ST. DIZIER

JOINT VENTURE

PROGRESS REPORT

FEB 1980

RENISON LIMITED

D/250

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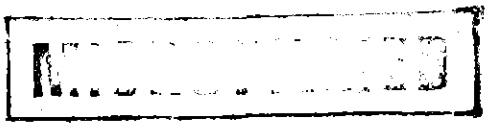

1. SUMMARY

Following the negotiation of a Joint Venture Agreement with Minops Pty. Limited, a five hole diamond drilling program designed to test the economic potential of the St. Dizier tin prospect, was undertaken between June - October 1979.

When viewed in conjunction with the results of previous drilling programs in the area, the results of these five holes indicated the following:-

a) There is potential for the development of a medium-tonnage (2-3 million tonnes), medium grade (0.5% tin) deposit within the 3 Joint Venture Leases.

b) The tin occurs as both cassiterite and more complex forms. This however does not necessarily indicate potentially poor metallurgical performances in a conventional tin concentrator, as at least one of these complex forms may have a density similar to cassiterite.

c) There is possibly some zonation of the tin minerals present, which may be useful in identifying areas where cassiterite is formed in preference to other tin minerals.

On the basis of the above conclusions, the following 4 recommendations are made:

(i) An attempt be made to secure more ground East of the existing 3 Mining Leases.

(ii) The area be geologically mapped in detail.

(iii) A limited 2-3 hole drilling program be undertaken to enable the more accurate estimation of potential ore resources.

A budget of $42,000 has been calculated as necessary to undertake this program.

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2. INTRODUCTION

The St. Dizier tin occurrance is one of the oldest tin prospects in Tasmania. It has been tested quite extensively by diamond drilling and old workings.

Most of this data is either of a very shallow nature or else of dubious reliability. However, it was considered that the area did have potential for the development of a moderate tonnage of stanniferous skarn material and hence a diamond drilling program aimed essentially at testing the deposit beneath previous exploratory programs, was commenced in June 1979.

3. LOCATION, LAND TENURE, JOINT VENTURE AGREEMENT

Locality maps are appended (Map SD 10 (a) and 10 (b)) The property lies approx. 18 kms N.W. of Zeehan and is accessed by way of a good quality, all weather, 2 wheel drive dirt road. Travelling time is approx. 30 minutes from Zeehan.

The main St. Dizier workings are covered by three (3) Mining Leases held by Mr. Roy Laffer of Zeehan viz:

13M/59 of 8.0 ha.
16M/62 of 8.0 ha.
17M/62 of 8.0 ha.

There are several other Mining Leases in the immediate vicinity and ground not covered by these leases is currently covered by Exploration Licence E.L. 47/71 held by Gippsland Minerals; this E.L. is in turn worked under a Joint Venture Agreement between Gippsland Minerals and Aberfoyle.

Laffer's St. Dizier leases are subject to an Option to Purchase Agreement between Laffer and Minops Pty. Ltd., dated 18th September 1978.

On 30th April 1979, Minops entered into a Joint Venture Agreement with Renison Limited, whereby Renison could earn a 51% interest in the area by expending $250,000 on the leases before January 1982.

Due to some difficulties experienced in actually locating the Leases on the ground, it was agreed by the Mines Department and Renison, that the Lease locations should be established by a Licenced Surveyor. This work was undertaken by C.J. Cohen of Launceston in January-February 1979. The results of this survey accompanying this report (Appendix 1).

4. GEOLOGY

4.1 General

A steeply dipping series of E-W striking slates, quartzites and skarns have been intruded at St. Dizier by the Devonian - Carboniferous Heemskirk Granite.

Within the sedimentary sequences, is one wide skarn zone and several thinner ones. The skarn appears to parallel the strike of the sediments and has been variably interpreted as an altered carbonate bed or an altered ultra mafic. Current interprepation favours the former.

The granite outcrops South and West of the St. Dizier Leases but is known from drill core to underlay the Leases at a variable depth. Narrow, steep dipping granitic dykes are common throughout the sequence.

The essential geological features are shown on the accompanying plans, longitudinal projections and sections (S.D. 11, - S.D. 16)

The sedimentary units lying South of the main skarn zone (called footwall rocks) are a very distinctive andalusite slate. The sediments lying North of the skarn (hangingwall rocks) are light grey, cream or white quartzites.

The skarn zone itself is a variable and complex mixture of calc-silicates, carbonate, magnetite and minor iron-sulphides.

An attempt to construct the structural contour plan (S.D. 12) was continually frustrated by the general paucity of available geological data, both from surface mapping and sub surface drill hole logging.

Any number of interpretations is possible, and the one presented in this report should be viewed with this fact in mind.

4.2 Structural Interpretation

4.2.1. Granite

An effort was made to contour the top of the granite as this feature is an important control on tonnage potentials. 50m contours were established using:

a) definite granite intersection points in drill holes. There were not many of these, as a good percentage of old holes, whilst they hit granitic rocks, didn't continue in them far enough for it to be considered "granite proper", as opposed to the dykes which are now known to be common in the area.

b) negative points in drill holes (i.e.) R.L. values at which holes penetrated to, without intersecting granite. Such points indicate where the granite isn't, as opposed to holes which indicate where it is.

c) Outcrop. This is poorly mapped and was thus of limited value.

From this exercise, the main features of the granite top were deduced to be:

i) General North dip of granite at about 45° in the eastern section of the leases and North-East dip of the granite at about $50\text{-}60^{\circ}$ in the western section.

ii) Apparent major N-S fault affecting the granite between holes S.D. 10 and S.D. 13. This fault should also be reflected in the skarn contours, and may in fact be part of a major N-S fault zone affecting the entire Heemskirk Granite and known as South Gap Creek Fault.

iii) going West, the contours swing from a general E-W trend to a N-S and steeper trend, with a sharp E-W embayment lying in 13M/59.

Geophysical work combined with sparse outcrop mapping suggests this embayment of sediments is connected in outcrop to the main sediment body and not an isolated roof pendant. More detailed mapping to the North would be required to indicate whether this N-S swing in contours is regional or local.

Other features of the granite to emerge from this study are:

- granitic dykes penetrating the adjacent skarns and sediments are common and vary in true thickness from under 1.0m to over 10.0m.

  Their dip is uncertain at this stage but is thought to be near vertical.

- mineralisation in the granite is negligible.
- apart from the immediate marginal areas, alteration is not strongly developed.

4.2.2. Skarn

As a means of appreciating geological structure and as a necessary requirement for tonnage determinations, an attempt was made to contour the Northern (H.W.) and southern (F.W.) boundaries of the main skarn zone.

The exercise however proved to be rather difficult and at best can only be described as a dismal failure. This was largely brought about for the following reasons.

a) lack of consistent data:- four companies and numerous geologists have logged core from this area. There is considerable inconsistency in geological nomenclature, thus in a contouring exercise, there is no confidence that the points being contoured are compatible points.

b) Very poor core recoveries in some areas.

c) Unsurveyed drill holes:- with steep dipping strata such as exists at St. Dizier, this is a vital point when attempting to construct accurate contour maps.

d) Possible complex geology:- when contouring the granite, there was a definite suggestion that one (and possibly more) significant fault(s) affected the area. This also became apparent when contouring the skarn.

Further the skarn itself is probably not of a particularly uniform width. If it is "pod like" both in dip and strike, then the contouring problem is virtually impossible.

Bearing in mind all the above problems, the main features of the skarn to emerge from this exercise were:

i) The southern margin of the skarn has been termed the footwall and the northern margin, the hangingwall.

ii) A consistent dip or strike direction was not established; in fact the dip appears to vary from steep North to steep South. The skarn is considered to exist in three blocks.

- a South dipping eastern block.
- a North dipping central block.
- a South dipping Western block.

iii) These "blocks" may be separated by faults, or folds, or they may represent pods.

4.3 Ore-Potential Interpretation:

Using the structural contour plan (S.D. 12), a Longitudinal Projection of the main skarn zone was constructed (S.D. 13). From this projection, the following conclusions could be made:

a) Most of the significant mineralisation currently recognised occurs in the central block.

b) The shallow granite in the West precludes the development of substantial tonnages of mineralised skarn in that area.

c) The potential of the eastern block could be substantial but will be at a considerable depth, which has as yet been virtually untested by drilling.

5. DIAMOND DRILLING PROGRAM

A five hole diamond drilling program totalling 1387m was commenced in June 1979 and completed in October 1979.

The aims of the program were to:

- test the depth and eastern strike extensions of the main skarn zone.
- test for parallel skarn zones South of the main skarn.
- test the quartzites to the North of the main skarn for narrow vein and joint infilling cassiterite mineralisation.

Full logs of these holes are appended to this report. Following an assessment of previous drilling in the area, it was noted that high core recovery would be a problem but was critically important. Thus it was decided to drill HQ-NQ tripple tube and reduce to BQ only where absolutely necessary from a practical drilling point of view. However, as seen from the logs, some core losses were encountered.

All holes were surveyed down-hole with single shot camera, and collar surveyed by a Renison Surveyor.

Holes were stratigraphically logged in detail and magnetic susceptibilities measured in 1m. spot intervals for full hole lengths.

Mineralised, or otherwise interesting core was split in 1m. intervals on a diamond saw and assayed in the Renison Limited Laboratories for a wide range of elements. All core is stored in the Renison Core Shed.

Samples from assayed intervals with significant tin mineralisation were forwarded to Central Mineralogical Services in Adelaide for petrological and mineralogical studies. Electron - probe microanalyses were also undertaken on several samples. A random selection of other rock types were also forwarded for petrological work, essentially to confirm visual logging. Reports on all this work are included with the attached relevent drill logs, as well as included in toto as Appendix 2.

6. DIAMOND DRILL HOLE RESULTS

6.1 Detailed Results

The full drill logs together with assays and petrological descriptions are appended (Appendix 2 and 3). The essential results of each hole are noted below:

6.1.1. D.D.H., S.D. 9:

This was a 295m. hole drilled to test the skarn mineralisation beneath the main open cut. It intersected approximately 120m (true width) of skarned rocks, containing one significant stanniferous zone and several lesser mineralised zones.

The main intersection is estimated as 5m (true width) of 0.82 % Sn, of which 0.10 % Sn is present in an acid soluble form. Most of the tin is however present as very fine cassiterite closely associated with magnetite. Significant bismuth was also recorded in this intersection. The intersection was obtained 130m vertically beneath the surface.

No significant mineralisation was located in either the footwall or hangingwall sediments.

6.1.2. D.D.H., S.D. 10:

This 313m hole was drilled some 70m West of D.D.H. S.D.9 It also intersected a wide skarned zone (> 100m true width) but was not as well mineralised. There was one zone of moderate interest close to the granite - 6m (true width) 0.33 % Sn of which 0.25 % is acid soluble. Fander has determined that this acid soluble form is probably a mixture of both hulsite and a new tin mineral named "dizierite". (see detailed logs and petrology appendices). This intersection also contains 0.10 % WO_3 as scheelite.

6.1.3. D.D.H., S.D. 11

This was a disappointing hole in that it failed to intersect the skarn zone, due largely to a higher than predicted granite basement.

6.1.4. D.D.H., S.D. 12

This hole was drilled North to South on the same section as D.D.H., S.D. 11, approximately 50m West of S.D. 9.

It intersected several narrow (1-2m) stanniferous zones near the Northern margin of the main skarn body. All the tin (0.2 - 0.4 % range) was present in an acid soluble form, thought to be of the ludwigite - vonsenite family.

6.1.5. D.D.H., S.D. 13

This 377m hole was drilled 100m. East of S.D. 10. It intersected a wide 80 - 90m (true width) skarn zone which contained two stanniferous zones and a sphalerite rich zone. The most significant tin zone was intersected towards the northern margin of the skarn, 160m. vertically beneath the surface and contained 8m (true width) 0.62 % Sn of which 0.24 % was acid soluble, both in the form of hulsite and dizierite.

Close to the granite, near the southern margin of the skarn, was a 5m (true width) zone of 0.21 % Sn of which 0.13 % was acid soluble. Adjacent to this zone was a high zinc (sphalerite) zone containing 7m (true width) of 1.25 % Zn. The two zones partly overlap.

Granite was intersected much deeper than acticipated, which thus has the effect of very significantly increasing the tonnage potential of the skarn body to the East.

7. CONCLUSIONS AND RECOMMENDATIONS

This drilling program succeeded in demonstrating the following:-

a) The tonnage potential of the stanniferous skarn body is greater than previously thought - particularly to the East.

b) Tin is present in 3 major forms viz. cassiterite, which is normally closely associated with magnetite; dizierite, a tin-manganese-iron oxide containing approximately 50 % Sn; and hulsite-ludwigite, which contains about 7 % Sn.

c) Scheelite is present in places.

d) Tin is scattered apparently randomly throughout the skarn, although there is a suggestion that there may be one significant zone near the northern margin of the skarn, and another associated with the skarn-granite contact zone.

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e) There may be some mineralogical zonation in the main skarn body. The recognition of this fact could be important if it has some bearing on which tin minerals form. (e.g.) it could be that the tin which formed in the hotter areas preferentially exists as dizierite or hulsite whilst in the cooler areas, cassiterite preferentially forms.

f) The area has been structurally disturbed by possibly two significant faults, one of which appears to either control or otherwise affect the granite shape.

g) The likelihood of locating significant parallel skarns in the slates South of the main skarn appears remote.

h) Significant cassiterite vein deposits in the quartzites North of the main skarn appear not to exist.

Four major recommendations are made on the basis of the results of this drilling program:

a) An attempt should be made to secure more land to the immediate East of the existing Mining Leases.

b) The surface of the three existing leases, together with some of the adjacent ground, needs to be mapped in detail.

c) Cores from several selected drill holes previously drilled in the area should be resampled and assayed with a view to establishing what proportion of the various tin phases identified to date are present.

d) Two diamond drill holes should be completed during 1980. The location of the holes is shown on the accompanying plan, sections and projection. Proposed hole S.D. 14 is designed to test the skarn East of D.D.H. S.D. 13, and beneath D.D.H., S.D. 6 (3m 0.78 % Sn). Proposed hole D.D.H., S.D. 16 is designed to follow up the encouraging intersections of S.D. 10, S.D. 13, and several of the older holes further West. A third hole, S.D. 15, has been shown on the accompanying plans and could be drilled if the results of D.D.H., S.D. 14 were considered encouraging enough.

In order to complete this program, a budget allocation of $42,000 is considered necessary. Details are:

		$
Salaries	Geologist, drafter, assistant	6,500
Diamond drilling:	550m at $50/m	27,500
Access development:	Dozer hire	1,500
Consumables:	Core trays etc.	1,000
Renison Services:	Surveying, assaying, vehicles	2,500
Petrology Services:	C.M.S./Amdel	2,000
Contingencies:		1,000
		$42,000

013

PLAN OF MINERAL SURVEY

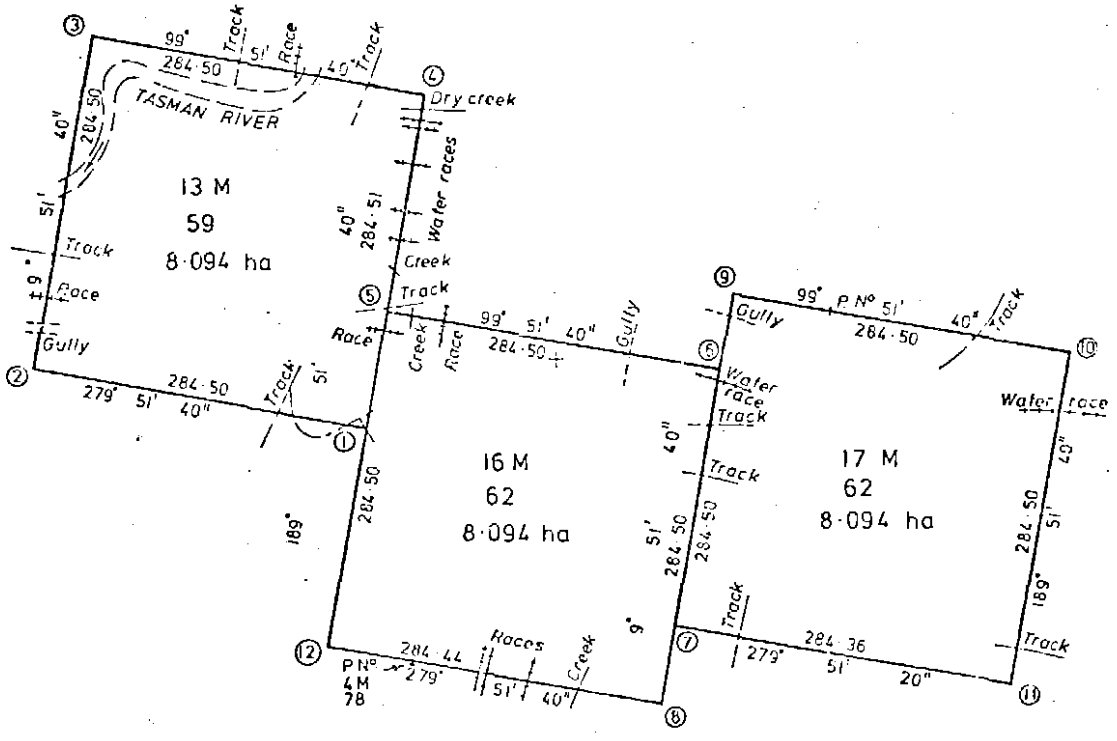
Situate in the LAND DISTRICT OF MONTAGU

Vicinity of ST DIZIER RIVER – NORTH HEEMSKIRK

Registered Surveyor C. J. Cohen

Scale 1 : 4 000

Map Ref. 20 – 3436



APPENDIX 1

5 cm

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PLAN

DOCUMENT

A.M.G. Co-ordinates — Zone 55

R.	E.	N.	COR.	E.	N.
	Donnellys Lookout H.E.C.				
	343960·01	5 369 165·50			
	Heemskirk Beacon H.E.C. BM 4483				
	348 161·01	5 364 674·41			
	344 816·55	5 367 659·37			

SURVEYORS CERTIFICATE

I, Christopher John Cohen

of Launceston

hereby certify that this survey, accompanying survey notes and plan:—

1. Complies with relevant legislation affecting surveys, and
2. Is based upon the best evidence that the nature of the case admits.

C J Cohen

Registered Surveyor

Date 26 - 2 - 1979

ENTERED BY SURVEYOR

Instruction No.

Date of Instruction

Survey Completed 26th Jan 1979

Accuracy of Closure See calcs.

or

Positional Accuracy

OFFICE EXAMINATION

Examined for:—

Computations

Regulations

Boundaries

Survey Co-ordination

Survey Approved for Registration

Examiner of Surveys

Charted

Microfilmed

MINES DEPARTMENT

Finally Examined:

May be acted upon:

Acted upon:

Approved:

Director of Mines

015

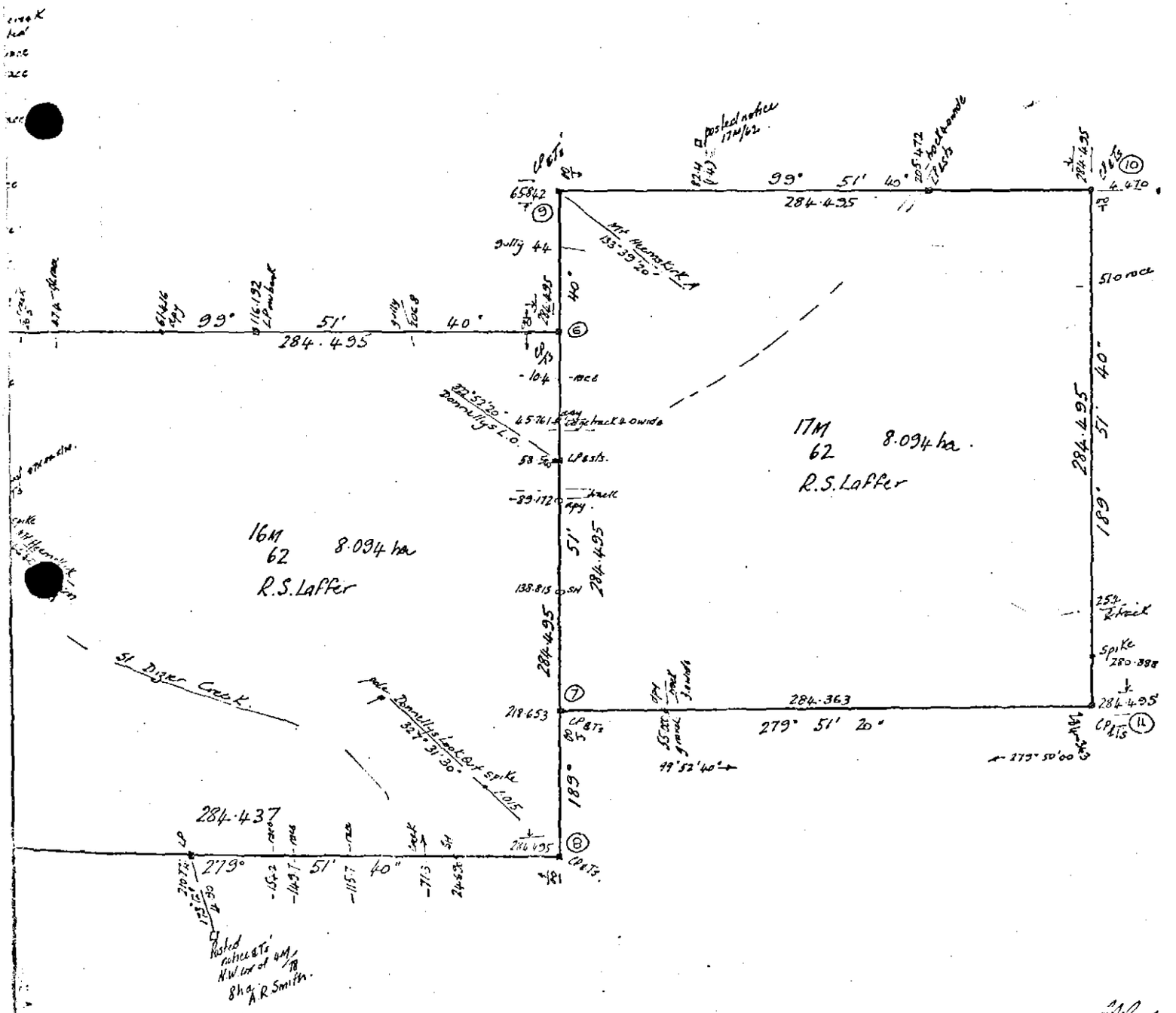
SURVEY NOTES

Preamble:— LAND DISTRICT OF MONTAGU

Vicinity of St. Dizier River – North Heemskirk

Mineral Leases
13M-59
16M-62
17M-62
} Roy Stanley Laffer, Applicant.

Grid North



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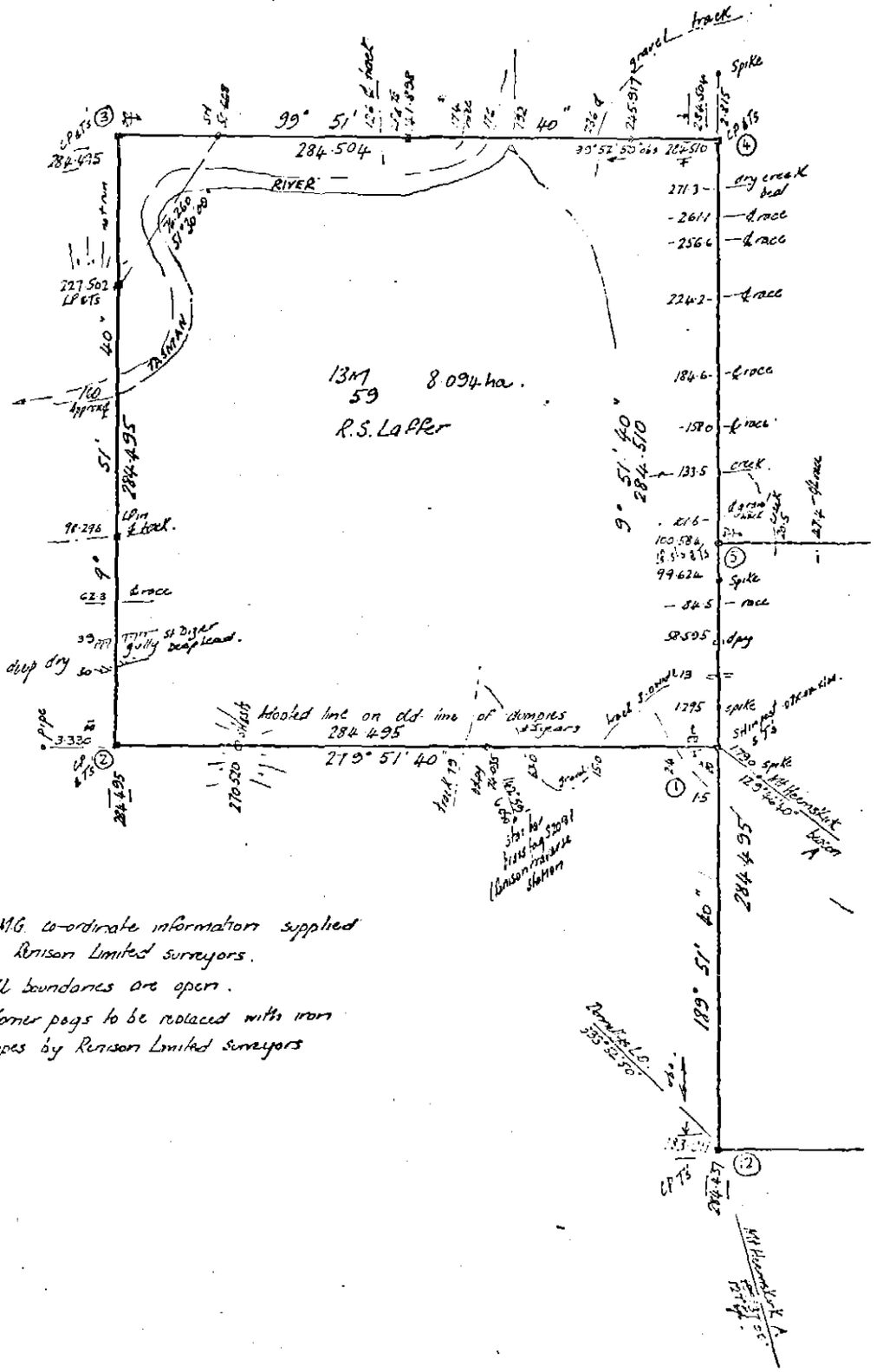
99° 51' 40"
284.504
RIVER
13M 59
8.094 ha.
R.S. Lafler
279° 51' 40"
189° 51' 40"
9° 51' 40"
284.510
284.495
gravel track
dry creek bed
drain
creek
spike
pipe
fence
hooked line on old line of dumpies
Lot 1 DP 13
Lot 2 DP 13
Lot 3 DP 13
Lot 4 DP 13
Lot 5 DP 13
LP 6175
LP 7375
LP 7376
LP 7377
LP 7378
LP 7379
LP 7380
LP 7381
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LP 7387
LP 7388
LP 7389
LP 7390
LP 7391
LP 7392
LP 7393
LP 7394
LP

APPENDIX 2

SC 013

Central Mineralogical Services

231 Magill Road
Maylands, S.A. 5069
Telephone 42 5659

Mr. L.A. Newnham
Chief Geologist
Renison Limited
P.O. Box 20
ZEEHAN / TAS. 7469

23rd August, 1979

REPORT CMS 79/7/24

YOUR REFERENCE:	Letter dated 13.7.1979 LAN/lmh/3450
DATE RECEIVED:	17th July, 1979
SAMPLE NOS.:	S.D. 9 - 7 drill-core intersections
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

BG 019

REPORT CMS 79/7/24

The seven drill-core intersections from S.D. 9 were examined in thin- and polished section; in view of theproblem of locating Sn-bearing phases, electron-probe microanalysis was also carried out, on a composite chip-sample representing the 170-171 m intersection. The information so obtained was used to identify cassiterite in other sections.

Most of the intersections are quite similar and are described as a group; as noted in similar rocks, it would seem that serpentinites are relatively "reactive" rocks and thus favourable hosts in metasomatic situations; scheelite- and cassiterite-bearing serpentinites are known.

In all these intersections, the cassiterite is exceedingly fine-grained, very similar to that described from Sweeney's and from S 394 (though that is probably hydrocassiterite); the mode of occurrence suggests low-temperature (or low-energy) formation, though this contrasts with other observations on St. Dizier samples.

Petrology

Several of the intersections contain good evidence of derivation from ultramafic rocks, mainly in the form of antigorite patches with relict olivine/pyroxene textures; they include 166.5 m, 170.8 m, 211.7 m, 228 m and 237.5 m. At 211.7 m, very coarsely-crystalline olivine relict crystals have survived, and at 228 m, the secondary mineral is iddingsite rather than antigorite. At 174.1 m, the rock is massive magnetite, and the intersection at 221.6 m is a banded skarn containing antigorite and thus presumably of ultramafic origin (perhaps sheared and carbonated).

The main mineral introduced into the serpentinites was magnetite, often conspicuously fibrous-acicular; there is some evidence that the unusual habit of the magnetite is due to pseudomorphism after chrysotile and/or tremolite. Other minerals, introduced sporadically or in minor quantities, include fibrous carbonate, coarser sideritic carbonate, fluorite (221.6 m, 237.5 m), apatite, topaz (237.5 m), and diopside (221.6 m).

The cassiterite occurs as clusters of minute crystals; because of their small size (mostly 1-2 μ), they are whitish and semi-opaque (i.e. like a white pigment) and were recognised only after electron-probe microanalysis; the clusters are larger, up to 50 μ or more in some instances, but are white and opaque. The cassiterite is most closely associated with magnetite, but is also embedded in antigorite; it was clearly introduced with magnetite as part of the metasomatic phase.

Since there is evidence of more intensive metasomatism, and since coarse cassiterite has been observed in other St. Dizier rocks, it seems premature to assume that the ultrafine cassiterite in these intersections is typical or representative; the fact that the Sn mineral is cassiterite (and not some more obscure phase) and is present in reasonable amounts, should be sufficiently encouraging for further investigation.

Traces of sulphides occur in some intersections and include pyrite and arsenopyrite; native bismuth is also present in traces.

Electron-probe microanalyses showed that the only Sn occurred as cassiterite; none was found in solid solution in magnetite or any other mineral in the sample (170-171 m) examined.

Prior to EPMA, a portion of 170-171 m chips was ground, magnetically separated (with a hand-magnet) and the non-magnetic fraction was separated in TBE (SG = 2.95). The sink fraction was optically examined; a single 80 μ cassiterite grain was seen, and small clusters of ultrafine (?)cassiterite are present. However, the bulk of the cassiterite would have remained in the magnetite due to lack of liberation.

Photomicrographs were prepared to illustrate the nature and occurrence of the cassiterite.

H.W. Fander, M. Sc.

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File No. 3450
GEN. MGR.
CH. GEOL.
20 NOV 1979
CH. ENGR.
CH. PR. ENGR.
INDUST. OFFR.
PERSNL. OFFR.
SUPPLY OFFR.
CH. ACCT.
PAYMAST.

Central Mineralogical Services

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231 Magill Road
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Mr. L.A. Newnham
Chief Geologist
Renison Limited
P.O. Box 20
ZEEHAN / TAS. 7469

16th November, 1979

REPORT CMS 79/7/25

YOUR REFERENCE:	Letter dated 13.7.1979 LAN/lmh/3450
DATE RECEIVED:	17th July, 1979
SAMPLE NOS.:	DDH SD 9 - 24 samples
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology

for

H.W. Fander, M. Sc.

REPORT CMS 79/7/25

Petrological Descriptions

St. Dizier Drill Cores

(T.S. 28341 - 28364 incl.)

DDH - SD 9

9.0 m This is a quartz-muscovite-tourmaline rock and is vaguely recognisable as a greisened granitoid. It consists essentially of muscovite aggregates (mean 750 μ), variably impregnated with pale yellow to orange (titaniferous) tourmaline, more or less evenly disseminated throughout a matrix of fine granular quartz, subordinate muscovite and accessory tourmaline. The muscovite-tourmaline aggregates are vaguely pseudomorphous after prismatic phenocrystal feldspar. Isolated poikilitic tourmaline grains with orientated titaniferous semi-opaque inclusions may represent altered biotite flakes. There are rare, relatively clear patches of quartz which conceivably represent recrystallized quartz phenocrysts.

Overall, there are similarities with the more strongly greisened zones in the Pine Hill Porphyry. Traces of pyritised pyrrhotite are present, but there is no detectable cassiterite.

10.0 m This is a rather distinctive degraded chiastolite hornfels, consisting largely of microgranular quartz with subordinate sericite and a pervasive network of microscopic graphite films along the grain boundaries. Frequent sericite-pseudomorphed chiastolite porphyroblasts (mean 300 μ, clusters to 3.5 mm) are present, and there are occasional semi-massive patches of sericite (to 2.5 mm) with the appearance of degraded cordierite poikiloblasts.

Accessories include traces of dravite, phlogopite, late secondary quartz and phlogopite. Patchy pyrite and pyritised pyrrhotite occur in irregular films.

There are no obvious relict detrital features. The original sediment was probably a highly impure (argillaceous, carbonaceous) chert or cherty argillite.

21.0 m This is a quartz-tourmaline-muscovite rock, essentially similar to that at 9.0 m. In contrast, however, there is evidence of an altered sediment mode of origin. The rock shows a weak, but more or less pervasive, relict banding transected by discontinuous tourmaline veins and parallelled by a faint heavy mineral banding (opaques, minor traces rutile, graphite, rare zircon, apatite) and bythe distribution of muscovite. This is reminiscent of bedding in a fine quartzose sandstone with sporadic argillaceous bands. There are no tangible altered igneous features.

Accessory pyritised pyrrhotite is weakly disseminated throughout the rock and tends to be concentrated into the tourmaline veins, along with rare microscopic particles of sphalerite and chalcopyrite. There is no detectable cassiterite.

43.2 m This is a quartz-muscovite-tourmaline rock with disseminated, partly pyritised pyrrhotite and accessory chlorite and sphene. Relict textures are relatively well preserved and, in this case, a greisened granitoid mode of origin is quite clear. The original rock was a medium- and even-grained, granitic-textured minor intrusive phase, with sporadic primary biotite flakes and accessory traces of zircon, apatite, sphene and xenotime.

The sectioned area includes a zone of quartz-muscovite vein material. Coarse poikilitic tourmaline is developed in irregular patches along the poorly defined contact.

55.2 m This altered chiastolite hornfels is very similar and closely related to the rock at 10.0 m. In comparison, it is relatively sericitic and exhibits relict bedding in the form of an alternation of siliceous (cherty) and relatively micaceous (shaly) bands on a millimetric scale. Pyrrhotite is relatively common and, with a semi-banded distribution, probably represents recrystallized syngenetic sulphide.

Sparse relict andalusite is present. The retrogressive sericitisation of this phase (and accessory poikiloblastic ?cordierite) in this case can be related to a crude slaty cleavage, which postdates sporadic discontinuous quartz veins.

57.8 m This is a mildly sheared and weakly altered serpentinite. It consists largely of fine-scale, mesh-textured antigorite, with irregular areas and crude bands of weakly schistose serpentine. Overall, the texture indicates the original rock to have been a finely granular dunite.

The rock is weakly impregnated with semi-fibrous carbonate (ankeritic). Occasional irregular patches (to 7.5 mm) of fibrous magnetite are present and this, together with thin marginal selvedges of near-isotropic chlorite, developes in part by replacement of antigorite. Sparse "cross fibre" chrysotile veinlets predate the carbonate-magnetite-chlorite alteration.

69.0 m This is a diopside-tremolite rock, generally very fine-grained, but with occasional bands and lenses of relatively coarse, granular diopside. The rock represents a contact-metasomatised labile psammopelite and exhibits sub- to millimetric-scale bedding and finer laminations, patchy relict slump-, graded and locally transcurrent bedding structures. Very fine opaques and leucoxenic semi-opaques are

ubiquitous. These features aretypical of the Crimson Creek tuffaceous turbidites and their metasomatised equivalents. The rock is weakly stained with ultrafine pyrrhotite.

Texturally, tremolite in this rock developes in part by replacement of diopside. Locally, both phases are partly replaced by yellowish chlorite and accessory talc. Tremolite is locally schistose and these late alteration effects are of retrograde character.

106.6 m This rock is a carbonated serpentinite with an unusual fabric. It consists largely of weakly interlocking, semi lustre-mottled, poikilitic calcite anhedra (mean 150 μ), with subordinate, very evenly disseminated, similarly textured magnesite. Relict antigorite persists as fine-grained, weakly mesh-textured aggregates included in, and intergranular to, the carbonates. Accessories include rare magnetite particles and sparse stylolitic films of Mg-chlorite.

124.3 m This is a contact-metasomatic rock or skarn, developed in a labile clastic sediment and essentially similar to the rock at 69.0 m.

Part of the area sectioned comprises a diopside-tremolite rock, analogous to the previous specimen, with abundant opaques (carbonaceous matter in part) outlining fine-scale relict bedding laminations. This rock is veined by diopside-siderite aggregates, with disseminated magnetite and patches of dark red sphalerite.Marginally, these veins grade into irregular to crudely vein-like aggregates of coarse, complexly-twinned vesuvianite and strongly poikilitic cordierite, with patchy epidote, fine-grained grossular-andradite, relatively frequent and coarse (to 1.5 mm) blebs of sphalerite and irregular zones of quartz and siderite. Accessories in these irregular metasomatic replacements include magnetite, pyritised pyrrhotite and graphite. Marginal areas of the host rock are variably chlorite-stained and partly degraded, evidently due to groundwater movements through irregular cavities. The rock, as a whole, reflects variations in metasomatic grade on the scale of a few centimetres.

132.6 m This is a moderately altered and somewhat oxidised/Fe-stained skarn with a faint relict banding. The rock consists largely of fine-grained diopside and grossular-andradite, with occasional grains and semi-massive bands of vesuvianite and traces of sphalerite. Diopside is progressively replaced by tremolite in irregular zones, and these aggregates are subsequently clouded with a late phase of chlorite-phlogopite-siderite alteration. Patchy Fe-staining reflects partial degradation of the micas and, particularly, siderite.

The sectioned area includes a contact with a granitic aplite. This rock consists largely of orthoclase and micrographic quartz with subordinate albite. The contact is irregular and fracture-bounded in

part and it is suspected that this rock represents a narrow dyke displaced by fine-scale faulting. The aplite is marginally altered with development of chlorite-carbonate aggregates after tremolite-actinolite, and patchy development of epidote and fine-grained sphalerite. It thus predates at least the intermediate tremolitic phase of alteration.

145.3 m This is a metasomatic diopside-phlogopite-calcite rock with accessory sphene, vesuvianite, grossular-andradite, sphalerite and quartz, and minor traces of pyrrhotite, albite and fluorite. The rock is fine- to medium-grained, with the bulk comprising granular to subhedral diopside with intergranular green-brown phlogopite anddisseminated poikilitic patches of calcite. Phlogopite marginally corrodes diopside, but in places exhibits vague, but semi-diagnostic, mesh-type micro-textures, suggesting that it replaced a serpentine phase.

On this basis, it is considered likely that this skarn represents a metasomatised serpentinite, possibly a carbonated or otherwise altered type.

146.8 m This is a chlorite-carbonate rock, consisting largely of spherulitic-radiating aggregates of Mg-chlorite (to 2 mm), with subordinate, interstitial, anhedral, semi lustre-mottled dolomite. Chlorite aggregates often show thin selvedges of talc in optical continuity. Additional accessories comprise disseminated an- to euhedral quartz grains with vermiform chlorite in-clusions, disseminated clusters of magnetite euhedra, and minor traces of pyrite, pyrrhotite, sphalerite and apatite. A single 200 μ anhedral particle of cassiterite was observed embedded in chlorite.

Magnetite is of relict primary character. Chlorite (and talc) appear to have replaced tremolite, although there are no relics to confirm this. Overall, the rock is considered as an altered ultramafic (serpentinite).

158.0 m This is a weakly banded and relatively coarse-grained diopside-chlorite rock with zones of granular to subhedral pyroxene, alternating with semi-massive "foliae" of random to weakly orientated Mg-chlorite. Diopside is weakly altered marginally totremolite, talc and carbonate. Accessories include disseminated quartz (interleaved with chlorite), thulite (manganzoisite) and sphene, which developes by partial replacement of Ti-magnetite particles.

The accessory magnetite is of crudely banded distribution but, overall, rather evenly disseminated. This gives the rock a certain altered basic (rather than ultramafic) character, but the distinction is tenuous.

177.0 m This is a talc-chlorite rock with the "micas" accompanied by accessory traces of apatite, partly leucoxenised opaques and occasional films and networks of pyrrhotite. The rock is banded with zones of essentially massive talc alternating with zones of semi-massive to massive Mg-chlorite. Talc has a certain bastite-like character and chlorite, which is locally radiating (sim. 146.8 m), appears to have replaced olivine-mesh-textured serpentine. Thus, the rock can be interpreted as an altered (steatitised, chloritised) serpentinite, derived initially from a (medium-grained) banded peridotite.

193.1 m This rock is a metasomatised serpentinite, comprising a granular, virtually massive diopside rock in sharp, but irregular, contact with relict patches of mesh-textured serpentinite. Marginal areas adjacent to the contact tend to be altered to talc-chlorite rock (+ phlogopite) but, elsewhere, the serpentinite is quite fresh and it containspatchy relics of olivine. This rock was originally a coarse-grained granular dunite with rare accessory pyroxene grains. Its dark appearance in the core is due to ultrafine films of secondary opaques along the margins of individual serpentine cells. This rock is weakly impregnated with pyrrhotite, locally accompanied by traces of sphalerite.

Accessory amounts of a brown isotropic phase occur in microcrystalline clots, single grains (to 50 μ), irregular films and spongy aggregates in the serpentinite, marginal to the contact with the replacive diopside rock. Optical features, apart from the isotropy, are similar to the ultrafine cassiterite described in CMS 79/7/24.

202.3 m This is an extensively carbonated serpentinite and "grades" from more or less massive carbonate rock (calcite with subordinate intergrown magnesite) to variably carbonate-stained, mesh-textured antigorite serpentinite. The original rock appears to have been a medium- to coarse-grained peridotitic facies. Relict primary magnetite is relatively common throughout the rock as a whole. In heavily carbonated areas, this is accompanied by traces of ultrafine fibrous secondary ?magnetite.

208.8 m This carbonated serpentinite is texturally very similar to the rock at 106.6 m. In comparison, it is slightly coarser-grained and the carbonate is entirely calcite, magnesite being absent. The rock carries traces of secondary magnetite (partly fibrous), and partly pyritised pyrrhotite in fine-grained disseminations and discontinuous films.

244.3 m This is a medium- to coarse-grained, mildly altered biotite granite. The bulk is even-grained and granitic-textured with a mean grainsize of 750 μ (strictly a microgranite), and mineralogy comprising orthoclase-microperthite, quartz, subordinate titaniferous biotite and relatively minor oligoclase-albite (i.e. about An 10). Accessories comprise zircon and apatite, largely as inclusions in biotite.

This rock is in sharp contact with an area of distinctly coarser-grained granite of identical mineralogy, but relatively siliceous and evidently representing a cognate xenolith.

Alteration features comprise weak, but pervasive, sericite-staining of plagioclase and incipient to complete chloritisation of biotite.

246.5 m This biotite microgranite is very similar, but slightly coarser-grained, than the finer-grained zone at 244.3 m and is similarly altered. The rock is incipiently porphyritic towards orthoclase-microperthite, but otherwise even-grained. One feature characteristic of both specimens is the presence of complex (baveno) twinning in the orthoclase.

Accessories include minor traces of xenotime in addition to apatite, rare zircon and traces of magnetite. In addition, the sectioned area includes a single irregular intergranular patch of blue-green schorl. As previously, biotite is partly to completely chloritised and plagioclase weakly, but pervasively, sericite-stained.

259.0 m This is a relatively strongly altered, weakly orthoclase-porphyritic biotite microgranite. The main contrast with the rocks at 244.3 m and 246.5 m lies in a slight relative abundance of (altered) plagioclase and in the presence of disseminated patches of micrographic quartz-orthoclase intergrowths. Mean grainsize is about 600 μ (phenocrysts to 2.5 mm).

Alteration is of typical greisening character. Plagioclase and biotite are pervasively sericitised. Secondary muscovite flakes are disseminated throughout, partly as a weak replacement of orthoclase. Colour-variable tourmaline is relatively abundant and accessory traces of fluorite occur as films along the sericite-pseudomorphed biotite cleavage planes.

264.7 m This is a quartz-muscovite-tourmaline rock and represents a thoroughly altered or greisened "granite". A medium- to coarse-grained granitic fabric persists, but is partly obliterated by development of secondary quartz, which is poorly resolved from the primary phase. Muscovite, in places, forms crude pseudomorphs of feldspar and elsewhere biotite.

There appear to be two generations of tourmaline with pale yellow-blue schorl of intergranular (?late-magmatic) habit, overgrown by a darker blue-green variety.

Accessories comprise ankeritic to sideritic carbonate, sparse fluorite and disseminated spongy patches of pyritised pyrrhotite. There is no detectable cassiterite.

268.8 m This quartz-tourmaline-muscovite rock or greisen is very similar and closely related to that at 264.7 m.

There are few relict granitic features, these being progressively obliterated by relatively marked development of secondary quartz and particularly tourmaline which, in this case, partly substitutes for muscovite in forming crudely pseudomorphous replacements of feldspar and biotite. However, the vague relict fabric indicates a relatively even-grained granitic-textured phase.

Accessories include traces of pyrite (partly after pyrrhotite), sideritic carbonate and fluorite which is largely restricted to late discontinuous veinlets. There is no detectable cassiterite.

273.7 m This is a relatively coarse-grained, moderately greisened biotite granite or, in this case, strictly a biotite adamellite.

The rock is weakly porphyritic towards orthoclase-perthite, but otherwise even-grained with a mean about 1.5 mm. Slightly subordinate plagioclase is of oligoclase composition. Feldspars in general, and particularly oligoclase, are weakly, but pervasively, stained with fine muscovite flakes.

Biotite flakes are sericitised and locally partly replaced by orange, titaniferous tourmaline. Accessory green schorl is disseminated throughout the rock, along with traces of fluorite, pyrite and cloudy, sideritic carbonate.

289.9 m This biotite adamellite is coarser-grained (mean 3 mm) but, in other respects, very similar to the rock at 273.7 m. It has been moderately greisened, but is unmineralised. Oligoclase is weakly, but pervasively, stained with fine-grained to sericitic muscovite. The (titaniferous) muscovite flakes are partly chloritised and locally partly pseudomorphed by tourmaline. There is some evidence of two generations of tourmaline (sim. 264.7 m), with green schorl postdated by dravite. Similarly, there are rare grains of ?late-magmatic topaz largely replaced by the greisening white mica. Minor accessory traces of fluorite and cloudy, sideritic carbonate complete the alteration assemblage.

Overall, many analogies can be drawn between this rock, the associated

phases, and the similarly altered Pine Hill Porphyry.

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19th November, 1979

REPORT CMS 79/3/56

YOUR REFERENCE:	Letter dated 28.8.1979 RRS/cvb/3450
DATE RECEIVED:	31st August, 1979
SAMPLE NOS.:	DDH SD 10 - 22 samples
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology

for

H.W. Fander, M. Sc.

REPORT CMS 79/8/56

Petrological Descriptions

St. Dizier Drill Cores

(T.S. 29056 - 29077 incl.)

DDH SD 10

6.1 m This is a quartz-muscovite-sericite rock with accessory, partly pyritised pyrrhotite in irregular films, minor chlorite and traces of sphalerite. The rock is crudely banded and generally fine-grained due to partial recrystallization and shearing. However, it contains some relict igneous features in the form of vague mica pseudomorphs of coarse feldspar and sericite, and chlorite semi-pseudomorphs of titaniferous biotite flakes.

Thus, there are similarities with the rock at 9.0 m in SD 9. The main contrast lies in the absence of tourmaline.

35.2 m This is a partly degraded chiastolite hornfels, very similar to the rock at 10.0 m (and, to a lesser degree, 55.2 m) in SD 9. It consists essentially of frequent single to clustered, extensively sericitised chiastolites (mean 350 μ) in a matrix of microcrystalline quartz and very fine muscovite with pervasive graphite films along the grain boundaries. Minor dravite and sericitised, poikiloblastic ?cordierite are present. Irregular films of quartz and pyritised pyrrhotite cut the area sectioned. As previously, the sediment appears to have been a highly impure chert or cherty argillite.

62.0 m This is a diopside-talc-chlorite rock, recognisable as a metasomatised serpentinite. Evidently, the serpentinite was sheared prior to the contact alteration, as the rock is distinctly banded and could be confused with an altered sediment.

Areas of mesh-textured antigorite persist in places, but the bulk of the rock consists of fine granular diopside, embedded in weakly schistose talc-chlorite aggregates. Sporadic, semi-continuous veins of chrysotile and talc are intersected by late chlorite-siderite veinlets. Traces of pyrite (after pyrrhotite in part) and magnetite occur as fine-grained disseminations. There are minor traces of a secondary, olivine-like phase (?monticellite).

This rock, although relatively quite altered, possibly correlates with the sheared serpentinite at 57.8 m in SD 9.

77.0 m This rock is a microgranular diopside skarn, weakly banded and with coarser-grained concordant zones of diopside and very coarse talc, including occasional talc-pyrrhotite aggregates (to 2 cm diameter). Accessory traces of fibrousmagnetite and fine-grained grossular-andradite occur included inthe talc flakes and, elsewhere, intergrown with diopside. Sporadic, irregular zones of relict, mesh-textured chlorite, antigorite and ?greenalite, analogous to those at 62.0 m, confirm the rock as a metasomatised serpentinite.

95.7 m This is a quartz-sericite rock with accessory disseminated pyrite, ankeritic carbonate, sphene, chlorite and traces of apatite and K-feldspar (adularia). VAgue relict textures identify it as a thoroughly altered granitoid or, more specifically, a quartz-feldspar-biotite porphyry. The original rock was weakly banded with a fine-grained granitic to weakly micrographic-textured groundmass and phenocrysts sized up to a few millimetres diameter. Alteration is essentially of greisening character and the rock is partly recrystallized.

This rock would thus be correlated with the various granitic dykes reflected in the SD 9 suite.

116.1 m This banded diopside-tremolite-talc rock is rather similar to the rock at 62.0 m. It is generally finely-banded and has a certain altered sedimentary character, but can be identified as a sheared and metasomatised serpentinite.

Relict patches of antigoritic serpentinite are more or less pervasive. These occur partly as discordant, vein-like masses and lenses, and are elsewhere variably obliterated by development of fine-grained calc-magnesian silicates. TAlc also predates the diopside-tremolite assemblage and, as at 193.1 m inSD 9, it seems partial steatisation preceeding the calc-magnesian metasomatism.

