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**MICROFILMED**

PROGRESS REPORT

FEDERATION AREA

E.L. 11/76

**OPEN FILE**

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NOVEMBER 1977

Copies to: Renison (3)  
Tas. Mines Dept. (1)

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### SUMMARY

The majority of the work on E.L. 11/76, during the last year, has been undertaken in the Sweeney's Mine area. Literature research had indicated that the tin mineralisation at Sweeney's is associated with sulphides, in a zone of extensive alteration. Sampling of the old workings revealed significant tin values; the main adit, which terminates in mineralisation, intersected 47m. x 0.64% Sn inc. 0.01% Sn as Stannite, 0.96% Zn, 7 g/t Ag. The first diamond drilling programme in the area, comprising seventeen drill holes has been completed. Nearly all the holes encountered extensive alteration and the following holes intersected semi-massive to massive mineralisation.

SWY 4, 51m. x 0.50% Sn inc. 0.01% Sn as Stannite, 2.7% Zn, 14 g/t Ag	
SWY 7, 38m. x 0.75% Sn inc. 0.03% Sn as Stannite, 2.84% Zn, 31 g/t Ag	
SWY 8, 32m. x 0.41% Sn inc. 0.08% Sn as Stannite, 1.03% Zn, 23 g/t Ag	
SWY 11, 23m. x 1.17% Sn inc. 0.81% Sn as Stannite, 1.70% Zn, 121 g/t Ag	1.19% Cu
SWY 14, 24m. x 0.27% Sn inc. 0.17% Sn as Stannite, 0.52% Zn, 42 g/t Ag	0.25 % Cu
SWY 15, 31.4m. x 0.62% Sn inc. 0.09% Sn as Stannite, 1.92% Zn, 31 g/t Ag	

Varying amounts of lead, antimony and fluorite also occur.

Preliminary geological mapping suggests that similar mineralisation also occurs in the Federation Plateau area. Work to be undertaken during 1977-78 will involve geophysics, geochemistry and geological mapping to outline further targets, similar to Sweeney's, for diamond drilling, (both at Sweeney's and in the Federation Plateau area) during 1978-79. Preliminary investigations of the remainder of the granite will also be initiated.

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**RENISON LIMITED**1. INTRODUCTION

E.L. 11/76 of twenty six square kilometres was originally pegged in April 1976, over the Southern part of the Heemskirk Granite. The area was enlarged in July 1977 and now totals eighty eight square kilometres. The area was acquired to assess the potential of the granite for the development of a large tonnage, + 40 million tonnes/low grade, 0.2% tin deposit. Details of the location (Fig 1), an outline of the history, general geology and mineralisation, together with descriptions of the old workings are given by Wells 1976, and to which the reader is referred.

To date (25.10.77) \$105,245 has been spent on the area and has involved work in two areas:

- 1) Federation Plateau area - geological mapping & sampling.
- 2) Sweeney's Mine area - Sampling, geophysics and diamond drilling.

During the remainder of 1977-78 geophysical surveys will be undertaken in the Sweeney and Federation Plateau areas, as well as further geological mapping and sampling. Workings elsewhere on the granite will also be examined. Colour aerial photography together with photogeological interpretation will be undertaken over the entire granite area. Total expenditure, on E.L. 11/76 to the end of 1977-78 is expected to be in the vicinity of \$155,000.

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2. WORK COMPLETED 1976-772.1. Federation Plateau2.1.1. Introduction

Previous work on the Heemskirk Granite has suggested that the granite "mass" consists of several different types of granite. Work on Sn granites, elsewhere in the world, has indicated that they also tend to be multi-phase intrusions; the tin mineralisation being related to the younger granite, which is geochemically specialised. In view of this, the initial exploration approach in the area consisted of geological mapping and sampling in an attempt to define the particular granite and/or structure related to the tin mineralisation.

2.1.2. Geology (Fig 2)

To date geological mapping (and sampling) has been undertaken over an area from Colemans Workings in the West, around the Southern and Eastern sides of Lake Cumberland, to Waxman and Weston's workings in the North East. Samples were collected, throughout the area, and submitted to C.M.S. Pty. Ltd. for petrographic descriptions; which are included as Appendix 1.

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The area consists largely of coarse grained, red granite with red "aplitic sills" often showing pegmatitic margins. This coarse red granite is essentially a biotite adamellite (samples 1/1, 1/29, 2/8): The finer grained microgranites and aplites (samples 1/7, 1/14, 1/21) being very similar in composition, with a tendency to be slightly more potassic (Fander 1977). At Coleman's Workings in the West and along the Northern shore of Lake Cumberland, areas of coarse white granite occur: Approaching this granite the coarse, red granites also become more potassic, are often porphyritic and are better described as biotite granites (samples 2/19, 2/20). The white granite itself appears to "straddle the dividing line between granite and adamellite" (Fander 1977) and appears to have originated by "post-magmatic alteration" of the red granite. "The white granites showing increased argillic alteration of the plagioclase and orthoclase": The ultrafine hematite in the orthoclase of the red granite being either masked by cloudy, argillic, whitish material or combined with it to give a buff colour. In hand specimen, apart from the colour, the two granites are very similar having identical textures and mineral distributions.

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The red granite is strongly jointed with at least three major joint directions: One set of flat joints and two main sets of "vertical" joints, approximately at right-angles to each other. In the West, around Coleman's Workings, the "vertical" joints strike approximately N.E. - S.W. and N.W. - S.E. respectively: Eastwards these joint directions appear to gradually rotate in a clockwise direction and South of Lake Cumberland the N.E. - S.W. joints have changed to an approximate E. - W. trend, the N.W. - S.E. joints having altered to a roughly N. - S. trend.

Parallel to the strike of the "N.E. - S.W." "vertical" joints are a series of "white dykes" intruding the red granite and apparently related to the coarse, white granite. These dykes are generally up to 4m. wide and are essentially quartz-topaz rocks, or "topazfels" (samples 1/9, 1/12, 1/20, 2/6); the original coarse feldspars having been "completely replaced by an intimate intergrowth of granular quartz, granular to prismatic/radiating topaz crystals and minor sericite" (Fander 1977). Tourmaline occasionally occurs, particularly at Coleman's workings (sample 1/8); cassiterite is visible in thin section and columbite-tantalite are suspected. Around the margins of these "white dykes" and along their projected strike, the original red granite is often altered: The alteration varying from the development of tourmaline, often as nodules, "schorl" (sample 1/19), to albitisation (?) (sample 2/4), to

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argillic alteration; particularly where the dykes are thicker, as at Coleman's workings (sample 1/6). Adjacent to the coarse, white granite, in the N.E. corner of the mapped area, a pyrite and/or hematite bearing griesen (samples 2/17, 2/18) is developed.

**2.1.3. Geochemical Sampling**

Previous work on tin bearing granites, elsewhere in the world, particularly on granites from the Erzgebirge province of Eastern Europe (Baumann 1970, Tischendorf et. al. 1971) has indicated that tin-rich granites are enriched, relative to the tin-poor granites, in Sn, Li and F., while the tin-poor granites are relatively richer in  $TiO_2$ . Consequently rock samples, collected during the geological mapping programme, have been analysed for Sn, Li and  $TiO_2$ . It had also been intended to analyse for total F.: However, due to difficulties, with the analytical technique, this has had to be postponed until a later date. The available geochemical data, is included as Appendix 2, while the results are presented in the following graphs.

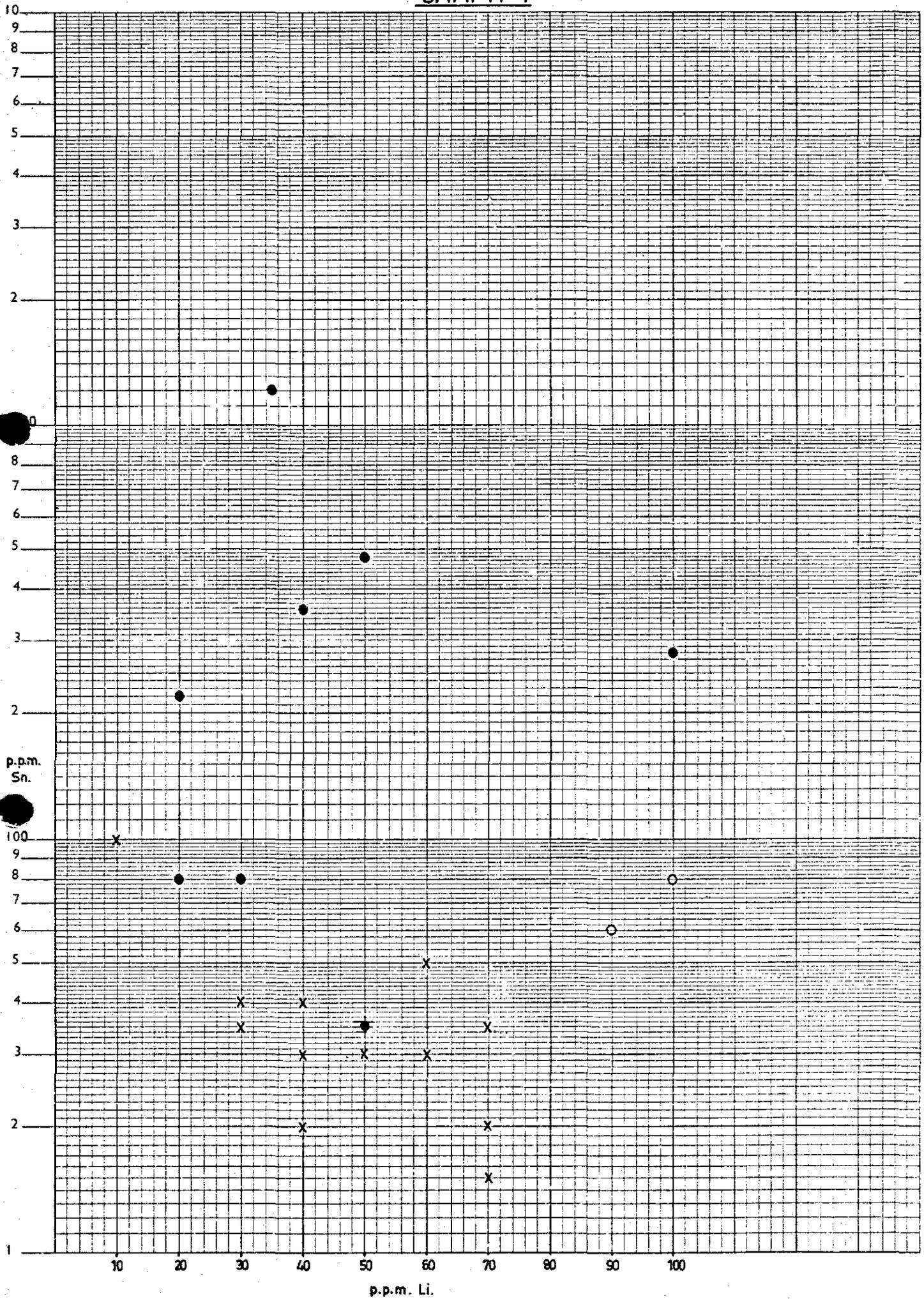
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Geochemical Samples - Rocks : Federation Area E.L. 11/76.

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GRAPH 1



5 cm

- O - GREISEN
- - WHITE GRANITE
- X - RED GRANITE

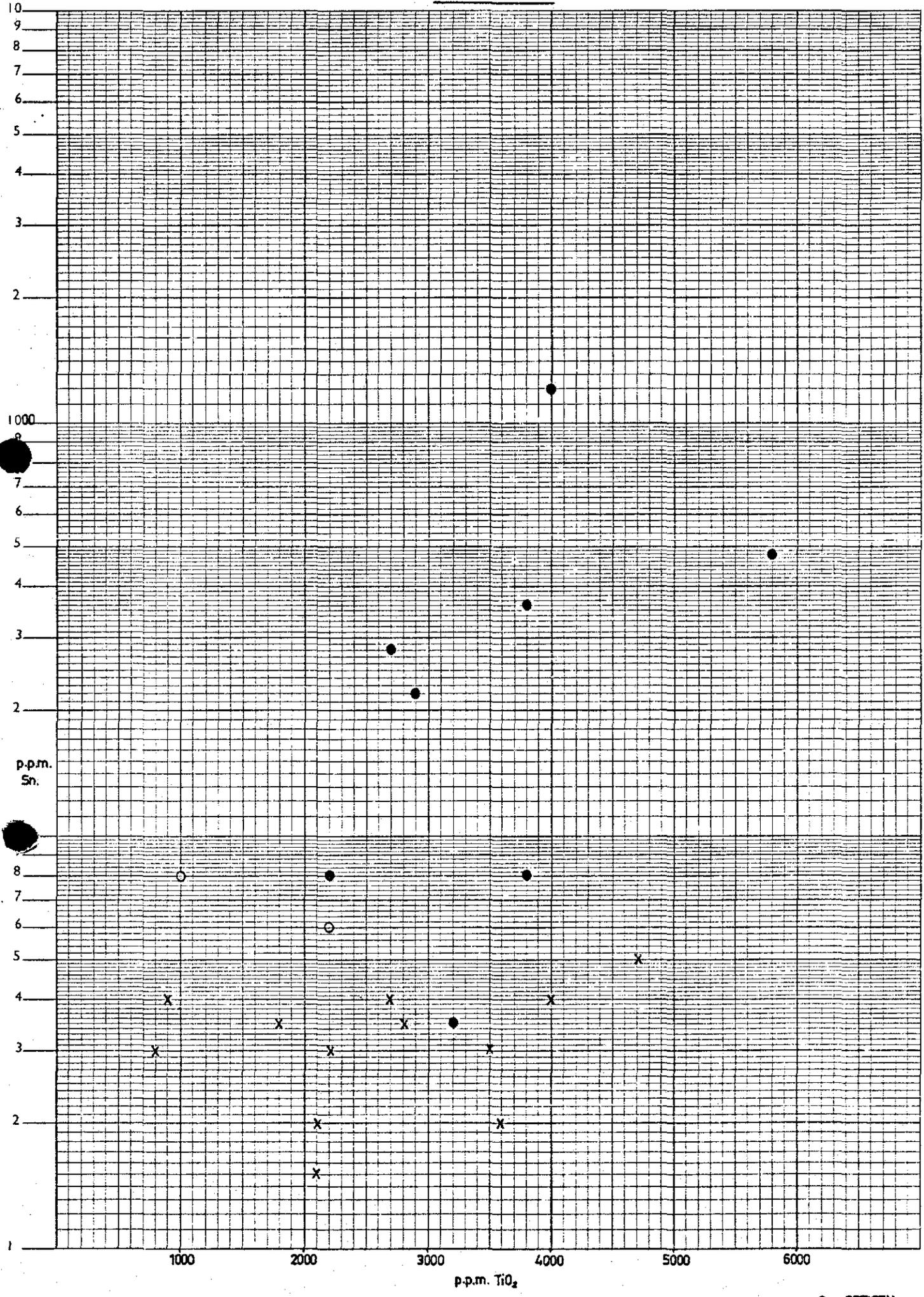
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Geochemical Samples - Rocks : Federation Area E.L.11/76.

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GRAPH 2



- - GREISEN
- - WHITE GRANITE
- X - RED GRANITE

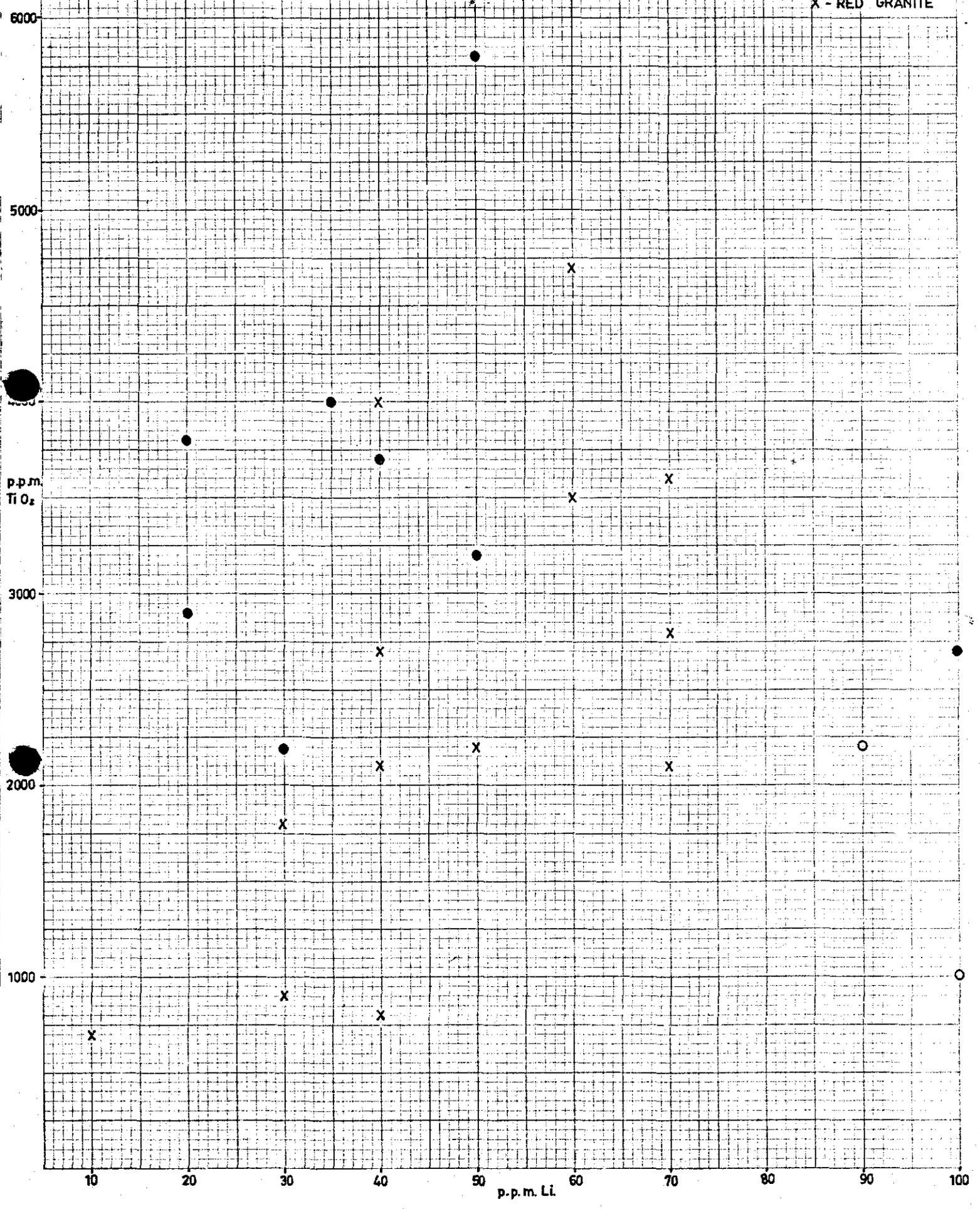
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Geochemical Samples - Rocks : Federation Area E.L. 11/76

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GRAPH 3

- - GREISEN
- - WHITE GRANITE
- X - RED GRANITE



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Graph one is a plot of Sn against Li; graph two, Sn against  $TiO_2$  and graph three,  $TiO_2$  against Li. Results, from the limited number of samples (23) analysed so far, indicate that Sn content is an extremely good discriminator of granite types, at Heemskirk; the white granite, including the dykes, having the higher Sn content: The one white granite sample having a similar content to the red granites and the one red granite sample similar to the white granite results are probably due to poor identification, being "partially altered" granites midway, in composition, between the two major granite types. The Li results outline the griesen from Waxman and Westons workings very well, but apart from this, the other Li data and the  $TiO_2$  data do not appear to be discriminating anything at this stage.

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2.2. Sweeney's Mine Area

2.2.1. Introduction

The Sweeney's Mine occurs approximately 0.7 km. S.E. of the Lake Cumberland dam and approximately 1.0 km. N. of the Trial Harbour - Zeehan road, on the heavily wooded Southern slopes of the Heemskirk Range. The workings occur on a steep Northerly facing slope overlooking Pykes Creek and consist of several trenches/short adits with a main adit driven beneath them (Fig 3).

Examination of Tasmanian Mines Department records (Wells 1976) had indicated that the mineralisation at Sweeney's was not confined to a narrow quartz/tourmaline vein, but consisted of a relatively extensive area of griesenisation/argillic alteration carrying disseminated cassiterite and sulphides and was, therefore, considered worthy of early examination.

2.2.2. Access

Due to the encouraging results received from the chip sampling of the surface workings (see Section 2.2.3.) an access road was established into the mine area. The original access was via a steep and overgrown track inaccessible to vehicles: No alternative to this route could be found and construction of an access road,

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following the approximate line of the walking track, was commenced in March 1977. Road construction proved to be slow and difficult due to the terrain; the 1 km. of road, which is usable only by a four wheel drive tractor, taking approximately one month to complete.

Two roads were established in the immediate mine area: One to the adit portal and one on the hill above the main group of surface workings. This top road was later extended in a loop (Fig 4) to facilitate the diamond drilling programme.

**2.2.3. Chip Sampling (Fig 3)**

Initial work on the prospect consisted of sampling the surface workings in order to confirm the previous sampling results and to indicate whether more, detailed exploration was justified.

The accessible workings were numbered from 1 to 8 and the walls marked out in 2m. intervals. Using a hammer and cold chisel the walls were chip sampled, to obtain a representative sample over each of the 2m. intervals. The samples were then analysed at Renison for: Sn, Acid soluble Sn, Zn, Cu, Pb, As and Ag. The results (Fig 3) are occasionally patchy, eg. No. 4 workings, but overall the Sn, Zn and Ag assays were considered to be significant and encouraging

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enough to undertake further detailed work in the area.

Sampling of the main adit was undertaken in May 1977, after the access "road" was completed. Again the walls were marked out in 2m. intervals and chip sampled using a hammer and chisel. Significant Sn, Zn and Ag assays were again encountered: the adit intersecting 47m. x 0.64% Sn, 0.013% Sol. Sn, 0.96% Zn and 7.2 g./t. Ag; the adit terminating in the mineralisation.

In the adit, the red granite has been affected by strong "argillic" alteration and is dark green in colour due to the alteration of feldspars to green/yellow "clays" and biotite to chlorite; occasional soft clay seams also occur. The mineralisation consists of: Pyrite, sphalerite and cassiterite disseminated throughout the altered granite; massive, black sphalerite also occurs in narrow veins, eg. No. 6 surface workings. The alteration/mineralisation in the surface workings is obscured by severe weathering, the rocks being generally soft and crumbly, although harder more siliceous (?) bands, often finer grained, do occur. Towards the margin of the altered zone, as exposed in the adit and cross-cut, the sulphides disappear and the granite becomes progressively less altered, assuming a yellow/green colour. However, the contact between the less altered yellow/green granite and the unaltered red granite is fairly sharp.

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2.2.4. Diamond Drilling (Figs 4 & 5)

Drilling commenced on 25th May 1977 and at the 12th November 1977, the first drilling programme of 17 holes, totalling 2,582m., had been completed. All the drill logs including petrological descriptions and available assay data are included as Appendix 3.

D.d.h. Swy 1 was collared on 25th May 1977, near the portal of the main adit and was designed to test for a downward extension of the mineralisation exposed in the mine workings. 45m. of broken core, showing patchy and varying degrees of argillic alteration, were encountered immediately below the collar, but no significant sulphide mineralisation was intersected. Subsequent drilling indicates that this hole was drilled beneath the mineralisation.

Road construction exposed patchy argillic alteration along the length of the Sweeney's Mine ridge. D.d.h. Swy 2 was designed to test for the Sweeney's mineralisation extending as a flat sheet (Erzegebirge type occurrence) in the top part of the ridge. Although this hole collared in altered, green, pyritic granite with traces of molybdenite, only minor alteration was encountered. D.d.h. Swy 3 was designed to further test the hypothesis that the mineralisation occurs in the upper part of the hill, but as a more restricted "pod" closer to the mine workings and to test extensive surface alteration.

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No mineralisation was encountered, but subsequent drilling suggests that this hole may have intersected the margin of the main zone of alteration.

With the failure of the first three holes to intersect mineralisation, similar to that exposed in the workings; it was decided to drill d.d.h. Swy 4 in the immediate vicinity of the workings, this time from the top of the hill, to see if the mineralisation did have any significant extent. The hole collared in green, altered, coarse-grained granite and entered disseminated sulphides, mainly pyrite and sphalerite with minor fluorite at 7.0m; the granite being completely altered often consisting of just "clay" and sulphides; ultra-fine cassiterite is also visible in thin section. Narrow black veins of : massive sphalerite, boulangerite and fluorite were also encountered. Mineralisation was intersected up to 58.0m., where 1.4m. of green, less altered, unmineralised granite occurs before a sharp contact with coarse grained red granite at 59.4m. The hole intersected 51.0m. of 0.50% Sn, including 0.01% soluble Sn, 2.7% Zn, 14 g./t. Ag, 8.16% S and 1.60% soluble F. as well as varying and occasionally significant amounts of Pb and Sb. D.d.h. Swy 5 was drilled, nearly vertically from the same site, but intersected only the unmineralised margin of the alteration, before entering coarse grained red granite at 24.3m.

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D.d.h. Swy 6 was designed to test for the downward extension of the mineralisation intersected in Swy 4. Although extensive zones of patchily altered and broken granite were encountered, no mineralisation was intersected and like Swy 1, the hole appears to have been drilled beneath the mineralisation.

D.d.h.s Swy 7 and 8 were designed to test beneath and behind (South of) the workings; both intersected similar alteration and mineralisation to that in Swy 4. Swy 7 intersected 38.0m (12.5m to 50.5m) of 0.75% Sn, including 0.029% soluble Sn, 31 g./t. Ag and 2.84% Zn. Swy 8 intersected 32m (21.0m to 53.0m) of 0.41% Sn, including 0.081% soluble Sn, 0.10% Cu, 23 g./t. Ag and 1.03% Zn. The tin content in the adit and in d.d.h.s Swy 4 and 7 includes very little stannite (soluble tin). However, significant amounts of stannite start to occur in Swy 8; poorly developed topaz also occurring.

The intersections in d.d.h.s Swy 7 and 8 suggested the possibility of a flat sheet dipping to East and d.d.h. Swy 9 was drilled to test this hypothesis. Extensive zones of yellow/buff argillic alteration were intersected, particularly towards the bottom of the hole, but no mineralisation was encountered. D.d.h. Swy 10, collared from the same site as Swy 3 was designed to test for a further Southward extension of the mineralised zone. No mineralisation was encountered but extensive zones of argillic alteration were intersected

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and later geophysical logging (see Section 2.2.5.) confirmed that the hole had been drilled roughly parallel to the mineralised zone.

D.d.h. Swy 11 was drilled to test the possibility of the mineralisation "bending" and possibly plunging to the South East. From 71.3m to 94.3m (23.0m) semi-massive pyrrhotite and pyrite, with some sphalerite, in a dark green, altered granite assayed 1.17% Sn including 0.81% soluble Sn, 1.19% Cu, 1.70% Zn, 121 g./t. Ag and 18.82% S. The trend towards stannite and topaz development visible earlier in d.d.h. Swy 8 was continued, the majority of the tin here occurring as stannite, and the topaz is coarser and more widely developed (Fander 1977).

D.d.h.s Swy 12, 13, 14 and 15 were all drilled from the same site (Fig 4) and were drilled to test for a further Southward extension of the mineralised zone as outlined by the I.P. survey (see Section 2.2.5.). Swy 12 intersected 60m. of red granite before entering 70m. of varying alteration, above a coarse grained white granite. This hole appears to have just "clipped" the margin of the mineralisation. D.d.h. Swy 13, drilled with a flatter dip, intersected a similar sequence to that in Swy 12, but with less alteration and appears to have been drilled further away from the mineralisation. D.d.h. Swy 14 drilled on a more Northerly bearing, is thought, at this stage, to have drilled into the top of the

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mineralisation and out of the footwall : it intersected 23.6m (111.9m to 135.5m) of 0.27% Sn, including 0.17% soluble Sn, also 0.25% Cu, 0.52% Zn and 42 g./t. Ag. D.d.h. Swy 15 originally designed to intersect the mineralisation down dip of Swy 14, missed the top of the mineralised zone (?), but intersected it at a much lower R.L. possibly at an acute angle, encountering: 31.4m. (210.3m. to 241.7m.) of 0.62% Sn, including 0.09% soluble Sn, 0.19% Cu, 1.92% Zn, 0.73% Pb, 31 g./t. Ag and % S. Perhaps significantly the amount of Sn as stannite has dropped quite markedly to levels similar to that found in Swy 7 and 8.

D.d.h.s Swy 16 and 17 was designed to test the zone around the Swy 15 intersection. Both holes hit green, altered granite and Swy 17 intersected a short section of disseminated arsenopyrite mineralisation, carrying only minor amounts of tin, in a quartzose groundmass, within the zone of altered granite: but neither hole encountered extensive sulphide mineralisation. Swy 16 has either drilled beneath or through a gap in the mineralisation while Swy 17 may have just drilled through the edge.

D.d.h. Swy 17 was the final hole in the first drilling programme and the drilling contractor (A.D.D.) moved out of the area in the week ending November 19th, 1977.

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2.2.5. Geophysics (Figs 6, 7, 8)

A gradient array I.P. survey was undertaken, over the Sweeney's Mine area, in two stages. Initially all the roads from the top of the main hill, and three lines: 30N, 80S and 130S were surveyed; subsequently lines 150N, 125N, 170S and 220S, extensions to lines 130S and the Lower Road, as well as the main hill were also surveyed. The surveys are described in Scintrex reports Tas-047, dated September 1977 and Tas-050, dated October 1977, to which the reader is referred.

The I.P. survey was undertaken for two purposes:

- a) To test the response of I.P. to Sweeney type mineralisation, and,
- b) To try and establish the "strike" of the mineralisation as a guide to the drilling programme.

As part of the test of the I.P. response, resistivity measurements were undertaken on some of the mineralised drill core, available at the time (Swy 4 and Swy 7); and drill holes, Swy 7 and Swy 8, were electrically logged, using a 2.5m electrode spacing (Fig 6). The resistivity tests on the core showed the mineralisation to be non-conductive and this was confirmed by the 3 array logs of the diamond drill holes. Although the resistivity does fall significantly,

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in the mineralisation, to 200 to 400 ohm-metres, from a background, in unaltered granite, of up to 40,000 ohm-metres; the body, where it is cut by Swy 7 and 8, is still not conductive. However, the chargeability does rise dramatically in the mineralised zone to as high as 150 millivolts/volt from, an abnormally low, 3 to 4 millivolts/volt in the unaltered granite. Decay forms also suggest a very fine grain size to the mineralisation, this has been confirmed by later petrographic work.

D.d.h. Swy 10, although intersecting extensive alteration, did not encounter mineralisation, as was expected. This hole therefore, was also logged; but using three different electrode spacings: 2.5m, 10.0m and 20.0m, in order to try and determine how far the drill hole is from the mineralisation (Fig 6). The two larger spacings showed progressively lower resistivities and higher chargeabilities and the drill hole appears to have passed within 20m. of the mineralisation.

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The surface E.I.P. survey was accomplished using several current electrode set-ups and 10.0m. potential dipoles. The chargeability contours are shown in Fig 7 and the line profiles in Fig 8: The resistivity data shows little, obvious response to the mineralisation. Background chargeabilities are around 10 millivolts/volt, with the outcropping mineralisation, on the Upper Road and line 30N, giving very strong anomalies, up to 66 millivolts/volt. Chargeabilities fall, fairly rapidly, away from the outcrop and the contours suggest that the body either terminates, or plunges very steeply to the North; with a less steep plunge to the South, being detected as lower order anomalies on lines 80S and 130S. Expander arrays (electrical soundings) were undertaken on lines 80S and 130S in an attempt to obtain depth estimates to the body. The results were not conclusive, but the sounding on 80S suggested that the chargeable body is approximately 20m. to 30m. below surface. Subsequent drilling, on line 80S (Swy 12, 13, 14 and 15), indicates that the mineralisation is in fact much deeper, 100m. below surface; and the I.P. is possibly detecting the "clayey" alteration, rather than the sulphide mineralisation. However, this is not yet confirmed.

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Petrographic work has indicated that the alteration includes the removal of magnetite, which is a minor accessory mineral in the unaltered granite: Consequently a detailed magnetometer survey was also conducted over the area. This survey was undertaken using two proton magnetometers, one to take readings along the lines and one to act as a base station monitor. It had been hoped to identify a magnetic low over the mineralised zone: However, numerous small but strong anomalies, due to the presence of corrugated iron sheets, old drill steels etc. around the workings and casing etc. on the drill sites, masked any subtle changes due to alteration; and no conclusions can be drawn from the data.

Drill core from d.d.h.s Swy 3, 11 and 15; mineralised, altered and unaltered core were radiometrically logged using a Scintrex GAD-4 gamma ray spectrometer. The core was partially shielded using lead sheeting but no obvious anomalies were detected. Either there is no marked change in radioactivity, neither as a haloe, nor through the mineralised zone; or the change is too subtle/instrument too sensitive, for the technique to be of practical application, in this case. The available readings are included as Appendix 4.

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Diamond drilling undertaken since the completion of the I.P. Survey has intersected conductive mineralisation (Swy 11, Swy 14 and Swy 15). An electrode has been placed down d.d.h. Swy 15, within the mineralised zone and it is intended to energise the body and an equipotential survey be undertaken to help map: The shape, "strike", plunge and dip of the body(s) to guide any future diamond drilling.

2.2.6. Comments

The interpretation of the Sweeney mineralisation has varied between: A flat sheet, a trough, a pipe, and a steeply plunging sheet and all the ideas have influenced the drilling pattern at various stages of the programme.

The trend from very fine grained cassiterite, with little or no stannite, in the upper part of the mineralisation (adit, Swy 4, Swy 7) to increasing amounts of the tin occurring as (silver rich) stannite (Swy 11, Swy 14) lower down in the mineralisation could be due to more than one "pulse" of mineralisation, but is thought to probably represent a paragenetic sequence and some temperature control is probably involved.

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The change, in Swy 15, back to low stannite mineralisation, similar to that found in the adit and Swy 7; together with the failure of Swy 16 to intersect the mineralisation or any extensive alteration (Fig 5, Appendix 3) suggests the possibility that the mineralisation is not continuous between all the intersections. The outcropping mineralisation, the workings and the intersections in d.d.h.s Swy 4, 7, 8, 11 and 14 may represent one lense, with a stannite rich base and Swy 15 may be intersecting the stannite poor top of a second lense. The shape(s), continuity and attitude(s) of the mineralisation is not resolved, but it is hoped that further down-hole geophysics and possible future diamond drilling will clarify the situation.

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2.3. Land Tenure (Fig 9)

E.L. 11/76 was initially pegged to allow examination of the Federation Mine area and the original twenty six sq. kms., basically covered the South Heemskirk Tin field. Discovery of the Sweeney's mineralisation suggested the possibility that the Heemskirk Granite, as a whole, had potential for the development of significant mineralisation: Consequently the remainder of the available Heemskirk Granite was pegged, in July 1977, and E.L. 11/76 now totals eighty eight sq. kms.

Within the E.L. are four small mine leases, notably:

- 20M/41 of 40 acres held by E.W. Coleman over Coleman's Workings.
- 90M/47 of 5 acres held by W.J. Gordon, R.P. Warren and J.P. Burgess over the Western Federation Workings.
- 103M/71 of 20 acres held by K.P. Cornish over a small tungsten vein near the Trial Harbour/Granville road junction.
- 9M/72 of 80 acres held by T.D. Hughes on the coast near the old Northern licence boundary.

Only two of these leases, viz 20M/41 and 90M/47, are considered to be over significant ground, at this time. An option agreement has been concluded with Mr. E.W. Coleman over 20M/41 and negotiations are currently in progress with Messrs. Carden, Warren and Burgess for an option agreement over 90M/47.

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Should future investigations suggest that the other two mine leases are also over significant ground, similar option agreements may have to be entered into with the licence holders.

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3. DISCUSSION

Work on the Heemskirk Granite prior to 1977 (Brooks 1965, Klominsky 1972) had identified two separate granite types; the red and the white. However, the work undertaken during the last year, at Sweeney's and on the Federation Plateau, involving geological mapping, diamond drilling and petrology has shown that the white granite is in fact hydrothermally altered red granite (Section 2.1.2.), the contact being very diffuse and gradational. The alteration appears to have advanced upwards; the majority of the granite massif is in fact thought to be white granite, the apparently more common red granite being a relatively "thin cap". In advance of this "alteration front" hydrothermal "fluids" have also intruded along major joints, in the red granite, to form the distinctive "white dykes".

The known mineralisation at South Heemskirk appears to be, spacially, associated with this "alteration front" and is of two types: Quartz, topaz, tourmaline, cassiterite<sup>+</sup> fluorite, occasionally wolframite and possibly columbite-tantalite, also bismuthinite rich areas, within the white dykes: This is probably a higher temperature assemblage than the other, Sweeney type, mineralisation. This, second, type of mineralisation occurs as sulphide rich zones/"pods" within relatively extensive areas of argillic alteration, occasionally tourmaline rich, along the margins of the white dykes and in the contact zone between the red and white granites. The mineralisation in the sulphide rich zones includes: Pyrite, pyrrhotite, arsenopyrite, sphalerite, silver rich stannite, cassiterite, with variable amounts of galena, fluorite and antimony minerals, also very minor molybdenite. The suggested relationships between the known mineralisation/alteration and rock types is shown in the following diagram.

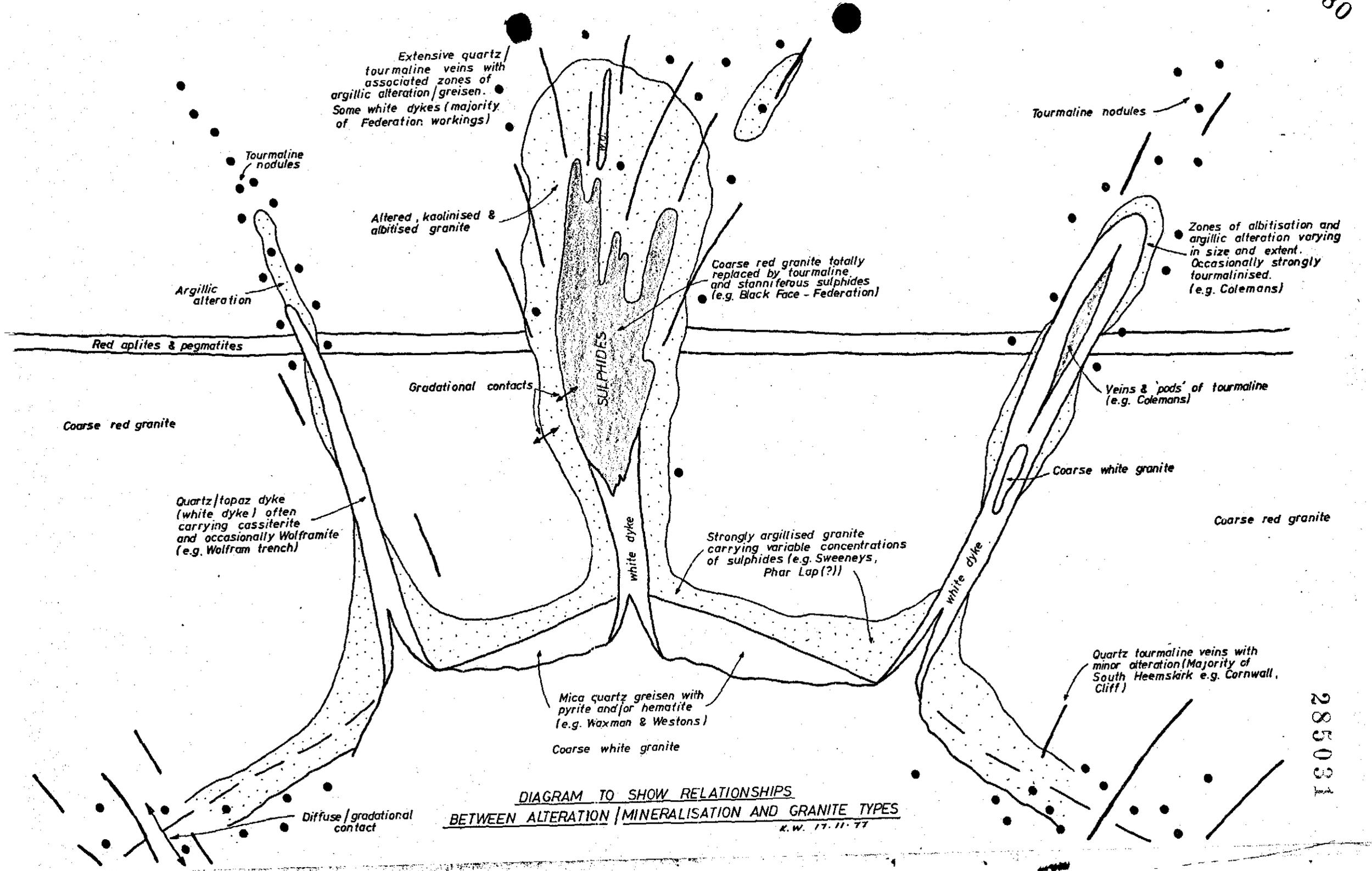


DIAGRAM TO SHOW RELATIONSHIPS  
BETWEEN ALTERATION / MINERALISATION AND GRANITE TYPES  
 K.W. 17. 11. 77

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A second, significant control of mineralisation, may have been pre-existing major lineaments or joints in the red granite (which controlled the intrusion of the white dykes). Aerial photographs (T648-200) show two major lineaments crossing in the vicinity of Sweeney's Mine and the contact line of two intersecting, steeply dipping structures may control the plunge of the Sweeney mineralisation. A similar structure appears to occur in the vicinity of the Phar Lap workings, where strong argillic alteration and pyrite mineralisation are developed.

