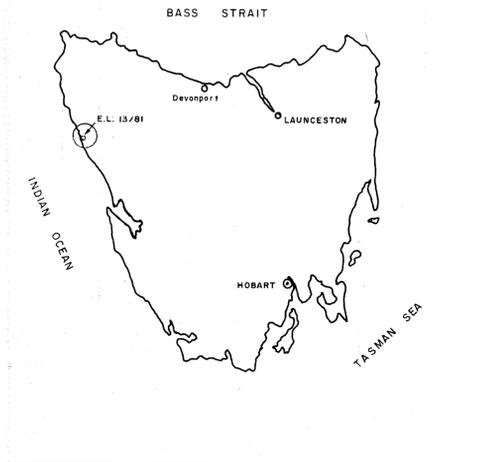
<u>Item</u>	<u>Expenditure</u>
a. Additional drilling to investigate possible parallel vein systems	\$ 50,000
b. Drilling of copper vein (including site works)	\$100,000
	<u>\$150,000</u>

STAGE 4

<u>Item</u>	<u>Expenditure</u>
Feasibility study including metallurgy, mining engineering, mine and plant design, environmental impact studies, market research, etc.	\$1,000,000

Duration of Stages 1, 2, 3 and 4 is expected to be approximately 2 years and overall estimated expenditure would be of the order of:

\$1,700,000

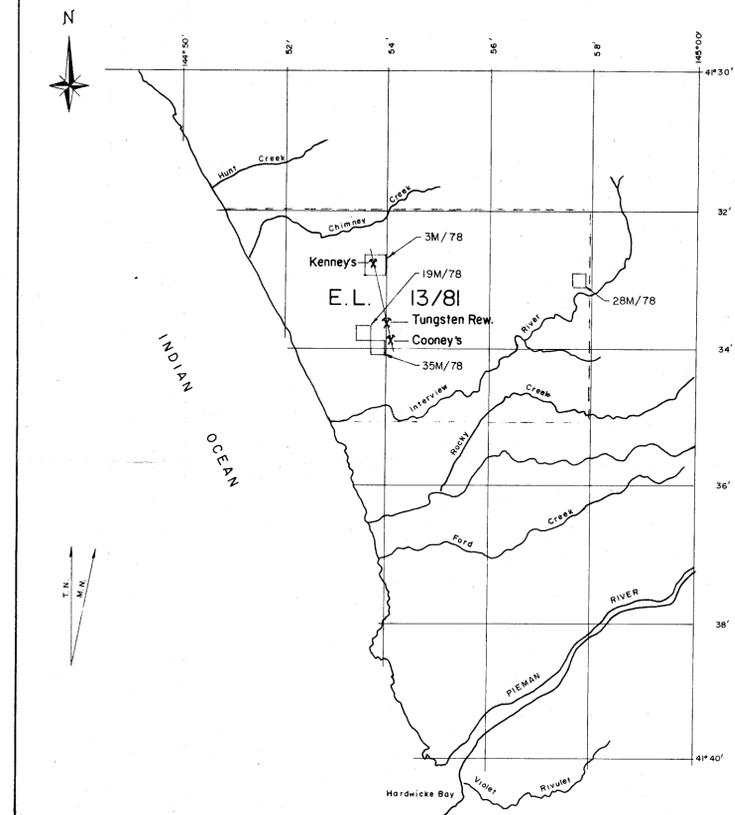
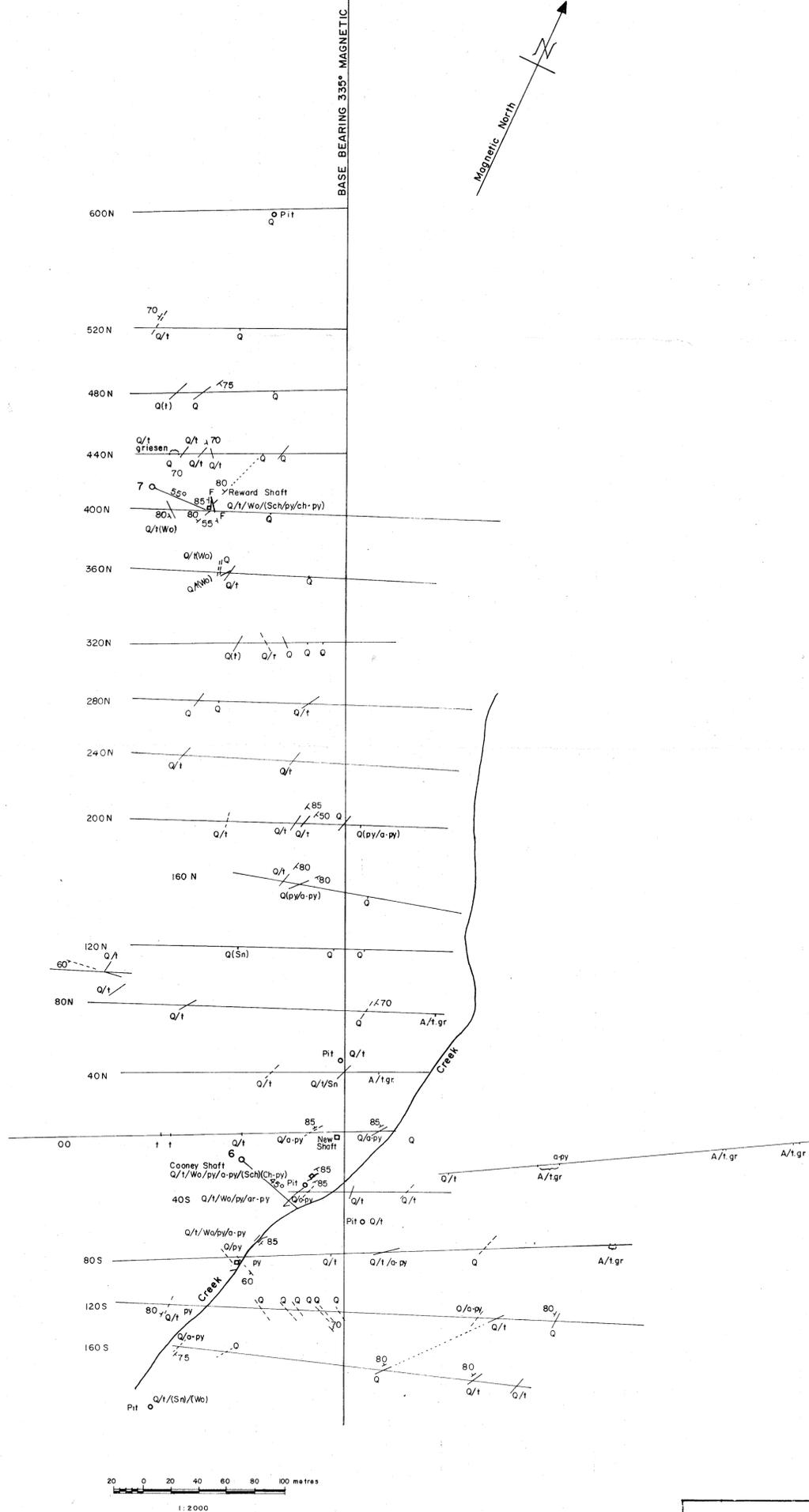