The sectioned area includes rare, very fine-grained particles of arsenopyrite and extremely rare, ultrafine particles of sphalerite.

129.2 m This rock is a partly serpentinised dunite with abundant relict coarse (to 5 mm), semi-lustre-mottled forsteritic olivine. This is progressively replaced by fine-scale mesh-networks of serpentine films stained with secondary (or "exsolved") opaques. Locally, olivine is completely replaced by iddingsite.

There is no development of metasomatic calc-silicates. However, the rock carries abundant pyrrhotite in irregular, spongy aggregates and films. The sulphide occur-slargely in serpentinised areas, includes disseminated, semi-radiating bundles of partly martitised magnetite laths, and is extensively pyritised.

More extensively serpentinised areas, with networks of opaques and poikilitic opaque aggregates are texturallysimilar to the carbonated serpentinites at 106.6 m and 208.8 m in SD 9. Patches of mesh-textured, opaque-stained antigorite can be closely compared with those at 57.8 m and 193.1 m (SD 9), and no single serpentinite can be defined for close correlation. The similarities, however, confirm the generally coarse dunitic nature of the ultramafics.

137.2 m This diopside-tremolite rock or skarn appears to represent a metasomatised breccia. Vague, angular, randomly sorted "clasts" (to 2 cm+) are common and,whilst these are pervasively altered to granular diopside and semi-fibrous tremolite in varying proportions, they exhibit faint relict textures indicating a composite of ultramafic and basic igneous material.

Accessories comprise sparse apatite and Ti-phlogopite flakes (evidently primary in the ultramafic) and more or less evenly disseminated pyrrhotite and cloudy sphene.

141.3 m This is a very fine-grained quartz-mica-dravite hornfels, representing a tourmalinised and recrystallized quartzose pelite (argillaceous quartz siltstone). Faint relict, millimetric-scale bedding is evident and veinlets are common (quartz-dravite followed by quartz-phlogopite, accessory albite, apatite and late (post-hornfels) quartz-chlorite). Fine to ultrafine pyrite is weakly disseminated throughout.

147. 1m This is a moderately greisened porphyritic microgranite, similar to those intersected by SD 9, but virtually devoid of (altered) biotite.

Sparse phenocrysts (to 7.5 mm) of orthoclase-perthite and partly resorbed quartz are enclosed in an even-grained (mean 750 μ), granitic-textured groundmass of orthoclase, quartz and accessory albite. Alteration is marked by extensive muscovitisation of plagioclase (particularly the perthite films in orthoclase) and semi-pervasive development of tourmaline(colour-variable schorl, dravite), which locally semi-pseudomorphs minor accessory biotite flakes. Accessory pyrrhotite, cloudy sideritic carbonate and minor traces of fluorite complete the alteration assemblage.

159.3 m This is a partly steatitised antigorite serpentinite, metasomatically altered with patchy to semi-pervasive development of granular diopside. Steatitised areas are preferentially altered and are finely schistose. The diopside occurs in discontinuous bands and lenses, along with accessory, partly pyritised, fine-grained pyrrhotite.

Relict antigoritic zones are mildly sheared and show deformed, olivine-derived mesh structures. The original rock may have been compositionally banded.

170.4 m This is a low-grade (albite-epidote-hornfels facies) hornfels, consisting largely of polygonised orthoclase (mean 75 μ), with subordinate, closely intergrown albite, quartz, titaniferous phlogopite and dravite. Texturally, the rock is very similar to that at 141.3 m, but coarser-grained. In comparison, it is distinctly feldspathic and only very incipiently banded in terms of the distribution of quartz. Fine opaques and dark rutile of relict detrital character are common throughout (meta-arkose). Dravite and phlogopite were introduced in semi-continuous quartz veins, with disseminated pyrite and minor traces of xenotime.

191.2 m This is a diopside-phlogopite-talc rock with occasional, coarsely granular aggregates of dravite and traces of sphene and fine-grained pyrrhotite. VAgue relict textures in talc, and sparse relict patches of antigorite, indicate the rock represents a metasomatised serpentinite.

Dravite, in this rock (and those at 170.4 m and 141.3 m), is of slumpy, garnet-like habit (i.e. very short c-axis dimensions).

201.5 m - 201.6 m This is a mildly sheared and carbonated serpentinite, consisting largely of weakly mesh-textured antigorite. There are occasional coarse aggregates of bastite-like brucite, variably impregnated with, and locally opaque due to, ultrafine fibrous ?magnetite along the cleavage planes. The rock appears to have been a pyroxene dunite (or, strictly, a peridotite) originally.

Alteration is not marked, with patchy development of anhedral grains and crude films of magnesite. Sub- to euhedral magnetite is disseminated throughout. This is of relict primary character and, as in the accompanying ultramafics (in contrast to those at Razorback and Serpentine Hill), lacks chromiferous cores.

217.0 m This is a mildly greisened, weakly quartz-porphyritic biotite adamellite, granitic-textured and with a mean grainsize about 1.5 mm. Main constituents are orthoclase-perthite, quartz, oligoclase and (altered) biotite. Minor primary accessories are apatite, zircon and anatase. In addition, there are sparse grains of schorl, of quartz-intergranular habit.

Feldspars, and particularly oligoclase, are weakly sericitised and muscovitised, and biotite completely chloritised. Sparse, discontinuous muscovite veinlets include minor traces of fluorite. This rock has been mildly fractured and granulated subsequent to the weak greisening.

224.8 m - 224.9 m This rock is best termed simply a magnetite serpentinite. It consists of spongy to virtually massive aggregates of finely fibrous magnetite, interspersed with clots of serpophitic serpentine. Accessory, very fine (mean 20 μ), sub- to euhedral (octahedral) magnetite is present, along with minor traces of chlorite and cloudy ankeritic carbonate.

Close examination of the thin- and polished sections revealed no detectable cassiterite. Conceivably, minor traces are masked by the fine fibrous magnetite or, alternately, the cloudy carbonate. However, in view of the high soluble Sn-value, the tin distribution/mineralogy would be best analysed by electron-probe microanalysis.

229.8 m - 229.9 m This is a fairly extensively altered antigorite serpentinite, crudely banded in response to incipient shearing and with relict mesh textures indicative of an altered medium- to coarse-grained peridotite. Relict primary magnetite, accessory green spinel and minor corroded relics of olivine are present.

Alteration is marked by patchy development of talc, minnesotaite (Fe-talc), diopside and tremolite. In addition, the rock is locally impregnated with aggregates of elbaite. Fine fibrous secondary magnetite is semi-ubiquitous and there are minor traces of scheelite, cloudy sideritic carbonate, fluorite and sellaite.

This rock is analogous to that at 224.9 m in that it is devoid of optically detectable cassiterite (and stannite). The polished section reveals fairly conspicuous bismuth and bismuthinite as microscopic blebs and films in magnetite and interstitially to elbaite laths, and there thus appears a reasonable correlation with the assay data. This suggests the cassiterite is either poorly crystalline (and thus poorly resolved optically) or, alternately, some unorthodox tin mineralogy is involved.

233.4 m - 233.5 m This metasomatised serpentinite is essentially similar to that at 229 m. It has been more or less pervasively steatitised and mildly sheared. The metasomatic asserblage comprises mainly diopside and tremolite, which impregnate the talcose bands along with fine-grained magnetite and subordinate pyrite (probably after pyrrhotite).

Accessory alteration phases, distributed in crude lenses and semi-continuous bands, comprise helvite with closely intergrown scheelite and sideritic carbonate, along with thin films of fluorite and traces of apatite.

Relict mesh textures in steatitised zones indicate that this rock was primarily a medium--grained, granular dunite.

246.9 m - 247.0 m This rock is a feldspar-phlogopite-quartz hornfels, medium- to coarse-grained, with marked grainsize variations in crudely banded zones, intersected and locally paralleled by recrystallized quartz-phlogopite veins/replacements. Strongly coloured (dravitic, titaniferous) tourmaline is disseminated throughout and there arefairly strong affinities with the rock at 170.4 m. Feldspar tends to occur as prismatic poikiloblasts with phlogopite inclusions, often zonally arranged. These are faintly banded in terms of modal grainsize and orthoclase/plagioclase (oligoclase) ratio, and this is interpreted as recrystallized bedding in what was evidently a strongly feldspathic arkose.

Mica (and tourmaline) is a strongly titaniferous variety and of metasomatic origin, although predating the recrystallization. Fine-grained pyrrhotite is disseminated throughout the rock and associated recrystallized veins.

274.0 m This is a moderately greisened biotite adamellite (or strictly a microadamellite, mean grainsize is slightly less than 1 mm), weakly porphyritic in quartz and orthoclase-perthite and compositionally verging on an alkali granite (i.e. with oligoclase near albite). The primary mica is a titaniferous variety. Accessories include traces of zircon, apatite andanatase, along with disseminations of schorl and topaz of late magmatic character. There are close similarities with the granites intersected in SD 9 and, by inference, there are analogies with the Pine Hill Porphyry.

Alteration is typical, with the feldspars (particularly oligoclase) variably muscovitised, biotite more or less completely replaced by sericite and chlorite, and topaz marginally replaced by muscovite. Tourmaline is weakly overgrown with dravite. There is no detectable cassiterite.

298.0 m This is a weakly porphyritic biotite microadamellite, similar to that at 274.0 m. In comparison, it is slightly more basic (relatively calcic and more abundant oligoclase), finer--grained, and with a weakly directed granitic fabric. Tourmaline (blue schorl) and topaz are slightly more abundant. There are occasional patches of graphic quartz-feldspar intergrowths.

Alteration is closely analogous to that described above. Topaz is extensively replaced by yellowish sericite ("gilbertite"). Minor sideritic carbonate is present, along with minor traces of fluorite.

304. 0 m This is a coarser-grained, relatively fresh biotite adamellite, essentially even-grained, granitic-textured, with a mean grainsize of 2-3 mm. General features are typical and this rock includes sparse primary topaz and tourmaline.

Alteration is weak, but typical, with oligoclase weakly, but pervasively, stained with sericite and very fine muscovite, topaz marginally sericitised, biotite incipiently chloritised and locally weakly overgrown with muscovite, and tourmaline partly overgrown with dravite. Minor traces of fluorite have developed along with dravite and muscovite in microscopic, discontinuous films.

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8th February, 1980

REPORT CMS 79/12/19
PART 1

YOUR REFERENCE:	Letter dated 5.12.1979 LAN/an/3450
DATE RECEIVED:	10th December, 1979
SAMPLE NOS.:	51 St. Dizier Samples
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
SD 10 224.2 m (T.S. 30477)	Skarn. Microgranular diopside, extensively replaced by tremolite, pale green talc masses, with development of green spinel. Serpentinised chondrodite.	Complex replacement textures, variable grainsizes.	Traces of scheelite in tremolite. Pyrrhotite patches. Chrysotile veins.	Progressive replacement of diopside by tremolite, tremolite by talc. Source of Sn not apparent.
224.4 m (A)	Chondrodite Rock (Skarn). Granular yellow, twinned chondrodite, intergrown with random talc flakes, pyrrhotite, minor tremolite.	Medium to coarse granular fabric, random orientation.	Magnetite patches, rims surrounding pyrrhotite.	Very distinctive rock; no apparent Sn minerals present. EPMA investigation scheduled.
224.4 m (B)	Skarn. Mainly granular chondrodite, extensively serpentinised, with random talc flakes and small granular diopside patches; fine magnetite.	As above.	Minor pyrrhotite. Patches of green spinel (?secondary).	Spinel seems likely mineral to contain Sn, but chondrodite also possible (replacement of Fe^{2+} or Mg).
224.6 m (A)	Skarn. Mainly granular clinohumite, partly serpentinised; and diopside. Abundant replacive talc (younger); pyrrhotite.	Granular, medium-grained. Suggestion of banding.	Traces of an isotropic cloudy rutile mineral.	White isotropic/amorphous mineral could be hydrogarnet, but variamoffite also possible.
224.6 m (B)	Serpentinised Skarn. Typical antigorite network textures after chondrodite-clinohumite (by analogy); abundant fine magnetite.	Originally medium-grained, crudely banded.	Relict talc flakes. Fine carbonate in serpentine.	Probably a more extensively serpentinised portion of previous rock. No apparent Sn minerals.
224.8 m	Magnetite-Antigorite Rock. Very abundant fine magnetite; patches of fine antigorite representing serpentinised ?chondrodite/clinohumite.	Textures poorly preserved; present minerals very fine-grained.	Small irregular patches of carbonate and sphalerite.	As above.
229.2 m	Magnetite-Talc-Antigorite Rock. Mainly fine magnetite, with patches of talc, antigorite, poorly developed tremolite needles.	Fine-grained intergrowths, poor relict textures, crude banding.	Small, cloudy carbonate patches. White opaque patches.	White opaque/cryptocrystalline material could be leucoxene/rutile or possibly cassiterite (not unlike Sweeney's).
229.4 m	Serpentinised Skarn. Mainly magnetite with embedded clinohumite; bands of extensively serpentinised clinohumite; fibrous-radiating fine ?ilvaite.	Good serpentine textures in places; medium/fine-grained.	Patches of talc intergrown with magnetite; white opaque patches.	Ilvaite-type mineral may be hulsite-paigeite, containing Sn. EPMA investigation scheduled.
229.6 m	Magnetite-Serpentine Rock. Dominantly magnetite with patches of serpentine (antigorite), fine carbonate, scheelite crystals.	Magnetite is acicular to fibrous in most rocks. Medium-grained.	Veins of antigorite containing fine fluorite.	Scheelite occurs as irregular, poikiloblastic crystals up to 1 mm in size. No apparent Sn minerals. EPMA scheduled.

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Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
229.8 m	Magnetite-Serpentine Rock. Dominantly fine, fibrous magnetite, small patches of fine antigorite (from ?chondrodite), a few talc flakes.	Relict granular textures. Medium- to fine-grained.	Brown, semi-opaque, fibrous ?tremolite patches. Antigorite-fluorite veins.	Closely resembles previous rock. No apparent Sn minerals seen.
SD 12 125.4 m	Talc-Diopside Rock. Thin bands of microgranular diopside, alternating with bands of talc-diopside intergrowths; scattered fine pyrrhotite.	Banding probably reflects original compositional variations Fine--grained.	Ultrafine sphene, occasional phlogopite flakes.	Represents metasomatised, layered carbonate sediment.
128.1 m	Banded Diopside Skarn. Bands of granular and prismatic diopside, talc-diopside; discontinuous garnet, actinolite lenses; pyrrhotite patches.	Well--developed banding; generally fine-grained.	Thin parallel bands of vermiform phlogopite/vermiculite. Carbonate.	Orthodox skarn mineral assemblage, with no obvious source of Sn.
128.3 m	Monticellite-Magnetite Rock. Bands of granular monticellite with magnetite, separated by thinner streaks of antigorite and talc flakes. Pyrrhotite.	Medium-granular, compositionally banded.	Isolated scheelite grains up to 1 mm. "Ilvaite" needles. Iddingsite.	Iddingsite is alteration-product of monticellite (related to forsterite); "ilvaite" may be stanniferous. EPMA scheduled.
128.5 m	Talc-Iddingsite Rock. Mainly thin bands of talc/antigorite and iddingsite with relict monticellite; tremolite bands. Pyrrhotite, magnetite.	Well-banded, medium-grained. Fibrous magnetite.	Traces of hulsite-paigeite may be present, and/or ilvaite.	Similar to previous rock, but more extensively altered to iddingsite. Ilvaite/paigeite ?stanniferous.
128.8 m	Monticellite-Talc-Magnetite Rock. Bands of granular monticellite alternating with talc, minor tremolite; magnetite, pyrrhotite, common throughout.	Granular, banded, medium-grained.	Ultrafine ?hulsite-paigeite associated with magnetite.	Very similar to 128.3 m; ?hulsite-paigeite in trace amounts only.
133.2 m	Diopside Rock. Medium- to coarsely-granular diopside, occasional bands of pale actinolite; interstitial talc, antigorite flakes.	Vaguely banded, medium- to coarse-grained.	Scattered pyrrhotite grains, apatite crystals, garnet patches with green spinel.	Garnet patches, with green spinel rims, appear to be relict masses. No obvious Sn minerals.
133.4 m	Clinohumite-Talc-Magnetite Rock. Granular, twinned clinohumite, coarse flakes of talc and antigorite, finely-fibrous magnetite.	Crude compositional banding; replacive antigorite. Medium-grained.	Granular green spinel in places. Minor sulphides.	Relict ghost textures suggest replacement of earlier-formed minerals. Ilvaite probably present.
133.6 m	Banded Clinohumite-Magnetite Rock. Dominantly granular clinohumite with parallel bands of magnetite. Fibrous-radiating Ilvaite patches.	Good banding accentuated by magnetite. Medium-grained.	Iddingsite developed from clinohumite in places; talc, antigorite.	Similar to 133.4 m. Distinct difference between fibrous ilvaite, granular magnetite.

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Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
SD 12 cont. 133.9 m	Talc-Magnetite-Fluorite Rock. Bands of matted talc flakes, fluorite pseudomorphs after ?tremolite; magnetite; serpentinised ?chondrodite.	Crude compositional banding. Well-preserved relict textures.	Thin bands of vermicular phlogopite/vermiculite. Green spinel patches.	Fairly complex polymetasomatic history; no obvious Sn minerals, except possibly the spinel.
169.6 m	Banded, Metasomatic Rock. Thin bands of random phlogopite, phlogopite-tremolite intergrowths, serpentine/phlogopite, sericite/phlogopite/tremolite.	Fine-grained, well-banded (?relict sedimentary features).	Traces of granular sphene and sulphides.	Very probably a metasediment, and appears to be polymetasomatic.
173.4 m	Talc-Carbonate Rock. Matted masses of very coarse talc, bands of carbonate/serpentine pseudomorphous after ?chondrodite; pyrite patches.	Banded fabric, medium- to coarse-grained, pseudomorphous textures.	Magnetite patches. Traces of tremolite, apatite.	Polymetasomatic, with high-temperature minerals replaced by lower-temperature assemblage.
176.2 m	Talc-Antigorite-Carbonate Rock. Bands of coarse talc with embedded carbonate; antigorite bands with magnetite, sulphides. Fibrous-radiating ilvaite.	Relict serpentine textures, extensive replacement textures.	Brown serpentine pseudomorphs after ?chondrodite.	Complex series of replacements; ilvaite aggregates are of late formation.
176.4 m	Silicified Talc-Serpentine Rock. Complex pseudomorphous textures of fine quartz, siderite, antigorite; coarse talc flakes and aggregates.	Relict serpentine textures suggest former chondrodite/clinohumite.	Patches of sulphides. Magnetite veinlets.	See separate description for details of sulphides.
176.6 m	Talc-Serpentine-Carbonate Rock. Very coarse talc flakes, fine aggregates; patches of serpentine and carbonate, replaced by quartz in places.	Confused fabric, very variable grainsizes. Crudely banded.	Granular magnetite and pyrite patches.	Polymetasomatic, i.e. skarn formation, followed by several stages of replacement. No apparent Sn minerals.
176.8 m	Talc-Pyrite Rock. Very coarse, random talc flakes, abundant pyrite (?from pyrrhotite), carbonate and serpentine patches.	As above.	Minor granular magnetite; scattered apatite.	Probably a chondrodite/clinohumite skarn, replaced by talc, pyrrhotite. No apparent Sn minerals.
187.4 m	Banded Skarn. Bands of finely granular diopside, felted tremolite/talc, and talc/serpentine; scheelite patches up to 0.3 mm.	Well-banded, fine-grained rock. Extensive replacement textures.	Minor magnetite, pyrite patches, carbonate veins and patches.	Scheelite is probably related to tremolite-talc phase of younger metasomatism.

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26th February, 1980

REPORT CMS 79/12/19
PART 2

YOUR REFERENCE:	Letter dated 5.12.1979 LAN/an/3450
DATE RECEIVED:	10th December, 1979
SAMPLE NOS.:	51 St. Dizier Samples
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology/Mineralogy

H.W. Fander, M. Sc.

REPORT CMS 79/12/19
PART 2

St. Dizier Cores SD 10, SD 12, SD 13

Fifty-one core samples were received for petrological and mineralogical examination, with particular reference to the occurrence and nature of soluble and insoluble forms of tin minerals.

This report completes all the optical examinations; the final report (Part 3) will present the electron-probe microanalyses (EPMA) and any further conclusions based on those results; that report will follow as soon as results are available, but may be delayed owing to the time required to carry out the probe analyses.

Comments on Lithology

The mineralised intersections in all three drill-holes are very consistent in their mineralogy; all are altered skarns derived from an unusual assemblage of magnesium-rich silicates rather similar to olivine, and, like that mineral, prone to serpentinisation. Some of the rocks show a later, low-temperature replacive phase which postdates the serpentinisation; thus, they may be termed polymetasomatic.

Whilst almost all the mineralised rocks are extensively or completely serpentinised, there are two notable exceptions, in SD 13 at 213.6 m and 219.5 m, which contain cassiterite; it may be significant that the fresher rock (219.5 m) contains the best cassiterite.

Comments on Mineralisation

It is believed that much of the Sn mineralisation may have formed at an early stage, during the initial skarn development, perhaps partly as cassiterite and partly in solid solution in the Mg silicates. Subsequent serpentinisation had two effects - it released the Sn in solid solution, and attacked the cassiterite (there is evidence of partial hydration of coarse cassiterite in serpentinous rocks); the end result of this process was hydrocassiterite, in dispersed form, subsequently dehydrated to varying degrees to produce a range of $SnO_2.xH_2O$ compounds, which show varying response to aqua regia attack depending on their degree of crystallinity. There is evidence from microscopic examinations, to lend general support to this interpretation.

Whilst inmany samples, various Sn phases have been identified (cassiterite (s.s.), hydrocassiterite-cassiterite, ludwigite-vonsenite-hulsite), this is not the case for some samples (SD 10: 224 m, 229 m; SD 13: 203 m, 339 m). At this stage, pending EPMA, the location and nature of the Sn is not known, but could be associated with garnet, spinel, sphene, or as finely-dispersed hydrocassiterite not readily detected in a section.

Scheelite occurs sporadically and is no doubt responsible in general for anomalous W values; no wolframite was detected in any polished section.

Regardless of the final outcome of EPMA and other examinations, the metallurgical problems associated with this type of occurrence must be regarded as very difficult.

H.W. Fander, M. Sc.

REPORT CMS 79/12/19
PART 2

This report is concerned with petrographic descriptions of SD 13 intersections, and thus follows on from Part 1. The seven samples listed in your letter (163 m, 179.3 m, 193 m, 213.6 m, 219.5 m, 323.3 m and 334.9 m) are briefly described in the accompanying table. The groups of samples from 203-204 m, 209-210 m, 215-216 m, 217-218 m, 221-222m and 339-340 m are described below, as group descriptions.

1. 203.1/203.3/203.6/203.8 m

These are very extensively serpentinised magnetite-chondrodite/clinohumite rocks. Small, relict patches of the chondrodite-clinohumite group occur sporadically, but are largely altered to antigorite or chrysotile; this in turn is partly replaced by talc in places. Minor secondary carbonate is also present. Opaque minerals are abundant and include magnetite and sulphides. No obvious Sn-bearing minerals were seen. Sulphides include pyrrhotite, partly to wholly replaced by pyrite-marcasite and euhedral arsenopyrite; the pyrrhotite is intergrown with magnetite, whereas the arsenopyrite seems to be of younger formation. No other minerals were detected which are known to contain Sn.

2. 209.1/209.3/209.5/209.9 m

The lithology of this group is similar to that at 203-204 m; the rocks are extensively serpentinised chondrodite/clinohumite-magnetite types with sulphides (very sporadically distributed). They now consist mainly of granular magnetite and antigorite patches, with masses of fibrous tremolite in places, bands and replacive patches of talc, and relict granular chondrodite. At 209.1 m, there are small, white, semi-opaque patches of a very poorly-defined mineral which is believed to be cassiterite or hydrocassiterite, intergrown with antigorite; such patches are abundant and would probably account for much of the "insoluble" Sn in this entire intersection.

There are lenses and veins of massive pyrrhotite (incipiently pyritised), containing brecciated arsenopyrite crystals and small (< 50 μ) inclusions of bismuth and galena; no Sn minerals were seen, but could be present elsewhere (e.g. stannite patches sporadically distributed).

3. 215.3/215.7 m

Both are fairly fine-grained magnetite-antigorite rocks and are presumed to be serpentinised chondrodite/clinohumite skarns; both rocks contain amorphous to cryptocrystalline and finely-fibrous, white, semi-opaque patches of a compound believed to range from hydrocassiterite (varlamoffite) to cassiterite, i.e. in various stages of dehydration and originally formed as a "gel". Some patches are enclosed in carbonate of younger formation.

The patches showing some degree of crystallization, and therefore near cassiterite in composition, range from 20 μ to 100 μ in size, but consist of < 5 μ grains and fine needles.

It is quite conceivable that the more hydrated forms of this compound are acid-soluble, whereas the dehydrated, near-cassiterite material, is insoluble; the inference is that both "soluble" and "insoluble" Sn assays stem from the same "mineral", depending on its degree of crystallinity. However, another, Sn-bearing, acid-soluble compound may be present (EPMA is scheduled).

Polished sections yielded no further information; the white material described above could be rutile/leucoxene or hydrocassiterite/cassiterite. The only opaque mineral present is fibrous magnetite, with occasional minute pyrite inclusions.

4. 217.6/217.9 m

These rocks show a very similar mineral assemblage to 215-216 m, i.e. they are magnetite-antigorite rocks with hydrocassiterite-cassiterite. As described above, this varies from a white, apparently amorphous substance, through cryptocrystalline aggregates, to reasonably well-defined single crystals up to 65 μ in size. It is embedded in patches of fibrous chrysotile and is also intergrown with magnetite on a small scale; again, this single group may very well be responsible for both "soluble" and "insoluble" Sn assays. With increasing dehydration/crystallinity, its resistance to acid attack also increases. Hydrocassiterite (varlamoffite, souxite are synonyms) has a theoretical formula of H_2SnO_3 + water and thus there is much scope for progressive dehydration.

Magnetite occurs as granular masses and as fibrous aggregates. Sulphides are mainly arsenopyrite, with occasional pyrrhotite-magnetite intergrowths in which the pyrrhotite is largely pyritised.

5. 221.2/221.4/221.6/221.8 m

These four intersections are very similar in composition and fabric; all are talc-magnetite-antigorite rocks, with relict serpentine textures. By analogy with previous rocks, it is presumed that they represent completely altered chondrodite-clinohumite rocks, but there is always the possibility that they are "genuine" (i.e. igneous) serpentinites rather than skarns.

The rocks consist mainly of ultrafine talc, as aggregates replacing fine antigorite, and patches of very fine, radiating-fibrous magnetite; dark sphalerite occurs sporadically, embedded in magnetite, and is an iron-rich variety, containing minute pyrrhotite inclusions. Occasional whitish, poorly-defined patches are seen in polished section and may be hydrocassiterite-cassiterite.

6. 339.1/339.3/339.5/339.9 m

Thisis a series of altered skarns of variable composition, in which the original skarn-silicates are extensively replaced by later hydrothermal minerals, mostly micas. The freshest rock is at 339.9 m, and is a diopside rock with ferrohastingsite and sphene, and abundant sericite pseudomorphs after another silicate. The other rocks are more variable, with relict garnet, chondrodite-clinohumite, tremolite and actinolite, extensively replaced by pale phlogopite, hydromuscovite and carbonate. There are scattered patches of magnetite and sulphides. Textures/relict textures are variable, from quite coarse to fine-grained. No Sn minerals were recognised; both garnet and sphene are potentially stanniferous.

The sulphides, which occur very sporadically, consist of pyrite, chalcopyrite, sphalerite, and arsenopyrite, intergrown with well-crystallized magnetite; no stannite was detected.

H.W. Fander, M. Sc.

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SD 10 and SD 12 - Polished Sections

SD 10 ← Typed on one page.

224.4 m Opaque minerals consist of pyrrhotite intergrown with chalcopyrite, magnetite, traces of sphalerite. The pyrrhotite is rimmed and veined with magnetite in places.

224.8 m The only opaque mineral present is fibrous magnetite, but there are minute patches of a semi-opaque, whitish substance which may be hydrocassiterite-cassiterite; they are intimately intergrown with magnetite fibres.

229.4 m As above; both occurrences need checking by electron-probe micro-analysis. Traces of chalcopyrite were seen.

229.6 m The only opaque mineral present is fibrous-acicular magnetite. Some of the magnetite in some samples is so finely fibrous that it is translucent; hence, in some descriptions "ilvaite" was tentatively identified, but this has not been verified in any polished section so far in SD 10.

SD 12 ← Typed on one page.

128.3 m The sulphides are pyrrhotite, with traces of chalcopyrite, partly altered to pyrite. Granular magnetite is present, and there are sub-radiating aggregates of a fibrous-acicular mineral belonging to the ludwigite-vonsenite group (which includes hulsite, the stanniferous variety). This mineral requires checking by EPMA, but, by analogy with previous samples, is almost certainly the source of the soluble Sn.

133.4 m The mineral assemblage is the same as at 128.3 m; ludwigite-vonsenite is conspicuous, as well-developed groups of fibrous crystals. In view of its abundance, the Sn-content is probably low, though EPMA will yield an accurate analysis. Portion of the mineral was removed for X-ray diffraction, which showed that the mineral was ludwigite-vonsenite, not ilvaite; it is probably a stanniferous vonsenite rather than hulsite (analyses of hulsite report 7 % SnO_2).

176.4 m The opaque minerals are magnetite, pyritised pyrrhotite, chalcopyrite, veinlets and patches of bismuth-bismuthinite intergrowths; isolated arsenopyrite crystals are seen. No "ilvaite" occurs in this section, but was recorded at 176.2 m, and is similar to the mineral at 128.3 m and 133.4 m.

H.W. Fander, M. Sc.

Sample No.	Rock Type - Composition	Fabric	Minor Minerals	Comments
SD 13 163.0 m	Muscovite-Metaquartzite. Dominantly interlocking quartz grains, small interstitial random muscovite flakes; scattered phlogopite.	Homogeneous, featureless fabric; medium-grained. Relict ?clastic textures.	Occasional dravite patches. Traces pyrite, sphalerite, carbonate.	Presence of detrital zircon indicates sedimentary origin (orthoquartzite); weakly but pervasively greisenised.
179.5 m	Metasomatised Rock. Bunches of fibrous tremolite, intergrown fine quartz, K-feldspar, orange phlgopite, pyrite, siderite.	Microgranular fabric, haphazard distribution of minerals.	Pale chlorite patches, many small rutile needles throughout.	Probably originally a sediment, but so thoroughly metasomatised that origin is obscured.
193.0 m	Metasomatised Sediment. Thin laminations/bands of cloudy K-feldspar with fine pale dravite, alternating with quartzose bands, scattered phlogopite.	WEll-banded, fine/medium-grained, relict sedimentary structures.	Crosscutting quartz-chlorite veins. Small pyrite patches.	Original rock very probably a laminated siltstone, selectively feldspathised, weakly phlogopitised, tourmalinised.
213. 6 m	Mineralised Skarn. Mainly chondrodite, partly serpentinised, with abundant granular magnetite. Isolated cloudy cassiterite grains, 10-80 μ.	Medium/coarsely-crystalline fabric, typical of skarns.	Scattered talc flakes. Carbonate-impregnated patches.	Cassiterite is very sporadic, embedded in chondrodite and serpentinised chondrodite; some with magnetite inclusions.
219.5 m	Mineralised Skarn. Granular chondrodite, sub-radiating fibrous tremolite, replacive antigorite; magnetite, pyrrhotite. Cassiterite, 20-120 μ crystals.	Crudely banded, medium--grained rock.	Aggregates ofmicro-granular diopside.	Cassiterite occurs in silicates and as intergrowths with magnetite, as well-formed, clear crystals, mostly > 50 μ, with some clusters up to 300 μ.
323.3 m	Talc-Magnetite-Sphalerite Rock. Matted-fibrous, fine talc patches, granular and fibrous-acicular magnetite, intergrown shapeless sphalerite patches.	Subparallel orientation of fabric; relict (?) fibrous textures.	Small patches of carbonate and chlorite (penninite).	May have been a tremolite-magnetite rock (metasomatic) in which talc replaced tremolite.
334.9 m	Magnetite-Sphalerite Rock. Dominantly granular/colloform magnetite masses, intergrown brown sphalerite crystals,interstitial fibrous antigorite or chrysotile.	Massive, fine-grained, structureless.	Carbonate veinlets and patches replacing chrysotile.	Sphalerite patches up to 3 mm composed of individual crystals, intergrown with magnetite.

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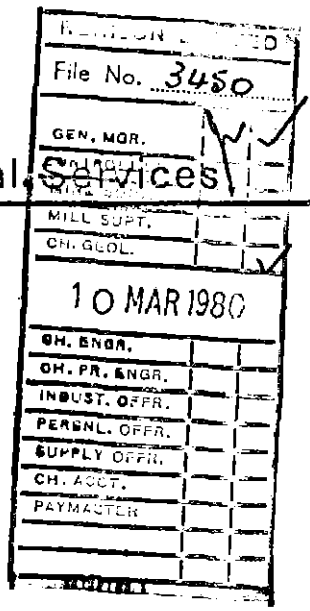

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6th March, 1980

REPORT CMS 79/12/19
PART 3

YOUR REFERENCE:	Letter dated 5.12.1979 LAN/an/3450
DATE RECEIVED:	10th December, 1979
SAMPLE NOS.:	51 St. Dizier Samples
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology/Mineralogy

H.W. Fander.

H.W. Fander, M. Sc.

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REPORT CMS 79/12/19
PART 3

St. Dizier Drill Cores

This report presents the results of the electron-probe microanalyses of selected samples, further microscopic investigations and other tests.

Samples

Polished sections suitable for electron-probe microanalysis were prepared of the following intersections:

SD 10 / 224.8 m (P.S. 30480)
SD 10 / 229.4 m (P.S. 30482)
SD 12 / 128.3 m (P.S. 30487)
SD 12 / 133.4 m (P.S. 30491)
SD 13 / 217.9 m (P.S. 30516)
SD 13 / 221.4 m (P.S. 30519)

These polished sections were examined, and areas of interest were selected and marked for analysis.

Results

Three distinct Sn-bearing phases were detected, two already known or predicted, the third a new phase, probably a new mineral. It seems very likely that all three occur in all intersections containing soluble and insoluble Sn, and it is difficult to ascertain their distribution. It is clear that "insoluble" tin is due to cassiterite, and that the other two phases are soluble under the chemical conditions used at Renison (conc. Aqua Regia at 90°C for 2-3 hours).

1. Cassiterite

This mineral occurs in several intersections, as exceedingly small, whitish crystals; some analyses suggest actual cassiterite, but other occurrences are believed to be partly hydrated material, and some of this may well be acid-soluble as mentioned in Part 2.

2. Hulsite

Analyses of the ilvaite-like mineral, tentatively identified as vonsenite or hulsite, show Sn contents of 6-7 %, which is in excellent agreement with published analyses (7.07 % SnO_2) for hulsite. An X-ray powder pattern also favours hulsite rather than vonsenite. It must be concluded that its occurrence is very sporadic, otherwise the Sn content of the intersections would be higher. An assay of 0.3 % Sn could be accounted for by about 5 % hulsite. Microscopic and EPMA results suggest that the main, perhaps only, Sn mineral present in SD 12 is hulsite.

3. New Mineral

This was initially detected and defined by electron-probe microanalysis, subsequently followed up with further microscopy.

Analyses indicate that the major elements present are Sn (40-55 %), Mn (5-15 %) and Fe (5-10 %); no Ti, Si, Mg or Al occurs and the mineral is regarded as an oxide, perhaps with the general formula $Sn(Mn>Fe)_yO_x$.

The mineral is similar in appearance (in polished section) to magnetite, but bluish-grey rather than brownish-grey, with lower reflectivity and Vickers hardness, opaque, but with dark brown-red internal reflections. It generally contains minute pyrrhotite and ?jacobsite ($MnFe_2O_4$) inclusions and is cut by ?jacobsite veinlets. It is isotropic (implying cubic crystallography). The preliminary data suggest that the mineral is cubic, possibly a spinel (like jacobsite and magnetite), consisting mainly of Sn and variable ratios of Mn and Fe.

The mineral (suggested names stanmangite or dizierite) occurs in SD 10 and SD 13, and is very probably aqua-regia-soluble. It occurs as relatively coarse patches (up to 300 μ) and as ultrafine intergrowths with magnetite/jacobsite.

It is proposed to further investigate this mineral, but this stage is more academic.

H.W. Fander, M. Sc.

Latest EPMA results. 11.5.80.

Analysis of one grain –

50 % Sn.
5.6 % Mn
9.6 % Mg.
0.5 % Fe.

Also traces of galnite (Zn – spinel.)

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6th March, 1980

REPORT CMS 79/12/19
PART 3

YOUR REFERENCE:	Letter dated 5.12.1979 LAN/an/3450
DATE RECEIVED:	10th December, 1979
SAMPLE NOS.:	51 St. Dizier Samples
SUBMITTED BY:	L.A. Newnham
WORK REQUESTED:	Petrology/Mineralogy

H.W. Fander, M. Sc.

REPORT CMS 79/12/19
PART 3

St. Dizier Drill Cores

This report presents the results of the electron-probe microanalyses of selected samples, further microscopic investigations and other tests.

Samples

Polished sections suitable for electron-probe microanalysis were prepared of the following intersections:

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SD 12 / 133.4 m (P.S. 30491)
SD 13 / 217.9 m (P.S. 30516)
SD 13 / 221.4 m (P.S. 30519)

These polished sections were examined, and areas of interest were selected and marked for analysis.

Results

Three distinct Sn-bearing phases were detected, two already known or predicted, the third a new phase, probably a new mineral. It seems very likely that all three occur in all intersections containing soluble and insoluble Sn, and it is difficult to ascertain their distribution. It is clear that "insoluble" tin is due to cassiterite, and that the other two phases are soluble under the chemical conditions used at Kenison (conc. Aqua Regia at 90°C for 2-3 hours).

1. Cassiterite.

   This mineral occurs in several intersections, as exceedingly small, whitish crystals: some analyses suggest actual cassiterite, but other occurrences are believed to be partly hydrated material, and some of this may well be acid-soluble as mentioned in Part 2.

2. Hulsite

   Analyses of the ilvaite-like mineral, tentatively identified as vonsenite or hulsite, show Sn contents of 6-7 %, which is in excellent agreement with published analyses (7.07 % SnO_2) for hulsite. An X-ray powder pattern also favours hulsite rather than vonsenite. It must be concluded that its occurrence is very sporadic, otherwise the Sn content of the intersections would be higher. An assay of 0.3 % Sn could be accounted for by about 5 % hulsite. Microscopic and EPMA results suggest that the main, perhaps only, Sn mineral present in SD 12 is hulsite.

3. New Mineral

This was initially detected and defined by electron-probe microanalysis, subsequently followed up with further microscopy.

Analyses indicate that the major elements present are Sn (40-55 %), Mn (5-15 %) and Fe (5-10 %); no Ti, Si, Mg or Al occurs and the mineral is regarded as an oxide, perhaps with the general formula $Sn(Mn>Fe)_yO_x$.

The mineral is similar in appearance (in polished section) to magnetite, but bluish-grey rather than brownish-grey, with lower reflectivity and Vickers hardness, opaque, but with dark brown-red internal reflections. It generally contains minute pyrrhotite and ?jacobsite ($MnFe_2O_4$) inclusions and is cut by ?jacobsite veinlets. It is isotropic (implying cubic crystallography). The preliminary data suggest that the mineral is cubic, possibly a spinel (like jacobsite and magnetite), consisting mainly of Sn and variable ratios of Mn and Fe.

The mineral (suggested names stanmanglte or dizierite) occurs in SD 10 and SD 13, and is very probably aqua-regia-soluble. It occurs as reletively coarse patches (up to 300 u) and as ultrafine intergrowths with magnetite/ jacobsite.

It is proposed to further investigate this mineral, but this stage is more academic.

H.W. Fander, M. Sc.

APPENDIX 3

R[illegible]SON LIMITED - DRILL CORE REC[illegible]RD

HOLE NUMBER	S.D. 9
PURPOSE	To test the depth extension of the main ore zone.
LOCATION	ST. DIZIER
COLLAR R.L.	2167.04m
CO-ORDINATES	5367468.7N 345019.1E AMG.
LENGTH	295.1m
HOLE SIZE	0 - 1.0m HW 1.0 - 35.8m HQ (Reamed later to 102m) 35.8 - 29.5m NQ (All coring triple tube)
DATE DRILLED	15.6.79 - 5.7.79
SIGNIFICANT CORE LOSS ZONES	
ORE ZONE GROUND CONDITIONS	
LOGGED BY	P.R. STEPHENSON

SURVEY			From – To	Distance D	VERTICAL		HORIZONTAL	
Depth	Bearing	Dip			D Sin Dip	R.L.	D Cos Dip	Prog. Total
Collar	015° 30'	* 46 53'?	0 - 56	56.0	42.9	2124.1	36.0	36.0
112m	027° †	-50°	- 131	75.0	57.5	2066.6	48.2	84.2
150m	024° †	-49°	- 175	44.0	33.2	2033.4	28.9	113.1
200m	038.5° †	-49°	- 225	50.0	37.7	1995.7	32.8	145.9
250m	013°	-49°	- 273	48.0	36.2	1959.5	31.5	177.4
295m	016.5°	49°	- 295.1	22.1	16.8	1942.7	14.5	191.9

* Survey carried out after rig had removed, therefore doubtful accuracy.
Dip assumed to be 50° at collar.

† Bearings ignored. A camera check against a surveyed bearing near the collar of this hole showed there to be a magnetic anomaly in this region.

Bearings used in plotting the hole.

From To	Bearing	Hor dist.
0 - 125m	015°30'	80.3
- 273m	013°	97.1
- 295.1m	016.5°	14.5

COMMENTS

A thick skarn/carbonate sequence was intersected between 143 and 240m containing two mineralised zones.
The more southerly one is thin with reasonable grade tin while the northerly one contains little tin.
Significant soluble tin occurs which is not present as stannite. High patchy bismuth, and minor patchy scheelite occur in the skarn.
Significant zinc occurs both within and surrounding the mineralisation and may form a halo round the mineralised zones.
The contact with the granite may be a vertical fault, and the granite itself is partly greisenised and mineralised.
Recovery would have been poor without triple-tubing, and large diameter coring should be kept going as long as possible in future holes.

Two sets of petrological descriptions are appended to this log: One (C.M.S. 79/7/25) provides general descriptions of rock types intersected; the other (C.M.S. 79/7/24) provides more detailed descriptions of intervals with high Sn values.

SUMMARY – ASSAY DATA

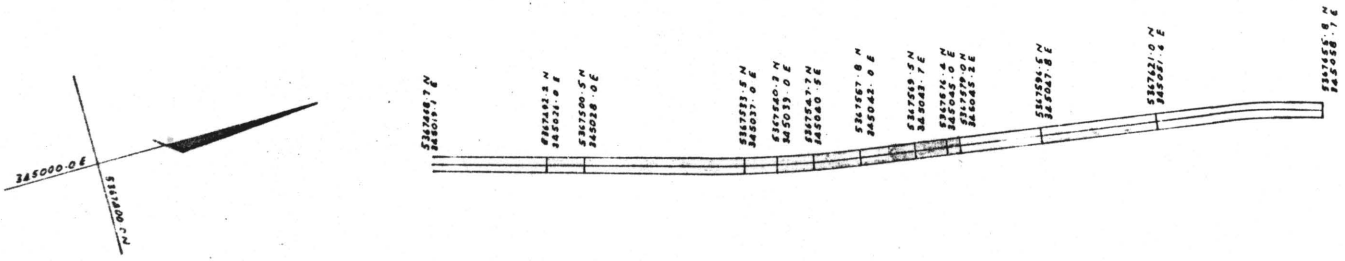
LODE NAME	FROM	TO	LENGTH (m)	AVERAGE WEIGHTED ASSAYS												B.C.A.
				Sn.	Acid Sol. Sn.	Cu.	As.	S.	Pb.	Zn.	Bi.	WO_3	Ag g/t			
	169.0	175.0	6.0	0.82	0.10	< 0.05	< 0.10	0.93	0.003	0.088	0.064	0.02	3			
	170.0	175.0	5.0	0.92	0.11	< 0.05	< 0.10	0.80	0.003	0.058	0.075	0.02	3			
	209.0	212.0	3.0	0.39	0.18	< 0.05	< 0.10	0.34	0.003	0.320	0.081	0.03	2			
	236.0	238.0	2.0	0.28	0.13	< 0.05	0.15	0.47	0.003	0.158	0.039	0.02	2			
	209.0	240.0	31.0	0.09	0.06	0.05	< 0.10	0.94	0.003	0.123	0.039	0.05	2			

HOLE No SD 9

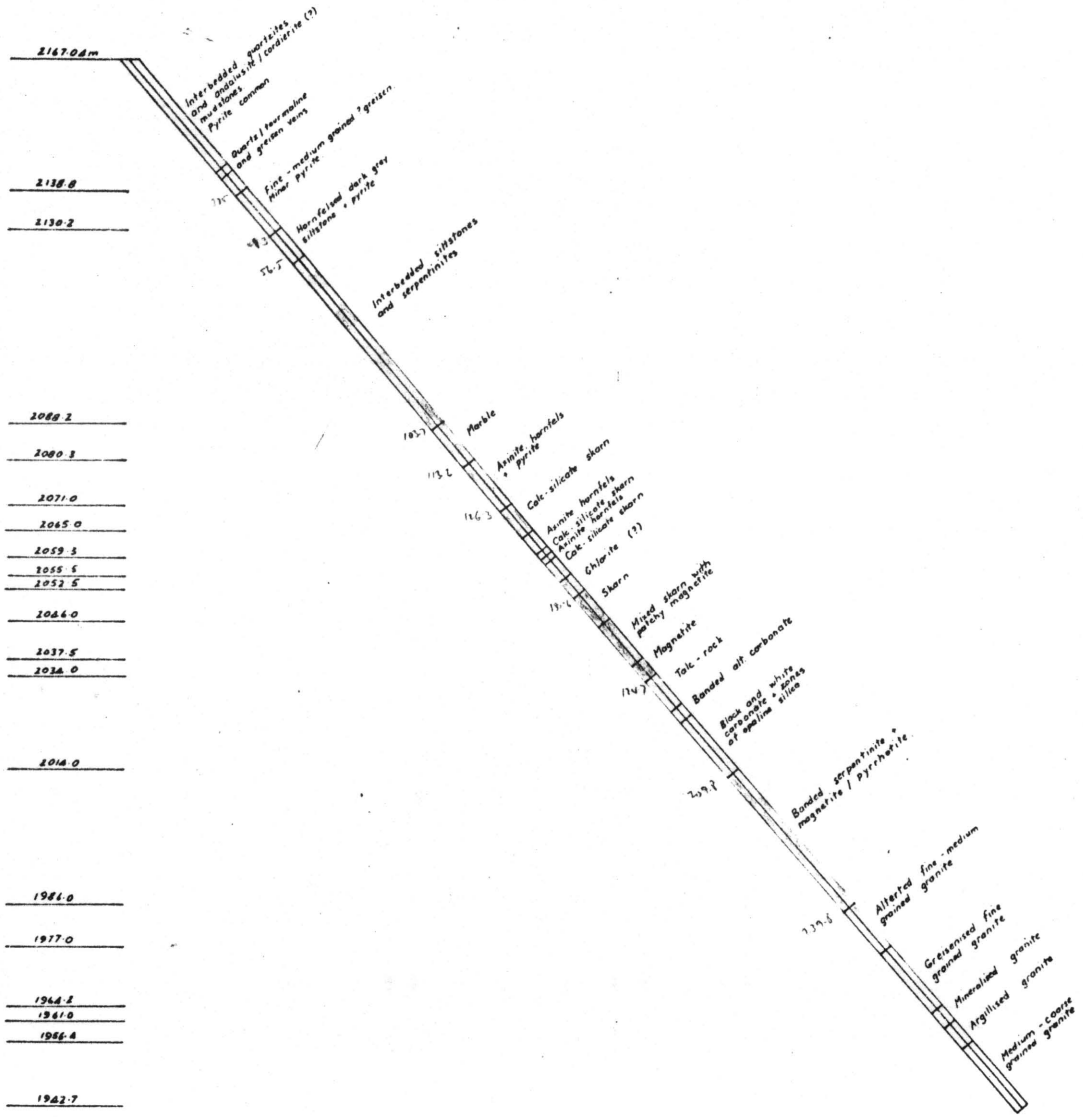
SCALE 0 20 40 metres

RENISON LIMITED

DIAMOND DRILL HOLE PLOT



PLAN



DIP PROFILE

950

SD 09

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. Stephenson

RWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
0.0	37.5	35.1	94	QUARTZITES and ANDALUSITE/CORDERITE MUDSTONES		0.0	1.0	<0.01		<0.05	<0.10	1.2					<0.01
						1.0	2.0	<0.01		<0.05	0.10	1.8					<0.01
				Quartzites/Mudstones 60/40		2.0	3.0	<0.01		<0.05	0.10	1.8					<0.01
				Well bedded occasionally folded. B.C.A. 20° - 50°, average 35°.		3.0	4.0	<0.01		<0.05	0.10	2.2					<0.01
				Quartzite is white-light grey, fairly soft impure and usually pitted		4.0	5.0	<0.01		<0.05	0.10	1.3					<0.01
				Fractures brittely. Mudstone is dark grey and soft, with numerous		5.0	6.0	<0.01		<0.05	0.10	4.6					<0.01
				white laths and spots, probably andalusite and cordierite respec-		6.0	7.0	0.06		<0.05	0.10	1.5					<0.01
				tively (cordierite to be verified).		7.0	8.0	0.01		<0.05	0.10	0.82					<0.01
						8.0	9.0	<0.01		<0.05	0.10	1.6					<0.01
				Mineralisation - pyrite is common in both rock types as vuggy veins		9.0	10.0	<0.01		<0.05	0.10	2.7					<0.01
				mainly following bedding, but also occurring in cross-cutting veins.		10.0	11.0	<0.01		<0.05	0.10	2.8					<0.01
				8.6 - 9.2m White, medium grained argillic and weakly micaceous?		11.0	12.0	<0.01		<0.05	0.10	2.3					<0.01
				granitic rock (?greisenised). *[See Petrological Description]*		12.0	13.0	<0.01		<0.05	0.10	1.2					<0.01
				C.A. = 75°		13.0	14.0	<0.01		<0.05	0.10	1.6					<0.01
						14.0	15.0	0.03		<0.05	0.10	1.8					<0.01
				31.4 - 31.6m 2cm wide quartz-tourmaline vein cuts the core at 20°		15.0	16.0	0.02		<0.05	0.10	1.4					<0.01
				infuses the surrounding quartzite with brown biotite for 1cm either		16.0	17.0	0.04		<0.05	0.10	1.1					<0.01
				side. Tourmaline occupies the centre of the vein and coarsely		17.0	18.0	0.04		<0.05	0.10	1.7					<0.01
				crystalline.		18.0	19.0	0.03		<0.05	0.10	2.5					<0.01
						19.0	20.0	0.03		<0.05	0.10	1.1					<0.01
				33.1 - 33.7m 3cm wide quartz-tourmaline-biotite vein with patchy		20.0	21.0	0.02		<0.05	0.10	1.9					<0.01
				white mica cuts the core at 0.° Biotite and tourmaline are coarsely		21.0	22.0	<0.01		<0.05	0.10	2.9					<0.01
				crystalline, and minor pyrite on vein edges ?Greisen vein.		22.0	23.0	0.04		<0.05	0.10	2.2					<0.01
						23.0	24.0	0.06		<0.05	0.10	1.5					<0.01
						24.0	25.0	0.09		<0.05	0.10	2.0					<0.01
				Note: The Petrological Description at 10.0m describes a "pervasive network of		25.0	26.0	0.02		<0.05	0.10	2.4					<0.01
				microscopic graphite films along the grain boundaries". Such a feature		26.0	27.0	0.17		<0.05	0.10	0.93					<0.01
				could explain various geophysical anomalies observed in the chiastolite		27.0	28.0	0.10		<0.05	0.10	1.3					<0.01
				slates and hornfelses.		28.0	29.0	0.01		<0.05	0.10	2.3					<0.01
						29.0	30.0	<0.01		<0.05	0.10	3.0					<0.01
						30.0	31.0	<0.01		<0.05	0.10	2.7					<0.01
						31.0	32.0	0.24		<0.05	0.10	0.95					<0.01
						32.0	33.0	0.05		<0.05	0.10	1.8					<0.01
						33.0	34.0	0.16		<0.05	0.10	1.7					<0.01
						34.0	35.0	0.09		<0.05	0.10	1.2					<0.01
						35.0	36.0	0.12		<0.05	0.10	1.3					<0.01
						36.0	37.0	0.04		0.05	0.10	1.9					<0.01
						37.0	38.0	<0.01		<0.05	0.10	1.1					<0.01