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4. WORK PROPOSED 1977-784.1. Sweeney's Mine Area

Geophysical testing of drill core, obtained to date, has indicated that the "deeper" mineralisation at Sweeney's is conductive. An electrode has been placed down d.d.h. Swy 15 within the mineralised zone and it is intended to energise the body in order to produce an equipotential map; which, it is hoped, will indicate the attitude and shape of the mineralised body(s) (see Section 2.2.5.). To this end, an additional grid line, 40S, approximately 200m. in length will be established running Westwards from the access road, near the Swy 17 drill site and line 150N will be extended Westwards 100m.

D.d.h. Swy 17 appears to have just missed the main mineralised zone, while d.d.h. Swy 16 may have passed through a gap (?). It is intended to undertake 3 array log surveys of these holes, using three different electrode spacings, in a similar manner to the survey of d.d.h. Swy 10; to try and establish the distances of these holes from the mineralisation.

Work on tin deposits in granites in Central Europe (Erzegiberge) has shown that they possess geochemical haloes. Drill core from Sweeney's, therefore, will be systematically sampled and assayed for several elements, including: Rb, Sr, Li and F. Identification of any such haloe will aid in the control of future drilling programmes not only at Sweeney's, but elsewhere on the Heemskirk Granite and possibly on other granites in Tasmania.

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The geophysical and geochemical programmes, outlined above, it is hoped will facilitate planning of a second drilling programme, to be undertaken, probably, in the 1978-79 financial year.

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#### 4.2. Federation Plateau (Fig 10)

Mineralisation in the Federation Plateau area has been exposed in several old workings, notably: West Federation, Central Federation, Waxman & Weston's, Phar Lap and Coleman's workings (Fig 10). Often, the mineralisation, displays strong similarities to that at Sweeney's with argillic alteration and pyrite being extensively developed (see Section 3.). The Sweeney mineralisation shows a strong response to I.P. (see Section 2.2.5.) and it is intended to undertake a gradient array I.P. survey over the Federation plateau area in late November/early December 1977. To this end an access road and a 30 line km. grid, comprising twenty two lines, 100m. apart, pegged at 30m. intervals have been established in the area. In addition to the I.P., the grid will also be surveyed with detailed ground magnetics using two proton magnetometers, in a similar manner to the survey undertaken at Sweeney's (see Section 2.2.5.).

Geological mapping of the area, commenced last year will be completed and the accessible old workings will be systematically sampled.

This combination of: geophysics, geological mapping and sampling, it is hoped, will outline targets suitable for diamond drilling in the 1978/79 financial year.

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4.3. Other Areas

Apart from broad scale reconnaissance mapping ( eg. Klominsky 1969) the rest of E.L. 11/76, outside the Federation Plateau/Sweeney area is largely an unknown quantity. Some old workings do occur scattered across the area, notably Peripatetic where cassiterite associated with pyrite in decomposed granite is reported; also Longs Iron Blow where cassiterite is associated with a large outcrop of hematite, quartz and black tourmaline. These workings with the other smaller workings in the area will require geological mapping and systematically sampling, where possible.

To aid in the examination of the entire granite area, it is proposed to cover the area with a colour aerial photographic survey on a scale of 1:20,000. The photographs from this survey will be used to construct orthomaps and accurate contour maps, on scales of 1:2000 and 1:5000, over the main areas of interest, notably South Heemskirk. The photographs will also be used in a comprehensive photogeological interpretation of the granite; to assist in the location of concealed primary tin deposits, possibly occurring on features such as granite cusps, joint and dyke intersections etc..

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5. EXPENDITURE & BUDGETS

Expenditure to the end of the 1976-77 financial year, ending June 1977 amounted to \$17,286 and this is detailed in the following tables.

The budget for 1977-78 was originally formulated before the discovery of the Sweeney mineralisation and a figure of \$63,067 was proposed. The increased diamond drilling requirements, of the Sweeney's Mine programme, caused this budget to be revised, to \$124,500 and this is itemised in the following tables.

Expenditure in 1977-78, to date (end of Period 4, 25th October 1977) has amounted to \$87,959, again, this is detailed in the following tables. The total expenditure on E.L. 11/76, to date, is \$105,245, details of which are also given in the following tables. Total expenditure to the end of financial year 1977-78 is expected to be in the vicinity of \$155,000.

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E.L. 11/76 FEDERATION AREA

EXPENDITURE: 1976-77

<u>Item</u>	<u>Expenditure \$</u>	<u>% of Total Expenditure</u>
Salaries	6,203	36
Consumables	281	2
Diamond Drilling	1,383	8
Road Construction	6,707	38
Travel & Accommodation	511	3
Consultants	1,500	9
Outside Services	700	4
Rounding	1	
<b>Total:</b>	<u>17,286</u>	<u>100%</u>

038

285039

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E.L. 11/76 FEDERATION AREA

PROPOSED BUDGET: 1977-78

<u>Item</u>	<u>Expenditure \$</u>	<u>% of Total Expenditure</u>
Salaries and Consumables	10,000	8
Diamond Drilling	72,000	58
Access (roads and grids)	10,000	8
Geophysics	10,000	8
Air Photography	15,000	12
Photogeological Interpretation	7,500	6
Total:	<u>123,500</u>	<u>100%</u>

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E.L. 11/76 FEDERATION AREA

EXPENDITURE PERIODS 1-4, 1977-78

<u>Item</u>	<u>Expenditure \$</u>	<u>% of Total Expenditure</u>
Salaries	7,086	8
Consumables	2,723	3
Diamond Drilling	66,216	75
Road Construction	234	1
Outside Services (Gridding, Geophysics)	11,700	13
Total:	<u>\$87,959</u>	<u>100%</u>

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E.L. 11/76 FEDERATION AREA

TOTAL EXPENDITURE TO END OF PERIOD 4 (25/10/77)

<u>Item</u>	<u>Expenditure \$</u>	<u>% of Total Expenditure</u>
Salaries	13,289	13
Consumables	3,004	3
Diamond Drilling	67,599	64
Road Construction	6,941	7
Travel & Accommodation	511	
Consultants	1,500	1
Outside Services	12,400	12
Rounding	1	
	<hr/>	<hr/>
Total:	105,245	100%
	<hr/>	<hr/>

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APPENDIX 1

Petrographic Descriptions -  
Federation Plateau Area: from  
C.M.S. Report 77/4/6.

REPORT CMS 77/4/6

All samples were thin sectioned, and two polished sections were also prepared (2/17, 2/18). They are petrologically described below, followed by correlations and comparisons; Keith Wells' groupings have been retained in the descriptive part.

1/1 (TS 20990)

This rock is a biotite adamellite; K-feldspar stain tests on this sample and 1/29 indicate that plagioclase comprises more than one-third of the total feldspar.

The major constituents are quartz (30%), perthitic orthoclase (40%) and sodic oligoclase (25%), with minor biotite (5%). The quartz is anhedral and slightly stressed; the orthoclase is subhedral, fresh and slightly pigmented with ultrafine hematite, and tends to be porphyritic. Oligoclase is subhedral to euhedral, as small prismatic crystals, and always shows some patchy argillic alteration. The biotite is exceptionally dark, almost opaque in places; it contains inclusions of radioactive, metamict zircon, magnetite euhedra and traces of ?amphibole (strongly pleochroic, green).

Accessory minerals include fresh and completely metamict (red-brown, zoned) zircon, magnetite, ultrafine apatite, ?xenotime and fluorite. Ultrafine needles of rutile occur in quartz ("rutilised quartz") in places.

1/29

This biotite adamellite is closely similar to 1/1 in composition and fabric. The major, minor and accessory minerals are the same; there is evidence of weak stress, probably associated with selective argillic alteration of plagioclase, marginal chloritisation of biotite and introduction of fluorite. Occasional mantled feldspars are seen, with cores of orthoclase and rims of oligoclase.

2/7

This rock is best termed an aplite, of granitic composition. There seems to be little difference between "aplite" and "microgranite", and literature references are unhelpful or confusing; aplites are texturally medium-grained, and compositionally apparently (though this is not very clear) more alkaline and quartzose, with pneumatolytic minerals in addition. However, microgranites, which would be expected

to have a slightly different composition from the parent magma, could be impossible to distinguish from aplites.

On the grounds that this rock contains a much higher proportion of orthoclase, more quartz, less oligoclase, and very little biotite, than 1/1 or 1/29, and is medium-grained, it may be classified as a granite-aplite.

Occasional phenocrysts of orthoclase occur, as well as oligoclase and coarse patches of quartz. Poikilitic patches of very dark (semi-opaque in places), pneumatolytic tourmaline have developed sporadically, at the expense of earlier-formed minerals. Minor pyrite must have formed also, and is now represented by goethite pseudomorphs.

Dark biotite occurs in trace amount, with associated secondary epidote. Accessory fine zircon, ?xenotime and apatite are seen. The quartz is conspicuously rutilated.

1/10

More appropriately termed a porphyritic adamellite, this rock verges on a medium-grained type, ie. microadamellite. Its composition too, tends towards a granodiorite due to a decrease in orthoclase and an increase in oligoclase. Alteration is more pronounced than in 1/1, 1/29.

The rock consists of phenocrysts of perthitic orthoclase, quartz (stressed) and oligoclase set in a coarse/medium-grained groundmass of the same minerals and biotite. The approximate composition is quartz (30%), orthoclase (30%), oligoclase (30%), biotite (10%).

Argillic alteration has severely affected the oligoclase, and to a lesser extent the orthoclase also. The biotite is dark brown, oxidised, and contains inclusions of xenotime (pleochroic haloes); it is chloritised in places. The fine pigmenting hematite in orthoclase is altered to limonite, thus changing the color from pink to buff/yellow.

Accessory minerals include xenotime, zircon, magnetite of primary formation; also muscovite, traces of tourmaline, and possible cassiterite, of pneumatolytic origin.

046

2/8

This is a biotite adamellite, coarsely crystalline and fairly fresh, though slightly stressed.

The major constituents are orthoclase (40%), quartz (30%) and oligoclase (25%), with 5% biotite and traces of albite. The orthoclase is perthitic and is pigmented with ultrafine hematite; it is fresh. The oligoclase is lightly sericitised-argillised. Occasional mantled feldspars are seen. The biotite is a very dark greenish-brown, almost opaque variety, altered in part to dark green chlorite. Patches of very dark, semi-opaque tourmaline have been deposited sporadically.

Accessory minerals are zircon, xenotime, apatite and magnetite; all are commonly associated with biotite.

1/7

This is a porphyritic biotite-microadamellite, weakly stressed and selectively argillised.

Phenocrysts are not numerous but are large; the quartz phenocrysts are conspicuously rounded, with deep vermiform embayments. Orthoclase phenocrysts are subhedral and poikilitic. The groundmass is equigranular, medium-grained and composed of quartz, orthoclase, heavily argillised oligoclase and dark red-brown biotite. The approximate composition is orthoclase (35%), oligoclase (35%), quartz (20%) and biotite (10%). The orthoclase is fresh.

Accessory minerals, generally associated with the biotite, are apatite, magnetite, xenotime and zircon, with rutile needles in quartz.

1/19

Since orthoclase comprises more than two-thirds of the total feldspar, this rock is classified as a biotite granite; however, this could well be a purely local situation, and it is risky to apply too strict a classification to coarse rocks, since for statistical accuracy a number of sections must be examined. Thus a slight variation in feldspar ratios, near the rather artificial boundaries set by the classification, will affect the naming of the rock, even though differences may be quite minor.

047

The rock consists of perthitic orthoclase which tends to be poikilitic/porphyritic, weakly stressed quartz, subordinate, incipiently argillised/sericitised oligoclase, and minor red-brown biotite and albite. The biotite is oxidised, partly chloritised, and contains inclusions of xenotime, zircon, apatite and magnetite. Hair-like rutile occurs in quartz.

A small tourmaline vein cuts the rock, consisting of subradiating acicular green crystals (contrast with black tourmaline); possible ultrafine cassiterite may be associated but could not be positively identified. Traces of oxidised pyrite occur.

The orthoclase is fairly fresh, and does not contain the hematite pigment present in the red granite.

1/14

This specimen appears to represent a medium-grained adamellite, gradational into normal material, in effect a simple reduction in grainsize; as far as can be ascertained, the composition is the same. The fabric is inclined to be porphyritic, with occasional phenocrysts of quartz and perthitic orthoclase set in an equigranular, medium-grained groundmass of quartz, orthoclase and oligoclase with minor biotite.

The biotite is extensively chloritised, and contains inclusions of anatase, magnetite, apatite, ?xenotime, zircon.

Occasional patches of coarse prismatic/acicular tourmaline crystals have developed; they are distinctly zoned, from intense blue to green and brown. Traces of fine ?cassiterite occur with the tourmaline; although they are up to 100µ in size they are difficult to distinguish from zircon, because of a great similarity in optical properties. Thus a confirmatory Sn assay is recommended.

1/21

This rock is homogeneous and featureless, with little to decide whether it should be termed an aplite or microadamellite. On the rather tenuous basis of its paucity of biotite, it is classified as an aplite.

The main components are anhedral quartz (25%), perthitic orthoclase (50%), and subhedral oligoclase (25%); thus it is more potassic than the host rocks and is almost of granitic composition. It may be a segregation or a younger body.

The specimen has a pale margin where the fine pigmenting hematite has been removed from the orthoclase. This is a weathering phenomenon, distinct from the fairly extensive argillic alteration of the plagioclase.

In considering whether this specimen is in fact an aplite, its relationship to the host rock must be considered; if it is a segregation, it is more properly regarded as a microgranite/microadamellite, but if it occurs as a distinct, crosscutting vein/dyke or other body with well-defined margins, it can be regarded as an aplite.

#### 2/13

This is a medium-grained version of an adamellite, and is therefore a biotite-microadamellite, verging on a microgranite; it seems that the segregations are more alkaline, ie. containing a higher proportion of orthoclase.

The rock is very homogeneous in grain size and distribution of minerals. It consists of 20-25% quartz, 50% perthitic orthoclase, 20-25% oligoclase and a few percent of biotite. The quartz is conspicuously rutilated.

The biotite is very dark, almost opaque in basal sections, and is almost devoid of the usual accessory minerals which are relatively conspicuous in other rocks. Traces of dark green tourmaline are seen.

#### 2/20

Compositionally this rock is a granite; its fabric, however, is somewhat variable and on the whole it should be termed a porphyritic microgranite.

The bulk of the rock consists of anhedral, slightly stressed quartz and perthitic orthoclase and subhedral crystals of fairly extensively argillised oligoclase and minor biotite (25% quartz, 50% orthoclase, 20% oligoclase, 5% biotite), with occasional poikilitic phenocrysts of orthoclase.

149

The biotite is dark reddish-brown, and contains inclusions of apatite, zircon, xenotime, and magnetite. Some quartz is rutilated. The orthoclase contains ultrafine pigments which impart a buff rather than pinkish color to the mineral; it is not easily distinguished from the cloudy, creamy appearance of the plagioclase.

2/19

As in 2/20, the grainsize/fabric is variable, but on the whole coarser than that rock; thus it is termed a porphyritic granite.

Perthitic orthoclase (50%) and quartz (25%) are the major components, with subordinate, extensively argillised oligoclase (20%) and minor dark biotite. The quartz is conspicuously rutilated. accessory minerals accompanying biotite are magnetite, zircon, apatite and ?xenotime. Occasional phenocrysts of all three major minerals occur.

Traces of very dark green tourmaline have developed, as poorly defined shreds and irregular patches. It is possible that small traces of cassiterite are present.

2/4

This biotite granite is quite distinctive, being thoroughly alkaline in the sense that even the plagioclase is albite (almost pure end-member).

The rock is composed of anhedral, weakly stressed quartz (35%), perthitic orthoclase (35%) and prismatic crystals of fairly extensively argillised albite (25%); biotite (5%) is extremely dark and contains apatite, anatase, zircon, and ?xenotime, as well as rutile needles where it is chloritised. The quartz is generally rutilated (this probably accounts for its "smoky" appearance). The orthoclase is only lightly pigmented, and it lacks the distinctive pink color; in fact most of the color and cloudiness is associated with the perthitic bodies of albite in the orthoclase.

050

1/12, 1/20, 2/6, 1/9

These rocks are closely similar, and are best described as a group to avoid needless repetition.

These rocks may be termed "topazfels"; they are essentially quartz-topaz rocks, in which original coarse feldspar has been replaced by topaz, ie. thorough pneumatolysis has taken place. The original rocks were presumably "granites" in the broad sense, but their precise composition cannot now be determined. The coarse relict fabric clearly indicates that they were not aplites or microgranites.

Whereas the primary stressed quartz is essentially unchanged, the feldspar has been completely replaced by an intimate intergrowth of granular quartz, granular to prismatic/radiating topaz crystals, and minor sericite. No relict textures are preserved to indicate the feldspar species.

All four rocks have the same essential features; in addition, they contain minor or trace amounts of other introduced minerals, as follows:

1/12: Occasional crystals of cassiterite and an ultrafine opaque oxide (possibly columbite-tantalite or related mineral). The cassiterite crystals are up to 100µ in size and are closely associated with the topaz and the oxide mineral.

1/20: Minor acicular pale green tourmaline crystals occur. Cassiterite, as occasional crystals up to 150µ, associated with an opaque oxide mineral and rutile. The primary quartz is conspicuously rutilated.

2/6: Patches of felted needles of pale green tourmaline, with embedded dark rutile crystals. Traces of cassiterite, as isolated crystals up to 150µ in size.

1/9: Aggregates of semi-opaque rutile probably representing occurrences of former biotite; associated opaque oxide mineral, zircon (relict), and occasional cassiterite up to 150µ. Minor traces of green/brown tourmaline.

It is recommended that, in addition to Sn assays, emission-spectrographic scans be carried out on these samples, especially for Nb, Ta and related elements.

051

2/12, 2/11, 1/4

The close similarities of these rocks enable them to be grouped. Compositionally they straddle the dividing line between granite and adamellite, due to the amount and composition of plagioclase present; this varies between albite and sodic oligoclase, and its distribution is patchy because of the coarse grainsize of the rock.

On the whole, the rocks are biotite granites, with 35-40% perthitic orthoclase, 30-35% weakly stressed quartz, 20-25% albite/sodic oligoclase, and 5-10% dark brown biotite. The orthoclase is lightly pigmented with ultrafine argillaceous material, imparting a cream/buff color to the mineral in hand specimen. The plagioclase is fairly extensively argillised, though generally with clear margins.

Accessory minerals, generally associated with and often embedded in biotite, are apatite, magnetite, xenotime and zircon (both fresh and completely metamictised varieties).

Apart from very minor details (see discussion at end of report), there is no appreciable difference between these rocks and the "red" granites.

1/5

This rock is essentially the same as those above (2/12, 2/11, 1/4), except that it is pneumatolysed; it is a tourmalinised, muscovitised granite.

Evidence of stress is more marked than in the other rocks. Quartz has been preserved, and most of the orthoclase, but the plagioclase is largely replaced by fine muscovite and quartz, because it was more susceptible due to prior argillic alteration. Relatively coarse prismatic, color zoned, green tourmaline crystals have developed at the expense of primary minerals. Primary biotite was completely chloritised and penetrated by fine muscovite, with preservation of the associated accessory minerals (apatite, xenotime, zircon) and the formation of anatase and rutile; traces of fluorite were deposited.

Whilst there is no definite evidence of the introduction of cassiterite, it may be present in trace amounts.

052

1/6

This is a tourmaline-clay rock. It consists dominantly of radiating-acicular crystals of very dark tourmaline (schorl); basal sections are virtually opaque. Interstitial brownish isotropic clay comprises the remainder of the rock. Occasional zircon crystals are seen, but no cassiterite was detected with certainty.

There do not appear to be any relict textures to suggest that the original rock was granite, and the total absence of quartz is significant in this respect. It may be that the pre-existing rock was totally altered before and during tourmalinisation, but this sample gives the impression of being vein material forming a separate body, perhaps in pre-existing fractures or other openings.

1/8

This quartz-tourmaline rock is vuggy in places, with free quartz and tourmaline crystals, growing into the cavities.

The tourmaline is the same, very dark variety as in 1/6, as radiating-acicular groups forming 50-60% of the rock. Subhedral to granular quartz constitutes the remainder. There are occasional regular cavities representing a totally leached mineral, possibly pyrite or arsenopyrite (or both).

Some of the vugs contain small aggregates of ultrafine, almost fibrous ?rutile; no cassiterite was detected.

This rock is regarded as a vein-type, introduced assemblage, as distinct from a rock formed by pneumatolysis and partial replacement of a pre-existing granite (or other rock).

2/17

This is a medium-grained greisen, or greisenised microgranite/aplite.

The original rock consisted of quartz, feldspar and minor ?biotite. All the feldspar has been replaced by fine flakes of yellow muscovite, as aggregates and small rosettes, forming pseudomorphs. The ?biotite is represented by occasional small patches of hematite flakes. No other pneumatolytic minerals occur and the greisenening was more in the nature of low-temperature hydrothermal alteration.

053

Small euhedral pyrite crystals are dispersed through the rock; no other sulphides were detected in polished section, and no cassiterite was seen.

2/18

This greisen generally resembles (2/17, but greisening was much more intense, with fine muscovite replacing not only the feldspar but a good deal of the quartz as well. Also, pyrite is absent, being represented by hematite.

A polished section showed that the only opaque mineral present was hematite, as groups of thin flakes.

APPENDIX 2

Geochemical Results -  
Rock Samples, Federation Plateau

N.B. Sample numbers correspond to geological mapping sample numbers.

Sample Numbers	P.p.m. Sn	P.p.m. Li	P.p.m. TiO <sub>2</sub>	Comments
K.W. 1/1	30	60	3500	Red Granite.
1/6	480	50	5800	White, tourmalinised.
1/7	50	60	4700	Altered-red.
1/8	360	40	3800	White, tourmalinised.
1/9	280	100	2700	White Dyke.
1/10	40	40	4000	Altered-red.
1/12	80	20	3800	White Dyke.
1/14	35	30	1800	Micro., red.
1/20	80	30	2200	White Dyke.
1/21	100	10	700	Micro., red.
1/29	20	70	3600	Red.
2/3	20	40	2100	Red.
2/4	40	40	2700	Red?
2/6	220	20	2900	White Dyke.
2/7	40	30	900	Micro., red.
2/8	35	70	2800	"
2/12	35	50	3200	White.
2/13	30	40	800	Altered, micro. red.
2/14	1200	35	4000	White.
2/17	80	100	1000	Greisen
2/18	60	90	2200	Greisen
2/19	15	70	2100	Red, m.g.
2/20	30	50	2200	Red, m.g.

APPENDIX 3

Drill Logs inc. assays and  
petrographic descriptions -  
Sweeney's Mine Area.

RENISON LIMITED - DIAMOND DRILL RECORD

HOLE NUMBER	SWY 1	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			U. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test for downward extension of mineralisation exposed in old workings	Collar	--	-43 $\frac{1}{2}$ $^{\circ}$	0-25	25.0	17.2	18.1	18.1	
		50m	--	-43 $^{\circ}$	-72.5	47.5	32.4	34.7	52.8	
		95m	212 $^{\circ}$	-41 $^{\circ}$	-121	48.5	31.8	36.6	89.4	
LOCATION	Sweeney's Mine, Federation Area E.L.11/76	149m	212 $^{\circ}$	-38 $^{\circ}$	-149	28.0	17.2	22.1	111.5	
COLLAR R.L.	285.549									
CO-ORDINATES	10374.179 N 9055.874 E									
LENGTH	149.0m									
HOLE SIZE	0-3m H casing 3-99m NQ 104m-149m BQ									
COMMENCED	25/5/77									
COMPLETED	8.6.77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS	PATCHILY ALTERED GRANITE IMMEDIATELY BELOW COLLAR EXTENSIVELY BROKEN									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS					
				Sn.	Cu.	As.	S.		

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S	Cu F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	SHc.	S.G.

HOLE No.: SWY 1

SCALE:

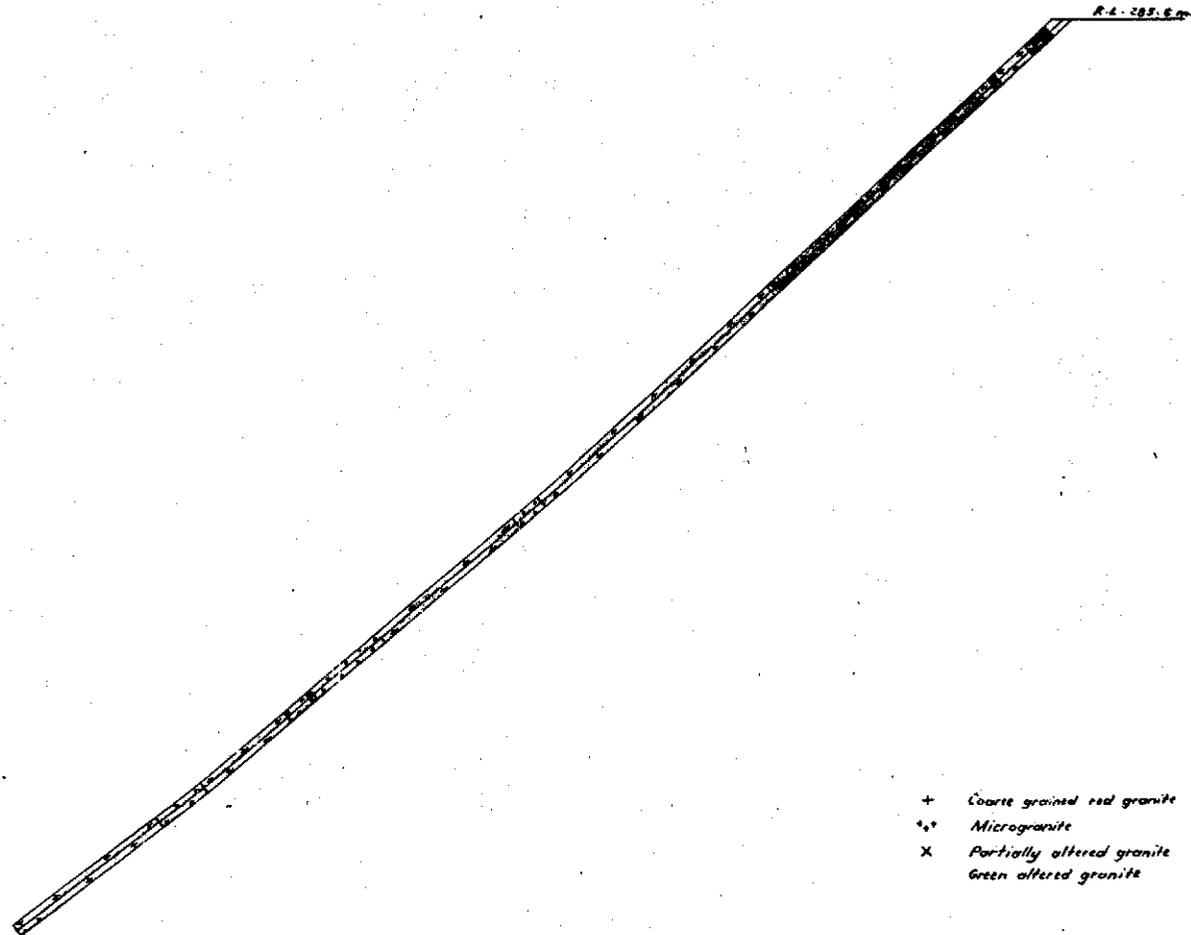
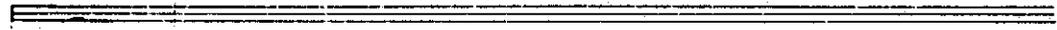
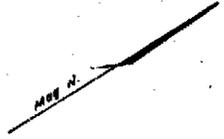


RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

58

058

5 cm



- + Coarse grained red granite } - Red
- \* Microgranite } - Red
- x Partially altered granite - Brown
- Green altered granite - Green

1870m

285.6m

285059

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 1

LOGGED BY : K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g t Ag
0	2	0.20	10	Clay and rubble associated with mine dump.													
2	3	1	100	Dark green (chloritic?) completely altered granite - coarse texture still discernible. Granular aggregates of pyrite up to 3-4mm in diameter, often associated with fine quartz.		2.0	3.0	0.10	<0.005	<0.05	<0.10		0.004	0.031	0.003	1	
3	4.8	1.8	100	Graduation, from above rock type to normal coarse grained red granite (c.g.r.). Felspars are progressively less, sericitised down the hole. From 4.4m to 4.8m the core consists of crumbled fine rubble.		3.0	4.8	0.05	<0.005	<0.05	<0.10		0.002	0.014	0.001	<1	
4.8	9.5	4.7	100	"Normal" coarse grained red granite consisting of coarse, red K-felspar, white plagioclase and grey (colourless) quartz with small crystals of black biotite.  K-felspar altered to green sericite 5.6m to 6.0m and 8.0 to 8.5m, but no visible sulphide mineralisation.		4.8	6.0	0.05	<0.005	<0.05	<0.10		0.003	0.008	<0.001	<1	
							7.0	"	"	"	"		"	0.013	"	"	
							8.0	0.06	"	"	"		0.001	0.007	0.001	"	
							9.5	0.05	"	"	"		0.002	0.013	"	"	
9.5	10.5	1.0	100	Alteration (argillisation and sericitisation of feldspars) of granite to dark green (chlorite?) granite at 10.4m. Minor tourmaline occurs but rock not as completely altered as 2 - 3m. The core is extensively broken and often crumbled to rubble.		9.5	10.5	0.06	<0.002	<0.05	<0.10		0.002	0.040	0.002	<1	
10.5	12.0	1.5	100	Coarse grained red granite variously altered (sericitised) and the rock is often crumbled to rubble.		10.5	12.0	0.05	<0.005	<0.05	<0.10		0.001	0.013	0.001	<1	
12.0	18.0	6.0	100	Green - red soft, altered (sericitic and/or argillic) granite. Rock widely broken and the majority of the core crumbled to a fine rubble.		12.0	13.0	0.05	<0.005	<0.05	<0.10		0.001	0.103	<0.001	<1	
							14.0	"	"	"	"		"	0.047	"	1	
							15.0	0.06	"	"	"		"	0.032	"	<1	
							16.0	0.05	"	"	"		0.003	0.022	"	"	
18.0	21.2	3.2	100	Graduation from above rock type to a harder more competent, dark green, altered granite, occasionally showing small patches of tourmaline, but no visible biotite and all feldspars altered to green sericite. Visible pyrite 19.0m to 20.0m.			17.0	"	"	"	"		0.001	0.037	"	"	
							18.0	"	"	"	"		0.002	0.029	0.001	"	
							19.0	"	"	"	"		"	0.023	0.003	"	
							20.0	0.07	"	"	"		"	0.021	0.001	"	
							21.2	"	"	"	"		"	0.010	"	"	
21.2	23.8	2.6	100	Transitional zone from above rock type back to a more normal appearing c.g. . . . Rock softer and core extensively broken, consisting of fine rubble 23.6m to 23.8m. Felspars progressively less altered.		21.2	22.2	0.05	<0.005	<0.05	<0.10		0.003	0.026	0.001	<1	
							23.8	"	"	"	"		"	0.022	"	"	
23.8	28.2	4.4	100	Mildly altered c.g.r. becoming, variously and progressively more altered from 24.7m: Felspars become more altered and rock colour changes from red to green, while the rock becomes softer and more broken.		23.8	25.0	0.05	<0.005	<0.05	<0.10		0.002	0.010	0.001	<1	
							26.0	"	"	"	"		0.001	"	"	"	
							27.0	"	"	"	"		0.002	0.015	"	"	
							28.2	"	"	"	"		0.001	0.10	"	"	

285060

060

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 1

LOGGED BY : K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.										
FROM	TO	m	%			FRGM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi
28.2	30.3	1.8	100	Green altered granite. Felspars altered to green (sericite?) and yellow (Kaolin?). Very minor biotite. Core extensively broken, often to fine rubble.		28.2	29.0	0.05	<0.005	<0.05	<0.10		0.003	0.018	0.001	<1
							30.3	"	"	"	"		0.002	0.013	"	1
30.3	31.0	0.7	100	Fine grained, red, partially altered, red micro-granite, but relatively competent.		30.3	31.0	0.05	<0.005	<0.05	<0.10		0.001	0.009	0.001	<1
31.0	38.0	7.0	100	Coarse grained red granite with a section of micro-granite from 31.7 to 32.0m. Rock initially relatively fresh and competent but felspars display rims of sericite/clay and felspars increasingly altered downhole, with rock becoming softer.		31.0	32.0	0.05	0.002	<0.05	<0.10		0.001	0.010	0.001	<1
							33.0	"	"	"	"		0.007	"	"	"
							34.0	"	"	"	"		"	<0.001	"	"
							35.0	0.05	"	"	"		0.009	0.001	"	"
							36.0	0.08	"	"	"		0.002	0.021	"	"
							37.0	0.05	"	"	"		0.001	0.009	"	"
							38.0	0.07	"	"	"		"	0.008	"	"
							39.0	0.05	"	"	"		0.002	0.015	"	"
							40.0	0.07	"	"	"		"	<0.001	"	"
							41.0	0.05	"	"	"		0.001	0.010	"	"
							42.0	"	"	"	"		"	0.006	0.001	"
							43.0	"	"	"	"		"	0.011	<0.001	"
43.0	76.5	33.5	100	Coarse grained, red granite consisting of coarse crystals of: red 'K'-felspar, white plagioclase and colourless quartz with fine crystals of black biotite. Felspars show some alteration prior to 45.5m. After 45.5m alteration is rare and confined to occasional felspar crystals and along joints/cracks at 46.9m, 58.0 to 59.0m and 72.3m. The majority of the rock appears fresh and competent.			44.0	"	"	"	"		0.003	0.008	0.001	"
							45.0	"	"	"	"		"	0.009	"	"
							46.0	"	"	"	"		"	0.011	<0.001	"
							47.0	"	"	"	"		0.001	0.008	"	"
							48.0	"	"	"	"		<0.001	0.005	"	"
76.5	80.0	4.5	100	Red, hard microgranite. Grain size varies, occasional felspar phenocrysts and darker coloured sections due to increased amounts of biotite. Pegmatitic vein 5 - 10cms wide at 80.0m. Minor pyrite on joint surface at 79.3m.												
80.0	99.1	19.1	100	Hard, coarse grained red granite consisting of coarse crystals of red 'K'-felspar, white plagioclase, colourless quartz and fine crystals of black biotite. Patches and veins of alteration, where core less competent, being broken and crumbly: 82.9 to 84.0 (patchy alteration), 87.8 to 88.0m, 89.0m 93.2 - 93.4m, 97.0m and 97.3 to 97.6m.												
99.1	99.8	0.7	100	Dark (due to biotite) red, fine grained, hard microgranite "dyke".												
99.8	112.3	12.5	100	Coarse grained, red granite. Essentially fresh and unaltered apart from rare partially altered felspars. More intense alteration evident 108.4 to 109.4m and 111.2m, where the granite takes on a greenish appearance due to the sericitisation and "bleaching" of felspars; also biotite disappears.												

285061

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 1

LOGGED BY : K.W.

061

NAPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% On											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g/r Ag
112.3	124.0	11.7	100	Coarse grained, pale pink to white granite. Essentially similar to the c.g.r. higher up the hole, with colourless quartz, white plagioclase, and small black biotite crystals, but 'K'-felspars paler (see C.M.S. Report 77/4/6).  Very minor alteration along joints at 115.2, 119.8, 122.0, 123.0 and 123.4m.													
124.0	130.0	6.0	100	Mixed zone of dark (due to biotite) red to white microgranite, but also some coarse grained granite. Thought to be essentially a microgranite "dyke". Some minor, patchy alteration of 'K'-felspars.													
130.0	149.0	19.0	100	Fairly typical coarse grained granite but paler than higher up the hole. At 130.0m still a pale red/pink granite but becomes progressively lighter coloured down hole, and very hard: by the end of the hole it has the appearance of a coarse grained, white granite.  Small "dykes" of microgranite 134.9 - 135.2m, 140.3 - 140.5 (associated with a small pegmatite vein) and 142.1 - 142.3.  Rare, minor alteration along joints at 134.8m.													
- END OF HOLE -																	

285062

**RENISON LIMITED - DIAMOND DRILL RECORD**

062

HOLE NUMBER	SWY 2	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test for mineralisation in hill above Sweeney's workings.	collar	-	89°45'				353.42	0	0
		101m	071°	89°15'	-101.0	101.0	101.0	252.42	1.32	1.32
LOCATION	N.W. end of top road above Sweeney's workings									
COLLAR R.L.	353.416									
CO-ORDINATES	10253.57 N 8937.393 E									
LENGTH	101.5m									
HOLE SIZE	H casing 0 - 3m NQ 3 - 36m BQ 36 - 101.5m									
COMMENCED	10.6.77									
COMPLETED	14.6.77									
SIGNIFICANT CORE LOSS ZONES	0 1 14.5m									
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS										

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS			
				Sn.	Cu.	As.	S.

SUMMARY METALLURGICAL DATA - COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S.	Ca F <sub>2</sub>	Ag.	Bi.		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285063

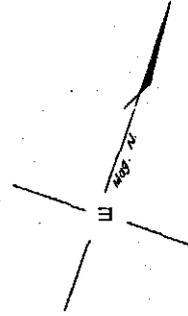
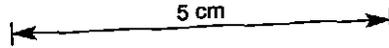
HOLE No. : SWY2

SCALE :



# RENISON LIMITED DIAMOND DRILL HOLE PLOT

NWPA



R.L. 550-62 m



R.L. 525-62 m

- + Coarse grained red granite } - Red
- \* Microgranite } - Red
- X Partially altered granite - Brown
- Green altered granite - Green

063

285064

## DIAMOND DRILL RECORD

HOLE NUMBER : SWY 2

LOGGED BY : K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn										
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Br
0	8.5	0.85	10	Coarse grained, pale green, altered granite. Felspars sericitised/kaolinised and no biotite visible (to chlorite?) core consists of broken rubble.		0	8.5	0.07	0.002	0.001	0.10	<0.001	0.006	0.001	<1	
8.5	21.6	10.5	72.5	Coarse grained, red granite. Very soft due to weathering/alteration and small patches of tourmaline (?) occur. Much core loss prior to 14.5m and up to 17.0m the core consists largely of rubble. Downhole the felspars become progressively less altered/sericitised and the core becomes more competent, but still altered and partially broken.												
21.6	22.6	1.0	100	Pale red, fine grained microgranite with a very narrow "pegmatitic zone" at 21.6m. Still weathered/alterred with small patches of black tourmaline evident.												
22.6	23.4	0.8	100	Coarse grained, red granite similar to 8.5 - 21.6m. slightly altered - felspars sericitised/kaolinised but biotites still evident.												
23.4	24.5	0.9	100	Pale red, fine grained, microgranite, similar to 21.6 - 22.6, but perhaps slightly less altered; small black biotites sprinkled through core.												
24.5	30.6	6.1	100	Red/buff weathered/alterred coarse grained red granite. Plagioclase felspars altered to yellow "clay". Biotite still evident but minor patches of tourmaline (?) also occur.												
30.6	32.8	2.2	100	Coarse grained red granite. Reasonably fresh consisting of coarse crystals of red 'K' - felspar, white plagioclase and colourless quartz with small crystals of black biotite.												
32.8	33.5	0.7	100	Zone of altered granite. 'K'-felspars altered to green sericite and rock has a white/green appearance. Contacts with unaltered rock either side is gradational.												
33.5	46.2	12.7	100	Hard, fresh, red, coarse grained granite consisting of coarse crystals of red 'K'-felspar, white plagioclase and colourless quartz and small crystals of black biotite - local enrichment of the latter.  Some crystals of red 'K'-felspar seen to have rims of white plagioclase (?), e.g. 35.6m, due to albitisation (?). Weathered/alterred veins/joints at 43.1m and 46.7m Microgranite zone 44.2m - 44.6m From 45.9m plagioclase crystals begin to be altered to green hydromicas (?) and all crystal boundaries not as sharp.		36.0	37.0	0.05	DRILL CORE ANALYSER RESULTS							
							38.0	"								
							39.0	0.03								
							40.0	0.07								
							41.0	0.04								
							42.0	0.05								
							43.0	"								
							44.0	0.06								
							45.0	0.05								
							46.2	0.06								
46.2	48.6	2.4	100	Green/buff coloured zone of altered granite. Microgranite 47.0 - 47.2m still red and relatively unaltered, but chlorite rich zones (after biotite?) occur at each end. Majority of rock strongly altered: Felspars to yellow and green clays and hydromicas. No visible biotite (gone to chlorite?). Occasional small patches of tourmaline e.g. 47.7m.		46.2	47.2	0.04	DRILL CORE ANALYSER RESULTS							
							48.6	0.06								

064

285063

065

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 2

LOGGED BY : K.W.

NVPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g t Ag
48.6	88.0	39.4	100	Coarse grained, red granite consisting of coarse crystals of red 'K'-felspar, white plagioclase and colourless quartz with small crystals of black biotite. At 62.5m occurs a zone consisting essentially, of 'K'-felspar and quartz with small patches of tourmaline.		48.6	50.0	0.06	DRILL CORE	ANALYSER RESULT							
				Rock generally fresh, but weathered/altered zones and joints/cracks at: 56.0 - 56.5m, 62.0m, 65.5m, 72.0 - 74.0m, 80.0m and 86.5m.			51.0	0.05									
88.0	101.5	13.5	100	Hard, coarse grained, granite essentially similar to 48.6 - 88.0m. But paler due to 'K'-felspar being pink rather than red (see Swy 1)													
				- END OF HOLE -													

285066

**MINISON LIMITED - DIAMOND DRILL LOG**

166

HOLE NUMBER	SWY 3	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test mineralised & altered granites in vicinity of Sweeney's Mine.	Collar			0-25.0	25	17.7	314.3	17.7	17.7
		50m	342 <sup>D</sup>	-45 <sup>D</sup>	-75.0	50	35.3	279.0	35.3	53.0
		100m	344 <sup>D</sup>	-44.5 <sup>D</sup>	-126.0	51	35.7	243.3	36.4	89.4
LOCATION	Top road above Sweeney's workings	152m	348 <sup>D</sup>	-42.5 <sup>D</sup>	-152.0	26	17.6	225.7	19.2	108.6
COLLAR R.L.	331.998									
CO-ORDINATES	10291.098 N 9028.124 E									
LENGTH	152.5m									
HOLE SIZE	0 - 3.3m H casing 3.3 - 36m NQ 36 - End RD									
COMMENCED	15/6/77									
COMPLETED	23/6/77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Walls									
COMMENTS	Hole terminated in partially altered granite, should possibly have been drilled a little further to hit "white granite" (?)									