TASMANIA
N.T.S.

LEGEND

- 1840N — New trenches
- - - Veins less than 10cm wide
- Veins greater than 10cm wide
- Possible extension of vein
- 85° Strike and dip of vein
- Q - Quartz
- t - tourmaline
- py - pyrite
- a-py - arsenopyrite
- ch-py - chalcopyrite
- sch - scheelite
- Wo - wolfronite
- Sn - tin
- Vein system showing wolfram
- Shaft
- Pit
- 6 45° Proposed Drill Hole with inclination

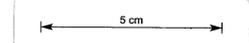
Note: All veins without dip marked are vertical



LOCATION PLAN

1:100 000

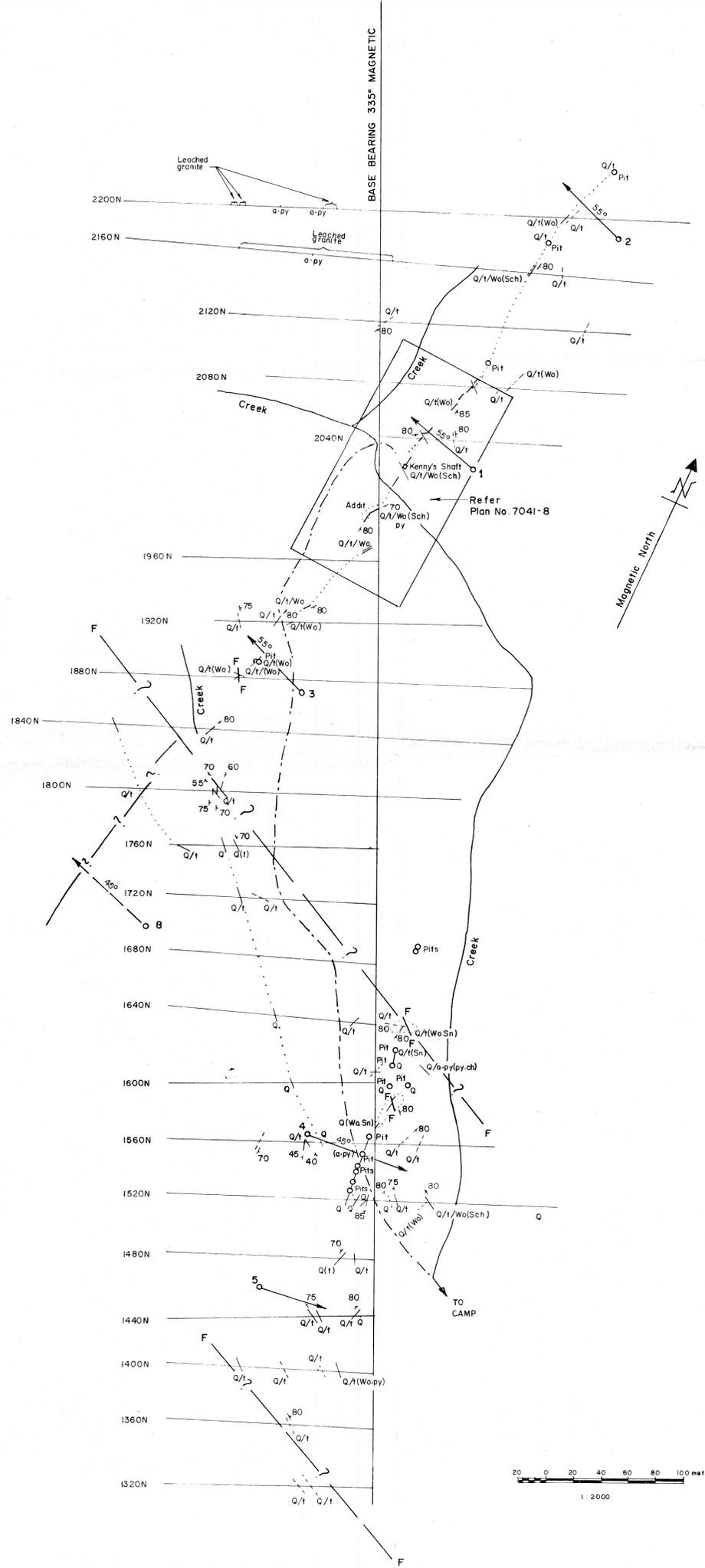
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Telex 24464

INTERVIEW RIVER E.L. 13/81
TASMANIA
COONEY'S AND REWARD GRID
GEOLOGICAL INVESTIGATION

SCALE		DATE	
1:2000		25-2-82	
DRAWN	P. G.	DRAWING NUMBER	
TRACED	J. P.	83-2074	
CHECKED	G. B. B.	7041-1	



LEGEND:

- 1840N — New trenches
- - - Veins less than 10 cm wide
- Veins greater than 10 cm wide
- ... Possible extension of vein
- 85 Strike and dip of vein
- Q - Quartz
- t - tourmaline
- py - pyrite
- a-py - arsenopyrite
- ch py - chalcopyrite
- sch - scheelite
- Wo - wolframite
- Sn - tin
- Vein system showing wolfram
- Shaft
- Pit
- - - Old trenching, bulldozed areas
- - - Old vehicle tracks
- F - F Fault Interpretation
- 2000^{55°} Proposed Drill Hole with Inclination

Note: All veins without dip marked are vertical

480035



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INTERVIEW RIVER E.L. 13/81 TASMANIA		SCALE 1:2000	DATE 25-2-82
KENNY'S GRID GEOLOGICAL INVESTIGATION		DRAWN P.G.	DRAWING NUMBER 83-2074
		TRACED J.P.	7041-2
		CHECKED G.B.B.	