0541

56 058

DIAMOND DRILL RECORD

HOLE NUMBER S.D. 9

LOGGED BY F.R. Stephenson

058

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
37.5	48.3	10.1	94	GRANITIC ROCK - ?GREISEN		38.0	39.0	0.04		<0.05	<0.10	0.94					0.01
				Fine to medium grained white and dark grey crystalline rock.		39.0	40.0	0.01		<0.05	<0.10	0.63					0.01
				White variety consists of quartz and white mica with small nodules		40.0	41.0	0.13		<0.05	<0.10	1.3					0.01
				of crystalline tourmaline and biotite. i.e. greisen.		41.0	42.0	0.05		<0.05	<0.10	0.72					0.01
						42.0	43.0	0.08		<0.05	<0.10	1.3					<0.01
				Dark variety is similar but finer grained (?with less quartz).		43.0	44.0	<0.01		<0.05	<0.10	0.63					0.01
				Definite lineation in places - CA 40°. Dark variety predomination.		44.0	45.0	0.14		<0.05	<0.10	0.97					0.01
				Mineralisation:- pyrite occurs in a similar habit to the previous		45.0	46.0	0.07		<0.05	<0.10	1.7					0.01
				unit but in lesser amounts. It may also occur finely disseminated		46.0	47.0	0.16		<0.05	<0.10	1.9					0.01
				in the groundmass. [Petrological Description at 43.2m. Qtz-muscovite-tourmaline		47.0	48.0	0.05		<0.05	<0.10	1.4					0.01
				rock of granitic origin].													
48.3	49.3	1.0	100	CONTAMINATED GRANITIC ROCK		48.0	49.0	0.01		<0.05	<0.10	1.5					0.01
				Banded dark/light grey and fawn fine grained crystalline rock-possibly													
				a contaminated version of the previous unit. Banding CA 40°													
				Mineralisation - several vuggy pyrite vains with a coarse brown													
				mineral-probably biotite.													
49.3	56.5	7.2	100	HORNFELS		49.0	50.0	<0.01		<0.05	<0.10	2.6					0.01
				Dark grey fine grained hornfelsed (?) band siltstone. Finely banded		50.0	51.0	<0.01		<0.05	<0.10	3.0					0.01
				BCA = 40°. Mineralisation: vuggy pyrite veins common both parallel		51.0	52.0	<0.01		<0.05	<0.10	3.2					<0.01
				to and crosscutting bedding.		52.0	53.0	<0.01		<0.05	<0.10	2.2					0.01
						53.0	54.0	<0.01		<0.05	<0.10	3.8					<0.01
				51.6 - 51.8m Greisenous quartz-white mica vein with a banded		54.0	55.0	<0.01		<0.05	<0.10	3.7					0.01
				altered section extending 0.2m either side.		55.0	56.0	<0.01		<0.05	<0.10	3.0					0.01
				[Petrological Description at 55.2m: altered chiastolite hornfels]		56.0	57.0	<0.01		<0.05	<0.10	2.9					0.01
56.5	103.7	39.9	85	INTERBEDDED SILTSTONES and SERPENTINITES		57.0	58.0	<0.01		<0.05	<0.10	0.30					0.01
				Siltstones/serpentinites - 70/30. The siltstones are dark grey		58.0	59.0	<0.01		<0.05	<0.10	0.21					0.01
				slightly graphitic well banded hornfelsic in places, non-calcareous		59.0	60.0	<0.01		<0.05	<0.10	0.25					<0.01
				and with numerous thin (1-2cm) grey chert and talc bands BCA 35°		60.0	61.0	<0.01	<0.01	<0.05	<0.10	0.38	0.002	0.011	0.002	<1	0.01
						61.0	62.0	<0.01	<0.01	<0.05	<0.10	0.34	0.002	0.014	0.002	1	0.01
				The serpentinites occur as beds from 0.5 to 5.0m thick, decreasing		62.0	63.0	<0.01	<0.01	<0.05	<0.10	0.29	0.002	0.006	0.001	1	0.01
				in amount with depth. They are very well banded with light and dark		63.0	64.0	<0.01	<0.01	<0.05	<0.10	0.34	0.002	0.004	<0.001	<1	<0.01
				green and black soapy chlorite/serpentine mixed with white and yellow		64.0	65.0	<0.01	<0.01	<0.05	<0.10	0.13	0.002	0.005	<0.001	<1	<0.01
				carbonate beds. Some zones show tight folding. Magnetite occurs as		65.0	66.0	<0.01	<0.01	<0.05	<0.10	0.43	0.001	0.004	0.002	1	0.01
				grains and veins in minor amounts (5-10%) between 56.5 and 58.5m.		66.0	67.0	<0.01	0.01	<0.05	<0.10	0.51	0.001	0.010	0.002	<1	0.01
				Negligable amounts occur in the rest of the unit. A few veins of		67.0	68.0	<0.01	<0.01	<0.05	<0.10	0.29	0.002	0.007	0.001	<1	0.01
				coarse muscovite occur.		68.0	69.0	<0.01	<0.01	<0.05	<0.10	0.53	0.002	0.043	0.001	1	0.01
				[Petrological Description at 57.8m: altered serpentinite]		69.0	70.0	<0.01	<0.01	<0.05	<0.10	0.54	0.001	0.005	0.001	<1	0.01
				69.0m: diopside-tremolite rock]		70.0	71.0	<0.01	<0.01	<0.05	<0.10	0.16	0.002	0.006	0.002	1	0.01
						71.0	72.0	<0.01	<0.01	<0.05	<0.10	0.54	0.002	0.013	0.001	1	0.01
						72.0	73.0	<0.01	<0.01	<0.05	<0.10	0.04	0.002	0.004	0.001	1	0.01

058 0059

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	FROM	TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				Generally poor ground, especially the serpentinites. Reasonable		73.0	74.0	<0.01	<0.01	<0.05	<0.10	0.33	0.002	0.010	0.002	<1	<0.01
				recovery maintained because of the use of a triple tube. Mineral-		74.0	75.0	<0.01	<0.01	<0.05	<0.10	0.29	0.002	0.003	0.002	<1	<0.01
				isation:- very minor (<1%) coarse pyrite veins both parallel to		75.0	76.0	<0.01	0.01	<0.05	<0.10	0.09	0.002	0.004	0.002	<1	0.01
				and cutting across bedding. Chloritic serpentine and calcite filled		76.0	77.0	<0.01	0.01	<0.05	<0.10	0.31	0.002	0.003	0.002	1	0.01
				fractures are very common contributing to the bad ground conditions.		77.0	78.0	<0.01	0.01	<0.05	<0.10	0.29	0.003	0.003	0.002	<1	0.01
						78.0	79.0	<0.01	0.01	<0.05	<0.10	0.41	0.005	0.011	0.001	1	0.01
103.7	113.6	9.6	97	MARBLES		79.0	80.0	<0.01	<0.01	<0.05	<0.10	0.16	0.002	0.002	0.001	<1	0.01
				Stylolitic white hard very calcareous marble. Stylolites are		80.0	81.0	0.01	0.01	<0.05	<0.10	<0.01	0.002	0.001	<0.001	<1	0.01
				well developed and filled with raphite (?). Green serpentinous		81.0	82.0	0.01	0.01	<0.05	<0.10	0.21	0.002	0.002	0.001	<1	0.01
				patch at 105.1m 111.5 - 112.1m. Well banded and folded black and		82.0	83.0	0.01	0.01	<0.05	<0.10	0.01	0.001	0.002	<0.001	<1	<0.01
				white calcareous rock. B.C.A. 35°.		83.0	84.0	<0.01	0.01	<0.05	<0.10	0.08	0.001	0.001	0.001	<1	0.01
				?AXINITE.		84.0	85.0	<0.01	0.01	<0.05	<0.10	0.29	<0.009	0.001	<0.001	<1	<0.01
				[Petrological Description at 106.6m : carbonated serpentinite]		85.0	86.0	<0.01	0.01	<0.05	<0.10	0.04	<0.001	0.001	<0.001	<1	0.01
113.6	126.3	12.1	95	ANDALUSITE HORNFELS		86.0	87.0	<0.01	0.01	<0.05	<0.10	0.04	<0.001	0.001	<0.001	<1	0.01
				Dark grey fine grained hard hornfelsed siltstone. Finely banded.		87.0	88.0	<0.01	0.01	<0.05	<0.10	0.25	<0.001	0.006	<0.001	<1	0.01
				BCA 50.°		88.0	89.0	0.01	0.01	<0.05	<0.10	0.12	0.002	0.009	0.001	<1	<0.01
				Minor andalusite down to 122m then several bands containing very		89.0	90.0	<0.01	0.01	<0.05	<0.10	0.08	0.002	0.004	0.001	<1	<0.01
				coarse {axinite (?) andalusite crystals. (up to 1cm), often in radiating clusters.		90.0	91.0	<0.01	0.01	<0.05	<0.10	0.21	0.001	0.005	0.002	<1	0.01
				Mineralisation:- Coarse, slightly vuggy pyrite is common (up to		91.0	92.0	0.01	0.01	<0.05	<0.10	0.04	0.001	0.002	<0.001	<1	<0.01
				5%) in thin veins parallel to and cross cutting bedding and in a		92.0	93.0	<0.01	0.01	<0.05	<0.10	0.12	0.001	0.001	0.001	<1	<0.01
				few larger blebs. Some very coarse pyrite cubes sitting loose in		93.0	94.0	0.01	0.01	<0.05	<0.10	0.04	0.001	0.002	0.001	<1	<0.01
				the tray. Mineralisation is typical brittle fracture infilling.		94.0	95.0	0.01	0.01	<0.05	<0.10	0.08	0.001	0.002	<0.001	<1	<0.01
				Multimeter readings show that this unit is conductive.		95.0	96.0	<0.01	0.01	<0.05	<0.10	0.04	<0.001	0.002	0.002	<1	<0.01
				[Petrological Description at 124.3m : Contact Metasomatic Rock, or Skarn]		96.0	97.0	<0.01	0.01	<0.05	<0.10	0.00	0.001	0.002	0.001	<1	<0.01
126.3	134.0	7.7	100	CALC-SILICATE SKARN		97.0	98.0	<0.01	0.01	<0.05	<0.10	1.2	<0.002	0.005	0.001	<1	0.01
				Fawn cream, light grey dark grey and grey-green altered calcareous		98.0	99.0	<0.01	0.01	<0.05	<0.10	0.04	0.001	0.002	0.002	<1	0.01
				rocks. A few bands of dark grey andalusite or axinite hornfels as in		99.0	100.0	<0.01	0.01	<0.05	<0.10	0.37	<0.001	0.004	0.001	<1	0.01
				the previous unit - occasionally "islands" of this rock apparently		100.0	101.0	<0.01	<0.01	<0.05	<0.10	0.70	0.001	0.003	0.001	<1	0.01
				show gradual alteration to the mixed calcareous rock (e.g. at 130.5m)		101.0	102.0	"	<0.01	<0.05	<0.10	1.1	0.001	0.006	0.001	<1	0.01
						102.0	103.0	"	0.01	<0.05	<0.10	1.4	0.003	0.036	0.002	2	<0.01
				Numerous patches and veins of various minerals, mainly chlorite		103.0	104.0	"	0.01	<0.05	<0.10	0.29	0.003	0.018	0.003	2	<0.01
				with white mica, serpentine, actinolite (?) talc and biotite and		104.0	105.0	"	0.01	<0.05	<0.10	0.12	0.005	0.003	0.006	3	0.01
				some unidentified. Mineralisation:- Minor pyrite on sheer planes		105.0	106.0	"	0.01	<0.05	<0.10	0.29	0.005	0.003	0.005	3	0.01
				and possibly some sphalerite. Minor disseminated scheelite (?)		106.0	107.0	"	0.01	<0.05	<0.10	0.04	0.004	0.001	0.006	5	0.01
				132.5 - 132.8m.		107.0	108.0	"	<0.01	<0.05	<0.10	0.04	0.005	0.001	0.005	4	0.01
				[Petrological Description at 132.6m : Moderately altered/oxidised, Fe stained skarn]		108.0	109.0	"	0.01	<0.05	<0.10	0.04	0.004	0.001	0.005	4	0.01
134.0	138.5	4.4	97	ANDALUSITE HORNFELS		109.0	110.0	"	0.01	<0.05	<0.10	0.29	0.004	0.002	0.007	4	0.01
				Dark grey micaceous {axinite (?) andalusite hornfels B.C.A. 40° - 45.°		110.0	111.0	"	<0.01	<0.05	<0.10	0.04	0.004	0.002	0.005	4	0.01
				{Andalusite is abundant forming light grey lath-like crystals up to		111.0	112.0	"	0.01	<0.05	<0.10	0.54	0.005	0.006	0.005	3	0.01
				4cm long often in radiating clusters.		112.0	113.0	"	<0.01	<0.05	<0.10	0.29	0.004	0.002	0.009	4	0.01
				Chloritised in places with biotite. Mineralisation:- minor pyrite		113.0	114.0	"	<0.01	<0.05	<0.10	1.4	0.003	0.021	0.006	3	0.01
				on joint planes and perhaps some fine disseminated pyrite. Weakly		114.0	115.0	"	<0.01	<0.05	<0.10	2.0	0.003	0.006	0.003	2	0.01
				conductive.													

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630

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. STEPHENSON

060

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
138.5	140.0	1.4	95	CALC-SILICATE SKARN		115.0	116.0	< 0.01	0.01	<0.05	<0.10	1.9	0.003	0.065	0.004	2	<0.01
				Fawn-grey altered calcareous rock similar to 126.3 - 134.0m.		116.0	117.0	"	<0.01	<0.05	<0.10	2.9	0.003	0.400	0.001	2	0.01
						117.0	118.0	"	<0.01	<0.05	<0.10	3.3	0.001	0.017	0.001	1	0.01
						118.0	119.0	"	<0.01	<0.05	<0.10	3.5	0.001	0.031	0.001	1	0.01
						119.0	120.0	"	<0.01	<0.05	<0.10	3.9	0.001	0.027	0.001	1	0.01
						120.0	121.0	"	<0.01	<0.05	<0.10	3.7	0.001	0.005	0.001	1	0.01
						121.0	122.0	"	<0.01	<0.05	<0.10	3.4	0.001	0.002	0.002	1	<0.01
						122.0	123.0	"	<0.01	<0.05	<0.10	0.56	0.002	0.060	0.003	1	0.01
						123.0	124.0	"	<0.01	<0.05	<0.10	0.28	0.003	0.050	0.003	2	0.01
						124.0	125.0	"	<0.01	<0.05	<0.10	1.8	0.004	0.350	0.003	2	0.01
						125.0	126.0	"	<0.01	<0.05	<0.10	1.9	0.003	0.280	0.001	2	0.01
						126.0	127.0	"	<0.01	<0.05	<0.10	0.65	0.002	0.880	0.002	2	0.01
						127.0	128.0	"	<0.01	<0.05	<0.10	0.94	0.003	0.680	0.003	3	0.01
						128.0	129.0	0.01	0.01	<0.05	<0.10	0.19	0.002	0.021	0.002	2	0.01
						129.0	130.0	<0.01	<0.01	<0.05	<0.10	0.35	0.002	0.085	0.003	2	0.01
						130.0	131.0	<0.01	<0.01	<0.05	<0.10	0.20	0.002	0.070	0.020	3	0.01
						131.0	132.0	<0.01	<0.01	<0.05	<0.10	1.5	0.002	0.640	0.003	2	0.01
						132.0	133.0	0.02	<0.01	<0.05	<0.10	1.0	0.001	0.330	0.003	1	0.01
						133.0	134.0	0.01	<0.01	<0.05	<0.10	2.8	0.003	4.0	0.007	2	0.02
						134.0	135.0	0.05	<0.01	<0.05	<0.10	0.69	0.003	0.880	0.004	2	0.01
						135.0	136.0	0.13	0.02	<0.05	<0.10	0.72	0.002	1.0	0.003	1	0.01
						136.0	137.0	0.05	<0.01	<0.05	<0.10	0.25	0.002	0.430	0.003	2	0.01
						137.0	138.0	0.01	<0.01	<0.05	<0.10	0.50	0.001	0.860	0.004	2	0.01
						138.0	139.0	<0.01	<0.01	<0.05	<0.10	0.13	0.001	0.125	0.003	2	0.01
						139.0	140.0	<0.01	<0.01	<0.05	<0.10	0.35	0.002	0.155	0.001	1	0.01
140.0	141.3	1.3	100	HORNFELS		140.0	141.0	0.01	0.01	<0.05	<0.10	0.67	0.006	0.370	0.003	3	0.01
				Hard dark grey hornfels with minor andalusite.													
				BCA. 35°.													
				Mineralisation:- pyrite (+minor chalcopyrite ?) occurs as fracture fillings and disseminated along bedding (possibly replacing some mineral).													
				Weakly conductive.													
141.3	143.0	1.7	100	MIXED HORNFELS/CALC-SILICATE?		141.0	142.0	0.01	0.01	<0.05	<0.10	0.18	0.002	0.100	0.004	2	0.01
				Dark grey hard and soft siliceous and talcy altered sediment.		142.0	143.0	0.04	0.02	<0.05	<0.10	0.75	0.003	0.100	0.005	2	0.01
				Large patches of calcite occur. Slightly serpentinous looking.													
				Specks of a black soft mineral occur (?talc).													
				Mineralisation:- minor pyrite, becoming common below 142.6m, as veins and disseminations. Minor disseminated scheelite (?) 141.7 - 141.9m.													

56 061

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
143.0	146.5	3.1	88	CALC-SILICATE SKARN		143.0	144.0	0.02	0.04	<0.05	<0.10	0.30	0.001	0.430	0.007	1	0.01
				Patchily calcareous fawn, green, khaki and grey altered rock.		144.0	145.0	0.01	0.02	<0.05	<0.10	0.88	0.002	0.400	0.006	2	0.01
				Moderately well banded. BCA 30°- 40.°		145.0	146.0	0.01	0.02	<0.05	<0.10	0.15	0.001	0.180	0.004	2	0.01
				Mineralisation:- minor red brown mineral - probably mainly biotite,		146.0	147.0	<0.01	0.02	<0.05	<0.10	0.07	0.018	0.085	0.015	6	0.03
				but possibly some sphalerite.													
				[Petrological Description at 145.3m: Diopside-phlogopite-calcite rock - skarned serpentinite]													
146.5	150.6	3.6	89	MASSIVE CALCAREOUS CHLORITE (?)		147.0	148.0	<0.01	<0.01	<0.05	<0.10	0.20	0.016	0.150	0.009	8	0.03
				Very soft calcareous grey coarsely crystalline rock probably consisting		148.0	149.0	<0.01	0.01	<0.05	<0.10	0.55	0.010	0.400	0.008	4	0.02
				of massive chlorite with talc and calcite. Fairly broken, and would		149.0	150.0	<0.01	0.01	<0.05	<0.10	0.43	0.012	0.490	0.007	4	0.01
				normally give very poor recovery.		150.0	151.0	<0.01	0.01	<0.05	<0.10	0.07	0.002	0.040	0.005	3	0.01
				[Petrological description at 146.8m: Chlorite-carbonate rock - altered ultramafic; one 200µm (hexagonal) quartz grain]													
150.6	159.2	8.3	97	SKARN		151.0	152.0	<0.01	0.01	<0.05	<0.10	0.17	0.004	0.270	0.005	3	0.01
				Fawn, light grey, dark grey and khaki altered calcareous rock.		152.0	153.0	<0.01	0.01	<0.05	<0.10	0.16	0.001	0.105	0.006	2	0.01
				Moderately well banded B.C.A. 40.° Sections of the coarse chlorite		153.0	154.0	<0.01	0.01	<0.05	0.10	0.29	0.001	0.350	0.003	3	0.04
				(?) rock occur, especially 157.2 - 159.2m.		154.0	155.0	<0.01	0.01	<0.05	0.35	0.34	0.001	0.210	0.006	3	0.01
				Calcite veining common and a few veins of coarse muscovite occur,		155.0	156.0	<0.01	0.02	<0.05	0.30	0.17	0.002	0.055	0.019	3	0.01
				Mineralisation:- minor veins and patches of red-brown sphalerite		156.0	157.0	<0.01	0.02	<0.05	0.15	0.12	0.003	0.027	0.019	2	0.16
				occur. Non magnetic. A few patches of disseminated scheelite.		157.0	158.0	<0.01	0.01	<0.05	<0.10	0.63	0.006	0.850	0.020	3	0.02
				[Petrological Description at 158.0m: Diopside-chlorite rock - skarned basic/ultramafic rock]		158.0	159.0	<0.01	0.01	<0.05	<0.10	0.16	0.003	0.350	0.008	2	0.02
159.2	169.8	10.3	97	MIXED SKARN WITH PATCHY MAGNETITE		159.0	160.0	<0.01	0.01	<0.05	<0.10	0.13	0.003	0.046	0.065	3	0.01
				Grey, brown and fawn, altered calcareous mixed rock with sections		160.0	161.0	<0.01	0.01	<0.05	<0.10	0.03	0.002	0.033	0.034	2	0.01
				of strong "biotitisation" minor bands of hornfels, and patchy		161.0	162.0	0.01	0.02	<0.05	<0.10	1.5	0.002	2.0	0.020	3	0.01
				development of magnetite. B.C.A. 40.°		162.0	163.0	0.09	0.09	<0.05	<0.10	1.1	0.003	1.2	0.035	2	0.01
				Veins of serpentine calcite and minor muscovite occur. Band of red		163.0	164.0	<0.01	0.02	<0.05	<0.15	0.92	0.003	0.760	0.017	4	0.01
				brown opal at 168.9m.		164.0	165.0	0.06	0.03	<0.05	<0.10	0.78	0.001	0.580	0.220	4	0.01
						165.0	166.0	<0.01	0.01	<0.05	0.15	0.28	0.002	0.890	0.155	4	0.01
				Ground conditions reasonable apart from 167.5 - 168.5m where strong		166.0	167.0	0.34	0.03	<0.05	<0.10	0.25	0.003	0.090	0.345	5	0.01
				clay/serpentine veining has caused very broken ground.		167.0	168.0	0.05	0.02	<0.05	<0.10	0.77	0.003	0.060	0.960	18	0.01
				Mineralisation:- patchy development of magnetite (~5%) Red-brown		168.0	169.0	<0.01	0.01	<0.05	<0.10	0.30	0.003	0.070	0.008	2	0.02
				sphalerite is patchy, but very common where it does occur. Minor		169.0	170.0	0.32	0.04	<0.05	<0.10	1.6	0.003	0.235	0.010	5	0.02
				pyrite occurs on shear planes, with lesser pyrrhotite and very													
				minor chalcopyrite.													
				At 165.5m - muscovite/sphalerite vein.													
169.8	174.7	4.9	100	MAGNETITE		170.0	171.0	1.00	0.10	<0.05	<0.10	0.63	0.003	0.180	0.070	3	0.02
				Massive black magnetite, slightly sugary texture. Minor spotty		171.0	172.0	1.11	0.15	<0.05	<0.10	0.76	0.002	0.030	0.110	3	0.02
				calcite within the magnetite, and minor calcite veining. Fairly		172.0	173.0	1.08	0.11	<0.05	<0.10	0.25	0.002	0.030	0.120	3	0.02
				broken, but reasonable looking ground.		173.0	174.0	0.84	0.14	<0.05	<0.10	1.5	0.004	0.030	0.065	3	0.02
				No pyrite or pyrrhotite visible, but minor sphalerite disseminated		174.0	175.0	0.58	0.07	<0.05	<0.10	0.84	0.003	0.021	0.011	3	0.01
				at 171.2m. Conductive core.													

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56 062

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. Stephenson

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
174.7	183.0	6.5	67	TALC-ROCK		175.0	176.0	0.01	0.01	<0.05	<0.10	0.34	0.004	0.022	0.008	3	0.01
				Grey, soft calcareous talc-rich rock with extensive disseminated		176.0	177.0	0.01	0.01	<0.05	<0.10	0.26	0.003	0.014	0.005	3	0.01
				biotite		177.0	178.0	0.13	0.01	<0.05	<0.10	0.21	0.003	0.022	0.003	3	0.01
				Apart from the first 2m, the core is very broken below 179m, with		178.0	179.0	<0.01	0.01	<0.05	<0.10	0.03	0.002	0.017	0.004	2	0.01
				core recoveries worsening with depth (see detailed recoveries at the		179.0	180.0	<0.01	<0.01	<0.05	<0.10	0.17	0.002	0.008	0.002	2	0.01
				end of the leg). Minor calcite and serpentine veining with minor		180.0	181.0	<0.01	0.01	<0.05	<0.10	0.30	0.002	0.012	0.001	2	0.01
				pyrrhotite. No magnetite.		181.0	182.0	<0.01	0.01	<0.05	<0.10	1.1	0.007	0.085	0.008	2	0.02
				[Petrological Description at 177.0m : Talc-chlorite rock - altered serpentinite derived from peridotite]		182.0	183.0	<0.01	0.01	<0.05	<0.10	1.7	0.003	0.095	0.003	2	<0.01
183.0	186.1	2.6	85	BANDED ALTERED CARBONATE		183.0	184.0	<0.01	<0.01	<0.05	<0.10	0.77	0.006	0.095	0.015	3	0.01
				Banded grey altered carbonate rock with several bands of brown		184.0	185.0	<0.01	<0.01	<0.05	<0.10	0.86	0.003	0.010	0.005	2	0.01
				jasper. Very poor ground with several seams of pure clay. Very		185.0	186.0	<0.01	<0.01	<0.05	<0.10	2.6	0.003	0.006	0.004	1	<0.01
				broken core. Well banded B.C.A. 70°													
				Calcite and serpentine veins common - a few crystals of a black hard													
				mineral occasionally occur with the calcite. Some coarse pyrite													
				occurs on fracture planes.													
186.1	209.0	22.8	99	BLACK AND WHITE CARBONATE		186.0	187.0	<0.01	<0.01	0.05	<0.10	1.3	0.003	0.004	0.004	2	<0.01
				Banded black and white altered calcareous sediment with large		187.0	188.0	<0.01	<0.01	0.05	<0.10	0.50	0.004	0.033	0.005	3	0.01
				sections of opaline silica.		188.0	189.0	<0.01	0.01	0.05	<0.10	0.11	0.003	0.011	0.004	2	0.01
				The calcareous sediment is speckled black and white well banded,		189.0	190.0	<0.01	0.01	0.05	<0.10	0.33	0.004	0.005	0.006	3	0.01
				with well developed stylolites. B.C.A. 40° though variable. The		190.0	191.0	<0.01	0.01	0.05	<0.10	0.10	0.004	0.004	0.006	4	0.01
				black constituent is probably a graphite/talc mixture.		191.0	192.0	<0.01	0.01	0.05	<0.10	0.60	0.005	0.014	0.006	3	0.01
				Black talc veins and green serpentine veins are common, the		192.0	193.0	<0.01	0.01	0.05	<0.10	0.13	0.003	0.031	0.005	2	0.01
				former sometimes carrying trace to minor amounts of pyrrhotite.		193.0	194.0	<0.01	<0.01	0.05	<0.10	0.10	0.002	0.040	0.002	1	0.01
				Reasonable ground conditions.		194.0	195.0	<0.01	<0.01	0.05	<0.10	0.03	0.002	0.003	0.003	2	<0.01
				187.3 - 187.6m and 188.1 - 188.6m - veins of green, white and		195.0	196.0	<0.01	<0.01	0.05	<0.10	0.06	0.003	0.004	0.003	2	0.01
				yellow opaline silica with minor talc, bounded top and bottom by		196.0	197.0	<0.01	0.01	0.05	<0.10	0.21	0.005	0.004	0.006	3	0.01
				black serpentine.		197.0	198.0	<0.01	<0.01	0.05	<0.10	0.82	0.004	0.003	0.007	3	0.01
				193.1 - 195.5m. Light green, light pink and white, very hard		198.0	199.0	<0.01	0.01	0.05	<0.10	0.46	0.004	0.006	0.008	3	0.01
				opaline silica. again bounded top and bottom by bands of black-		199.0	200.0	<0.01	<0.01	0.05	<0.10	0.19	0.003	0.002	0.006	3	0.01
				green serpentine.		200.0	201.0	<0.01	0.01	0.05	<0.10	0.08	0.002	0.002	0.003	1	0.01
						201.0	202.0	<0.01	0.02	0.05	<0.10	0.36	0.004	0.006	0.007	3	0.01
				[Petrological Descriptions at 193.1m : Metasomatised serpentinite]		202.0	203.0	<0.01	0.01	<0.05	<0.10	0.27	0.004	0.003	0.008	4	0.01
				202.3m : Carbonated Serpentinite]		203.0	204.0	<0.01	0.01	<0.05	<0.10	0.42	0.004	0.003	0.005	3	0.01
				208.6m : Carbonated Serpentinite]		204.0	205.0	<0.01	0.01	<0.05	<0.10	0.73	0.004	0.003	0.005	3	0.01
						205.0	206.0	<0.01	0.01	<0.05	<0.10	0.88	0.004	0.003	0.004	3	0.01
						206.0	207.0	<0.01	0.01	<0.05	<0.10	0.53	0.004	0.002	0.006	3	0.01
						207.0	208.0	<0.01	0.01	<0.05	<0.10	0.88	0.004	0.002	0.006	3	0.02
						208.0	209.0	<0.01	0.01	0.10	<0.10	2.7	0.004	0.600	0.008	4	0.02
						209.0	210.0	0.34	0.20	<0.05	<0.10	0.50	0.002	0.690	0.006	2	0.01

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56 063

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. Stephenson

NWTS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g t Ag	% WO_3
209.6	239.8	29.0	97	BANDED SERPENTINITE and MAGNETITE/PYRRHOTITE		210.0	211.0	0.48	0.24	<0.05	<0.10	0.31	0.003	0.055	0.018	2	0.02
				Banded magnetite/sulphide, serpentinite and altered grey-fawn cal		211.0	212.0	0.35	0.10	<0.05	<0.10	0.20	0.003	0.215	0.220	2	0.06
				-careous rocks. B.C.A. varies between 40° and 70°.		212.0	213.0	0.03	0.04	<0.05	<0.10	0.77	0.003	0.036	0.070	2	0.12
				The magnetite occurs as bands up to 2m thick and a vaguer bands		213.0	214.0	0.01	0.02	<0.05	<0.10	1.4	0.003	0.050	0.006	2	0.11
				and disseminations within the serpentinite.		214.0	215.0	<0.01	0.01	0.06	<0.10	2.9	0.004	0.060	0.004	2	0.05
						215.0	216.0	<0.01	0.02	<0.05	<0.10	2.6	0.002	0.045	0.005	2	0.05
				Pyrrhotite is sporadically distributed, but where it occurs, make up		216.0	217.0	0.04	0.03	<0.05	<0.10	1.3	0.004	0.850	0.006	1	0.01
				10 - 20%. of the rock. It mainly occurs in the thicker magnetite		217.0	218.0	0.02	0.03	0.05	<0.10	2.4	0.003	0.028	0.006	1	0.02
				bands.		218.0	219.0	0.01	0.02	<0.05	<0.10	1.1	0.003	0.035	0.004	2	0.02
						219.0	220.0	0.01	0.03	<0.05	<0.10	0.07	0.003	0.032	0.018	2	0.03
				Pyrite is in minor amounts and coarse. Possibly minor sphalerite		220.0	221.0	0.03	0.03	<0.05	<0.10	0.04	0.004	0.016	0.095	3	0.02
				The serpentine varies from apple green to black and often has		221.0	222.0	0.05	0.05	<0.05	<0.10	0.04	0.003	0.017	0.026	2	0.07
				bands of brown to white opaline silica.		222.0	223.0	0.04	0.04	<0.05	<0.10	0.22	0.003	0.015	0.019	2	0.03
						223.0	224.0	0.02	0.02	<0.05	<0.10	0.25	0.003	0.017	0.005	1	0.01
				A few clay seams and some broken core, but generally ground is		224.0	225.0	0.02	0.04	0.07	<0.10	2.1	0.003	0.019	0.008	2	0.06
				reasonable. Calcite veining is common and occasionally carries		225.0	226.0	0.04	0.04	<0.05	<0.10	0.11	0.004	0.024	0.060	2	0.15
				crystalline pyrite. The more massive magnetite/pyrrhotite bands		226.0	227.0	0.02	0.04	<0.05	<0.10	0.78	0.004	0.040	0.065	2	0.18
				are very conductive, and the unit as a whole is weakly to moderately		227.0	228.0	0.04	0.05	<0.05	<0.10	<0.01	0.004	0.015	0.027	2	0.09
				conductive.		228.0	229.0	0.02	0.03	<0.05	<0.10	0.33	0.004	0.042	0.075	3	0.13
						229.0	230.0	0.11	0.10	<0.05	<0.10	0.63	0.005	0.016	0.185	4	0.08
				237.6m - 239.8m Clayey broken zone the solid core showing signs of		230.0	231.0	0.11	0.06	<0.05	<0.10	1.9	0.005	0.034	0.045	3	0.01
				shearing. Poor ground conditions. Could be a faulted contact.		231.0	232.0	0.03	0.04	0.07	<0.10	0.78	0.006	0.045	0.020	3	0.02
				Minor disseminated scheelite (?)		232.0	233.0	0.09	0.08	<0.05	<0.10	1.2	0.005	0.170	0.006	2	0.02
				209.6 - 209.7m, 210.7 - 210.8m and 224.2 - 228.4m.		233.0	234.0	0.02	0.03	<0.05	<0.10	2.1	0.004	0.090	0.005	1	0.03
						234.0	235.0	0.08	0.07	<0.05	<0.10	0.92	0.003	0.370	0.031	3	0.06
						235.0	236.0	0.02	0.04	0.11	<0.10	2.6	0.002	0.360	0.020	3	0.01
						236.0	237.0	0.14	0.13	<0.05	0.25	0.47	0.003	0.200	0.048	2	0.03
						237.0	238.0	0.42	0.14	<0.05	<0.10	0.48	0.003	0.115	0.029	2	0.02
						238.0	239.0	<0.01	0.02	<0.05	<0.10	0.42	0.002	0.026	0.005	2	0.01
						239.0	240.0	0.14	0.10	<0.05	<0.10	0.30	0.003	0.075	0.065	2	0.03
239.8	251.3	10.7	93	ALTERED FINE-MEDIUM GRAINED GRANITE [Petrological Description at 244.3m: Biotite Granite 246.5m]		240.0	241.0	<0.01	0.01	<0.05	<0.10	0.10	0.004	0.005	0.001	< 1	0.01
				Fine to medium grained, grey and green-grey granite. Non		241.0	242.0	<0.01	<0.01	<0.05	<0.10	0.07	0.001	0.004	0.001	< 1	0.01
				porphyritic.		242.0	243.0	<0.01	0.01	<0.05	<0.10	0.05	0.002	0.004	0.001	< 1	0.01
				Basically a quartz-white felspar-biotite granite. In places the		243.0	244.0	<0.01	<0.01	<0.05	<0.10	0.02	0.002	0.003	0.001	< 1	0.02
				felspars show a reddening. Overall greenish colour is due to		244.0	245.0	0.01	0.01	<0.05	<0.10	<0.01	0.001	0.004	0.001	< 1	0.01
				extensive alteration of the felspars to pinite.		245.0	246.0	<0.01	0.01	<0.05	<0.10	0.08	0.001	0.004	0.001	< 1	0.01
				Patchily altered, with a few greisenous fine grained zones carrying		246.0	247.0	<0.01	0.01	<0.05	<0.10	0.03	0.002	0.003	0.001	< 1	0.01
				nodules of tourmaline.		247.0	248.0	<0.01	0.01	<0.05	<0.10	0.05	0.002	0.003	0.001	< 1	0.01
				Small pegmatite (quartz and felspar) veins approximately 5cm wide		248.0	249.0	<0.01	<0.01	<0.05	<0.10	<0.01	0.001	0.001	0.001	< 1	0.01
				occur on average 1 per 3m. Very minor traces of pyrrhotite occur.		249.0	250.0	<0.01	<0.01	<0.05	<0.10	<0.01	0.003	0.006	0.002	< 1	0.01
				This section was very hard to saw; it is thought that topaz may be		250.0	251.0	<0.01	0.01	<0.05	<0.10	<0.01	0.002	0.003	0.001	< 1	0.01
				present, and that it may make up the main constituent of the pegmatite veins.													

063

56 064

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. Stephenson

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
251.2	268.5	17.1	99	GREISENISED FINE GRAINED GRANITE		251.0	252.0	<0.01	<0.01	<0.05	<0.10	<0.01	0.002	0.001	0.001	< 1	0.01
				Fine grained, yellow and grey greisenised granite. Weakly		252.0	253.0	<0.01	<0.01	<0.05	<0.10	0.17	0.010	0.006	0.002	1	<0.01
				porphyritic.		253.0	254.0	<0.01	0.01	<0.05	<0.10	0.05	0.003	0.003	0.002	< 1	0.01
				Alteration is variable - the felspars show argillic (?) alteration		254.0	255.0	<0.01	0.01	<0.05	<0.10	0.06	0.001	0.002	0.001	< 1	0.01
				throughout, while the biotites are patchily altered. Tourmaline		255.0	256.0	<0.01	<0.01	<0.05	<0.10	0.03	0.001	0.002	0.001	< 1	0.01
				occurs as nodules and finely disseminated.		256.0	257.0	<0.01	<0.01	<0.05	<0.10	0.41	0.006	0.013	0.002	< 1	0.01
				Greisenous zones cut the core at 40° - 60°. The most altered zones		257.0	258.0	<0.01	<0.01	<0.05	<0.10	0.03	0.002	0.003	0.002	< 1	0.01
				are fine grained and grey, consisting mainly of white mica and		258.0	259.0	<0.01	<0.01	<0.05	<0.10	0.11	0.002	0.005	0.002	< 1	0.01
				quartz (+ topaz?)		259.0	260.0	<0.01	<0.01	<0.05	<0.10	0.10	0.003	0.006	0.002	< 1	<0.01
				Mineralisation - thin veins of pyrite with traces of chalcopyrite		260.0	261.0	<0.01	<0.01	<0.05	<0.10	0.11	0.003	0.003	0.002	< 1	0.01
				cuts a fine grained grey greisen zone at 264.6m - VCA 30°. Otherwise		261.0	262.0	<0.01	<0.01	<0.05	<0.10	0.08	0.002	0.004	0.002	< 1	0.01
				only traces of pyrrhotite.		262.0	263.0	<0.01	<0.01	<0.05	<0.10	0.03	0.003	0.005	0.002	< 1	0.01
						263.0	264.0	<0.01	<0.01	<0.05	<0.10	<0.01	0.012	0.009	0.002	< 1	0.01
				[Petrological Description at 259.0m : Biotite Microgranite]		264.0	265.0	<0.01	<0.01	<0.05	<0.10	0.81	0.048	0.026	0.006	8	0.01
				264.7m : Quartz-muscovite-Tourmaline rock]		265.0	266.0	<0.01	<0.01	<0.05	<0.10	<0.01	0.002	0.002	0.002	< 1	<0.01
						266.0	267.0	<0.01	<0.01	<0.05	<0.10	0.21	0.004	0.006	0.003	1	0.01
						267.0	268.0	<0.01	<0.01	<0.05	<0.10	0.42	0.010	0.009	0.002	1	0.01
268.5	272.4	3.8	97	MINERALISED GREISENISED FINE GRAINED GRANITE		268.0	269.0	<0.01	<0.01	0.16	0.90	5.9	0.026	0.225	0.005	8	0.01
				Grey and yellow fine grained, patchily greisenised granite as		269.0	270.0	<0.01	<0.01	<0.05	<0.10	0.21	0.013	0.037	0.003	1	0.01
				previous unit showing well developed mineralisation. 268.5 - 268.7m.		270.0	271.0	<0.01	<0.01	<0.05	<0.10	0.39	0.016	0.008	0.004	2	0.01
				Massive veins of pyrite-chalcopyrite-galena-sphalerite (?) - fluorite		271.0	272.0	<0.01	<0.01	0.05	0.10	0.77	0.013	0.046	0.003	2	0.01
				-topaz ?) - quartz. Occurs within a fine grained grey greisen													
				patch with minor mineralisation. VCA undeterminable.													
				Irregular thin veins of purple fluorite occur throughout this													
				unit, but ore best developed between 272 and 272.4m, where a strong													
				breccia zone is infilled with purple fluorite, pyrite, arsenopyrite,													
				sphalerite. quartz, and minor chalcopyrite. Argillic alteration is													
				increased near this breccia.													
				[Petrological Description at 268.8m : Quartz-Tourmaline-muscovite rock = greisen]													
272.4	278.3	4.8	81	ARGILLISED MEDIUM?COARSE GRAINED GRANITE		272.0	273.0	<0.01	<0.01	<0.05	0.45	2.5	0.035	0.140	0.005	4	<0.01
				Medium-coarse grained yellowish granite showing strong argillic		273.0	274.0	<0.01	<0.01	<0.05	<0.10	0.17	0.003	0.003	0.003	< 1	0.01
				alteration.		274.0	275.0	<0.01	<0.01	<0.05	<0.10	0.16	0.003	0.006	0.002	< 1	0.01
				Minor greisenisation (?) and tourmaline alteration occurs associated		275.0	276.0	<0.01	<0.01	<0.05	<0.10	0.14	0.002	0.003	0.003	< 1	0.01
				with the argillic alteration, which is therefore thought to be		276.0	277.0	<0.01	<0.01	<0.05	<0.10	0.71	0.007	0.015	0.003	1	0.01
				hydrothermal rather than by ground water.		277.0	278.0	<0.01	<0.01	<0.05	<0.10	0.27	0.006	0.006	0.003	< 1	0.01
				In zones of intense alteration the granite has been reduced to sand.													
				[Petrological Description at 273.7m : Moderately greisenised biotite adamellite]													

064

56 065

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 9

LOGGED BY : P.R. Stephenson

NWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.
278.3	295.1	16.8	100	MEDIUM-COARSE GRAINED GRANITE	
				Medium-coarse grained yellow-grey biotite-quartz-felspar granite.	
				Non- porphyritic and no red felspar.	
				Gradually decreasing amount of argillic alteration with depth.	
				Patches and veins of tourmaline occur.	
				282.4 - 283.2 1cm wide vein of green fluorite sub parallel to the core.	
				[Petrological Description at 289.9m: Moderately greisenised biotite adamellite]	
				END OF HOLE.	

% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
278.0	279.0	<0.01	<0.01	<0.05	<0.10	0.33	0.003	0.004	0.003	<1	0.01
279.0	280.0	<0.01	<0.01	<0.05	<0.10	0.15	0.004	0.015	0.001	1	0.01
280.0	281.0	<0.01	<0.01	<0.05	<0.10	0.23	0.006	0.010	0.002	2	<0.01
281.0	282.0	<0.01	<0.01	<0.05	<0.10	0.19	0.004	0.014	0.002	1	0.01
282.0	283.0	<0.01	<0.01	<0.05	<0.10	0.65	0.019	0.080	0.004	2	0.01
283.0	284.0	<0.01	<0.01	<0.05	<0.10	0.27	0.010	0.039	0.002	2	0.01
284.0	285.0	<0.01	<0.01	<0.05	<0.10	0.04	0.004	0.005	0.003	1	0.01
285 0	286.0	<0.01	<0.01	<0.05	<0.10	0.04	0.003	0.007	0.003	1	0.01
286.0	287.0	<0.01	<0.01	<0.05	<0.10	0.42	0.004	0.013	0.002	1	0.01
287.0	288.0	<0.01	<0.01	<0.05	<0.10	0.08	0.003	0.003	0.003	1	0.01
288.0	289.0	<0.01	<0.01	<0.05	<0.10	0.15	0.002	0.003	0.002	1	0.01
289.0	290.0	<0.01	<0.01	<0.05	<0.10	0.11	0.002	0.003	0.002	<1	0.01
290.0	291.0	<0.01	<0.01	<0.05	<0.10	0.08	0.001	0.003	0.001	<1	0.01
291.0	292.0	<0.01	<0.01	<0.05	<0.10	0.03	0.002	0.003	0.001	1	0.01
292.0	293.0	<0.01	<0.01	<0.05	<0.10	0.08	0.001	0.003	0.001	1	0.01
293.0	294.0	<0.01	<0.01	<0.05	<0.10	0.04	0.001	0.003	0.001	1	0.01
294.0	295.0	<0.01	<0.01	<0.05	<0.10	0.04	0.002	0.007	0.001	1	0.01

Cu generally ≤0.05%. Only six values higher max 0.16%

Zn only three values >1.0%, max 4.0% Generally ≤0.1% except for 121-166m. Very sporadic

Pb Generally <100 ppm, maximum 180 ppm. Highest 146-150m

Ag Generally <5 ppm. (max 18). Sporadic

As Almost always ≤0.10%. Max 0.90 (268m) also 0.25 (236m), 0.30% (154-157m)

Bi Max. 0.96% at 167m, generally <<0.10% even in mineralized zone

WO_3 Generally ≤0.02%, except for 211-240m. Max 0.19%

Sn Best intersections 169-175m @0.82% 209m-212m @ 0.39%. In the main intersection only 15% of tin is acid soluble, whilst between 209-212m, about half is

C90

C.R. C 066

PETROLOGICAL REPORT St DIZIER S.D.9.

REPORT CMS 79/7/24

The seven drill-core intersections from S.D.9. were examined in thin- and polished section; in view of the problem of locating Sn-bearing phases, electronprobe microanalysis was also carried out, on a composite chip-sample representing the 170-171 m intersection. The information so obtained was used to identify cassiterite in other sections.

Most of the intersections are quite similar and are described as a group; as noted in similar rocks, it would seem that serpentinites are relatively "reactive" rocks and thus favourable hosts in metasomatic situations; scheelite and cassiterite-bearing serpentinites are known.

In all these intersections, the cassiterite is exceedingly fine-grained, very similar to that described from Sweeny's and from S 394 (though that is probably hydrocassiterite); the mode of occurrence suggests low-temperature (or low-energy) formation, though this contrasts with other observations on St. Dizier samples.

PETROLOGY

Several of the intersections contain good evidence of derivation from ultramafic rocks, mainly in the form of antigorite patches with relict olivine/pyroxene textures; they include 166.5 m, 170.8 m, 211.7 m, 228 m and 237.5 m. At 211.7 m, very coarsely-crystalline olivine relict crystals have survived, and at 228 m, the secondary mineral is idiomorphic talc rather than antigorite. At 174 m, the rock is massive magnetite, and the intersection at 221.6 m is a banded skarn containing antigorite and thus presumably of ultramafic origin (perhaps sheared and carbonated).

The main mineral introduced into the serpentinites was magnetite, often conspicuously fibrous-acicular; there is some evidence that the unusual habit of the magnetite is due to pseudomorphism after chrysotile and/or tremolite. Other minerals, introduced sporadically or in minor quantities, include fibrous carbonate, coarser sideritic carbonate, fluorite (221.6 m, 237.5 m), apatite, topaz (237.5 m), and diopside (221.6 m).

The cassiterite occurs as clusters of minute crystals; because of their small size (mostly 1-2 μ), they are whitish and semi-opaque (i.e. like a white pigment) and were recognised only after electron-probe microanalysis; the clusters are larger up to 50 μ or more in some instances, but are white and opaque. The cassiterite is most closely associated with magnetite, but is also embedded in antigorite; it was clearly introduced with magnetite as part of the metasomatic phase.

Since there is evidence of more intensive metasomatism, and since coarse cassiterite has been observed in other St. Dizier rocks, it seems premature to assume that the ultrafine cassiterite in these intersections is typical or representative; the fact that the Sn mineral is cassiterite (and not some more obscure phase) and is present in reasonable amounts, should be sufficiently encouraging for further investigation.

Traces of sulphides occur in some intersections and include pyrite and arsenopyrite; native bismuth is also present in traces.

Electron-probe microanalyses showed that the only Sn occurred as cassiterite; none was found in solid solution in magnetite or any other mineral in the sample (170-171 m) examined.

Prior to EPMA, a portion of 170-171 m chips was ground, magnetically separated (with a hand-magnet) and the non-magnetic fraction was separated in TBE (SG=2.95). The sink fraction was optically examined; a single 80 μ cassiterite grain was seen, and small clusters of ultrafine (?)cassiterite are present. However, the bulk of the cassiterite would have remained in the magnetite due to lack of liberation.

Photomicrographs were prepared to illustrate the nature and occurrence of the cassiterite.

For additional Petrological Descriptions of a more general nature, see next page.

SCALE :

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

C.M.S. Report 79/7/25 by: D. Cowan

HOLE No. : DDH - SD 9

2.90

9.0m This is a quartz-muscovite-tourmaline rock and is vaguely recognisable as a greisenised granitoid. It consists essentially of muscovite aggregates (mean 750 u), variably impregnated with pale yellow to orange (titaniferous) tourmaline, more or less evenly disseminated throughout a matrix of fine granular quartz, subordinate muscovite and accessory tourmaline. The muscovite-tourmaline aggregates are vaguely pseudomorphous after prismatic phenocrystal feldspar. Isolated poikilitic tourmaline grains with orientated titaniferous semi-opaque inclusions may represent altered biotite flakes. There are rare, relatively clear patches of quartz which conceivably represent recrystallized quartz phenocrysts.