**SUMMARY - ASSAY DATA**

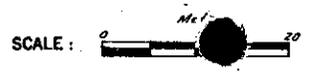
LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS				
				Sn.	Cu.	Ag.	S.	

**SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE**

LODE NAME	FROM	TO	Sn.	Cu.	Ag.	S.	Cn F <sub>2</sub>	Ag.	SI	Sn - Rec.	Cu - Rec.	Carb.	Slite.	S.G.

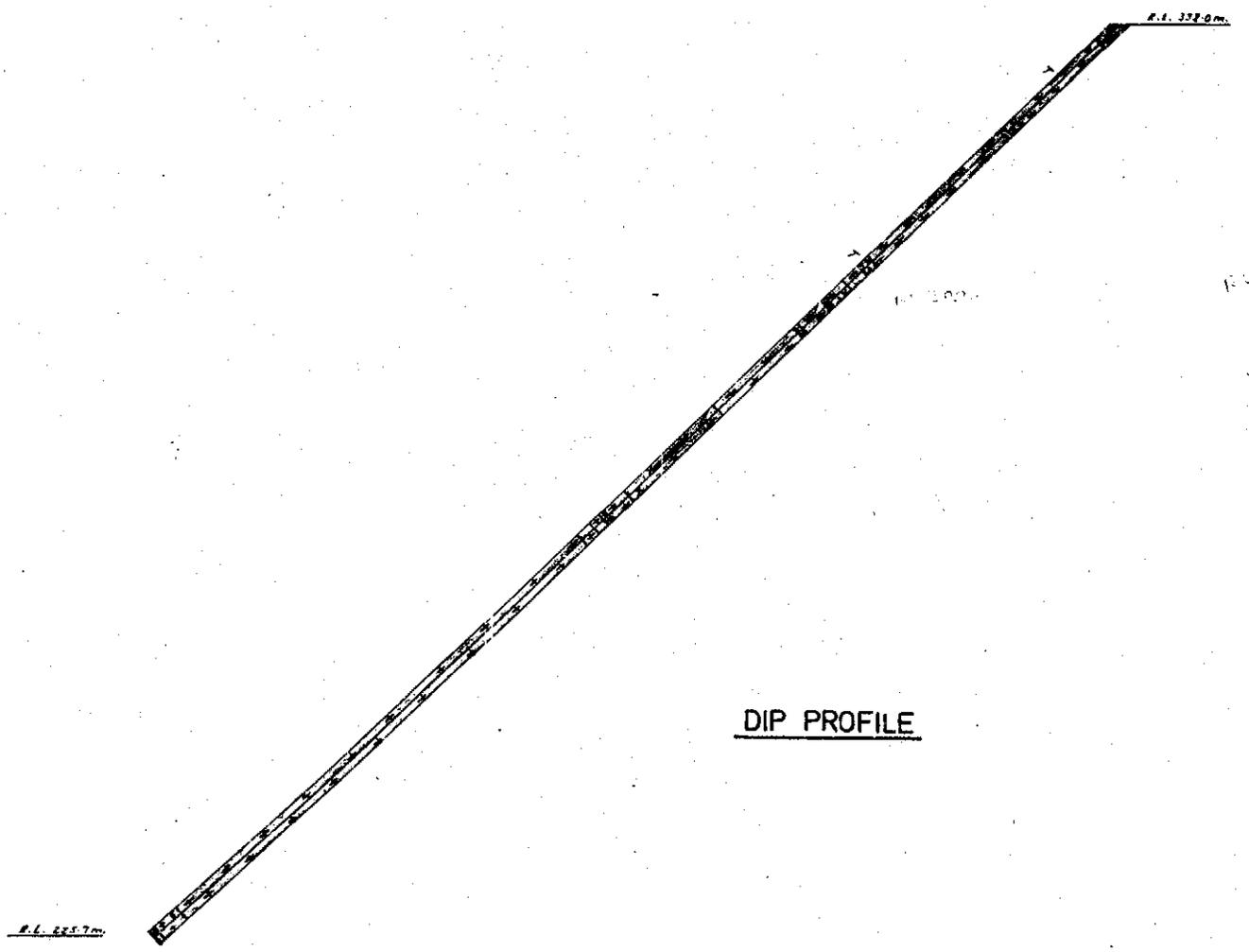
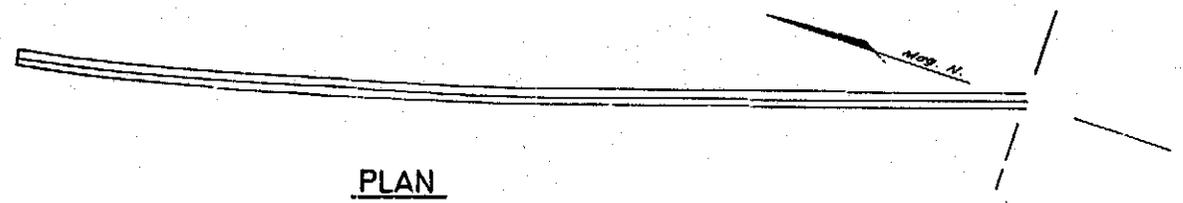
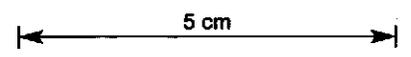
285067

HOLE No. : SWY 3



RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

067



RC 300

- + Coarse grained red granite } red
- \* Microgranite } red
- X Partially altered granite } brown
- Green altered granite } green
- > C.g. white granite } blue
- < F.m.g. white granite } blue

285068



DIAMOND DRILL RECORD

HOLE NUMBER : SWY 3

LOGGED BY : K. B.

469

INTERVAL (m)		RECOVERY		DESCRIPTION	% FORM Sol. F.	% Jn.										
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.
				43.1m - 44.8m, 45.0m - 46.4m, 48.4m, 50.2m - 50.7m, 53.4m and 54.3m.												
63.5	77.7	14.2	100	Rapid transition to a green/yellow altered granite. Majority coarse grained but microgranite 74.3m - 74.8m.  K-felspar altered to yellow "clay" plagioclase altered to a dark green "clay"; no visible biotite but odd patches of black tourmaline and a quartz/tourmaline vein at 74.5m. No visible sulphides.  Altered, plagioclase rimmed K-felspars visible at 65.0m.  Core variously broken.	<0.10	63.5	64.5	0.06	<0.002	<0.05	<0.10	0.003	0.021	0.001	2	
							65.5	0.01	"	"	"	0.001	0.009	0.001	1	0.031
							66.5	0.02	"	"	"	0.002	0.008	"	1	"
							67.5	0.05	"	"	"	0.009	0.058	0.001	2	"
					THIN		68.5	0.01	"	"	"	0.008	0.046	0.001	1	0.001
					SECTIONS		69.5	0.04	"	"	"	0.005	0.022	0.002	1	
							70.5	0.01	"	"	"	0.002	0.010	0.001	1	0.001
							71.5	0.06	"	"	"	0.003	0.010	0.002	1	
							72.5	0.05	"	"	"	"	0.011	"	1	
							73.5	0.01	"	"	"	0.002	0.021	0.001	1	0.001
							74.5	"	"	"	"	0.009	0.040	"	2	"
							75.5	"	"	"	"	0.003	0.074	"	1	0.002
77.7	80.7	3.0	100	Coarse grained red granite. Still partially altered and core broken. Crystal boundaries not as clear as in c.g.r. granite elsewhere, and core has an "amorphous" appearance. Biotite/chlorite flecks also occur.  At 80.8m a very small vug contains tourmaline and pyrite.			76.5	0.05	"	"	"	0.002	0.115	"	1	
					THIN		77.7	0.06	"	"	"	0.003	0.007	"	1	
					SECTION		78.7	0.04	"	"	"	0.002	0.003	"	1	
							79.7	0.01	"	"	"	0.001	0.034	"	1	0.001
							80.7	"	"	"	"	"	"	"	1	0.002
80.7	91.5	0.9	100	Grey/pink microgranite with small patches of tourmaline. Some alteration with small clay veinlets.	<0.10	80.7	81.6	0.05	<0.002	<0.05	<0.10	0.001	0.003	0.001	1	
81.6	83.0	1.4	100	Coarse grained partially altered red granite identical in all respects to 77.7 - 80.7m. However, no sulphides observed.	<0.10	81.6	82.0	0.04	<0.002	<0.05	<0.10	0.003	0.003	0.001	1	
							83.0	0.01	"	"	"	0.001	0.005	"	1	0.001
83.0	94.9	1.9	100	Grey/pink microgranite identical to 80.7 - 81.6m												
84.9	147.4	62.5	100	Coarse grained red granite. Typical red granite changed to coarse-grained white granite with very minor pyrite at 130.0m.  Some pink microgranite sections prior to 89.0m with some associated "incipient pegmatites" - very coarse grained sections, e.g. 87.9m which has tourmaline with it  Rocks generally fresh but veins and zones of alteration at 88.0m, 88.6m, 91.5m, 93.5m, 125.5m, 127.5m, 140.5m, and 144.6m.												
					THIN											
					SECTION											
147.4	151.5	4.1	100	Fine-grained, pink microgranite. Showing an increasing degree of alteration; core becomes very soft due to alteration of felspars to clay and numerous yellow clay veins occur.												
151.5	152.5	1.0	100	Partially altered coarse-grained red granite. Less altered than preceding microgranite; biotites still evident; but plagioclase felspars partially altered.												
				END OF HOLE												

285070

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 3

LOGGED BY : K.W.

PETROGRAPHIC DESCRIPTIONS from C.M.S. Report 77/7/7

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	g/t WO <sub>3</sub>
				<p>10m : Pink Biotite-Granite - 50% perthitic subhedral orthoclase, 30% faintly smoky anhedral quartz, 15% partly argillised oligoclase, 5% very fresh biotite.</p> <p>Normal granitic fabric; grainsizes 2 - 5mm. Orthoclase poikilitic.</p> <p>Minor minerals include : accessory magnetite, metamict zircon, smoky apatite, fluorite, xenotime.</p> <p>A well defined granite; pigmented orthoclase, appreciably (20 - 30%) argillised plagioclase. Distinctive accessories.</p>													
				<p>14.4m : Pink stressed Biotite Granite</p> <p>50% fresh perthitic orthoclase, 25% partly argillised oligoclase anhedral, 20% grey smoky stressed quartz, 5% partly chloritised biotite.</p> <p>Normal granitic fabric; grainsizes 2 - 5mm, Orthoclase poikilitic. Rock is microfractured, with stressed quartz.</p> <p>Accessory apatite, magnetite, metamict zircon, semi-opaque tourmaline.</p> <p>Increased argillic alteration; biotite partly chloritised rock microfractured; quartz stressed. Presence of introduced tourmaline.</p>													
				<p>19.0m : Sodic Biotite Granite</p> <p>50% albite laths extensively argillised, 20% grey quartz, 20% completely chloritised biotite, 10% fresh pink perthitic orthoclase.</p> <p>Normal granitic fabric, distinctly finer - grained than above but still &gt; 1mm.</p> <p>Minor minerals include : very conspicuous apatite, zircon, xenotime, leucosene, and traces of fluorite.</p> <p>This is a variant of the red granite with far more biotite and accessories, sodic instead of potassic. Significantly altered (hydrothermal alteration).</p> <p>Abundant accessories linked with abundant biotite.</p>													
				<p>41.2m : Pink Biotite-Granite</p> <p>50% perthitic pink orthoclase, 30% grey smoky quartz, 15% partly argillised oligoclase, 5% incipiently chloritised biotite.</p> <p>Normal coarse granitic fabric; orthoclase up to 5mm. Quartz stressed.</p> <p>Accessory minerals are magnetite, apatite, zircon,</p>													

070

285071

071

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 3

LOGGED BY : K.W.

NWPS

PETROGRAPHIC DESCRIPTIONS from C.M.S. Report 77/7/7

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.	g/t WO <sub>3</sub>
				Introduced fluorite.														
				Similar to 10m but not quite as fresh. Postmagmatic stress, argillic/chloritic alteration, addition of fluorite are all related.														
				<u>65.2m : Altered Biotite Granite</u> 40% anhedral stressed quartz, 40% partly argillised yellow orthoclase (oxidised hematite), 15% completely argillised plagioclase, 5% totally altered biotite.														
				Granitic fabric, orthoclase up to 10mm, poikilitic.														
				Chlorite-sericite interleaved flakes = altered biotite. Zircon, apatite leucosene.														
				Orthoclase yellow due to oxidation of hematite, argillisation of perthitic plagioclase. Low temperature hydrothermal alteration.														
				<u>70.0m : Altered Granite</u> 70% very coarse, partly argillised orthoclase, 23% stressed anhedral quartz, 10% severely argillised albite, traces only chloritised biotite.														
				Very coarse poikilitic microcline enclosing quartz, albite.														
				Patches of microgranular carbonate in argillised plagioclase. Accessories as above (65.2m)														
				Low temperature hydrothermal alteration as described above (64.2m). Introduced carbonate is a brown sideritic variety.														
				<u>78.0m : Pink Biotite Granite</u> 50% pink perthitic orthoclase (with thin oligoclase rims in places), 30% stressed anhedral quartz, 15% largely argillised, 2 - 3% chloritised biotite.														
				Granitic fabric but erratic grainsizes; microcline poikilitic.														
				Traces of dark tourmaline, fluorite, siderite, zircon, apatite.														
				Distinct though weak phase of pneumatolysis with introduction of tourmaline, fluosilite, siderite														
				<u>101.4m : Pink Biotite Granite</u> 50% pink orthoclase, perthitic and plagioclase - rimmed, 35% slightly stressed quartz, 10% partly argillised, 5% very dark biotite, mostly chloritised.														

285072

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 3

LOGGED BY : K.W.

072

WVPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
				Granitic fabric; orthoclase up to 10mm.													
				Accessory magnetite, apatite, associated with biotite Traces of fluorite.													
				Colour of rocks governed by :													
				(a) argillisation of plagioclase													
				(b) argillisation of plagioclase within perthite.													
				(c) hematite-goethite conversion													
				(d) chloritisation of biotite.													

285073

# RENISON LIMITED - DIAMOND DRILL RECORD

073

HOLE NUMBER	SWY 4	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test downward extension of mineralisation in Sweeney's workings	Collar	Mag. 97°	-45.75°	0-25.0	25.0	17.9	301.62	17.4	17.4
		50.0m		-46.5°	-75.5	50.5	36.6	265.02	34.8	52.2
		101.0m	107.5°	-44.75°	-101.0	25.5	17.9	247.12	18.1	70.3
LOCATION	Immediately West of No. 3 Trench.									
COLLAR R.L.	319.52									
CO-ORDINATES	10338.064N 9027.681E									
LENGTH	101.0m									
HOLE SIZE	0-3m H. casing 3-51m NQ 51-End 8Q									
COMMENCED	25-6-77									
COMPLETED	29-6-77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells.									
COMMENTS	Mineralisation assayed for Au, but only present in barely detectable amounts; < 0.1 mg/kg.									

### SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS							
				Sn.	Cu.	Au.	S.	Zn	n/t. Ag	%SnI. Sn	%CaF <sub>2</sub>
Sweeney's	7.0	58.0	51.0	0.50	0.05	0.19	8.16	2.70	14	0.015	1.60

### SUMMARY METALLURGICAL DATA      COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	Au.	S	Ca F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285074

HOLE No.: SWY 4

SCALE:

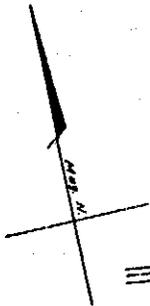


RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

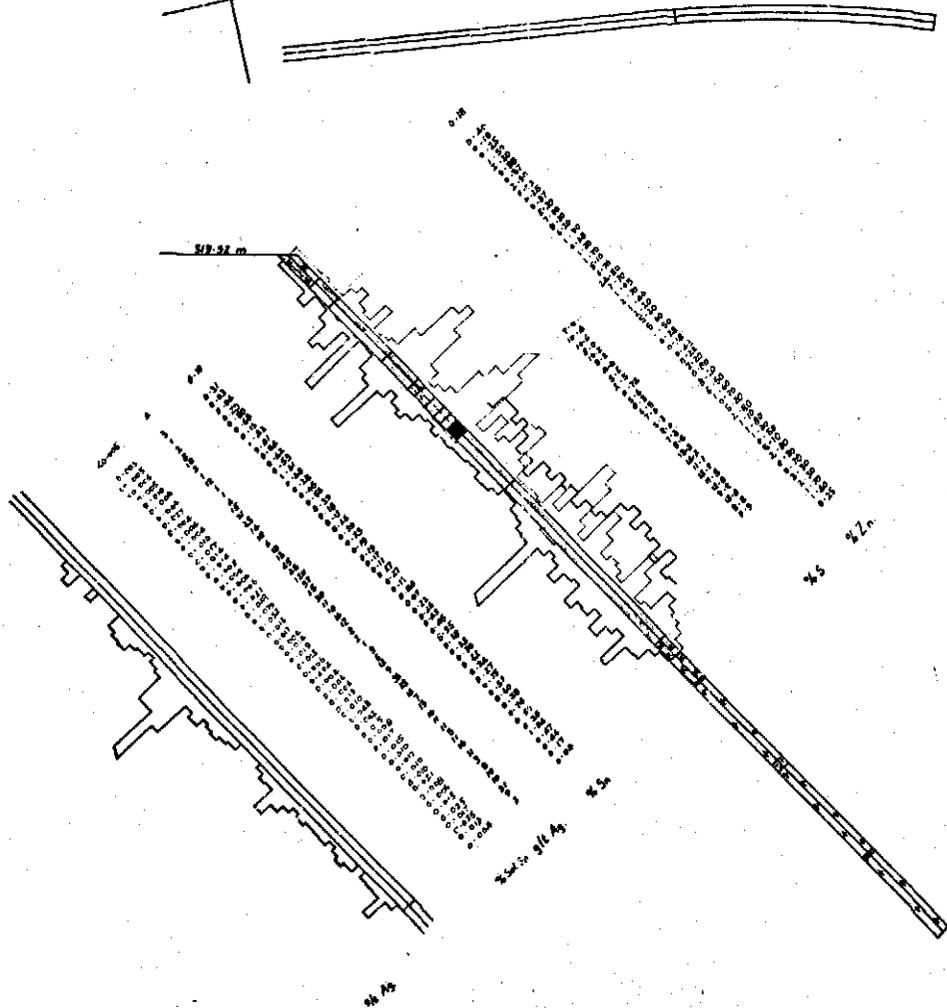


1000 ft

5 cm



PLAN



- + Coarse grained red granite - Red
- Microgranite - Red
- Partially altered granite - Brown
- Alteration with sulphide - Green

DIP PROFILE

074

285075

DIAMOND DRILL RECORD

HOLE NUMBER : Swy. 4

LOGGED BY : K. Wells.

NWPS

INTERVAL (m)		RECOVERY		DESCRIPTION	%CaF <sub>2</sub> FORM.	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag	% Sb
0	4.0	1.25	32	Brown, iron-stained, coarse grained granite. Granite altered but alteration obscured by weathering and broken nature of the core.	<0.50	0	4	0.10	<0.005	0.009	0.10	0.27	0.007	0.18	0.001	4	0.002
4.0	7.0	2.0	65	Green/buff, altered/weathered, coarse-grained granite. Felspars altered to yellow/buff and green "clays". Quartz still obvious, but no biotite or sulphides visible. THIN SECTION	0.54 <0.50 "	4	5 6 7	0.31 0.03 0.04	0.004 <0.005 "	0.002 "	0.10 "	6.00 0.19 0.31	0.037 0.018 0.015	0.40 0.18 0.25	0.004 0.001 0.001	3 1 2	0.024 0.001 "
7.0	15.0	8.0	100	Olive-green coarse-grained, altered granite with visible sulphides. Felspars generally altered to olive-green "clay" although some have a reddish appearance. "Some rimmed felspars" seen, e.g. 7.3m, and some minor patches of tourmaline; but no visible biotite. Sulphides only minor consisting mainly of fine-grained pyrite associated with the felspars. Occasional veins/patches of black sphalerite (?) occur e.g. 8.5m	<0.50 " " <0.50 0.68 0.97 <0.50 1.60	7	8 9 10 11 12 13 14 15	0.29 0.80 0.68 0.15 1.43 0.01 0.04 0.42	0.005 0.010 0.006 "	0.008 0.020 0.004 "	0.10 "	3.30 2.90 3.40 2.40 4.10 0.15 0.81 9.50	0.054 0.134 0.021 0.16 0.027 0.004 0.011 0.055	1.50 2.30 0.88 0.57 2.90 0.09 0.25 0.87	0.002 "	8 18 3 1 12 1 4	0.002 0.003 0.004 0.002 0.005 0.003 "
15.0	19.2	4.2	100	Light-green, coarse-grained altered granite with extensive sulphides and minor tourmaline. Sulphides, mainly pyrite with minor sphalerite prior to 16.4m, but after 16.4m f.g. pyrite and dark brown sphalerite occur in equal amounts. The sphalerite occasionally occurring as rims around pyrite, eg 18.8m. THIN SECTION	0.84 1.20 2.00 2.80	15	16 17 18 19	0.53 1.61 0.48 0.28	0.010 0.017 0.014 "	0.015 0.020 0.017 0.018	0.22 0.26 0.38 0.11	2.40 7.50 6.80 "	0.40 0.68 0.72 0.125	3.20 7.00 9.30 6.20	0.003 0.01 "	15 21 23 14	0.019 0.150 0.238 0.088
19.2	20.0	0.8	100	Green, coarse-grained altered granite. Similar to previous rock type but has a "denser" appearance with the "crystal mosaic" not as open/clear. Amount of sphalerite decreased but a silvery mineral visible-jamesonite (?). Also f.g. pyrite and minor tourmaline occurs.	2.00	19	20	0.45	0.008	0.012	0.18	10.60	0.45	1.90	0.003	10	0.270
20.0	21.7	1.7	100	Yellow/green, medium-grained, altered granite f.g. pyrite disseminated throughout the core also very minor jamesonite (?)	<0.50 1.20	20	21 22	0.56 0.39	0.005 0.006	0.004 0.009	0.10 0.10	9.50 13.10	0.009 0.33	0.28 1.20	0.003 0.004	6 10	0.01 0.190
21.7	23.1	1.4	100	Grey/green, coarse-grained, altered granite. A large percentage of pyrite, but only minor sphalerite and no jamesonite (?) seen. THIN SECTION	2.60	22	23	0.18	0.006	0.012	0.12	18.8	0.33	1.70	0.004	13	0.151
23.1	24.3	1.2	100	Green, coarse-grained, altered granite with pyrite, sphalerite and minor jamesonite (?). Rock becomes increasingly clayey and by 23.9m consists entirely of yellow/green clay, studded with coarse grains of sphalerite. Black veins of sphalerite/jamesonite (?) tourmaline/fluorite at 24.2m and 24.3m. Rock between is silicified. THIN SECTION	1.70	23	24	0.12	0.031	0.049	0.95	8.20	1.63	5.10	0.003	45	1.38
24.3	25.3	1.0	100	Olive-green, coarse-grained, highly pyritic altered granite with visible sphalerite. Thin black sphalerite/fluorite veins at 24.5m and 25.0m.	5.60	24	25	0.26	0.029	0.045	0.30	11.00	0.62	6.70	0.004	45	0.258

075

285076



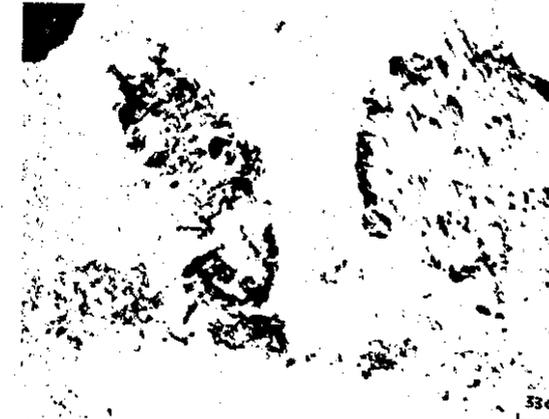
## DIAMOND DRILL RECORD

HOLE NUMBER : SWY 4

LOGGED BY : K.W.

Petrographic Descriptions from C.M.S. Report No. 77/7/7

INTERVAL (m)	RECOVERY	DESCRIPTION	FORM	% Sn														
				FROM	TO	TOTAL	As STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	gt Ag	gt WO <sub>3</sub>			
DDH SWY 4 6m		Rock Type - Composition Argillised Granite/Adamellite. 60% stressed primary quartz. 20% quartz-sericite pseudomorphs after orthoclase. 20% argillised plagioclase, traces decomposed biotite.	Fabric. Granitic fabric pre- served. Post-alteration fractures.															
		Minor Minerals Traces sphalerite in fractures. Traces dark tourmaline.	Comments Usually abundant quartz but normal granitic fabric. Apparently orthoclase was replaced, not just sericited.															
6.2m		Rock Type - Composition Argillised Granite. 45% quartz-sericite pseudomorphs after orthoclase, 35% stressed quartz, 20% totally argillised plagioclase; fine cloudy carbonate common.	Fabric Very coarse fabric, especially the plagioclase.															
		Minor Minerals Small pyrite crystals. Veinlets of sphalerite in late fractures. Trace tourmaline.	Comments Very similar to 6m but much less quartz. Fine cloudy carbonate throughout. Low- temperature alteration.															
16m		Rock Type - Composition Argillised, Mineralised Granite (?) Large shapeless patches of ultrafine illite/sericite; interstitial vein-type quartz. Small aggregates microgranular (20µ) cassiterite as patches, streaks, films in sericite. Euhedral pyrite.	Fabric Vague, poorly-defined fabric, not typically granitic.															
		Minor Minerals Sphalerite; traces of galena, boulangerite, rutile, hematite. Fluorite patches. Relict zircon.	Comments Low-temperature assemblages and formation probably explains extremely fine-grained nature of cassiterite - insufficient energy of formation. Cassiterite with rutile cores.															
19m		Rock Type - Composition Mineralised Quartz-Sericite Rock. Irregular patches of ultrafine, matted sericite flakes; interstitial mosaic-quartz; scattered pyrite, sphalerite. Ultrafine cassiterite as small clusters. Strongly coloured fluorite.	Fabric Not granitic fabric; more like greisen fabric.															
		Minor Minerals Boulangerite needles. Siderite patches.	Comments Cassiterite as very small (20µ) square crystals in loose clusters up to 250µ in sericite, quartz. Occasionally slightly large individuals (50µ).															
22.6m		Rock Type - Composition Mineralised Quartz-Sericite Rock. Irregular patches of fine sericite, coarse & fine quartz; abundant pyrite. Small purple fluorite patches. Ultrafine cassiterite.	Fabric Some relict features suggest former granite, completely replaced.															



PHOTOMICROGRAPH  
SWY 4 16m x 30



PHOTOMICROGRAPH  
SWY 4 16m x 120

285078

078

DIAMOND DRILL RECORD

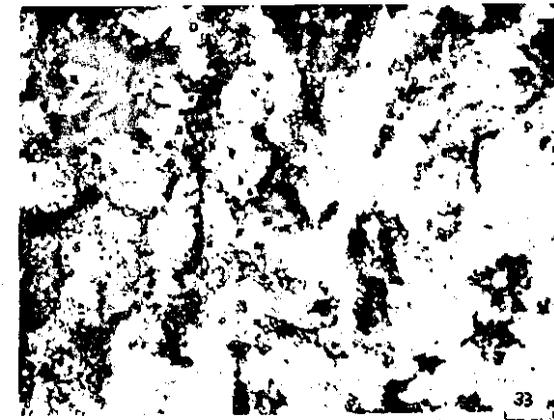
HOLE NUMBER : SWY 4

LOGGED BY : K.W.

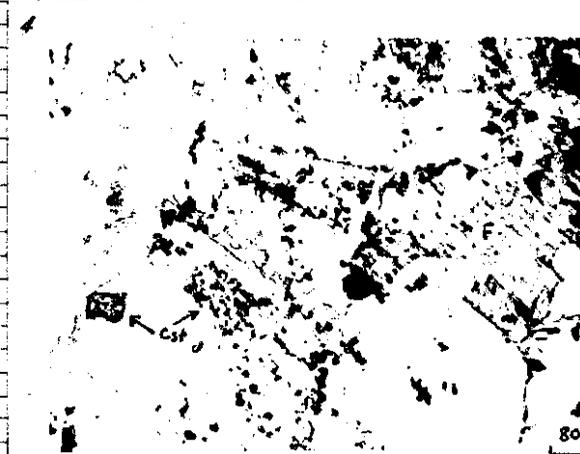
Petrographic Descriptions from G.H.S. Report No. 77/77

INTERVAL (m)		RECOVERY		DESCRIPTION		FORM	% Sn											
FROM	TO	m	%				FROM	TO	TOTAL	A-STAN	% Cu	% As	% S	% Ph	% Zn	% Bi	gt Ag	gt WO <sub>3</sub>
		22.6m		Minor Minerals Sphalerite patches with boulangerite needles. Sphalerite in pyrite.	Comments Cassiterite as above. Low-temperature hydrothermal or a type of low-energy "hydrogreisen" phase.													
		23.5m		Rock Type - Composition Mineralised Quartz-Sericite Rock. Irregular sericite patches and sericite/quartz inter- growths, vein type scattered sphalerite, pyrite. Ultrafine cassiterite.	Fabric As above. Pseudomorphs after ?biotite.													
				Minor Minerals Small patches of matted boulangerite needles.	Comments Cassiterite slightly coarser - single crystals up to 30µ. Completely altered biotite patches suggest granitic nature of rock. See notes.													
		26.5m		Rock Type - Composition Fluorite-Chlorite-Sulphide Rock. Interlocking patches of sulphides, fluorite, chlorite, aggregates. Fluorite strongly colorized with orientated boulangerite needles.	Fabric Vein-type fabric, boul- angerite needles very fine, sphalerite coarse.													
				Minor Minerals Boulangerite-matted needles. Pyrrhotite and chalcopryrite blebs in sphalerite.	Comments Occasional small cassiterite crystals in sphalerite, fluorite; a few are up to 50 X 20µ but mostly 20µ. Smallest boulangerite needles are 1µ diameter.													
		27.9m		Rock Type - Composition Mineralised Quartz-Sericite-Chlorite Rock. Small sericite-chlorite aggregates, intergrown with prismatic small quartz crystals. Pyrite throughout.	Fabric Fabric could be altered aplite, or low-temperature greisen.													
				Minor Minerals Microgranular cassiterite. Pyrite distinctly aniso- tropic, possibly arsenical	Comments Relict textures poorly preserved but suggest medium-grained granitic type, possibly an aplite; severely altered.													
		40.2m		Rock Type - Composition Mineralised Quartz-Sericite-Fluorite Rock Irregular sericite patches, quartz-sericite growths, large fluorite patches. Abundant ultra-fine (20µ) cassiterite crystals, as clusters streaks, stringers, Muscovite patches.	Fabric Highly modified ? granitic fabric.													
				Minor Minerals Carbonate, sphalerite, jamesonite patches. Zircon.	Comments Highly altered, possible aplite or greisen. Cassiterite very abundant but extremely fine; some clusters appear pseudomorphous.													
		DDH SWY 4		Rock Type - Composition Argillised Granite, weakly mineralised. Large areas sericite-quartz pseudomorphs after orthoclase (40%), stressed quartz (40%), argillised plagioclase (20%). Scattered cassiterite up to 100m. Sphalerite pyrite.	Fabric Granitic fabric clearly preserved.													

Progressively higher magnifications of the same area showing grossly pseudomorphous patches of cassiterite (20-4) with sericite (?) and of the same field (2) in which some of the "microscopic" cassiterite grains can be distinguished (note solid black polygonal grains in (1) and (2), arranged in parallel in (3), individual small grains are clearly seen, this area is in the upper middle portion of (2).



PHOTOMICROGRAPH  
SWY 4 16m x 300



PHOTOMICROGRAPH  
SWY 4 40.2m x 120

Showing purple fluorite grain (F), clear quartz, sericite, and fine grains of cassiterite, including one larger angular crystal (A). This is the typical occurrence of cassite in this part of the core.

285079



# RENISON LIMITED - DIAMOND DRILL RECORD

080

HOLE NUMBER	SWY 5	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test downward ext. of mineralisation intersected in Swy 4	Collar	100°	-81°	0-40.2	40.2	39.7	280.74	6.3	6.3
		80.4m	107°	-77°	-80.4	40.2	39.2	240.54	9.0	15.3
LOCATION	West of Sweeney's workings									
COLLAR R.L.	319.44									
CO-ORDINATES	10338.018 N 9026.923 E									
LENGTH	80.4m									
HOLE SIZE	0 - 3m H casing 3-24m NQ 24m-80.4m BQ									
COMMENCED	29-6-77									
COMPLETED	1-7-77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells									
COMMENTS	Collared in and drilled non-sulphide bearing, low tin zone around margin of mineralisation									

### SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS			
				Sn.	Cu.	As.	S.
Sweeney's	0	24.3	24.3	0.01	0.001	0.10	0.15

### SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S	Ce F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285081

38

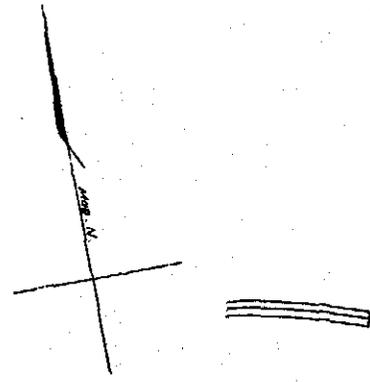
# RENISON LIMITED DIAMOND DRILL HOLE PLOT

HOLE No.: SWY 5

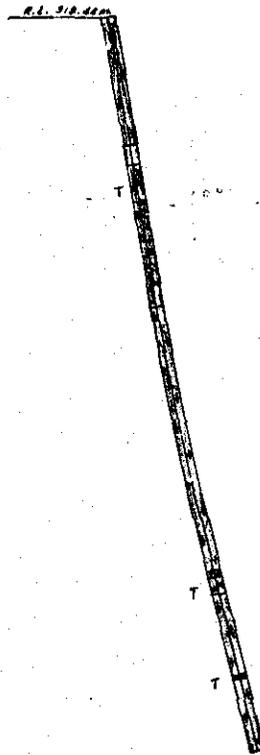
SCALE:



5 cm



PLAN



DIP PROFILE

*175.00*  
*175.00*  
*175.00*

- \* Coarse grained red granite } red
- \* microgranite } red
- \* Partially altered granite - brown
- green altered granite - green
- f.g. white granite } blue
- f.-m.g. white granite } blue

285082

082

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 5

LOGGED BY : K.W.

INTERVAL (m)	RECOVERY		DESCRIPTION	% Sm	% Sn											% Sb		
	FROM	TO			m	%	FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb		% Zn	% Bi
0	3.0	0.20	7	Rusty-brown, iron-stained, coarse-grained altered granite.	<0.10	0	4.0	0.01	0.009	0.007	0.001	0.10	0.05	0.008	0.018	0.001	4	0.001
3.0	14.0	11.0	100	Buff/green, coarse-grained, altered granite. No visible sulphides.	"	6.0	7.0	"	0.005	0.007	"	"	0.11	0.002	0.021	0.002	2	"
				Feldspars altered to green and buff/green "clays", some with a reddish tinge. Quartz obvious also biotite/chlorite (?) prior to 7.5m. After 7.5m rock a darker green - more altered (?). Small black tourmaline patches, throughout core.	"	8.0	9.0	0.01	0.002	0.009	"	"	0.08	0.002	0.036	"	2	"
				Core shattered/crumbled to rubble at 5.4m, 9.4 - 10.1m and 12.0 - 13.6m.	"	10.0	11.0	0.02	0.007	0.005	"	"	0.20	0.066	0.170	0.001	2	0.003
				THIN SECTIONS	"	12.0	13.0	0.01	0.005	0.007	"	"	0.38	0.035	0.395	0.002	2	"
					"	14.0	15.0	0.01	0.009	0.001	0.10	0.07	0.042	0.031	0.001	2	0.002	
					"	16.2	16.2	0.01	0.005	"	"	"	0.605	0.015	"	<1	0.001	
14.0	16.2	2.2	100	Green/buff, fine-grained, altered microgranite. Small patches of black tourmaline occur throughout core.	"													
				Very minor silvery sulphides - galena (?) or jamesonite (?) with a small, buff "clay" veinlet at 14.5m.	"													
				THIN SECTION	"													
16.2	21.2	5.0	100	Green, coarse-grained altered granite. No visible sulphides.	"	16.2	17.2	0.01	0.009	0.001	0.10	0.07	0.003	0.053	0.002	<1	0.001	
				Very similar to latter part of 3 - 14m, i.e. after 7.5m : Feldspars altered to green clays, but no biotite visible and small patches of black tourmaline occur.	0.10	18.2	19.2	"	0.007	0.005	"	"	0.19	0.006	0.040	"	1	"
				THIN SECTION	<0.10	20.2	21.2	"	0.002	0.002	"	"	0.06	"	0.008	0.001	1	0.002
					<0.10								0.15	0.005	0.012	"	1	"
													0.06	0.006	0.014	0.001	1	"
21.2	21.7	0.5	100	Green, altered pegmatite/microgranite "vein". Upper side is pegmatitic consisting of large crystals of white quartz, green "clays" after feldspar and one patch of black tourmaline and a small patch of pyrite.	<0.10	21.2	21.7	0.01	0.002	0.001	0.10	0.04	0.009	0.021	0.001	<1	0.003	
				Microgranite is olive-green in colour with many specks of chlorite (?) after biotite (?)	"													
21.7	24.3	2.6	130	Green, coarse-grained, altered granite, identical to 16.2 - 21.2m.	<0.10	21.7	22.3	0.01	0.007	0.001	0.10	0.04	0.013	0.029	0.001	1	0.003	
				THIN SECTION	0.11	23.3	24.3	0.01	0.002	"	"	"	0.07	0.007	0.018	"	1	0.002
					<0.10								1.10	0.001	0.013	"	<1	0.001
24.3	36.5	36.2	100	Transition to coarse-grained, red granite. Granite still largely but patchily altered, up to 31.5m with greenish clayey sections and greenish, altered plagioclase feldspars. Core often extensively broken.	"													
				After 31.5m granite is a fairly typical coarse grained red granite with red K-feldspar, plagioclase and colourless quartz with small crystals of black biotite. Plagioclase rimmed K-feldspars also seen e.g. 36.0m.	"													

285083



084

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 5

LOGGED BY : K.W.

NWPS

PETROGRAPHIC DESCRIPTIONS from C.M.S. Report 77/77

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g t Ag.	g t WO <sub>3</sub>
				<p><b>ROCK TYPE-COMPOSITION</b>                      6.4m : Argillised Biotite Granite:                      50% coarse, cloudy partly argillised                      parthitic orthoclase, 35% stressed                      anhedral quartz, 10% totally argill-                      ised plagioclase, 5% altered biotite</p>														
				<p><b>FABRIC</b>                      Normal granitic fabric                      with poikilitic large                      orthoclase crystals.</p>														
				<p><b>MINOR MINERALS</b>                      Chlorite-sericite-                      leucoxene pseudomorphs                      after biotite. Apatite                      zircon.</p>														
				<p><b>COMMENTS</b>                      Fairly severe argillisation,                      involving diagnostic color                      change of orthoclase from pink                      to creamy yellow.</p>														
				<p><b>ROCK TYPE-COMPOSITION</b>                      10.2m : Argillised Biotite Granite                      Orthoclase completely replaced                      by quartz-sericite; plagioclase                      totally argillised. Quartz                      stressed; biotite replaced by                      quartz, sericite, rutile.</p>														
				<p><b>FABRIC</b>                      Granitic fabric well                      preserved. Post-argill-                      isation fractures.</p>														
				<p><b>MINOR MINERALS</b>                      Occasional clusters                      cassiterite crystals                      (Single grains up to                      150u). Sphalerite in                      veins.</p>														
				<p><b>COMMENTS</b>                      Requires confirmatory Sn assay.                      Rock totally altered but fabric                      preserved. Definite evidence of                      replacement.</p>														
				<p><b>ROCK TYPE-COMPOSITION</b>                      14.5m : Argillised Microgranite                      Feldspar (50%) probably dominantly                      orthoclase, completely sericitised                      50% quartz. Sericite partly re-                      placed by later siderite,</p>														
				<p><b>FABRIC</b>                      Microgranitic fabric                      well preserved.</p>														
				<p><b>MINOR MINERALS</b>                      Small patches of dark                      tourmaline. Galena &amp;                      sphalerite in siderite</p>														
				<p><b>COMMENTS</b>                      Distinct sequence of alteration.                      Sericitisation of feldspar and                      deposition of tourmaline followed                      by abundant siderite, some                      sulphides.</p>														
				<p><b>ROCK TYPE-COMPOSITION</b>                      16.0m : Argillised Granite                      Feldspars totally replaced by fine                      sericite; this later widely replac-                      ed by siderite. Coarse stressed                      quartz. Altered biotite</p>														
				<p><b>FABRIC</b>                      Fabric and feldspar                      textures well preserv-                      ed despite successive                      alteration.</p>														
				<p><b>MINOR MINERALS</b>                      Sericite-leucoxene                      after biotite.                      Accessory zircon. Traces                      ??cassiterite</p>														
				<p><b>COMMENTS</b>                      Possible cassiterite needs assay                      confirmation-curious feature of                      siderite is its abundance in                      altered orthoclase, paucity in altered                      plagioclase.</p>														

285085

085

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 5

LOGGED BY : K.W.