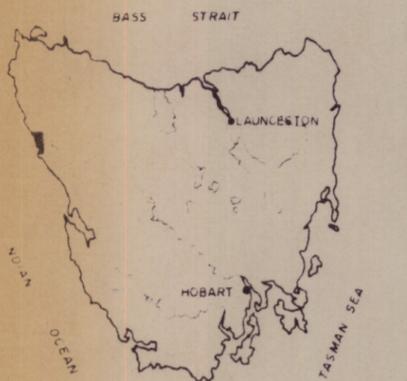
8581

5400000 m N

3900000 m N

SOUTHERN OCEAN

LOCALITY MAP



480036

3300000 m N

CONICAL ROCKS POINT

RUPERT POINT

PIEMAN HEAD

HARDWICKE BAY

EL 13/81

LEGEND:

QUATERNARY

- Qa ALLUVIUM
- Qda ACTIVE COASTAL DUNES
- Qds STABILISED COASTAL DUNES

TERTIARY

- Tc PEBBLE CONGLOMERATE

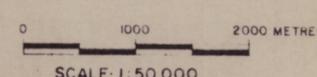
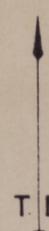
PRECAMBRIAN (PROTEROZOIC)

- Pr RUPERT BEDS
- Black MUDSTONE + SILTSTONE
- Pi INTERVIEW SILTSTONE QUARTZITE BEDS
- Pqi LAGOON RIVER QUARTZITE

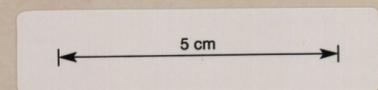
IGNEOUS ROCKS

- Tb TERTIARY BASALT
- Dg DEVONIAN GRANITE
- Dg* CONTACT ZONE

- GEOLOGICAL BOUNDARY
- GENERAL STRIKE & DIPS
- TREND OF MAJOR FOLD
- FAULT
- LINEAMENT
- OLD MINE



SCALE: 1:50,000

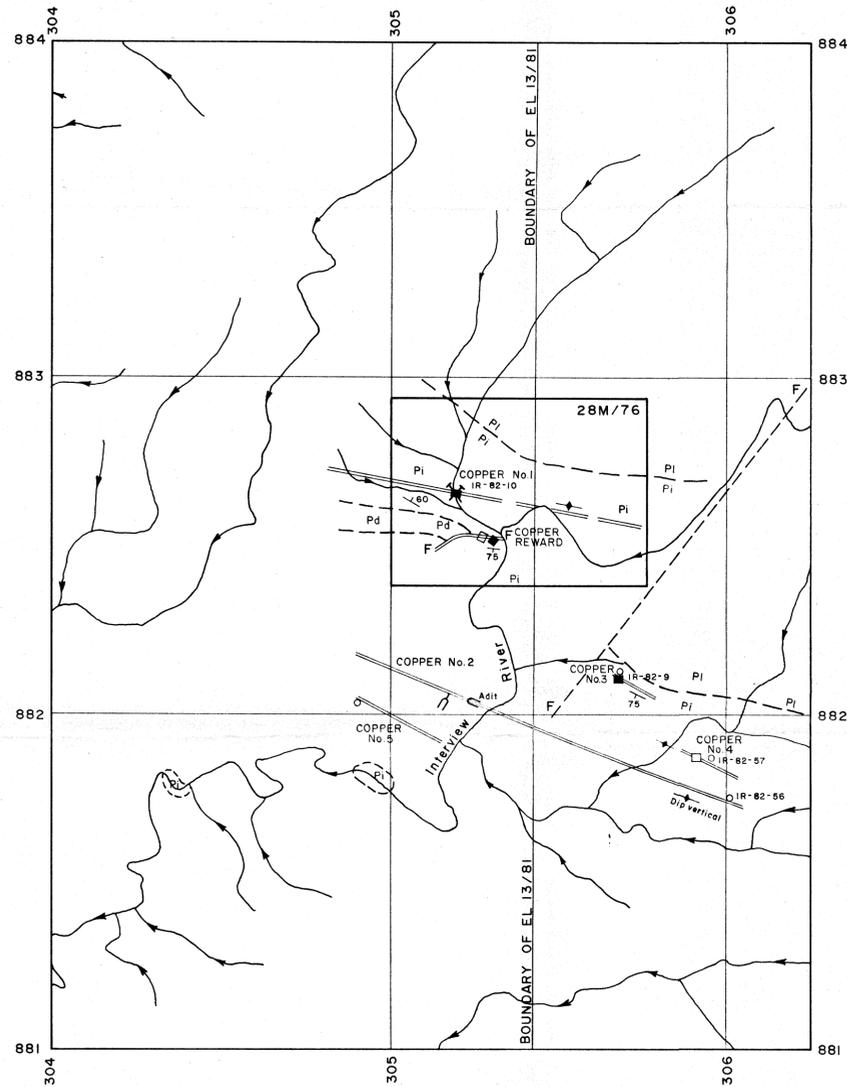