Overall, there are similarities with the more strongly greisenised zones in the Pine Hill Porphyry. Traces of pyritised pyrrhotite are present, but there is no detectable cassiterite.

10.0m This is a rather distinctive degraded chiastolite hornfels, consisting largely of microgranular quartz with subordinate sericite and a pervasive network of microscopic graphite films along the grain boundaries. Frequent sericite-pseudomorphed chiastolite porphyroblasts (mean 300 u, clusters to 3.5mm) are present, and there are occasional semi-massive patches of sericite (to 2.5mm) with the appearance of degraded cordierite poikil oblasts.

Accessories include traces of dravite phlogopite, late secondary quartz and phlogopite. Patchy pyrite and pyritised pyrrhotite occur in irregular films.

There are no obvious relict detrital features. The original sediment was probably a highly impure (argillaceous, carbonaceous), chert or cherty argillite.

21.0m This is a quartz-tourmaline-muscovite rock, essentially similar to that at 9.0m. In contrast, however, there is evidence of an altered sediment mode of origin. The rock shows a weak, but more or less pervasive relict banding transected by discontinuous tourmaline veins and parallelled by a faint heavy mineral banding (opaques, minor traces, rutile, graphite, rare zircon, apatite) and by the distribution of muscovite. This is reminiscent of bedding in a fine quartzose sandstone with sporadic argillaceous bands. There are no tangible altered igneous features.

Accessory pyritised pyrrhotite is weakly disseminated throughout the rock and tends to be concentrated into the tourmaline veins, along with rare microscopic particles of sphalerite and chalcopyrite. There is no detectable cassiterite.

43.2m This is a quartz-muscovite-tourmaline rock with disseminated, partly pyritised pyrrhotite and accessory chlorite and sphene. Relict textures are relatively well preserved and, in this case, a greisenised granitoid mode of origin is quite clear. The original rock was a medium- and even-grained, granitic-textured minor intrusive phase, with sporadic primary biotite flakes and accessory traces of zircon, apatite, sphene and xenotime.

The sectioned area includes a zone of quartz-muscovite vein material. Coarse poikilitic tourmaline is developed in irregular patches along the poorly defined contact.

55.2m This altered chiastolite hornfels is very similar and closely related to the rock at 10.0m. In comparison, it is relatively sericitic and exhibits relict bedding in the form of an alternation of siliceous (cherty) and relatively micaceous (shaly) bands on a millimetric scale. Pyrrhotite is relatively common and, with a semi-banded distribution, probably represents recrystallized syngenetic sulphide.

Sparse relict andalusite is present. The retrogressive sericitisation of this phase (and accessory poikiloblastic ?cordierite) in this case can be related to a crude slaty cleavage, which postdates sporadic discontinuous quartz veins.

57.8m This is a mildly sheared and weakly altered serpentinite. It consists largely of fine-scale, mesh-textured antigorite, with irregular areas and crude bands of weakly schistose serpentine. Overall, the texture indicates the original rock to have been a finely granular dunite.

The rock is weakly impregnated with semi-fibrous carbonate (ankeritic). Occasional irregular patches (to 7.5mm) of fibrous magnetite are present and this, together with thin marginal selvedges of near- isotropic chlorite, developes in part by replacement of antigorite. Sparse "cross fibre" chrysotile veinlets predate the carbonate-magnetite- chlorite alteration.

69.0m This is a diopside-tremolite rock, generally very fine-grained, but with occasional bands and lenses of relatively coarse, granular diopside. The rock represents a contact-metasomatised labile psammopelite and exhibits sub- to millimetric-scale bedding and finer laminations, patchy relict slump-, graded and locally transcurrent bedding structures. Very fine opaques and leucoxenic semi-opaques are ubiquitous. These features are typical of the Crimson Creek tuffaceous turbidites and their metasomatised equivalents. The rock is weakly stained with ultrafine pyrrhotite.

Texturally, tremolite in this rock developes in part by replacement of diopside. Locally, both phases are partly replaced by yellowish chlorite and accessory talc. Tremolite is locally schistose and these late alteration effects are of retrograde character.

106.6m This rock is a carbonated serpentinite with an unusual fabric. It consists largely of weakly interlocking, semi lustre-mottled, poikilitic calcite anhedra (mean 150 μ), with subordinate, very evenly disseminated, similarly textured magnesite. Relict antigorite persists as fine-grained, weakly mesh-textured aggregates included in, and intergranular to, the carbonates. Accessories include rare magnetite particles and sparse stylolitic films of Mg-chlorite.

124.3m This is a contact-metasomatic rock or skarn, developed in a labile clastic sediment and essentially similar to the rock at 69.0m.

Part of the area sectioned comprises a diopside-tremolite rock, analogous to the previous specimen, with abundant opaques (carbonaceous matter in part) outlining fine-scale relict bedding laminations. This rock is veined by diopside-siderite aggregates, with disseminated magnetite and patches of dark red sphalerite. Marginally, these veins grade into irregular to crudely vein-like aggregates of coarse, complexly-twinned vesuvianite and strongly poikilitic cordierite, with patchy epidote, fine-grained grossular-andradite, relatively frequent and coarse (to 1.5mm) blebs of sphalerite and irregular zones of quartz and siderite. Accessories in these irregular metasomatic replacements include magnetite, pyritised pyrrhotite and graphite. Marginal areas of the host rock are variably chlorite-stained and partly degraded, evidently due to groundwater movements through irregular cavities. The rock, as a whole, reflects variations in metasomatic grade on the scale of a few centimetres.

132.6m This is a moderately altered and somewhat oxidised/Fe-stained skarn with a faint relict banding. The rock consists largely of fine-grained diopside and grossular-andradite, with occasional grains and semi-massive bands of vesuvianite and traces of sphalerite. Diopside is progressively replaced by tremolite in irregular zones, and these aggregates are subsequently clouded with a late phase of chlorite-phlogopite-siderite alteration. Patchy Fe-staining reflects partial degradation of the micas and, particularly, siderite.

The sectioned area includes a contact with a granitic aplite. This rock consists largely of orthoclase and micrographic quartz with subordinate albite. The contact is irregular and fracture-bounded in part and it is suspected that this rock represents a narrow dyke displaced by fine-scale faulting. The aplite is marginally altered with development of chlorite-carbonate aggregates after tremolite-actinolite, and patchy development of epidote and fine-grained sphalerite. It thus predates at least the intermediate tremolitic phase of alteration.

145.3m This is a metasomatic diopside-phlogopite-calcite rock with accessory sphene, vesuvianite, grossular-andradite, sphalerite and quartz, and minor traces of pyrrhotite, albite and fluorite. The rock is fine-to medium-grained, with the bulk comprising granular to subhedral diopside with intergranular green-brown phlogopite and disseminated poikilitic patches of calcite. Phlogopite marginally corrodes diopside, but in places exhibits vague, but semi-diagnostic, mesh-type micro textures, suggesting that it replaced a serpentine phase.

On this basis, it is considered likely that this skarn represents a metasomatised serpentinite, possibly a carbonated or otherwise altered type.

146.8m This is a chlorite-carbonate rock, consisting largely of spherulitic-radiating aggregates of Mg-chlorite (to 2mm), with subordinate, interstitial, anhedral, semi lustre-mottled dolomite. Chlorite aggregates often show thin selvedges of talc in optical continuity. Additional accessories comprise disseminated an-to euhedral quartz grains with vermiform chlorite inclusions, disseminated clusters of magnetite euhedra, and minor traces of pyrite, pyrrhotite, sphalerite and apatite. A single 200μ anhedral particle of cassiterite was observed embedded in chlorite.

Magnetite is of relict primary character. Chlorite (and talc) appear to have replaced tremolite, although there are no relics to confirm this. Overall, the rock is considered as an altered ultramafic (serpentinite).

158.0m This is a weakly banded and relatively coarse-grained diopside-chlorite rock with zones of granular to subhedral pyroxene, alternating with semi-massive "foliae" of random to weakly orientated Mg-chlorite. Diopside is weakly altered marginally to tremolite, talc and carbonate. Accessories include disseminated quartz (interleaved with chlorite), thulite (manganzoisite) and sphene, which developes by partial replacement of Ti-magnetite particles.

The accessory magnetite is of crudely banded distribution but, overall, rather evenly disseminated. This gives the rock a certain altered basic (rather than ultramafic) character, but the distinction is tenous.

177.0m This is a talc-chlorite rock with the "micas" accompanied by accessory traces of apatite, partly leucoxenised opaques and occasional films and networks of pyrrhotite. The rock is banded with zones of essentially massive talc alternating with zones of semi-massive to massive Mg-chlorite. Talc has a certain bastite-like character and chlorite, which is locally radiating (sim 146.8m), appears to have replaced olivine-mesh-textured serpentine. Thus, the rock can be interpreted as an altered (steatitised, chloritised) serpentinite, derived initially from a (medium-grained) banded peridotite.

193.1m This rock is a metasomatised serpentinite, comprising a granular, virtually massive diopside rock in sharp, but irregular, contact with relict patches of mesh-textured serpentinite. Marginal areas adjacent to the contact tend to be altered to talc-chlorite rock (± phlogopite) but, elsewhere, the serpentinite is quite fresh and it contains patchy relics of olivine. This rock was originally a coarse-grained granular dunite with rare accessory pyroxene grains. Its dark appearance in the core is due to ultrafine films of secondary opaques along the margins of individual serpentine cells. This rock is weakly impregnated with pyrrhotite, locally accompanied by traces of sphalerite.

Accessory amounts of a brown isotropic phase occur in microcrystalline clots, single grains (to 50 μ), irregular films and spongy aggregates in the serpentinite, marginal to the contact with the replacive diopside rock. Optical features, apart from the isotropy, are similar to the ultrafine cassiterite described in CMS 79/7/24

HOLE No.: DDH SD 9 SCALE:

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

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202.3m This is an extensively carbonated serpentinite and "grades" from more or less massive carbonate rock (calcite with subordinate intergrown magnesite) to variably carbonate-stained, mesh-textured antigorite serpentinite. The original rock appears to have been a medium- to coarse-grained peridotitic facies. Relict primary magnetite is relatively common throughout the rock as a whole. In heavily carbonated areas, this is accompanied by traces of ultrafine fibrous secondary ?magnetite.

208.6m This carbonated serpentinite is texturally very similar to the rock at 106.6m. In comparison, it is slightly coarser-grained and the carbonate is entirely calcite, magnesite being absent. The rock carries traces of secondary magnetite (partly fibrous), and partly pyritised pyrrhotite in fine-grained disseminations and discontinuous films.

244.3m This is a medium- to coarse-grained, mildly altered biotite granite. The bulk is even-grained and granitic-textured with a mean grainsize of 750μ (strictly a microgranite), and mineralogy comprising orthoclase-microperthite, quartz, subordinate titaniferous biotite and relatively minor oligoclase-albite (i.e. about An_{10}). Accessories comprise zircon and apatite, largely as inclusions in biotite.

This rock is in sharp contact with an area of distinctly coarser-grained granite of identical mineralogy, but relatively siliceous and evidently representing a cognate xenolith.

Alteration features comprise weak, but pervasive, sericite-staining of plagioclase and incipient to complete chloritisation of biotite.

246.5m This biotite microgranite is very similar, but slightly coarser-grained, than the finer-grained zone at 244.3m and is similarly altered. The rock is incipiently porphyritic towards orthoclase-microperthite, but otherwise even-grained. One feature characteristic of both specimens is the presence of complex (baveno) twinning in the orthoclase.

Accessories include minor traces of xenotime in addition to apatite, rare zircon and traces of magnetite. In addition, the sectioned area includes a single irregular intergranular patch of blue-green schorl. As previously, biotite is partly to completely chloritised and plagioclase weakly, but pervasively, sericite-stained.

259.0m This is a relatively strongly altered, weakly orthoclase-porphyritic biotite microgranite. The main contrast with the rocks at 244.3m and 246.5m lies in a slight relative abundance of (altered) plagioclase and in the presence of disseminated patches of micrographic quartz-orthoclase intergrowths. Mean grainsize is about 600 μ (phenocrysts to 2.5mm).

Alteration is of typical greisening character. Plagioclase and biotite are pervasively sericitised. Secondary muscovite flakes are disseminated throughout, partly as a weak replacement of orthoclase. Colour-variable tourmaline is relatively abundant and accessory traces of fluorite occur as films along the sericite-pseudomorphed biotite cleavage planes.

264.7m This is a quartz-muscovite-tourmaline rock and represents a thoroughly altered or greisenised "granite". A medium- to coarse-grained granitic fabric persists, but is partly obliterated by development of secondary quartz, which is poorly resolved from the primary phase. Muscovite, in places, forms crude pseudomorphs of feldspar and elsewhere biotite.

There appear to be two generations of tourmaline with pale yellow-blue schorl of intergranular (?late-magmatic) habit, overgrown by a darker blue-green variety.

Accessories comprise ankeritic to siderite carbonate, sparse fluorite and disseminated spongy patches of pyritised pyrrhotite. There is no detectable cassiterite.

268.6m This quartz-tourmaline-muscovite-rock or greisen is very similar and closely related to that at 264.7m.

There are few relict granitic features, these being progressively obliterated by relatively marked development of secondary quartz and particularly tourmaline which, in this case, partly substitutes for muscovite in forming crudely pseudomorphous replacements of feldspar and biotite. However, the vague relict fabric indicates a relatively even-grained granitic-textured phase.

Accessories include traces of pyrite (partly after pyrrhotite), siderite carbonate and fluorite which is largely restricted to late discontinuous veinlets. There is no detectable cassiterite.

273.7m This is a relatively coarse-grained, moderately greisenised biotite granite or, in this case, strictly a biotite adamellite.

The rock is weakly porphyritic towards orthoclase-perthite, but otherwise even-grained with a mean about 1.5mm. Slightly subordinate plagioclase is of oligoclase composition. Feldspars in general, and particularly oligoclase, are weakly, but pervasively, stained with fine muscovite flakes.

Biotite flakes are sericitised and locally partly replaced by orange, titaniferous tourmaline. Accessory green schorl is disseminated throughout the rock, along with traces of fluorite, pyrite and cloudy, sideritic carbonate.

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0170

289.9m This biotite adamellite is coarser-grained (mean 3mm) but, in other respects, very similar to the rock at 273.7m. It has been moderately greisenised, but is unmineralised. Oligoclase is weakly, but pervasively, stained with fine-grained to sericitic muscovite. The (titaniferous) muscovite flakes are partly chloritised and locally partly pseudomorphed by tourmaline. There is some evidence of two generations of tourmaline (cf. 264.7m), with green schorl postdated by dravite. Similarly, there are rare grains of ?late-magmatic topaz largely replaced by the greisening white mica. Minor accessory traces of fluorite and cloudy, sideritic carbonate complete the alteration assemblage.

Overall, many analogies can be drawn between this rock, the associated phases, and the similarly altered Pine Hill Porphyry.

SCALE :

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

HOLE No. : S.D. 9

071

DETAILED RECOVERY

FROM	TO	m	%	FROM	TO	m	%	FROM	TO	m	%
0.0	1.5	0.7	47	82.5	83.8	1.0	77	196.5	199.5	3.0	100
	3.0	1.4	93		85.2	1.3	93		202.5	3.0	100
	4.5	1.1	73		87.9	2.1	78		205.5	3.0	100
	6.0	1.3	87		89.7	1.8	100		208.5	3.0	100
	7.5	1.4	93		91.5	1.3	72		211.5	3.0	100
	9.0	1.4	93		92.8	1.0	77		214.5	3.0	100
	10.5	1.3	87		93.8	0.8	80		217.5	2.8	93
	12.0	1.5	100		96.0	2.2	100		220.5	3.0	100
	12.3	0.2	67		97.5	1.3	87		223.5	2.9	97
	13.8	1.5	100		99.0	1.4	93		226.5	3.0	100
	15.0	1.2	100		101.8	2.3	82		232.5	5.7	95
	16.5	1.5	100		103.5	1.7	100		235.5	2.9	97
	18.0	1.5	100		106.3	2.8	100		238.5	2.9	97
	19.5	1.4	93		109.4	3.1	100		241.5	2.6	87
	21.0	1.5	100		112.5	3.1	100		244.5	2.7	90
	22.5	1.5	100		115.5	2.2	73		247.5	2.9	97
	24.0	1.5	100		118.5	3.0	100		250.5	2.8	93
	25.5	1.5	100		121.5	3.0	100		253.5	3.0	100
	27.0	1.5	100		124.5	3.0	100		256.5	3.0	100
	28.5	1.5	100		127.5	2.9	97		259.5	3.0	100
	31.5	3.0	100		130.5	3.0	100		262.5	3.0	100
	33.0	1.5	100		133.5	3.0	100		265.5	3.0	100
	35.8	2.7	96		136.5	3.0	100		268.5	2.9	97
	37.5	1.5	88		139.5	2.8	93		271.5	2.9	97
	40.5	2.8	93		142.5	3.0	100		174.5	3.0	100
	43.2	2.5	93		145.5	2.8	93		277.5	1.9	63
	44.1	0.7	88		148.5	2.3	77		295.1	17.6	100
	46.5	2.3	96		151.5	3.0	100				
	49.5	3.0	100		154.5	2.7	90				
	52.5	3.0	100		157.5	3.0	100				
	55.5	3.0	100		160.5	2.9	97				
	58.5	2.7	90		163.5	2.9	97				
	60.1	1.6	100		166.5	2.9	97				
	61.5	1.4	100		169.5	2.9	97				
	64.5	2.8	93		172.5	3.0	100				
	67.0	1.5	100		175.5	3.0	100				
	68.7	1.7	100		178.5	2.8	93				
	70.5	0.7	39		181.5	1.7	57				
	73.5	2.9	97		184.5	2.4	80				
	76.2	2.5	93		187.5	2.7	90				
	77.4	0.8	67		190 5	3.0	100				
	79.5	1.7	81		193.5	3.0	100				
	82.5	2.1	70		196.5	3.0	100				

RENISON LIMITED

SCALE :

DIAMOND DRILL HOLE PLOT

HOLE No. : S.D. 9

220

MAGNETIC SUSCEPTIBILITY x 10^{-6} c.g.s. units

Depth	M.S.	Depth	M.S.	Depth	M.S.	Depth	M.S.	Depth	M.S.	Depth	M.S.	Depth	M.S.	Depth	M.S.
0	≤100		≤ 100		≤100		400		200		300		≤100		≤ 100
	"		"		"		300		≤ 100		1200		"		"
	"		"		"		≤100		≤ 100		700		"		"
	"		"		"		200		15000		500		"	290	"
	"		"		"		≤ 100		300	208.9	55000	250	"		"
	"		"		"		"		7000	210	73000		"		"
	"		"		"	130	"	170	11000		51000		"		"
	"	50	400	90	"		"		70000		9400		"		"
	"		200		"		"		55000		300		"	295	≤100
	"		≤ 100		"		"		42000		6200		"	End of hole	
10	"		500		"		"		53000		3600		"		
	"		≤ 100		"		"		≤ 100		5900		"		
	"		300		"		"		"		400		"		
	"	56.6	2100		"		"		"		30000		"		
	"	56.6			"		"		"		200	260	"		
	"	57	≤ 100		"		"		"	220	62000		"		
	"		400		"	140	"	180	"		54000		"		
	"		≤ 100	100	"		"		"		6100		"		
	"	60	"		200		"		"		24000		"		
	"		"		≤ 100		"		"		4100		"		
20	"		"		"		"		"		3000		"		
	"		"		"		"		"		3000		"		
	"		"		"		"		"		56000		"		
	"		"		"		"		"		1100		"		
	"		"		"		"		"		45000	270	"		
	"		"		"		"		"	230	10000		"		
	"		"		"	150	"	190	500		58000		"		
	"		"	110	"		"		≤ 100		34000		"		
	"	70	"		"		"		600		6100		"		
	"		"		"		"	192.8	≤ 100		5300		"		
30	"		"		"		"		"		30000		"		
	"		"		"		"		"		42000		"		
	"		"		"		"		"		5200		"		
	"		"		500		"		"		18000		"		
	"		"		600		"		400		38000	280	"		
	"		"		400		"		300	240	≤ 100		"		
	"		"		800	159.3	2300	200	200		"		"		
	"		"	120	900	160	2000		200		"		"		
	"	80	"		500		800		600		"		"		
	"		"		700		30000		2100		"		"		
40	"		"		400		200		500		"		"		
	"														
	"														

RENISON LIMITED - DRILL CORE RECORD

HOLE NUMBER	S.D. 10
PURPOSE	To test the depth extension of the main ore zone.
LOCATION	ST. DIZIER
COLLAR R.L.	2172.41
CO-ORDINATES	5367462.05 N 345096.10 E
LENGTH	313.0m
HOLE SIZE	
DATE DRILLED	
SIGNIFICANT CORE LOSS ZONES	
ORE ZONE GROUND CONDITIONS	
LOGGED BY	P.R. STEPHENSON

SURVEY			From – To	Distance D	VERTICAL		HORIZONTAL	
Depth	Bearing	Dip			D.Sin.Dip	R.L.	D.Cos.Dip	Prog. Total
Collar	007°42'	-50°34'	0 -17.5	17.5	13.5	2158.9	11.1	11.1
35	005°	-51°	-57.0	39.5	30.7	2128.2	24.9	36.0
79	001°*	-50°	-88.5	31.5	24.1	2104.1	20.2	56.2
98	008°*	-49°	-116.0	27.5	20.8	2083.3	18.0	74.2
134	006°	-48°	-148.0	32.0	23.8	2059.5	21.4	95.6
162	015°*	-48°	-193.5	45.5	33.8	2025.7	30.4	126
225	039°*	-48°	-240.0	46.5	34.6	1991.1	31.1	157.1
256	021°*	-48°	-261.5	21.5	16.0	1975.1	14.4	171.5
267	014°	-48°	-277.5	16.0	12.0	1963.1	10.7	182.2
288	010°	-47.5°	-299.5	22.0	16.2	1947.1	14.9	197.1
311	007°	-47°	-313.0	13.5	9.9	1937.2	6.8	203.9

* Bearings ignored as taken near mineralisation

From	To	Bearing	Horiz. dist.
0	17.5	007°42'	11.1
17.5 -	66.5	005°	31.0
66.5 -	116.0	008°	32.1
116.0 -	200.5	006°	56.5
200.5 -	277.5	014°	51.5
277.5 -	299.5	010°	14.9
299.5 -	313.0	007°	6.8

COMMENTS

At least 6 distinct skarn/calc-silicate zones of varying thickness occur, none as thick as that intersected in S.D. 9, suggesting lensing out or splitting up in this area. 3 zones of granite were intersected, the second one 15m thick. Some holes drilled by previous companies have stopped in lesser thicknesses of granite than this. An interesting zone of pyrrhotite/coarse muscovite was intersected between 76 and 77m; similar coarse mica occurs at the Big H prospect. In mineralised skarn zone (220.7 - 231.0) and 236.0 - 238.0 tin mineralisation - mostly acid soluble and associated with magnetite and sulphide bands.

SUMMARY – ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m)	AVERAGE WEIGHTED ASSAYS													B.C.A.
				Sn.	Acid Sol. Sn.	Cu.	As.	S.	Pb.	Zn.	Bi.	WO_3	Ag g/t				
Assay Interval	224.0	230.0	6.0	0.44	0.34	< 0.05	< 0.10	1.68	0.003	0.021	0.022	0.13	2				
Geological Interval	222.7	231.0	8.3	0.33	0.25	< 0.05	< 0.10	1.64	0.003	0.022	0.035	0.10	2				
Mag. band (Assay)	236.0	238.0	2.0	0.24	0.22	< 0.05	< 0.10	2.35	0.002	0.023	0.023	0.06	2				
Geological Interval	236.8	238.3	1.5	0.33	0.32	< 0.05	< 0.10	1.50	0.002	0.030	0.026	0.10	2				

NVPS 27344

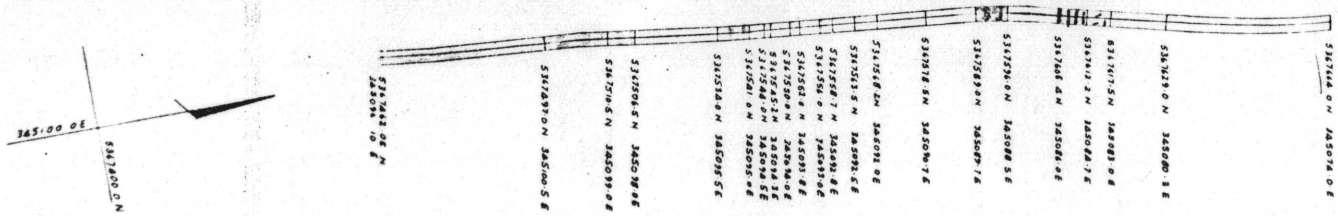
073 ***** 1 *
59 074

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

HOLE No SD 10

SCALE 0 40 metres


PLAN
365:00 0E
5367400 0N
5367422 0E 2m
SD10 -10°
5367400 S E
5367390 0 N 365100 S E
5367306 S N 365099 0 E
5367306 S N 365098 0 E
5367258 7 N 365091 8 E
5367258 0 N 365093 0 E
5367258 0 N 365093 0 E
5367258 0 N 365093 0

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

C20

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.
0.0	54.0	52.9	98	ANDALUSITE (?) SILTSTONES AND BANDS OF CALC-SILICATE (?)	
				Dark grey hornfelsed and non-hornfelsed andalusite (?) siltstone	
				with subordinate impure grey quartzites (possibly calc-silicates)	
				B.C.A. 30°- 50°	
				Weakly conductive at first becoming moderately conductive with	
				depth.	
(25.5	27.5	1.4	70)	Moderately fractured. Reasonable ground conditions apart from	
				20.0 - 28.7m, where several very soft clayey 1m wide zones	
				alternate with solid core. These are probably more clayey sediments.	
				The quartzites contain patches of brown biotite (?) and a few acicular	
				amphibole (?) crystals - they are non-calcareous, but give the	
				impression of skarn like rocks - possibly siliceous calc-silicates?	
				Mineralisation:- coarse vuggy pyrite (?secondary) occurs in a net-	
				work of veins ranging from 0.5 to 5%. Sometimes accompanied by	
				ptygmatic quartz veins. Possibly minor sphalerite.	
				52.5 - 54.0m Strong biotitisation.	
				Petrological Descriptions:- 6.1m	
				35.2m	

% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
0.0	0.5	<0.01		<0.05	<0.10						
0.5	1.5	<0.01		<0.05	<0.10						
1.5	2.5	<0.01		<0.05	<0.10						
2.5	3.5	<0.01		<0.05	<0.10						
3.5	4.5	<0.01		<0.05	<0.10						
4.5	5.5	<0.01		<0.05	<0.10						
5.5	6.5	<0.01		<0.05	<0.10						
6.5	7.5	<0.01		<0.05	<0.10						
7.5	8.5	<0.01		<0.05	<0.10						
8.5	9.5	0.05		<0.05	<0.10						
9.5	10.5	0.06		<0.05	<0.10						
10.5	11.5	0.02		<0.05	<0.10						
11.5	12.5	0.08		<0.05	<0.10						
12.5	13.5	0.02		<0.05	<0.10						
13.5	14.5	0.09		<0.05	<0.10						
14.5	15.5	0.12		<0.05	<0.10						
15.5	16.5	<0.01		<0.05	<0.10						
16.5	17.5	0.01		<0.05	<0.10						
17.5	18.5	0.02		<0.05	<0.10						
18.5	19.5	<0.01		<0.05	<0.10						
19.5	20.5	<0.01		<0.05	<0.10						
20.5	21.5	<0.01		<0.05	<0.10						
21.5	22.5	<0.01		<0.05	<0.10						
22.5	23.5	<0.01		<0.05	<0.10						
23.5	24.5	<0.01		<0.05	<0.10						
24.5	25.5	<0.01		<0.05	<0.10						
25.5	26.5	<0.01		<0.05	<0.10						
26.5	27.5	<0.01		<0.05	<0.10						
27.5	28.5	<0.01		<0.05	<0.10						
28.5	29.5	<0.01		<0.05	<0.10						
29.5	30.5	<0.01		<0.05	<0.10						
30.5	31.5	<0.01		<0.05	<0.10						
31.5	32.5	<0.01		<0.05	<0.10						
32.5	33.5	<0.01		<0.05	<0.10						
33.5	34.5	<0.01		<0.05	<0.10						
34.5	35.5	<0.01		<0.05	<0.10						
35.5	36.5	<0.01		<0.05	<0.10						
36.5	37.5	<0.01		<0.05	<0.10						
37.5	38.5	0.14		<0.05	<0.10						
38.5	39.5	<0.01		<0.05	<0.10						
39.5	40.5	0.02		<0.05	<0.10						
40.5	41.5	<0.01		<0.05	<0.10						
41.5	42.5	<0.01		<0.05	<0.10						

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

KWFS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.
				?	
54.0	75.5	21.5	100	BANDED CALC-SILICATES and SERPENTINITES	
				Very well banded, white, green and grey serpentinites, siltstones	
				and calc-silicates. B.C.A. 35°- 40° although variable due to	
				considerable contortion.	
				Only patchily calcareous. Fairly clayey rock with generally	
				reasonable ground conditions, but with several bands of very	
				broken clayey rock.	
				No obvious magnetite. Numerous veins of black/green serpentine.	
				Very occasional veins of pyrite, generally mineralisation	
				insignificant.	
				Silicified over the last metre.	
				Weakly conductive.	
				Petrological Descriptions:- 62.0m	

% Sn FROM	% Sn TO	% Sn TOTAL	% Sn ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
42.5	43.5	<0.01		<0.05	<0.10						
43.5	44.5	<0.01		<0.05	<0.10						
44.5	45.5	<0.01		<0.05	<0.10						
45.5	46.5	<0.01		<0.05	<0.10						
46.5	47.5	<0.01		<0.05	<0.10						
47.5	48.5	<0.01		<0.05	<0.10						
48.5	49.5	<0.01		<0.05	<0.10						
49.5	50.5	<0.01		<0.05	<0.10						
50.5	51.5	<0.01		<0.05	<0.10						
51.5	52.5	<0.01		<0.05	<0.10						
52.5	53.5	<0.01		<0.05	<0.10						
53.5	54.5	0.30		<0.05	<0.10						
54.5	55.5	<0.01		<0.05	<0.10						
55.5	56.5	<0.01		<0.05	<0.10						
56.5	57.5	<0.01		<0.05	<0.10						
57.5	58.5	<0.01		<0.05	<0.10						
58.5	59.5	<0.01		<0.05	<0.10						
59.5	60.5	<0.01		<0.05	<0.10						
60.5	61.5	<0.01		<0.05	<0.10						
61.5	62.5	<0.01		<0.05	<0.10						
62.5	63.5	<0.01		<0.05	<0.10						
63.5	64.5	<0.01		<0.05	<0.10						
64.5	65.5	<0.01		<0.05	<0.10						
65.5	66.5	<0.01		<0.05	<0.10						
66.5	67.5	<0.01		<0.05	<0.10						
67.5	68.5	<0.01		<0.05	<0.10						
68.5	69.6	<0.01		<0.05	<0.10						
69.5	70.5	<0.01		<0.05	<0.10						
70.5	71.5	<0.01		<0.05	<0.10						
71.5	72.5	<0.01		<0.05	<0.10						
72.5	73.5	<0.01		<0.05	<0.10						
73.5	74.5	<0.01		<0.05	<0.10						
74.5	75.5	<0.01		<0.05	<0.10						

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM
75.5	84.5	9.0	100	MINERALISED CALC-SILICATES and SERPENTINITES	*
				Banded grey, fawn black and green serpentinite and calc-silicate	
				as in the previous unit but with extensive development of	*
				muscovite and a zone of massive pyrrhotite. B.C.A. 50° on average.	
				Mineralisation: mineralisation type is pyrrhotite/very coarse	
				muscovite and is massive between 76.1 and 77.6m, very strong	
				between 75.5 and 77.4m, and patchy below this. The muscovite	
				occurs as well developed "books" up to 2cm long. Fine grained	
				pyrite also occurs. In places the rock looks totally greisenised.	
				PETROLOGICAL DESCRIPTIONS - 77.0m.	
84.5	111.7	27.2	100	HORNFELS AND MINOR CALC-SILICATE (?)	
				Hard dark grey hornfels with a few bands of lighter grey calc-	
				silicate (?).	
				Well banded - B.C.A. 30° - 40°	
				The ?calc-silicates occur between 90.5 and 91.0m, 95.5 and 96.6m	
				and 101.5 and 101.9m. They are light grey with brownish (?biotite)	
				flecks, and are non calcareous.	
				Mineralisation:- the rocks are brittly, fractured resulting in	
				the extensive development (up to 1%) of pyrrhotite and coarse	
				pyrite veins. The unit is weakly conductive, becoming strongly	
				conductive over the last few metres.	
				PETROLOGICAL DESCRIPTIONS 95.7m.	

% Sn FROM	% Sn TO	% Sn TOTAL	% Sn ACID SOL	% Cu	% As	% S.	% Pb	% Zn	% Bi	g/t Ag	% WO3
75.5	76.0	<0.01		<0.05	<0.10						
76.0	77.0	<0.01		0.15	<0.10						
77.0	77.5	<0.01		0.12	<0.10						
77.5	78.5	<0.01		<0.05	<0.10						
78.5	79.5	<0.01		<0.05	<0.10						
79.5	80.5	<0.01		<0.05	<0.10						
80.5	81.5	<0.01		<0.05	<0.10						
81.5	82.5	<0.01		<0.05	<0.10						
82.5	83.5	<0.01		<0.05	<0.10						
83.5	84.5	<0.01		<0.05	<0.10						
84.5	85.5	<0.01		<0.05	<0.10						
85.5	86.5	<0.01		<0.05	<0.10						
86.5	87.6	<0.01		<0.05	<0.10						
87.5	88.5	<0.01		<0.05	<0.10						
88.5	89.5	<0.01		<0.05	<0.10						
89.5	90.5	<0.01		<0.05	<0.10						
90.5	91.5	<0.01		<0.05	<0.10						
91.5	92.5	<0.01		<0.05	<0.10						
92.5	93.5	<0.01		<0.05	<0.10						
93.5	94.5	<0.01		<0.05	<0.10						
94.5	95.5	<0.01		<0.05	<0.10						
95.5	96.5	<0.01		<0.05	<0.10						
96.5	97.5	<0.01		<0.05	<0.10						
97.5	98.5	<0.01		<0.05	<0.10						
98.5	99.5	<0.01		<0.05	<0.10						
99.5	100.5	<0.01		<0.05	<0.10						
100.5	101.5	<0.01		<0.05	<0.10						
101.5	102.5	<0.01		<0.05	<0.10						
102.5	103.5	<0.01		<0.05	<0.10						
103.5	104.5	<0.01		<0.05	<0.10						
104.5	105.5	<0.01		<0.05	<0.10						
105.5	106.5	<0.01		<0.05	<0.10						
106.5	107.5	<0.01		<0.05	<0.10						
107.5	108.5	<0.01		<0.05	<0.10						
108.9	109.5	<0.01		<0.05	<0.10						
109.5	110.5	<0.01		<0.05	<0.10						

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

0270

KWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
111.7	122.2	10.5	100	BANDED CALC-SILICATE and SERPENTINITE		110.5	111.5	<0.01		<0.05	<0.10						
				Well banded white, cream, green and black calc-silicate and		111.5	112.5	<0.01	<0.01	<0.05	<0.10	2.3	0.002	0.023	0.003	1	0.01
				serpentinite Weakly calcareous.		112.5	113.5	<0.01	0.01	<0.05	<0.10	4.1	0.003	0.110	0.003	2	<0.01
				B.C.A. 60° - 70°		113.5	114.5	<0.01	<0.01	<0.05	<0.10	4.4	0.003	0.013	0.004	2	0.01
				Upper contact not faulted.		114.5	115.5	<0.01	0.01	<0.05	<0.10	0.50	0.003	0.020	0.003	1	0.01
				Occasional isoclinal folding.		115.5	116.5	<0.01	<0.01	<0.05	<0.10	0.10	0.002	0.003	0.002	1	0.01
				115.2 - 115.8m band of grey hornfels.		116.5	117.5	<0.01	<0.01	<0.05	<0.10	0.03	0.002	0.011	0.002	1	0.01
				Mineralisation:- 111.7 - 114.0m more altered zone with extensive		117.5	118.5	<0.01	<0.01	<0.05	<0.10	0.18	0.003	0.004	0.003	1	0.01
				development of muscovite and minor to moderate amounts of pyrite.		118.5	119.5	<0.01	<0.01	<0.05	<0.10	0.03	0.002	0.004	0.003	1	0.01
				Some sphalerite (?)		119.5	120.5	<0.01	0.01	<0.05	<0.10	0.36	0.003	0.021	0.003	2	0.01
						120.5	121.5	<0.01	<0.01	<0.05	<0.10	0.27	0.002	0.022	0.003	2	0.01
				Apart from this zone, no visible mineralisation except specks of		121.5	122.5	<0.01	<0.01	<0.05	<0.10	0.21	0.003	0.025	0.003	<1	0.01
				scheelite at 113.0m Ground conditions reasonably good.													
				PETROLOGICAL DESCRIPTIONS 116.1m.													
122.2	128.0	~5.2	~90	VERY BROKEN SILTSTONE and CLAY		122.5	123.5	<0.01	<0.01	<0.05	<0.10	0.26	0.001	0.004	0.002	1	0.01
				Very broken zone consisting of mauve-brown siltstone alternating		123.5	124.5	<0.01	0.01	<0.05	<0.10	2.0	0.00	0.004	0.003	1	0.01
				with bands of pure clay B.C.A. 30.°		124.5	125.5	<0.01	<0.01	<0.05	<0.10	0.15	0.002	0.001	0.001	1	0.01
						125.5	126.5	<0.01	0.01	<0.05	<0.10	0.41	0.003	0.005	0.001	2	0.01
				Even the solid core shows shearing and signs of breaking down to		126.5	127.5	<0.01	0.01	<0.05	<0.10	0.43	0.003	0.007	0.003	2	0.01
				clay. Normal coring techniques would only have recovered about	*	127.5	128.0	<0.01	0.01	<0.05	<0.10	0.83	0.003	0.012	0.003	<1	0.01
				half of thin zone.													
				124.3 - 124.5m. Veins of apple green serpentine with very coarse pyrite.													
128.0	129.7	1.7	100	PYRRHOTITE/MAGNETITE ZONE		128.0	129.0	0.08	0.03	0.05	<0.10	6.4	0.003	0.195	0.005	1	0.01
				Heavily mineralised zone. Original rock hard to determine, could		129.0	130.0	0.04	0.04	0.08	<0.10	6.4	0.003	0.055	0.013	1	0.01
				have either been a siliceous sediment or a skarn-like sediment.													
				Patchy semi-massive pyrrhotite occurs with veins of pyrite and													
				patches of magnetite. Traces of chalcopyrite.													
				PETROLOGICAL DESCRIPTIONS. 129.2m.													
129.7	136.4	6.7	100	HORNFELSED SILTSTONE. MINOR CALC-SILICATE		130.0	131.0	<0.01	<0.01	<0.05	<0.10	1.5	0.002	0.009	0.004	1	0.01
				Mainly a brown and mauve -brown hornfelsed siltstone. Minor zones		131.0	132.0	<0.01	<0.01	<0.05	<0.10	1.5	0.002	0.007	0.005	1	0.01
				of calc-silicate (?) rocks.		132.0	133.0	<0.01	0.01	<0.05	<0.10	0.50	0.002	0.009	0.017	1	0.02
				No obvious B.C.A.		133.0	134.0	<0.01	0.01	<0.05	<0.10	1.4	0.003	0.080	0.011	1	0.02
				Sheared and very broken down to 133m, the core becoming more solid		134.0	135.0	<0.01	0.01	<0.05	<0.10	1.8	0.003	0.012	0.010	2	0.02
				below this. Serpentinite occurs on shear planes. Mineralisation -		135.0	136.0	<0.01	<0.01	<0.05	<0.10	2.3	0.003	0.016	0.014	2	0.01
				minor pyrite (~1%) as blebs and on shear planes. Specks of scheelite													
				133.2, 133.5 and 135.0m.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	FROM	TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
136.4	138.8	2.4	100	CALC-SILICATE SKARN		136.0	137.0	<0.01	<0.01	<0.05	<0.10	1.1	0.002	0.009	0.010	1	0.01
				Light grey and green weakly calcareous calc-silicate skarn.		137.0	138.0	<0.01	0.01	<0.05	<0.10	1.5	0.002	0.007	0.005	2	<0.01
				B.C.A. 40° - 50°		138.0	139.0	<0.01	<0.01	<0.05	<0.10	1.3	0.002	0.004	0.004	1	0.01
				Mottled altered zone with minor serpentine and calcite veining.													
				Mineralisation - very minor pyrite.													
				PETROLOGICAL DESCRIPTIONS :- 137.2m.													
138.8	146.2	7.4	100	QUARTZITE		139.0	140.0	<0.01	<0.01	<0.05	<0.10	0.16	0.002	0.005	0.003	1	0.01
				Hard, light brown (due to dravite ?) quartzite.		140.0	141.0	<0.01	<0.01	<0.05	<0.10	1.3	0.002	0.004	0.003	1	0.01
				Fairly massive - poorly developed B.C.A. of 30° (?).		141.0	142.0	<0.01	<0.01	<0.05	<0.10	2.0	0.001	0.003	0.001	1	<0.01
				Well fractured but solidly recemented. Mineralisation:? moderately		142.0	143.0	<0.01	<0.01	<0.05	<0.10	1.1	0.002	0.003	0.002	1	0.01
				strongly mineralised with veins and veinlets of pyrite, sphalerite,		143.0	144.0	<0.01	<0.01	<0.05	<0.10	2.0	0.003	0.002	0.002	1	0.01
				pyrrhotite, and quartz comprising a network. Pyrite (and sphalerite)		144.0	145.0	<0.01	<0.01	<0.05	<0.10	1.5	0.002	0.003	0.003	2	
				also occur disseminated in minor amounts. Specks of scheelite 141.5 -		145.0	146.0	<0.01	<0.01	<0.05	<0.10	1.6	0.002	0.003	0.003	2	
				142.0 and 142.6m)													
				PETROLOGICAL DESCRIPTIONS:- 141.3m													
146.2	150.1	3.9	100	ALTERED GRANITE ROCK		146.0	147.0	<0.01	<0.01	<0.05	<0.10	0.56	0.002	0.002	0.002	1	0.01
				Fine to medium grained altered granitic rock. No original micas		147.0	148.0	<0.01	<0.01	<0.05	<0.10	0.55	0.002	0.002	0.001	1	0.01
				(?). Consists of quartz, white feldspar and chlorite with patches		148.0	149.0	<0.01	<0.01	<0.05	<0.10	0.30	0.002	0.001	0.002	1	0.01
				of introduced biotite/tourmaline carrying minor pyrrhotite and pyrite.		149.0	150.0	<0.01	<0.01	<0.05	<0.10	0.44	0.001	0.001	0.001	1	0.01
				Vaguely banded - B.C.A. 30°													
				PETROLOGICAL DESCRIPTIONS 147.1m.													
150.1	152.4	2.3	100	MIXED GRANITE and HORNFELS		150.0	151.0	<0.01	<0.01	<0.05	<0.10	0.54	0.001	0.002	0.002	2	0.01
				Intermixed granite (as in previous unit) and purple-brown hornfels.			152.0	<0.01	<0.01	<0.05	<0.10	0.42	0.001	0.003	0.002	2	<0.01
				Poorly banded - B.C.A. 0° - 30°			153.0	<0.01	<0.01	<0.05	<0.10	0.56	0.001	0.010	0.001	2	0.01
				The hornfels is extensively spotted with biotite. Minor patches													
				and veins of pyrrhotite and pyrite.													
152.4	157.6	5.2	100	HORNFELS with SULPHIDES		153.0	154.0	<0.01	<0.01	<0.05	<0.10	0.69	0.001	0.005	0.004	3	0.01
				Dark grey hornfels. No bedding apparent. Numerous "granitic" quartz			155.0	<0.01	<0.01	<0.05	<0.10	0.74	0.002	0.004	0.003	1	0.01
				veins cut the core carrying tourmaline and sulphide. Very spotted			156.0	<0.01	<0.01	<0.05	<0.10	0.24	0.002	0.007	0.003	1	0.01
				for the first 3m - spots may be biotite.			157.0	<0.01	<0.01	<0.05	<0.10	0.45	0.002	0.005	0.002	<1	0.01
							158.0	<0.01	<0.01	<0.05	<0.10	2.9	0.002	0.003	0.002	1	0.01
				Pyrrhotite and pyrite disseminations and veins are common (up to ~5%)													
				When broken the core always shows a shear plane with the development													
				of serpentine.													

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679 080

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	FROM	TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
157.6	164.5	6.9	100	?CALC-SILICATE SKARN with SULPHIDES.		158.0	159.0	<0.01	<0.01	<0.05	<0.10	4.2	0.002	0.003	0.003	1	0.01
				Dirty yellow non-calcareous ?calc-silicate skarn, with veins and			160.0	<0.01	<0.01	<0.05	<0.10	5.6	0.003	0.004	0.002	2	0.01
				zones of black and green serpentine.			161.0	<0.01	<0.01	<0.05	<0.10	4.1	0.003	0.030	0.003	1	0.01
				B.C.A. 45° - 50°			162.0	<0.01	<0.01	<0.05	<0.10	3.5	0.003	0.014	0.003	2	0.01
							163.0	<0.01	<0.01	<0.05	<0.10	5.9	0.002	0.012	0.003	2	0.01
				The ?skarn has a well developed fracture network which is well			164.0	<0.01	<0.01	<0.05	<0.10	4.8	0.002	0.006	0.004	2	0.01
				healed. Swirls and contortions also occur.			165.0	<0.01	<0.01	<0.05	<0.10	4.4	0.002	0.006	0.003	1	0.01
				Mineralisation:- Pyrrhotite and pyrite occur in minor to moderate													
				amounts exploiting the fracture network; pyrrhotite also occurs													
				disseminated in moderate amounts (up to ~10%) within zones of													
				black serpentine.													
				Lower contact is sheared and broken with some very coarse pyrite													
				(?fault)													
				PETROLOGICAL DESCRIPTIONS. 159.3m													
164.5	179.7	15.2	100	TOURMALINISED QUARTZITE with SULPHIDES		165.0	166.0	<0.01	<0.01	<0.05	<0.10	3.4	0.002	0.006	0.004	1	0.01
				Light brown quartzite. Colour may be due to extensive tourmalinis-			167.0	<0.01	<0.01	<0.05	<0.10	2.4	0.002	0.002	0.003	1	0.01
				ation (dravite). No bedding.			168.0	<0.01	<0.01	<0.05	<0.10	1.6	0.001	0.003	0.003	2	0.01
				Well developed fracture network. Mineralisation:- quartz/pyrite veins			169.0	<0.01	<0.01	<0.05	<0.10	1.7	0.001	0.002	0.004	2	0.01
				are common with extensive sphalerite and/or biotite. Many quartz			170.0	<0.01	<0.01	<0.05	<0.10	0.97	0.001	0.001	0.003	1	0.01
				veins are bordered by biotite. Some pyrrhotite is associated with			171.0	<0.01	<0.01	<0.05	<0.10	1.1	0.001	0.002	0.003	2	<0.01
				the pyrite. Total sulphides content up to ~3%.			172.0	<0.01	<0.01	<0.05	<0.10	1.8	0.001	0.002	0.003	2	0.01
				164.5 - 165.0m - strong development of mica (biotite and/or			173.0	<0.01	<0.01	<0.05	<0.10	1.9	0.001	0.002	0.004	2	0.01
				muscovite).			174.0	<0.01	<0.01	<0.05	<0.10	2.0	0.001	0.002	0.003	2	0.01
				Joints and broken edges again show sheering and serpentinous			175.0	<0.01	<0.01	<0.05	<0.10	1.8	0.001	0.001	0.003	3	0.01
				minerals.			176.0	<0.01	<0.01	<0.05	<0.10	1.4	0.001	0.002	0.003	2	<0.01
				PETROLOGICAL DESCRIPTIONS 170.4m.			177.0	<0.01	<0.01	<0.05	<0.10	2.0	0.001	0.003	0.003	2	<0.01
							178.0	<0.01	<0.01	<0.05	<0.10	1.6	0.001	0.001	0.004	1	0.01
							179.0	<0.01	<0.01	<0.05	<0.10	2.1	0.001	0.001	0.004	1	0.01
							180.0	<0.01	<0.01	<0.05	<0.10	3.2	0.001	0.003	0.003	1	<0.01
179.7	195.3	15.6	100	VERY ALTERED BRECCIATED (?) QUARTZITE (?)		180.0	181.0	<0.01	<0.01	<0.05	<0.10	2.5	0.001	0.002	0.003	1	0.01
				Orange-brown, grey brown and green very altered quartzite (?).			182.0	<0.01	<0.01	<0.05	<0.10	2.4	0.001	0.009	0.003	1	0.01
				B.C.A. 40.°			183.0	<0.01	<0.01	<0.05	<0.10	1.6	0.002	0.006	0.003	2	0.01
				May have been extensively brecciated (may originally have been			184.0	<0.01	<0.01	<0.05	<0.10	1.9	0.002	0.004	0.003	1	0.01
				conglomeratic). A few bands of yellowish skarn (?) occur.			185.0	<0.01	<0.01	<0.05	<0.10	1.9	0.002	0.002	0.002	1	0.01
				Generally non-calcareous.			186.0	<0.01	<0.01	<0.05	<0.10	2.3	0.001	0.003	0.003	1	0.01
				Zones and patches of mica (biotite ?) calcite and chlorite/serpen-			187.0	<0.01	<0.01	<0.05	<0.10	2.7	0.002	0.004	0.002	2	0.01
				tinite are common and the unit can be considered slightly			188.0	<0.01	<0.01	<0.05	<0.10	2.8	0.002	0.013	0.003	2	0.01
				greisenous.			189.0	<0.01	<0.01	<0.05	<0.10	2.6	0.002	0.003	0.002	1	0.01
				Mineralisation:- very minor veins and patches of pyrrhotite and			190.0	<0.01	<0.01	<0.05	<0.10	3.7	0.002	0.003	0.002	2	0.01
				coarse pyrite occur.			191.0	<0.01	<0.01	<0.05	<0.10	2.5	0.002	0.004	0.003	2	<0.01
							192.0	<0.01	<0.01	<0.05	<0.10	3.3	0.002	0.005	0.004	2	0.01

080

56 084

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				Becomes more altered and skarn-like in the last 2m, with coarse			193.0	<0.01	<0.01	<0.05	<0.10	1.5	0.002	0.007	0.003	2	0.01
				pyrite more common, and moderate pyrrhotite.			194.0	<0.01	<0.01	<0.05	<0.10	3.52	0.002	0.005	0.003	2	0.01
				PETROLOGICAL DESCRIPTIONS. 191.2m.			195.0	<0.01	0.01	<0.05	<0.10	2.07	0.002	0.010	0.003	1	0.01
							196.0	<0.01	0.01	<0.05	<0.10	4.59	0.002	0.028	0.004	2	0.01
	195.3	205.8	10.5	100	SERPENTINITES, CALC-SILICATES, CARBONATES & PATCHY MAGNETITE/SULPHIDE		196.0	197.0	<0.01	0.01	<0.05	<0.10	0.90	0.002	0.022	0.004	1	0.01
				Zone of black and green serpentinite whitish calc-silicate and				198.0	<0.01	0.01	<0.05	<0.10	0.46	0.002	0.026	0.004	1	0.01
				carbonate with patchy mineralisation.				199.0	<0.01	0.01	<0.05	<0.10	0.10	0.004	0.030	0.004	2	0.01
				Detailed logging balow.				200.0	<0.01	<0.01	<0.05	<0.10	0.18	0.005	0.065	0.004	2	0.01
								201.0	0.005	0.02	<0.05	<0.10	0.12	0.002	0.011	0.003	2	0.01
				195.3 - 195.8m.				202.0	0.007	0.02	<0.05	<0.10	0.12	0.002	0.009	0.003	2	0.01
				Black serpentine/talc rock with strongly dissem nated pyrrhotite				203.0	<0.01	0.01	<0.05	<0.10	0.10	0.002	0.005	0.004	2	0.01
				and patchy magnetite.				204.0	<0.01	0.01	<0.05	<0.10	0.10	0.002	0.005	0.005	1	0.01
								205.0	0.006	0.04	<0.05	<0.10	0.96	0.004	0.035	0.010	8	0.01
				195.8 - 197.2m				206.0	0.003	0.03	<0.05	<0.10	0.81	0.003	0.043	0.008	4	0.02
				White, strongly fractured non-calcareous rock (?calc-silicate)														
				196.4 - 196.5m - band of mineralised black serpentine as 195.3 -														
				195.8m.														
				197.2 - 201.7m														
				Mainly black serpentine with bands of calc-silicate and mineralised														
				sections. B.C.A. 30°- 70°														
				Moderate amounts of magnetite in bands. Calcite common. Radiating														
				clusters of tremolite (?) occur. Green serpentinite is also														
				common. No visible sulphide.														
				201.7 - 204.4m														
				Soft green serpentinite/talc with numerous calcite veins.														
				204.4 - 205.8m														
				Light grey calcareous dolomite (?) 204.4 - 204.7m - grey clay														
				205.4 - 205.6m numerous purple fluorite veins.														
				PETROLOGICAL DESCRIPTIONS 201.5 - 201.6m.														
	205.8	210.8	5.0	100	ALTERED and UNALTERED GRANITE		206.0	207.0	<0.01	<0.01	<0.05	<0.10	0.10	0.002	0.003	0.004	1	0.01
				Mixed altered and unaltered granitic rocks. Altered variety				208.0	<0.01	<0.01	<0.05	0.10	0.19	0.007	0.075	0.007	2	0.01
				predominates - medium grained greenish and yellow chloritised				209.0	<0.01	<0.01	<0.05	<0.10	0.10	0.003	0.006	0.002	1	0.01
				and greisenised granite. Calcite veins are common, and a few				210.0	<0.01	<0.01	<0.05	0.15	0.77	0.009	0.200	0.003	2	0.02
				veins of purple fluoriteoccur. 207.2 and 209.9m - 1-2cm wide				211.0	<0.01	<0.01	<0.05	<0.10	0.18	0.002	0.003	0.002	1	0.01
				calcite sphalerite veins V.C.A. 45° The less altered variety is a														
				medium grained whitish biotite granite.														
				208.0 - 210.8m some specks of a yellow orange (short wave length)														
				fluorescing mineral. 210.0m blue fluorescing scheelite specks.	210.1m yellow specks in vein.													