PETROGRAPHIC DESCRIPTION FROM C.M.S. Report No 77/7/7

NWPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.	g t WO.
				<p><b>ROCK TYPE-COMPOSITION</b> 23m : Argillised Granite 50% extensively argillised orthoclase, 30% slightly stressed quartz, 20% totally argillised plagioclase, minor altered biotite.</p>														
				<p><b>MINOR MINERALS</b> Small purple fluorite patches. Sericite-chlorite-leucoxene after biotite.</p>														
				<p><b>COMMENTS</b> Less altered than at 18m - orthoclase cloudy, partly argillised but not wholly replaced.</p>														
				<p><b>ROCK TYPE-COMPOSITION</b> 28m : Pink Biotite Granite 35% pink, slightly cloudy perthitic orthoclase, 35% stressed quartz, 25% severely argillised oligoclase 5% dark, extensively chloritised biotite.</p>														
				<p><b>MINOR MINERALS</b> Small patches fluorite. Accessory magnetite, apatite.</p>														
				<p><b>COMMENTS</b> Normal pink granite but plagioclase is more severely argillised. Fluorite probably a late- or post-magmatic mineral.</p>														
				<p><b>ROCK TYPE-COMPOSITION</b> 74.3m : Pink Biotite Granite 45% pink perthitic orthoclase, 30% coarse grey stressed quartz, 20% partly argillised albite-oligoclase, 5% biotite.</p>														
				<p><b>MINOR MINERALS</b> Some chlorite from biotite, with small fluorite patches, Accessory zircon, apatite.</p>														
				<p><b>COMMENTS</b> Normal pink granite; only the biotite is more altered than fresh samples (as in SWY 3)</p>														

285086

**RENISON LIMITED - DIAMOND DRILL CORE**

086

HOLE NUMBER	SWY 6	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test for downward extension of mineralisation intersected in Swy 4		Mag.					292.3		
		0	-	-45	0 - 75	75	53.0	239.3	53.0	53.0
		50	234	-45	75 - 125	50	34.6	204.7	36.1	89.1
LOCATION	Lower Road - Sweeney's Mine	101	234	-43 1/2	25 - 155	230.2	19.0	185.7	23.5	112.6
		155.2	235	-39						
COLLAR R.L.	292.3M									
CO-ORDINATES	10392.33N 9106.511E									
LENGTH	155.2m									
HOLE SIZE	H. casing 0-3m NQ 3-28.6m BQ 28.6-End									
COMMENCED	5/7/77									
COMPLETED	13/7/77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS	DRILLED BENEATH MINERALISATION									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS						
				Sn.	Cu.	As.	S.			

SUMMARY METALLURGICAL DATA      COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S	Ca F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285087

HOLE No.: SWY 6

SCALE:

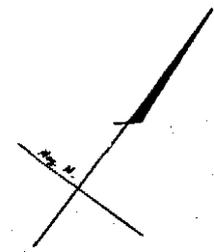
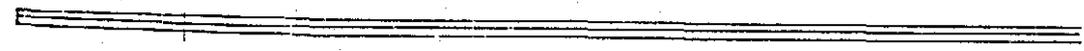


# RENISON LIMITED DIAMOND DRILL HOLE PLOT

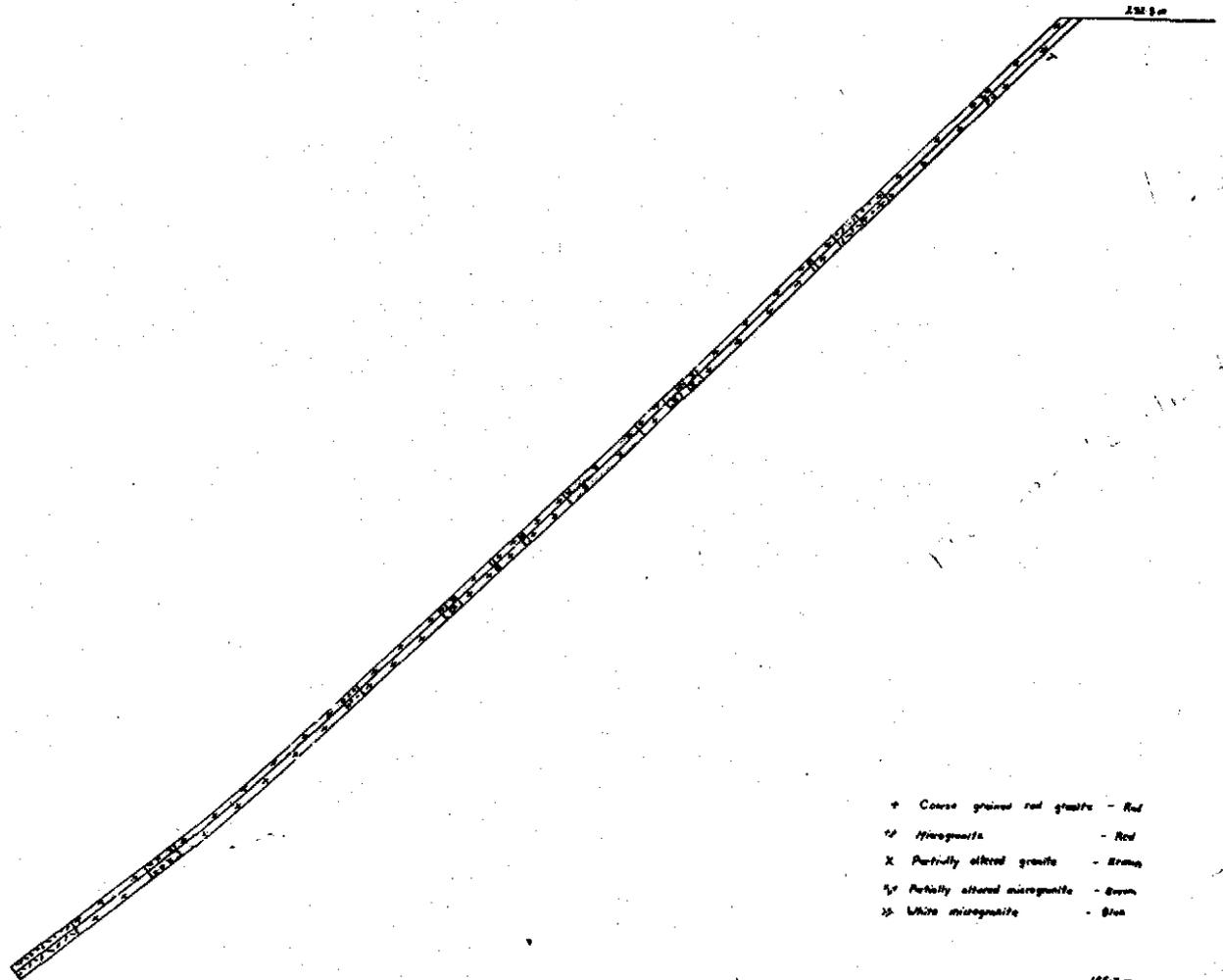
087

PLAN

5 cm



DIP PROFILE



- Coarse grained red granite - Red
- Microgneiss - Red
- X Partially altered granite - Brown
- Partially altered microgneiss - Green
- White microgneiss - Blue

100.0 m

285088

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 6

LOGGED BY : K. WELLS

088

NAPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g t Ag.
0	8.2	2.0	25	Pink/white bleached, weathered, soft, crumbly granite Quartz, feldspars and biotite still obvious, but the feldspars are strongly affected by weathering. Rimmed feldspars still recognisable, eg 9.1m.	THIN SECTION												
	12.0	3.8	100														
				Numerous thin, black, tourmaline veins striking at an angle of 30° to core axis.													
	13.0	1.0	100	A zone of pink microgranite often with biotite rich patches. Some coarser grained zones. Microgranite appears to be less affected by weathering/alteration than coarser granite.													
	28.0	15.0	100	Red/buff coarse-grained granite. Coarse crystals of pink orthoclase, white plagioclase and colourless quartz with fine crystals of black biotite. Rimmed feldspars evident e.g. 15.4m, 19.2m, 23.8m, 27.1m. Rare, small patches of black tourmaline; one at 21.9m has a grain of pyrite associated with it.													
				Weathering/alteration, which gives the core a buff colour ation, appears to generally decrease down the hole; but Still veins/joints of "ochre" clay alteration at 22.8m, 23.0m, 24.2-24.4m and 26.2m.													
	31.8	3.8	100	Zone consisting of intimately mixed coarse red granite, identical to above, and fine/medium grained red micro- granite with biotite rich patches.													
	35.2	3.4	100	A medium/fine grained white granite. Very similar to the microgranite, above except for the colour. Some slightly pinkish patches and thought to be a "bleached" equivalent of the red microgranites; but it still appears to be fresh.	THIN SECTION												
	94.3	59.1	100	Coarse-grained, red granite, with some minor microgranite sections, eg 64.1m - 67.0m; displaying widespread and in places intensive argillic alteration.													
				All the plagioclase feldspars are altered, by varying degrees, to yellow/ochre clay and where the alteration is most intense the core consists of fine rubble and clay i.e. 38.5 - 39.0m	THIN SECTION												
				45.8m													
				50.4m													
				51.7m													
				56.0 - 57.8m													
				58.8 - 60.6m													
				62.5m													
				65.0 - 75.9m - light green/buff in colour													
				79.8m													
				82.0 - 82.5m													
				82.2m													
				84.5m													

285089

089

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 6

LOGGED BY : K. WELLS

NWPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
				86.2 - 86.5m													
				88.4m													
				89.4m													
				91.8 - 93.4m													
				Rimmed feldspars evident, eg 45.2m, 52.1m, 60.8m, 81.3m 90.2m and very minor splashes of black tourmaline. Biotite rich zones between 63.0 and 64.0m. No sulphides observed.													
	106.4	12.1	100	Typical coarse-grained, red granite with coarse crystals of red 'K'-feldspar, white/yellow plag. feldspar, colour- less quartz and small crystals of black biotite. Rimmed feldspars evident eg 104.7m, 105.2m.	THIN SECTION												
				Plagioclase feldspars slightly altered but much fresher than previous section.													
	108.7	2.3	100	"Light red" microgranite similar to other red microgranites, but lighter in colour. Small specks of black biotite(?)	THIN SECTION												
	155.2	46.5	100	Coarse-grained red granite, with some minor fine grained microgranite sections; which becomes progressively lighter in colour down the hole and by the end of the hole, the rock is probably better described as a coarse, white granite.	THIN SECTIONS												
				The majority of the core is very fresh only minor alter- ation of some plagioclase feldspars. More intense alter- ation with less competent core at: 114.2m, 133.2m-136.9m, the latter coincides generally with some microgranite.													
				Microgranite, often white in colour, fairly common after 147.0m, often with biotite rich bands, eg 147.5m and sometimes "pegmatite like" margins.													
				Very coarse-grained white granite at 155.2m has some sulphide associated with it.													
				- END OF HOLE -													

285090

090

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 6

LOGGED BY : K. WELLS

NAPS

PETROGRAPHIC DESCRIPTIONS FROM C.M.S. REPORT NO. 77/3/1

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM.	Fabric		% Sn.										
	FROM	TO			FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.	g/t WO <sub>3</sub>
			<u>Rock Type - Composition</u>														
			<u>SWY 6</u> 10.9m	Biotite Granite Coarse fresh subhedral perthitic orthoclase, slightly stressed anhedral quartz; albite-oligoclase. Altered biotite. Coarse dark schorl.	Normal granite. Plagioclase flanks orthoclase but not as mantles.												
			<u>Minor Minerals</u>	<u>Comments</u>													
			Zircon; secondary leucoxene, sphene, chlorite.	Incipient alteration of plagioclase, biotite evident; quartz stressed, tourmaline introduced. Composition verges on adamellite.													
			<u>Rock Type - Composition,</u>														
			32.1m	Granite. Medium-grained anhedral quartz (40%), perthitic orthoclase (40%), prismatic albite (20%) chloritised biotite. More alkaline than other granites.	Even-grained, 1-1.5mm finer than other granites.												
			<u>Minor Minerals</u>	<u>Comments</u>													
			Pyrite-siderite patches. Leucoxenised Zircon. Rutile needles in quartz.	Felspars are cloudy, incipiently argillised, whitish colour; pink pigmentation destroyed.													
			<u>Rock Type - Composition</u>														
			44.2m	Biotite Granite. 50% coarse perthitic orthoclase, 35% subhedral smoky quartz, 10% incipiently argillised oligoclase, 5% very dark biotite.	Coarse granite fabric, orthoclase tends to be porphyritic.												
			<u>Minor Minerals</u>	<u>Comments</u>													
			Isolated patches fluorite. Primary magnetite, zircon.	Normal pink granite. Fluorite seems to be late primary, mostly closely associated with biotite.													
			<u>Rock Type - Composition</u>														
			71.4m	Altered Granite "Bleached" coarse perthitic orthoclase, completely argillised plagioclase; stressed quartz. Totally altered biotite.	Granitic fabric preserved. Some microfracturing but no displacement.												
			<u>Minor Minerals</u>	<u>Comments</u>													
			Secondary fine leucoxene in altered biotite.	Typical selective alteration of more susceptible minerals. Hematite pigmentation in orthoclase destroyed.													

285091

091

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 6

LOGGED BY : K. WELLS

PETROGRAPHIC DESCRIPTIONS FROM C.M.S. REPORT NO. 77/8/1

NAPS	INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
	FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag
					<u>Rock Type - Composition</u>													
			98.2m		<u>Biotite Granite</u> Very coarse, abundant, weakly stressed smoky quartz, coarse perthitic orthoclase; finer oligoclase; dark biotite.	Coarse granitic fabric; zoned plagioclase.												
					<u>Minor Minerals</u>	<u>Comments</u>												
					Primary zircon, magnetite. Secondary carbonate veinlets.	Normal pink granite, quartz-rich intersection.												
					<u>Rock Type - Composition</u>													
			108.6m		<u>Biotite Granite/Microgranite.</u> Coarse/porphyritic orthoclase; weakly stressed granular quartz; zoned oligoclase; dark biotite.	Part of rock is a medium-grained cognate xenolith.												
					<u>Minor Minerals</u>	<u>Comments</u>												
					Primary zircon, magnetite; secondary chlorite. Traces fluorite.	Where pink orthoclase is surrounded by white plagioclase, this is not "mantling" as in Rapakivi-type rocks. See notes.												
					<u>Rock Type - Composition</u>													
			128.3m		<u>Biotite Granite</u> Coarsely crystalline orthoclase-perthite, anhedral smoky quartz, minor oligoclase, conspicuous dark biotite.	Normal granitic fabric.												
					<u>Minor Minerals</u>	<u>Comments</u>												
					Altered ?allanite. Traces fluorite, chlorite, carbonate. Primary zircon.	No special features; oligoclase laths flanking orthoclase but not as continuous rims.												
					<u>Rock Type - Composition</u>													
			143.4m		<u>Biotite Granite</u> Large patches of coarse orthoclase, subordinate smoky quartz, oligoclase. Conspicuous dark fresh biotite.	Normal granitic fabric with orthoclase "clots".												
					<u>Minor Minerals</u>	<u>Comments</u>												
					Primary zircon, magnetite, zoned allanite crystals.	The mineral identified as allanite here occurs in many granite specimens but is usually severely altered. The identification is not absolutely certain.												

285092

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 6

LOGGED BY : K. WELLS

PETROGRAPHIC DESCRIPTIONS FROM C.M.S. REPORT NO. 77/8/1

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Gr.									
FROM	TO	m	%			FROM	TO	TOTAL	As STAN	% Cu	% As	% S	% Pb	% Zn	% Bi
				<u>Rock Type - Composition</u>		<u>Fabric</u>									
	155.0m			Biotite Granite. Coarse subhedral "bleached" orthoclase-perthite with partial albite rims; oligoclase laths; interstitial quartz. Minor biotite.		Distinct albite rims on orthoclase but not optically continuous.									
				<u>Minor Minerals</u>		<u>Comments</u>									
				Primary zircon, apatite; secondary chlorite, sphene, leucoxene.		Incipient but pervasive argillic alteration, causing "bleaching" of the rock.									

092

285093

**MINISON LIMITED - DIAMOND DRILL CORE**

093

HOLE NUMBER	SWY 7	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Str Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test Sweeney mineralisation	0	Mag 325	-71	0-8	8	7.56	-7.6	2.60	2.6
		17	-	-70 1/2	8-29	21	19.80	-27.4	7.01	9.6
LOCATION	L&CENEYS	40	321	-70 1/2	20-52	23	21.65	-49.1	7.77	17.4
		65	322	-70	52-77	25	23.49	-72.6	6.55	25.9
COLLAR R.L.	322.58	90	322	-70	77-95	18	16.91	-89.5	6.16	32.1
CO-ORDINATES	10320.97 N 9084.637 E									
LENGTH	95.5m									
HOLE SIZE	0 - 36 NQ 36 - 95.5 BQ									
COMMENCED	15/7/77									
COMPLETED	20/7/77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells									
COMMENTS										

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS						
				Sn.	Cu.	As.	S.	Acid Sol Sn	Zn	g/t Ag
Sweeneys	12.5m	50.5m	38.0m	0.75m	0.11	0.16	9.60	0.029	2.84	31

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S	Ca F <sub>2</sub>	Ag.	Bi	Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285094

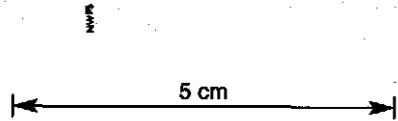
HOLE No.: SWY 7

SCALE :

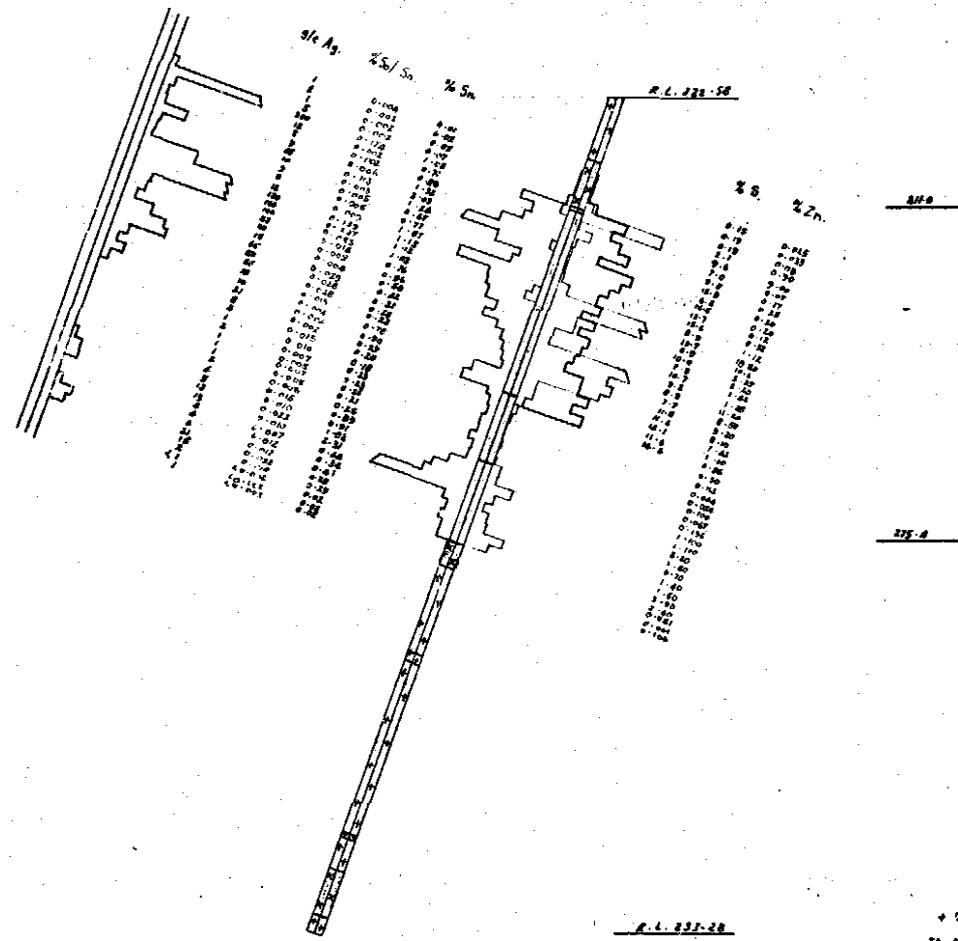
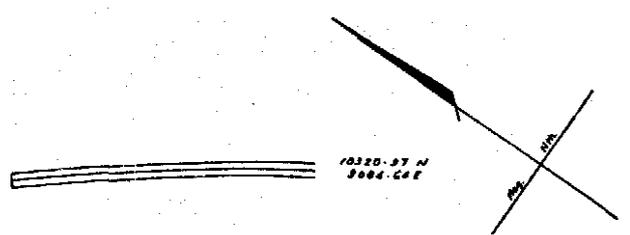


# RENISON LIMITED DIAMOND DRILL HOLE PLOT

094



## PLAN



## DIP PROFILE

- + Coarse grained red granite - Red
- \* Microgranite - Red
- x Partially altered granite - Brown
- o Alteration with sulphide - Green

285095

## DIAMOND DRILL RECORD

HOLE NUMBER : SWY 7

LOGGED BY : K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	% FORM	% Sn.											
FROM	TO	m	%			From	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag
0	7.2	3.6	50	Weathered, coarse-grained red granite with iron stained "joints" at approximately 65° to the core axis. Core badly broken after 6.0m.													
13.0	5.8	100		Yellow/green, altered, coarse-grained granite, with a microgranite section 8.5 - 9.6m. The rock consists of colourless quartz in a matrix of green and yellow "clays". No biotite but very rare, small splashes of black tourmaline do occur. Generally no sulphides in the core but black veins of sphalerite/boulangerite(?)/galena and fluorite(?) occur at 11.9m, 12.6m and 12.8 - 13.0m.		9.5	9.5	0.010	0.004	0.001	0.10	0.15	0.001	0.025	0.001	1	0.001
						10.5	10.5	0.02	0.002	0.002	"	0.19	0.010	0.033	"	2	0.003
						11.5	11.5	"	"	0.001	"	"	0.004	0.08	"	1	"
						12.5	12.5	0.07	"	0.016	"	2.1	0.016	0.90	"	5	0.036
				THIN SECTIONS													
33.7	20.7	100		Similar to above; a strongly altered yellow/green coarse-grained granite with minor microgranites. Sulphides, mainly pyrite are disseminated in varying amounts throughout the core as fine-grained aggregates. Thin clay veins at 17.7m and 20.4m, striking 20° to the core axis. Reddish tinge to some of the altered feldspars (clay) e.g. 21.1m. Black vein of : sphalerite/galena/boulangerite(?) and fluorite(?) at 22.0 - 22.3m, running sub-parallel to the core axis. Fluorite also occurs at 27.8m and sphalerite(?) appears after 28.0m, disseminated throughout the core.		12.5	13.5	1.05	0.174	0.80	0.34	9.6	0.730	9.00	0.017	200	0.248
						14.5	14.5	0.71	0.002	0.028	0.10	7.0	0.009	0.07	0.001	12	0.019
						15.5	15.5	0.88	"	0.029	"	9.5	0.006	0.17	"	8	0.017
						16.5	16.5	1.32	0.006	0.048	"	12.8	0.005	0.25	"	9	0.015
						17.5	17.5	3.03	0.113	0.38	"	6.2	0.013	0.20	0.005	65	0.034
						18.5	18.5	1.24	0.003	0.025	"	14.5	0.007	0.20	0.001	10	0.017
						19.5	19.5	0.67	0.005	0.015	"	12.7	0.016	0.12	0.003	9	0.013
						20.5	20.5	0.77	"	0.021	"	15.6	0.022	0.32	"	8	"
						21.5	21.5	1.87	0.039	0.037	"	8.9	0.138	1.12	0.001	12	0.019
						22.5	22.5	1.13	0.139	0.50	0.65	10.7	1.44	18.80	0.010	130	0.394
						23.5	23.5	1.12	0.237	0.85	0.66	6.9	1.54	10.6	0.019	160	0.673
						24.5	24.5	1.03	0.083	0.55	0.36	10.0	0.78	3.35	0.013	160	0.398
						25.5	25.5	0.76	0.018	0.125	0.22	7.3	0.53	3.20	0.004	23	0.180
						26.5	26.5	0.96	0.009	0.041	0.10	10.7	0.22	1.42	0.001	20	0.069
						27.5	27.5	0.58	0.004	0.029	0.11	9.2	0.29	1.35	"	13	0.100
41.4	7.7	100		Yellow, altered, coarse-grained granite. Similar to above but lighter yellow in colour with fine-grained pyrite disseminated throughout the core and original rock fabric not quite so obvious.		28.5	28.5	0.42	0.029	0.13	0.46	8.3	0.92	11.20	0.003	65	0.350
						29.5	29.5	0.32	0.028	0.10	0.20	7.7	0.40	8.50	0.004	50	0.125
						30.5	30.5	0.28	0.038	0.20	0.10	11.5	0.095	9.20	0.005	55	0.054
						31.5	31.5	0.23	0.015	0.08	"	11.6	0.043	8.10	0.002	18	0.019
						32.5	32.5	0.78	0.004	0.125	"	14.1	0.026	1.42	0.003	10	0.015
						33.5	33.5	0.90	0.002	0.015	0.17	11.6	0.038	1.60	0.003	21	0.037
50.6	9.2	100		Green/yellow altered coarse-grained granite identical in appearance to 13.0 - 33.7m. Fine grained pyrite occurs throughout the core often in aggregates. Sphalerite also occurs, but not as obvious and distribution more erratic. Occasional small patches of black tourmaline. The percentage of sulphides appears to decrease after 50.0m		34.5	34.5	0.29	0.002	0.008	0.10	14.6	0.040	8.85	0.001	8	0.015
						35.5	35.5	0.20	0.015	0.003	"	7.6	0.013	0.50	0.005	3	0.009
						36.5	36.5	0.18	0.010	0.002	"	6.3	0.008	0.113	"	1	0.008
						37.5	37.5	0.23	0.007	"	"	5.7	"	0.044	0.004	2	"
						38.5	38.5	0.23	0.005	"	"	8.3	0.007	0.024	0.005	1	"
						39.5	39.5	0.35	0.007	0.003	"	7.2	0.008	0.100	0.008	1	"
						40.5	40.5	0.21	0.005	0.002	"	7.5	0.010	0.067	0.007	1	"
						41.5	41.5	0.25	0.005	0.007	"	8.0	"	0.196	0.004	2	"
						42.5	42.5	0.59	0.015	0.015	"	11.0	0.025	1.100	0.005	4	0.012
						43.5	43.5	0.91	0.010	0.010	"	7.3	0.046	1.100	0.004	5	0.022
53.2	2.6	100		Yellow coarse-grained granite. Less altered than above and original rock fabric more obvious. Little or no sulphides and similar to 7.2 - 13.0m. Rock crumbled to rubble at 53.0 - 53.2m		44.5	44.5	1.03	0.022	0.022	"	9.3	0.057	3.20	"	13	0.025
						45.5	45.5	2.31	0.010	0.010	"	10.1	0.019	1.50	"	13	0.012
						46.5	46.5	0.44	0.007	0.007	"	7.9	0.011	0.70	"	4	0.009
						47.5	47.5	0.34	0.012	0.012	"	9.3	0.015	1.40	0.003	4	"
						48.5	48.5	0.41	0.012	0.012	"	10.6	0.020	1.60	0.004	6	0.017
						49.5	49.5	0.28	0.032	0.032	0.28	8.4	0.640	3.90	0.005	21	0.176
						50.5	50.5	0.29	0.010	0.010	0.10	9.4	0.011	2.60	0.002	15	0.102
						51.5	51.5	0.02	0.002	0.002	"	1.2	0.005	0.051	0.001	2	0.008

285096

096

DIAMOND DRILL RECORD

HOLE NUMBER : SBY 7

LOGGED BY : K.W.

NWPS

INTERVAL (m)		RECOVERY		DESCRIPTION	% FORM S.F.	% S.G.											
FROM	TO	m	%			FROM	TO	TOTAL	At STAN.	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag	% Sb
53.2	87.8	34.6	100	Sharp contact with reasonably fresh coarse-grained red granite consisting of red 'K' feldspar, white plagioclase and colourless quartz with fine-grained crystals of black biotite. The plagioclase feldspars occasionally show some argillic alteration and some rare splashes of black tourmaline. Rimmed feldspars obvious e.g; 55.8m, 57.4m, 59.5m, 69.0m, 79.3m and 87.0m. Microgranite sections 63.4m - 64.5m, 77.0m and 84.0 - 84.6m, the latter with obvious specks of black biotite(?) THIN SECTIONS	<0.10	51.5	52.5	0.02	0.002	0.001	0.10	0.23	0.010	0.061	0.001	1	0.007
					"		53.5	"	"	0.001	"	0.23	0.005	0.106	"	1	0.004
	93.1	5.3	100	Coarse-grained red granite similar to above but displaying strong argillic alteration and rock crumbled to rock fragments and yellow clay.													
	95.5	2.4	100	Coarse-grained red granite identical in appearance to 53.2 - 87.8m.													
				END OF HOLE													

285097

Sample Details	Rock Type - Composition	Fabric	Minor Minerals	Comments
SWY7 9.2m	<u>Sericitised Microgranite.</u> Small subhedral quartz patches, occasional phenocrysts; fine sericite aggregates & coarser sericite & quartz, after feldspar, with carbonate, pale chlorite.	Homogeneous, typically microgranitic fabric.	Isolated sideritic patches, semi-opaque tourmaline (schorl).	Sericitisation can be regarded as a form of low-temperature greisenising.
10.7m	<u>Sericitised Granite.</u> Large pseudomorphous patches of fine quartz, sericite-carbonate-quartz after orthoclase/plagioclase. Relict primary quartz.	Well preserved coarse granitic fabric.	Large patches of prismatic schorl, Relict zircon, leucosene/rutile.	Similar to 9.2m in style and character of alteration but rock much coarser, like normal granite
12.8m	<u>Sulphide-Fluorite Rock.</u> Abundant coarse sphalerite, interstitial purple fluorite, quartz carbonate, Boulangerite, pyrite. <u>Cassiterite</u> 10-100u crystals.	Vein type fabric, with euhedral quartz.	Chalcopyrite, arsenopyrite, stannite.	Very similar to mineralisation in SWY4. Low/medium-temperature hydrothermal assemblage.
15.9m	<u>Mineralised Altered Granite.</u> Vague pseudomorphous patches quartz and sericite after feldspars; recrystallised quartz. Pyrite. Clusters ultrafine (< 5u) cassiterite.	Relict granitic fabric recognisable.	Fine sphalerite. Chlorite, fine fluorite.	Cassiterite common but extremely fine, generally < 5u, occasional up to 20u. Clusters are loose, some more compact, up to 100u
20.2m	<u>Sericite-Pyrite Rock.</u> Massive fine-grained sericite probably after feldspar; euhedral pyrite, minor quartz. Clusters of ultrafine (< 5u) cassiterite grains common.	May have been feldspathic patch in granite.	Chlorite aggregates, carbonate patches. Altered biotite.	Cassiterite as above. Virtually identical with cassiterite occurrences in SWY4 (see photo-micrographs in that report)
26.8m	<u>Mineralised Quartz-Sericite Rock.</u> Random small patches of pyrite, fluorite, sphalerite in quartz and sericite. Loose clusters cassiterite grains (< 10u) as above.	Possible relict granitic fabric but poorly preserved.	Minor boulangerite Chlorite patches.	Cassiterite marginally coarser and better-defined; occasional compact clusters.
29.1m	<u>Mineralised-Quartz-Sericite Rock.</u> Abundant dark sphalerite, quartz needles, quartz-sericite masses, replacing feldspar. Clusters of fine cassiterite.	Extensive silification has severely altered original granitic fabric.	Boulangerite needles. Minor chlorite, trace pale tourmaline, fluorite.	Cassiterite as above. Exact location of Ag in this sample (and at 12.8m) not known, needs further investigation.
30.7m	<u>Mineralised Quartz-Prehnite Rock.</u> Patches of basket-weave quartz, fine fibrous prehnite aggregates, dark sphalerite, clusters of fine cassiterite.	Intense alteration/replacement of granite.	Fluorite patches, pyrite. Traces boulangerite, phenakite.	Some cassiterite coarser, with single crystals up to 40-50u, but generally similar to other rocks.
35.4m	<u>Highly Altered Granite.</u> Feldspars replaced by sericite & siderite aggregates, pseudomorphs. Interstitial quartz. Pyrite common. Ultrafine cassiterite.	Relict granitic fabric recognisable.	Muscovite patches, after biotite.	Low-temperature metasomatism, recrystallisation of rock constituents.
46.6m	<u>Sericitised, Mineralised Granite.</u> Large pseudomorphous sericite aggregates, interstitial quartz. Pyrite, sphalerite common. Clusters fine cassiterite.	Relict granitic fabric recognisable.	Siderite, fluorite patches throughout. Fine anatase.	Cassiterite up to 40-50u, but cloudy, semi-opaque, embedded in sericite and quartz.
50.9m	<u>Sericitised Granite.</u> Very coarse. Large sericite and sericite-quartz pseudomorphs after feldspar. Coarse stressed quartz, Altered biotite.	Well preserved fabric and textures.	Small siderite patches, pyrite aggregates, throughout.	Textural relationships suggest that siderite and pyrite were introduced after sericitisation, i.e. two distinct phases.
54m	<u>Biotite Granite.</u> Pink orthoclase-perthite, large laths albite-oligoclase; fractured stressed quartz. Partly chloritised biotite.	Normal granitic fabric	Large replacement patches very dark schorl. Primary zircon, magnetite, apatite.	Fairly fresh normal granite with partly argillised plagioclase (hence greenish in hand specimen).
64.5m	<u>Microgranite.</u> Equal amounts of anhedral quartz subhedral pink orthoclase, partly argillised albite, minor chloritised biotite.	Very even-grained fabric, featureless.	Traces of primary magnetite, introduced pyrite.	Pink colour of orthoclase has survived despite partial argillisation of plagioclase.

MINISON LIMITED - DIAMOND DRILL RECORD

098

HOLE NUMBER	SWY 8	SURVEY			From To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test Sweeney mineralised zone	0	233	-60	0 - 12	12.0	10.4	-10.4	6.0	6.0
		24	-	-60	-36.5	24.5	21.2	-31.6	12.25	18.25
		49	233	-60	-61.5	25.0	21.6	-53.2	12.5	30.75
LOCATION	SWEENEYS	74	234	-59.75	-87.5	26.0	22.5	-75.7	13.1	43.85
		101.0	235.5	-59.25	-119.15	31.2	26.8	-102.9	15.9	59.95
COLLAR R.L.	322.53	137.3			-137.3	18.15	15.6	-118.5	9.3	69.25
		(EXTRAPOLATED TO END OF HOLE)								
COORDINATES	10320.295 N 9084.866 E									
LENGTH	137.3m									
HOLE SIZE	0 - 33 NQ 33 - BQ									
COMMENCED	21/7/77									
COMPLETED	27/7/77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells									
COMMENTS	Acid soluble tin (stannite) and topaz appear for first time.									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS						
				Sn.	Cu.	As.	S.	Acid Sol Sn	Zn	g/t Ag
Sweeneys	21.0	53.0	32.0m	0.41	0.101	0.10	8.30	0.081	1.03	23

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S	Ca F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	Sluc.	S.G.

285099

HOLE No.: SWY 8

SCALE:

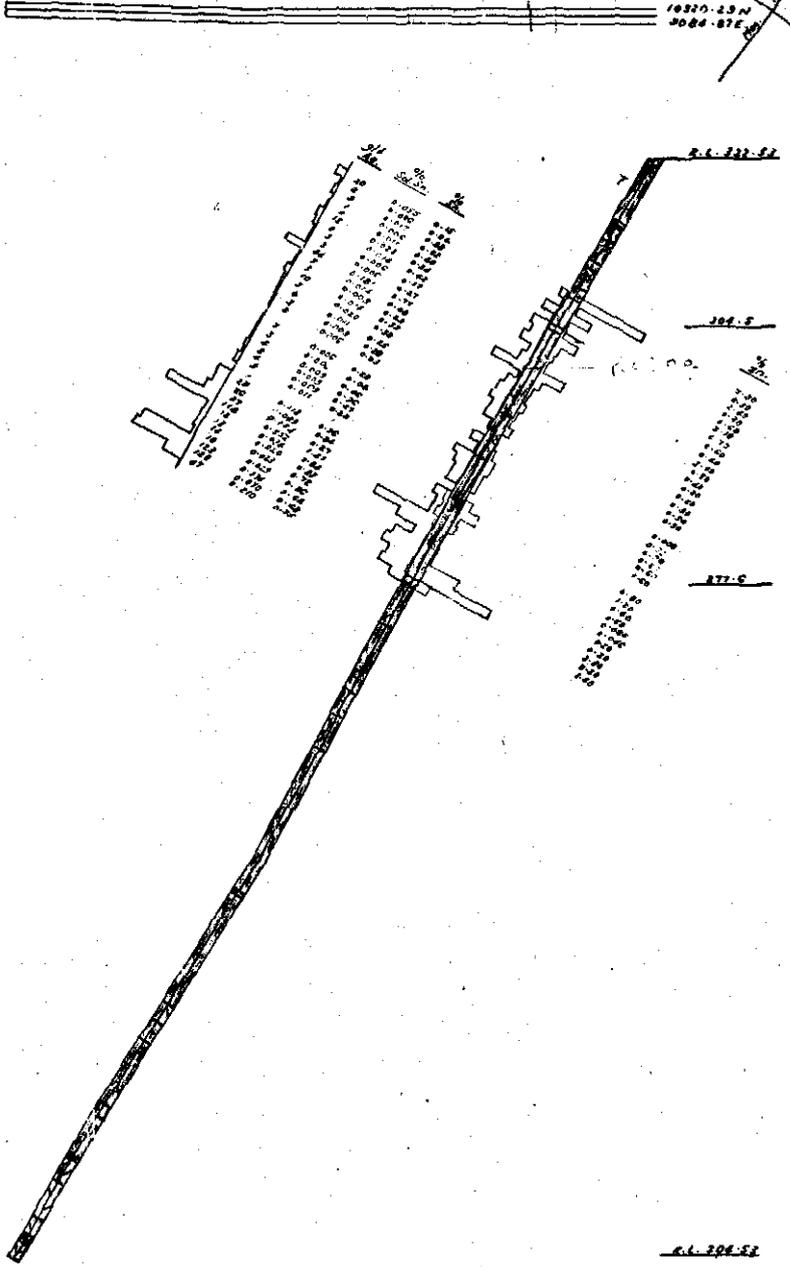


# RENISON LIMITED DIAMOND DRILL HOLE PLOT

099

PLAN

5 cm



DIP PROFILE

- + Coarse grained red granite } red
- \* Microgranite } red
- X Artificially altered granite - brown
- Green altered granite - green
- V C.g. white granite } white
- S f.-mg. white granite } white

285100





RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

PETROGRAPHIC DESCRIPTIONS  
C.M.S. REPORT NO. 77/8/24

102

HOLE No. 1 SWY8

SCALE:

Sample Details	Rock Type - Composition	Fabric	Fabric	Comments
SWY 8 10.2m	<u>Sericitised Microgranite</u> . Subhedral to anhedral quartz, sericitised plagioclase, partly sericitised orthoclase, minor altered biotite.	Homogeneous fabric average grainsize = 0.5mm.	Semi-opaque tourmaline patches, veins. Leucoxenised ?magnetite	Fairly severely and pervasively altered - low temperature sericitisation. Could be microadamellite.
13.3m	<u>Altered Biotite Granite</u> . All feldspars completely altered to sericite, with introduced quartz, pale chlorite. Biotite all chloritised. Stressed quartz.	Stressed granitic fabric, coarse - 2 to 5mm, but biotite much finer.	Accessory apatite, radioactive zircon, secondary leucoxene.	Alteration partly due to argillisation partly due to replacement by secondary low-temperature minerals.
17.4m	<u>Sericitised Mineralised Microgranite</u> . Same rock as at 10.2m with massive sulphide-fluorite-carbonate veins. Massive coarse sphalerite minute pyrrhotite, stannite inclusions. Granuliferous pyrite patches.	Microgranitic fabric, Vein material coarse.	Fine boulangierite needles. Siderite veins. ?ultrafine cassiterite.	Strong silicification adjacent to sulphide veins. Sulphides are replacive in host rock. Pyrite is altered pyrrhotite.
34.9m	<u>Altered ?Granite/Microgranite</u> . Widespread development of replacive siderite, sericite/radiating hydromuscovite flakes, pyrite. Relict Primary quartz.	Primary textures almost obliterated by replacive minerals.	Sulphides are microgranular, pyrite aggregates (?some after marcasite.)	Extensive replacement, by low-temperature assemblage, of probable microgranite (?porphyritic).
41.3m	<u>Altered Granite (weakly mineralised)</u> Sericitised feldspar, recrystallised quartz; sulphides, minor fluorite, traces granular cassiterite (5-40u crystals) in pyrite.	Relict granitic textures recognisable.	Sulphides: chiefly pyrite aggregates; traces fine stannite (<100u); sphalerite.	Fine cloudy cassiterite embedded in and closely associated with sulphides (pyritised? pyrrhotite) stannite-cassiterite approx. equal Sn values.
44.9m	<u>Greisenised Mineralised Granite</u> . Feldspars replaced by quartz and fibrous-acicular topaz; scattered sulphides. Traces ultrafine cassiterite. Fine fluorite	Relict granitic textures preserved.	Sulphides; pyrite, pyritised pyrrhotite, marcasite, stannite (up to 1.0mm); chalcocopyrite sphalerite.	Significant appearance of topaz - but very fine-grained. Stannite relatively abundant and coarse.
SWY 8 51.3m	<u>Sericite-Sulphide Rock</u> . Mainly ultrafine sericite, with embedded quartz, sulphides, fluorite, fibrous fine tourmaline. Dark sphalerite common.	Primary fabric mostly obliterated. Fluorite ?replaces fibrous tourmaline.	Sulphides. Coarse sphalerite, many small stannite inclusions. Arsenopyrite crystals. Pyritised pyrrhotite.	Ultrafine cloudy cassiterite (<5u), as thin streaks in sericite; occasional 40u crystals. Very similar to SWY4:40.5m. Sphalerite to 304mm with abundant stannite
56.5m	<u>Altered Granite</u> . Coarse feldspars completely replaced by quartz-sericite, chlorite & carbonate, and possibly ultrafine topaz. Stressed coarse quartz.	Relict granitic fabric well preserved.	Biotite represented by leucoxene patches.	Replacement of feldspars by very fine-grained mineral aggregates, not all identifiable; ?topaz could be present.
105.1m	<u>Pink Biotite Granite</u> . Coarse crystals of perthitic orthoclase, partly argillised oligoclase, stresses anhedral quartz, small thick flakes of dark biotite.	Normal granitic fabric but slightly stressed.	Accessory apatite, magnetite, zircon metamict ?xenotime	Typical pink granite with preferential argillisation of plagioclase. Orthoclase is paler than usual.
122.8m	<u>Pink biotite Granite</u> Very coarse perthitic orthoclase (lightly pigmented), lightly sericitised oligoclase, stressed quartz, dark stubby biotite.	As above	As above	As above
136.2m	<u>White Biotite Granite</u> . Some as pink granite but more widespread argillic alteration. Biotite is fresh, unaffected.	Distinctly stressed; this is ?related to argillisation.	Small fluorite patches. Accessory apatite, zircon, magnetite, carbonate.	Interesting suite of accessory minerals. Carbonate is apparently radioactive, may be bastnasite (RE carbonate ± U, Th).