GEOLOGY COMPILED FROM GEOL SURVEY - MINES DEPT MAPPING

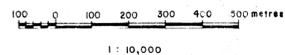
INTERVIEW RIVER AREA
REGIONAL GEOLOGY

DRAWN: C.H.W.	SCALE: 1:50000	83-2074 MAP No. 7041-3
TRACED: T.G.D.S.	DATE: July 1981	

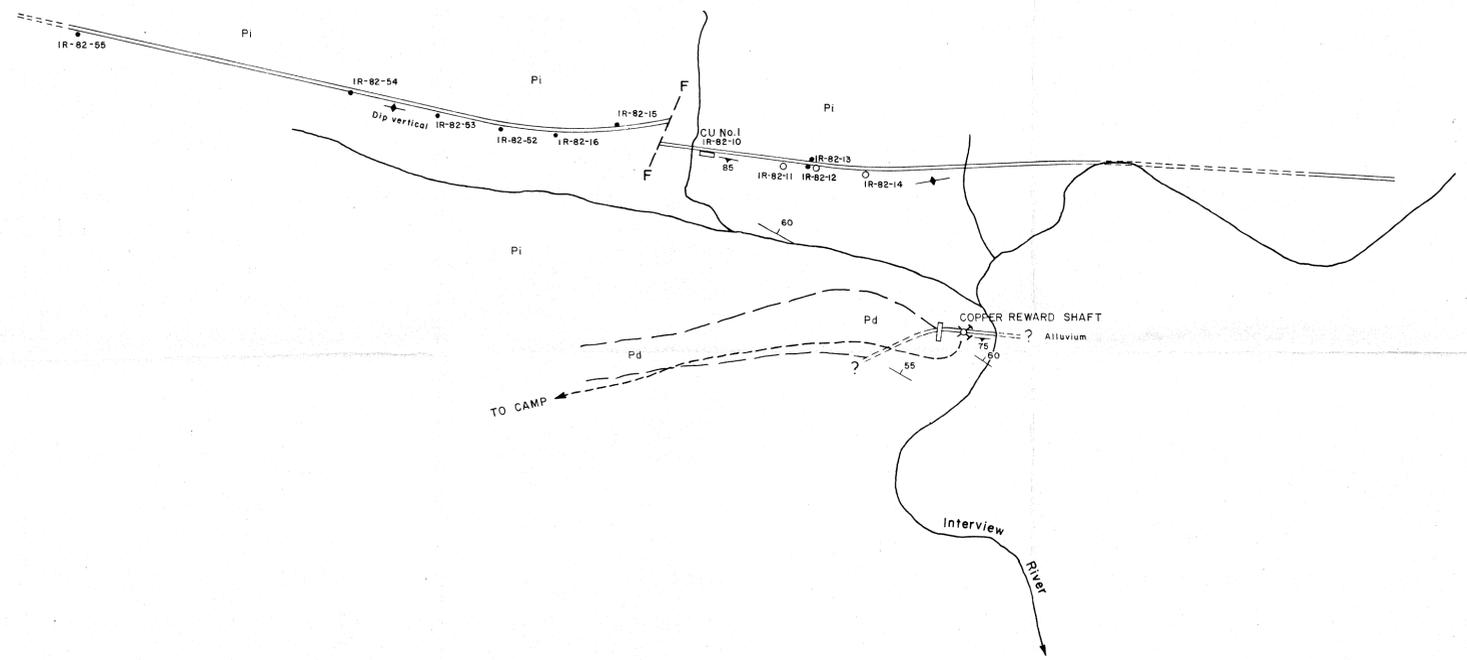
COPPER REWARD WORKINGS
GEOLOGICAL LOCALITY PLAN



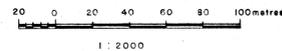
- LEGEND**
- Pd Dolerite and Meta-Dolerite - often Laterized
 - Pi Lagoon River Quartzite - massive recrystallised quartzite, with very minor shale. Bedding rare
 - Pi Interview Siltstone - interbedded grey-green shale siltstone and sandstone, with sedimentary features common
 - /// Quartz veins
 - IR-82-9 Sample location
 - Mine Shaft - Vertical
 - Mine Shaft - Inclined
 - Rivers and Natural Watercourses
 - F Fault
 - 60° Strike and dip of mineralized vein
 - Pi Geological boundary
 - Adit Adit Workings
 - ⊗ Surface Workings