081

CS 082

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

082

KWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
210.8	220.5	9.7	100	GRANITE		211.0	212.0	<0.01	<0.01	<0.05	<0.10	0.10	0.002	0.002	0.003	1	0.01
				Whitish medium-coarse grained biotite granite. Minor chloritisation.			213.0	<0.01	<0.01	<0.05	<0.10	0.10					0.01
				210.8 - 214.5 some specks of a yellow orange (short) fluorescing			214.0	<0.01	<0.01	<0.05	<0.10	0.10	0.002	0.002	0.002	< 1	0.01
				mineral.			215.0	<0.01	<0.01	<0.05	<0.10	0.11	0.001	0.002	0.002	< 1	0.01
				PETROLOGICAL DESCRIPTIONS - 217.0m.			216.0	<0.01	<0.01	<0.05	<0.10	0.22	0.002	0.002	0.001	1	0.01
							217.0	<0.01	<0.01	<0.05	<0.10	0.08	0.002	0.002	0.002	1	0.01
							218.0	<0.01	<0.01	<0.05	<0.10	0.27	0.003	0.003	0.001	< 1	0.01
							219.0	<0.01	0.01	<0.05	<0.10	1.6	0.002	0.002	0.002	1	0.01
							220.0	<0.01	<0.01	<0.05	<0.10	0.24	0.003	0.002	0.002	2	0.01
							221.0	<0.01	<0.01	<0.05	<0.10	0.23	0.001	0.002	0.001	1	0.01
220.5	221.6	1.1	100	SLIGHTLY BRECCIATED GRANITE		221.0	222.0	0.05	0.02	<0.05	<0.10	0.22	0.002	0.017	0.004	1	0.01
				Vaguely brecciated whitish medium-coarse grained biotite granite.													
				Well recemented by fine grey dusty matter.													
221.6	222.7			CLAY AND BROKEN SILTSTONE		222.0	223.0	0.15	0.03	<0.05	<0.10	0.94	0.002	0.039	0.004	2	0.01
				Very clayey and sheared zone. Sections of massive grey clay with													
				sections of very broken dark grey siltstone carrying extensive													
				biotite.													
222.7	231.0	8.3	100	MAGNETITE-RICH SEDIMENTS		223.0	224.0	<0.01	0.02	<0.05	<0.10	2.5	0.003	0.003	0.042	1	0.02
				Dark grey magnetite - rich sediments. Well banded in part -		224	225.0	0.84	0.80	<0.05	<0.10	1.4	0.003	0.18	0.006	2	0.09
				B.C.A. 60.° Magnetite patchy to 225m, below this it constitutes			226.0	<0.01	0.01	<0.05	<0.10	1.6	0.002	0.004	0.002	1	0.01
				50 - 60% of the rock. Original rock was light grey and non-			227.0	0.43	0.37	<0.05	<0.10	5.2	0.003	0.018	0.011	2	0.19
				calcareous.			228.0	0.54	0.33	<0.05	<0.10	0.52	0.003	0.032	0.005	3	0.16
				A few patches of biotite and muscovite occur, and apple-green			229.0	0.14	0.09	<0.05	<0.10	0.66	0.003	0.023	0.070	3	0.06
				serpentine veins are common, sometimes carrying pyrite.			230.0	0.66	0.41	<0.05	<0.10	0.70	0.003	0.028	0.040	3	0.26
				Minor disseminated pyrrhotite occurs. Possibly minor sphalerite.			231.0	0.02	0.04	<0.05	<0.10	0.24	0.003	0.018	0.115	3	0.12
				Rare specks of scheelite - Main zones, 224.2 - 224.5m													
				226.0 - 227.5m 229.0 - 231.2m (yellow-blue fluorescing).													
				PETROLOGICAL DESCRIPTIONS 224.8 - 224.9m.													
				229.8 - 229.9m.													
231.0	238.8	7.8	100	MIXED BANDED SEDIMENTS with MAGNETITE BANDS													
				Banded green whitish and brown non-calcareous siltstones, cherty		231.0	232.0	<0.01	0.01	<0.05	<0.10	1.7	0.003	0.009	0.004	3	0.03
				siltstones and ?calc-silicates, with bands of magnetite.			233.0	<0.01	0.02	<0.05	<0.10	1.2	0.002	0.012	0.030	2	0.02
				B.C.A. 50° - 70.°			234.0	<0.01	<0.01	<0.05	<0.10	1.5	0.002	0.017	0.029	3	0.04
							235.0	<0.01	<0.01	<0.05	<0.10	2.4	0.002	0.020	0.003	2	0.01
				Biotite is very common, causing the brown colouration.			236.0	<0.01	<0.01	<0.05	<0.10	2.6	0.002	0.009	0.007	2	0.02
				Distinct magnetite-rich beds occur carrying disseminated pyrrhotite			237.0	0.24	0.19	<0.05	<0.10	3.3	0.002	0.027	0.008	2	0.02
				and pyrite and with minor sphalerite, the main ones are listed.			238.0	0.24	0.25	<0.05	<0.10	1.4	0.002	0.019	0.037	2	0.09
							239.0	0.02	0.05	<0.05	0.10	2.6	0.003	0.013	0.018	2	0.06

56 083

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

KWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				232.4 - 232.6m.													
				232.7 - 232.9m													
				At 233.4m													
				233.7 - 233.8m													
				236.0 - 236.1m													
				236.3 - 236.4m													
				236.8 - 238.3m - thickest bed.													
				Pyrite and pyrrhotite also occur disseminated in the non-magnetite													
				bearing sediments and minor pyrite veining occurs.													
				Fluorescing minerals scheelite (blue-white) at 232.8 - 232.9m													
				233.4 - 233.5m; 233.6 - 233.7m; 236.1 - 236.2m; 237.6 - 239.0m.													
				Yellow fluorescing mineral (short wave) 233.4 - 233.5m													
				231.3 - 232.2m: Contorted, brecciated zone carrying abundant													
				coarse biotite and white bladed crystals of ?andalusite.													
				PETROLOGICAL DESCRIPTIONS: 246.9 - 247.0m													
238.8	256.8	18.0	100	MINERALISED BIOTITE - RICH SEDIMENTS		239.0	240.0	<0.01	0.01	<0.05	<0.10	0.54	0.002	0.008	0.004	2	0.01
				Banded brown and light grey sediments. B.C.A. 60° at 240m,			241.0	<0.01	<0.01	<0.05	<0.10	0.97	0.001	0.005	0.004	2	0.01
				decreasing to 40° at 255m. Very biotite rich causing the brown			242.0	<0.01	<0.01	<0.05	<0.10	1.74	0.002	0.004	0.004	1	0.01
				colouration. Towards the end, a white fibrous mineral becomes			243.0	<0.01	<0.01	<0.05	<0.10	5.16	0.002	0.007	0.004	2	0.01
				common - ?tremolite. Light coloured metamorphic calc-silicate			244.0	<0.01	<0.01	<0.05	<0.10	3.61	0.002	0.013	0.003	2	0.01
				minerals like diopside wollastonite and tremolite may occur			245.0	<0.01	<0.01	<0.05	<0.10	4.80	0.002	0.014	0.015	2	0.01
				throughout. Mineralisation:- pyrite and pyrrhotite are common			246.0	<0.01	<0.01	<0.05	<0.10	4.81	0.002	0.006	0.004	2	0.01
				disseminated and in veins, especially in the biotite rich zones.			247.0	<0.01	<0.01	<0.05	<0.10	2.61	0.002	0.008	0.003	2	0.01
				May make up to 5% of the rock. Scheelite at 242.5m in vein and at			248.0	<0.01	<0.01	<0.05	<0.10	1.09	0.002	0.008	0.003	2	<0.01
				244.5m. Yellow fluorescing mineral (short) 246.5 - 247.9m			249.0	<0.01	<0.01	<0.05	<0.10	3.86	0.002	0.006	0.004	1	0.01
				Veins of green serpentine and coarse biotite are fairly common.			250.0	<0.01	<0.01	<0.05	<0.10	0.60	0.002	0.005	0.003	1	0.01
				Non-magnetic and non-calcareous.			251.0	<0.01	<0.01	<0.05	<0.10	0.74	0.002	0.005	0.003	2	<0.01
							252.0	<0.01	<0.01	<0.05	<0.10	0.64	0.002	0.003	0.003	1	<0.01
							253.0	<0.01	<0.01	<0.05	<0.10	5.16	0.001	0.0 4	0.003	2	0.01
							254.0	<0.01	<0.01	<0.05	<0.10	4.71	0.002	0.006	0.003	2	<0.01
							255.0	<0.01	<0.01	<0.05	<0.10	4.29	0.001	0.004	0.004	1	0.01
							256.0	<0.01	<0.01	<0.05	<0.10	2.72	0.001	0.004	0.003	1	0.01
256.8	262.3	5.5	100	ALTERED FINE-MEDIUM GRAINED GRANITE		256.0	257.0	<0.01	<0.01	<0.05	<0.10	1.72	0.003	0.007	0.003	1	0.01
				Mixed fine and medium grained altered granite. Overall yellow-			258.0	<0.01	<0.01	<0.05	<0.10	0.10	0.003	0.004	0.002	<1	0.01
				grey colour. Alteration consists of chloritisation argillisation, ?			259.0	<0.01	<0.01	<0.05	<0.10	0.10	0.003	0.003	0.002	<1	0.01
				greisenisation, and possibly silicification.			260.0	<0.01		<0.05	<0.10						
				No mineralisation. Some yellow-orange fluorescent (short) specks			261.0	<0.01		<0.05	<0.10						
				at 258.2m and 261.8m. Rare specks elsewhere in zones.			262.0	<0.01		<0.05	0.25						
							263.0	<0.01		<0.05	<0.10						

083

56 084

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.F. STEPHENSON

0834

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn FROM	TO	TOTAL	ACID SOL	% Cu	% As	% S.	% Pb	% Zn	% Bi.	g/t Ag	% WO₃
262.3	284.0	21.7	100	MEDIUM GRAINED BIOTITE GRANITE		263.0	264.0	<0.01		<0.05	<0.10						
				Light grey, medium grained biotite granite. Patchy argillic alter-			265.0	<0.01		<0.05	<0.10						
				ation of the felspars and chloritisation of the biotite.			266.0	<0.01		<0.05	<0.10						
				Vague tendency for quartz rich patches up to 4cm in size to			267.0	<0.01		<0.05	<0.10						
				develop, this segregation becoming more apparent with depth			268.0	<0.01		<0.05	<0.10						
				Rare disseminated specks of yellow-orange fluorescing mineral			269.0	<0.01		<0.05	<0.10						
				(short wave).			270.0	<0.01		<0.05	<0.10						
				PETROLOGICAL DESCRIPTIONS 274.0m.			271.0	<0.01		<0.05	<0.10						
							272.0	<0.01		<0.05	<0.10						
							273.0	<0.01		<0.05	<0.10						
							274.0	<0.01		<0.05	<0.10						
							275.0	<0.01		<0.05	<0.10						
							276.0	<0.01		<0.05	<0.10						
							277.0	<0.01		<0.05	<0.10						
							278.0	<0.01		<0.05	<0.10						
							279.0	<0.01		<0.05	<0.10						
							280.0	<0.01		<0.05	<0.10						
							281.0	<0.01		<0.05	<0.10						
							282.0	<0.01		<0.05	<0.10						
							283.0	<0.01		<0.05	<0.10						
							284.0	<0.01		<0.05	<0.10						
284.0	299.5	15.5	100	ARGILLIC "NODULAR" GRANITE		284.0	285.0	<0.01		<0.05	<0.10						
				Fawn-yellow, fine to medium grained argillised granite with			286.0	<0.01		<0.05	<0.10						
				numerous segregated quartz patches up to 4cm in size. Tourmaline			287.0	<0.01		<0.05	<0.10						
				occasionally occurs with the quartz patches.			288.0	<0.01		<0.05	<0.10						
				Some zones of less altered granite which appear similar to the			289.0	<0.01		<0.05	<0.10						
				previous unit.			290.0	<0.01		<0.05	<0.10						
							291.0	<0.01		<0.05	<0.10						
				A thin vein of brown chalcedony occurs at 293.5m.			292.0	<0.01		<0.05	<0.10						
				This unit is essentially an altered variety of the previous unit,			293.0	<0.01		<0.05	<0.10						
				the quartz patches standing out because of the argillisation of			294.0	<0.01		<0.05	<0.10						
				the groundmass.		294.0	295.0	<0.01		<0.05	<0.10						
							296.0	<0.01		<0.05	<0.10						
				At surface, it would probably outcrop as a modular granite.			297.0	<0.01		<0.05	<0.10						
				PETROLOGICAL DESCRIPTIONS - 298.0m.			298.0	<0.01		<0.05	<0.10						
							299.0	<0.01		<0.05	<0.10						
							300.0	<0.01		<0.05	<0.10						

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 10

LOGGED BY : P.R. STEPHENSON

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
299.5	313.0	13.5	100	MEDIUM-COARSE GRAINED BIOTITE GRANITE		300.0	301.0	<0.01		<0.05	<0.10						
				Medium to coarse grained biotite granite. Apart from that described			302.0	<0.01		<0.05	<0.10						
				below, alteration confined to minor chloritisation of the biotites.			303.0	<0.01		<0.05	<0.10						
				309.4m - pyrite vein, 1cm wide, core angle 35. A 20cm wide grey			304.0	<0.01		<0.05	<0.10						
				zone of greisenisation (?) surrounds this vein, and a 4m wide zone			305.0	<0.01		<0.05	<0.10						
				of argillic alteration in turn surrounds the greisen (?) band.			306.0	<0.01		<0.05	<0.10						
				PETROLOGICAL DESCRIPTIONS - 304.0m			307.0	<0.01		<0.05	<0.10						
							308.0	<0.01		<0.05	<0.10						
							309.0	<0.01		<0.05	<0.10						
				END OF HOLE.			310.0	<0.01		<0.05	<0.10						
							311.0	<0.01		<0.05	<0.10						
							312.0	<0.01		<0.05	<0.10						
							313.0	<0.01		<0.05	<0.10						

Best intersection 224-230m @ 0.43% Sn
+0.13% WO_3.
also 236-238m @ 0.24% Sn + 0.05% WO_3

No other significant assays

Probably 75-80% of the tin is acid soluble
(conc. Aqua Regia at 90° for 2-3 hrs).

0851

56 086

SCALE :

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

HOLE No. : DDH SD 10

C.M.S. REPORT 79/8/56

6.1m: This is a quartz-muscovite-sericite rock with accessory, partly pyritised pyrrhotite in irregular films, minor chlorite and traces of sphalerite. The rock is crudely banded and generally fine-grained due to partial recrystallization and shearing. However, it contains some relict igneous features in the form of vague mica pseudomorphs of coarse feldspar and sericite, and chlorite semi-pseudomorphs of titaniferous biotite flakes.

Thus, there are similarities with the rock at 9.0m in SD 9. The main contrast lies in the absence of tourmaline.

35.2m: This is a partly degraded chiastolite hornfels, very similar to the rock at 10.0m (and, to a lesser degree, 55.2m) in SD 9. It consists essentially of frequent single to clustered, extensively sericitised chiastolites (mean 350μ) in a matrix of microcrystalline quartz and very fine muscovite with pervasive graphite films along the grain boundaries. Minor dravite and sericitised, poikiloblastic ?cordierite are present. Irregular films of quartz and pyritised pyrrhotite cut the area se ctioned. As previously, the sediment appears to have been a highly impure chert or cherty argillite.

62.0m: This is a diopside-talc-chlorite rock, recognicable as a metasomatised serpentinite. Evidently, the serpentinite was sheared prior to the contact alteration, as the rock is distinctly banded and could be confused with an altered sediment.

Areas of mesh-textured antigorite persist in places, but the bulk of the rock consists of fine granular diopside, embedded in weakly schistose talc-chlorite aggregates. Sporadic, semi-continuous veins of chrysotile and talc are intersected by late chlorite-siderite veinlets. Traces of pyrite (after pyrrhotite in part) and magnetite occur as fine-grained disseminations. There are minor traces of a secondary, olivine-like phase (?monticellite).

This rock, although relatively quite altered, possibly correlates with the sheared serpentinite at 57.8m in SD 9.

77.0m: This rock is a microgranular diopside skarn, weakly banded and with coarser-grained concordant zones of diopside and very coarse talc, including occasional talc-pyrrhotite aggregates (to 2 cm diameter). Accessory traces of fibrousmagnetite and fine-grained grossular-andradite occur included in the talc flakes and, elsewhere, intergrown with diopside. Sporadic, irregular zones of relict, mesh-textured chlorite, antigorite and ?greenalite, analogous to those at 62.0m, confirm the rock as a metasomatised serpentinite.

95.7m: This is a quartz-sericite rock with accessory disseminated pyrite, ankeritic carbonate, sphene, chlorite and traces of apatite and K-feldspar (adularia). Vague relict textures identify it as a thoroughly altered granitoid or, more specifically, a quartz-feldspar-biotite porphyry. The original rock was weakly banded with a fine-grained granitic to weakly micrographic-textured groundmass and phenocrysts sized up to a few millimetres diameter. Alteration is essentially of greisening character and the rock is partly recrystallized.

This rock would thus be correlated with the various granitic dykes reflected in the SD 9 suite.

116.1m: This banded diopside-tremolite-talc rock is rather similar to the rock at 62.0m. It is generally finely-banded and has a certain altered sedimentary character, but can be identified as a sheared and metasomatised serpentinite.

Relict patches of antigoritic serpentinite are more or less pervasive. These occur partly as discordant, vein-like masses and lenses, and are elsewhere variably obliterated by development of fine-grained calc-magnesian silicates. Talc also predates the diopside-tremolite assemblage and, as at 193.1m in SD 9, it seems partial steatisation preceeded the calc-magnesian metasomatism.

The sectioned area includes rare, very fine-grained particles of arsenopyrite and extremely rare, ultrafine particles of sphalerite.

129.2m: This rock is a partly serpentinised dunite with abundant relict coarse (to 5mm), semi-lustre-mottled forsteritic olivine. This is progressively replaced by fine-scale mesh-networks of serpentine films stained with secondary 'or "exsolved") opaques. Locally, olivine is completely replaced by iddingsite.

There is no development of metasomatic calc-silicates. However, the rock carries abundant pyrrhotite in irregular, spongy aggregates and films. The sulphide occurs-largely in serpentinised areas, includes disseminated, semi-radiating bundles of partly martitised magnetite laths, and is extensively pyritised.

More extensively serpentinised areas, with networks of opaques and poikolitic opaque aggregates are texturally similar to the carbonated serpentinites at 106.6m and 208.8m in SD 9. Patches of mesh-textured, opaque-stained antigorite can be closely compared with those at 57.8m and 193.1m (SD 9), and no single serpentinite can be defined for close correlation. The similatities, however, confirm the generally coarse dunitic nature of the ultramafics.

SCALE :

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

HOLE No. : DDH SD 10

C.M.S. REPORT 79/8/56

137.2m: This diopside-tremolite rock or skarn appears to represent a metasomatised breccia. Vague, angular, randomly sorted "clasts" (to 2 cm +) are common and, whilst these are pervasively altered to granular diopside and semi-fibrous tremolite in varying proportions, they exhibit faint relict textures indicating a composite of ultramafic and basic igneous material.

Accessories comprise sparse apatite and Ti-phlogopite flakes (evidently primary in the ultramafic) and more or less evenly disseminated pyrrhotite and cloudy sphene.

141.3m: This is a very fine-grained quartz-mica-dravite hornfels, representing a tourmalinised and recrystallized quartzose pelite (argillaceous quartz siltstone). Faint relict, millimetric-scale bedding is evident and veinlets are common (quartz-dravite followed by quartz-phlogopite, accessory albite, apatite and late (post-hornfels) quartz-chlorite). Fine to ultrafine pyrite is weakly disseminated throughout.

147.1m: This is a moderately greisenised porphyritic microgranite, similar to those intersected by SD 9, but virtually devoid of (altered) biotite.

Sparse phenocrysts (to 7.5mm) of orthoclase-perthite and partly resorbed quartz are enclosed in an even-grained (mean 750μ), granitic-textured groundmass of orthoclase, quartz and accessory albite. Alteration is marked by extensive muscovitisation of plagioclase (particularly the perthite films in orthoclase) and semi-pervasive development of tourmaline (colour-variable schorl, dravite), which locally semi-pseudomorphs minor accessory biotite flakes. Accessory pyrrhotite, cloudy siderite carbonate and minor traces of fluorite complete the alteration assemblage.

159.3m: This is a partly steatitised antigorite serpentinite, metasomatically altered with patchy to semi-pervasive development of granular diopside. Steatitised areas are preferentially altered and are finely schistose. The diopside occurs in discontinuous bands and lenses, along with accessory, partly pyritised, fine-grained pyrrhotite.

Relict antigoritic zones are mildly sheared and show deformed, olivine-derived mesh structures. The original rock may have been compositionally banded.

170.4m: This is a low-grade (albite-epidote-hornfels facies) hornfels, consisting largely of polygonised orthoclase (mean 75μ), with subordinate, closely intergrown albite, quartz, titaniferous phlogopite and dravite. Texturally, the rock is very similar to that at 141.3m, but coarser-grained. In comparison, it is distinctly feldspathic and only very incipiently banded in terms of the distribution of quartz. Fine opaques and dark rutile of relict detrital character are common throughout (meta-arkose). Dravite and phlogopite were introduced in semi-continuous quartz veins, with disseminated pyrite and minor traces of xenotime.

191.2m: This is a diopside-phlogopite-talc rock with occasional, coarsely granular aggregates of dravite and traces of sphene and fine-grained pyrrhotite. Vague relict textures in talc, and sparse relict patches of antigorite, indicate the rock represents a metasomatised serpentinite.

Dravite, in this rock (and those at 170.4m and 141.3m), is of slumpy, garnet-like habit (i.e. very short c-axis dimensions).

201.5m-201.6m: This is a mildly sheared and carbonated serpentinite, consisting largely of weakly mesh-textured antigorite. There are occasional coarse aggregates of bastite-like brucite, variably impregnated with, and locally opaque due to, ultrafine fibrous ?magnetite along the cleavage planes. The rock appears to have been a pyroxene dunite (or strictly, a peridotite) originally.

Alteration is not marked, with patchy development of anhedral grains and crude films of magnesite. Sub- to euhedral magnetite is disseminated throughout. This is of relict primary character and, as in the accompanying ultramafics (in contrast to those at Razorback and Serpentine Hill), lacks chromiferous cores.

217.0m: This is a mildly greisenised, weakly quartz-porphyritic biotite adamellite, granitic-textured and with a mean grainsize about 1.5mm. Main constituents are orthoclase-perthite, quartz, oligoclase and (altered) biotite. Minor primary accessories are apatite, zircon and anatase. In addition, there are sparse grains of schorl, of quartz-intergranular habit.

Feldspars, and particularly oligoclase, are weakly sericitised and muscovitised, and biotite completely chloritised. Sparse, discontinuous muscovite veinlets include minor traces of fluorite. This rock has been mildly fractured and granulated subsequent to the weak greisening.

224.8m - 224.9m: This rock is best termed simply a magnetite serpentinite. In consists of spongy to virtually massive aggregates of finely fibrous magnetite, interspersed with clots of serpophitic serpentine. Accessory, very fine (mean 20 μ), sub- to euhedral (octahedral) magnetite is present, along with minor traces of chlorite and cloudy ankeritic carbonate.

Close examination of the thin- and polished sections revealed no detectable cassiterite. Conceivably, minor traces are masked by the fine fibrous magnetite or, alternately, the cloudy carbonate. However, in view of the high soluble Sn-value, the tin distribution/ mineralogy would be best analysed by electron-probe microanalysis.

C.M.S. REPORT 79/8/56

229.8m - 229.9m: This is a fairly extensively altered antigorite serpentinite, crudely banded in response to incipient shearing and with relict mesh textures indicative of an altered medium- to coarse-grained peridotite. Relict primary magnetite, accessory green spinel and minor corroded relics of olivine are present.

Alteration is marked by patchy development of talc, minnesotaite (Fe-Talc), diopside and tremolite. In addition, the rock is locally impregnated with aggregates of elbaite. Fine fibrous secondary magnetite is semi-ubiquitous and there are minor traces of scheelite, cloudy sideritic carbonate, fluorite and sellaite.

This rock is analogous to that at 224.9m in that it is devoid of optically detectable cassiterite (and stannite). The polished section reveals fairly conspicuous bismuth and bismuthinite as microscopic blebs and films in magnetite and interstitially to elbaite laths, and there thus appears a reasonable correlation with the assay data. This suggests the cassiterite is either poorly crystalline (and thus poorly resolved optically) or, alternately, some unorthodox tin mineralogy is involved.

233.4m - 233.5m: This metasomatised serpentinite is essentially similar to that at 229m. It has been more or less pervasively steatitised and mildly sheared. The metasomatic assemblage comprises mainly diopside and tremolite, which impregnate the talcose bands along with fine-grained magnetite and subordinate pyrite (probably after pyrrhotite).

Accessory alteration phases, distributed in crude lenses and semi-continuous bands, comprise helvite with closely intergrown scheelite and siderite carbonate, along with thin films of fluorite and traces of apatite.

Relict mesh textures in steatitised zones indicate that this rock was primarily a medium-grained, granular dunite.

246.9m - 247.0m: This rock is a feldspar-phlogopite-quartz hornfels, medium- to coarse- grained with marked grainsize variations in crudely banded zones, intersected and locally paralleled by recrystallized quartz-phlogopite veins/replacements. Strongly coloured (dravitic, titaniferous) tourmaline is disseminated throughout and there are fairly strong affinities with the rock at 170.4m. Feldspar tends to occur as prismatic poikiloblasts with phlogopite inclusions, often zonally arranged. These are faintly banded in terms of modal grainsize and orthoclase/plagioclase (oligoclase) ratio, and this is interpreted as recrystallized bedding in what was evidently a strongly feldspathic arkose.

Mica (and tourmaline) is a strongly titaniferous variety and of metasomatic origin, although predating the recrystallization. Fine-grained pyrrhotite is disseminated throughout the rock and associated recrystallized veins.

274.0m: This is a moderately greisoned biotite adamellite (or strictly a microadamellite, mean grainsize is slightly less than 1mm), weakly porphyritic in quartz and orthoclase-perthite and compositionally verging on an alkali granite (i.e. with oligoclase near albite). The primary mica is a titaniferous variety. Accessories include traces of zircon apatite andanatase, along with disseminations of schorl and topaz of late magmatic character. There are close similarities with the granites intersected in SD 9 and, by inference there are analogies with the Pine Hill Porphyry.

Alteration is typical, with the feldspars (particularly oligoclase) variably muscovitised, biotite more or less completely replaced by sericite and chlorite, and topaz marginally replaced by muscovite. Tourmaline is weakly overgrown with dravite. There is no detectable cassiterite.

298.0m: This is a weakly porphyritic biotite microadamellite, similar to that at 274.0m. In comparison, it is slightly more basic (relatively calcic and more abundant oligoclase), finer-grained, and with a weakly directed granitic fabric. Tourmaline (blue schorl) and topaz are slightly more abundant. There are occasional patches of graphic quartz-feldspar intergrowths.

Alteration is closely analogous to that described above. Topaz is extensively replaced by yellowish sericite ("gilbertite"). Minor sideritic carbonate is present, along with minor traces of fluorite

304.0m: This is a coarser-grained, relatively fresh biotite adamellite, essentially even-grained, granitic-textured, with a mean grainsize of 2-3mm. General features are typical and this rock includes sparse primary topaz and tourmaline.

Alteration is weak, but typical, with oligoclase weakly, but pervasively, stained with sericite and very fine muscovite, topaz marginally sericitised, biotite incipiently chloritised and locally weakly overgrown with muscovite, and tourmaline partly overgrown with dravite. Minor traces of fluorite have developed along with dravite and muscovite in microscopic, discontinuous films.

SCALE :

C.M.S. Report 79/12/19

RENISON LIMITED
DIAMOND DRILL HOLE PLOT

HOLE No. : S.D. 10

224.2m	ROCK TYPE - COMPOSITION:	Skarn Microgranular diopside, extensively replaced by tremolite, pale green talc masses, with development of green spinel. Serpentinised chondrodite.
	Fabric :	Complex replacement textures, variable grainsizes.
	Minor Minerals :	Traces of scheelite in tremolite. Pyrrhotite patches. Chrysotile veins.
	Comments :	Progressive replacement of diopside by tremolite, tremolite by talc. Source of Sn not apparent.
224.4m (A)	ROCK TYPE - COMPOSITION:	Chondrodite Rock (Skarn). Granular yellow, twinned chondrodite, intergrown with random talc flakes, pyrrhotite, minor tremolite.
	Fabric :	Medium to coarse granular fabric, random orientation.
	Minor Minerals :	Magnetite patches, rims surrounding pyrrhotite.
	Comments :	Very distinctive rock; no apparent Sn minerals present. EPMA investigation scheduled.
224.4m (B)	ROCK TYPE - COMPOSITION:	Skarn. Mainly granular chondrodite, extensively serpentinised, with random talc flakes and small granular diopside patches; fine magnetite.
	Fabric :	As above
	Minor Minerals :	Minor pyrrhotite. Patches of green spinel (?secondary).
	Comments :	Spinel seems likely mineral to contain Sn, but chondrodite also possible (replacement of Fe^{2+} or Mg)
224.6m (A)	ROCK TYPE - COMPOSITION:	Skarn. Mainly granular clinohumite, partly serpentinised; and diopside. Abundant replacive talc (younger); pyrrhotite.
	Fabric :	Granular, medium grained. Suggestion of banding.
	Minor Minerals :	Traces of an isotropic cloudy rutile mineral.
	Comments :	White isotropic/amorphous mineral could be hydrogarnet, but verlamoffite also possible.
224.6m (B)	ROCK TYPE - COMPOSITION :	Serpentinised Skarn . Typical antigorite network textures after chondrodite-clinohumite (by analogy); abundant fine magnetite.
	Fabric :	Originally medium grained, crudely banded.
	Minor Minerals :	Relict talc flakes. Fine carbonate in serpentine.
	Comments :	Probably a more extensively serpentinised portion of previous rock. No apparent Sn minerals.
224.8m	ROCK TYPE - COMPOSITION	Magnetite-Antigorite Rock. Very abundant fine magnetite; patches of fine antigorite representing serpentinised ?chondrodite/clinohumite
	Fabric :	Textures poorly preserved; present minerals very fine grained.
	Minor Minerals :	Small irregular patches of carbonate and ephalerite.
	Comments :	As above.
229.2m	ROCK TYPE - COMPOSITION	Magnetite-Talc-Antigorite Rock. Mainly fine magnetite, with patches of talc, antigorite, poorly developed tremolite needles.
	Fabric :	Fine grained intergrowths, poor relict textures, crude banding.
	Minor Minerals :	Small, cloudy carbonate patches. White opaque patches.
	Comments :	White opaque/cryptocrystalline material could be leucoxene/rutile or possibly cassiterite (not unlike Sweeney's).

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

SCALE :

HOLE No. : S.D. 10 (cont'd)

C.M.S. Report 79/12/19

229.4m	ROCK TYPE - COMPOSITION	Serpentinised Skarn. Mainly magnetite with embedded clinohumote; bands of extensively serpentinised clinohumite; fibrous-radiating fine ?ilvaite.
	Fabric :	Good serpentine textures in places; medium/fine grained.
	Minor Minerals :	Patches of talc intergrown with magnetite; white opaque patches.
	Comments :	Ilvaite-type mineral may be hulsite-pargeite, containing Sn. EPMA investigation scheduled.
229.6m	ROCK TYPE - COMPOSITION	Magnetite-Serpentine Rock. Dominantly magnetite with patches of serpentine (antigorite), fine carbonate, scheelite crystals.
	Fabric :	Magnetite is acicular to fibrous in most rocks. Medium grained.
	Minor Minerals :	Veins of antigorite containing fine fluorite.
	Comments :	Scheelite occurs as irregular, poikiloblastic crystals up to 1mm in size. No apparent Sn minerals. EPMA scheduled.
229.8m	ROCK TYPE - COMPOSITION	Magnetite-Serpentine Rock. Dominantly fine, fibrous magnetite, small patches of fine antigorite (from ?chondrodite), a few talc flakes.
	Fabric :	Relict granular textures. Medium to fine grained.
	Minor Minerals :	Brown, semi-opaque, fibrous ?tremolite patches. Antigorite-fluorite veins.
	Comments :	Closely resembles previous rock. No apparent Sn minerals seen.

030

HOLE No.: S.D. 10
POLISHED SECTIONS

SCALE:

RENISON LIMITED
DIAMOND DRILL HOLE PLOT

C.M.S. REPORT 79/12/19 (Part 1)

T69

224.4m	Opaque minerals consist of pyrrhotite intergrown with chalcopyrite , magnetite, traces of sphalerite. The pyrrhotite is rimmed and veined with magnetite in places.
224.8m	The only opaque mineral present is fibrous magnetite, but there are minute patches of a semi opaque, whitish substance which may be hydrocassiterite-cassiterite; they are intimately intergrown with magnetite fibres.
229.4m	As above; both occurrences need checking by electron probe micro-analysis. Traces of chalcopyrite were seen.
229.6m	The only opaque mineral present is fibrous-acicular magnetite. Some of the magnetite in some samples is so finely fibrous that it is translucent; hence, in some descriptions "ilvaite" was tentatively identified, but this has not beenverified in any polished section so far in SD 10.

2 SD 69

HOLE No.: SD10 SCALE:

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

M. BOLTON

092

MAGNETIC SUSCEPTIBILITY X 10^{-6} C.G.S. UNITS

DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS
1	≤100	43	≤100	86	800	129	6500	172	1500	215	≤100	258	≤100	301	≤100
2	"	44	"	87	700	130	300	173	1200	216	"	258	"	302	"
3	"	45	"	88	400	131	1000	174	2500	217	"	260	"	303	"
4	"	46	"	89	200	132	≤100	175	1600	218	"	261	"	304	"
5	"	47	"	90	300	133	≤100	176	1100	219	"	262	"	305	"
6	"	48	"	91	200	134	700	177	900	220	"	263	"	306	"
7	"	49	"	92	200	135	200	178	400	221	"	264	"	307.2	"
8	"	50	"	93	200	136	200	179	1300	222	"	265	"		EOH
9	"	51	"	94	≤100	137	600	180	2500	223	"	266	"		
10	"	52	"	95	400	138	≤100	181	1600	223.5	22000	267	"		
11	"	53	"	96	500	139	"	182	300	225	8100	268	"		
12	"	54.1	4000	97	≤100	140	"	183	500	226	500	269	"		
13	"	55	2600	98	≤100	141	1000	184	2100	227	56000	270	"		
14	"	56	200	99	≤100	412	400	185	900	228	41000	271	"		
15	"	57	500	100	400	143	700	186	1500	229	3100	272	"		
16	"	58	300	101	200	144	≤100	187	400	230	37000	273	"		
17	"	59	≤100	102	600	145	"	188	1800	231	29000	274	"		
18	"	60	200	103	300	146	"	189	1000	232	27000	275	"		
19	"	61	100	104	500	147	"	190	200	233	500	276	"		
20	"	62	1300	105	2600	148	"	191	200	234	100	277	"		
21	"	63	≤100	106	1000	149	"	192	300	235	≤100	278	"		
22	"	64	≤100	107	1600	150	"	193	≤100	236	1300	279	"		
23	"	65	"	108	400	151	"	194	400	237	9500	280	"		
24	"	66	"	109	800	152	"	195	300	238	3000	281	"		
25	"	67	"	110	600	153	"	196	600	239	15000	282	"		
26	"	68	"	111	200	154	"	197	100	240	600	283	"		
27	"	69	"	112	900	155	200	198	2200	241	1100	284	"		
28	"	70	800	113	100	156	≤100	199	800	242	1300	285	"		
29	"	71	1600	114	600	157	≤100	200	500	243	600	286	"		
30	"	72	≤100	115	≤100	158	200	201	12000	244	1500	287	"		
31	"	73	≤100	116	"	159	500	201.6	100	245	300	288	"		
32	"	74	1100	117	"	160	600	203	≤100	246	≤100	289	"		
33	"	75	100	118	"	161	1000	204	"	247	"	290	"		
34	"	76.1	34000	119	"	162	200	205	"	248	"	291	"		
35	"	77.6	52000	120	200	163	4300	206	"	249	"	292	"		
36	"	78	500	121	≤100	164	900	207	"	250	300	293	"		
37	"	79	700	122	"	165	15000	208	"	251	1600	294	"		
38	"	80	≤100	123	"	166	900	209	"	252	1200	295	"		
39	"	81	≤100	124	"	167	500	210	"	253	≤100	296	"		
40	"	82	500	125	"	168	400	211	"	254	"	297	"		
41	"	83	1200	126	"	169	300	212	"	255	"	298	"		
42	"	84	≤100	127	"	170	200	213	"	256	"	299	"		
		85	200	128.1	51000	171	800	214	"	257	"	300	"		

RENISON LIMITED - DRILL CORE RECORD

HOLE NUMBER	S.D. 11
PURPOSE	To test skarn zones at depth beneath holes H5 and H12
LOCATION	St Dizier Area
COLLAR R.L.	2166.6m
CO-ORDINATES	N 5367496.0m : E 344916.5m
LENGTH	181.5m
HOLE SIZE	HQ 0 - 96.0 NQ 96.0 - 181.5m HW Casing to 30m
DATE DRILLED	13th August - 3rd September
SIGNIFICANT CORE LOSS ZONES	Near Surface
ORE ZONE GROUND CONDITIONS	
LOGGED BY	R. Schellekens
COMMENTS	No Skarn zone intersected due to shallow granite basement.

SURVEY Depth	SURVEY Bearing	SURVEY Dip	From – To	Distance D	VERTICAL D.Sin.Dip	VERTICAL R.L.	HORIZONTAL D.Cos.Dip	HORIZONTAL Prog. Total
	A.M.G.					2166.6		
0.0m	26°50' 41"	-55°6'41"	0 - 15.5	15.5	12.7	2153.9	8.9	8.9
33.0m	* 037°	-56½°	- 52.5	37.0	30.9	2123.0	20.4	29.3
72.0	* 032°	-58½°	- 79.5	27.0	23.0	2100.0	14.1	43.4
87.0	* 015°	-59°	- 93.5	14.0	12.0	2088.0	7.2	50.6
100.0	* 007°	-58.5°	-109.0	15.5	13.2	2074.8	8.1	58.7
118.0	022°	-58°	-124.0	15.0	12.7	2062.1	7.9	66.6
130.0	022°	-58.5°	-142.0	18.0	15.3	2046.8	9.4	76.0
154.0	022°	-59°	-167.5	25.5	21.9	2024.9	13.1	89.1
181.0	022°	-59°	-181.5	14.0	12.0	2012.9	7.2	96.3

* Possible Magnetic interference.

SUMMARY – ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m)	AVERAGE WEIGHTED ASSAYS Sn.	Acid Sol. Sn.	Cu.	As.	S.	Pb.	Zn.	Bi.	WO_3	Ag g/t				B.C.A.

NWPS 27344

093

55°
50½

50½

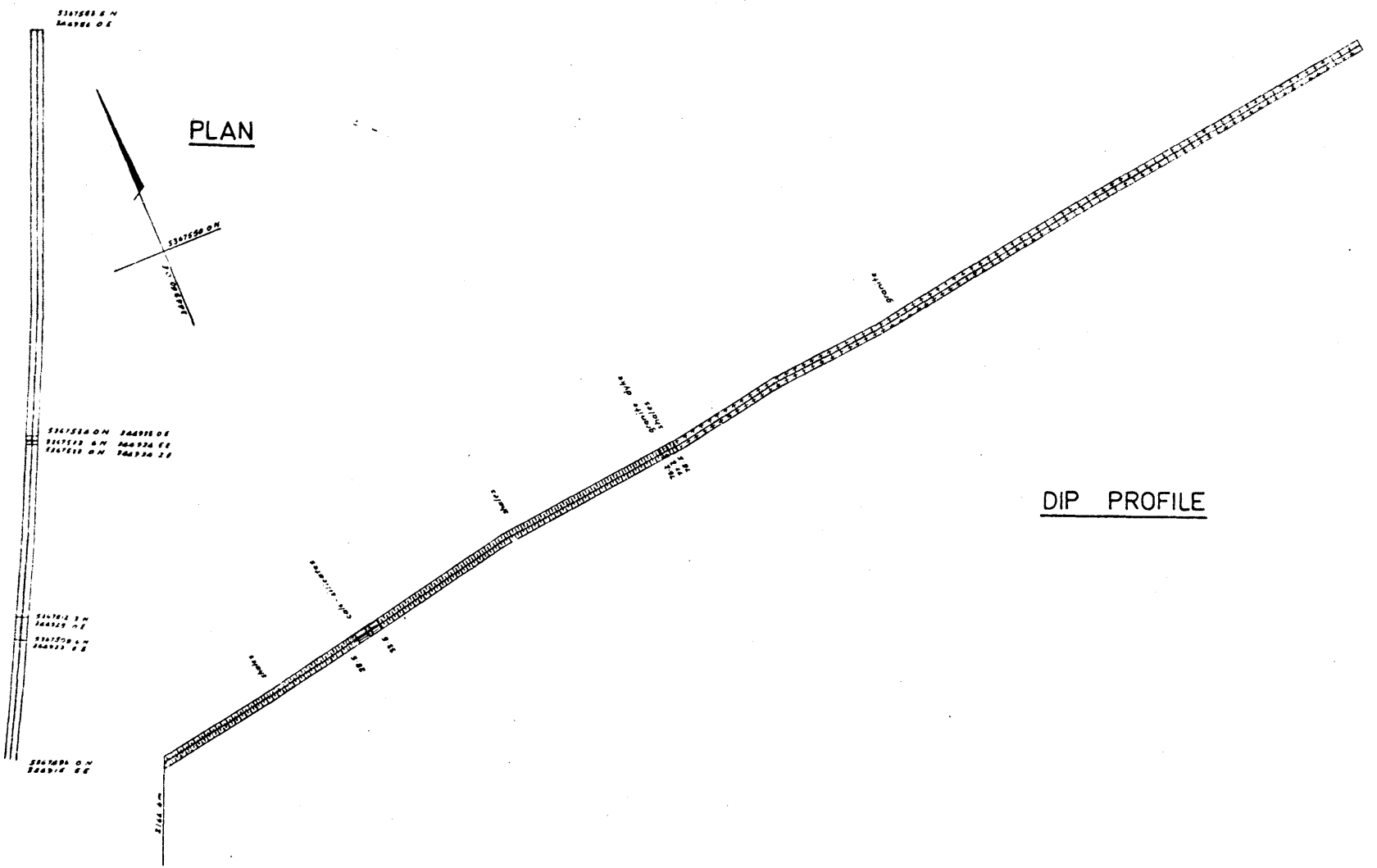
56 094

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

HOLE No SD 11

SCALE - 0 10 20 metr



094

SECRET

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 11

LOGGED BY : R.R.S.

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
0.0	4.5	0	0	No core.													
4.5	9.0	1.1	24.4	SHALES Soft, weathered, blue-black, fractured with some ironstaining on fractures. No banding visible. M.S. $\leq 100 \times 10^{-6}$ c.g.s. units.													
9.0	26.0	1.8	10.6	CLAY soft, grey-cream-light brown. Very weathered shales and calc-silicates (?). Banded below 22.0m. Poor recovery (core). M.S. ≤ 100 B.C.A. 30°. Moderately conductive.													
26.0	28.5	0.5	20.0	SHALES soft, weathered and blue-black, broken - some white clay bands with pyrite M.S. ≤ 100 B.C.A. 30°. Poor core recovery. Clay bands moderately conductive, remainder non-conductive.													
28.5	33.5	2.4	48.0	BANDED CALC-SILICATES AND CHERT BANDS hard to soft, cream to green well banded, core very broken in places. Pyrite along some fractures and associated with black (?) carbonaceous bands. Banding:- green-soft dull green-blue clayey; cream hard siliceous. Some green clayey material along fractures M.S. ≤ 100 B.C.A. 30°. Moderately conductive in clay bands, rest non-conductive.													
72.5	74.4	16.4	40.1	SHALES and SILTSTONES soft, weathered in patches, blue-black-white, some sections very broken. Shales - some whiter harder bands (more siliceous?), banding contorted in places. Soft white clayey material, talc and green - white serpentine along fractures. Non-conductive. M.S. $\leq$ 100, BCA 30° except 43.5 - 49.5m 0° - 5°. 74.0m slightly weathered serpentine vein 1 - 5cms wide angle 30°.													
74.4	76.2	1.3	72.2	ALTERED SHALES AND SANDSTONES As before with some development of brown biotite and dark green chlorite in shales. Fractures often slickensided and contain serpentine (yellow-light green). Bottom contact slickensided. Non conductive M.S. ≤ 100 . Bca. 30°.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 11

LOGGED BY : R.A.S.

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO₃
76.2	77.2	0.7	70.0	GRANITE DYKE													
				Fine grained, grey, silicious granite, containing some felspar													
				phenocrysts - to 1cm, very fine grained biotite in a silicaous													
				groundmass. Core very broken - some serpentine on fractures.													
				Chilled margin. Non-conductive. M.S. ≤100.													
77.2	78.5	0.9	69.2	SHALES													
				As before very broken, slickensides and serpentine on fractures.													
				Some quartz and microgranite to 2cms wide, parallel to banding-showing													
				forceful intrusion (Banding of shale bands near veins). M.S. ≤100													
78.5	101.5	94.3	91.6	GRANITE													
				Fine to medium grained grey granite containing quartz and felspar													
				phenocrysts and fine grained brown and black biotite. Some													
				pegmatite sections containing large quartz and feldspar phenocrysts													
				- up to 15cms wide. No tourmaline. Some sections very weathered													
				(sandy with some clay). Weathering along fractures (angle 30°-													
				40°) and near top of zone.													
				Non conductive M.S. ≤100													
				85.0 - 85.3m pegmatite													
				85.3 - 86.5m weathered crumbly core													
				96.0m → core unweathered													
				99.0 - 99.5m less biotite													
				103.1 - 103.2 pegmatite zone													
				102.0 - 106.5 core dark grey with some chlorite. Pegmatite													
				section in core.													
				106.5 - 114.3 abundant black biotite with feldspars and quartz,													
				minor pegmatitic sections. Some alteration													
				of feldspars - dark green sericite (?).													
				114.3 - 114.5 less biotite													
				115.3 - 116.1m coarse grained pegmatite - quartz and feldspar,													
				rare biotite; minor brown muscovite or another													
				micaceous mineral and one speck of molybdenite.													
				117.4 - 11 .6 weathered section (sericitised feldspars)													
				117.6 - 118.2 less biotite dark grey with altered feldspars.													
				118.2 - 118.5m bleached zone - no biotite.													
				118.5 - 119.3 large felspars (yellow) plus quartz - dyke and/or pegmatite													
				119.3 - 121.5 dark grey altered granite soft, weathered.													
				Biotite altered to chlorite.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 11

LOGGED BY : R.R.S.