285103

**ENISON LIMITED - DIAMOND DRILL LOG**

103

HOLE NUMBER	SWY 9	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test for horizontal extension of mineralisation intersected in SWY 7 & 8	Collar	--	--	0-13.0	13.0	11.3	311.06	6.4	6.4
		26.0m	--	-60.5 <sup>0</sup>	-38.5	25.5	22.2	288.86	12.6	19.0
		51.0m	092 <sup>0</sup>	-58.5 <sup>0</sup>	-63.5	25.0	21.3	267.56	13.1	32.1
LOCATION	Sweeney's Mine Federation Area E.L. 11/76	76.0m	090 <sup>0</sup>	-57.75 <sup>0</sup>	-90.15	26.65	22.5	245.06	14.2	46.3
		102.3m	090.5 <sup>0</sup>	-56.25 <sup>0</sup>	-104.5	14.15	11.8	233.26	7.9	54.2
COLLAR R.L.	322.36									
CO-ORDINATES	10322.726 N 9086.385 E									
LENGTH	102.5m									
HOLE SIZE	0 - 2m (7) H casing 2 - 33m NQ 33 - End BQ									
COMMENCED	1-8-77									
COMPLETED	4-8-77									
SIGNIFICANT CORE LOSS ZONES										
ONE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells									
COMMENTS	No ore intersection. Appears to have been drilled away from mineralisation.									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS				
				Sn.	Cu.	Ag.	S.	

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

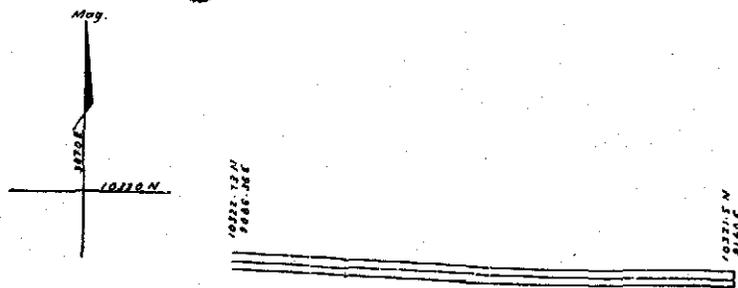
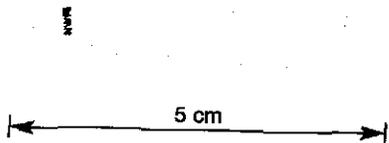
LODE NAME	FROM	TO	Sn.	Cu.	Ag.	S.	Ca F <sub>2</sub>	As.	Bi.		Sn - Rec.	Cu - Rec.	Carb.	SHL.	S.G.

285104

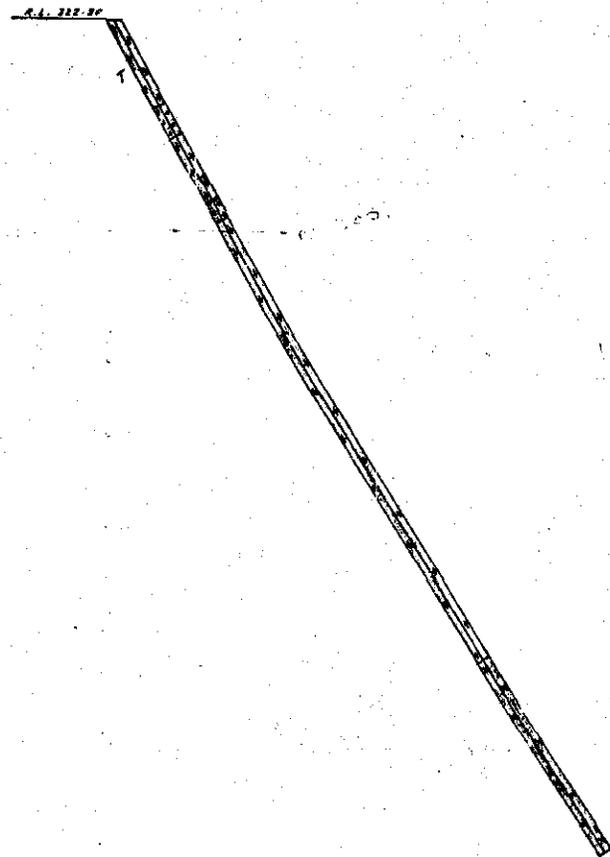
HOLE No.: SVV79

# RENISON LIMITED DIAMOND DRILL HOLE PLOT

SCALE: 0 10 20 METRES



PLAN



DIP PROFILE

*10220.06 N*

- \* Coarse grained red granite } red
- \* Microgranite } red
- \* Partially altered granite - brown
- Green altered granite - green
- ✓ f.g. white granite } blue
- \* f.m.g. white granite } blue

R.L. 222.36

105

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 9

LOGGED BY : K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.										
FROM	TO	m	%			FROM	TO	TOTAL	As STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
0	4	1	25	Weathered coarse-grained red granite - much of core iron stained												
	10.3	6.3	100													
				Coarse crystals of pink 'K'-felspar, often rimmed with white/buff plagioclase, which also occurs as large crystals colourless quartz and small crystals of black biotite. Odd splashes of black tourmaline.												
	14.1	3.8	100	Pink microgranite with specks of black biotite.												
	22.0	7.9	100	Coarse-grained red granite, no weathering evident but in all other respects identical to 0-10.3m. Ochre coloured, argillic alteration at 19.2m.												
	24.4	2.4	100	Pink microgranite with specks of black biotite. V similar in appearance to 10.3 - 14.1m.												
	102.5	78.1	100	Typical, coarse-grained, red granite with minor sections of microgranite. Rimmed feldspars quite common and rare minor splashes of black tourmaline.												
				Prior to 80.0m the granite is fairly fresh and only minor "zones/vains" of ochre coloured argillic alteration i.e.												
				25.5m												
				32.4m												
				37.0m feldspars altered to green/buff "clays"												
				45.4m												
				65.0m " " " " "												
				68.2 - 68.5m												
				71.6m												
				After 80.0m alteration is more extensive and much of the core has a greenish tinge. Altered zones are crumbled to clay and rubble.												
				i.e. 82.3 - 82.5m												
				83.4 - 89.3m feldspars altered to green/buff "clays"												
				90.0m No visible biotite												
				91.0m												
				93.3m												
				94.0m												
				96.0m												
				97.3 - 98.0m												
				100.2m												
				END OF HOLE												

285106

# NISON LIMITED - DIAMOND DRILL RECORD

106

HOLE NUMBER	SWY 10	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test for Southward extension of mineralisation intersected in Swy 7 and 8.	Collar	130°2	-60°	0 - 8.5	8.5	7.36	-7.36	4.25	4.25
		17m Casing		-59½°	- 33.5	25.0	21.54	-28.9	12.69	16.94
		50m	139°	-58°	- 71	37.5	31.8	-60.7	19.87	36.81
LOCATION	SWEENEY AREA	92m	136°	-55°	- 92	21.0	17.2	-77.9	12.04	48.85
COLLAR R.L.	332.11m.									
CO-ORDINATES	10286.45N. 9027.95E.									
LENGTH	92.4m									
HOLE SIZE	0 - 30m NQ 30m - End BQ									
COMMENCED	6/8/77									
COMPLETED	9/8/77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS	Hole appears to have been drilled very close (sub-parallel) to mineralised body intersected by d.d.h.'s Swy 7 and 8: Geophysical log, galena/sphalerite vein and extensive argillic alteration. Regarding results of Swy 11; this hole probably not drilled far enough.									

### SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS							
				Sn.	Cu.	As.	S.				

### SUMMARY METALLURGICAL DATA      COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S.	Ce F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	Shie.	S.G.

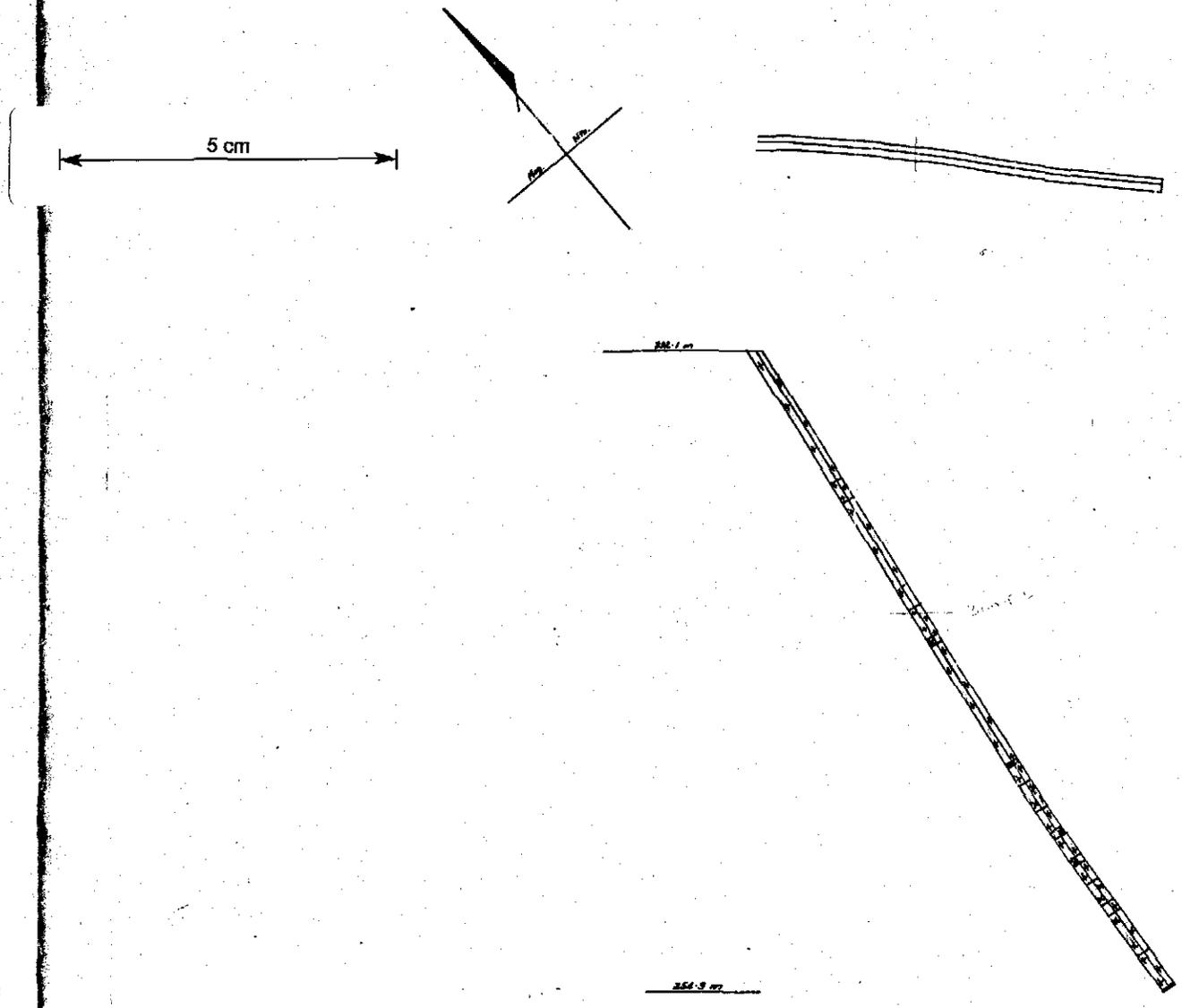
285107

HOLE No. : SWY 10



RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

107



27.5 m of ...

- + Coarse grained red granite } bed
- \* Microgranite
- x Partially altered granite - brown

285108

## DIAMOND DRILL RECORD

HOLE NUMBER : SWY 10

LOGGED BY : K.W.

NWPS

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM	% Sn.												
	FROM	TO			m	%	FROM	TO	TOTAL	As STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
0	5.4	1.1	20														
	18.5	13.1	100	Coarse-grained granite - essentially typical red granite, but some small sections of paler "white" granite, near the collar.													
				Rimmed feldspars evident and rare, minor splashes of black tourmaline.													
				From 11.6m extensive zones of green coloured, argillic alteration, minor sulphides (pyrite) in a thin veinlet at 16.0m. Much of the core is crumbled to rubble.													
	21.3	2.8	100	Pink microgranite with numerous specks of black biotite. Minor bleaching/alteration.													
	36.4	15.1	100	Coarse-grained red granite; but the crystal mosaic is not quite as clear as higher up the hole. Some rimmed feldspars and odd small splashes of black tourmaline.													
				No extensive zones of green coloured alteration, but, the core is crumbled to rubble at 25.0m and 26.8m; and after 26.0m the majority of the plagioclase feldspars are altered to buff coloured "clays".													
	40.7	4.3	100	Pink microgranite with some feldspar phenocrysts, also some coarser grained sections. Minor splashes of black tourmaline.													
	92.2	51.5	100	Coarse-grained red granite consisting of coarse crystals of red 'K'-feldspars; white plagioclase, which are often altered to "buff" clays; and colourless quartz, with small crystals of black biotite, sometimes locally concentrated. Rimmed feldspars fairly common and occasional splashes of black tourmaline.													
				Extensive zones of green argillic alteration consisting of green/buff clays after feldspar, colourless quartz and very minor black tourmaline, no biotite; at													
				40.7 - 41.8m consisting of crumbled clay and some core loss.													
				58.4 - 59.0m	62.0	62.2	0.06										
				61.5 - 65.3m contains 2 narrow (<15mm) veins of black sphalerite/galena at 62.4m		62.4	0.13										
				68.4 - 69.4m consisting of crumbled clay and rubble.		62.8	broken core										
				72.4 - 73.4m		63.0	0.04										
				76.0 - 79.2m		63.2	0.05										
				80.5 - 86.5m core bleached to "white granite" rather than argillic alteration, but alteration and crumbled core at 86.4m.		63.4	0.00										
				89.4m		63.6	0.04										
						63.8	0.06										
	92.4	0.2	100	Fresh looking dark red microgranite													
				- END OF HOLE -													

Drill core Analyser Results

285109

# NISON LIMITED - DIAMOND DRILL RECORD

103

HOLE NUMBER	SJV 11	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test Sweeney mineralisation.	Collar	180°	-60°	0-50	50	43.3	-43.3	25.0	25.0
		100m	187°	-60.25°	-117.15	67.15	58.3	-101.6	33.3	58.3
		134.3m	185°	-58.25°	-134.3	17.15	14.6	-116.2	9.0	67.3
LOCATION	Sweeney's Mine E.L. 11/76									
COLLAR R.L.	322.6									
CO-ORDINATES										
LENGTH	134.3m									
HOLE SIZE	0-36m NQ 36m - End BQ									
COMMENCED	11-8-77									
COMPLETED	17-8-77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells.									
COMMENTS										

### SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS						
				Sn.	Cu.	As.	S.	Zn	Ag/ g/t	Sol Sn
Sweeneys	71.3	94.3	23	1.17	1.19	1.25		1.73	122	0.80

### SUMMARY METALLURGICAL DATA      COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S	Ca F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285110

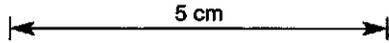
HOLE No. : SWY 11

SCALE :



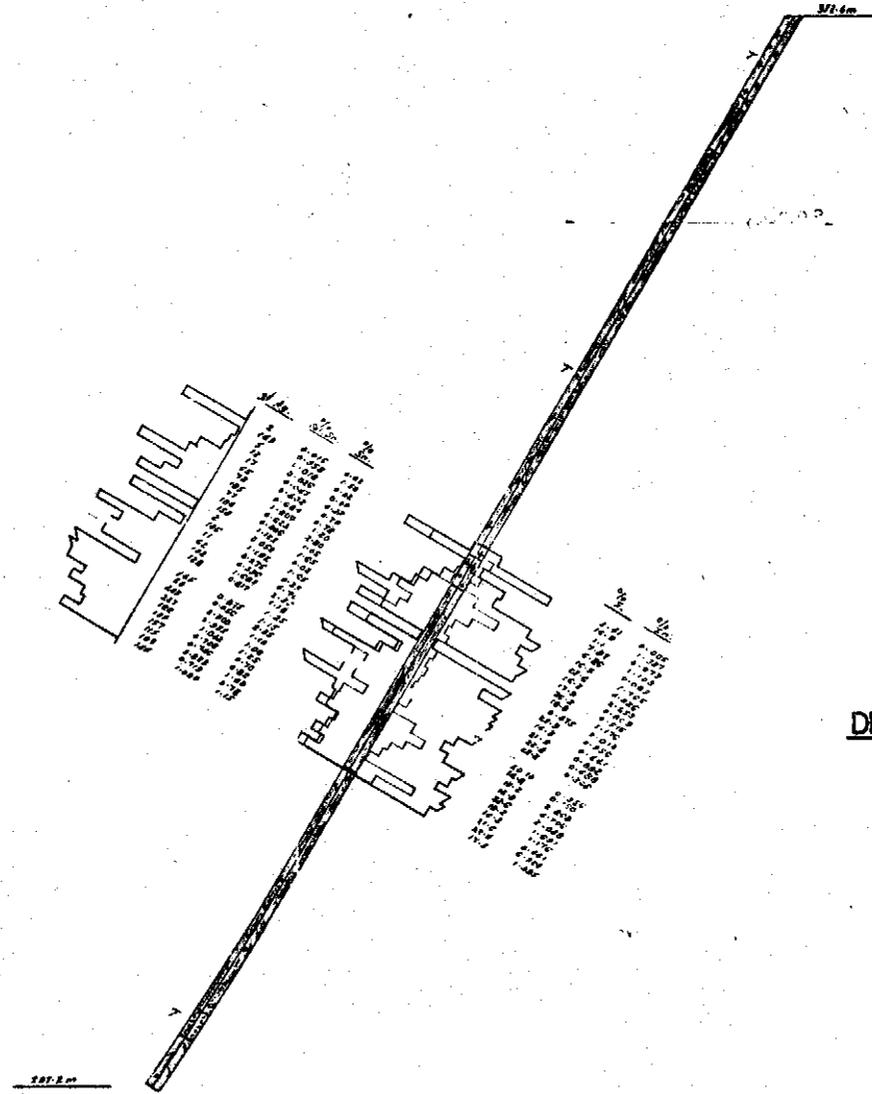
# RENISON LIMITED DIAMOND DRILL HOLE PLOT

110



PLAN

Mag N.



DIP PROFILE

*1.2.00 - 1.2.00 hole*

- + Coarse grained red granite } red
- \* Microgranite } red
- x Partially altered granite - brown } brown
- grey altered granite } green
- v e.g. white granite } blue
- \* f.i.e.g. white granite } blue

285111

## DIAMOND DRILL RECORD

HOLE NUMBER SWY 11

LOGGED BY K.W.

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM	% Sn														
	FROM	TO			m	%	FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.	g/t WO <sub>3</sub>
0	5.3	0.9	15	Coarse grained red granite with occasional very minor zones of pink microgranite.															
	10.3	5.0	100	Iron stained surfaces to joints/cracks prior to 6.0m.  Rare, small patches/veins of black tourmaline; many of the plagioclase feldspars altered/weathered to green/buff clay and one grain of pyrite observed at 5.2m.															
	11.5	1.2	100	Pink microgranite with scattered specks of black biotite except where rock is slightly altered and has a greenish tinge (biotite - chlorite?)															
	17.0	5.5	100	Green, altered, coarse-grained granite with a microgranite section 16.0m - 16.5m. Core consists of white quartz and green clays/chlorite after feldspars and biotite. Minor sulphides mainly pyrite with lesser sphalerite (?) occasionally visible. Core crumbled to clay and rubble 11.5 - 13.3m.															
	22.1	5.1	100	Green, altered medium-grained - microgranite. Not quite so altered as previous rock type; core more competent, but no feldspars or biotite visible. Very minor tourmaline.															
	67.5	45.4	100	Red-green, variously altered, coarse-grained granite, with minor microgranite sections.  Rock varies from relatively competent red granite consisting of coarse crystals of colourless quartz, pink orthoclase and plagioclase usually altered to green "clay", also small crystals of black biotite. To extensive zones of green, altered badly broken granite consisting of a rubble of green "clays" and colourless quartz crystals.  Odd splashes of black tourmaline throughout.															
	71.3	3.8	100	Green, altered clayey micro and coarse-grained granite. A transition zone from the previous rock type to the sulphide bearing zone beneath. Rock more altered than above and contains ochre/buff clay veins with veinlets of sulphide. Sulphide content increases downhole.  THIN SECTION.	66.3	67.3	0.02	0.016	0.016	0.10	3.41	0.004	0.005	0.001	2	0.002			
						68.3	1.50	0.958	1.341	0.23	16.90	0.108	1.397	0.018	149	0.083			
						69.3	0.02	0.018	0.017	.10	1.10	0.015	0.073	0.002	5	0.004			
						70.3	0.09	0.026	0.048	"	7.97	0.094	1.103	0.005	13	0.010			
						71.3	0.33	0.047	0.064	0.11	6.86	0.157	0.083	"	17	0.018			
	94.0	22.7	100	Semi-massive to massive sulphides consisting essentially of pyrrhotite and pyrite, which is very pitted on the hanging wall; small sphalerite rich patches in a white siliceous gangue which does still contain a fair percentage of "clay" and a thin clay vein striking 20° to the core axis occurs at 84.5m. Rare, fine specks of purple fluorite and minor arsenopyrite at 93.9m.  Original granite fabric totally obliterated but sulphides/clay at 82.0m resemble a rimmed feldspar.  THIN SECTIONS.	71.3	72.3	0.70	0.482	0.600	0.18	16.50	0.028	1.765	0.009	65	0.084			
						73.3	0.78	0.684	0.820	0.50	23.60	0.038	4.926	0.022	79	0.281			
						74.3	1.20	1.000	1.463	0.56	16.30	0.149	2.353	0.020	185	0.049			
						75.3	2.80	0.623	0.863	0.34	17.90	0.085	0.809	0.030	77	0.045			
						76.3	1.05	0.806	1.634	1.83	26.30	0.019	0.515	0.070	104	0.096			
						77.3	1.65	1.123	1.668	1.07	18.80	0.263	1.176	0.056	154	0.277			
						78.3	0.30	0.050	0.009	0.10	0.475	0.005	0.010	0.002	2	0.004			
						79.3	1.65	1.192	1.888	0.76	23.90	0.039	0.956	0.047	146	0.069			
						79.3	80.3	0.35	0.275	0.517	0.46	14.30	0.023	0.441	0.018	11	0.152		
							81.3	0.70	0.596	0.927	1.34	21.90	0.033	0.882	0.042	62	0.054		
							82.3	2.35	1.683	2.390	0.54	22.80	0.066	0.588	0.064	192	0.042		
							83.3	1.10	0.817	1.463	2.56	23.80	0.036	0.038	0.060	128	0.063		
							84.3	1.25	1.100	1.320	3.28	0.048	0.950	0.035	110	0.040			
							85.3	1.15	0.875	1.307	3.25	20.10	0.107	0.956	0.033	145	0.047		

285112

DIAMOND DRILL RECORD

HOLE NUMBER : SUY 11

LOGGED BY : K.W.

112

NWPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu	% As	% S	% Pb	% Zn	% Br	g t Ag	g t WO
	124.6	30.6	100	Rapid transition to pale pink/white granite displaying extensive zones of green alteration. Majority of plagioclase feldspars altered to green "clays" and where alteration more intense biotite also disappears. The rock is generally competent but a badly broken zone 117.2 - 122.4m. Narrow (10cms) black veins of sphalerite at 109.3m, 110.6m and 110.7m.		86.3	2.35	0.456	0.634	0.12	14.80	0.035	0.080	0.020	50	0.021		
						87.3	1.10	0.900	1.317	0.76	13.20	0.582	2.868	0.021	203	0.445		
						88.3	1.00	0.933	1.439	1.88	14.90	2.773	4.706	0.026	227	0.455		
						89.3	1.25	1.042	1.580	0.98	23.60	0.126	3.088	0.052	182	0.545		
						90.3	0.70	0.728	1.127	1.16	18.20	0.179	1.691	0.038	139	1.060		
						91.3	0.82	0.746	1.054	0.18	16.30	0.155	1.176	0.022	157	0.610		
						92.3	1.00	0.833	1.122	2.84	21.60	0.124	0.441	0.050	115	0.158		
						93.3	0.78	0.719	1.000	2.70	27.40	0.040	6.324	0.045	109	0.465		
						94.3	1.15	1.000	1.317	1.40	17.30	0.163	1.985	0.070	144	0.885		
						95.3	0.01	0.002	0.001	0.10		0.005	0.035	0.001	1	0.001		
	127.6	3.0	100	White microgranite with biotite rich zones. Tourmaline patches/veins also occur some containing pyrite e.g. 125.9m.														
	134.3	6.7	100	Coarse grained white - pink, granite. Rock generally fresh consisting of coarse crystals of white and/or pink feldspars and colourless quartz and very obvious fine black biotite crystals. The latter disappear occasionally where feldspars altered to green clay. Rimmed feldspars occur, e.g. 133.5m.														
				THIN SECTION														
				END OF HOLE														
Interval		% WO <sub>3</sub>		Interval		% WO <sub>3</sub>												
FROM	TO			From	To													
66.3	67.3	0.01		88.3		0.04												
	68.3	0.01		89.3		0.01												
	69.3	0.01		90.3														
	70.3	0.01		91.3		0.01												
	71.3	0.01		92.3		0.01												
	72.3	0.01		93.3		0.02												
	73.3	0.01		94.3		0.01												
	74.3	0.01		95.3		0.01												
	75.3	0.01																
	76.3	0.02																
	77.3	0.01																
	78.3	0.01																
	79.3	0.01																
	80.3	0.01																
	81.3	0.01																
	82.3	0.01																
	83.3	0.01																
	84.3	0.01																
	85.3	0.01																
	86.3	0.01																
	87.3	0.01																

285113

CENTRAL MINERALOGICAL SERVICE  
REPORT NO. 77/8/24

SAMPLE DETAILS	ROCK TYPE - COMPOSITION	FABRIC	MINOR MINERALS	COMMENTS
SWY 11 70.4m	Altered microgranite. Very abundant fine sericite, siderite developed throughout; residual quartz, but other components replaced.	General impression is of microgranite.	Pale chlorite; small sulphide patches - pyritised pyrrhotite, trace fine stannite <50u	Intensely altered. Very similar to SWY 8 ;34.9m. Small patches pyritised pyrrhotite throughout.
72.7m	Sulphide Vein Rock. Large zoned vein quartz crystals, coarse siderite. Aggregates pyrite /marcasite; arsenopyrite crystals. Sphalerite with pyrrhotite, stannite inclusions.	Typical coarse vein fabric.	Boulangerite, needles, cloudy ultrafine cassiterite streaks. Trace fluorite.	Isolated cassiterite crystals up to 70u. Traces of fine fibrous topaz. Stannite up to 1mm in very coarse sphalerite. (Pyrite, marcasite=altered pyrrhotite).
76.0m	Massive Sulphides. Masses of crystalline pyrite/marcasite, patches stannite 20u-1mm in pyrite & gangue; arsenopyrite crystals. Fine/coarse quartz and minor siderite, topaz, Trace cassiterite.	Granular to crystalline, fine to coarse.	Traces fine chalcopyrite. Quartz, carbonate gangue. Trace pyrrhotite.	This sample proves that Ag is concentrated in stannite - no boulangerite or galena present. Pyrite/marcasite represents pyrrhotite.
78.5m	Massive Sulphides. Masses of granular pyrrhotite with embedded euhedral pyrite, arsenopyrite. Associated stannite patches 20u - 1.5mm. Micro crystalline topaz, minor quartz, siderite, ultrafine cassiterite in gangue.	Massive granular to crystalline. Stannite as shapeless patches, mostly > 200u.	Traces fine chalcopyrite incipient pyritization of pyrrhotite. Quartz.	Outstanding stannite in pyrrhotite & in quartz; some contains small arsenopyrite crystals. Ultrafine cassiterite is semi-opaque.
82.0m	Sulphide Topaz Rock. Aggregates small topaz needles, embedded ultrafine cassiterite & crystals up to 80u. Massive pyrrhotite with pyrite, stannite (20-300u) inclusions.	Random patches micro-crystalline topaz, radiating-fibrous rims. Granular sulphides.	Carbonate patches, minor quartz. Traces fine chalcopyrite, Minor arsenopyrite sphalerite.	Cassiterite as ultrafine, cloudy semi-opaque material & well-formed small crystals in topaz, pyrrhotite. Clear topaz rims around cloudy aggregates.
93.7m	Quartz-Topaz-Sulphide Rock Coarse vein quartz, Radiating-fibrous topaz patches, irregular sulphides - coarse stannite (up to 1mm) with sphalerite; pyrite arsenopyrite, marcasite, pyrrhotite.	Vein-type fabric, medium to coarse.	Cassiterite crystals up to 70u. & ultrafine dark crystals. Traces fine bismuth (<30u).	Semi-opaque ultrafine cassiterite may be a complex oxide - see text. Some pyrrhotite converted to pyrite/marcasite. Very conspicuous stannite.
132.4m	Stressed White Biotite Granite. Coarse perthitic orthoclase, subhedral albite, anhedral quartz, small stubby dark biotite flakes.	Normal granitic fabric, coarse; all components show strain-extinction.	Accessories are zircon, apatite, magnetite. Minor secondary chlorite.	Argillic alteration fairly pervasive although affecting albite more than orthoclase.

**MINISON LIMITED - DIAMOND DRILL RECORD**

114

HOLE NUMBER	SWY 12	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test I.P. anomaly extending South from Sweeney's Mine	Collar	Mkq.		0-20.0	20.0	19.7	303.54	3.4	3.4
		40m	153°	-80.25°	- 58.0	38.0	37.4	266.14	6.4	9.8
		76m	263°	- 81°	-90.0	32.0	31.6	234.54	5.0	14.8
LOCATION	Line 80S 80W	104m	259°	-80.75°	-126.0	36.0	35.5	199.04	5.8	20.6
		148m	265°	-80.5°	-169.75	43.75	43.1	155.94	7.2	27.8
COLLAR R.L.	323.24	191.5m	261°	- 79°	-191.5	21.75	21.3	134.64	4.1	31.9
CO-ORDINATES	10273.4N 9156.75E									
LENGTH	191.5m									
HOLE SIZE	0 - 39m NQ 39m - End BQ									
COMMENCED	20/8/77									
COMPLETED	1/9/77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS	Considered to have just "skimmed" the side of the mineralization									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH m.	AVERAGE WEIGHTED ASSAYS									
				Sn.	Cu.	As.	S.						

SUMMARY METALLURGICAL DATA      COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S.	Ca F <sub>2</sub>	Ag.	Bi.		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285145

HOLE No.: SWY 12

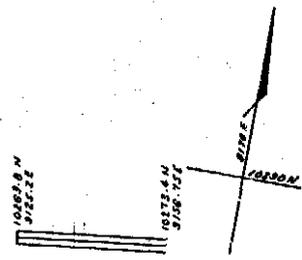
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# RENISON LIMITED DIAMOND DRILL HOLE PLOT

115

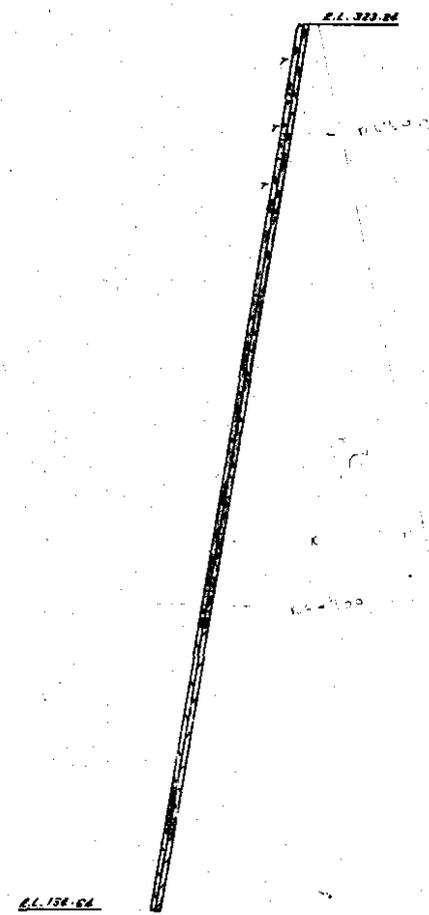
5 cm



PLAN

*1.10.1964*  
*100-500 m down hole*  
*100-500 m down hole*

DIP PROFILE



- + Coarse grained red granite } red
- Microgranite } red
- x Partially altered granite - brown
- Green altered granite - green
- ✓ f.g. white granite. } blue
- ~ f.m.g. white granite. } blue

283116

116

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 12

LOGGED BY : K.WELLS

NWPS

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM	% Sn.														
	FROM	TO			m	%	FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	g/t W.
0	3.0	0.1	3	Pale (leached) red, weathered, coarse-grained granite. Consists of pale pink orthoclase; yellow/buff, altered/ weathered plagioclase, colourless quartz and small crystals of black biotite. Occasional, small, irregular patches of black tourmaline. Core very broken but not crumbled to rubble															
	5.0	0.3	14																
	15.0	6.0	60																
	29.0	14.0	100	Pink/red, medium-grained to microgranite - a finer grained variety of previous rock type. Numerous quartz/ tourmaline patches up to 3cms across an obvious feature. Core is blocky and broken.															
	40.1	11.1	100	Typical coarse-grained, red granite of coarse crystals of pink orthoclase; white - plagioclase, which is usually altered/ weathered to yellow/green "clays", colourless quartz and finer crystals of black biotite. Rare, small patches of black tourmaline. Rimmed feldspars occasionally visible.															
				Short (20cms) section of "white" medium-grained granite at 34.0m.															
	40.8	0.7	100	White-red, medium grained granite/pegmatite zone.															
	58.6	17.8	100	Typical coarse-grained, red granite similar in appearance to 29.0m - 40.1m. However, from 47.0m thin veinlets of black tourmaline, striking at 20° to the core axis, appear.															
	70.5	11.9	100	Cream/ochre, altered, coarse-grained granite: An argillised red granite. Numerous veins/patches of black tourmaline, also medium-grained/microgranite sections. A "clay" zone after feldspars (?) at 67.3m has radial patterns.															
	119.3	48.8	100	Transition to a red-cream, coarse-medium grained granite with patches/veins of black tourmaline, striking 20-30° to core axis. Occasional rimmed feldspars evident. Core variously and patchily altered including greenish alteration at 90.5m and 102.2m - 103.9m, where biotite disappears and the core is usually broken.															
	122.0	2.7	100	Dark green, altered granite with minor patchy sulphides (pyrite).	119.0	120.0	0.09												
						121.0	0.09												
						122.0	0.12												
	128.0	6.0	100	Cream/green coarse-grained granite strongly argillised and first two metres crumbled to a rubble of clay and quartz.															
	129.7	1.7	100	Dark grey to red microgranite with black specks (phenocrysts?) of biotite. Rock is hard and fresh.															
	171.3	41.6	100	White to pale pink, coarse-grained granite. Plagioclase feldspars often altered to green "clays" and a zone of cream/green alteration 156.0m - 157.5m; also zones of															

DRILL CORE ANALYSER RESULTS

285117

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 12

LOGGED BY : K. WELLS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g't Ag.
				crumbled, green/ochre granite common after 164.5m													
	174.5	3.2	100	White to dark grey, hard, fresh microgranite. Some coarser specks of black biotite.													
	191.5	17.0	100	White to pale pink, coarse-grained granite very similar to 129.7 - 171.3m, including similar alteration with greenish plag. feldspars and minor zones of crumbled ochre coloured granite. Some short zones of medium-grained granite with minor amounts of feldspar phenocrysts.													
				- END OF HOLE -													

285118

WISON LIMITED - DIAMOND DRILL RECORD

118

HOLE NUMBER	SWY 13	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			O. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To further test I.P. anomaly on line 80S	Collar	269°	-63°	0-25	25.0	22.3	-22.3	11.3	11.3
		50m	255° mag	-63°	25-75.5	50.5	45.0	-67.3	22.9	34.2
		101m	254° "	-61.5°	75.5-120.5	45.0	39.5	-106.8	21.5	55.7
LOCATION	Sweeney's Mine line 80S 80W	140m	258° "	-60°	120.5-140	19.5	16.9	-123.7	9.7	65.4
COLLAR R.L.	325.24m									
CO-ORDINATES	10273.4mN 9156.7 mE									
LENGTH	140.0m									
HOLE SIZE	0 - 30m NQ 30m - End BQ									
COMMENCED	1.9.77									
COMPLETED	12.9.77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS	Alteration and minor sulphides at a similar R.L. to alteration and minor sulphides in d.d.h. Swy 12 (drilled from same site)									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS						
				Sn.	Cu.	As.	S.			