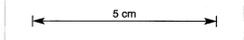
COPPER REWARD AREA
ENLARGEMENT OF 28M/76



- LEGEND**
- Pd Meta-dolerite (laterite in association)
 - Pi Interview Siltstone
 - 55 Strike and dip of sediments
 - /// Quartz veins (• IR-82-11 Sample location)
 - Pit, trenching
 - ~ Watercourse
 - - - Vehicle track



430037

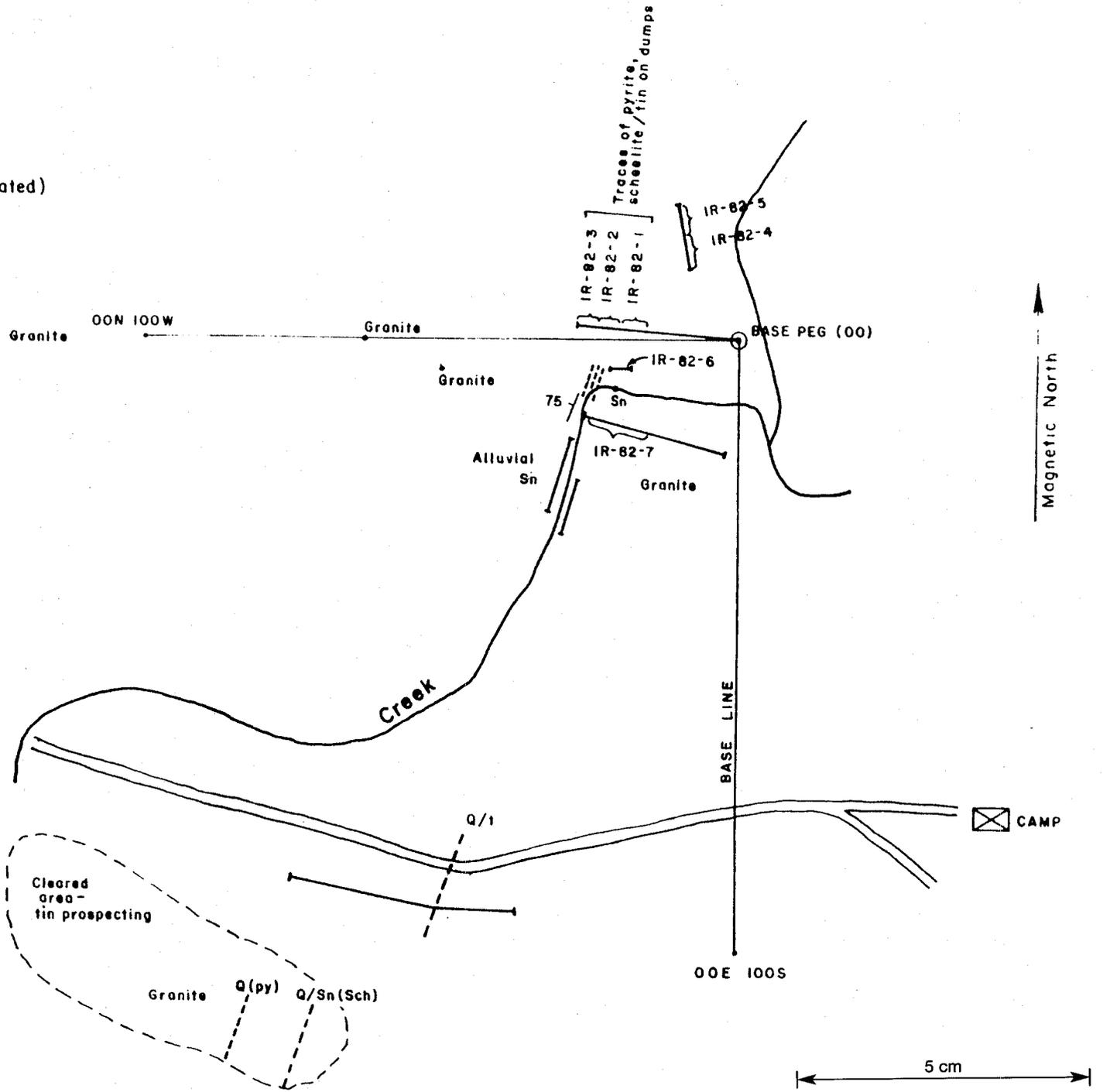


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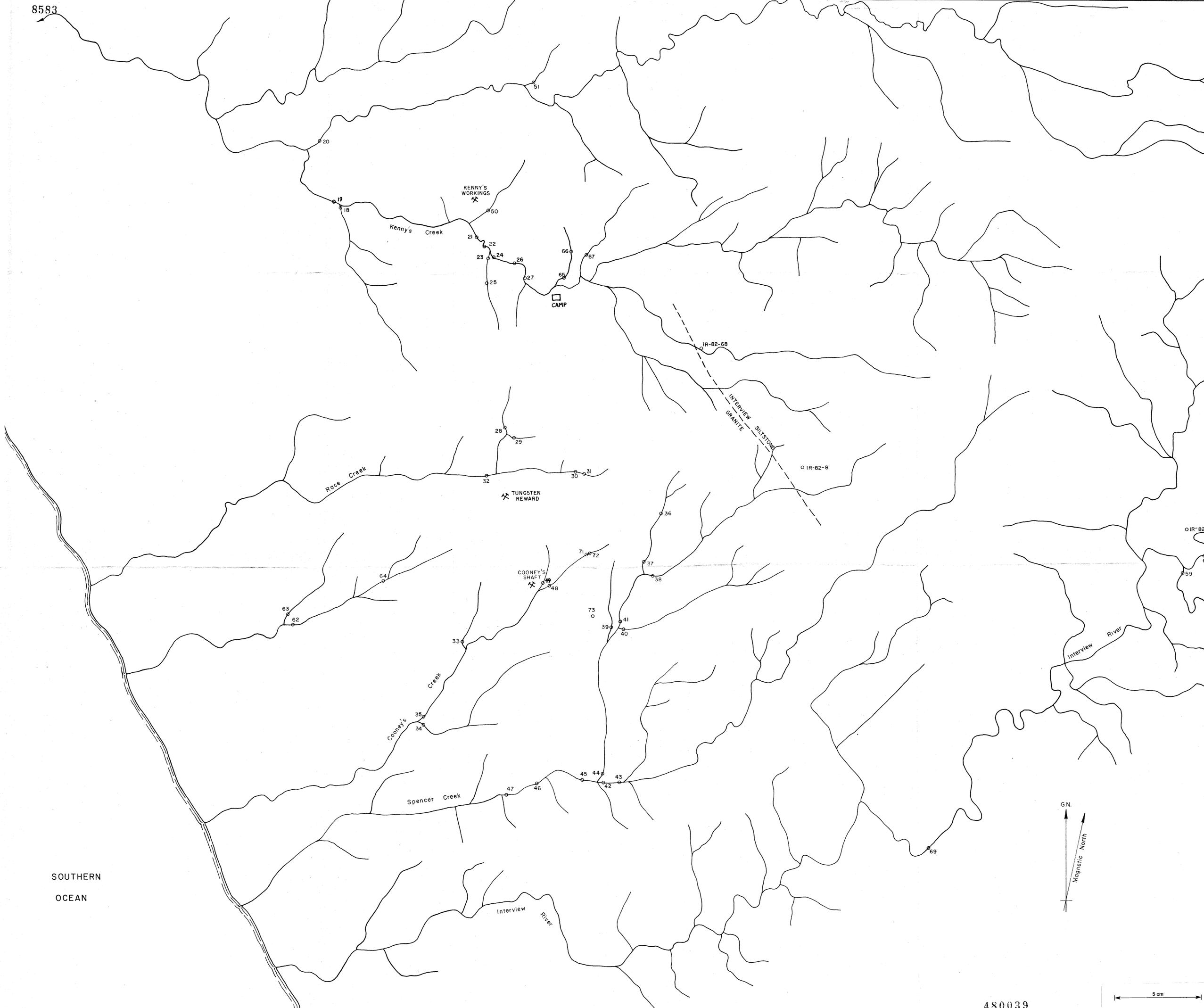
ITEM	DESCRIPTION	REQ'D	MATERIAL	REMARKS
INTERVIEW RIVER TASMANIA		SCALE 1:10,000		PASSED DATE
COPPER REWARD WORKINGS GEOLOGICAL LOCALITY PLAN		DRAWN TRACED CHECKED	P.G. J.M.P. G.B.B.	DRAWING NUMBER 7041-4

CAMP GRID

-  Quartz veins less than 10cm. (Minerals indicated)
-  IR-82-3 Sample Location
-  Altered granite ?
-  Trench
-  Track



480038



SOUTHERN OCEAN



480039

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INTERVIEW RIVER E.L. 13/81 TASMANIA		SCALE 1:10,000	DATE
ALLUVIAL TIN		DRAWN P.G.	DRAWING NUMBER
		TRACED J.M.P.	63-2074
		CHECKED G.B.B.	7041-6