0971

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				122.5 – 123.5m fine grained, green, micaceous zone with some rounded quartz grains. Pegmatite zone in middle (123.0 – 123.1m)													
				123.5 – 126.0m altered granite biotite to chlorite (green) some feldspars to green sericite.													
				126.0 – 130.6m granite fine-medium grained, grey, with some alteration of feldspar (green colouration). Fine grained areas contain abundant biotite and only minor quartz. Some weathering on fractures.													
				130.1m quartz tourmaline vein 1cm wide 45° angle													
				130.6 – 133.2m granite grey-green feldspars slightly sericitised medium grained. some quartz-tourmaline veins.													
				131.6m some cement in core.													
				133.2 – 139.8m granite as above – light grey with minor biotite (altering to mica (muscovite), weathering near fractures. Minor quartz-tourmaline veins and nodules.													
				139.8 – 158.8m partly weathered granite – light grey with feldspars altered to clay and sericite. Forming quartz sand with clay (poor core recovery in these zones). Core broken and blocky. Biotite altered to muscovite.													
				143.1 – 143.3m fine grained quartz-tourmaline vein.													
				157.6m 0.5cm quartz vein, with sphalerite, pyrite and arsenopyrite													
				158.8 – 161.0m weathered altered granite with biotite and some feldspars altered to chlorite (?). Other feldspar breakdown to clay forming quartz sand.													
				161.0 – 164.0m unweathered altered granite grey to grey green fine to medium grained. Feldspars partly altered to sericite, some biotite present, and rare tourmaline in quartz veins.													
				164.0 – 171.5m weathered altered granite : poor core recovery sandy, cream to grey green, feldspars weathered to clays. Some fresher sections contain rare biotite.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 11

LOGGED BY : R.R.S.

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				171.5 – 172.6m altered grey-green granite – feldspars slightly porphyritic and starting to breakdown to sericite. Biotite altered to chlorite.													
				172.6 – 177.5m fresh grey green granite coarse and medium grained with quartz feldspar (slightly sericitised) and fine grained biotite and rare muscovite (slight greisenisation).													
				177.5m – 181.5m Light grey granite with minor tourmaline – abundant cream to grey felspars. Slightly weathered below 181.3m.													
				End of hole 181.5m													

093

093

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 11

LOGGED BY : R.P.S.

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION — MAGNETIC SUSCEPTIBILITY x10⁻⁶ c.g.s. units DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	FORM.
DEPTH	MS	DEPTH	MS									
5.0	< 100	47.0	< 100	89.0	< 100	131.0	< 100	173.0	< 100			
"	"	"	"	90.0	"	"	"	"	"			
"	"	"	"	"	"	"	"	"	"			
"	"	50.0	"	"	"	"	"	"	"			
"	"	"	"	"	"	"	"	"	"			
10.0	"	"	"	"	"	"	"	"	"			
"	"	"	"	"	"	"	"	"	"			
"	"	"	"	"	"	"	"	180.0	"			
"	"	"	"	"	"	"	"	"	"			
"	"	"	"	"	"	140.0	"	181.5	"			
"	"	"	"	"	"	"	"	end of hole				
"	"	"	"	100.0	"	"	"					
"	"	"	"	"	"	"	"					
"	"	60.0	"	"	"	"	"					
"	"	"	"	"	"	"	"					
20.0	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	150.0	"					
"	"	"	"	"	"	"	"					
"	"	"	"	110.0	"	"	"					
"	"	"	"	"	"	"	"					
"	"	70.0	"	"	"	"	"					
"	"	"	"	"	"	"	"					
30.0	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	160.0	"					
"	"	"	"	"	"	"	"					
"	"	"	"	120.0	"	"	"					
"	"	"	"	"	"	"	"					
"	"	80.0	"	"	"	"	"					
"	"	"	"	"	"	"	"					
40.0	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	"	"					
"	"	"	"	"	"	170.0	"					
"	"	"	"	"	"	"	"					
"	"	"	"	130.0	"	"	"					

DETAILED CORE RECOVERY

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %
0	4.5	0	0
	7.5	0.6	20.0
	9.0	0.5	33.3
	10.5	0.2	13.3
	12.0	0.2	13.3
	13.5	0.1	6.7
	16.5	0.2	6.7
	19.5	0.2	6.7
	22.5	0.4	13.3
	25.5	0.2	6.7
	28.5	0.8	26.7
	31.5	1.8	60.0
	34.5	1.8	60.0
	37.5	1.7	56.7
	40.5	0.7	23.3
	43.5	0.3	10.0
	46.5	1.3	43.3
	49.5	0.6	20.0
	52.5	0.1	3.3
	55.5	1.0	33.3
	58.5	1.0	33.3
	61.5	1.8	60.0
	64.5	0.3	76.7
	67.5	0.	30.0
	70.5	2.7	90.0
	73.5	2.1	70.0
	76.5	2.2	73.3
	79.5	2.1	70.0
	82.5	0.1	3.3
	85.5	2.5	83.3
	88.5	3.0	100
	91.5	2.8	93.3
	94.5	3.0	100
	97.5	3.0	100
	100.5	3.0	100
	103.5	3.0	100
	106.5	3.0	100
	109.5	3.0	100
	112.5	3.0	100
	115.5	3.0	100
	118.5	1.8	60.0
	121.5	3.0	100

INTERVAL FROM	INTERVAL TO	RECOVERY m	RECOVERY %

HOLE NUMBER	S. D. 12
PURPOSE	To test skarn zone and granite basement contact beneath H5, H12 and S.D. 11
LOCATION	St. Dizier Area
COLLAR R.L.	2180.0m
CO-ORDINATES	N 5367690.0m ; E 345011.5m
LENGTH	220.5m
HOLE SIZE	HW 0 - 3.0 HQ 3.0 - 81.7m NQ 81.7 - 180.75m BQ 180.75 - 220.5m
DATE DRILLED	7/9/79 - 29/9/79
SIGNIFICANT CORE LOSS ZONES	Significant core loss in sandstones (quartzite) 87 - 110.0m and in calc-silicates 147 - 166 m
ORE ZONE GROUND CONDITIONS	
LOGGED BY	R. Schellekens
COMMENTS	Two zones of minor tin enrichment were encountered: One at the top of the skarn zone, and one near the bottom. In both cases, much of the tin was present in an acid soluble form.

SURVEY			From - To	Distance D	VERTICAL		HORIZONTAL	
Depth	Bearing	Dip			D.Sin.Dip	R.L.	D.Cos.Dip	Prog. Total
	AMG					2180.0		
0.0	197°37'52"	-76°57'54"	0 - 21.5	21.5	20.9	2159.1	4.7	4.7
43.0	193°	-77½°	-60.0	38.5	37.6	2121.5	8.3	13.0
77.0	196°	-77°	-107.5	47.5	46.3	2075.2	10.7	23.7
138.0	202°	-77°	-167.5	60.0	58.5	2016.7	12.5	37.2
177.0	201°	-78°	-208.5	41.0	40.1	1976.6	8.5	45.7
220.0	193°	-77°	-220.5	12.0	11.7	1964.9	2.7	48.4

SUMMARY - ASSAY DATA

LODE NAME	FROM	TO	LENGTH (m)	AVERAGE WEIGHTED ASSAYS													B.C.A.
				Sn.	Acid Sol. Sn.	Cu.	As.	S.	Pb.	Zn.	Bi.	WO_3	Ag g/t				
	133.0	135.0m.	2.0m.	0.25	0.25	0.05	<0.10	3.0	0.003	0.017	0.033	0.02	2				
	175.0	177.0m.	2.0m.	0.33	0.37	0.04	<0.10	2.9	0.002	0.021	0.034	0.01	2				

NAPS 27344

CONFIDENTIAL

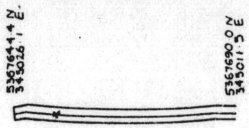
RENISON LIMITED

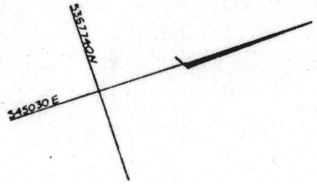
HOLE No SD 12

SCALE 0 2 10 metres

DIAMOND DRILL HOLE PLOT

PLAN





DIP PROFILE

101

SC 102

DIAMOND DRILL RECORD

HOLE NUMBER : SD12

LOGGED BY : R.R.S.

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
0.0	26.2	23.6	90.1	SANDSTONE		0.0	1.0	<0.01	<0.01	<0.05	<0.10	0.19	0.001	0.001	0.002	1	<0.01
							2.0	"	"	"	"	0.03	0.002	0.001	0.003	1	"
				Brown to light brown, fine to medium grained medium hardness			3.0	"	"	"	"	0.18	0.002	0.001	0.003		"
				sandstone with interbedded thin dark grey green to brown black			4.0	"	"	"	"	0.11	0.002	0.001	0.003	1	"
				chlorite (?) or tourmaline rich bands, (altered shale bands?).			5.0	"	"	"	"	0.25	0.004	0.001	0.004	<1	"
				Some development of muscovite in sandstones. Brown organic			6.0	"	"	"	"	0.21	0.002	0.001	0.003	1	"
				staining on fractures. Minor thin quartz veins and rare tour-			7.0	"	"	"	"	0.12	0.002	0.001	0.008	<1	0.02
				maline veins. Some sulphides (pyrite and chalcopyrite) on			8.0	"	"	"	"	0.44	0.002	0.001	0.006	1	<0.01
				fracture surfaces below 150m.			9.0	"	"	"	"	0.61	0.010	0.011	0.005	<1	"
				M.S. $\leq$ 100 BCA 0°- 10°. Non conductive			10.0	"	"	"	"	<0.01	0.003	0.040	0.001	"	"
				12.3m quartz tourmaline vein at angle to bedding - BCA 30°			11.0	"	"	"	"	0.24	0.002	0.044	0.001	"	"
				3cms wide.			12.0	"	"	"	"	0.20	0.001	0.034	0.001	"	"
				15.0 - 26.2m sulphides on fractures with less organic stain-			13.0	"	"	"	"	1.0	0.002	0.026	0.002	"	"
				ing, and in thin quartz veins (mostly pyrite). Core spotted			14.0	"	"	"	"	1.8	0.002	0.009	0.002	"	"
				Spots approximately aligned parallel to bedding.			15.0	"	"	"	"	0.27	0.001	0.008	0.002	"	"
							16.0	"	"	"	"	0.78	0.001	0.008	0.002	"	"
							17.0	"	"	"	"	0.66	0.002	0.011	0.001	"	"
							18.0	"	"	"	"	1.9	0.001	0.007	0.001	"	"
							19.0	"	"	"	"	0.27	0.001	0.012	0.001	"	"
							20.0	"	"	"	"	0.42	0.002	0.019	0.001	"	"
							21.0	"	"	"	"	1.1	0.003	0.012	0.002	"	"
							22.0	"	"	"	"	1.2	0.002	0.011	0.002	"	"
							23.0	"	"	"	"	0.81	0.003	0.016	0.002	"	"
							24.0	"	"	"	"	0.59	0.006	0.026	0.002	1	"
							25.0	"	0.01	"	"	1.5	0.002	0.009	0.001	2	"
							26.0	"	0.01	"	"	1.2	0.003	0.008	0.003	2	"
							27.0	"	0.01	"	0.10	1.0	0.004	0.008	0.002	2	"
26.2	31.8	5.5	98.2	QUARTZITE		27.0	28.0	"	0.01	"	0.11	1.8	0.004	0.008	0.003	2	"
							29.0	"	<0.01	"	0.10	1.7	0.006	0.006	0.005	2	"
				White, light grey cemented quartzite with thin contorted grey-			30.0	"	"	"	0.10	1.9	0.009	0.015	0.007	3	0.01
				black chlorite bands - with possible tourmaline. Fresher than			31.0	"	"	"	<0.10	1.0	0.010	0.008	0.006	2	<0.01
				above. Chlorite bands show original sedimentary structures -			32.0	"	"	"	"	0.82	0.010	0.040	0.003	4	"
				minorsmall scale folding etc. Sulphides.- pyrite and chalco-													
				pyrite - 2% disseminated associated with small vughs, and in													
				quartz veins. M.S. $\leq$100. BCA 0 - 15° Non conductive.													
				29.8 - 30.2m weathered light brown sandstone associated with													
				clay filled fracture at 30.0m.													
				31.5 - 31.7m thin quartz vein with arsenopyrite, pyrite, chalco-													
				pyrite and possible cassiterite.													

SD 12 43

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : R.R.S

KWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
31.8	34.2	2.4	100	SANDSTONE		32.0	33.0	<0.01	<0.01	<0.05	<0.10	0.88	0.014	0.022	0.004	4	<0.01
							34.0	"	0.01	"	"	2.9	0.006	0.015	0.002	2	"
				Brown as above - less chloritic bands. Rare quartz veins			35.0	"	0.01	"	"	1.1	0.005	0.014	0.002	1	"
				M.S. ≤100 BCA 0°- 15° Non-conductive.													
34.2	37.5	3.0	90.9	QUARTZITE		35.0	36.0	<0.01	<0.01	<0.05	<0.10	1.2	0.014	0.022	0.006	1	<0.01
							37.0	"	0.01	"	<0.10	1.2	0.006	0.015	0.002	1	"
				White, grey (light to dark) fine grained quartzite - as			38.0	"	0.01	"	"	0.46	0.005	0.014	0.005	1	"
				before with more abundant chloritic bands. Small scale fold-													
				ing evident from chloritic bands. Disseminated sulphides													
				(pyrite and chalcopyrite) and along fracture surfaces. Core													
				very fractured and broken. M.S. ≤100. B.C.A. 0°- 15°.													
				Non-conductive.													
37.5	52.8	12.3	80.4	SANDSTONE		38.0	39.0	<0.01	0.01	<0.05	<0.10	0.37	0.003	0.008	0.002	1	<0.01
							40.0	"	<0.01	"	"	0.30	0.003	0.013	0.002	1	"
				Grey as above, very broken and fractured - some thin dark			41.0	"	"	"	"	0.20	0.003	0.008	0.003	1	"
				grey chloritic bands and white quartzites (less broken).			42.0	"	"	"	"	0.49	0.004	0.010	0.001	1	"
				Minor sulphides only - on fractures (except for arsenopyrite			43.0	"	"	"	"	0.27	0.003	0.008	0.001	1	"
				coating fractures 40.5 - 41.1m) Some thin quartz and sulphide			44.0	"	"	"	"	0.30	0.005	0.018	0.001	2	"
				veins. M.S. ≤ 100 B.C.A. 0°- 15°. Non-conductive			45.0	"	"	"	"	0.69	0.003	0.012	0.002	2	"
				- except in sulphide veins.			46.0	"	"	"	0.15	0.52	0.002	0.012	0.004	2	"
				44.0 - 44.4m brown organic staining on fractures with some sul-			47.0	"	"	"	0.13	0.96	0.004	0.026	0.007	3	"
				phides.			48.0	"	"	"	0.18	1.1	0.004	0.005	0.005	3	"
				46.4 - 51.0 core very broken			49.0	"	"	"	<0.10	0.88	0.003	0.009	0.004	2	"
				51.0 - 51.7m solid quartzite band - with pyrite and chalco-			50.0	"	"	"	"	0.61	0.002	0.010	0.009	2	"
				pyrite on fractures.			51.0	"	"	"	"	0.88	0.002	0.009	0.002	1	"
				52.4m brown clay containing small thin terminated quartz			52.0	"	"	"	"	0.71	0.004	0.014	0.004	2	"
				crystals.			53.0	"	0.01	"	"	2.0	0.003	0.012	0.003	1	"
				52.7m clay and weathered pyrite with associated quartz veins													
				- possible fault.													
52.8	56.1	2.75	83.3	QUARTZITE		53.0	54.0	<0.01	0.01	0.05	0.12	1.2	0.005	0.013	0.002	2	0.01
							55.0	"	<0.01	0.10	<0.10	1.3	0.005	0.023	0.002	3	<0.01
				Grey as before with some bands of fine grained grey brown			56.0	"	"	0.05	"	1.3	0.003	0.032	0.003	3	"
				garnets (?) core broken. Sulphides (pyrite and chalcopyrite)			57.0	"	"		"	1.1	0.004	0.012	0.002	1	"
				on fractures and in quartz veins. M.S. ≤100 B.C.A. 20°.													
				Non-conductive.													
				53.15m arsenopyrite in fracture surface													
				55.4 - 55.5m quartz vein - vughy with pyrite and arsenopyrite													
				angle 50°.													

D 103

SD 104

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : R.R.S.

KWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
56.1	64.7	6.6	76.7	QUARTZITE		57.0	58.0	<0.01	<0.01	<0.05	0.40	0.96	0.008	0.029	0.004	2	<0.01
							59.0	"	"	"	<0.10	1.0	0.006	0.010	0.005	2	"
				As above with less garnet bands (only rare garnets in core)			60.0	"	"	"	"	0.51	0.006	0.016	0.002	2	"
				Sulphides minor (pyrite, arsenopyrite and chalcopyrite) on			61.0	"	"	"	"	1.2	0.003	0.004	0.002	1	"
				fractures and disseminated. Core very broken and fractured			62.0	"	"	"	0.10	0.50	0.003	0.006	0.002	1	"
				M.S. ≤ 100 B.C.A. not seen. Non conductive.			63.0	"	"	"	<0.10	0.40	0.006	0.010	0.002	1	"
				61.5 - 64.7m core very broken - resembles quartz-sericite			64.0	"	"	"	"	1.1	0.003	0.005	0.004	2	"
				schist.			65.0	"	"	0.10	"	1.1	0.011	0.007	0.013	6	"
										"							
64.7	66.0	0.9	69.2	VERY WEATHERED CLAYEY ZONE		65.0	66.0	<0.01		0.07	<0.10	2.3	0.005	0.005	0.006	2	<0.01
				Clay with fragments of grey quartzite, chlorite, and quartz.													
				Brecciated - possibly due to faulting. Weathering due to													
				close fractures. Some pyrite M.S. ≤ 100 B.C.A.?													
				Conductive in clay zones.													
66.0	68.6	2.2	84.6	QUARTZITES		66.0	67.0	<0.01	<0.01	<0.05	<0.10	0.89	0.001	0.011	0.004	1	0.01
							68.0	"	"	"	0.18	1.7	0.002	0.006	0.005	2	"
				Grey-brown fractured quartzite with dark green chlorite on			69.0	"	"	"	<0.10	2.2	0.002	0.009	0.002	2	"
				fracture surfaces. MS ≤ 100. B.C.A. not visible. Non													
				conductive.													
				67.7m sulphide vein angle 60° up to 5cms wide containing													
				pyrite and arsenopyrite.													
68.6	70.1	1.0	66.7	VERY WEATHERED ALTERED SEDIMENTS		69.0	70.0	<0.01	<0.01	0.05	<0.10	7.9	0.002	0.007	0.006	1	<0.01
							71.0	"	0.01	<0.05	"	0.68	0.002	0.009	0.002	3	"
				Cream green to brown clay with disseminated sulphides (pyrite)													
				Possibly weathered calc-silicate band. M.S. ≤ 100 B.C.A.													
				45°. Conductive in clay bands.													
70.1	89.4	18.1	93.8	FRACTURED GREY QUARTZITE		71.0	72.0	<0.01	0.01	<0.05	<0.10	0.42	0.002	0.006	0.003	2	<0.01
							73.0	"	0.01	"	"	0.67	0.003	0.010	0.002	2	"
				As before core very broken (less broken with depth) grey			74.0	"	0.01	"	"	0.41	0.003	0.011	0.002	2	"
				quartzite with some thin (< 1cm) (angle 45°) quartz veins			75.0	"	0.01	"	"	0.34	0.002	0.006	0.002	1	"
				containing sulphides and rare tourmaline. Sulphides and white-			76.0	"	<0.01	"	"	2.0	0.002	0.006	0.002	1	"
				green serpentine on fractures. Some light grey interbedded			77.0	"	"	"	"	0.51	0.001	0.011	0.001	2	"
				spotted bands. Some patches of disseminated sulphides/pyrite			78.0	"	0.01	"	"	0.52	0.002	0.012	0.001	1	"
				pyrrhotite and chalcopyrite) M.S. ≤ 100 B.C.A. not visible			79.0	"	0.01	"	"	0.62	0.001	0.008	0.003	1	"
				near top 40° at base of zone. Slightly conductive below			80.0	"	<0.01	"	"	0.34	0.002	0.006	0.002	1	"
				77.0m.			81.0	"	"	"	"	0.24	0.002	0.005	0.003	1	"
							82.0	"	"	0.11	0.15	1.2	0.002	0.004	0.008	2	"
							83.0	"	0.01	0.10	0.13	1.8	0.003	0.007	0.007	1	0.01
							84.0	"	"	<0.05	0.10	1.1	0.002	0.009	0.003	2	<0.01

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : R.R.S.

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NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				75.8 - 75.9m weathered clay zone			85.0	<0.01	<0.01	<0.05	<0.10	0.96	0.003	0.005	0.002	2	<0.01
				81.4 - 82.5m coarse grained quartzite (sandstone)			86.0	"	"	"	"	0.33	0.003	0.014	0.003	1	"
				81.5 - 84.9m sulphides on fractures and in 1cm wide veins			87.0	"	"	"	0.11	0.65	0.001	0.008	0.003	1	"
				chalcopyrite, pyrite and arsenopyrite.			88.0	"	"	0.19	1.45	2.4	0.006	0.008	0.011	5	"
				86.0 - 89.4m brown colouration in core due to development			89.0	"	"	<0.05	0.40	1.6	0.003	0.003	0.008	1	0.01
				of biotite (increasing metamorphism)			90.0	"	"	0.14	0.30	4.5	0.002	0.011	0.014	2	0.01
				87.6m 1 cm wide chalcopyrite-arsenopyrite vein 45°													
				88.0m " " " " " "													
89.4	95.7	5.8.7		PARTLY WEATHERED CALC-SILICATE (?) ZONE		90.0	91.0	<0.01	<0.01	0.11	<0.10	6.0	0.003	0.014	0.047	2	0.02
							92.0	"	"	0.11	0.15	6.9	0.002	0.009	0.014	2	0.02
				Yellow-grey-brown to green soft partly weathered well banded			93.0	"	"	0.13	0.10	7.2	0.002	0.016	0.024	3	0.01
				possible calc-silicates. Some bands weathered to clay - while			94.0	"	"	0.11	<0.10	9.6	0.003	0.011	0.020	2	0.01
				others fresh - more siliceous. Some interbanded grey quartz-			95.0	0.02	"	0.05	"	3.0	0.003	0.012	0.011	3	0.01
				ites. No carbonates. Sulphides and weathered serpentine on			96.0	<0.01	"	<0.05	"	2.8	0.001	0.006	0.005	2	0.01
				fractures. Sulphides on fractures and disseminated-up to													
				20% in some bands - pyrite, pyrrhotite and arsenopyrite, often													
				associated with coarse grey green mica. M.S. < 100 BCA 40°.													
				Moderately conductive near sulphides and clayey bands.													
				95.0 - 95.5m yellow green clay													
				95.5 - 95.7m brown fine grained sand and biotite (weathered													
				sandstone).													
95.7	97.5	1.6	88.9	GRANITIC DYKE		96.0	97.0	<0.01	<0.01	<0.05	<0.10	0.72	0.001	0.002	0.004	1	<0.01
							98.0	"	"	"	"	1.6	0.002	0.006	0.002	2	"
				Grey fine grained granite containing mainly quartz and													
				rare tourmaline. Thin chilled margins. No contacts visible													
				due to broken core some fragments of sediments in dyke.													
				M.S. < 100. Non conductive.													
97.5	98.8	1.0	76.9	BIOTITIC RICH SEDIMENTS		98.0	99.0	<0.01	<0.01	<0.05	<0.10	1.5	0.001	0.005	0.005	2	<0.01
				Brown, soft biotite rich sediments - showing very fine con-													
				torted banding near top. M.S. < 100. BCA visible 97.5m -													
				40°. 98.3 10°. Non conductive.													
98.8	99.2	0.3	75.0	THIN GRANITIC DYKE: Grey white dyke with thin chilled margins containing fine grained quartz, feldspar and biotite. Upper Contact 10° MS <100 Non-conductive													
99.2	107.2	7.3	91.3	QUARTZITE		99.0	100.0	<0.01	<0.01	<0.05	<0.10	0.56	0.002	0.007	0.004	3	<0.01
				Grey to brown quartzite, cut by thin irregular quartz veins													
				plus pyrite, brown colouration (probably due to biotite) -													
				99.2 - 101.6m. Some disseminated sulphides - pyrite (1%).													
				M.S. < 100 BCA 35° - 40° Non - conductive													

C.P. 3 of 106

DIAMOND DRILL RECORD

HOLE NUMBER : S. D. 12

LOGGED BY : R . R. S.

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				Non conductive.		100.0	101.0	<0.01	<0.01	<0.05	<0.10	1.5	0.001	0.008	0.003	3	0.01
				106.8 - 107.2m bleached zone, fine banding possible calc-			102.0	"	"	"	"	0.21	0.001	0.005	0.003	3	<0.01
				silicate band (BCA 40°). Some brown colouration near dyke			103.0	"	"	"	"	1.0	0.002	0.007	0.002	2	"
				(107.2m).			104.0	"	"	"	"	0.59	0.001	0.006	0.004	3	0.01
							105.0	"	"	"	"	1.3	0.001	0.007	0.003	3	<0.01
	107.2	107.5	0.3	100	GRANITIC DYKE		106.0	"	"	"	"	0.95	0.001	0.006	0.003	3	"
							107.0	"	"	"	"	1.5	0.002	0.008	0.005	2	"
				Fine grained grey siliceous granitic dyke - with some biotite			108.0	"	"	"	"	1.6	0.002	0.004	0.005	1	"
				top contact - 40°. M.S. < 100. Non conductive.													
	107.5	110.0	1.9	76.0	BROWN BIOTITE-RICH ROCK		108.0	109.0	<0.01	<0.01	<0.05	<0.10	2.1	0.002	0.008	0.005	2	<0.01
								110.0	"	0.01	0.07	"	3.8	0.003	0.010	0.004	2	0.01
				Brown biotite rich altered sandstone or quartzite with pyrite													
				disseminated and along fractures. M.S. < 100 B.C.A. 40°.													
				Slightly conductive.													
	110.0	122.9	12.0	93.0	QUARTZITE		110.0	111.0	<0.01	0.01	0.05	0.11	4.7	0.003	0.015	0.014	2	0.01
								112.0	0.01	0.03	<0.05	<0.10	3.0	0.002	0.012	0.014	2	0.03
				Grey well banded grey quartzite and some calc-silicat e bands				113.0	0.03	0.02	"	"	3.2	0.003	0.009	0.011	2	0.04
				and magnetite. Core broken 110.0 - 111.5m. Serpentine along				114.0	<0.01	0.02	"	"	2.2	0.003	0.008	0.007	1	0.02
				fractures.				115.0	0.09	0.06	"	"	3.3	0.002	0.021	0.014	2	0.06
				Sulphides along fractures and disseminated - especially				116.0	0.01	0.04	"	"	4.7	0.003	0.015	0.005	3	0.01
				parallel to banding - 5% mostly pyrrhotite with rare				117.0	<0.01	0.01	"	"	3.3	0.001	0.008	0.004	2	0.01
				sphalerite. Some thin veins of coarse grained grey-green				118.0	"	0.01	"	"	2.9	0.002	0.011	0.004	2	0.02
				mica. Rare scheelite specks. M.S. < 100 - 19,000. BCA 40°.				119.0	"	<0.01	"	"	2.2	0.001	0.009	0.003	2	0.01
				at 112.0m, 25° at 115.0m. Slight to highly conductive (near				120.0	"	"	"	"	2.9	0.001	0.005	0.003	2	0.04
				magnetite bands).				121.0	"	0.02	"	"	2.7	0.002	0.004	0.003	2	<0.01
				110.5 - 112.5m some thin magnetite bands				122.0	"	0.01	"	"	2.1	0.001	0.005	0.003	1	0.02
				111.0 - 119.0m rare blue fluorescing scheelite grains to 1cm				123.0	"	<0.01	"	"	1.4	0.003	0.027	0.001	2	<0.01
				111.6 and 111.7m thin coarse grained mica veins with specks													
				of molybdenite.													
				114.0 - 114.9m magnetite and calc-silicate bands.													
				114.9 - 115.5m serpentine on fractures, core very fractured													
				and broken.													
				117.5 - 122.9m magnetite and calc-silicate bands.													
	122.9	127.4	6.5	100	BROWN BIOTITE RICH ROCK		123.0	124.0	<0.01	0.01	<0.05	<0.10	3.7	0.002	0.006	0.002	2	0.02
								125.0	"	<0.01	"	"	2.5	0.002	0.009	0.003	2	0.01
				Brown, well banded biotite rich sediments and grey quartzites				126.0	"	0.01	"	"	2.1	0.001	0.007	0.003	1	<0.01
				with 1 - 2% disseminated pyrite and pyrrhotite and serpentine				127.0	"	<0.01	"	"	2.5	0.002	0.004	0.004	1	0.01
				along fractures. Disseminated pyrite, mainly in grey quartz-				128.0	"	0.01	"	"	3.4	0.002	0.009	0.014	1	0.01
				ites.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : R.R.S.

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				M.S. 200 - 700. BCA 30°. Slightly conductive													
				125.2 - 126.0m some calc-silicate bands containing brown													
				garnets.													
				127.2m irregular thin black tourmaline vein.													
127.4	136.5	9.1	100	SKARN		128.0	129.0	0.31	0.35	0.06	<0.10	3.5	0.002	0.019	0.045	1	0.04
							130.0	0.07	0.09	<0.05	"	0.55	0.003	0.029	0.032	2	0.03
				Interbedded cream to dark green calc-silicate bands and black			131.0	0.05	0.09	"	"	0.20	0.003	0.023	0.050	2	0.01
				magnetite and minor haematite bands. Calc-silicate bands con-			132.0	<0.01	0.03	"	"	0.57	0.003	0.030	0.055	2	0.03
				tain dark green phlogopite or chlorite and light grey calc-sil-			133.0	"	0.02	"	"	0.22	0.003	0.023	0.016	2	0.01
				icate minerals - possibly wollastanite - No carbonate. Rare			134.0	0.30	0.30	"	"	1.4	0.003	0.023	0.055	2	0.03
				irregular carbonate v eins. Some distortion of banding. Ser-			135.0	0.20	0.20	0.07	"	4.5	0.003	0.011	0.008	2	0.01
				pentine along fractures. Some disseminated pyrrhotite in bands			136.0	<0.01	0.03	0.05	"	3.6	0.002	0.016	0.004	2	0.06
				(< 5%). Rare scheelite specks. BCA 30°. Core slightly to			137.0	"	0.01	0.05	"	4.5	0.002	0.015	0.009	2	<0.01
				highly conductive depending on sulphides and magnetite.													
136.5	143.5	6.2	88.6	QUARTZITE		137.0	138.0	<0.01	0.01	<0.05	<0.10	4.6	0.002	0.020	0.005	2	<0.01
							139.0	"	0.01	"	"	2.0	0.002	0.015	0.002	2	"
				Grey-brown quartzite (?) with rare sulphide bands and dissemin-			140.0	"	0.01	"	"	2.8	0.003	0.005	0.004	2	"
				ated pyrrhotite. Core in 10cm lengths, only slightly fractured			141.0	"	0.01	"	"	2.6	0.003	0.005	0.003	2	0.01
				- serpentine and some pyrite on fracture surfaces. Some minor			142.0	"	<0.01	"	"	2.5	0.002	0.008	0.003	2	<0.01
				red-brown to green cherty bands - more common towards base.			143.0	"	0.01	"	"	1.7	0.003	0.009	0.003	2	"
				M.S. < 100 B.C.A. 25°. Core non-conductive.			144.0	"	<0.01	"	"	1.1	0.003	0.006	0.004	2	"
143.5	147.5	4.0	100	QUARTZITES AND CHERTS		144.0	145.0	<0.01	0.01	"	<0.10	0.49	0.003	0.006	0.002	2	<0.01
							146.0	"	<0.01	"	"	0.85	0.003	0.007	0.004	2	0.01
				Grey-brown quartzites - colour possible due to development of			147.0	"	"	"	"	1.6	0.002	0.005	0.003	2	0.01
				biotite and interbedded brown pink chert and calc-silicate			148.0	"	"	"	"	0.59	0.003	0.013	0.003	3	0.01
				bands (pink garnet in bands). Serpentine pyrrhotite and pyrite													
				on fracture surfaces. Core broken and fractured. Minor													
				disseminated sulphides. M.S. < 100. BCA 20°. Core non-													
				conductive.													
147.5	166.3	12.7	67.6	CLAYS AND WEATHERED CALC-SILICATES		148.0	149.0	<0.01	0.01	0.05	0.10	4.7	0.002	0.022	0.013	3	0.03
							150.0	"	0.01	0.17	0.21	13.4	0.003	0.013	0.024	3	0.01
				Mainly brown-grey-green clays containing disseminated pyrite			151.0	"	0.01	0.09	<0.10	8.1	0.003	0.014	0.015	3	0.02
				Core soft, broken and poor recovery. Some fresher sections			152.0	"	<0.01	<0.05	0.10	4.4	0.003	0.019	0.035	2	0.02
				containing weathered calc-silicates (?) with disseminated			153.0		Missing								
				pyrrhotite up to 20% (zones 148.5 0 150.0, 156.6 - 157.0, and			154.0	"	0.01	0.06	0.13	4.3	0.002	0.012	0.020	2	0.02
				164.6 - 164.8m. Some possible black chloritic veins and along			155.0	"	0.01	<0.05	<0.10	6.7	0.002	0.024	0.050	2	0.03
				fracture surfaces along with some grey green fine grained mica			156.0	"	0.01	"	"	3.4	0.002	0.011	0.007	2	0.02
				veins, containing minor fluorite.			157.0	"	0.01	0.05	"	8.8	0.003	0.028	0.070	2	0.02
							158.0	"	0.01	<0.05	0	6.2	0.002	0.022	0.055	2	0.03

CC 808

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : R.R.S.

NWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				M.S. ≤ 100. BCA variable and slightly contorted, mostly 5° -		158.0	159.0	<0.01	<0.01	<0.05	<0.10	5.7	0.002	0.019	0.047	2	0.02
				10°. Core conductive in clay zones.			160.0	"	0.01	"	"	4.9	0.003	0.029	0.017	2	0.03
							161.0	"	0.01	"	"	6.3	0.002	0.024	0.020	2	0.02
	166.3	173.0	6.0	89.6	LESS WEATHERED SEDIMENTS		162.0	"	0.01	"	"	4.5	0.001	0.010	0.005	2	0.01
							163.0	"	0.01	"	"	2.6	0.002	0.015	0.007	2	0.02
					Finely banded grey brown shales cream-green weathered calc-		164.0	0.07	0.04	"	"	4.1	0.003	0.031	0.012	2	0.02
					silicates, green grey clays, and brown grey chert bands. Core		165.0	0.17	0.11	0.15	"	11.7	0.002	0.025	0.016	2	0.02
					broken. Pyrite on fracture surfaces. M.S. ≤ 100 to 200. BCA		166.0	<0.01	<0.01	<0.05	"	1.3	0.002	0.014	0.004	2	0.01
					5°- 25°. Core mostly non conductive (fresh), conductive in		167.0	"	0.01	"	"	2.4	0.002	0.011	0.005	3	0.01
					clay zones.		168.0	<0.01	<0.01	<0.05	<0.10	4.5	0.002	0.011	0.007	2	0.02
							169.0	"	"	"	"	4.4	0.002	0.019	0.012	3	0.02
	173.0	188.6	15.5	99.3	MAGNETITE SKARN AND CALC-SILICATES		170.0	"	"	"	"	3.8	0.002	0.006	0.004	2	0.01
							171.0	"	"	"	"	1.1	0.002	0.011	0.008	2	0.02
					Core fresh and unbroken containing bands of cream-green calc-		172.0	"	"	"	"	2.9	0.003	0.011	0.004	2	0.02
					silicates and serpentine with bands of grey-green micas, black		173.0	"	"	"	"	1.0	0.003	0.016	0.014	3	0.02
					magnetite and pyrrhotite (both disseminated and in bands) 5 -		174.0	<0.01	0.01	"	"	2.9	0.003	0.018	0.027	2	0.01
					20% sulphides. Non calcareous, but with rare irregular carbon-		175.0	0.11	0.10	"	"	3.1	0.002	0.022	0.010	2	0.01
					ate veins. Minor to rare disseminated blue fluorescing		176.0	0.31	0.35	0.05	"	3.9	0.002	0.015	0.009	2	0.01
					scheelite pecks - generally small but up to 1cm. Some		177.0	0.35	0.40	<0.05	"	1.9	0.002	0.027	0.060	2	0.01
					fluorite - green, clear to purple in veins associated with green-		178.0	0.01	0.01	"	"	0.72	0.002	0.021	0.017	1	0.01
					grey mica (parallel to banding). M.S. ≤ 100 - 30000. BCA 0°- 40°.		179.0	0.07	0.03	"	"	0.93	0.002	0.023	0.019	2	0.01
					Core non to very conductive depending on presence of sulphides		180.0	0.01	0.01	0.07	"	5.9	0.004	0.020	0.008	2	0.02
					and magnetite.		181.0	0.06	0.05	0.05	"	2.1	0.002	0.020	0.005	2	0.03
					180.6 - 180.75 carbonate veinlets irregular		182.0	<0.01	0.02	<0.05	"	3.1	0.002	0.024	0.005	2	0.01
					181.1m scheelite - blue fluorescing		183.0	0.01	0.02	"	"	1.8	0.003	0.020	0.010	2	0.02
					182.3m scheelite in irregular white-green carbonate band		184.0	<0.01	0.01	0.05	"	2.4	0.003	0.017	0.004	2	0.02
					1 - 2cms wide.		185.0	"	0.01	<0.05	0.10	2.5	0.003	0.013	0.006	2	0.01
					185.5 - 188.6m less magnetite - more sediments with biotite		186.0	"	0.02	0.09	<0.10	5.0	0.003	0.027	0.009	2	0.02
					development (grey-brown in colour) well banded. BCA 0°- 40°.		187.0	"	0.01	<0.05	"	0.98	0.002	0.012	0.040	2	0.06
					Some thin bands of chlorite (dark green) and disseminated pyrite.		188.0	"	0.01	0.08	"	3.5	0.002	0.017	0.006	2	0.04
					187.0 - 188.0m disseminated blue fluorescing scheelite specks.		189.0	0.14	0.13	<0.05	"	1.6	0.003	0.017	0.009	2	0.02
					188.3 - 188.5m zone of grey green mica, fine-medium grained													
					- cut by slickensided fractures parallel to													
					banding.												
	188.6	220.5	29.0	90.9	GRANITE		189.0	190.0	<0.01	0.01	<0.05	<0.10	0.22	0.002	0.004	0.004	1	0.01
								191.0	"	<0.01	"	"	0.04	0.002	0.004	0.004	1	0.01
					Grey green medium grained altered granite - contact with sedi-			192.0	"	"	"	"	0.11	0.003	0.005	0.004	1	0.01
					ments 30°. Siliceous chilled margin. Felspars altered to			193.0	"	0.01	"	"	0.04	0.003	0.002	0.004	1	0.01
					green sericite and biotite altered to grey-green mica. Some			194.0	"	<0.01	"	"	0.11	0.003	0.006	0.003	1	0.01
					brown-black tourmaline irregular fractures often coated with black			195.0	"	"	"	"	0.04	0.011	0.019	0.006	1	0.01
					chlorite (?) and some purple fluorite. MS ≤ 100. Non conduct-			196.0	"	"	"	"	0.04	0.005	0.008	0.004	1	0.01
					ive.			197.0	<0.01	<0.01	<0.05	<0.10	0.72	0.003	0.006	0.006	1	0.01

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DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : S.R.S.

T 63

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM	FROM	TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag	% WO3
				188.6 – 189.5m chilled margin fine grained siliceous		197.0	198.0	<0.01	<0.01	<0.05	<0.10	0.15	0.006	0.017	0.003	1	0.01
				189.5 – 189.6m grey green medium grained granite flespars alt-			199.0	"	"	"	"	0.04	0.004	0.003	0.002	1	0.01
				ered to sericite.			200.0	"	"	"	"	0.16	0.002	0.003	0.004	1	0.01
				189.6 – 189.9m fine grained siliceous with some sedimentary			201.0	"	"	"	"	0.30	0.002	0.002	0.005	1	0.01
				altered xenoliths. Rare purple fluorite on			202.0	"	"	"	"	0.51	0.021	0.080	0.004	2	0.01
				fractures.			203.0	"	"	"	"	0.04	0.003	0.004	0.004	1	0.01
				189.9 – 191.1m grey green altered granite (felspars			204.0	"	"	"	"	0.18	0.003	0.004	0.003	1	0.01
				sericite), biotite altered to grey green mica			205.0	0.01	"	"	"	0.72	0.017	0.040	0.004	2	0.01
				Minor brown to black tourmaline. Some purple			206.0	<0.01	"	"	"	0.30	0.007	0.012	0.004	2	0.01
				fluorite on fractures.			207.0										
				191.1 – 194.0m altered siliceous very fine grained grey green,			208.0										
				Groundmass completely altered. Purple fluorite			209.0										
				on fractures. Core broken.			210.0										
				194.0 – 198.8m altered granite with low angle fractures 10°-			211.0										
				40° and 60°. Rare biotite. Feldspars altered			212.0										
				to sericite and chlorite.			213.0										
				198.8 – 199.6m altered granite containing quartz, chlorite.			214.0										
				Core broken. Feldspars mostly altered to			215.0										
				chlorite on fractures. Colour light grey to			216.0										
				grey green.			217.0										
				199.6 – 201.5m cream weathered altered granite – varying from			218.0										
				coarse quartz sand to soft core. Feldspars			219.0										
				altered to sericite.			220.0										
				201.5 –210.5m altered grey green fine to medium grained			220.5										
				granite containing quartz, feldspars altered													
				to chlorite and sericite, minor dark brown													
				tourmaline – no biotite. Core less broken;													
				chlorite on fractures. Greisen bands (quartz													
				– muscovite) at 204.4 – 204.6m, 204.8 –													
				205.0m. Minor sulphides associated with quartz													
				veins and along fracture surfaces.													
				205.8 – 206.6m granite relatively fresh – feldspars altered													
				to sericite.													
				208.7 and 209.7m purple and green fluorite veins.													
				210.5 – 211.9m chloritic alteration of granite – especially													
				near fractures. Feldspars altered to chlorite													
				and sericite. No biotite. Some purple and													
				green fluorite on thin fractures. Sulphides													
				fine grained on fractures, and coarse grained													
				and vugh in quartz veins.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY : R.R.S.

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				211.9 – 212.75 greisen vein – quartz and fine grained muscovite with purple and green fluorite, sulphides (pyrite chalcopyrite and arsenopyrite) and tourmaline.													
				212.25 – 213.0 fine to medium grained altered granite – more siliceous, feldspars altered to sericite.													
				213.0 – 214.3m medium grained altered granite, feldspars sericitised plus minor tourmaline. No biotite													
				214.3 – 216.9m greisen zone with quartz veins – quartz, muscovite, possible topaz, tourmaline and minor sulphides.													
				215.3 – 215.4m quartz vein with chalcopyrite, arsenopyrite and tourmaline													
				216.9 – 220.5m grey green altered granite, feldspars altered to sericite, minor tourmaline, rare sulphides Development of chlorite near fractures.													
				End of hole 220.5m													
				Mineralization poor													
				Best intersection 175-177m @ 0.33% Sn													
				also 133-135m @ 0.2% Sn													
				Some other sporadic tin values, and some low grade Cu mineralization (chiefly 87-99m @ 0.12% Cu)													
				Most, or all, the tin in present in acid soluble form (hulsite?)													

D11

C7 C8 F4 F5

125.4m	ROCK TYPE - COMPOSITION	Talc-diopside Rock. Thin bands of microgranular diopside, alternating with bands of talc-diopside intergrowths; scattered fine pyrrhotite.
	Fabric :	Banding probably reflects original compositional variations. Fine-grained.
	Minor Minerals :	Ultrafine sphene, occasional phlogopite flakes.
	Comments :	Represents metasomatised, layered carbonate sediment.
128.1m	ROCK TYPE - COMPOSITION	Banded Diopside Skarn. Bands of granular and prismatic diopside, talc-diopside; discontinuous garnet, actinolite lenses; pyrrhotite patches,
	Fabric :	Well developed banding; generally fine grained.
	Minor Minerals :	Thin parallel bands of vermiform phlogopite/vermiculite. Carbonate.
	Comments :	Orthodox skarn mineral assemblage, with no obvious source of Sn.
128.3m	ROCK TYPE - COMPOSITION	Monticellite-Magnetite Rock. Bands of granular monticellite with magnetite, separated by thinner streaks of antigorite and talc flakes. Pyrrhotite.
	Fabric :	Medium granular, compositionally banded.
	Minor Minerals :	Isolated scheelite grains up to 1mm, "Ilvaite" needles. Iddingsite.
	Comments :	Iddingsite is alteration-product of monticellite (related to forsterite); "ilvaite" may be stanniferous. EPMA scheduled.
128.5m	ROCK TYPE - COMPOSITION	Talc-Iddingsite Rock. Mainly thin bands of talc/antigorite and iddingsite with relict monticellite; tremolite bands. Pyrrhotite, magnetite.
	Fabric :	Well banded, medium grained. Fibrous magnetite.
	Minor Minerals :	Traces of hulsite-paigeite may be present, and/or ilvaite.
	Comments :	Similar to previous rock, but more extensively altered to iddingsite. Ilvaite/paigeite ?stanniferous.
128.8m	ROCK TYPE - COMPOSITION	Monticellite-Talc-Magnetite Rock. Bands of granular monticellite alternating with talc, minor tremolite, magnetite, pyrrhotite, common throughout.
	Fabric :	Granular, banded, medium grained.
	Minor Minerals :	Ultrafine ?hulsite-paigeite associated with magnetite.
	Comments :	Very similar to 128.3m; ?hulsite-paigeite in trace amounts only.
133.2m	ROCK TYPE - COMPOSITION	Diopside Rock. Medium to coarsely-granular diopside, occasional bands of pale actinolite; interstitial talc, antigorite flakes.
	Fabric :	Vaguely banded, medium to coarse grained.
	Minor Minerals :	Scattered pyrrhotite grains, apatite crystals, garnet patches with green spinel.
	Comments :	Garnet patches, with green spinel rims, appear to be relict masses. No obvious Sn minerals.
133.4m	ROCK TYPE- COMPOSITION	Clinohumite-Talc-Magnetite Rock. Granular, twinned clinohumite, coarse flakes of talc and antigorite finely, fibrous magnetite.
	Fabric :	Crude compositional banding; replacive antigorite, Medium-grained.
	Minor Minerals :	Granular green spinel in places. Minor sulphides.
	Comments :	Relict ghost textures suggest replacement of earlier formed minerals. Ilvaite probably present.

RENISON LIMITED

SCALE: C.M.S. [illegible] 79/12/19

DIAMOND DRILL HOLE PLOT

HOLE No.: S. D. 12 (cont'd)

133.9m ROCK TYPE - COMPOSITION: Talc-Magnetite-Fluorite Rock. Bands of matted talc flakes, fluorite, pseudomorphs after ?tremolite; magnetite; serpentinised ?chondrodite.

Fabric : Crude compositional banding. Well preserved relict textures.

Minor Minerals : Thin bands of vermicular phlogopite/vermiculite. Green spinel patches.

Comments : Fairly complex polymetasomatic history; no obvious Sn minerals, except possibly the spinel.

169.6m ROCK TYPE - COMPOSITION: Banded, Metasomatic Rock. Thin bands of random phlogopite, phlogopite-tremolite intergrowths, serpentine/phlogopite, sericite/phlogopite/tremolite.

Fabric : Fine grained, well banded (?relict sedimentary features).

Minor Minerals : Traces of granular sphene and sulphides.

Comments : Very probably a metasediment, and appears to be polymetasomatic.

173.4m ROCK TYPE - COMPOSITION: Talc-Carbonate Rock. Matted masses of very coarse talc, bands of carbonate/serpentine pseudomorphous after ?chondrodite; pyrite patches.

Fabric : Banded fabric, medium to coarse grained, pseudomorphous textures.

Minor Minerals : Magnetite patches. Traces of tremolite, apatite.

Comments : Polymetasomatic, with high temperature minerals replaced by lower temperature assemblage.

176.2m ROCK TYPE - COMPOSITION: Talc-Antigorite-Carbonate Rock. Bands of coarse talc with embedded carbonate; antigorite bands with magnetite, sulphides. Fibrous-radiating ilvaite.

Fabric : Relict serpentine textures, extensive replacement textures.

Minor Minerals : Brown serpentine pseudomorphs after ?chondrodite.

Comments : Complex series of replacements; ilvaite aggregates are of late formation.

176.4m ROCK TYPE - COMPOSITION: Silicified Talc-Serpentine Rock. Complex pseudomorphous textures of fine quartz, siderite, antigorite; coarse talc flakes and aggregates.

Fabric. : Relict serpentine textures suggest former chondrodite/clinohumite.

Minor Minerals : Patches of sulphides. Magnetite veinlets.

Comments : See separate description for details of sulphides.

176.6m ROCK TYPE - COMPOSITION: Talc-Serpentine-Carbonate Rock. Very coarse talc flakes, fine aggregates; patches of serpentine and carbonate, replaced by quartz in places.

Fabric : Confused fabric, very variable grainsizes. Crudely banded.

Minor Minerals : Granular magnetite and pyrite patches.

Comments : Polymetasomatic i.e. skarn formation, followed by several stages of replacement. No apparent Sn minerals

133.6m ROCK TYPE - COMPOSITION: Banded Clinohumite-Magnetite Rock. Dominantly granular clinohumite with parallel bands of magnetite Fibrous-radiating ilvaite patches.

Fabric : Good banding accentuated by magnetite. Medium grained.

Minor Minerals : Iddingsite developed from clinohumite in places; talc, antigorite.

Comments : Similar to 133.4m. Distinct difference between fibrous ilvaite granular magnetite.

SCALE :

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

HOLE No. : S. D. 12 (cont'd)

C.M.S. Report 79/12/19

176.8m	ROCK TYPE - COMPOSITION	Talc-Pyrite Rock. Very coarse, random talc flakes, abundant pyrite (?from pyrrhotite), carbonate and serpentine patches.
	Fabric :	Confused fabric, very variable grainsizes. Crudely banded.
	Minor Minerals :	Minor granular magnetite; scattered apatite.
	Comments :	Probably a chondrodite/clinohumite skarn, replaced by talc, pyrrhotite. No apparent Sn minerals.
187.4m	ROCK TYPE - COMPOSITION	Banded Skarn. Bands of finely granular diopside, felted tremolite/talc, and talc/serpentine; scheelite patches up to 0.3mm
	Fabric :	Well banded, fine grained rock. Extensive replacement textures.
	Minor Minerals :	Minor magnetite, pyrite patches, carbonate veins and patches.
	Comments :	Scheelite is probably related to tremolite-talc phase of younger metasomatism.