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S.	Ca F <sub>2</sub>	Ag.	Bi.		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285119

HOLE No. : SWY 13

SCALE :



# RENISON LIMITED DIAMOND DRILL HOLE PLOT

119

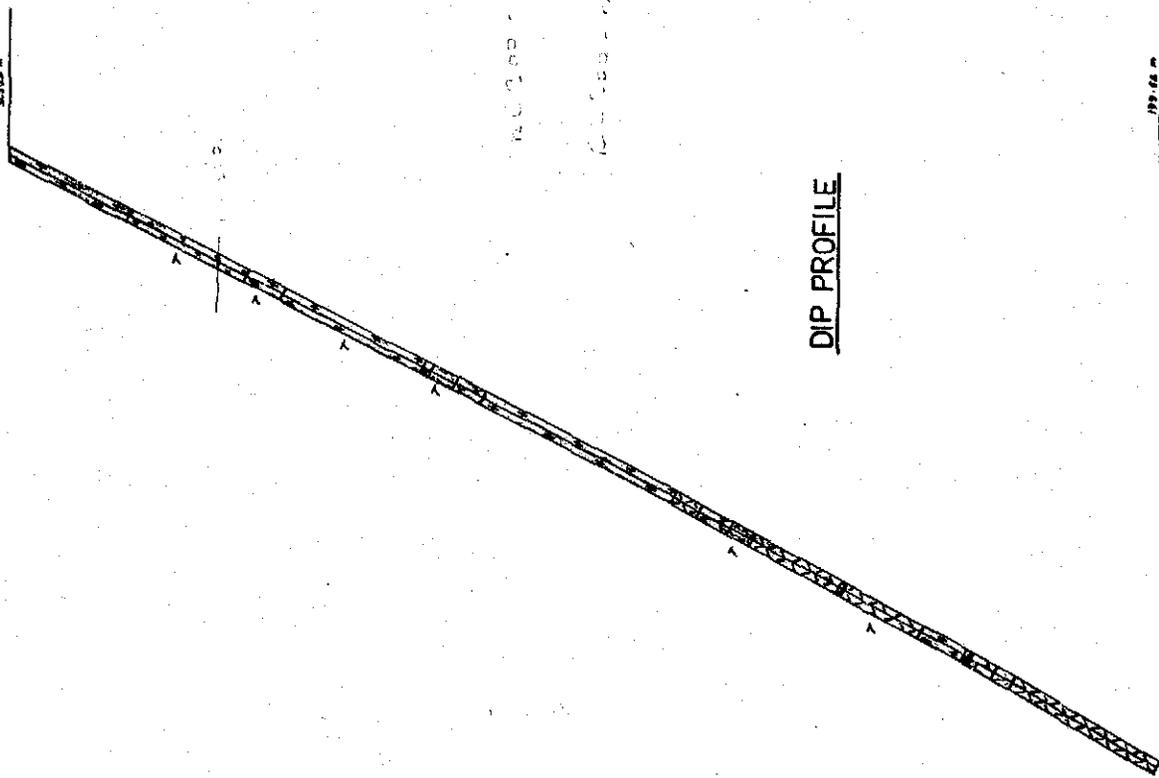
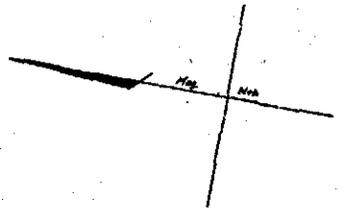
5 cm

10275.6 m  
Fig. 1



1027.2 m  
3000.0 m

PLAN



DIP PROFILE

- + Coarse grained red granite } red
- \* Microgranite } red
- x Partly altered granite } brown
- Green altered granite } green
- ▲ Coarse grained white granite } blue
- ▽ Fine to med. grained white granite } blue
- T Basaltic

285120

## DIAMOND DRILL RECORD

HOLE NUMBER : SWY13

LOGGED BY : K. WELLS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.	g/t WO <sub>3</sub>
0	3.0	0.30	10	Soft, weathered, crumbly, coarse-grained, red granite, consists of pale pink (bleached) 'K' feldspars, buff/yellow clays after, plagioclase, colourless quartz and black biotite.														
	14.5	11.50	100															
	28.6	14.1	100	Pale pink-red microgranite, speckled with black biotite. Also conspicuous "clots" of black tourmaline and quartz (See Swy 12) Core badly broken 21.8 - 24.0m.														
	33.0	4.4	100	Red, hard, "fresh", typical coarse-grained granite. Minor splashes of black tourmaline.														
	51.0	18.0	100	Transition to a pale red/ochre, altered, coarse-grained granite. Many of the feldspars altered to green/ochre "clays" although, biotite generally still occurs. Minor patches/veins of black tourmaline striking 25° to the core axis.  Pale red, hard, fresh microgranite 41.2-41.9m. Alteration appears to increase down the hole, particularly after 50.0m, where the core consists of cream/yellow/green "clays" and quartz.														
	53.8	2.8	100	Green, altered, coarse-grained granite with minor splashes of black tourmaline. No visible sulphides.														
	57.2	3.4	100	Coarse-grained, yellow/green, altered granite. Essentially a transitional zone from the green altered granite above to the less altered granite below.														
	80.3	23.1	100	Coarse-grained, red granite, apparently becoming less altered downhole, but plagioclase feldspars altered to yellow/green clays throughout. Minor splashes of black tourmaline also veinlets, prior to 59.0m, striking 30° to the core axis. Rimmed feldspars also evident. Microgranite 60.5 - 61.7m and a dark grey porphyritic coarse granite 63.3 - 64.5m.														
	87.4	7.1	100	Transition to white, coarse-grained granite with splashes and veinlets of black tourmaline striking 25° to core axis. Many of the plagioclase feldspars altered to buff "clay" and rock becomes extensively altered, with yellow colouration after 83.5m.														
	90.1	2.7	100	White/yellow microgranite, some tourmaline. Extensively broken.														
	100.5	10.4	100	Pale pink-white, coarse-grained granite. A granite transitional between the red and white types. Rimmed feldspars evident.														

285121

121

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 13

LOGGED BY : K. WELES

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
101.2		0.7	100	Green, altered, broken, coarse-grained granite. Altered rimmed feldspars occur.													
110.5		9.3	100	Pale pink-white granite identical to 90.1 - 100.5m. Several veins of black tourmaline striking 20° to core axis.													
115.9		5.4	100	Fresh, coarse-grained red granite. Even plagioclase feldspars unaltered.													
116.3		0.4	100	Yellow/buff, coarse-grained, altered granite consisting of colourless quartz and yellow and green "clays" after feldspar.													
116.7		0.4	100	Dark green, altered, coarse-grained granite carrying pyrite including a quartz/pyrite vein striking 30° to core axis.													
119.5		1.8	100	Yellow-red, altered, coarse-grained granite becoming less altered downhole.													
121.8		2.3	100	Hard, fresh, white-grey microgranite.													
140.0		18.2	100	Pale pink-white, coarse-grained, fresh granite consisting of pale pink-white orthoclase, white-pale green plagioclase feldspar, colourless quartz and finer black biotite. Microgranite section at 133.0m.													
				- END OF HOLE -													

285122

# REXSON LIMITED - DIAMOND DRILL RECORD

122

HOLE NUMBER	SUY 14	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D, Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To further test I.P. anomaly. Drilling back towards previous intersections.	COLLAR	305 <sup>0</sup> mag	-70 <sup>0</sup>	0-69.5	69.5	65.3	257.8	23.8	23.8
		139m	306 <sup>0</sup>	-71.5 <sup>0</sup>	-164.5	95.0	90.1	167.7	30.1	53.9
		190	310 <sup>0</sup>	-70 <sup>0</sup>	-190.75	26.25	24.7	143.0	9.0	62.9
		191.5m	"	"	-191.5	0.75	0.7	142.3	0.3	63.2
LOCATION	Sweeney's Mine Line 805 80 W									
COLLAR R.L.	323.104M									
CO-ORDINATES	10273.196 N 9156.089 E									
LENGTH	191.5m									
HOLE SIZE	0-33m NQ 33m - End BQ									
COMMENCED	14-9-77									
COMPLETED	21-9-77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS										

### SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS						
				Sn	Cu	As	S	Zn	g/t Ag	Sql. Sn
	111.9	135.5	23.6	0.27	0.25	0.80		0.52	42	0.17

### SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn	Cu	As	S	Ca F <sub>2</sub>	Ag	Bi		Sn - Rec.	Cu - Rec.	Carb.	Sulf.	S.O.

285123



124

DIAMOND DRILL RECORD

HOLE NUMBER SWY 14

LOGGED BY K.W.

NVPS

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM	% St.													
	FROM	TO			m	%	FROM	TO	TOTAL	As STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.	g/t WO.
0	3.0	00	00	Typical coarse-grained red granite with coarse crystals of red orthoclase and colourless quartz with fine crystals of black biotite. The coarse crystals of plagioclase are altered to yellow "clay", reflecting weathering, particularly in the early part of the hole. Rimmed feldspars obvious. From 13.0m the core is altered/leached and more broken, with ochre coloured seams and patches of clay.														
	5.0	1.0	20															
	15.2	10.2	100															
	28.8	13.6	100	Pink-red, speckled microgranite "Speckles" mainly due to black biotite; but black tourmaline and quartz patches, up to 10cms across, are very obvious (see SWY 12 and 13). Core blocky and broken.														
	67.5	38.7	100	Typical coarse-grained red granite similar to 0-15.2m. Rimmed feldspars again obvious. Microgranite sections at: 39.3m, 55.3 - 56.1m, 57.1m, 57.2 - 58.0m, 67.2 - 67.5m. Occasional small patches of black tourmaline. In some sections of the core the crystal mosaic is not as obvious - due to a lack of biotite and plagioclase feldspar? e.g. 42.7 - 43.5m. Zones of argillic alteration occur, which become more extensive down the hole: i.e. 28.8 - 30.6m: alteration only minor 36.2 - 36.9m: green/yellow alteration with minor sulphides. 48.0 - 55.0m: yellow, argillic alteration. 61.7m: green/yellow alteration. 63.4 - 63.8m:														
	102.8	35.3	100	Light pink - white, coarse-grained granite. Colourless quartz and white - light pink feldspar crystals with small crystals of black biotite. A granite transitional between the red and the white types; probably better described as a white granite. Short, pink microgranite section 91.3 - 91.8m. Yellow argillic alteration extensively developed 71.5 - 72.5m 75.0 - 75.6m 78.5 - 79.0m 82.5 - 83.5m 97.5 - 99.4m														
	105.7	2.9	100	Green/buff, coarse-grained, altered granite. Original granite fabric still preserved; quartz appears to be unchanged, but all the feldspars altered to green/buff "clays". No visible biotite or sulphides.	104.7	105.7	0.03	0.015	0.004	0.10	1.00	0.007	0.17	0.001	2	0.006		
	106.9	1.2	100	Olive green severely altered granite - original fabric totally destroyed and the core consists of green and buff clays, fine-grained aggregates of pyrite and coarser granular sphalerite, minor boulangerite and an occasional patch of a dark mineral-tourmaline or fluorite?	105.7	106.9	0.25	0.21	0.24	1.72	9.90	0.43	1.40	0.018	101	0.14		

285125

## DIAMOND DRILL RECORD

HOLE NUMBER SWY 14

LOGGED BY K.W.

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM	% Sn.											
	FROM	TO			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag
111.9	5.0	100	Green/buff, altered, coarse-grained granite very similar to 102.8 - 105.7m, but with occasional patches of fine-grained sulphide. Minor patches of black tourmaline. Rock very coarse-grained 109.3 - 110.8m.		106.9	107.9	0.07	0.034	0.036	0.10	1.50	0.004	0.25	0.003	3	0.034
						108.9	0.03	0.009	0.003	"	0.56	"	0.33	0.001	1	0.009
						109.9	"	0.026	0.014	"	1.90	0.003	0.17	0.003	4	0.026
						110.9	0.14	0.11	0.12	"	2.50	0.002	0.25	0.004	10	0.31
						111.9	0.03	0.03	0.012	"	0.76	0.001	0.17	0.002	2	0.03
118.2	6.3	100	Olive green/grey, semi-massive sulphides, quartz and buff "clays". Sulphides include pyrrhotite, pyrite, arsenopyrite (?), sphalerite with minor boulangerite (?) and fluorite. Patch of blue/black tourmaline at 116.1m.		111.9	113.0	0.66	0.55	0.59	1.32	19.40	0.078	1.60	0.022	92	0.55
						114.0	0.30	0.23	0.28	0.34	17.20	0.111	0.043	0.014	61	0.23
						115.0	0.48	0.37	0.46	1.30	18.60	0.056	0.045	0.016	64	0.37
						116.0	0.72	0.49	0.71	5.10	19.90	0.048	0.50	0.032	97	0.49
						117.0	0.47	0.13	0.19	0.56	21.60	0.13	0.25	0.014	27	0.33
			Some of the so called "clays" have angular outlines a "vitreous" lustre and effervesces slightly under acid - siderite (?)			118.2	0.03	0.028	0.066	0.72	27.70	0.45	0.75	0.017	31	0.28
			THIN SECTIONS													
121.9	3.7	100	Green/buff, altered, coarse-grained granite. No sulphides at centre of section, but increase in amount each way. Margins by coarse sphalerite with pyrite, pyrrhotite, tourmaline and clay.		118.2	119.0	0.49	0.17	0.26	0.72	5.20	0.66	2.20	0.015	41	0.17
						120.0	0.11	0.049	0.11	0.18	7.00	0.20	0.011	0.007	20	0.049
						121.0	0.07	0.017	0.052	0.10	6.20	0.015	0.33	0.005	15	0.017
			Siderite (?) common			121.9	0.10	0.055	0.093	0.24	6.80	0.32	2.30	0.006	23	0.055
			THIN SECTIONS													
						123.0	0.74	0.52	0.65	0.90	21.00	0.34	1.20	0.016	120	0.52
						124.0	0.70	0.41	0.63	0.76	21.60	0.069	0.50	0.011	122	0.41
						125.0	0.21	0.13	0.22	0.88	25.20	0.21	0.67	0.014	85	0.13
135.5	13.6	100	Olive green/grey, semi-massive sulphides, quartz (and topaz?) and buff clays: Very similar to 111.9 - 118.2m, plus a significant amount of fluorite in blebs and veinlets.			126.0	0.04	0.017	0.032	0.74	14.20	0.39	0.50	0.013	25	0.017
						127.0	0.12	0.072	0.12	0.58	15.70	0.22	0.42	0.014	27	0.072
						128.0	0.54	0.34	0.52	1.94	15.30	0.56	0.58	0.019	44	0.34
						129.0	0.06	0.028	0.055	0.10	6.40	0.005	0.013	0.003	6	0.011
			Includes an altered microgranite 130.0 - 132.0m, where white mica is developed and the rock has the appearance of a "true greisen"			130.0	0.25	0.13	0.25	0.90	13.40	0.003	0.026	0.012	16	0.019
			THIN SECTIONS			131.0	0.08	0.026	0.020	0.10	6.10	0.006	0.013	0.003	6	0.011
						132.0	0.10	0.047	0.083	"	9.00	0.003	0.009	0.004	10	0.013
						133.0	0.12	0.077	0.12	0.14	20.40	0.069	0.628	0.014	24	0.032
						134.0	0.11	0.055	0.097	0.40	13.40	0.004	0.010	0.007	9	0.012
						135.5	0.14	0.068	0.13	0.26	9.10	0.008	0.015	0.008	8	0.015
164.2	28.7	100	Green/buff, altered, coarse-grained granite similar to 106.9 - 111.9m with minor patches of sulphide, mainly pyrite in the upper part. Altered rimmed feldspars common with yellow/buff cores and dark green rims.		135.5	136.5	0.04	0.009	0.020	0.10	1.90	0.002	0.022	0.001	2	0.004
						137.5	0.02	0.004	0.001	"	0.16	0.011	0.056	"	1	0.003
						138.5	0.03	0.002	0.004	"	0.23	0.001	0.25	"	1	"
						139.5	"	0.004	0.003	"	0.35	"	0.011	0.002	1	0.001
			Microgranite sections at 141.8 - 142.1m has minor pyrite, at 158.2 - 158.6m and 161.7m.	DRILL CORE ANALYSER												
			Core crumbed on footwall		140.5	141.5	0.11									
			THIN SECTIONS			142.5	0.16									
						143.5	0.10									
						144.5	0.11									
						145.5	0.07									
						146.5	0.09									
						147.5	0.07									
						148.5	0.11									
						149.5	0.06									
191.3	23.8	100	Transition back to a pale red, coarse-grained granite. Zones of yellow argillic alteration where biotites disappear at 170.4m, 171.3m, 186.0 - 186.6m, 188.3 - 189.2m and 191.1m.			150.5	0.07									
						151.5	0.05									
						152.5	0.10									
			THIN SECTION			153.5	0.12									
						154.5	0.07									

Sample Details	Rock Type - Composition	Fabric	Minor Minerals	Comments
SuY 14 112.7m	Topaz-Sulphide Rock. Numerous radiating aggregates fine topaz, large pyritised pyrrhotite patches. Interstitial siderite; stannite, sphalerite.	Vein-type random fabric.	Fine fibrous boulangerite in siderite. Cassiterite 10-80u crystals in topaz.	Very erratic distribution of sulphides thus assays and mineralogy do not correlate well.
114.5m	Siderite-Sulphide Rock. Coarse siderite, pyritised pyrrhotite, subordinate coarse quartz; topaz needles, dark fluorite patches; stannite.	Coarse vein-type fabric.	Fine boulangerite needles in siderite. Isolated cassiterite crystals (<100u).	As above. Similar but more sideritic. Not all pyrrhotite is pyritised.
118.5m	Siderite Rock. Dominantly coarsely-crystalline siderite mosaics, patchy secondary pyrite, sericite and chlorite flakes.	Coarse crystal mosaic.	Fine boulangerite needles, occasional sphalerite.	Good example of erratic sulphide distribution - very little sphalerite seen compared with assay.
121.7m	Siderite Rock. Coarse porphyroblasts of siderite with small inclusions of sericite. Large sericite patches. Sphalerite, small dark fluorite patches.	Coarse carbonate, finer poikiloblastic textures.	Isolated cassiterite, 20-100u crystals in siderite. Fine boulangerite.	Ultrafine Cloudy (?stanniferous) rutile occurs. Coarse siderite formed late, enclosing other minerals.
123.5m	Topaz-Sulphide Rock. Mainly matted and radiating fibrous fine topaz, pyritised pyrrhotite. Some quartz, fluorite, siderite with boulangerite.	Random fibrous and radiating textures, vein fabric. conspicuous.	Scattered cassiterite <100u; ultrafine ?stanniferous rutile Arsenopyrite, stannite, chalcopyrite.	The siderite with associated fine fibrous boulangerite clearly a later phase in these cores.
125.5m	Siderite-Sulphide Rock. Mostly fine siderite pyritised pyrrhotite, patches pale chlorite, dark fluorite; topaz needles.	Random fabric.	Ultrafine ?stanniferous dark rutile. Traces boulangerite.	Small xenotime crystals embedded in chlorite, with dark pleochroic haloes. Cloudy rutile analogous to analysed material (stanniferous).
126.0m	Quartz-Sulphide Rock. Mostly massive sulphides (pyritised pyrrhotite), euhedral quartz; minor fluorite, carbonate (+boulangerite), chlorite, topaz.	Vein-type random fabric.	Thin stringers cloudy ultrafine ?stanniferous rutile. Stannite (up to 3mm).	The fine ?stanniferous rutile usually occurs in thin parallel stringers in these samples - possible relict biotite textures.
130.7m	Quartz-Sericite-Siderite-Sulphide Rock. Coarse and fine sericite (hydromuscovite); finer siderite, quartz, small patches pyritised pyrrhotite and sulphide veins.	Fine granular-mottled fabric, poikiloblastic siderite.	-	Particularly well-developed coarse hydromuscovite which could be troublesome in flotation.
133.5m	Quartz-Siderite-Sulphide Rock. Gneiss-like relict granitic features, replaced by vein-quartz, pyritised pyrrhotite, carbonate; minor topaz.	Some relict granitic textures (biotite, feldspar).	Fine stringers of ultrafine cloudy rutile (stanniferous). Fluorite.	Almost-complete replacement of granite-microgranite.
SuY 14 138.6m	Altered Granite. Coarse primary quartz, completely sericitised feldspar; biotite replaced by siderite with embedded dark rutile crystals.	Coarse granitic fabric preserved.	Pyrite patches scattered throughout.	Rutile is almost certainly stanniferous and is relatively coarse (50u); very selective replacement of biotite.

contd.

HOLE No.: *Swy 14*

SCALE:

RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

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Sample Details	Rock Type - Composition	Fabric	Minor Minerals	Comments
153.9m	Altered Granite. Very similar to 138.6m with altered feldspars, selective replacement of biotite by siderite.	Coarse granitic fabric	Scattered pyrite fairly common	Remarkably similar to 138.6m, considering the interval. ? Stanniferous rutile in altered biotite.
158.2m	Altered Microgranite. Even-grained quartz, partly-altered orthoclase, completely sericitised plagioclase, biotite. Leucoxised magnetite.	Typical microgranitic fabric.	Secondary chlorite, carbonate throughout.	Could be micro-adamellite, depending on plagioclase, subspecies (now indeterminate).
166.2m	Coarse Biotite-Granite. Large, sometimes porphyritic, perthitic orthoclase; quartz; euhedral oligoclase; dark fresh biotite common.	Porphyritic, coarse granitic fabric.	Xenotime, coarse metamict zircon, in biotite. Leucoxised magnetite. Trace fluorite.	Gray color due to lack of hematite pigmentation in orthoclase. Rock is fairly fresh.
184.8m	Pink Biotite-Granite. Porphyritic pink perthitic orthoclase, coarse euhedral quartz, euhedral oligoclase, abundant very dark biotite.	As above.	Accessory xenotime, apatite, magnetite, sphene, zircon, fluorite.	Normal pink granite, quite fresh; note diverse range of accessory minerals.

285128

**ENISON LIMITED - DIAMOND DRILL RECORD**

128

HOLE NUMBER	GUY 15	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test plunge direction of Sweeney Mineralisation	Collar	347	-85	0-14.0	14.0	13.9	309.34	1.2	1.2
		28m	344	-86	-40.0	26.0	25.9	283.44	1.8	3.0
		52	328	-88	-65/5	25.5	25.5	257.94	0.9	3.9
		79m	324	-86.5	-92.5	27.0	26.9	231.04	1.6	5.5
LOCATION	Sweeney's Mine Area	105m	359	-86	-122.5	30.0	29.9	201.14	2.1	7.6
		139m	28	-85.5	-160	37.5	37.4	163.74	2.9	10.5
COLLAR R.L.	323.24m	181m	27	-84	-254.5	94.5	94.0	69.74	9.9	20.4
CO-ORDINATES	10273.2 N 9156.5 E									
LENGTH	254.5m									
HOLE SIZE	0-30m Nq 30m - End Bq									
COMMENCED										
COMPLETED	10-10-77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. WELLS									
COMMENTS	No intersection at target depth; intersection 100m deeper.									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS							
				Sn	Cu	As	S	Pb	Zn	g/t Ag	Sal Sn
Sweeney's	210.3	241.7	31.4	0.62	0.19	0.35	11.29	0.73	1.92	31	0.09

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn	Cu	As	S	Ca F <sub>2</sub>	Ag	Bi		Sn - Rec.	Cu - Rec.	Carb.	Silic.	S.G.

285129

HOLE NO. : SHY 15

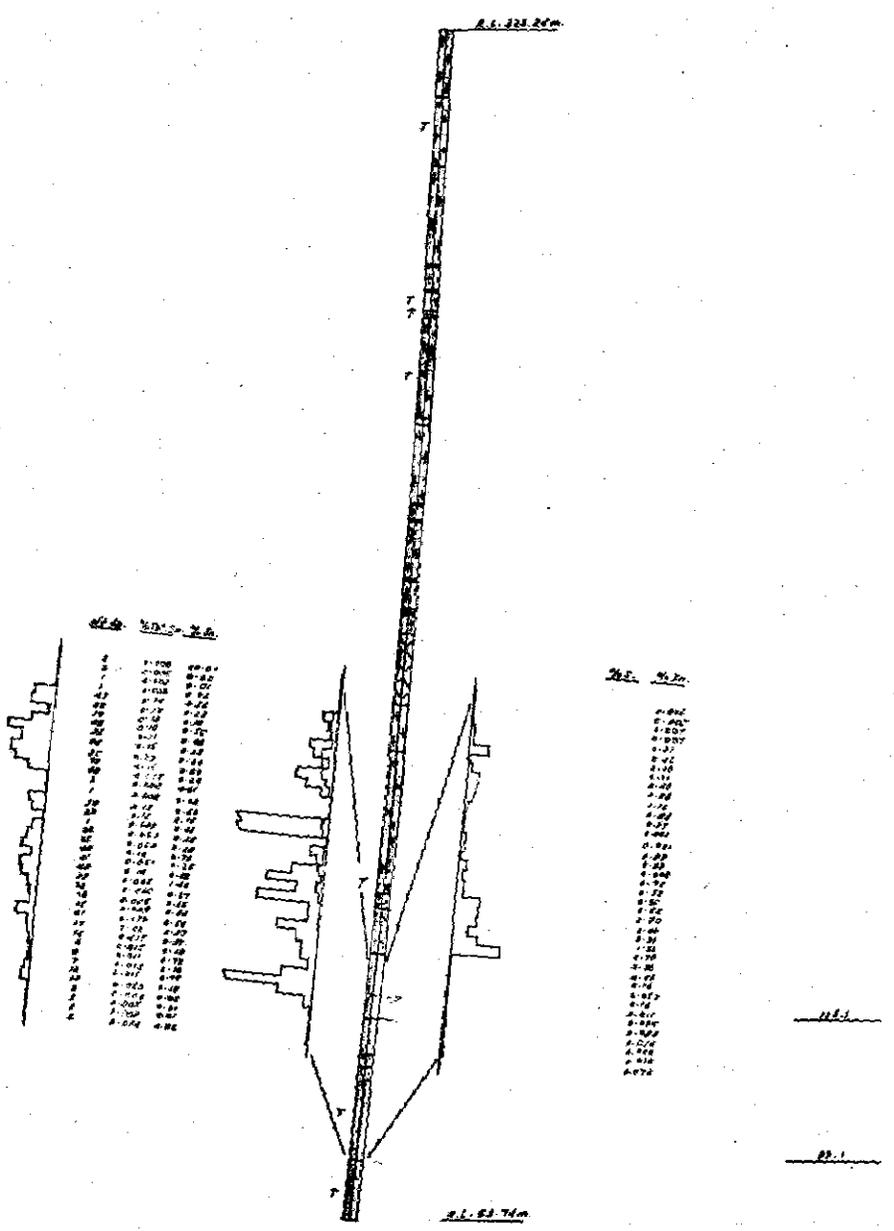
SCALE:  METERS

RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

129

5 cm

10274 - 3 M  
3100 - 4 E



4 Coarse granite and granite } red  
15 micaceous granite } red  
X micaceous siliceous granite } brown  
Green siliceous granite } green  
Y Co. white granite } blue  
Z Fine-grained white granite } blue

285130

130

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 15

LOGGED BY : K.W.

NWPS

	INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
	FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Ph.	% Zn.	% Bi.	g/t Ag.
	0	4.9	0.5	10	Typical coarse-grained red granite; Coarse crystals of quartz and feldspar with finer crystals of black biotite. Weathered and leached "k" feldspars pale in colour and plagioclase feldspars usually weathered to yellow "clays". Core broken.													
		14.5	9.5	100														
		29.0	14.5	100	Light pink, hard relatively fresh, speckled microgranite. Speckles due to either biotite or tourmaline. Larger distinctive "clots" of black tourmaline with quartz. A similar rock intersected in SWY 12, 13 & 14. Core blocky and broken.	13 &												
		60.0	31.0	100	Coarse grained red granite similar to 0-14.5m, but weathered and reasonably fresh, Microgranite section 40.6 - 41.0m. Within the coarse granite, biotite rich patches occur, e.g. 45.0m.  Short sections of yellow/green alteration at 50.0 - 50.6m includes a vein of fine grained pyrite 55.2 - 55.5m.  Small patches of tourmaline throughout the core, also occurring in veinlets striking 30° to the core axis after 59.7m.													
		61.4	1.4	100	White/light grey aplitic "dyke". Apparently hard and fresh, but apparently an altered red aplite - contains small red patches. The upper contact is pegmatitic, consisting of quartz and feldspar crystals.  Thin, black tourmaline veinlets, occurring at the end of the previous rock continue throughout this intersection, striking at approximately 30° to the core axis. These tourmaline veinlets cut the lower contact of the aplite, with a coarse-grained granite, which strikes at approximately 13°- 20° to the core axis.													
		84.4	23.0	100	From the contact with the previous aplite, the coarse-grained granite varies from cream-red and displays varying intensities of argillic alteration. Minor blebs/splashes of black tourmaline. Core crumbled and broken in places. Amount of alteration appears to decrease down hole.													
		129.0	34.6	100	Coarse-grained pale red granite with numerous short sections of pale red microgranite, particularly after 125.5m, some associated with small pegmatite veins. Sections of cream/green alteration. 101.0 - 101.5m 104.4 - 104.9m 117.0 - 117.6m 123.5 - 125.1m ochre/yellow clay on broken surfaces.													
		129.0	144.6	15.6	Coarse-grained white granite, although odd "k"-feldspars are still pink/ Zones where plagioclase feldspars are altered to buff clays and biotites to dark green chlorite.													

285131

131

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 15

LOGGED BY : K.W.

NWPS

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM.	% Sn.										% Sb			
	FROM	TO			m	%	FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.		% Pb.	% Zn.	% Bi.
184.7	40.1	100	Red-pink-pale grey/yellow, coarse grained granite with a few, minor microgranite sections.  Extensive zones of yellow argillic alteration and core crumbled to rubble 154.5 - 154.9m 179.7m, 180.4m and 181.0m.  Core varies from hard, fresh typical red granite with coarse crystals of red "K" feldspar, white/pale green plagioclase colourless quartz and fine crystals of black biotite; through pink (partially altered) to pale grey/yellow, soft, altered granite. The amount of alteration gradually increases downhole and acquires a greenish tinge.  Small patches of black tourmaline, at 175.0m, associated with fine white mica. Quartz/tourmaline vein at 180.4m.															
188.0	3.3	100	Pink-green, speckled, porphyritic microgranite. Speckles of black biotite and phenocrysts of quartz and feldspar.															
197.4	9.4	100	Dark green and white, coarse-grained altered granite consisting of white quartz and dark green chlorite and "clays" after feldspars.  10cms wide pyrite vein striking 45° to the core axis at 191.4m. THIN SECTION															
211.3	13.9	100	Green/buff, coarse-grained altered granite. Microgranite section at 201.8 - 202.5m, and "pegmatitic" section at 203.4m.  Feldspars altered to buff and green clays, biotite to chlorite. From 211.0m the core is white and hard - development of quartz and/or topaz (?) THIN SECTIONS.	206.3	207.3	<0.01	0.008	0.003	<0.10	0.20	0.013	0.014	0.001	2	0.006			
					208.3	0.02	"	0.006	"	0.86	0.003	0.005	"	2	0.003			
					209.3	0.01	0.003	0.003	"	0.16	0.004	0.007	<0.001	1	0.002			
					210.3	0.02	0.002	0.001	"	0.19	"	"	0.007	1	0.001			
					211.3	0.34	0.14	0.31	0.53	22.5	0.53	0.390	0.010	47	0.44			
219.0	7.7	100	Dark green, completely altered granite with disseminated and semi-massive sulphides.  The sulphides consist of some dark brown/black sphalerite and mainly pyrite; the latter occurring as aggregates, the centres of which are olive-green in colour, consisting of very fine pyrite (?) the margins are pale yellow more typical crystalline pyrite.  At 213.1m and 215.5m unusual looking veins consisting of rounded, white quartz, pieces, up to 10cms across mantled in silvery black boulangerite (?) THIN SECTIONS	211.3	212.3	0.23	0.17	0.28	0.34	18.9	0.54	0.32	0.018	50	0.34			
					213.3	0.14	0.13	0.40	0.71	16.7	1.10	2.10	0.004	10	0.74			
					214.3	0.56	0.10	0.18	0.44	10.2	0.87	0.11	0.007	48	0.57			
					215.3	0.48	0.31	0.45	0.82	14.9	1.20	0.30	0.011	93	0.76			
					216.3	0.29	0.15	0.29	0.69	9.2	1.40	1.20	0.007	68	0.93			
					217.3	0.80	0.29	0.64	0.62	13.8	1.20	1.10	0.009	85	0.76			
					218.3	0.60	0.16	0.38	0.34	18.9	0.77	0.84	0.005	73	0.45			
					219.3	0.24	0.077	0.17	0.22	9.1	0.44	0.37	0.003	48	0.35			
219.0	221.7	2.7	100	Green and yellow, coarse-grained, altered granite, but no visible sulphides and original granite fabric still identifiable. Bright purple fluorite occurs on some joints.  Lower contact is white and hard-development of quartz and/or topaz (?).	219.3	220.3	0.01	0.002	0.003	<0.10	0.19	0.013	0.041	0.001	2	0.006		
					221.7	0.02	0.008	0.002	"	0.46	0.022	0.021	<0.001	1	0.016			

285132

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DIAMOND DRILL RECORD

HOLE NUMBER: SJY 15

LOGGED BY: K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% S <sub>n</sub>												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g t Ag	% Sb
241.7	20.0	100		Dark green, completely altered granite with disseminated to semi-massive sulphides, very similar to 211.3 - 219.0m.		221.7	222.7	2.40	0.13	0.29	<0.30	19.5	0.27	0.49	0.003	39	0.20	
							223.7	2.15	0.12	0.23	0.11	13.4	0.41	0.40	0.005	29	0.35	
							224.7	0.02	0.003	0.004	<0.10	0.27	0.004	0.008	0.001	1	0.006	
				Sulphides consist mainly of pyrite aggregates, again with fine-grained centres, also sphalerite.			225.7	0.34	0.069	0.18	0.40	16.0	0.84	0.73	0.006	24	0.58	
							226.7	0.20	0.069	0.24	0.33	24.4	0.64	0.52	0.007	35	0.46	
				After 227.2m the core becomes softer more "clayey" and consists essentially of dark green clays and with disseminated sulphides. The percentage of pyrite appears to have decreased; but more sphalerite is visible occasionally associated with fine anastomosing silvery			227.7	0.70	0.12	0.40	0.24	14.1	0.67	0.56	0.013	44	0.52	
				boulangerite (?). Some siderite occasionally visible.			228.7	1.25	0.051	0.15	0.23	7.2	0.45	0.62	0.003	21	0.37	
							229.7	0.58	0.14	0.31	0.32	18.6	0.76	2.70	0.010	40	0.50	
							230.7	1.40	0.092	0.14	0.75	11.1	2.20	2.40	0.019	39	1.30	
							231.7	0.27	0.036	0.066	0.84	5.3	2.00	2.30	0.003	22	0.81	
							232.7	0.25	0.028	0.076	0.68	9.0	1.50	1.50	0.005	18	1.10	
				At 228.0m, 232.2, and elsewhere fine, black, prismatic crystals occur, often in rosettes; thought to be tourmaline.			253.7	0.90	0.048	0.097	0.20	6.3	0.87	2.70	"	15	0.37	
							234.7	0.50	0.170	0.360	0.38	12.3	0.93	5.30	0.011	41	0.38	
							235.7	0.37	0.02	0.033	0.42	8.3	0.91	0.22	0.009	17	0.63	
				Occasional harder white patches due to the development of quartz and/or topaz (?)			236.7	0.36	0.015	0.021	0.26	11.6	0.75	0.14	0.013	14	0.42	
							237.7	0.18	"	0.018	<0.10	5.1	0.031	0.073	0.004	9	0.019	
				THIN SECTIONS.			238.7	0.72	0.011	0.013	0.10	6.7	0.360	0.18	"	6	0.21	
							239.7	2.10	0.013	0.005	<0.10	7.0	0.083	0.011	0.007	7	0.058	
							240.7	0.76	0.015	0.031	"	9.4	0.230	0.056	0.011	12	0.12	
254.5	12.8	100		Green/buff and white altered, coarse-grained granite. The first metre is hard and white due to quartz and/or topaz; includes a small pyritic vein at 241.8m, and fine patches of black tourmaline.			241.7	0.18	0.020	0.027	0.32	9.6	0.720	0.084	0.007	19	0.16	
				Core becomes darker green after 253.5m.			241.7	242.7	0.03	0.004	0.002	<0.10	0.58	0.018	0.024	0.002	2	0.008
							243.7	0.01	0.005	"	"	0.23	0.006	0.008	"	2	0.005	
							244.7	"	0.002	0.004	"	0.31	0.007	0.014	0.001	2	0.006	
				CORE WIDELY BROKEN.			245.7	0.02	"	0.003	"	0.12	0.010	0.074	"	2	0.003	
				END OF HOLE.														

285133

SAMPLE DETAILS	ROCK TYPE - COMPOSITION	FABRIC	MINOR MINERALS	COMMENTS
SWY 15 193.6m	Altered Biotite-Granite Coarse stressed quartz sericitised feldspar and sericite-chlorite-quartz aggregates replacing feldspar. Chloritised biotite.	Typical coarse granitic fabric.	Trace pneumatolytic tourmaline. Accessory zircon, apatite, ?xenotime.	Different feldspar species altered differently; plagioclase sericitised, orthoclase replaced. Secondary rutile in biotite.
200.5	Altered Biotite-Granite Coarse quartz (un-stressed), sericitised plagioclase, partly argillised orthoclase, sericitised biotite.	Normal granitic fabric.	Accessory zircon, apatite, ?xenotime, magnetite. Secondary	Secondary rutile in altered biotite may be stanniferous, implying Sn in original biotite.
211.2m	Massive Vein Quartz. Coarse and fine vein-quartz, interlocking patches. Siderite patches; replaced ? biotite flakes.	Mosaics, interlocking patches; zoned crystals.	Traces chlorite, sericite, pyrite, primary zircon, apatite.	May be an almost totally silicified granite, judging from presence of accessory minerals and altered biotite.
212.4m	Sulphide-Sericite Rock. Almost completely replaced granite. Large aggregates of sericite masses of pyritised pyrrhotite; sphalerite; quartz.	Relict biotite textures but other features obliterated.	Semi-opaque? stanniferous rutile. Trace siderite. Ultrafine cassiterite (10u)	Intensive replacement of granite. Most Sn in the form of ultrafine cassiterite and ?stanniferous rutile.
213.1m	Quartz-Sulphide Vein. Coarse, euhedral quartz crystals, interstitial massive-fibrous boulangerite, pyrite, minor sphalerite.	Vein-type fabric.	Small tourmaline needles throughout quartz. Trace siderite.	No Sn minerals seen, but probably stannite occurs elsewhere in intersection.
216.5m	Chlorite-Sulphide Rock. Extensive patches of chlorite, with tourmaline needles; quartz, pyritised pyrrhotite; boulangerite, sphalerite. Ultrafine cassiterite.	Random vein fabric, patchy mineral aggregates.	Conspicuous xenotime with pleochroic haloes in chlorite. Siderite.	Cassiterite is ultrafine, cloudy, with inclusions of ?stanniferous rutile. Some stannite may occur elsewhere.
221.9m	Mineralised Altered Granite. Feldspars, biotite replaced by chlorite, sericite. Masses of pyritised pyrrhotite with cassiterite inclusions, up to 400u crystals.	Granitic fabric still recognisable.	Boulangerite needles, sphalerite patches; dark cloudy ?stanniferous rutile.	Cassiterite well-developed, good euhedral crystals mostly 100u associated with pyrrhotite, introduced quartz.
227m	Mineralised Sulphide-Carbonate-Chlorite Rock Coarse siderite, shapeless patches chlorite & sericite, pyritised pyrrhotite. Good cassiterite 10 - 200u crystals, larger clusters	Vein-type fabric.	Trace boulangerite. Semi-opaque rutile, as inclusions in cassiterite.	Most cassiterite is 50u, in sericite and chlorite, thus easily liberated Encouraging mineralisation.
229.5m	Mineralised Quartz-Sulphide Rock. Euhedral quartz, massive pyritised pyrrhotite, sphalerite, some boulangerite. Cloudy cassiterite 10-200u crystals and clusters.	Vein-type fabric.	Dark rutile cores/ inclusions in cassiterite. Siderite, chlorite, sericite.	Cassiterite often as small compact rounded clusters (100-200u) with rutile cores. Good mineralisation.

RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

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HOLE No. 1 SWY (continued)

SCALE:

HWPS 14451

SAMPLE DETAILS	ROCK TYPE - COMPOSITION	FABRIC	MINOR MINERALS	COMMENTS
232.4m	Mineralised "Vein" Material. Euhedral quartz, zoned tourmaline, coarse siderite with boulangerite inclusions, fine tourmaline, chlorite. Small cassiterite crystals. Sphalerite.	Vein-type coarsely crystalline assemblage.	Sericite masses. Fine ?xenotime	Cassiterite as small dark crystals, 10-100u, in matted-fibrous tourmaline. Abundant sphalerite. Tourmaline delicately zoned, dravitic.
236.8m	Sericite-Sulphide Rock. Masses of fine and coarse sericite (hydromuscovite); patches of pyritised pyrrhotite; conspicuous xenotime; fine cloudy cassiterite.	Random patchy mineral aggregates.	Trace boulangerite; semi-opaque rutile (?) stanniferous). Siderite Trace fluorite.	Distinctly radioactive, due to xenotime. Cassiterite as small grains (10 - 50u) associated with ?stanniferous rutile.
241.2m	Mineralised Sericite-Sulphide Rock. Massive, fine and coarse sericite flakes; pyritised pyrrhotite patches; siderite massive. Good isolated cassiterite. Chlorite patches.	As above.	Trace boulangerite. Semi-opaque rutile (?stanniferous).	Cassiterite as good single crystals up to 250u, clusters up to 500u in sericite, siderite.

285135

WISON LIMITED - DIAMOND DRILL RECORD

135

HOLE NUMBER	SUJ 16	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test downward extension of Sweeney mineralisation.		Mag.							
		Collar	225°	-77°	0-19.5	19.5	19.0	-19.0	4.4	4.4
		39.0	(Casing) 154	-77°	-60.0	40.5	39.5	-58.5	9.1	13.5
LOCATION	SWEENEY'S MINE	81.0	231°	-77°	-100.5	40.5	39.5	-98.0	9.1	22.6
		120.0	233°	-77.5°	-139.5	39.0	38.1	-136.1	8.4	31.0
COLLAR R.L.	313,13m	159.0	222°	-77°	-180.0	40.5	39.5	-175.6	9.1	40.1
		201.0	227°	-77°	-222.0	42.0	40.9	-216.5	9.4	49.5
CO-ORDINATES	10325.96 N 9123.19 E	243.0	230°	-76.5°	-257.4	35.4	34.4	-250.9	8.3	57.8
LENGTH	257.4m									
HOLE SIZE	0-3m H. casing 3-57m NQ 57 - End BQ									
COMMENCED	12.10.77									
COMPLETED	26.10.77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	K. Wells.									
COMMENTS	This hole appears to have drilled beneath the mineralisation??									

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS									
				Sn.	Cu.	As.	S.						

SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE

LODE NAME	FROM	TO	Sn.	Cu.	As.	S.	Cu F <sub>2</sub>	Ag.	Bi.		Sn - Rec.	Cu - Rec.	Carb.	Slit.	S.G.