KENNY'S VEIN - SAMPLE LOCATIONS
 (THIS MAP SHOWS ENLARGED PLAN OF KENNY'S VEIN FROM MAP 7041-2)

- LEGEND:**
- QUARTZ-TOURMALINE SULPHIDE VEIN WITH WOLFRAMITE - SChEELITE
 - 80 STRIKE AND DIP OF VEIN OR JOINT PLANE
 - IR-KT-98 SAMPLE LOCATION AND IDENTIFICATION (*BULK SAMPLE)
 - SHAFT
 - PIT
 - CLEARED AREA, TRENCHES



○ PIT

IR-KT-99

IR-KT-98

Refer Plan No. 7041-6

○ PIT

IR-KT-97

IR-KT-96

IR-KT-95

IR-KT-89

IR-KT-86

KENNY'S ADIT (Pit 61)

IR-KA-85

IR-KA-86

IR-KA-87

IR-KT-101

IR-KT-102

IR-KT-102*

IR-KT-104

IR-KT-105

IR-KT-99

BASELINE BEARING 335° MAGNETIC

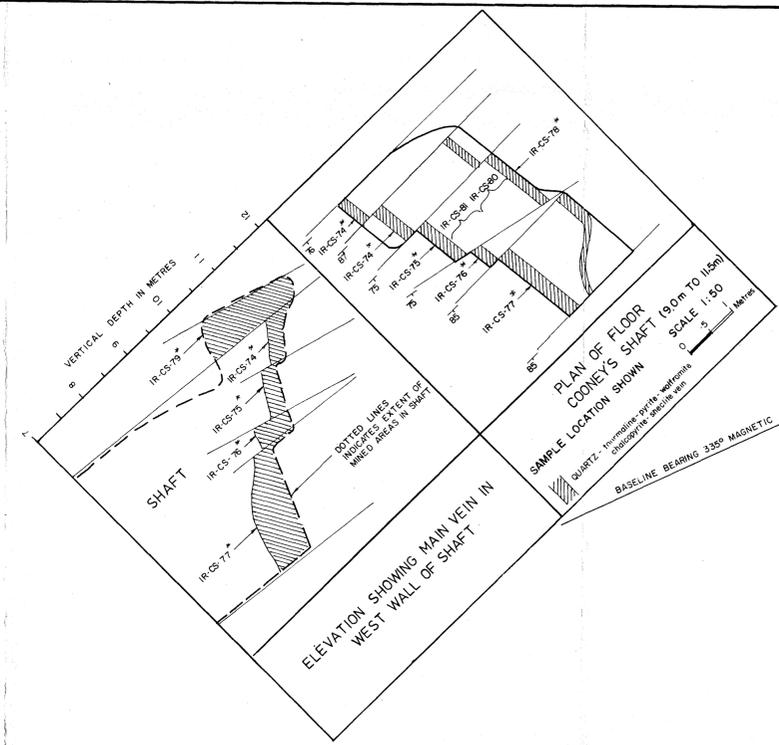
N 0° 00' E

N 0° 30' E

N 0° 00' E

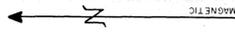
N 0° 00' E

N 10° 00' S



COONEY'S VEIN SYSTEM - SAMPLE LOCATIONS
 (THIS MAP SHOWS ENLARGED PLAN OF COONEY'S VEIN FROM MAP 7041-1)

- LEGEND:**
- QUARTZ - TOURMALINE - SULPHIDE VEIN WITH WOLFRAMITE - SChEELITE
 - 80 STRIKE AND DIP OF VEIN OR JOINT PLANE
 - IR-CT-83 SAMPLE LOCATION AND IDENTIFICATION (*BULK SAMPLE)
 - SHAFT
 - PIT
 - CLEARED AREA, TRENCHES



ABUNDANT QUARTZ FLAT

COONEY'S SHAFT (SEE INSET)

IR-CT-82

IR-CT-83

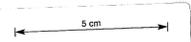
Cooney's

IR-CT-84

Creek

ALTERED GRANITE (fractures contain pyrite)

480040



INTERVIEW RIVER E.L. 13/81		SCALE	DATE
SAMPLE LOCATIONS COONEY'S AND KENNY'S VEINS		1 : 500	MAY 1982
DRAWN	P. G.	DRAWING NUMBER	
TRACED		85-2474	
CHECKED		7041-7	