HOLE No.: S.O. 12 SCALE:

RENISON LIMITED

DIAMOND DRILL HOLE PLOT

POLISHED SECTIONS.

C.M.S. REPORT 79/12/19 (PART 2)

128.3m The sulphides are pyrrhotite, with traces of chalcopyrite, partly altered to pyrite. Granular magnetite is present, and there are sub-radiating aggregates of fibrous-acicular mineral belonging to the ludwigite-vonsenite group (which includes hulsite, the stanniferous variety). This mineral requires checking by EPMA, but, by analogy with previous samples, is almost certainly the source of the soluble Sn.

133.4m The mineral assemblage is the same as at 128.3m; ludwigite-vonsenite is conspicuous, as well-developed groups of fibrous crystals In view of its abundance, the Sn-content is probably low, though EPMA will yield an accurate analysis. Portion of the mineral was removed for X-ray diffraction, which showedthat the mineral was ludwigite-vonsenite, not ilvaite; it is probably a stanniferous vonsenite rather than hulsite (analyses of hulsite report 7% SnO_2).

176.4m The opaque minerals are magnetite, pyritised pyrrhotite, chalcopyrite, veinlets and patches of bismuth-bismuthinite intergrowths; isolated arsenopyrite crystals are seen. No "ilvaite" occurs in this section, but was recorded at 176.2m, and is similar to the mineral at 128.3m and 133.4m.

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 12

LOGGED BY :

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	MAGNETIC SUSCEPTIBILITY x 10^{-6} c.g.s. units DEPTH	M.S.	DEPTH	M.S.	DEPTH	M.S.	DEPTH	M.S.	FORM.
DEPTH	M.S.	DEPTH	M.S.									
0	⩽100	42.0	⩽100	84.0	⩽100	126.0	200	168.0	⩽100	210.0	⩽100	
"	"	"	"	"	"	"	200	"	"	"	"	
"	"	"	"	"	"	"	500	170.0	200	"	"	
"	"	"	"	"	"	"	4300	"	⩽100	"	"	
"	"	"	"	"	"	130.0	25000	"	"	"	"	
"	"	"	"	"	"	"	6500	"	"	"	"	
"	"	"	"	90.0	"	"	11000	"	"	"	"	
"	"	"	"	"	"	"	7000	"	1000	"	"	
"	"	50.0	"	"	"	"	19000	"	17000	"	"	
"	"	"	"	"	"	"	500	"	6700	"	"	
10.0	"	"	"	"	"	"	⩽100	"	1500	220.0	"	
"	"	"	"	"	"	"	"	"	2600	220.5	"	
"	"	"	"	"	"	"	"	180.0	30000	End of hole		
"	"	"	"	"	"	"	200	"	3200			
"	"	"	"	"	"	140.0	⩽100	"	17000			
"	"	"	"	"	"	"	"	"	2400			
"	"	"	"	100.0	"	"	"	"	4500			
"	"	"	"	"	"	"	"	"	200			
"	"	60.0	"	"	"	"	"	"	200			
"	"	"	"	"	"	"	"	"	⩽100			
20.0	"	"	"	"	"	"	"	"	1500			
"	"	"	"	"	"	"	"	"	⩽100			
"	"	"	"	"	"	"	"	190.0	"			
"	"	"	"	"	"	"	"	"	"			
"	"	"	"	"	"	150.0	"	"	"			
"	"	"	"	"	"	"	"	"	"			
"	"	"	"	110.0	"	"	"	"	"			
"	"	"	"	110.5	400	"	"	"	"			
"	"	70.0	"	"	19000	"	"	"	"			
"	"	"	"	"	⩽100	"	"	"	"			
30.0	"	"	"	"	"	"	200	"	"			
"	"	"	"	"	"	"	⩽100	"	"			
"	"	"	"	"	"	"	"	200.0	"			
"	"	"	"	"	"	"	"	"	"			
"	"	"	"	"	4000	160.0	"	"	"			
"	"	"	"	"	300	"	"	"	"			
"	"	"	"	120.0	300	"	"	"	"			
"	"	"	"	"	400	"	"	"	"			
"	"	80.0	"	"	700	"	"	"	"			
"	"	"	"	"	700	"	"	"	"			
40.0	"	"	"	"	700	"	"	"	"			
"	"	"	"	"	400	"	"	"	"			

DETAILED CORE RECOVERY FROM	TO	REC	%	FROM	TO	REC	%	FROM	TO	REC	%
0.0	3.0	2.0	66.7	61.9	62.5	0.6	75.0	136.1	139.2	3.1	100
	4.1	1.1	100		63.2	0.5	71.4		142.5	2.1	63.6
	5.3	1.2	100		64.7	0.5	33.3		143.5	1.0	100
	7.7	1.8	75.0		66.0	0.9	69.2		145.15	1.5	90.9
	8.7	0.9	90.0		67.5	1.5	100		147.4	2.4	106.7
	10.3	1.6	100		68.7	0.8	66.7		148.5	1.0	90.9
	11.8	1.5	100		70.2	1.0	76.9		154.2	2.0	35.1
	13.3	1.5	100		70.9	0.5	33.3		155.7	1.5	100
	14.8	1.5	100		72.5	1.3	81.3		157.5	1.5	83.3
	16.3	1.5	100		74.25	2.1	120.0		160.5	2.5	83.3
	17.8	1.5	100		75.15	0.8	88.9		162.8	2.5	108.7
	19.3	1.5	100		77.3	1.8	83.7		164.8	1.3	65.0
	20.8	1.5	100		78.5	1.0	83.3		166.3	0.5	33.3
	21.8	0.8	80.0		81.2	2.1	77.7		169.1	2.8	100
	24.5	2.0	74.1		81.5	0.4	133.3		170.5	1.5	107.1
	26.0	0.5	33.3		81.7	0.2	100		172.5	1.8	90.0
	27.5	2.5	166.7		82.5	0.8	100		174.0	1.4	93.3
	29.0	1.5	100		83.9	1.4	100		177.0	3.0	100
	30.5	1.5	100		85.8	1.9	100		180.0	3.0	100
	31.7	1.0	83.3		88.5	3.0	111.1		180.75	0.75	100
	33.3	1.7	106.3		91.5	2.5	75.0		181.5	0.75	100
	34.4	1.1	100		94.5	1.0	33.3		184.5	3.0	100
	36.0	1.5	93.8		96.0	1.0	66.7		187.5	3.0	100
	37.7	1.4	82.4		97.5	1.5	100		190.5	3.0	100
	38.6	0.8	88.9		100.15	2.1	79.2		192.55	2.05	100
	40.3	2.0	117.6		103.0	2.3	80.7		193.5	0.6	63.2
	41.8	1.5	100		103.9	0.9	100		196.0	1.8	72.0
	42.9	1.0	90.9		105.1	1.2	100		198.9	2.7	93.1
	44.4	1.4	93.3		106.5	1.4	100		199.5	0.6	100
	45.5	1.2	109.1		107.5	1.0	100		201.2	1.4	82.4
	46.25	0.75	100		109.5	1.4	70.0		203.2	1.4	70.0
	48.2	1.6	82.1		112.5	3.0	100		205.5	2.3	100
	49.3	0.3	27.3		114.9	2.4	100		207.8	2.4	104.3
	51.95	1.0	37.7		115.7	0.9	112.5		210.9	3.1	100
	52.65	0.6	85.7		117.9	2.1	95.5		212.25	1.4	103.7
	53.15	0.3	60.0		119.9	2.0	100		214.5	2.0	88.9
	54.5	1.0	69.0		121.0	1.2	109.0		217.15	2.5	96.2
	55.6	1.0	110.0		123.9	2.5	86.2		220.5	3.35	100
	57.1	1.5	100		125.2	1.4	107.7				
	57.5	0.4	100		127.5	2.3	100				
	59.1	1.6	100		130.5	3.4	113.3				
	60.5	1.4	100		133.5	3.0	100				
	61.7	0.6	50.0		136.1	2.6	100				

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ESCAPE

ENISON LIMITED - DRILL CORE RECORD

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		SURVEY			From – To	Distance D	VERTICAL		HORIZONTAL	
HOLE NUMBER	S.D. 13	Depth	Bearing	Dip			D.Sin.Dip	R.L.	D.Cos.Dip	Prog. Total
			AMG							
PURPOSE	To test mineralisation between drill holes S.D. 10 and M. 2 – S.D. 6	0	174°	-64°	0 – 34.5	34.5	31.0	2171.1	15.1	15.1
		69.0	178°	-63°	– 79.5	45.0	40.1	2131.0	20.4	35.5
LOCATION	St. Dizier, (North Heemskirk.)	90.0	176°	-64°	-112.5	33.0	29.7	2101.3	14.5	50.0
		135.0	179°	-63½°	-161.0	48.5	43.4	2057.9	21.6	71.6
COLLAR R.L.	2202.1m (Sea Level + 2000m.)	187.0	181°	-63½°	-198.5	37.5	33.6	2024.3	16.7	88.3
		210.0	* 323° (181° Used)	-63°	-236.5	38.0	33.9	1990.4	17.3	105.6
CO-ORDINATES	N 5367701.5 : E 345218.9 A.M.G. Grid.	263.0	* 162° (180° Used)	-63°	-281.5	45.0	40.1	1950.3	20.4	126.0
		300.0	180°	-62½°	-338.0	56.5	50.1	1900.2	26.1	152.1
LENGTH	377.0m	376.0	177°	-62°	-377.0	39.0	34.4	1865.8	18.3	170.4
HOLE SIZE	HW 0 – 3.0m HQ 3.0 – 108.0 NQ 108.0 – 187.2 BQ 187.2 – 337.0		* Probable Magnetic Interference							
DATE DRILLED	3rd October – 25th October 1979									
SIGNIFICANT CORE LOSS ZONES	65 – 143 m : Generally poor recovery in quartzites. 333 – 377m : Poor recovery in granite and adjacent stanniferous calc-silicate zone.									
ORE ZONE GROUND CONDITIONS										
LOGGED BY	R. Schellekens									
COMMENTS										

SUMMARY – ASSAY DATA

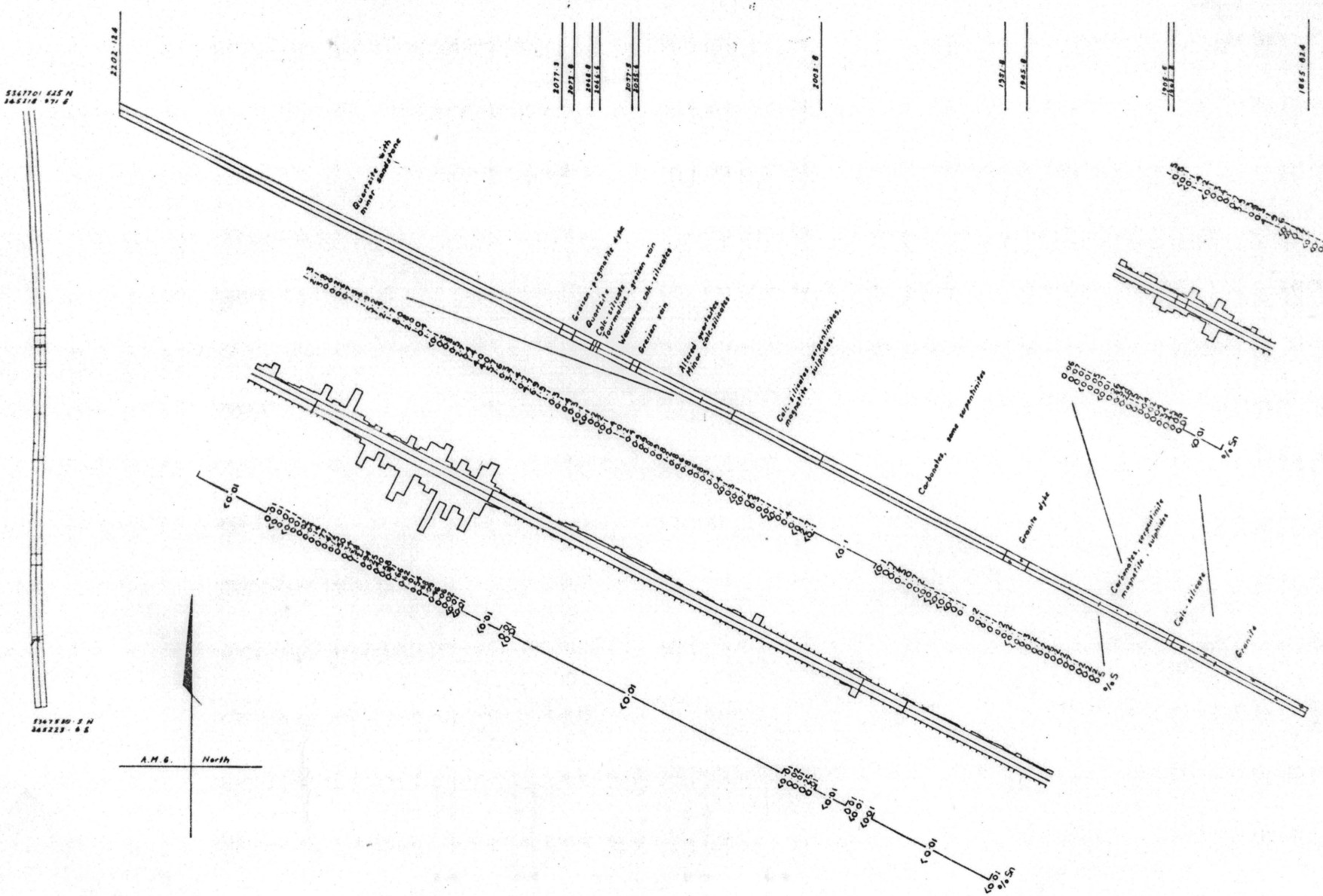
LODE NAME	FROM	TO	LENGTH (m)	AVERAGE WEIGHTED ASSAYS											B.C.A.
				Sn.	Acid Sol. Sn.	Cu.	As.	S.	Pb.	Zn.	Bi.	WO_3	Ag g/t		
	202.0	222m.	20.0m	0.62	0.24	0.06	0.33	2.13	<0.01	*0.02	0.009	**0.06	2.	Core recoveries approx 39%	
														* 221–222m: 2.35 Zn (excluded in bulk)	
														** 202–204m: 0.18 WO_3	
	330.0m	340.0m	10.0m	0.21	0.13	0.11	0.10	1.40	<0.01	0.95	0.007	0.02	2	Core Recovery approx 58%	
	323.0m	336.0m	13.0m.	High Zinc Zone						1.25	<0.01				

NWFS 27344

RENISON LIMITED

HOLE No. S.D. 13 SCALE: 0 40

DIAMOND DRILL HOLE PLOT



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SC 1148

DIAMOND DRILL RECORD

HOLE NUMBER : S. D. 13

LOGGED BY : R.R.Scholtens

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
0	3.0	0	0	No core													
3.0	24.7	19.1	88.0	QUARTZITE													
				Fawn, fine grained hard silicenus quartzite with some muscovite (?) and thin (< 1cm thick) chlorite-muscovite bands (probably originally shales).													
				Core generally unweathered except for some organic staining along fractures.													
				Poorly fractured. Fine grained pyrite on fractures below 10m. Some thin (< 1cm) quartz veins with minor tourmaline - often high angle 60° - 90° $MS_{sat} \leq 100$ $BCA: 30^{\circ}$. Non-conductive													
				8.0 - 11.0m : more fractured													
				12.9 - 13.7m : core broken, possible fault zone. At base fine clayey sand with some quartzite fragments.													
				18.0 - 20.8m : fine grained pyrite and tourmaline on fractures													
				22.0m : 5cm milky quartz vein - no sulphides.													
24.7	32.4	7.25	94.2	VUGHY QUARTZITE													
				Fawn quartzite, basically similar to above but with vughs in bands of less silicified quartzite. Pyrite in bands, disseminated and on fractures. Some contortion of bedding. Rare quartz and tourmaline veins. $MS_{sat} \leq 100$ $BCA: 30^{\circ}$ - 50°. Non-conductive.													
32.4	40.0	7.4	97.3	QUARTZITE													
				As before, grey-fawn with some vughy bands (less cemented). Some contorted bedding. Pyrite disseminated and along fractures. Rare quartz veins - often irregular. $MS_{sat} \leq 100$. BCA: 3.4m - 50° 35m 10° - 15°. Non-conductive.													
				35.7 - 36.0 quartz vein parallel to bedding.													
40.0	46.5	6.4	75.3	QUARTZITE													
				More massive and silicified but white chlorite and muscovite in ground mass (original sandstone not as clean). Quartz veining - pink-cream milky-parallel to bedding with some tourmaline development.													
46.5	50.6	2.0	95.2	QUARTZITE													
				Grey white quartzite containing bands of cleaner quartzite													

DIAMOND DRILL RECORD

HOLE NUMBER S.D. 13

LOGGED BY : R.R.[illegible]

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				with interbedded dirty bands (more chlorite and muscovite). Some disseminated pyrite. Brown organic staining on fractures $MS_{wk} \leq 100$. BCA: 30°. Non-conductive.												
53.6	56.0	4.7	87.0	BROKEN QUARTZITE Core broken, fine grained fawn and grey quartzite, with some softer cavernous zones or bands. $MS_{wk} \leq 100$. BCA: 30° Non-conductive.													
56.0	65.0	9.15	90.6	FRACTURED QUARTZITE Core very broken and fractured-grey quartzite with brown organic staining on fractures. No sulphides. $MS_{wk} \leq 100$. BCA: 30°. Non-conductive. 57.1 - 57.2 : breccia zone - quartzite cemented by weathered organic stained clayey fine sand. 63.0 - 65.0m : silicified zone - cream to light pink quartz and silicified tourmaline bands. Organic staining on fractures. Some pyrite.													
65.0	91.4	11.65	46.3	WEATHERED FINE CLAYEY SAND Weathered soft, fawn, fine sand (weathered sandstone) with some disseminated and nodular pyrite. Much of pyrite is on outside of core only - probable contamination. Poor core recovery - core very broken. MS <100 BCA ?. Conductive in clay zones. 71.8m : ½cm wide pyrite band - fine grained 86.5 (?) - 87.0m (?) vughy broken quartz tourmaline vein with quartz crystals in vugha and rare tourmaline.													
91.4	91.7	0.15	50.0	FRACTURED QUARTZITE As before fawn, broken core, poor recovery, cut by quartz veins with silicification near veins. Pyrite - fine grained on fractures. MS <100. BCA ? Non-conductive.													
91.7	93.0	0.9	69.2	WEATHERED FINE CLAYEY SAND As before fawn sand with quartzite and pyrite fragments.													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.A. Scheiners

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INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO₃
93.2	95.7	1.45	58.0	FRACTURED QUARTZITE													
				Fawn coarser grained with pyrite on fractures.													
95.7	100.75	4.25	84.2	WEATHERED FINE CLAYEY SAND													
				As before fawn sand with fragments of quartzite, pyrite and tourmaline. (possibly from tourmaline veins). Poor core recovery. MS≤100. BCA ? Conductive.													
100.75	120.7	18.35	92.0	SANDSTONE													
				Clay to grey-brown, fine to medium grained - with some "nodular" bands. Clay and pyrite along fractures. Some black-brown tourmaline grains - usually surrounded by thin rim of quartz. MS ≤ 100, BCA:55°. Non conductive - except clays - conductive.													
				110.0 - 114.0m : colour change to pale grey brown. Some thin quartz and quartz tourmaline veins. Fractures mostly steep 40 - 70°.													
				109.0 : thin sulphide vein 1cm thick - pyrite and arsenopyrite angle 50°.													
				111.1 - 112.2m : quartz-sulphide (pyrite) veins in zone.													
				113.0 - 114.0m : core soft weathered clayey. Bending 55°.													
				114.5 - 117.5m : quartz tourmaline veins more common and thicker (up to 2cm)													
				116.0 - 120.7m : Core very broken with clay on fractures.													
				118.1 - 118.2m : quartz-mica-tourmaline-pyrite zone													
				120.3 - 120.7m : core soft - weathered													
120.7	127.2	3.2	49.2	WEATHERED FINE CLAYEY SAND													
				Fawn as above with some fawn harder bands (more siliceous i.e. quartzites). Tourmaline (thin) veins common. Clayey zone contain fragments of quartz veins, sandstones and minor pyrite. MS≤100. BCA:55°. Clay zone conductive - rest non-conductive.													
				126.8 -127.0m : brown-green zone with abundant shiny dark brown mica (biotite).													

DIAMOND DRILL RECORD

HOLE NUMBER : S. D. 13

LOGGED BY : R.R.Scheltens

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag	% WO_3
127.2	129.6	7.25	56.5	SANDSTONE													
				Grey to fawn sandstone, fractured broken core, poor recovery with some clayey sand along fractures. Some clayey sand bands (weathered sandstones - less well cemented). Pyrite and quartz along fracture surfaces. Minor quartz-tourmaline veins. MS ≤ 100 BCA ?. Non-conductive except for clay zones.													
				129.0 - 129.5m : mica zone soft weathered brown biotite - fine grained.													
				133.95 - 135.0m very poor recovery fine to coarse grained pyrite, arsenopyrite and chalcopyrite on fractures - with some quartz.													
139.6	143.8	3.2	76.2	GREISEN AND PEGMATITE DYKE													
				Grey fine grained quartz-muscovite greisen with rare tourmaline and pyrite. Some coarser grained sections - pegmatites. Minor sulphides on fractures.													
				Some tourmaline vein MS ≤100. Non-conductive.													
				141.0 - 141.4 : pegmatite													
				143.6 - 143.8m tourmaline quartz veins in greisen.													
143.8	149.5	5.7	100	QUARTZITE													
				Fawn - similar to sandstones only better cemented. Fine grained pyrite on fractures - up to 1cm thick. BCA? MS≤100. Non-conductive.													
149.5	151.0	1.5	100	WEATHERED CALC-SILICATES													
				Soft brown-green clayey bands with some pyrite veins. Some bands of brown biotite. MS ≤ 100. BCA: 60°- 70° Conductive (due to clays.)													
151.0	151.5	0.5	90.0	QUARTZ TOURMALINE AND GREISEN DYKE													
				Grey to black hard with quartz, black tourmaline and muscovite in places. Some disseminated pyrite. MS ≤ 100. Non-conductive.													
151.5	162.0	10.65	101.4	WEATHERED CALC-SILICATE (?)													
				Yellow green soft weathered fine grained rock - possibly a													

DIAMOND DRILL RECORD

HOLE NUMBER : SD 13

LOGGED BY : B.R.Seccombe

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INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM	% Sn. FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				calc-silicate or perhaps serpentinite. Some clayey sections, others much harder especially near quartz vein (silicification). Pyrite fine grained - sometimes polished on fracture surfaces. Quartz veins up to 2cms thick. Core generally broken . MS ≤ 100 BCA : 60°- 70°?. Moderately conductive (presence of clays). 151.0 - 152.0 : weathered granite vein - medium grained quartz grains in a white clay matrix (weathered feldspars).													
162.0	164.0	1.1	55.0	GREISEN VEIN Grey to dark grey hard medium grained - containing quartz muscovite and minor sulphides. MS ≤ 100. Non-conductive.													
164.0	177.8	13.5	97.8	ALTERED QUARTZITE Hard grey-cream faintly banded quartzite with some calc-silicate bands/brown garnets) and creamy spots. Sulphides disseminated and on fractures - ≤5% pyrite. In fractures pyrite often associated with fine brown biotite and brown garnet. Cut by some quartz and quartz tourmaline veins. MS ≤ 100. B.C.A : 30-50° Non-conductive. 172.0 - 173.0 : brown garnets on fractures 173.1 - 173.2 : quartz tourmaline vein. 175.5 - 177.0m : patches of brown garnet in core.													
177.8	183.2	3.0	100	QUARTZITE WITH (?) SILICIFIED BANDS OF CALC-SILICATES Grey to grey brown altered quartzite (as above) with bands of hard and soft yellow brown calc silicate (fine grained). Some patches of brown garnet. MS ≤ 100 BCA:30°. Non-conductive. 178.6 - 178.7 : quartz-tourmaline sulphide vein (Molybdenite)													
183.2	194.0	12.55	95.1	ALTERED QUARTZITE Grey, hard as above with sulphides mainly on fractures and some patches of brown garnets. Some zones very broken with poor recoveries. MS ≤ 100 → 500. BCA : 30°. Non-conductive. 187.4 - 188.9 : Light grey very hard siliceous band with some garnets in veins.		184.0	185.0	<0.01	< 0.01	0.01	<0.1	1.3	<0.01	0.01	0.003	1	0.01
							186.0	<0.01	< 0.01	0.02	<0.1	2.1	<0.01	0.02	0.003	1	0.02
							187.0	<0.01	< 0.01	0.02	<0.1	3.8	<0.01	0.01	0.002	2	0.01
							188.0	<0.01	< 0.01	0.01	<0.1	0.6	<0.01	0.01	0.002	1	0.01
							189.0	<0.01	< 0.01	0.02	<0.1	0.2	<0.01	0.02	0.001	1	0.01
							190.0	<0.01	< 0.01	0.01	<0.1	0.6	<0.01	0.01	0.004	1	0.01
							191.0	<0.01	< 0.01	0.01	<0.1	0.7	<0.01	0.01	0.005	< 1	0.01
							192.0	<0.01	< 0.01	0.01	<0.1	1.3	<0.01	0.01	0.002	2	0.01
							193.0	<0.01	0.01	0.01	<0.1	1.4	<0.01	0.05	0.001	1	0.01
							194.0	<0.01	0.01	0.02	<0.1	1.9	<0.01	0.01	0.002	2	0.02

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.R.Schellekens

1123

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
194.0	196.0	2.0	100	SERPENTINE		194.0	195.0	<0.01	0.01	0.05	<0.10	5.2	<0.01	0.02	0.018	2	0.01
							196.0	0.01	0.01	0.02	<0.10	1.4	<0.01	0.02	0.004	2	0.01
				Light green soft serpentine with some large green mica flakes													
				on fractures associated with dark grey chlorite. Some garntes													
				near base. MS < 100 → 700. BCA :30°. Non-conductive.													
196.0	197.3	1.3	100	BIOTITE ZONE		196.0	197.0	<0.01	0.01	0.03	<0.10	2.1	<0.01	0.01	0.002	1	0.01
							198.0	0.01	0.01	0.02	<0.10	1.7	<0.01	0.02	0.004	1	0.01
				Brown grey fine grained biotite flakes with some light green													
				(?) serpentine bands. Pyrite along fractures. MS : 1700.													
				Non-conductive.													
197.3	199.8	1.5	100	CALC-SILICATES (?)		198.0	199.0	<0.01	0.01	0.03	<0.10	8.0	<0.01	0.01	0.005	2	0.01
							200.0	0.01	0.01	0.02	<0.10	1.8	<0.01	0.04	0.006	1	0.01
				Grey, dark grey to grey-green soft with some garnets and dark													
				green chlorite especially along fractures. Fracture pattern													
				gives the rock a brecciated appearance. Pyrite developed along													
				fractures with dark green chlorite and some brown biotite.													
				Some slickenside on fracture surfaces. Near base of zone													
				fractures filled with white carbonate. MS < 100. BCA: 30°.													
				Non-conductive except for sulphides.													
199.8	222.55	20.45	89.9	SERPENTINITE WITH MINOR MAGNETITE AND PYRRHOTITE		200.0	201.0	0.02	0.01	0.02	<0.10	2.0	<0.01	0.03	0.005	2	0.02
							202.0	0.04	0.04	0.02	<0.10	1.0	<0.01	0.09	0.006	1	0.05
				Hard to soft, white, green to black bands of dark green grey		202	203.0	0.14	0.13	0.05	<0.10	0.4	<0.01	0.03	0.003	2	0.11
				to cream-green serpentine with patches and bands of magnetite,			204.0	0.77	0.65	0.10	<0.10	1.1	<0.01	0.08	0.007	2	0.24
				some pyrrhotite and arsenopyrite (mainly in fractures). MSuscept.			205.0	0.41	0.37	0.02	0.10	<0.1	<0.01	0.01	0.003	2	0.03
				< 100 → 50,000 BCA: 30°. Non-conductive except for bands			206.0	0.15	0.13	0.02	0.10	0.3	<0.01	0.01	0.005	1	0.02
				or pods of magnetite and pyrrhotite.			207.0	0.50	0.32	0.02	0.60	0.8	<0.01	0.02	0.011	1	0.02
	1			199.8 – 200.8m : dark green-grey serpentine with magnetite			208.0	0.34	0.30	0.05	1.40	0.5	<0.01	0.02	0.006	2	0.09
				and minor pyrrhotite near base.			209.0	0.38	0.03	0.03	<0.10	2.7	<0.01	0.01	0.013	3	0.05
				200.8 – 201.2m : cream-grey siliceous bands – dark green			210.0	1.21	0.80	0.03	0.10	0.4	<0.01	0.02	0.010	2	0.06
				chlorite in fractures; rare sulphides and			211.0	0.94	0.38	0.07	0.70	1.4	<0.01	0.02	0.009	2	0.05
				magnetite.			212.0	0.25	0.03	0.09	0.90	4.0	<0.01	0.01	0.025	2	0.03
				201.2 – 202.8 : cream-green to black serpentine bands, with			213.0	0.40	0.03	0.10	0.30	4.0	<0.01	0.02	0.011	2	0.04
				bands and pods of magnetite. No sulphides			214.0	0.58	0.08	0.09	0.80	5.7	<0.01	0.03	0.020	3	0.05
				202.8 – 203.8 : magnetite zone with serpentine and silica			215.0	0.41	0.10	0.07	<0.10	1.6	<0.01	0.01	0.006	1	0.06
				patches.			216.0	1.66	0.52	0.04	<0.10	0.3	<0.01	0.02	0.002	1	0.10
				203.8 – 204.8m : white-black magnetite-serpentine and white			217.0	0.62	0.12	0.08	0.10	3.7	<0.01	0.02	0.017	2	0.05
				mineral (not carbonate). [Note WO_3 assays]			218.0	1.01	0.28	0.07	0.60	1.4	<0.01	0.02	0.009	4	0.06
				204.8 – 208.5m : magnetite, apple green serpentine zone with			219.0	0.54	0.12	0.04	0.10	0.7	<0.01	0.01	0.005	4	0.03
				some cream silica patches. Some pyrrhotite			220.0	0.68	0.07	0.12	<0.10	4.7	<0.01	0.01	0.007	3	0.04
				bands at 206.9 and 208.0m. Arsenopyrite-mica			221.0	1.09	0.05	0.16	0.10	6.9	<0.01	0.01	0.008	4	0.03

CR 82-1121

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.R.S.

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				vein at 207.45m.		221.0	222.0	0.46	0.37	0.05	<0.10	1.9	<0.01	2.35	0.005	5	0.05
				208.5 – 214.0m : black serpentine with magnetite in bands and			223.0	0.06	0.06	0.03	<0.10	1.1	<0.01	1.31	0.005	3	0.02
				patches. Pyrrhotite disseminated, and along													
				fractures associated with arsenopyrite.													
				214.0 – : speck of scheelite													
				214.0 – 215.1m : black serpentine with magnetite and minor apple													
				green serpentine bands.													
				215.1 – 216.3 magnetite with black serpentine – some													
				pyrrhotite magnetite bands; vuggy and slightly													
				friable.													
				216.3 – 219.5 : black serpentine with magnetite – minor apple													
				green serpentine and some pyrrhotite and pyrite													
				219.5 – 222.2 : grey black serpentine, magnetite and white													
				calc-silicate mineral with pyrrhotite dissemin-													
				ated and in bands; minor pyrite (sulphide 5%)													
222.2	225.7	3.5	100	CARBONATE – SREPENTINE ZONE		223.0	224.0	0.02	0.03	0.03	<0.10	0.3	0.02	0.37	0.005	4	0.02
							225.0	<0.01	0.02	0.01	<0.10	0.1	<0.01	0.04	0.005	6	0.01
				Soft white, green carbonate with bands of apple green serpen-			226.0	<0.01	0.01	0.01	<0.10	0.4	<0.01	0.01	0.007	4	0.01
				tine with magnetite grains and rare pyrrhotite. M.S. : 200 –1100													
				BCA: variable 30°– 60° where visible. Non conductive except													
				for magnetite.													
225.7	232.1	6.4	100	SPOTTED CARBONATE		226.0	227.0	<0.01	0.01	0.01	<0.10	0.3	<0.01	0.01	0.007	5	0.01
							228.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.009	4	0.01
				Grey white to cream carbonate, (spotted – faint irregular banding)			229.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.009	4	0.01
				with some apple green patches of serpentine, grains of			230.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.008	4	0.01
				magnetite and rare veins (up to 1cm wide) of cross fibre green			231.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	0.01	0.009	3	0.01
				asbestos. (associated with serpentine bands). MS: ≤ 100 – 2000			232.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	<0.01	0.008	5	0.01
				BCA: variable 30°– 60°. Non-conductive except for magnetite.			233.0	0.01	0.01	0.03	<0.10	0.4	<0.01	0.01	0.007	5	0.01
				230.4 – 230.8 : green serpentine with asbestos veins.													
232.1	251.2	19.1	100	BANDED CARBONATE		233.0	234.0	<0.01	0.02	0.01	<0.10	1.0	<0.01	0.01	0.009	4	0.01
							235.0	<0.01	0.01	0.01	<0.10	1.2	<0.01	0.01	0.008	5	0.01
				Dark gray white wall banded carbonate with minor apple green			236.0	0.01	0.01	0.01	<0.10	0.4	<0.01	0.01	0.007	5	0.01
				serpentine bands, rare magnetite patches, and some fine grained			237.0	<0.01	0.01	0.01	<0.10	0.9	<0.01	0.01	0.005	3	0.01
				bands of calc-silicates with diopside and disseminated pyrr-			238.0	<0.01	0.01	0.01	<0.10	0.9	<0.01	0.01	0.005	4	0.01
				hotite. Some brown (?) serpentine bands associated with green			239.0	<0.01	0.01	0.01	<0.10	0.8	<0.01	0.01	0.006	4	0.01
				serpentine and calc-silicates. MS: ≤ 100 – 300. BCA: 30°– 50°.			240.0	<0.01	<0.01	0.01	<0.10	0.9	<0.01	0.01	0.003	3	0.01
				Non-conductive.			241.0	<0.01	<0.01	0.01	<0.10	0.8	<0.01	0.01	0.006	3	0.01
							242.0	<0.01	<0.01	0.01	<0.10	1.2	<0.01	0.01	0.004	3	0.01
							243.0	<0.01	0.01	0.01	<0.10	0.8	<0.01	0.01	0.005	3	0.01
							244.0	<0.01	<0.01	0.01	<0.10	0.6	<0.01	0.01	0.006	5	0.01

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.R.S.

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM.	% Sn FROM	TO	TOTAL	ACID SOL	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO3
				237.5 - 238.0: calc-silicate band		244.0	245.0	<0.01	<0.01	0.01	<0.10	0.8	<0.01	0.01	0.006	4	0.01
				241.6 - 242.1: calc-silicates and fine grained light brown (?)			246.0	<0.01	<0.01	0.01	<0.10	0.6	<0.01	0.01	0.005	3	0.01
				serpentine.			247.0	<0.01	<0.01	0.01	<0.10	0.8	<0.01	0.01	0.004	4	0.01
				251.7 - 251.8: apple green serpentine band.			248.0	<0.01	<0.01	0.01	<0.10	0.3	<0.01	0.01	0.006	4	0.01
							249.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	0.02	0.004	4	0.01
251.2	280.9	29.7	100	CARBONATE-SERPENTINE ZONE			250.0	<0.01	<0.01	0.01	<0.10	0.4	<0.01	0.03	0.005	3	0.01
							251.0	<0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.01	0.004	4	0.01
				Interbanded white-cream - light green - dark grey carbonate and			252.0	<0.01	<0.01	0.01	<0.10	0.3	<0.01	0.03	0.002	2	0.01
				light green brown serpentine, with some disseminated magnetite			253.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.02	0.001	2	0.01
				and brown sphalerite. MS:<100 - 20000, BCA:30°. Non-conduct-			254.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.005	3	0.01
				ive.			255.0	<0.01	0.01	0.01	<0.10	0.5	<0.01	0.05	0.003	3	0.01
				251.2 - 254.1m: cream carbonate and green serpentine			256.0	<0.01	0.01	0.01	<0.10	0.3	<0.01	0.22	0.003	3	0.02
				254.1 - 254.3m: green - dark green serpentine			257.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	0.01	0.005	3	0.01
				254.3 - 254.4m: cream alliceous bands			258.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.02	0.003	2	0.02
				254.4 - 255.1m: dark-light green serpentine, white carbonate,			259.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.005	4	0.01
				magnetite and disseminated sphalerite.			260.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	0.03	0.003	2	0.01
				255.1 - 255.6m: light green serpentine and carbonate.			261.0	<0.01	0.01	0.01	<0.10	0.4	<0.01	0.07	0.004	3	0.01
				255.6 - 256.3m: dark green serpentine with white carbonate			262.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	0.06	0.005	1	0.01
				along fractures.			263.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.04	0.004	1	0.01
				256.3 - 259.7m: cream-grey carbonate with light and dark			264.0	<0.01	0.01	0.25	<0.10	2.7	<0.01	0.10	0.003	3	0.01
				green serpentine.			265.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.06	0.004	2	0.02
				259.7 - 260.9m: grey - dark grey carbonate with minor light			266.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.07	0.002	2	0.02
				green serpentine.			267.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.02	0.003	1	0.02
				260.9 - 261.6m: carbonate and serpentine - banded			268.0	<0.01	0.02	0.01	<0.10	<0.1	<0.01	0.01	0.004	1	0.01
				261.6 - 262.5m: grey black carbonate - no serpentine or banding			269.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.02	0.004	2	0.01
				262.5 - 262.9m: calc-silicate band - minor magnetite			270.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.04	0.003	1	0.02
				262.9 - 263.1m: pink feldspar vein (?) some shearing			271.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.003	1	0.02
				263.1 - 264.0m: magnetite band			272.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.03	0.003	2	0.02
				264.0 - 276.3m: grey to cream carbonate and light apple green			273.0	<0.01	0.01	0.02	<0.10	<0.1	<0.01	0.08	0.003	2	0.01
				serpentine. Some darker green serpentine			274.0	<0.01	0.02	0.01	<0.10	<0.1	<0.01	0.01	0.003	1	0.01
				bands with magnetite.			275.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.003	1	0.01
				272.8m patch of hard pink mineral; non-calcareous.			276.0	<0.01	0.02	0.01	<0.10	<0.1	<0.01	0.01	0.003	1	0.02
				276.3 - 277.6m: grey to dark grey carbonate banded and spotted			277.0	<0.01	<0.01	0.04	<0.10	0.7	<0.01	0.08	0.005	3	0.01
				with some serpentine and minor disseminated			278.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	0.06	0.003	2	0.01
				pyrrhotite.			279.0	0.02	0.01	0.02	<0.10	0.3	<0.01	0.11	0.003	2	0.01
				277.6 - 278.5m: possible granite dyke, fine - medium grained,			280.0	0.01	0.01	0.03	<0.10	1.0	<0.01	0.26	0.002	2	0.01
				grey, with feldspar phenocrysts and carbonate			281.0	0.25	<0.01	0.03	<0.10	0.7	<0.01	0.09	0.003	1	0.01
				al along fractures.													
				278.5 - 280.9m: grey carbonate and minor pyrrhotite and serpen-													
				tine (as above 276.3 - 277.6m).													

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.R.S.

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM
280.9	288.0	7.1	100	GRANITIC DYKE	
				Fine grained grey granitic dyke - quartz felspar and biotite.	
				Rare disseminated sulphides. Carbonate on fractures. Silicified	
				chilled margins. MS: ≤100. Non-conductive	
288.0	288.5	0.5	100	SERPENTINE	
				Dark-green black soft with white bands. MS: ≤100. BCA ?	
				Non-conductive.	
288.5	321.5	31.4	95.2	CARBONATE	
				White to grey soft carbonate. Reacts with acid only when	
				powdered. Some dark grey green spots (biotite?) and serpentine	
				as spots and along fractures. BCA: faint banding 30°- 60°	
				MS ≤ 100 - 7000. Non-conductive except for magnetite and	
				graphite.	
				289.0 - 290.0m : cavity	
				299.9 - 300.6m : core with some small cavities. Honeycomb	
				structure.	
				309.1 - 310.2m : dark grey fine grained carbonate with white	
				carbonate veins.	
				315.1 - 316.8m : grey shale with graphite near top of band.	
				Some carbonate and magnetite.	
				318.0 - 318.6m : magnetite in carbonate	
				318.6 - 319.7m : grey shale band with magnetite, graphite at	
				base and some apple green serpentine.	

FROM	TO	% Sn. TOTAL	% Sn. ACID SOL	% Cu	% As	% S	% Pb	% Zn	% Bi	g/t Ag	% WO3
281.0	282.0	0.01	<0.01	0.02	<0.10	0.20	<0.01	0.04	0.003	1	0.01
	283.0	<0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.01	0.002	1	0.01
	284.0	<0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.01	0.001	1	0.01
	285.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.01	0.003	1	<0.01
	286.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.02	0.002	<1	0.01
	287.0	<0.01	0.02	0.01	<0.10	<0.1	<0.01	0.01	0.002	1	0.01
	288.0	0.01	0.01	0.02	<0.10	0.1	<0.01	0.01	0.004	1	0.01
	289.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	0.04	0.005	1	0.01
	290.0	Cavity - No Sample									
	291.0	<0.01	0.01	0.02	<0.10	0.2	<0.01	0.01	0.006	3	0.01
	292.0	<0.01	0.02	0.01	<0.10	0.1	<0.01	0.01	0.007	4	0.01
	293.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	<0.01	0.008	3	0.01
	294.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	<0.01	0.008	3	0.01
	295.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.007	3	<0.01
	296.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.006	3	0.01
	297.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	<0.01	0.004	3	0.01
	298.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	<0.01	0.003	3	0.01
	299.0	<0.01	0.01	0.01	<0.10	0.3	<0.01	<0.01	0.005	3	0.01
	300.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.004	3	0.01
	301.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	<0.01	0.004	3	0.01
302.0	302.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.004	2	0.01
	303.0	<0.01	0.01	0.01	<0.10	0.5	<0.01	0.01	0.004	3	0.01
	304.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.003	3	0.01
	305.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.003	3	0.01
	306.0	<0.01	0.02	0.01	0.10	0.7	<0.01	<0.01	0.006	3	0.01
	307.0	<0.01	0.01	0.01	<0.10	0.1	<0.01	<0.01	0.005	3	0.01
	308.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	0.01	0.005	3	0.01
	309.0	<0.01	<0.01	0.01	0.10	0.2	<0.01	<0.01	0.007	3	0.01
	310.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	<0.01	0.009	3	0.01
	311.0	<0.01	0.01	0.01	<0.10	0.5	<0.01	0.01	0.008	3	0.01
	312.0										
	313.0										
	314.0										
	315.0										
	316.0										
	317.0										
	318.0										
	319.0										
	320.0										
	321.0	<0.01	0.01	0.02	<0.10	0.3	0.02	0.02	0.005	3	<0.01
	322.0	0.03	0.03	0.02	<0.10	0.2	0.02	0.13	0.005	3	0.01

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.A.S.

121

NWPS

INTERVAL (m) FROM	TO	RECOVERY m	%	DESCRIPTION	FORM
321.5	333.2	11.7	100	CARBONATE, MAGNETITE AND MINOR SERPENTINE AND PYRRHOTITE	
				Grey, green to black hard to soft. Spotted and banded green	
				carbonate with pods of magnetite with apple green serpentine	
				(disseminated and on fractures). Some disseminated pyrrhotite	
				MS: ≤100 - 19000. BCA: 30°- 50°. Magnetite and sulphides	
				conductive.	
				323.1 - 323.6m: magnetite	
				324.1 - 324.3m: magnetite	
				325.5 - 326.2m: pink mineral in core which expands and fractures	
				clay (?)	
				327.5 - 329.0m: magnetite	
				330.4 - 330.8m: magnetite and minor sulphides (sphalerite	
				and arsenopyrite)	
				331.4 - 333.2m: magnetite with white carbonate and green	
				serpentine veins.	
				333.2 - 334.9m poor recovery - weathered	
333.2	334.9	1.7	41.2	WEATHERED FELDSPAR DYKE (?)	
				Pink-black weathered dyke containing pink feldspar and magnetite	
				with serpentine on fractures. Poor core recovery. MS: 28000.	
				Conductive.	
336.9	341.0	4.3	70.5	ALTERED CALC-SILICATE (?) WITH MAGNETITE	
				Grey green to black calc-silicate with some charty fragments	
				Some magnetite and sulphides (pyrite and pyrrhotite) MS :	
				≤100 - 28000. BCA: 30°(?). Non-conductive	
341.0	377.0	23.85	66.3	ALTERED GRANITE	
				Cream to light green fine to medium grained altered granite	
				containing quartz, feldspars (often altered to sericite), rare	
				biotite, and tourmaline - with quartz in nodules and in veins.	
				Minor purple fluorite on fractures. Rare sulphides on fractures	
				Poor core recovery. MS: ≤100. Non-conductive.	
				341.0 - 343.0:(?) contact zone - siliceous with rare large	
				biotite flakes.	
				350.0 - 352.0m: fine grained section - felspars altered to	
				sericite.	

FROM	TO	% Sn TOTAL	% Sn ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO₃
322.0	323.0	<0.01	0.01	0.03	<0.1	0.1	0.02	0.03	0.005	3	0.01
	324.0	0.06	0.03	0.02	<0.10	1.5	<0.01	2.29	0.005	1	0.02
	325.0	0.07	0.01	0.01	<0.10	0.5	<0.01	0.73	0.017	2	0.01
	326.0	0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.04	0.003	2	0.01
	327.0	<0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.04	0.006	2	0.01
	328.0	0.05	0.03	0.02	<0.10	1.4	<0.01	2.02	0.021	2	0.02
	329.0	0.07	0.04	0.02	<0.10	1.2	<0.01	1.92	0.004	2	0.03
	330.0	<0.01	0.01	0.01	<0.10	<0.10	<0.01	0.03	0.006	1	0.01
	331.0	0.26	0.05	0.02	0.40	0.3	<0.01	0.45	0.010	1	0.02
	332.0	0.34	0.25	0.01	0.10	0.4	<0.01	0.14	0.013	1	0.02
	333.0	0.28	0.16	0.02	<0.10	0.1	<0.01	0.32	0.003	2	0.02
	334.0	0.15	0.08	0.02	<0.10	0.7	<0.01	1.30	0.003	2	0.03
334.0	335.0	0.17	0.08	0.03	<0.10	3.9	<0.01	6.51	0.003	3	0.04
335.0	336.0	0.04	0.03	0.38	0.10	1.3	<0.01	0.46	0.014	4	0.01
	337.0	0.02	0.02	0.09	<0.10	0.9	<0.01	0.09	0.005	2	0.01
	338.0	0.04	0.03	0.09	<0.10	0.3	<0.01	0.09	0.004	1	0.01
	339.0	0.34	0.30	0.26	0.20	4.1	<0.01	0.09	0.018	2	0.01
	340.0	0.45	0.30	0.23	0.10	1.9	<0.01	0.08	0.007	2	0.01
	341.0	0.05	0.04	0.07	<0.10	1.6	<0.01	0.05	0.004	2	0.01
	342.0	0.01	0.01	0.02	<0.10	<0.1	<0.01	0.02	0.003	1	0.01
	343.0	<0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.01	0.002	1	0.01
	344.0	<0.01	0.01	0.01	<0.10	0.2	<0.01	0.01	0.001	1	0.01
	345.0	<0.01	0.01	0.01	<0.10	1.2	<0.01	0.01	0.002	1	0.01
	346.0	<0.01	0.01	0.01	<0.10	<0.1	<0.01	0.02	0.002	1	0.01
	347.0	<0.01	<0.01	0.01	<0.10	<0.1	<0.01	0.01	0.001	1	<0.01
	348.0	<0.01	<0.01	0.01	<0.10	0.1	<0.01	0.01	0.004	1	0.01
	349.0										
	350.0										
	351.0										
	352.0										
	353.0										
	354.0										
	355.0										
	356.0										
	357.0										
	358.0										
	359.0										
	360.0										

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R.R.S.

NWPS

INTERVAL (m) FROM	INTERVAL (m) TO	RECOVERY m	RECOVERY %	DESCRIPTION	FORM.	% Sn. FROM	% Sn. TO	% Sn. TOTAL	% Sn. ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
				356.8 - 362.0m fine grained section - felspars altered to sericite.		360.0	361.0										
							362.0										
				375.0 - 375.5m fine grained section - greisen zone with quartz and tourmaline.			363.0										
							364.0										
							365.0										
							366.0										
							367.0										
				End of hole 377.0m			368.0										
							369.0										
							370.0										
							371.0										
							372.0										
							373.0										
							374.0										
							375.0										
							376.0										
							377.0										

Best intersection 202-222m @ 0.63% Sn + 0.06% WO_3 + 0.07% Cu

also 330-335m @ 0.23% Sn + 0.03% WO_3
338-390m @ a 40% Sn + 0.01% WO_3

also some sporadic low grade Zn

In the main intersection, about 40% of the Sn is present as an acid soluble form.
Probably about 50% is acid soluble in the lower intersections

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S.D. 13

HOLE No.: S.D. 13 SCALE:

RENISON LIMITED
DIAMOND DRILL HOLE PLOT

621

PETROGRAPHIC DESCRIPTION

C.M.S. REPORT 79/12/19 (PART 2)

203.1/203.3/203.6/203.8m

These are very extensively serpentinised magnetite-chondrodite/clinohumite rocks. Small, relict patches of the chondrodite-clinohumite group occur sporadically, but are largely altered to antigorite or chrysotile; this in turn is partly replaced by talc in places. Minor secondary carbonate is also present. Opaque minerals are abundant and include magnetite and sulphides. No obvious Sn-bearing minerals were seen. Sulphides include pyrrhotite, partly to wholly replaced by pyrite-marcasite and euhedral arsenopyrite; the pyrrhotite is intergrown with magnetite, whereas the arsenopyrite seems to be of younger formation. No other minerals were detected which are known to contain Sn.

209.1/209.3/209.5/209.9m

The lithology of this group is similar to that at 203-204m; the rocks are extensively serpentinised chondrodite/clinohumite-magnetite types with sulphides (very sporadically distributed). They now consist mainly of granular magnetite and antigorite patches, with masses of fibrous tremolite in places, bands and replacive patches of talc, and relict granular chondrodite. At 209.1m, there are small, white, semi-opaque patches of a very poorly defined mineral which is believed to be cassiterite or hydro-cassiterite, intergrown with antigorite; such patches are abundant and would probably account for much of the "insoluble" Sn in this entire intersection.