285136

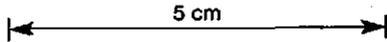
HOLE No. 1 SWY 16

SCALE:



RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

MAPS 2441



PLAN



DIP PROFILE

- \* Microgranite } red
- \* Coarse grained red granite } red
- x Altered granite - brown
- ∇ Fine- med. grained white granite } blue
- ∇ Coarse grained white granite } blue

137

DIAMOND DRILL RECORD

HOLE NUMBER : SWY 16

LOGGED BY : M.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag
0	3	0.75	25	Weathered, coarse-grained, red granite.													
	12	9.00	100	Pink/red/relatively fresh microgranite. Slightly porphyritic over first 2.0m. Narrow veinlets of black tourmaline, striking 45° to core axis occur sporadically throughout the intersection. "Zoned" alteration occurs either side of veinlets.  Core blocky and broken. THIN SECTIONS.													
	64.5	52.5	100	Altered (leached), coarse-grained, red granite. Core displays variable but extensive zones of yellow/buff argillic alteration.  Core varies: From, relatively competent rock where, quartz and biotite are unchanged, 'K' - feldspar is pale in colour and plagioclase feldspar is altered, to buff/yellow "clays". To extensive zones of crumbled rubble consisting of quartz and yellow/green "clays", after feldspars and biotite.  Rimmed feldspars obvious and occasional patches/veins of black tourmaline.													
	74.0	9.5	100	Fresh, coarse-grained, red granite consisting of coarse crystals of red, 'K'-feldspars, white/green plagioclase feldspar and colourless quartz with finer crystals of black biotite.  Rimmed feldspars visible and occasional small patches of black tourmaline.  Some short sections of microgranite between 56.0 and 64.0m, associated with zones of biotite concentration, which occur, usually in the coarse granite. Described as fresh but argillic alteration does increase downhole.													
	104.0	30.0	100	Altered (leached), coarse-grained, red granite. Core displays variable but extensive zones of yellow/buff argillic alteration and intersection identical in appearance to 12.0 - 64.5m.													
	106.9	2.9	100	Red-white, "speckled" microgranite. "Speckles" due to biotite. Occasionally slightly - porphyritic.													
	109.0	2.1	100	Pale pink - yellow/buff, altered, coarse-grained granite. Biotites still unaltered, but 'K' feldspar bleached and plagioclase feldspars altered to yellow "clays".													
	110.4	1.4	100	White/buff, slightly porphyritic (quartz and feldspar) microgranite.													
	143.0	32.6	100	Pale red/pink, coarse-grained with some very minor microgranite sections. Biotite rich and biotite poor sections. Rock consists, generally, of coarse crystals of pink 'K'-feldspar, white-green, plagioclase and colourless, quartz with finer crystals of black biotite. Occasional patches of core, displaying argillic alteration, where core is often broken and plagioclase feldspars altered to ochre and buff "clays".													
	148.1	5.1	100	Buff - green, altered, coarse-grained granite. No visible biotite due to alteration to chlorite and all feldspars altered to yellow and green clays.  Quartz vein at 146.4m contains some pale purple fluorite (?).													

285138

DIAMOND DRILL RECORD

HOLE NUMBER SWY 16

LOGGED BY K.W.

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM.	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
	176.4	18.0	100	Pale red, coarse-grained granite very similar to 110.0 - 143.6m. Brighter red in colour due to sections of coarse, red 'K' -felapar. Again biotite rich and poor sections, and occasional zones, often broken, of ochre-coloured argillic alteration.													
	177.7	1.6	100	Red/grey, hard fresh "speckled" microgranite.													
	178.4	0.7	100	Typical coarse-grained, red granite.													
	257.4	69.0	100	Pale pink to white, coarse-grained granite. A transition downhole to a white granite, after 220.0m. Microgranite sections: 186.6 - 187.9m, 190.5 - 191.0m, 209.5 - 210.8m and a quartz, felpapar pegmatite 242.8 - 243.2m.  Patches and zones of yellow/ochre argillic alteration where core often crumbled. Usually only felpapars affected: 190.4m, 194.7m, 199.9m, 202.0m, 204.0m, 205.0m, 217.8m, 223.4m, 223.7m, 234.2m, 241.2-242.0m, 244.0m, 246.4m, 247.2-247.7m, and 249.0m.  Granite porphyritic with felpapar phenocrysts, often rimmed, 214.0 - 217.3m.													
				END OF HOLE													

285139

**MINISON LIMITED - DIAMOND DRILL RECORD**

139

HOLE NUMBER	SWY 17	SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
		Depth	Bearing	Dip			D. Sin Dip	R.L.	D. Cos Dip	Prog. Total
PURPOSE	To test the southern extension of Sweeney Lode.	00m	224 °17'45"	-69°	0-17.0	-17.0	15.8	280.4	6.4	6.4
		34	226 "	-66.5	-49.0	-32.0	29.3	251.1	12.7	19.1
		64	230 "	-64.5	-79.0	-30.0	27.1	224.0	12.9	32.0
LOCATION	Sweeney's Mine.	94	232 "	-65	-109.0	-30.0	27.2	196.8	12.7	44.7
		124	230 "	-64	-139.0	-30.0	27.0	169.8	13.1	57.8
COLLAR R.L.	296.17	154	232 "	-63.5	-169.0	-30.0	26.8	143.0	13.4	71.2
		184	235 "	-61.5	-199.0	-30.0	26.4	116.6	14.3	86.2
CO-ORDINATES	10321.71 N 9220.33E	214	236 "	-60	-229	-30.0	26.0	90.6	15.0	101.2
		244	237 "	-58	-245.2	-16.2	13.7	76.9	8.6	109.8
LENGTH	245.2m									
HOLE SIZE	0-30.0 Nq 30.0 - End Bq									
COMMENCED	28-10-77									
COMPLETED	12-11-77									
SIGNIFICANT CORE LOSS ZONES										
ORE ZONE GROUND CONDITIONS										
LOGGED BY	F.R. STEPHENSON.									
COMMENTS	Hydrothermally altered zone between 199.9m and 220.3m. The only significant mineralisation is in an arsenopyrite/fluorite zone between 199.9m and 203m.									

**SUMMARY - ASSAY DATA**

LODE NAME	FROM	TO	LENGTH (m.)	AVERAGE WEIGHTED ASSAYS									
				En.	Cu.	As.	S.						

**SUMMARY METALLURGICAL DATA COMPOSITE SAMPLE**

LODE NAME	FROM	TO	Sn.	Co.	As.	S	Cu F <sub>2</sub>	Ag.	Bi		Sn - Rec.	Cu - Rec.	Carb.	SHC.	S.G.

285140

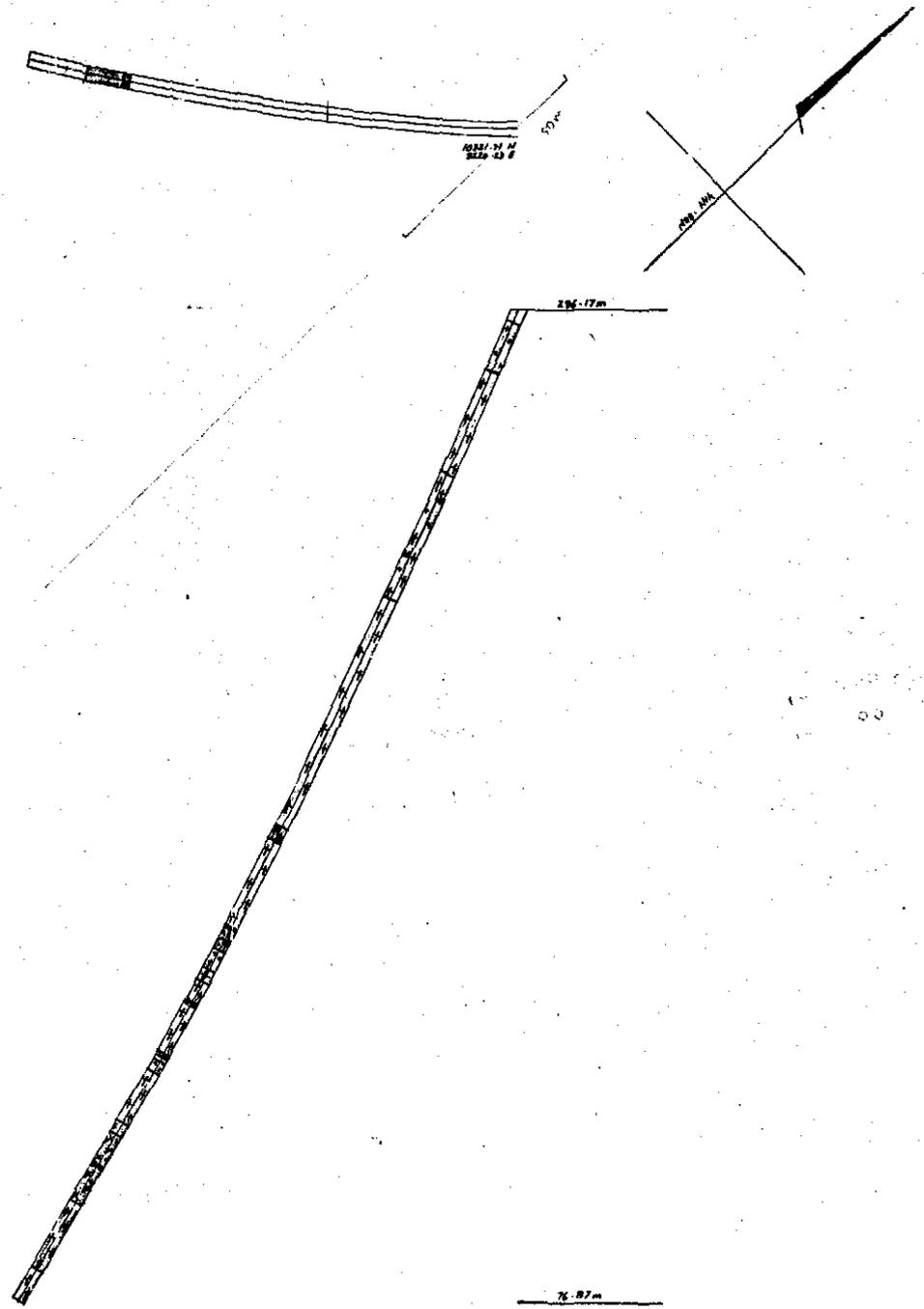
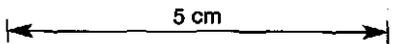
RENISON LIMITED  
DIAMOND DRILL HOLE PLOT

HOLE No. 1. SWY 17



NAME SHEET

PLAN



DIP PROFILE

141

DIAMOND DRILL RECORD

HOLE NUMBER : SW 17.

LOGGED BY : P. R. STEPHENSON

NWPS

INTERVAL (m)	RECOVERY		DESCRIPTION	FORM.	% Sn.													
	FROM	TO			m	%	FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag.
0.0	3.0	0	0	NO CORE														
3.0	5.5	1.2	48	WEATHERED FINE GRAINED GRANITE. A soft friable, ochre-coloured, easily broken rock consisting of granular quartz, numerous biotite crystals and argillised feldspars. Poor core recovery.														
5.5	14.5	8.6	96	FINE GRAINED RED GRANITE. Fine grained quartz with pink and white feldspars and numerous biotite crystals. Ovoid tourmaline clusters up to 3cm long occur averaging 1 per metre.  Zones of fresh rock alternate with zones of weathered rock and limonite is developed on most joint planes.														
17.5	39.4	23.8	95	COARSE GRAINED RED GRANITE. An equigranular rock with equal amounts of grey quartz and pink k-feldspar, lesser amounts of usually altered plagioclase and numerous biotite crystals. The plagioclase is altered to light green argillite and occasionally to yellow argillite.  Several rimmed k-feldspar crystals observed. 15.6 - 16.9m Very weathered zone with only 0.2m of core recovered.  20.7 - 21.2m Dyke? of fine grained red granite. 27.8 - 25.9m Altered coarse red granite. In the centre of this zone the K feldspar has been bleached white and the plagioclase and biotite altered to a green argillite/chlorite mixture.														
39.4	69.9	30.5	100	MIXED GRANITE. Mixture of fine medium and coarse grained red granites with minor fine and coarse grained white granites; the coarse red granite predominates. The colour of the K feldspar varies from white through to deep pink. Plagioclases are altered to both green and yellow argillite. Moderately fractured in places, these having been preferentially weathered.														
69.9	125.0	55.1	100	COARSE GRAINED RED GRANITE. Fairly uniform coarse grained red granite, varying slightly in the relative amounts of quartz and k-feldspar. Equigranular with very occasional fine grained sections.  The plagioclases are occasionally fresh but are usually altered to light green and yellow argillite, The K-feldspars are rarely "bleached" white.														

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DIAMOND DRILL RECORD

HOLE NUMBER : SW 17

LOGGED BY : P.R. STEPHENSON

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.												
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu	% As	% S	% Pb	% Zn	% Bi	g t Ag	g t WO <sub>3</sub>
				Several zoned crystals of K-felspar surrounded by plagioclase were noted. Biotite is sometimes concentrated in bands. Between 101 and 109m it is generally more abundant. Limonitic weathering occurs along joints, the most affected zones are occurring between: 86.8 and 89.2m 90.6 and 91.2m 92.0 and 92.4m														
125.0	126.6	1.9	100	FINE GRAINED GREY GRANITE fairly abrupt change to a fine-grained grey-green granite. Much of it is altered to a greenish - fawn coloured mixture of chlorite and argillite. Strongly jointed and the core is consequently broken.														
125.9	128.7	1.8	100	MIXED ALTERED GRANITES. Mixture of coarse-grained altered red granite and fine-grained red granite. The plagioclases in the coarse granite are altered to clays, and for the first 0.5m the rock is crumbly and broken.														
128.7	150.0	21.3	100	COARSE GRAINED RED GRANITE. Halfway through this unit, the K-felspars become very pale pink. The plagioclases are again altered to light green and yellowish argillite. Weathering has exploited joints and where these are sub-parallel to the core, breakage has resulted. 137.6 - 138.0m. Fine grained red granite.														
150.0	150.7	0.7	100	ALTERED COARSE-GRAINED GRANITE. Strongly altered coarse granite the felspars are altered to yellow/green argillite/sericite and the biotite to chlorite. Very minor pyrite veining.														
150.7	155.9	5.2	100	COARSE-GRAINED WHITE-PINK GRANITE. Normal coarse grained argillised (green) granite the K-felspar being both white and pale pink. Rare rosettes of tourmaline. Again argillic alteration is pervasive along joints sub-parallel to the core axis.														
155.9	161.0	5.1	100	MIXED RED GRANITES. Mixed coarse and medium-grained red granites with pronounced concentrations of biotites into bands. Minor pegmatite vein.  Plagioclases again weakly argillised (green), 159.8 - 160.3m - fine to medium grained white granite.														
161.0	164.0	3.0	100	COARSE-GRAINED WHITE GRANITE. Normal weakly argillised (greenish) coarse white granite grading into the following unit.														

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DIAMOND DRILL RECORD

HOLE NUMBER : SW 17

LOGGED BY : P.R. STEPHENSON

NAPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g t Ag
164.0	199.9	35.9	100	<p>COARSE RED GRANITE and WEAK MINERALISATION Mainly coarse red granite with minor zones of fine and coarse white granite. A zone of fine to medium grained red granite occurs between 183.8 and 186.7m.</p> <p>Argillic alteration occurs as previously described becoming more intense close to mineralised zones - here the biotite may also be altered, to chlorite.</p> <p><u>MINERALISATION</u> 168.9 - 169.9m and 182.0 - 183.1m. In both these zones, the granite has been altered to a grey-green quartz/chlorite/argillite rock. Pyrite is common especially towards the centre of the zone, as veinlets, stringers and disseminations. In the first zone minor arsenopyrite and rare chalcopyrite also occur, and in the second zone, a 2cm wide pyrite vein occurs at 182.5m. Possibly also minor sphalerite in the less altered parts of the first zone.</p>													
199.9	203.0	2.5	81	<p>MINERALISED ALTERED GRANITE. Grey-green competent rock consisting of quartz and a light green mixture of chlorite and argillite.</p> <p><u>MINERALISATION</u> Arsenopyrite and purple fluorite occur disseminated in minor to moderate amounts down to 201.5m, the fluorite also occurring in veinlets. Very minor pyrite.</p> <p>Between 201.5 and 202.2m the mineralisation is increased to moderate to abundant amounts with semi-massive arsenopyrite in places. Below this, mineralisation is absent. Very altered and broken at 203m with a 60cm. core loss.</p>	Sweeney's												
203.0	205.6	2.6	100	<p>COARSE GRAINED RED GRANITE Argillised (green) coarse red granite with increased alteration for the first 0.8m, and the last 0.2m.</p>													
205.6	207.5	1.9	100	<p>ALTERED COARSE GRANITE. Greenish quartz/chlorite/argillite rock similar to 199.9 - 203.0m. However mineralisation is restricted to very minor disseminated and veined pyrite with occasional tourmaline veins. Very broken but no core loss. Both margins merge into altered granite.</p>													
207.5	210.2	2.7	100	<p>ALTERED COARSE GRAINED RED GRANITE. Argillised (yellow) coarse red granite with limonite or goethitic alteration along joints.</p>													

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DIAMOND DRILL RECORD

HOLE NUMBER : SW 17

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m)		RECOVERY		DESCRIPTION	FORM	% Sn.											
FROM	TO	m	%			FROM	TO	TOTAL	As	STAN	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g t Ag.
210.2	221.6	1.4	100	FINE GRAINED RED GRANITE Normal fine red granite with argillised (green) plagioclase.													
211.6	220.3	8.7	100	ALTERED COARSE GRAINED WHITE GRANITE Argillised (green and yellow) coarse, white granite with very strong argillic alteration between 215.4 and 220.3m resulting in a crumbly and broken rock.													
220.3	237.4	17.1	100	COARSE GRAINED WHITE GRANITE. Relatively fresh white granite with minor alteration of plagioclases to green argillite. Occasional tourmaline veins. Some of the K-felspar is still slightly pink.													
237.4	245.2	7.8	100	COARSE RED GRANITE The change from the preceding unit takes place over several metres. Weakly argillised (green) coarse red granite with a zone of mixed fine and medium grained red granite between 238.8 and 239.5m.													
				END OF HOLE.													

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APPENDIX 4

Radiometric Data from  
Sweeney Drill Core.

Hole No./ Depth	Total Count	Potassium Count	Uranium Count	Thorium Count	Comments
Swy 3					28.9.77
0 - 0.5m	3001	100	22	29	)Poor core
1.0 - 1.5m	2737	131	39	33	)recovery.
2.0 - 2.5m	2505	117	34	38	
- 3.0m	2673	120	30	33	
- 3.5m	2774	109	40	36	c.g.r.
- 4.0m	2876	167	35	27	
- 4.5m	2891	142	35	30	
- 5.0m	2881	117	39	32	
- 5.5m	2634	120	37	30	
- 6.0m	2921	141	33	28	
6.5 - 7.0m	2862	145	35	25	
- 8.0m	3109	146	48	40	
- 9.0m	2945	117	39	25	
-10.0m	3094	146	48	30	
-11.0m	3110	144	47	34	
-12.0m	3015	154	46	33	
-13.0m	2766	125	22	32	
-13.5m	2657	130	41	31	
-14.0m	2720	116	29	30	
-14.5m	2511	123	41	24	
-15.0m	2734	132	49	26	
-16.0m	2843	133	42	26	<u>c.g.r.</u>
-17.0m	3277	149	35	33	microgranite
-17.5m	3037	137	40	30	
-18.0m	2799	137	44	22	<u>microgranite</u>
-19.0m	3140	146	46	28	c.g.r.
-20.0m	2751	135	42	39	
-21.0m	2736	126	38	39	
-22.0m	2954	128	39	31	
-23.0m	2791	133	40	28	
-24.0m	2617	121	36	27	
Swy 3					30.9.77
24.5 -25.0m	3128	163	47	34	c.g.r.
-26.0m	3090	133	42	33	
-27.0m	3659	151	54	38	
-28.0m	3542	129	74	37	
-29.0m	3347	146	65	43	
-30.0m	3534	144	70	42	
-31.0m	3420	140	65	37	
-32.0m	3531	152	53	30	
-33.0m	3493	148	54	41	
-34.0m	3430	160	44	45	
-35.0m	3651	158	65	54	
-36.0m	3498	150	51	40	
-37.0m	3220	117	68	27	c.g.r.

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Hole No./ Depth	Total Count	Potassium Count	Uranium Count	Thorium Count	Comments
Swy 3					
63.5 - 64.0m	3089	127	64	34	green/yellow
- 64.5m	3083	129	60	25	altered granite
- 65.0m	3157	150	44	28	
- 65.5m	3103	162	63	41	
- 66.0m	3311	139	55	45	
- 66.5m	3437	160	46	34	
- 67.0m	3258	125	61	42	
- 67.5m	3148	129	50	36	
- 68.0m	3051	148	71	33	
- 68.5m	3439	127	66	26	
- 69.0m	3341	164	73	37	
- 69.5m	3194	142	54	36	
- 70.0m	2761	132	51	46	
- 70.5m	3022	132	49	31	
- 71.0m	2883	130	58	36	
- 71.5m	2972	139	56	33	
- 72.0m	2871	148	42	27	
- 72.5m	2861	122	45	41	
- 73.0m	2915	98	57	52	
- 73.5m	2873	140	46	44	
- 74.0m	2945	127	58	36	
- 74.5m	2829	129	52	31	
- 75.0m	3130	160	56	50	
- 75.5m	2773	123	49	38	
- 76.0m	2899	134	46	37	
- 76.5m	2867	122	62	41	
- 77.0m	2803	124	54	37	green/yellow
- 77.5m	2820	140	57	47	<u>altered granite</u>
- 78.0m	2680	117	40	34	c.g.r.
- 78.5m	2668	119	47	36	
- 79.0m	2948	150	58	32	
- 79.5m	2827	121	54	35	
- 80.0m	2732	125	45	36	
- 80.5m	2857	116	53	38	<u>c.g.r.</u>
- 81.0m	2783	108	39	35	microgranite
- 81.5m	3074	135	60	31	
- 82.0m	2857	123	55	38	c.g.r.
- 82.5m	2782	118	50	36	partially altered
- 83.0m	2975	148	49	31	

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Hole No./ Depth	Total Count	Potassium Count	Uranium Count	Thorium Count	Comments
Swy 11					4.10.77
59.5 - 60.0m	2807	102	40	26	c.g.r.
- 60.5m	2763	103	46	40	partially
- 61.0m	2826	113	37	32	altered
- 61.5m	2919	116	33	32	
- 62.0m	2976	119	37	34	
- 62.5m	2785	113	40	25	
- 63.0m	2627	106	42	35	
- 63.5m	2657	105	42	25	
- 64.0m	2809	81	38	36	
- 64.5m	2911	107	49	29	
- 65.0m	2640	111	31	28	
- 65.5m	2646	100	47	31	
67.0 - 67.5m	2397	93	39	31	Green, altered
- 68.0m	2455	87	36	30	granite. Minor
- 68.5m	2444	100	33	27	sulphides.
- 69.0m	2489	120	37	27	
- 69.5m	2375	102	33	29	
- 70.0m	2491	100	37	25	
- 70.5m	2393	113	30	26	
- 71.0m	2379	97	43	21	
- 71.5m	2591	110	42	20	
- 72.0m	2495	98	36	35	mineralised
- 72.5m	2596	113	42	28	zone
- 73.0m	2517	96	48	23	
- 73.5m	2434	103	37	34	
- 74.0m	2759	111	44	35	
- 74.5m	2639	105	48	28	
- 75.0m	2698	125	49	42	
- 75.5m	2589	115	39	25	
- 76.0m	2432	93	30	32	
- 76.5m	2443	101	49	24	
- 77.0m	2382	115	35	31	
- 77.5m	2432	109	48	24	
- 78.0m	2385	103	32	18	
78.0 - 78.5m	2433	96	51	27	
- 79.0m	2447	77	34	26	
- 79.5m	2542	114	41	21	
- 80.0m	2402	92	42	31	
- 80.5m	2443	90	37	24	
- 81.0m	2451	95	52	28	
- 81.5m	2355	111	51	24	
- 82.0m	2418m	96	44	36	
- 82.5m	2414	110	39	26	

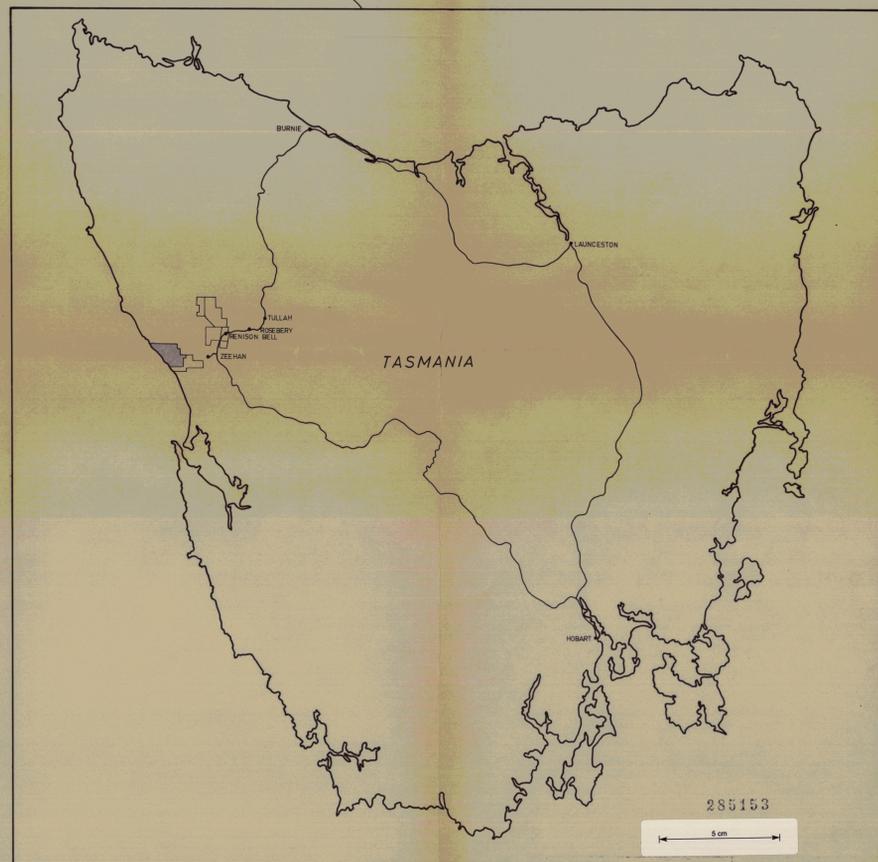
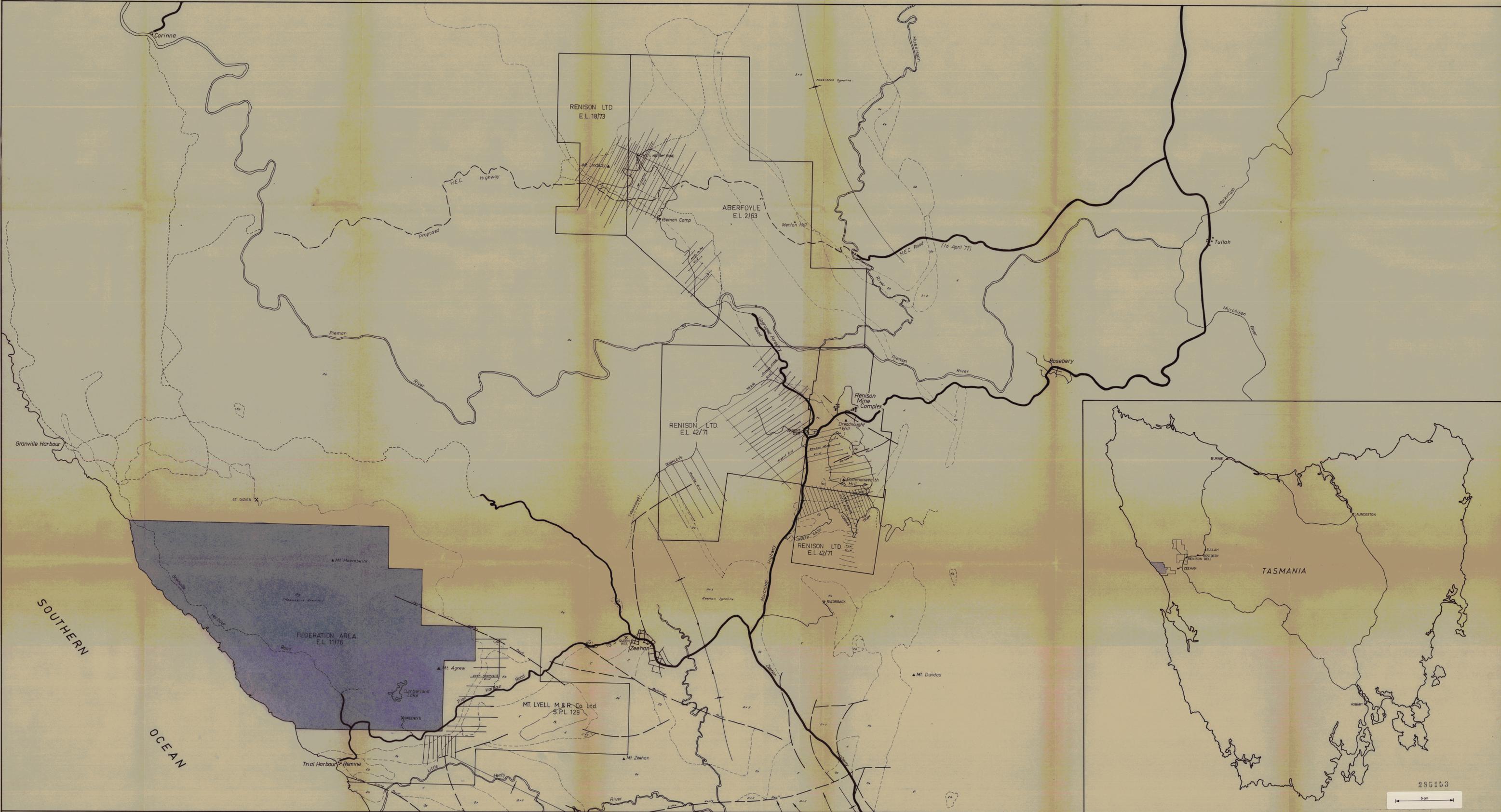
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Hole No./ Depth	Total Count	Potassium Count	Uranium Count	Thorium Count	Comments
Swy 11					4.10.77
82.5 - 83.0m	2412	106	38	26	mineralised zone
- 83.5m	2397	100	26	30	
- 84.0m	2410	96	38	21	
- 84.5m	2430	92	40	24	
- 85.0m	2439	105	33	28	
- 85.5m	2440	95	44	26	
- 86.0m	2607	108	39	24	
- 86.5m	2694	81	42	31	
- 87.0m	2399	108	36	33	
- 87.5m	2340	91	43	33	
- 88.0m	2525	111	45	31	
- 88.5m	2398	110	32	25	
- 89.0m	2365	107	49	23	
- 89.5m	2368	104	41	29	
- 90.0m	2449	114	40	20	
- 90.5m	2651	114	42	31	
- 91.0m	2381	100	39	30	
- 91.5m	2516	97	54	33	
- 92.0m	2587	101	37	24	
- 92.5m	2272	111	36	29	
- 93.0m	2413	110	45	25	
- 93.5m	2619	110	47	34	
- 94.0m	2511	113	43	24	
- 94.5m	2525	111	47	28	partially
- 95.0m	2424	104	28	34	altered
- 95.5m	2603	123	35	29	c.g.r./w.
- 96.0m	3134	122	47	34	
- 96.5m	2861	132	44	31	
- 97.0m	2722	137	40	39	
- 97.5m	2576	126	32	30	
- 98.0m	2554	104	36	32	
- 98.5m	2554	125	40	33	
- 99.0m	2866	122	45	34	
- 99.5m	2549	131	43	25	
-100.0m	2573	115	30	19	
-100.5m	2674	116	36	33	
-101.0m	2678	124	34	25	
-101.5m	2842	161	46	35	
-102.0m	2631	108	51	26	
-102.5m	2617	125	40	38	

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Hole No./ Depth	Total Count	Potassium Count	Uranium Count	Thorium Count	Comments
Swy 15					
168 - 169m	2638	123	35	30	c.g.r. -
- 170m	2594	96	31	29	partially altered
- 171m	2602	115	30	23	
- 172m	2624	132	38	35	
- 173m	2606	136	39	28	
- 174m	2613	105	28	20	
- 175m	2450	114	40	24	
- 176m	2667	111	42	33	
- 177m	2618	115	35	20	
- 178m	2522	121	32	25	
- 179m	2651	138	35	23	
- 180m	2463	126	41	23	
- 181m	2416	119	37	25	
- 182m	2336	118	33	28	
- 183m	2529	107	30	27	
- 184m	2488	123	34	18	
- 185m	2771	121	53	31	
- 186m	2524	122	27	31	microgranite
- 187m	2613	127	35	21	
- 188m	2616	121	46	24	
- 189m	2497	118	40	34	Dark green
- 190m	2427	128	43	26	altered granite.
- 191m	2394	118	31	32	
- 192m	2536	105	36	25	
- 193m	2368	120	35	28	
- 194m	2515	126	47	28	
- 195m	2487	109	41	33	
- 196m	2532	115	36	16	
- 197m	2564	128	38	26	
- 198m	2678	138	39	35	Green/buff
- 199m	2514	125	36	23	altered granite.
- 200m	2482	113	40	27	
- 201m	2523	118	51	31	
- 202m	2695	133	32	32	
- 203m	2751	120	39	27	
- 204m	2454	124	41	31	
- 205m	2538	125	37	26	
- 206m	2648	132	35	19	
- 207m	2440	123	37	25	
- 208m	2279	118	42	18	
- 209m	2386	114	42	30	
- 210m	2291	104	35	30	
- 211m	2272	98	19	20	

Hole No./ Depth	Total Count	Potassium Count	Uranium Count	Thorium Count	Comments
Swy 15					
211m - 212m	2595	138	24	34	Mineralisation
- 213m	2265	112	45	26	
- 214m	2611	107	34	29	
- 215m	2584	122	43	27	
- 216m	2469	135	33	32	
- 217m	2613	99	44	28	
- 218m	2293	97	30	28	
- 219m	2446	135	35	30	Green/yellow
- 220m	2357	109	38	37	altered granite.
- 221m	2349	112	31	27	No sulphide
- 222m	2538	111	40	36	Mineralisation
- 223m	2379	115	46	18	
- 224m	2303	129	26	23	
- 225m	2482	127	55	39	
- 226m	2616	137	46	29	
- 227m	2554	122	41	26	
- 228m	2648	133	45	32	
- 229m	2492	117	51	26	
- 230m	2264	120	38	25	
- 231m	2458	132	51	31	
- 232m	2359	108	41	29	
- 233m	2391	117	44	30	
- 234m	2333	109	41	28	
- 235m	2498	127	31	33	
- 236m	2377	106	36	27	
- 237m	2386	140	48	22	
- 238m	2356	124	49	35	
- 239m	2292	105	38	21	
- 240m	2256	123	32	26	
- 241m	2422	117	39	23	
- 242m	2384	102	40	21	
- 243m	2429	109	49	30	
- 244m	2340	134	25	22	
- 245m	2411	110	31	29	
- 246m	2292	132	28	26	
- 247m	2529	134	36	35	
- 248m	2681	140	39	37	
- 249m	2609	127	33	29	
- 250m	2570	123	41	21	
- 251m	2549	108	36	26	
- 252m	2376	101	45	28	
- 253m	2353	118	30	20	
- 254m	2462	106	28	25	
- 255m	2505	103	38	17	Green altered granite.



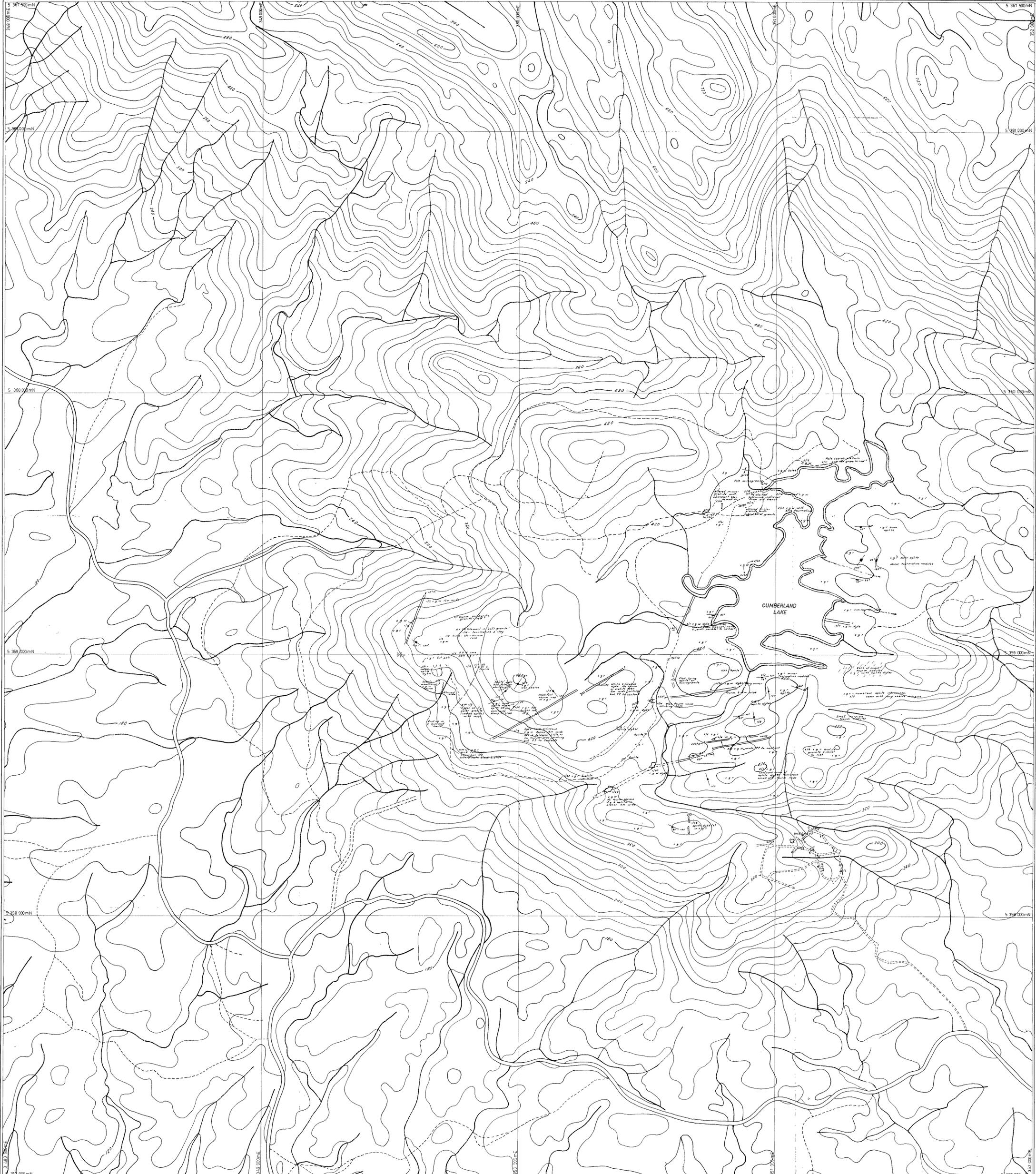
SOUTHERN  
OCEAN

1360

**KEY**


285153  
5 km

RENISON LIMITED  
LOCALITY MAP  
77-12.40  
GEOLOGIST :  
DRAUGHTSMAN :  
DATE :  
REVISIONS : SEPT 77  
SCALE: 1:50,000 METRES  
MAP: 1:50,000  
DRAWING NO. 1360  
Fig. 1



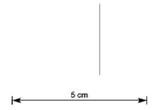
RENISON LIMITED  
 2851:4  
 GEOLOGY FACT PLAN

ZEEHAN C2/1	ZEEHAN C2/2
ZEEHAN C2/3	ZEEHAN C2/4

GEOLOGIST: [ ]  
 DRAUGHTSMAN: [ ]  
 DATE: OCT '77  
 REVISIONS: [ ]

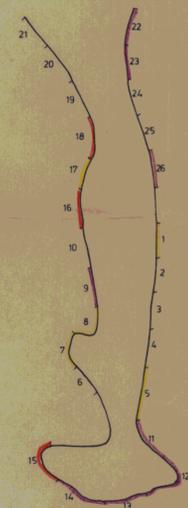
SCALE 1:5000 METRES

77-1240 1361 FIG. 2





№ 3 WORKINGS



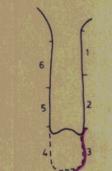
	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
1	0.31	<0.01	0.23	2	0.030	0.017	0.095
2	N.A.						
3	N.A.						
4	0.045	<0.01	0.01	1	0.025	0.033	0.04
5	0.57	0.022	0.017	5	0.022	0.013	0.05
6	N.A.						
7	0.23	0.013	0.014	4	0.010	0.019	0.034
8	0.26	0.022	0.015	4.8	0.014	0.18	0.026
9	1.26	<0.01	0.010	22	0.005	0.049	0.014
10	N.A.						
11	3.72	0.039	0.045	15	0.02	0.11	0.14
12	3.50	0.048	2.90	67	0.087	0.43	0.055
13 U	5.19	0.037	0.04	17	0.026	0.54	0.28
13 L	1.16	0.044	0.57	4.2	0.236	0.38	0.024
14 U	1.01	0.03	0.017	15	0.006	0.042	0.03
14 L	3.10	0.039	0.054	56	0.01	0.048	0.026
15	0.70	0.013	0.003	15	0.008	0.045	0.022
16	0.97	0.305	0.024	158	0.028	0.052	0.040
17	0.40	<0.01	0.026	6	0.007	0.016	0.007
18	0.87	<0.01	0.028	3	0.005	0.017	0.003
19	0.006	<0.01	0.005	<1	0.003	0.02	0.001
20	0.035	<0.01	0.016	<1	0.004	0.017	0.001
21	0.01	<0.01	0.007	<1	0.002	0.007	0.003
22	7.66	<0.01	1.45	6	0.012	0.092	0.055
23	1.33	<0.01	0.19	4	0.018	0.029	0.012
24	0.07	<0.01	0.005	3	0.088	0.032	0.010
25	0.095	<0.01	0.023	2	0.004	0.04	0.009
26	2.10	<0.01	0.035	3	0.010	0.052	0.005
1-47	0.03	0.23	21	= Average grades			

№ 1 WORKINGS



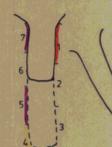
	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
1	0.10	<0.01	0.20	1	0.005	0.009	0.005
2	0.32	<0.01	0.95	5	0.017	0.096	0.024
3	0.14	<0.01	3.50	7	0.025	0.36	0.016
4	0.16	<0.01	4.10	7	0.017	0.26	0.024
5	0.36	<0.01	0.57	2	0.01	0.28	0.022
6	0.55	<0.01	1.40	3	0.009	0.052	0.006
0.27	<0.01	1.79	4	= Average grades			

№ 4 WORKINGS



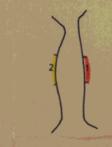
	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
1 U	0.015	<0.01	0.29	<1	0.01	0.009	0.001
1 L	0.11	<0.01	0.18	1	0.009	0.005	0.004
2	0.015	<0.01	0.07	1	0.003	0.08	0.001
3	2.01	0.053	0.031	29	0.033	0.12	0.042
4 U	0.01	<0.01	0.06	<1	0.003	0.008	0.002
4 L	0.015	<0.01	0.085	<1	0.001	0.019	0.001
5	0.05	<0.01	0.45	1	0.008	0.01	0.003
6	0.085	0.044	0.033	19	0.014	0.022	0.03
0.29	0.02	0.15	7	= Average grades			

№ 5 WORKINGS



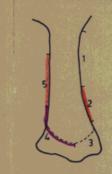
	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
1	0.97	0.10	0.008	45	0.02	0.031	0.048
2	N.A.						
3	0.045	<0.01	0.26	1	0.003	0.008	0.003
4	0.43	0.24	26.5	80	0.48	0.54	0.046
5	3.56	0.044	0.15	60	0.019	0.13	0.065
6	N.A.						
7	1.80	0.096	0.016	90	0.035	0.05	0.22
1.36	0.10	5.39	55	= Average grades			

№ 6 WORKINGS



	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
1	0.54	0.60	23.0	220	0.95	0.56	0.50
2	0.41	0.36	3.80	120	0.34	0.76	0.54
0.47	0.48	13.4	170	= Average grades			

№ 7 WORKINGS



	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
1	N.A.						
2	0.76	0.26	0.008	90	0.018	0.048	0.24
3	N.A.						
4	1.52	1.03	0.05	420	0.25	0.09	0.53
5	0.67	0.25	0.13	150	0.06	0.46	0.37
0.98	0.51	0.06	220	= Average grades			

№ 8 WORKINGS



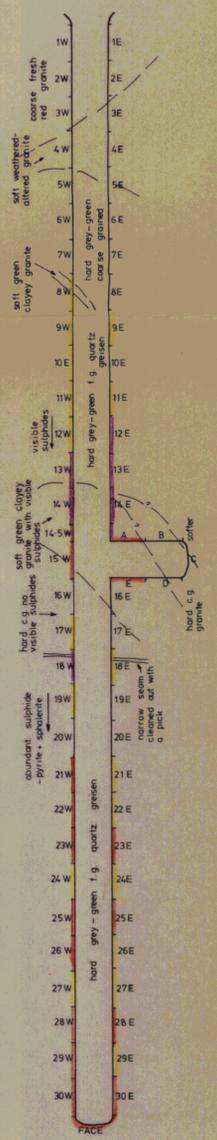
	%Sn	%SolSn	%Zn	g/t Ag	%Cu	%Pb	%As
2	1.89	0.095	0.013	70	0.059	0.053	0.17
3	1.28	0.12	0.011	15	0.019	0.046	0.065
1.58	0.11	0.01	4.2	= Average grade			

ADIT FROM 8E & 8W TO FACE INCLUSIVE AVERAGE GRADE = 4.7m x 0.64 % Sn  
 = 4.7m x 0.013 % Sol. Sn  
 = 4.7m x 0.96 % Zn  
 = 4.7m x 72 g/t Ag  
 = 4.7m x 5.03 % S

ANALYSED FOR WO<sub>3</sub> AND BI, ONLY TRACE PRESENT

ADIT

%Sb	%As	%Pb	%Cu	%Zn	%SolSn	%Sn			
0.002	<0.10	0.005	<0.05	10.10	0.06	<1	0.019	0.003	0.07
0.002	<0.10	0.004	<0.05	10.10	0.12	1	0.009	<0.005	0.06
0.002	<0.10	0.001	<0.05	10.10	0.09	2	0.010	<0.005	0.07
0.003	<0.10	0.003	<0.05	10.10	0.18	2	0.015	0.008	0.07
0.003	<0.10	0.014	<0.05	10.10	1.1	1	0.048	<0.005	0.07
0.003	<0.10	0.008	<0.05	10.10	2.5	<1	0.031	<0.005	0.08
0.003	<0.10	0.015	<0.05	10.10	4.1	<1	0.032	<0.007	0.17
0.003	<0.10	0.078	<0.05	10.10	3.1	5	0.022	0.019	0.42
0.004	<0.10	0.50	<0.05	0.12	7.6	3	0.052	0.003	0.25
0.003	<0.10	0.026	<0.05	0.10	4.3	2	0.10	<0.005	0.30
0.004	<0.10	0.009	<0.05	10.10	0.45	<1	0.037	<0.003	0.28
0.004	<0.10	0.34	<0.05	10.10	3.7	4	0.34	0.015	0.48
0.004	<0.10	0.052	<0.05	0.16	4.7	3	1.50	0.006	3.01
0.011	<0.10	0.044	<0.05	0.32	6.6	1	0.14	0.003	1.85
0.002	<0.10	0.016	<0.05	10.10	2.8	2	0.030	<0.005	0.83
0.002	<0.10	0.033	<0.05	10.10	1.2	8	0.17	0.023	0.87
0.002	<0.10	0.010	<0.05	10.10	0.62	<1	0.080	<0.005	0.19
0.004	<0.10	0.008	<0.05	10.10	1.7	1	0.056	0.013	0.24
0.004	<0.10	0.022	<0.05	10.10	1.6	3	0.40	0.013	3.32
0.006	<0.10	0.030	<0.05	10.10	0.45	1	0.060	<0.003	0.20
0.004	<0.10	0.13	<0.05	10.10	0.73	1	0.14	<0.003	0.18
0.010	<0.10	0.040	<0.05	10.10	8.3	7	2.50	0.006	0.73
0.014	0.13	0.28	<0.05	10.10	10.5	12	1.63	0.022	0.69
0.030	0.26	0.44	<0.05	10.10	9	14.0	0.022	0.62	
0.58	0.43	0.16	<0.05	10.10	6.1	13	1.10	0.015	0.45
0.078	<0.10	0.16	<0.05	0.14	11.1	9	1.70	0.017	0.68
0.10	<0.05	0.21	<0.05	0.20	9.8	10	1.10	0.009	0.61
0.19	0.11	0.40	<0.05	0.66	11.2	20	2.90	0.017	0.33
0.49	0.25	0.68	<0.05	0.94	7.1	25	2.20	0.044	0.60
0.50	0.26	0.30	<0.05	0.38	5.2	27	3.1	0.031	0.88
0.036	<0.10	0.116	0.06	0.68	10.0	22	3.60	0.046	0.59
<0.10	0.20	0.05			12	3.33	0.031	0.65	



%Sn	%SolSn	%Zn	g/t Ag	%S	%CaF <sub>2</sub>	%Cu	%Pb	%As	%Sb
0.06	<0.005	0.010	<1	0.10	<0.10	<0.05	0.005	<0.10	0.001
0.06	<0.003	0.037	<1	0.08	<0.10	<0.05	0.005	<0.10	0.002
0.05	<0.005	0.017	<1	0.08	<0.10	<0.05	0.004	<0.10	0.003
0.06	<0.005	0.024	<1	0.16	<0.10	<0.05	0.004	<0.10	0.004
0.06	0.019	0.010	2	0.10	<0.10	<0.05	0.003	<0.10	0.002
0.07	0.015	0.019	2	0.52	<0.10	<0.05	0.020	<0.10	0.003
0.13	0.006	0.13	4	2.9	<0.10	<0.05	0.014	<0.10	0.004
0.18	0.006	0.085	6	4.3	<0.10	<0.05	0.030	<0.10	0.003
0.22	<0.005	0.26	2	7.5	<0.10	<0.05	0.046	<0.10	0.004
0.10	<0.003	0.072	1	3.3	<0.10	<0.05	0.009	<0.10	0.007
0.34			1	1.1	<0.10	<0.05		<0.10	0.004
1.11	<0.005	0.580	1	1.0	<0.10	<0.05	0.022	<0.10	0.003
1.33	0.011	0.42	2	4.2	0.16	<0.05	0.030	<0.10	0.007
1.50	0.013	0.37	3	3.4	<0.10	<0.05	0.019	<0.05	0.003
1.19	<0.005	0.012	2			<0.05	0.009	<0.10	
0.08	<0.005	0.018	<1			<0.05	0.003	<0.05	
0.07	<0.005	0.085	4	1.8	<0.10	<0.05	0.12	<0.10	0.004
0.08	<0.003	0.28	1	0.57	<0.10	<0.05	0.021	<0.10	0.003
0.33	<0.005	0.670	2	2.8	<0.10	<0.05	0.011	<0.10	0.004
0.10	<0.003	0.038	1	0.34	<0.10	<0.05	0.018	<0.10	0.006
0.16	<0.005	0.056	2	0.68	<0.10	<0.05	0.022	<0.10	0.010
0.23	<0.005	0.032	2	5.1	<0.10	<0.05	0.046	<0.10	0.017
0.42	0.011	2.05	9	9.6	<0.10	<0.05	0.11	<0.10	0.015
0.61	0.017	1.92	8	10.1	<0.10	<0.05	0.290	0.10	0.011
0.22	0.018	2.17	9	9.0	0.27	<0.05			

1363



285156

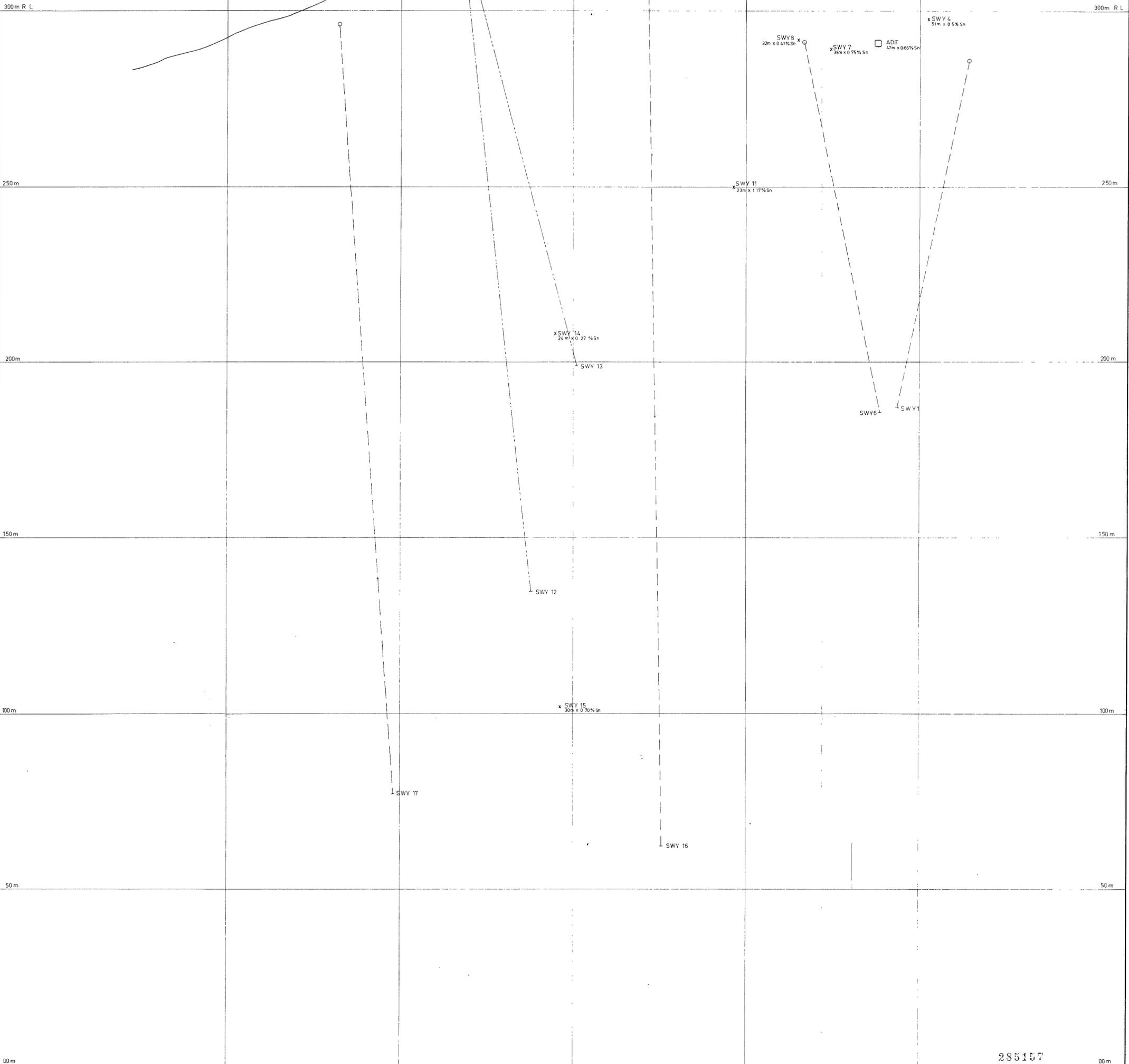


RENISON LIMITED	
SWEENEY'S MINE	
DRILL HOLE LOCALITY PLAN	
GEOLOGIST	K. WELLS
DRAUGHTSMAN	J. MATTHEWS
DATE	AUG 1977
REVISIONS	
DRAWING No	1363
Fig.	Fig. 4.

SOUTH - EAST

NORTH - WEST

OUTCROP OF MINERALISATION



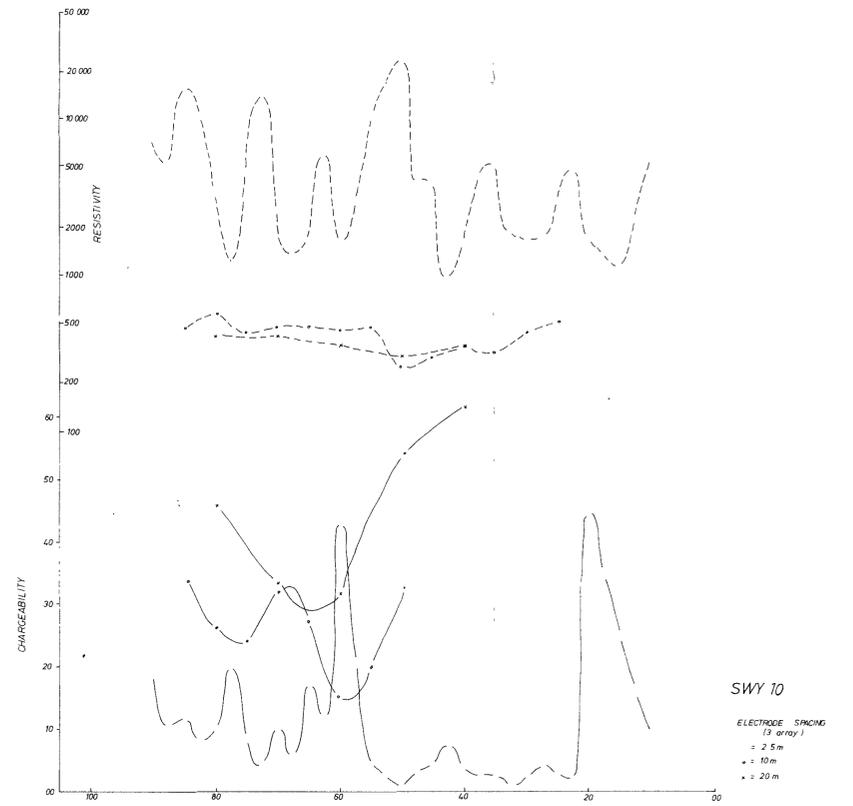
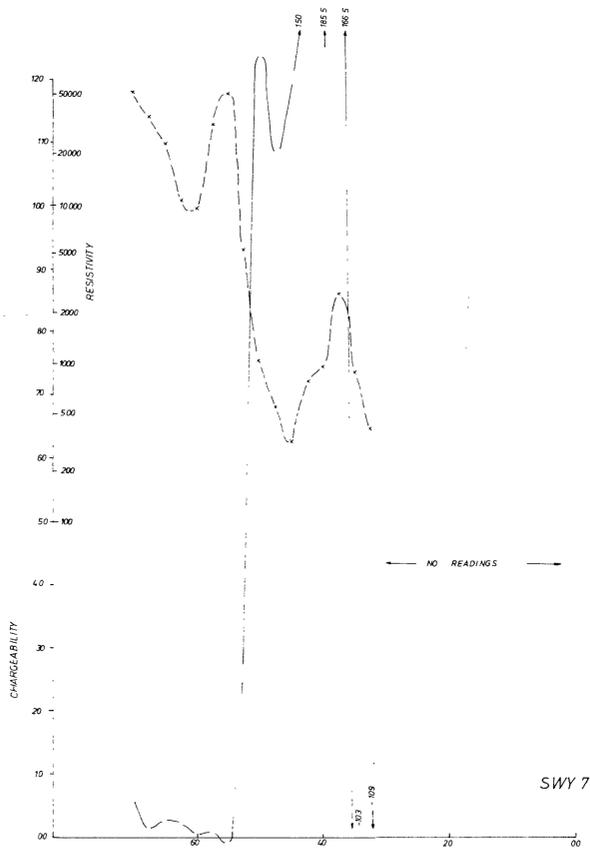
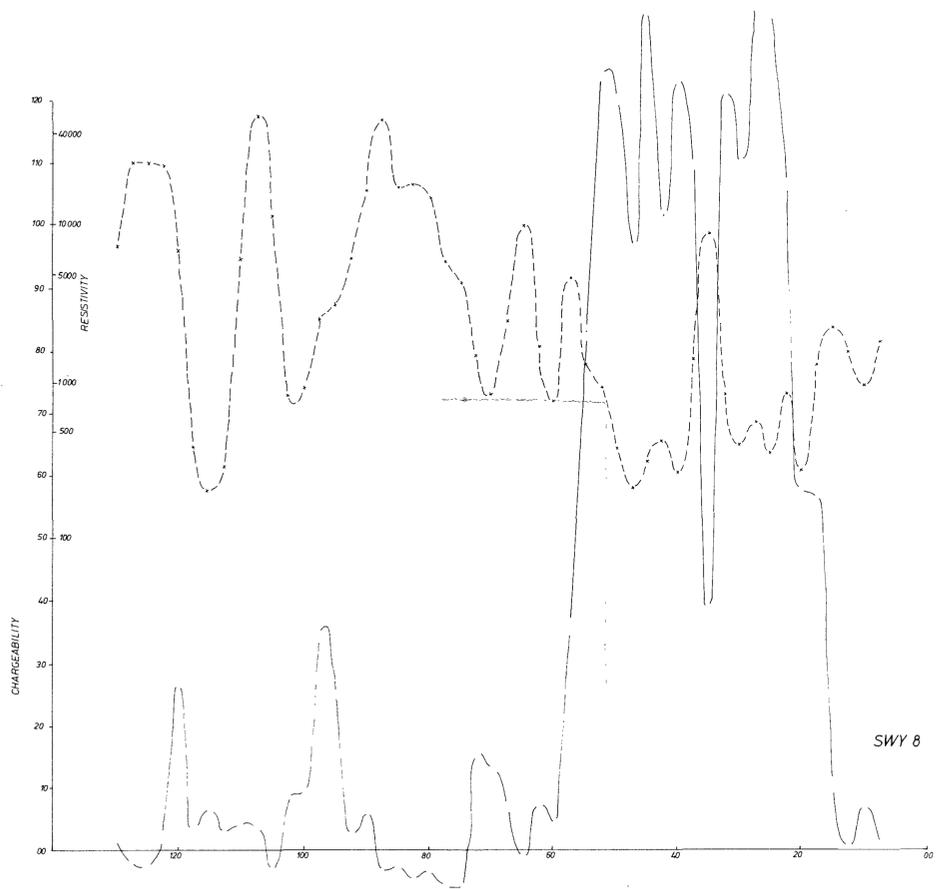
285157

5cm

--- DDH DRILLED NE OF  
 (in front) MINERALISATION  
 --- DDH DRILLED SW OF  
 (behind) MINERALISATION

<b>RENISON LIMITED</b>	
<b>SWEENEY'S MINE</b>	
<b>LONGITUDINAL PROJECTION</b>	
LOOKING S.W.	
GEOLOGIST : K. WELLS	SCALE: 1:500 METRES
DRAUGHTSMAN : J. MATTHEWS	10 0 10 20
DATE : NOV '77	
REVISIONS	DRAWING No
	<b>1364</b>
	<b>FIG. 5.</b>

77-1240



285158

5 cm

RENISON LIMITED

SWEENEY'S MINE  
3 ARRAY DRILL HOLE LOGS

GEOLOGIST	K WELLS	SCALE	1:500 METRES
DRAUGHTSMAN	J MATTHEWS	DATE	NOVEMBER 77
REVISIONS		DRAWING No	1365
			Fig 6

CHARGEABILITY IN mv/v (—)  
RESISTIVITY IN  $\Omega m$  (---)

77-1240



- LEGEND**
- SET UP NP1
  - SET UP NP1 ext.
  - SET UP NP2
  - SET UP NP2 ext.
  - SET UP NP3
  - SET UP NP4
  - SET UP NP4 ext.
  - SET UP NP5
  - SET UP NP5 ext.
  - SET UP NP6
  - SET UP NP7
  - C1-C2 NP5 CURRENT DROLE POSITIONS

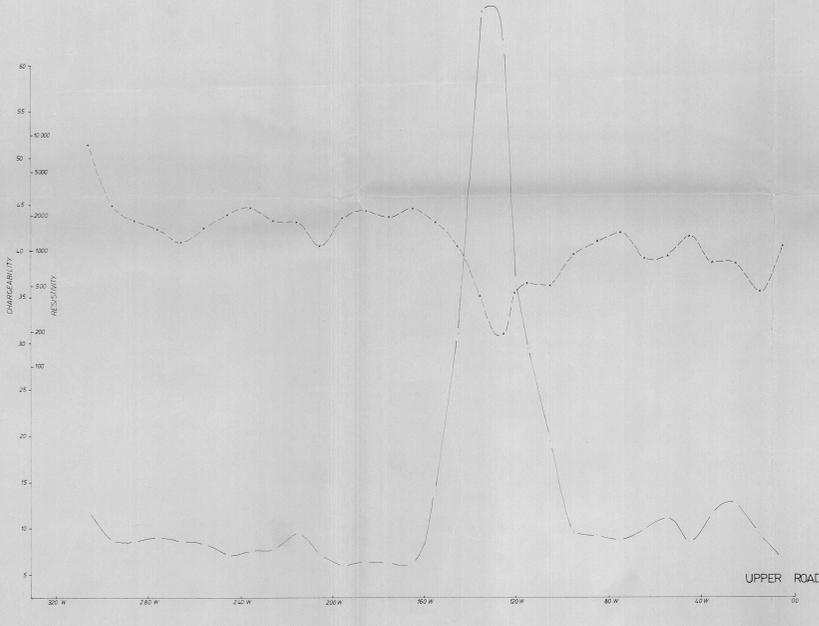
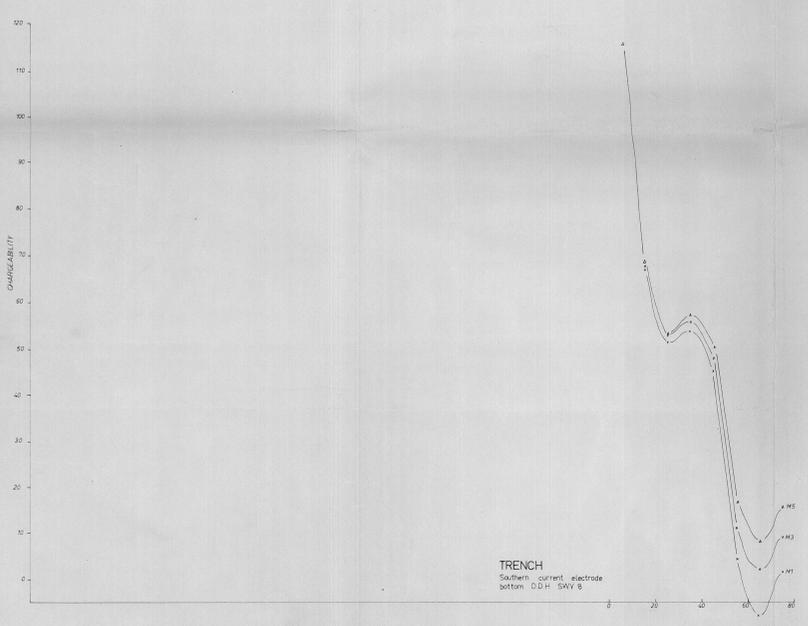
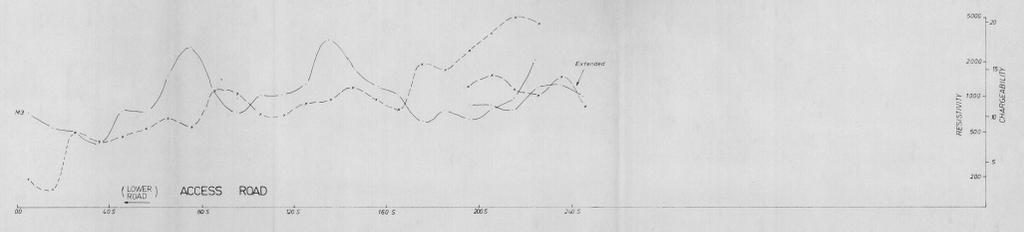
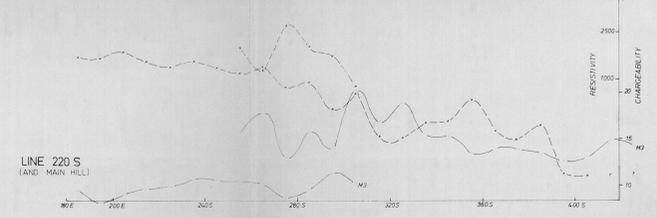
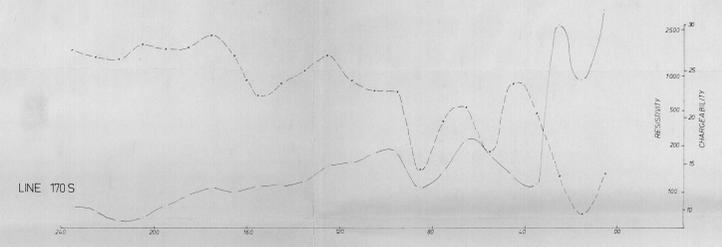
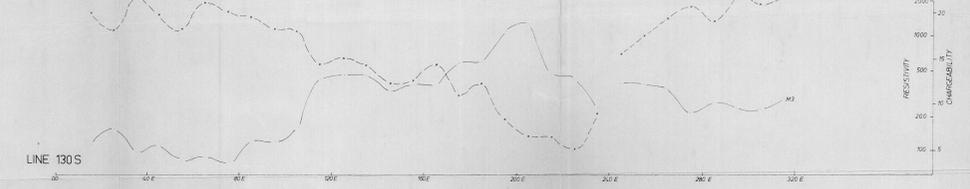
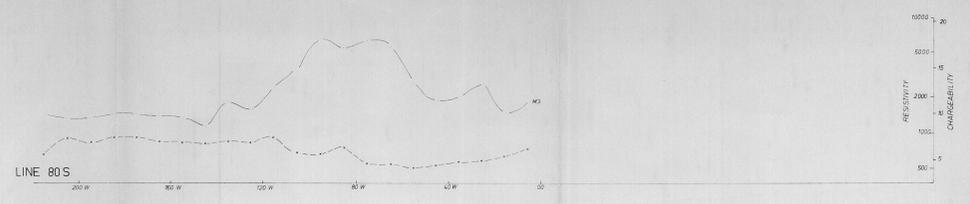
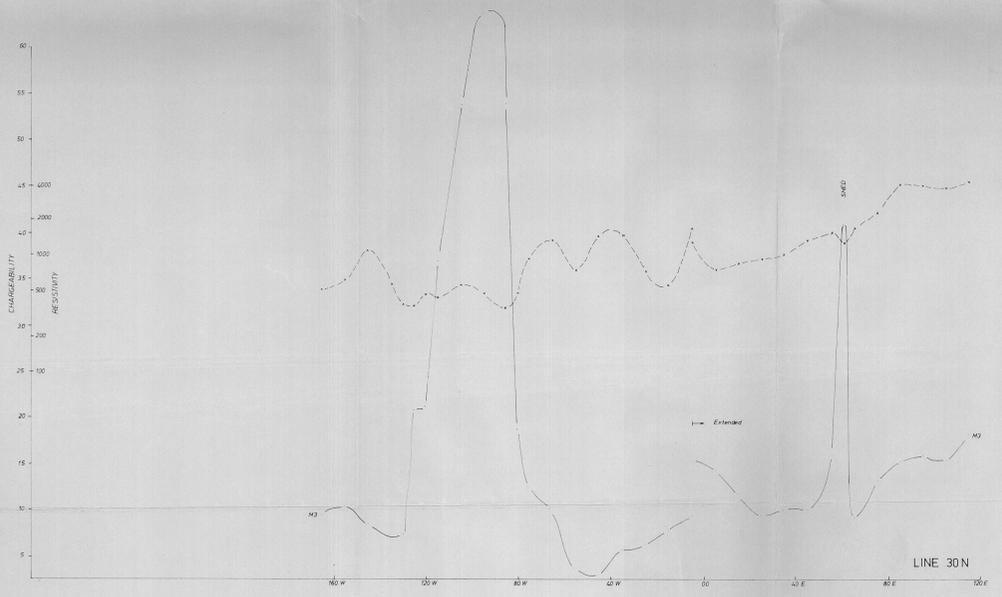
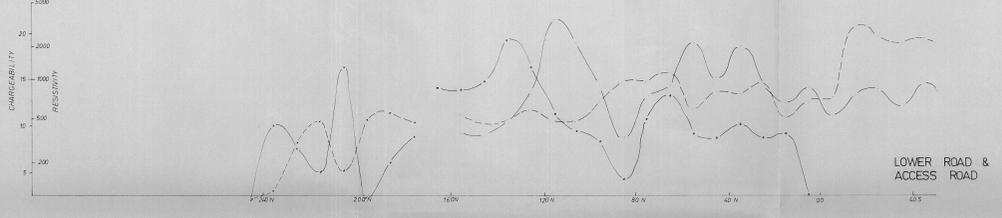
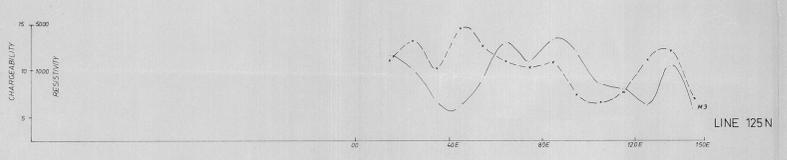
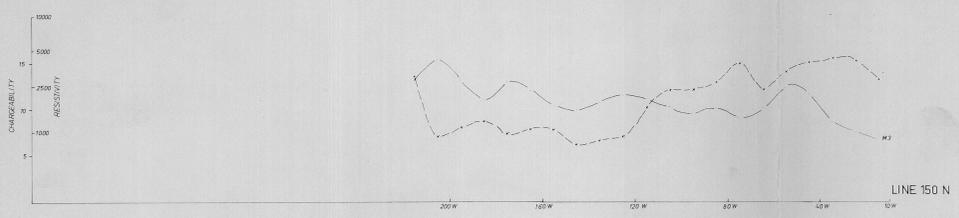
285159

REINSON LIMITED	
SWEENEY'S MINE	
CHARGEABILITY CONTOUR PLAN	
GEOLOGIST : K WELLS	SCALE 1:500 METRES
DRAUGHTSMAN : J MATTHEWS	0 10 20
DATE : NOV 1977	
REVISIONS :	DRAWING No
1366	Fig. 7

NB Lines 150N, 125N, 100S and 75S were originally established by Geophis Minerals in 1971 (Report No 871/23). They were reset and repegged for this survey.

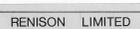
1366

1367



285160

5m



RENISON LIMITED

SWEENEY'S MINE  
I.P. LINE PROFILES

GEOLOGIST : K. WELLS	SCALE 1:5000 METRES
DRAUGHTSMAN : J. MATTHEWS	
DATE : NOVEMBER 77	DRAWING No.
REVISIONS :	1367

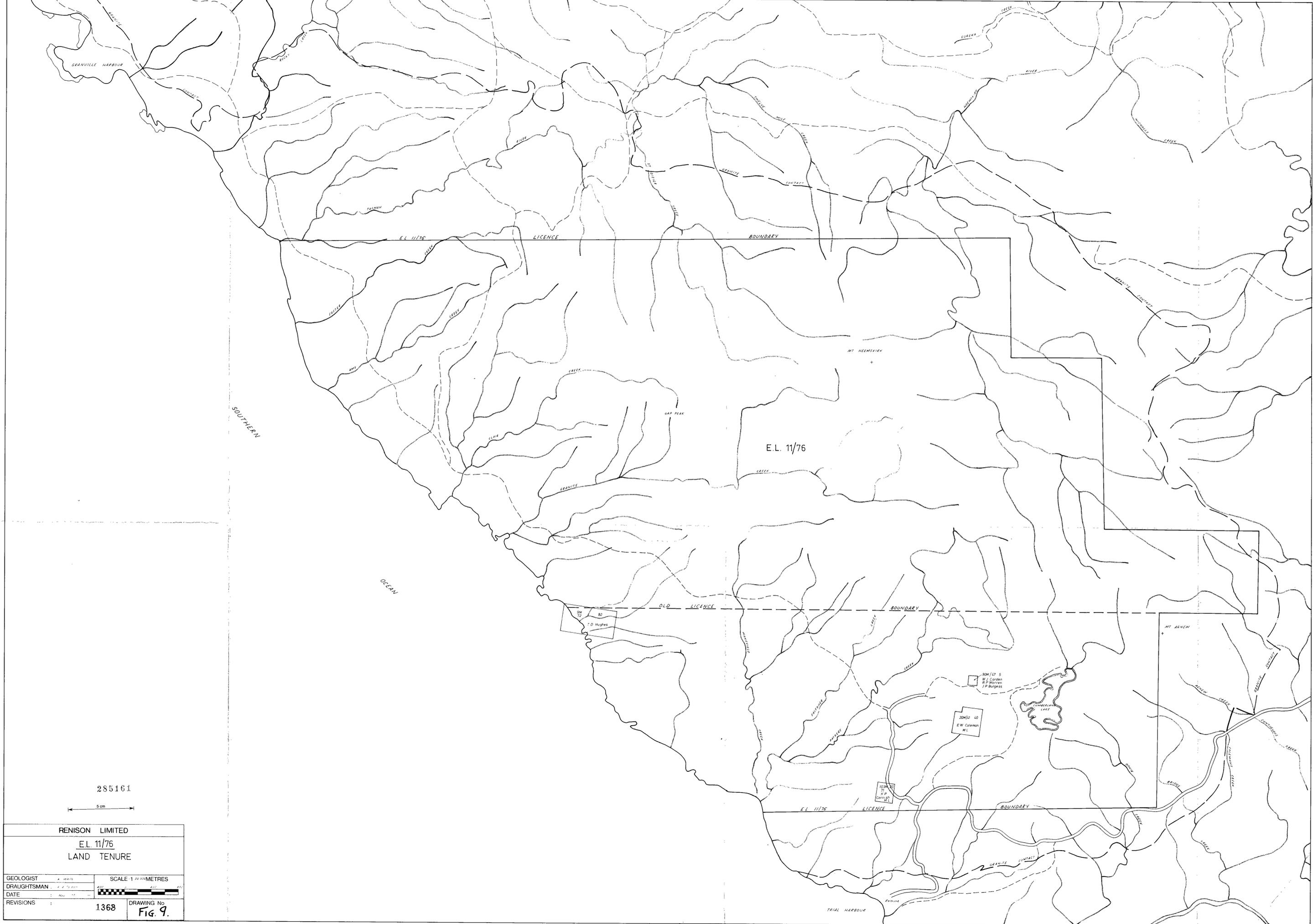
Fig 8

CHARGEABILITY IN  $mV/V$  (—)  
RESISTIVITY IN  $\Omega m$  (---)

Trench viewed looking east  
Access road viewed looking east  
All other lines viewed looking north

5m



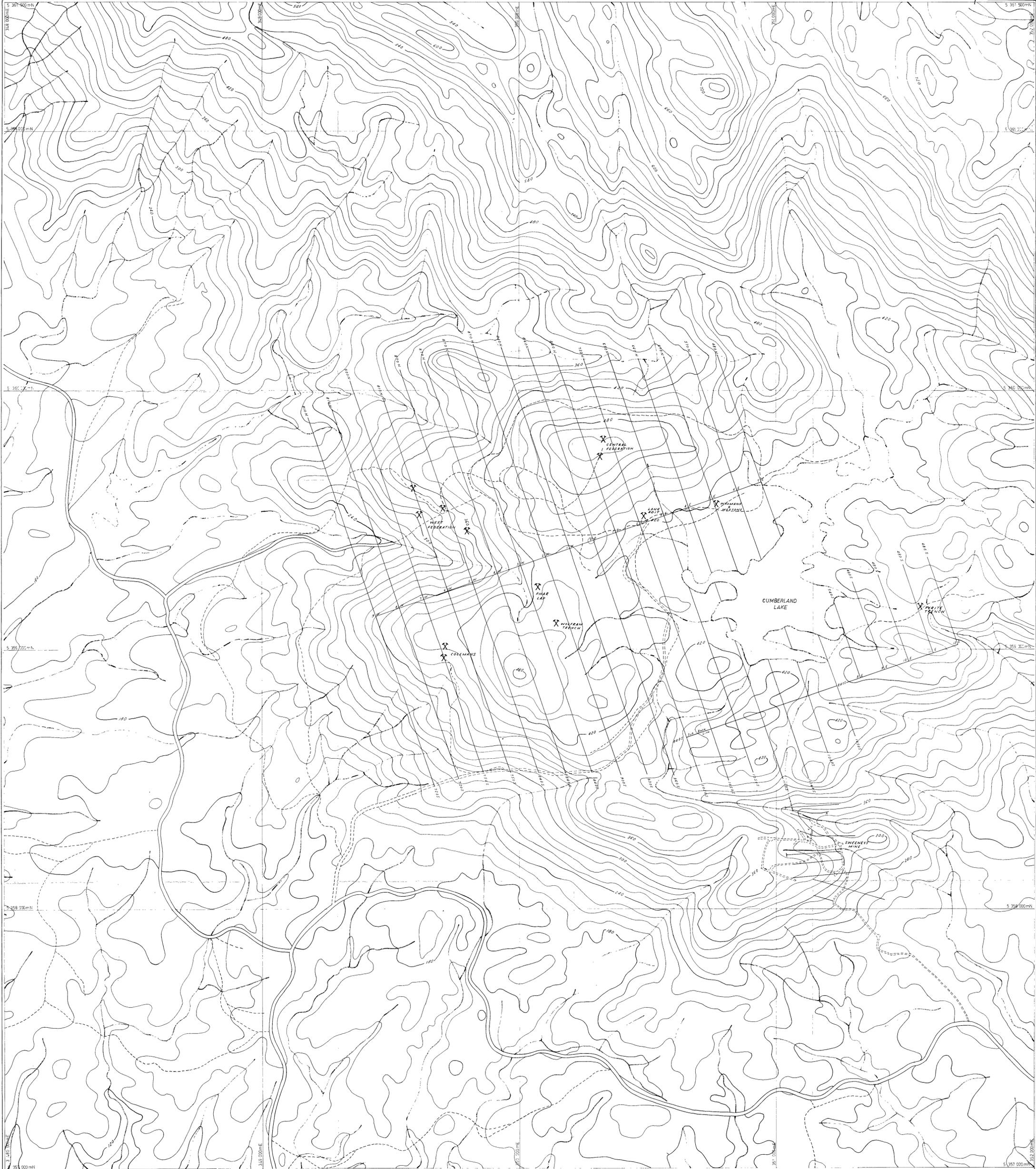


285161

5cm

RENISON LIMITED  
 E.L. 11/76  
 LAND TENURE

GEOLOGIST	A. W. G. 100	SCALE 1:25000 METRES
DRAUGHTSMAN	A. J. G. 100	
DATE	1952.12.11	
REVISIONS		
	1368	DRAWING No. FIG. 9.



**KNOWN MINERALISATION IN FEDERATION GRID AREA**

- WEST FEDERATION WORKINGS - Pyrite, Cassiterite, Bismuthinite
- CENTRAL FEDERATION WORKINGS - Pyrite, Cassiterite
- HARMANS & MUSTONS WORKINGS - Pyrite, Hematite, Cassiterite
- HAR LAP WORKINGS - Pyrite, Cassiterite
- WOLFRAM TRENCH - Molybdenite, possibly Topaz
- COLEMAN'S WORKINGS - Pyrite, Cassiterite, Fluorite
- LONG 2017 - Access to Lower Levels Central Federation Mineralization
- N.B. - FOR DETAILS OF OLD WORKINGS SEE REPORT E.L. 11720 MAY 1976 MAPS 2-4

ZEEHAN C2/1	ZEEHAN C2/2
ZEEHAN C2/3	ZEEHAN C2/4



**285162 RENISON LIMITED**  
**FEDERATION GRID**  
**and**  
**LOCATION OF KNOWN WORKINGS**

GEOLOGIST: K. Wells  
 DRAUGHTSMAN: F. Cullen  
 DATE: Nov. 77  
 REVISIONS:



1369

DRAWING NO. **Fig. 10.**