There are lenses and veins of massive pyrrhotite (incipiently pyritised), containing brecciated arsenopyrite crystals and small (< 50μ) inclusions of bismuth and galena; no Sn minerals were seen, but could be present elsewhere (e.g. stannite patches sporadically distributed).

215.3/215.7m

Both are fairly fine grained magnetite-antigorite rocks and are presumed to be serpentinised chondrodite/clinohumite skarns; both rocks contain amorphous to cryptocrystalline and finely-fibrous, white, semi-opaque patches of a compound believed to range from hydrocassiterite (varlamoffite) to cassiterite, i.e. in various stages of dehydration and originally formed as a "gel". Some patches are enclosed in carbonate of younger formation.

The patches showing some degrees of crystallization, and therefore near cassiterite in composition, range from 20μ to 100μ in size, but consist of < 5μ grains and fine needles.

It is quite conceivable that the more hydrated forms of this compound are acid-soluble, whereas the dehydrated, near-cassiterite material, is insoluble; the inference is that both "soluble" and "insoluble" Sn assays stem from the same "mineral", depending on its degree of crystallinity. However, another, Sn-bearing, acid-soluble compound may be present (EPMA is scheduled).

Polished sections yielded no further information; the white material described above could be rutile/leucoxene or hydro-cassiterite/cassiterite. The only opaque mineral present is fibrous magnetite, with occasional minute pyrite inclusions.

217.6/217.9m

These rocks show a very similar mineral assemblage to 215-216m, i.e. they are magnetite-antigorite rocks with hydrocassiterite-cassiterite. As described above, this varies from a white, apparently amorphous substance, through cryptocrystalline aggregates, to reasonable well-defined single crystals up to 65μ in size. It is embedded in patches of fibrous chrysotile and is also intergrown with magnetite on a small scale; again, this single group may very well be responsible for both soluble and "insoluble" Sn assays. With increasing dehydration/crystallinity, its resistance to acid attack also increases. Hydrocassiterite (varlamoffite, souxite are synonyms) has a theoretical formula of H_2SnO_3 + water and thus there is much scope for progressive dehydration.

Magnetite occurs as granular masses and as fibrous aggregates. Sulphides are mainly arsenopyrite, with occasional pyrrhotite-magnetite intergrowths in which the pyrrhotite is largely pyritised.

221.2/221.4/221.6/221.8m

These four intersections are very similar in composition and fabric, all are talc-magnetite-antigorite rocks, with relict serpentine textures. By analogy with previous rocks, it is presumed that they represent completely altered chondrodite-clinohumite rocks, but there is always the possibility that they are "genuine" (i.e. igneous) serpentinites rather than skarns.

The rocks consist mainly of ultrafine talc, as aggregates replacing fine antigorite, and patches of very fine, radiating-fibrous magnetite; dark sphalerite occurs sporadically, embedded in magnetite, and is an iron-rich variety, containing minute pyrrhotite inclusions. Occasional whitish, poorly defined patches are seen in polished section and may be hydro-cassiterite-cassiterite.

HOLE No.: S.D. 13 SCALE:

RENISON LIMITED
DIAMOND DRILL HOLE PLOT

PETROGRAPHIC DESCRIPTIONS

C.M.S. Report 79/12/19 (Part 2)

339.1/339.3/339.5/339.9m — This is a series of altered skarns of variable composition, in which the original skarn-silicates are extensively replaced by later hydrothermal minerals, mostly micas. The freshest rock is at 339.9m, and is a diopside rock with ferrohastingsite and sphene, and abundant sericite pseudomorphs after another silicate. The other rocks are more variable, with relict garnet, chondrodite-clinohumite, tremolite and actinolite, extensively replaced by pale phlogopite, hydromuscovite and carbonate. There are scattered patches of magnetite and sulphides. Textures/relict textures and variable, from quite coarse to fine grained. No Sn minerals were recognised; both garnet and sphene are potentially stanniferous.

The sulphides, which occur very sporadically, consist of pyrite, chalcopyrite, sphalerite, and arsenopyrite, intergrown with well-crystallized magnetite; no stannite was detected.

163.0m

ROCK TYPE - COMPOSITION: Muscovite-Metaquartzite. Dominantly interlocking quartz grains, small interstitial random muscovite flakes; scattered phlogopite.

Fabric : Homogeneous, featureless fabric; medium grained. Relict ?clastic textures.

Minor Minerals : Occasional dravite patches. Traces pyrite, sphalerite, carbonate,

Comments : Presence of detrital zircon indicates sedimentary origin (orthoquartzite); weakly but pervasively greisenised.

179.5m

ROCK TYPE - COMPOSITION: Metasomatised Rock. Bunches of fibrous tremolite, intergrown fine quartz, K-feldspar, orange phlogopite, pyrite, siderite.

Fabric : Microgranular fabric, haphazard distribution of minerals.

Minor Minerals : Pale chlorite patches, many small rutile needles throughout.

Comments : Probably originally a sediment, but so thoroughly metasomatised that origin is obscured.

193.0m

ROCK TYPE - COMPOSITION: Metasomatised Sediment. Thin laminations/bands of cloudy K-feldspar with fine pale dravite, alternating with quartzose bands, scattered phlogopite.

Fabric : Well banded, fine/medium grained, relict sedimentary structures.

Minor Minerals : Crosscutting quartz-chlorite veins. Small pyrite patches.

Comments : Original rock very probably a laminated siltstone, selectively feldspathised weakly phlogopitised, tourmalinised.

213.6m

ROCK TYPE - COMPOSITION: Mineralised Skarn. Mainly chondrodite, partly serpentinised, with abundant granular magnetite. Isolated cloudy cassiterite grains, 10 - 80μ.

Fabric : Medium/coarsely-crystalline fabric typical of skarns.

Minor Minerals : Scattered talc flakes. Carbonate impregnated patches.

Comments : Cassiterite is very sporadic, embedded in chondrodite and serpentinised chondrodite; some with magnetite inclusions.

219.5m

ROCK TYPE - COMPOSITION: Mineralised Skarn. Granular chondrodite, subradiating fibrous tremolite, replacive antigorite; magnetite, pyrrhotite. Cassiterite, 20 - 120μ crystals.

Fabric : Crudely banded, medium grained rock.

Minor Minerals : Aggregates of microgranular diopside.

Comments : Cassiterite occurs in silicates and as intergrowths with magnetite, as well formed, clear crystals, mostly > 50μ with some clusters up to 300μ.

HOLE No.: S.D.13 SCALE:

RENISON LIMITED
DIAMOND DRILL HOLE PLOT

323.3m	ROCK TYPE - COMPOSITION	Talc-Magnetite-Sphalerite Rock. Matted-fibrous, fine talc patches, granular and fibrous-acicular magnetite, intergrown shapeless sphalerite patches.
	Fabric :	Subparallel orientation of fabric; relict (?) fibrous textures.
	Minor Minerals :	Small patches of carbonate and chlorite (penninite).
	Comments :	May have been a tremolite-magnetite rock (metasomatic) in which talc replaced tremolite.
334.9m	ROCK TYPE - COMPOSITION	Magnetite-Sphalerite Rock. Dominantly granular/colloform magnetite masses, intergrown brown sphalerite crystals, interstitial fibrous antigorite or chrysotile.
	Fabric :	Massive, fine-grained, structureless.
	Minor Minerals :	Carbonate veinlets and patches replacing chrysotile.
	Comments :	Sphalerite patches up to 3mm composed of individual crystals, intergrown with magnetite.

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13.

LOGGED BY : R.R. Schellekens.

RWPS

INTERVAL (m)		RECOVERY		MAGNETIC SUSCEPTIBILITY X 10^{-6} cgs units											FORM.			% Sn.									
FROM	TO	m	%													FROM	TO	TOTAL	ACID SOL.	% Cu.	% As.	% S.	% Pb.	% Zn.	% Bi.	g/t Ag	% WO_3
DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS	DEPTH	MS										
3.0	< 100	45.0	< 100	87.0	< 100	129.0	< 100	171.0	< 100	213.0	3600	255.0	< 100	297.0	< 100	339.0	100										
"	"	"	"	"	"	130.0	"	"	"	"	24000	"	400	"	"	340.0	1000										
"	"	"	"	90.0	"	"	"	"	"	"	2500	"	< 100	"	"	"	< 100										
"	"	"	"	90.0	"	"	"	"	"	"	30000	"	"	300.0	"	"	"										
"	"	"	"	"	"	"	"	"	"	"	25000	"	"	"	"	"	"										
"	"	50.0	"	"	"	"	"	"	"	"	10000	260.0	"	"	"	"	"										
"	"	"	"	"	"	"	"	"	"	"	3300	261.7	3100	"	"	"	"										
10.0	"	"	"	"	"	"	"	"	"	220.0	35000	"	2200	"	"	"	"										
"	"	"	"	"	"	"	"	"	"	"	15000	"	< 100	"	"	"	"										
"	"	"	"	"	"	"	"	180.0	"	222.2	100	"	20000	"	"	"	"										
"	"	"	"	"	"	"	"	"	"	"	200	"	< 100	"	"	"	"										
"	"	"	"	"	"	140.0	"	"	"	"	200	"	"	"	"	350.0	"										
"	"	"	"	"	"	"	"	"	"	"	1100	"	"	"	"	"	"										
"	"	"	"	100.0	"	"	"	"	"	"	100	"	"	310.0	200	"	"										
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2400	"	"										
"	"	60.0	"	"	"	"	"	"	"	"	100	270.0	"	"	200	"	"										
"	"	"	"	"	"	"	"	"	500	"	900	"	"	"	900	"	"										
20.0	"	"	"	"	"	"	"	"	100	230.0	800	"	"	"	500	"	"										
"	"	"	"	"	"	"	"	"	"	"	100	"	"	"	100	"	"										
"	"	"	"	"	"	"	"	190.0	"	"	"	"	"	"	2000	"	"										
"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	500	"	"										
"	"	"	"	"	"	150.0	"	"	"	"	300	"	300	"	7000	360.0	"										
"	"	"	"	"	"	"	"	"	"	"	100	"	800	"	1600	"	"										
"	"	"	"	110.0	"	"	"	"	300	"	"	"	2100	320.0	< 100	"	"										
"	"	"	"	"	"	"	"	"	100	"	"	"	< 100	"	"	"	"										
"	"	70.0	"	"	"	"	"	"	700	"	"	280.0	2700	"	2200	"	"										
"	"	"	"	"	"	"	"	"	1700	"	"	"	< 100	"	2700	"	"										
30.0	"	"	"	"	"	"	"	"	100	240.0	"	"	"	"	19000	"	"										
"	"	"	"	"	"	"	"	"		"	"	"	"	"	500	"	"										
"	"	"	"	"	"	"	"	200.0	2400	"	"	"	"	"	300	"	"										
"	"	"	"	"	"	"	"	"	1700	"	"	"	"	"	800	"	"										
"	"	"	"	"	"	160.0	"	"	33000	"	"	"	"	"	2800	370.0	"										
"	"	"	"	"	"	"	"	"	700	"	"	"	"	"		"	"										
"	"	"	"	120.0	"	"	"	"	27000	"	"	"	"	330.0	16000	"	"										
"	"	"	"	"	"	"	"	"	16000	"	"	"	"	"	2400	"	"										
"	"	80.0	"	"	"	"	"	"	800	"	"	290.0	"	"	30000	"	"										
"	"	"	"	"	"	"	"	"	8400	"	"	"	"	"	58000	"	"										
40.0	"	"	"	"	"	"	"	"	38000	250.0	"	"	"	"	28000	"	"										
"	"	"	"	"	"	"	"	"	7500	"	"	"	"	"	26000	377.0	"										
"	"	"	"	"	"	"	"	210.0	2400	"	"	"	"	"	< 100	end of hole											
"	"	"	"	"	"	"	"	"	18000	"	"	"	"	"														
"	"	"	"	"	"	176.0	"	"	50000	"	"	"	"	"	14000													

DIAMOND DRILL RECORD

HOLE NUMBER :

LOGGED BY :

133

					DETAILED CORE RECOVERY												% Sn.								
	FROM	TO	REC'D	%	FROM	TO	REC'D	%	FROM	TO	REC'D	%	FROM	TO	m	%	FROM	TO	m	%					
	0.0	3.0	0.0	0	72.5	73.6	1.1	100.0	140.7	143.85	2.3	73.0	236.0	239.0	3.0	100.0	359.0	360.1	1.1	100.0					
		4.6	1.6	100.0		75.0	0.9	64.3		144.65	0.6	75.0		242.0	3.0	100.0		362.0	0.9	100.0					
		6.0	1.4	100.0		78.0	1.0	33.3		146.25	1.7	106.3		245.0	3.0	100.0		363.25	0.4	32.0					
		7.2	0.9	75.0		79.7	0.5	29,4		147.8	1.8	116.1		248.0	3.0	100.0		366.5	3.25	100.0					
		8.75	1.8	116.1		81.0	0.4	30.8		148.9	1.1	100.0		251.0	3.0	100.0		369.5	3.0	100.0					
		11.2	2.5	102.0		84.0	1.4	46.7		150.0	1.0	90.9		254.0	3.0	100.0		372.5	3.0	100.0					
		12.0	0.7	87.5		87.0	0.4	13.3		152.0	1.5	75.0		257.0	3.0	100.0		375.5	3.0	100.0					
		15.0	2.5	83.3		88.5	1.1	73.3		153.5	1.5	100.0		260.0	3.0	100.0		377.0	1.3	86.7					
		17.4	1.9	79.2		90.0	0.6	120.0		155.45	1.2	56.4		263.0	3.0	100.0		end	of	hole					
		18.5	1.1	100.0		91.0	0.5	50.0		156.9	1.3	89.7		266.0	3.0	100.0									
		19.9	1.1	78.6		92.7	1.0	58.8		158.0	2.0	181.8		269.0	3.0	100.0									
	1	21.0	1.0	90.1		94.2	1.2	80.0		158.75	0.75	100.0		272.0	3.0	100.0									
		23.7	2.6	100.0		95.2	0.2	20.0		161.0	2.3	102.2		275.0	3.0	100.0									
		26.65	2.95	100.0		96.0	0.5	62.5		164.0	1.7	56.7		278.0	3.0	100.0									
		30.0	3.2	95.6		97.5	1.4	93.3		164.85	0.85	100.0		281.0	3.0	100.0									
		31.2	1.1	91.7		98.8	1.1	84.6		167.0	2.15	100.0		284.0	3.0	100.0									
		32.4	1.0	83.3		100.0	1.0	83.3		170.0	3.0	100.0		287.0	3.0	100.0									
		33.0	0.5	83.3		100.75	0.5	66.7		173.0	3.0	100.0		290.0	2.0	66.7									
		33.6	0.5	83.3		101.7	1.0	105.3		176.0	3.0	100.0		293.0	3.0	100.0									
	1	36.0	2.4	100.0		103.3	2.0	125.0		177.0	0.7	70.0		296.0	3.0	100.0									
		38.7	2.6	96.3		104.15	0.9	105.8		178.75	1.75	100.0		298.1	1.6	76.2									
		41.0	2.4	104.3		105.0	0.7	82.3		180.35	1.6	100.0		301.6	3.4	97.1									
		42.0	1.0	100.0		108.0	2.4	80.0		181.25	0.9	100.0		304.7	3.1	100.0									
		43.4	1.4	100.0		111.0	2.4	80.0		183.8	2.4	94.1		308.0	3.3	100.0									
		45.0	1.4	87.5		114.0	2.5	83.3		185.0	1.1	91.7		311.0	3.0	100.0									
		48.0	3.2	106.7		115.85	1.8	100.0		187.2	2.0	90.9		314.0	3.0	100.0									
		49.6	1.4	87.5		117.35	1.6	106.7		188.0	0.7	87.5		317.0	3.0	100.0									
		51.0	1.4	100.0		118.4	0.9	94.7		191.0	3.0	100.0		320.0	3.0	100.0									
		52.6	1.6	100.0		119.4	0.9	90.0		193.5	2.4	96.0		323.0	3.0	100.0									
		54.0	0.6	42.8		120.45	1.0	95.2		196.5	3.0	100.0		326.0	3.0	100.0									
		55.6	1.6	100.0		123.0	1.5	58.8		199.0	2.5	100.0		329.0	3.0	100.0									
		58.0	2.0	83.3		126.0	0.9	30.0		202.0	2.9	96.7		332.0	3.0	100.0									
		59.1	1.0	90.9		127.4	0.9	64.3		205.2	3.2	100.0		335.0	2.0	66.7									
		60.8	1.7	100.0		129.0	1.4	87.5		208.45	3.15	100.0		337.0	1.8	90.0									
		62.6	1.8	100.0		130.15	1.15	100.0		211.7	3.25	100.0		337.6	0.5	83.3									
		64.0	1.2	85.7		131.7	0.8	48.5		214.75	3.05	100.0		341.0	1.9	55.9									
		65.15	0.8	69.6		133.2	0.8	53.3		217.35	2.6	100.0		344.0	0.8	26.7									
		66.0	0.5	70.6		133.95	0.5	66.7		220.55	3.1	96.9		346.7	0.5	18.5									
		66.9	0.6	66.7		135.0	0.5	47.6		223.7	3.15	100.0		348.1	1.1	78.6									
		68.0	1.0	90.9		135.15	0.2	133.3		226.75	3.05	100.0		350.0	2.0	105.3									
		69.0	1.0	100.0		138.0	0.6	21.1		229.85	3.10	100.0		352.55	1.3	51.0									
		71.0	0.2	20.0		139.2	0.9	75.0		233.0	3.15	100.0		356.0	1.0	30.0									
		72.5	0.4	26.7		140.7	1.2	80.0		236.0	3.0	100.0		359.0	2.5	75.0									

DIAMOND DRILL RECORD

HOLE NUMBER : S.D. 13

LOGGED BY : R. R. Schellekens.

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* Incomplete assays for 1.0m Intervals due to broken core

FROM	TO	%Sn	Ass.%	DRILL CORE ANALYSER FROM	TO	% Sn	Ass. %Sn	FROM	TO	% Sn	ASS %Sn																
198.4	198.6	0.04		207.2	207.4	0.37		216.4	216.6	0.50				.08	.06			.05				.05			284	.08	
	198.8	0.01	0.03*		207.6	1.19	0.53							.05		267	267.2	.09				.04	<.05*			.05	
	199.0	0.00			207.8	0.41								0.1				—				.11				.03	<.05
	199.2	0.05			208.0	0.48		219.0	219.2	0.87				0.0				0	.05*	276	276.2	.09				.02	
	199.4	0.03		208.4	208.6	0.19			219.4	0.36			259	.02				.01				0				.02	
	199.6	0.02	0.06*		208.8	0.31	1.17*		219.6	0.55	0.97			.05				0				.2	<.05		285	—	
					209.0	2.88 3.08			219.8	1.32				.02	<.05	268	268.2	.02				.12				—	
199.8	200.0	0.15			209.2	0.38			220.0	1.74				.01				0				.08				—	
	200.2	0.01			209.4	0.21	0.34*		220.2	1.45								.02	<.05		277.2	.02				—	
	200.4	0.01			209.6	0.12			220.4	0.10		260	260.2	0.0				0				0				—	
	200.6	0.01	0.04						220.6	0.20	0.45			.04				.04				.12	.07*		286	—	
	200.8	0.18		209.8	210.0	0.63			220.8	0.17				.01		269	269.2	.06				.12				—	
	201.0	0.00			210.2	1.14			221.0	0.35				0	<.05			.1				—				—	
	200.2	0.09			210.4	0.55			221.2	0.53				.01				.01	<.05*		278.2	.06				—	
	200.4	0.10			210.6	1.97	0.86		221.4	0.37		261	261.2	.1				—				.02				—	
	200.6	0.05	0.08*		210.8	0.26			221.6	0.26	0.30			.12				0				.09	.09		287	.03	
	200.8	0.10			211.0	0.39			221.8	0.18				.03		270	270.2	.05				.03				0.0	
202.0	202.2	0.26			211.2	0.20			222.0	0.14				.04	.06			.02				.26				0.0	<.05
	202.4	0.16			211.4	0.16			222.2	0.11				.03				0.0	.05		279.2	.11				0.0	
	202.6	0.14	0.22	211.6	211.8	0.15	0.13*		222.4	0.08		262	262.2	.01				.14				.08				.05	
	202.8	0.31			212.0	0.21			222.6	0.09	0.11			—				.01				.06	.08		288	.08	
	203.0	0.23			212.2	0.00			222.8	0.13				—	7.01*	271	271.2	.01				.02				.06	
	203.2	1.36 1.41			212.4	0.00			223.0	0.15				—				.05				.12				0.0	<.05
	203.4	0.41			212.6	0.01	0.67	223.7	223.9	0.17				—				0.0	<.05		280.2	.13				.05	
	203.6	0.17	0.64		212.8	2.14			224.1	0.21		263	263.2	—				.04				.13				.06	
	203.8	0.94			213.0	1.18			224.3	0.09				.09				.01				.04	.06		289	—	
	204.0	0.26			213.2	1.54			224.5	0.07	0.11			.04	<.05	272	272.2	.06				.1				—	
	204.2	0.25			213.4	0.76			224.7	0.14				0				.03				.03				—	
	204.4	0.37			213.6	0.17	0.56		224.9	0.08				.04				.08	<.05		281.2	.03				—	
	204.6	0.57	0.46		213.8	0.12			225.1	0.10		264	264.2	0.1				0.0				.04				—	
	204.8	0.77			214.0	0.22			225.3	0.11				.05	<.05			0.0				.05	.04		290	0.0	
	205.0	0.32			214.2	1.93			225.7	0.10	0.11			0.0		273	273.2	.03				.01				.03	
	205.2	0.40			214.4	0.81			225.9	0.16				.04				.06				.07				.15	<.07
	205.4	0.25			214.6	0.47	0.85*		226.1	0.21				0.0				.01	<0.05*		282.2	0				.05	
	205.6	0.15	0.38		214.8	0.19			226.3	0.13			265.2	0				.11				.05				.10	
	205.8	0.21							226.5	0.18	0.15*			0				—				.03	<.05		291	.09	
	206.0	0.89		215.0	215.2	0.18			226.7	0.09				.05	.05*	274	274.2	0				.03				.02	
	206.2	0.39			215.4	0.10		257	257.2	.0				.1				—				0.0				.03	.07
	206.4	0.66			215.6	2.76	1.38			.03				—				—			283.2	.07				.15	
	206.6	0.61	0.41		215.8	2.25				.04	.04	266	266.2	0.0				—				0.0				.08	
	206.8	0.12			216.0	1.62				.06				0.0				—				0.0	<.05		292	0.02	
	207.0	0.29			216.2	1.53				.03				.01	.05*	275	275.2	—				.02					
	207.2	0.18			216.4	1.30	1.11*	258	258.2	.09				—				0.0				0.0					

135

DIAMOND DRILL RECORD

" 0" reading are due to slight miscalibration and should be taken as " .05%

HOLE NUMBER : S.D. 13

LOGGED BY : R. R. Schellekens

NWPS

DRILL CORE ANALYSER RESULTS

INTERVAL (m)		RECOVERY																% Sn.									
FROM	TO			FROM	TO	%		FROM	TO	%		FROM	TO	%	FORM.	FROM	TO	%	% M	FROM	TO	%	% M	FROM	TO	%	% M
292	292.2	.02%				.09				.05				<. 0				.03		335	335.2	.12			8	—	
		.05				.08	.06			.04	<.05	318		.01				.12	.06		.4	.01			0	—	
		.01	<.05	301	301.2	.03				.01				<0				<0			.6	.09	.07	344	.2	.03	.03
		.03				.02				.07				.03	<.05	327		.06			.8	.06			.4	—	
						—		310		.06				.05				.04			.0	—			.6	—	
	293.2	.07				.05	<.05			.04				.02				.10	.07	336	336.2	—			.8	—	
		.10				.03				.02	<.05	319		0				.12			.4	—			345.0	—	
		.02	.06	302	302.2	.14				.04				<0				.04			.6	—	?	345	.2	—	?
		.08				.05				.05				.01	<.05	328		.11			.8	—			4	—	
		.03				.06	.08	311		.04				.05				.12			.0	—			6	—	
	294.2	.01				.09				—				<0				.09	.10	337	337.2	.06			8	—	
		.06				.04				—	<.05	320		.06				.09			.4	—			0	—	
		.04	<.05	303		.08				.06				<0				.11			.6	—	.10	346	2	—	
		.08				.08				.04				.07	<.05	329		0			.8	.15			4	—	
		.05				.02	.06	312		.02				.07				.03			.0	—			6	—	
	295.2	—				.05				.04				.10				.02	<.05	338	338.2	—			8	—	
		—				.07				.05	<.05	321		.02				.06			.4	.37			0	—	
		—	<.05*	304		—				.04				<0				.03			.6	.79	.65*	347	2	—	
		0.0				—				.07				.05	.07	330	2	.04			.8	.79			4	—	
		.03				<0	0*	313		.02				.11			4	.23			.0	—			6	—	
	296.2	.15				<0				.05				.15			6	.39	.22	339	339.2	—			8	—	
		<0.00				0				.08	<.05	322		.08			8	—			.4	—			0	—	
		.17	.09	305		.02				.05				0			0	.21			.6	—	?	348	2	—	
		.12				.05				<0				.05	<.05	331	2	.02			.8	—			4	.01	
		.01				.06	<.05	314		<0				.04			4	.16			.0	—			6	0	<.05
297	297.2	.06				.04				.06				0			6	1.10	.42	340	340.2	—			8	.06	
		.05				<0				.01	<.05	323		.06			8	.37			.4	—			0	0	
		.05	<.05*	306		.08				.01				.10			0	.46			.6	—	.1*	349	2	.05	
		—				.03				<0				.30	0.12	332	2	.39			.8	—			4	.01	
		—				.04	<.05	315		.02				.11			4	.44			.0	.10			6	.03	<.05
298	298.2	.03				<0				.04				.05			6	.37	.30	341	341.2	—			8	0	
		<0.0				<0				.01	<.05	324		.10			8	.13			.4	—			0	—	
		.05	<.05*	307		.05				.01				.36			0	.15			.6	—	?	350	2	0	
		—				.03				<0				.14	.14	333	2	—			.8	—			4	.02	
		—				.12	.07	316		.03				.07			4	—			.8	—			6	.02	<.05
	299.2	—				.04				0				.04			6	—	?	342	342.2	—			8	—	
		—				.08				<0	<.05	325		.02			8	—			.4	—			0	—	
		.05	<.05*	308		.08				.10				.07			334.0	—			.6	—	?	351	364.2	<.05%	
		.04				.01				<0				.03	<.05	334	2	—			.8	—				—	
		.01				<0	<.05	317		0				.11			4	—			.0	—				—	
	300.2	—				.04				.05				<0			6	—	?	343	343.2	—				—	
		—				<0				<0	<.05	326		—			8	—			.4	—				—	
		—		309		.02				.03				.10			0	—			.6	—	?	352		—	

CONTACT GRANITE

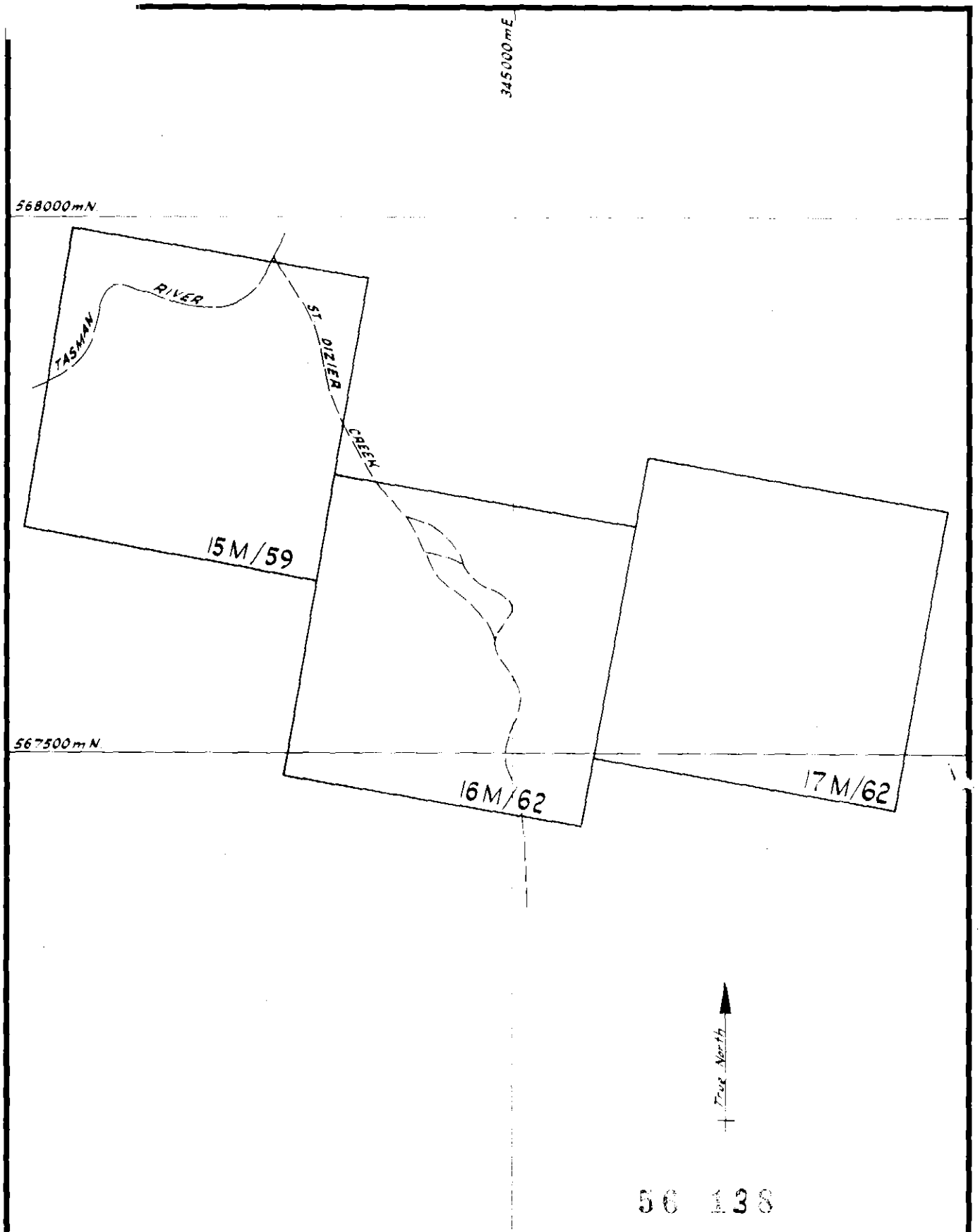
E13

ST. DIZIER AREA — RESPONSIBILITY 079 — P/E 26/ 2/80

ACCOUNT NUMBER	ACCOUNT NAME	PERIOD TO DATE ACTUAL	PERIOD TO DATE VARIANCE	YEAR TO DATE ACTUAL	YEAR TO DATE VARIANCE
010790702	SALARIES	235	304 G	10175	1145 L
010790703	SALARY LOADING	33	33 L	946	946 L
010790705	CONSUMABLES		110 G	4367	271 L
010790708	VEHICLES			410	410 L
010790710	TRAVEL & ACCOMMODATION				
010790720	RENISON SERVICES - SURVEY			720	94 G
010790721	RENISON SERVICES - ASSAY		275 G	6669	3609 G
010790722	RENISON SERVICES - RESEARCH		550 G	1152	5876 G
010790723	RENISON SERVICES - OTHER				
010790730	OUTSIDE SERVICES - GEOLOGICAL			833	1055 G
010790731	OUTSIDE SERVICES - GEOPHYSICAL				
010790732	OUTSIDE SERVICES - GEOCHEMICAL				1888 G
010790733	OUTSIDE SERVICES - TRK CUTTING				
010790735	OUTSIDE SERVICES -SITE ACC DEV			1843	1157 G
010790736	OUTSIDE SERVICES-DIAMOND DRLNG			79764	25764 L
010790737	OUTSIDE SERVICES - OTHER	339	339 L	2645	2645 L
010790740	LEASE PAYMENTS				
	ROUNDING			1-	1 G
010799999	TOTAL ST. DIZIER AREA	607	867 G	109523	17501 L

APPENDIX 4

137



56 138

RENISON LIMITED

ST. DIZIER
LOCATION PLAN
LEASES 15M/59, 16M/62 & 17M/62

GEOLOGIST: L.A.N	SCALE: 1:5000
DRAWN: T.G.D.S.	
DATE: December 1979	
REVISIONS:	DRWG. N°: 10a

50-1457

RENISON LTD
E.L. 17/77

RENISON LTD
E.L. 18/73

ABERFOYLE
E.L. 2/63

RENISON LTD
E.L. 42/71

RENISON LTD
E.L. 42/71

FEDERATION AREA
E.L. 11/76

MT. LYELL MG & RLY Co Ltd
S.P.L. 129

AMG 361250E,
8361850N

AMG 378920E,
5371345

Corinna

Zeehan

Rosebery

Tullah

Trial Harbour

Remine

Granville Harbour

Mt. Heemskirk

Mt. Agnew

Mt. Zeehan

Mt. Dundas

Merton Hill

Razorback

Pieman River

Murchison River

Henty River

Linda River

Hibbard Range

Proposed H.E.C. Highway

H.E.C. Road

Pieman Power Station

Rosebery Mine Complex

Renisons Belt

Broadmoor Hill

Commonwealth Hill

Gimberland Dome

Trial Harbour Dome

St. Dizier Lassers

SOUTHERN OCEAN

AMG REFERENCE POINTS ADDED

5 cm

56 139

RENISON LIMITED

LOCALITY MAP

6745

GEOLOGIST

DRAUGHTSMAN F. A. Colson

DATE

REVISIONS

SCALE 1 KILOMETRES

DRAWING No. SD 10b

80-1457

TASMANIA

BURNIE

LAUNCESTON

TULLAH

ROSEBERY

ZEEHAN

HOBART

6745

13 M / 59

6 M / 62

17 M / 62

PROPOSED HOLE

PROPOSED HOLES

St. Dizier Creek

6746

CONTOURS

- Top of Granite
- Skarn F.W.
- Skarn H.W.
- Skarn H.W. - Granite contact
- Skarn F.W. - Granite contact
- Centre of Skarn - Granite contact

GEOLOGY

- Granite outcrop
- Faults

Key

- LOCATED OR SURVEYED BY RENISON
- NOT LOCATED BY RENISON

GRID

A.M.G. Surface Grid
Zero R.L. = M.S.L. - 2000 m.

56 140

5 cm

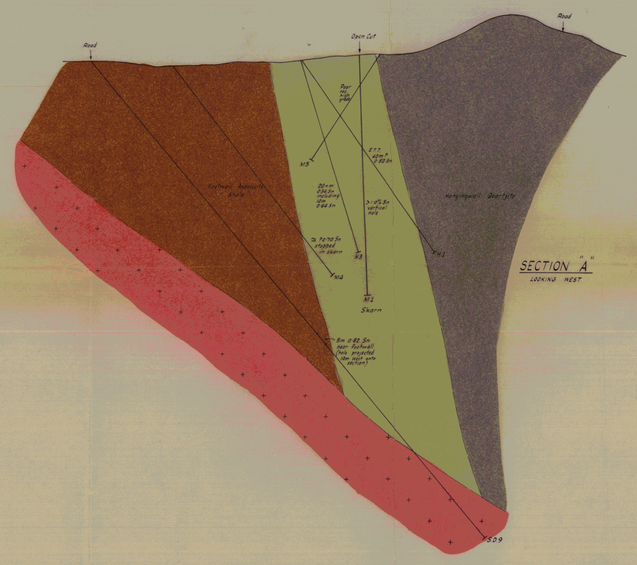
RENISON LIMITED

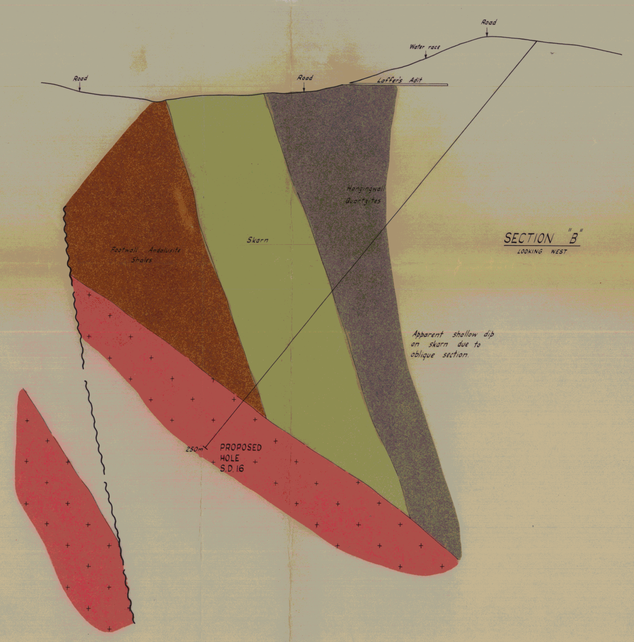
ST. DIZIER AREA

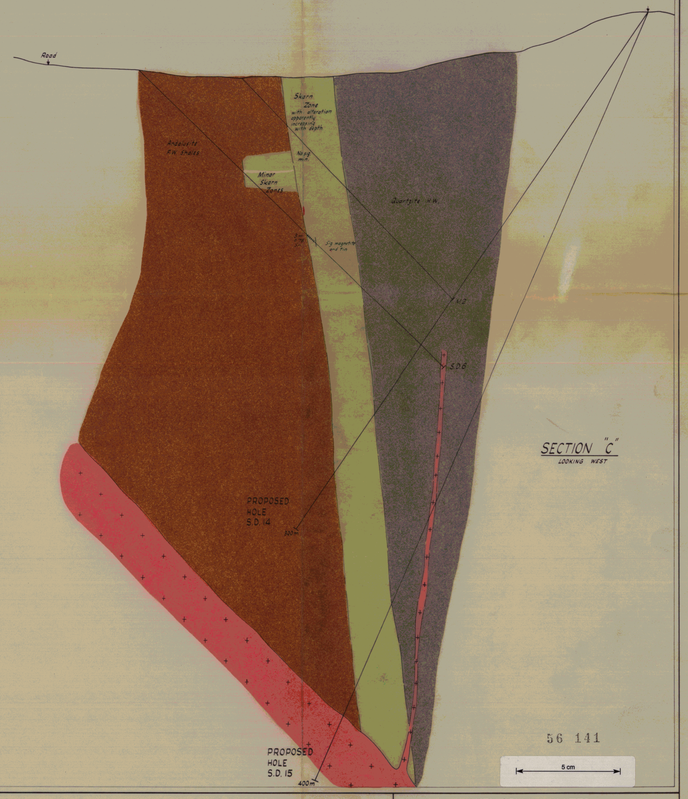
SKARN STRUCTURAL INTERPRETATION

GEOLOGIST : L.A.N.	SCALE 1:1000 METRES
DRAUGHTSMAN : T.G.D.S.	20 0 20 40
DATE : Feb 1980	
REVISIONS	DRAWING No. SD 11

6746







SECTIONS LOOKING WEST

SCALE 1:1000

56 141

5 cm

6747

RENISON LIMITED

ST. DIZIER AREA

LONGITUDINAL PROJECTION & COMPOSITE SECTIONS

GEOLOGIST : L.A.N.	SCALE 1:1000 METRES
DRAUGHTSMAN : T.G.D.S.	0 20 40
DATE : Feb. 1980	
REVISIONS :	DRAWING No. SD 12

80-1454

6747

Geochemistry
P.P.M.

10000
5000
4000
3000
2000
1000
0

5M

400N 500N 600N 700N 800N

Self Potential
MILLIVOLTS

200
100
0
-100
-200
-300
-400
-500

I.P. Data
RESISTIVITY IN Ohm METRES (---)
CHARGEABILITY IN MILLIVOLTS/VOLT (——)

2000 1000 500 300 200 100
60 40 20 0

Total Magnetic Field (γ)

8000
6000
4000
2000
0
-2000

400N 500N 600N 700N 800N

10000
-7500
-7500

Topography & Geology
HEIGHT ABOVE SEA LEVEL

2200 2150 2100 2050 2000 1950 1900 1850 1800

ST. DIZIER CREEK

Collar 2181

Skarn F.W. 2129 R.L.

Andalusite slates

F.W.

Granite

SLATES

SKARN ZONE

Siltstones and interbedded serpentinites

Mixed hornfels and skarns

Skarns (calc-silicates) carbonates

H.W.

QUARTZITES

Old workings

Road

South Margin of Main skarn unit 2058 R.L.

South contact (Assay) 2040 R.L.
North contact (Assay) 2035 R.L.

Centre Point of Assay Interval 2037 R.L.

Centre point of Main skarn unit 2022 R.L. (or lower)

Granite 1986 R.L.

Granite

E/H 295m

D.D.H. S.D.9

ASSAY DETAIL

5 5·0m	0·92	Total tin
	0·11	Acid soluble tin
	< 0·05	Cu
	< 0·10	As
	0·80	S
	0·003	Pb
	0·058	Zn
	0·075	Bi
	0·02	WO_3
	3 g/t	Ag

100,000
50,000
10,000
5000
1000
500
0

$\times 10^{-6}$ c.g.s. units MAGNETIC SUSCEPTIBILITY

SECTION LOOKING WEST

5 cm

56 142

RENISON LIMITED

ST. DIZIER

DIAMOND DRILL HOLE S.D. 9

GEOLOGIST	L.A.N.	SCALE 1:1000 METRES (20 0 20 40)
DRAUGHTSMAN	T.G.D.S.	
DATE	Nov. 1979	
REVISIONS		DRAWING No. SD 13

I P DATA
Chargeability
Resistivity

ASSAY DATA
Acid insoluble tin
Acid soluble tin

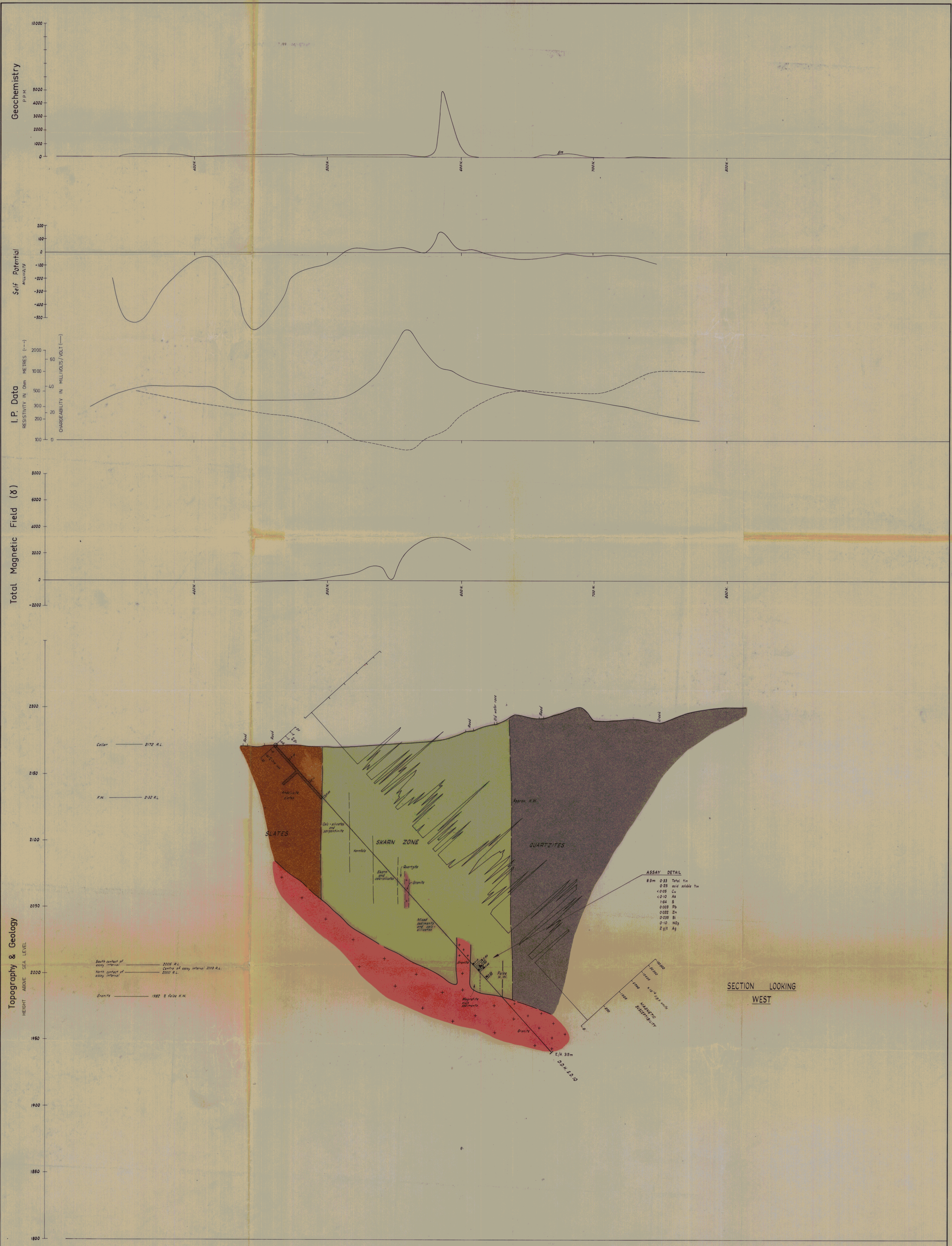
NOTE: Surface geophysical data collected by Cominco.

MAGNETICS
5000 γ Scale
1000 γ Scale

SOIL GEOCHEMISTRY
Sn
Cu
Pb
Zn
As
W

138

80-457



I.P. DATA
- Chargeability
- Resistivity

MAGNETICS
- 5000 γ Scale
- 1000 γ Scale

SOIL GEOCHEMISTRY
- Sn
- Cu
- Pb
- Zn
- As
- W

ASSAY DATA
- Acid insoluble tin
- Acid soluble tin

NOTE: Surface geophysical data collected by Cominco.

5 cm

56 143

RENISON LIMITED	
ST. DIZIER	
DIAMOND DRILL HOLE S.D. 10	
GEOLOGIST L.A.N.	SCALE 1 1000 METRES
DRAUGHTSMAN T.G.D.S.	20 0 20 40
DATE Nov. 1979	
REVISIONS	DRAWING No SD 14

139

80-1457

Geochemistry
P.P.M.

10000
5000
4000
3000
2000
1000
0

Sn

400N 500N 600N 700N 800N

Self Potential
MILLIVOLTS

200
100
0
-100
-200
-300
-400
-500

I.P. Data
RESISTIVITY IN Ohm METRES (---)
CHARGEABILITY IN MILLIVOLTS/VOLT (——)

2000 1000 500 300 200 100
60 40 20 0

Total Magnetic Field (δ)

8000
6000
4000
2000
0
-2000

400N 500N 600N 700N 800N

Topography & Geology
HEIGHT ABOVE SEA LEVEL

2200
2150
2100
2050
2000
1950
1900
1850
1800

Collar S.D.12 — 2180 R.L.
Collar S.D.11 — 2167 R.L.
Shales
Shales with sandy stringers
Shales and siltstones
SLATES
ST. DIZIER CREEK
SKARN ZONE
F.W.
This boundary estimated from surface Magnetic surveys
Granite Contact — 2102 R.L.
South margin of main skarn zone must lie between 2102-2038 R.L.
Granite
Skarn H.W. 2064 R.L.
Only significant assays intersected lie near North margin of Main skarn zone.
Granite Contact — 1994 R.L.
E/H 186.5m
D.D.H S.D.11
MAGNETIC SUSCEPTIBILITY
E/H 220.5m
D.D.H. S.D.12
Sandstones and quartzites
QUARTZITES
Granite dykes
Quartzite
Skarn
Sediments
Skarn
Granite
MAGNETIC SUSCEPTIBILITY

SECTION LOOKING WEST

56 144

5 cm

RENISON LIMITED	
ST. DIZIER	
DIAMOND DRILL HOLES S.D. 11 & 12	
GEOLOGIST L.A.N.	SCALE 1 1000 METRES (20 0 20 40)
DRAUGHTSMAN T.G.D.S.	
DATE Nov. 1979	
REVISIONS	DRAWING No SD 15

I.P. DATA
Chargeability
Resistivity

MAGNETICS
5000 γ Scale
1000 γ Scale

ASSAY DATA
- Acid insoluble tin
- Acid soluble tin

NOTE: Surface geophysical data collected by Cominco.

SOIL GEOCHEMISTRY
Sn
Cu
Pb
Zn
As
W

140

80-1457

Geochemistry
PPM

10000 5000 4000 3000 2000 1000 0

5m

400N 500N 600N 700N 800N

Self Potential
MILLIVOLTS

200 100 0 -100 -200 -300 -400 -500

I.P. Data
RESISTIVITY IN Ohm METRES (- - -)
CHARGEABILITY IN MILLIVOLTS/VOLT (——)

2000 1000 500 300 200 100
60 40 20 0

Total Magnetic Field (γ)

8000 6000 4000 2000 0 -2000

400 N. 500 N. 600 N. 700 N. 800 N.

Topography & Geology
HEIGHT ABOVE SEA LEVEL

2200 2150 2100 2050 2000 1950 1900 1850 1800

Collar ——— 2202 R.L.

Creek

Old water race

Quartzite/Sandstones

SLATES

SKARN ZONE

QUARTZITES

H.W.

Granite

Granite

Quartzites

Skarn H.W. 2055

North contact main assay zone ——— 2020

Centre point of assay interval 2012 R.L.

South contact of main assay zone ——— 2004

Note: There is discrepancy here in detailed and bulked core losses. Detailed records suggest maximum 100% recovery

Quartzites and calc silicates

ASSAY DETAIL

20m 0.62 total tin
0.24 Acid soluble tin
0.06 Cu
0.33 As
2.13 S
<0.01 Pb
0.02 Zn
0.009 Bi
0.06 WO_3
2 g/t Ag

Centre point of main Skarn zone 1968 R.L. (on level)

Calc-silicates magnetite, carbonate

Granite

False F.W.

Granite ——— 1899

Granite

D.D.H. S.D. 13 E/H. 377m

SECTION LOOKING WEST

56 145

5 cm

RENISON LIMITED

ST. DIZIER

DIAMOND DRILL HOLE S.D. 13

GEOLOGIST	L.A.N.	SCALE 1 1000 METRES
DRAUGHTSMAN	T.G.D.S.	20 0 20 40
DATE	Nov. 1979	
REVISIONS		DRAWING No. SD 16

I.P. DATA
- Chargeability
- Resistivity

MAGNETICS
- 5000 γ Scale
- 1000 γ Scale

ASSAY DATA
- Acid insoluble tin
- Acid soluble tin

SOIL GEOCHEMISTRY
- Sn
- Cu
- Pb
- Zn
- As
- W

NOTE: Surface geophysical data collected by Cominco.

80-1457

6743