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GENCOR (AUSTRALIA) PTY. LIMITED

BULLETIN 134

ADDENDUM 3

STANLEY REWARD TIN PROSPECT

E.L. 53/70, WESTERN TASMANIA

FILE NEGO

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B.G. GIBSON

June, 1984

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LIST OF APPENDICES

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SUMMARY

A follow-up diamond drilling programme on the Stanley Reward prospect was completed during May, 1984. Four boreholes with an aggregate length of 689 metres were drilled.

Two holes terminated in the Meredith Granite. Rocks intersected were variably metamorphosed and included white marble, calc-silicate veins, magnesium-rich silicate veins, skarn, and hornfelsed quartz-rich and argillaceous sediments.

No intersections of the tin-bearing ironstone encountered in hole GSR 10 were obtained.

The magnetic anomaly in the northern part of the prospect area is qualitatively attributed to a west-dipping magnetite-bearing skarn developed in the contact aureole of the Meredith Granite.

Tin values in skarn rocks assayed are of no economic interest, the highest assay being 2460 ppm Tin.

CONCLUSIONS

It is concluded that:

1. The dominant source of the magnetic anomaly between the Livingstone Creek and Stanley Reward Gossans is a west-dipping, weakly and erratically mineralised skarn developed in the contact aureole of the Meredith Granite. The source of the magnetic anomaly is therefore of little importance as an exploration target.

2. The GSR 10 ironstone and Upper magnetite-sulphide skarn in GSR 14 are probably stratabound replacement zones caused by sill- or dyke-like offshoots from the Meredith Granite.

3. Tin mineralisation in skarns intersected during the 1984 drilling is of no economic interest:

   GSR 14 Upper skarn (120.6-126.4m) av.505 ppm Sn

   Lower skarn (169.6-187.0m) av.70 ppm Sn above 176.0 m
   and 380 ppm Sn below 176.0 m

   GSR 15 (223.2-227.0 m) av. 47 ppm Sn.

   Tin probably occurs as stanniferous ilvaite or other tin silicate minerals.

4. The tin-bearing ironstones at Stanley Reward, Livingstone Creek and in GSR 10 have little economic potential because:
    a) there is only limited scope for tonnage development in the wedge bounded by the surface, the granite contact and the Oonah unconformity, and this is further restricted by the positions of barren holes GSR 14, 15, and 16;
    b) the grade and inferred metallurgy of the known occurrences are unfavourable, and there is neither theoretical basis nor practical evidence to suggest that either aspect will improve within the prospect area.
5. Deep karst topography was developed in a thick dolomite-rich stratigraphic unit in the northern part of the Stanley Reward prospect and contains dominantly intrastratal in-fill.

B.G. GIBSON

273006

GENCOR (AUSTRALIA) PTY. LIMITED B.G.G. JUNE, 1984

BULLETIN 134

ADDENDUM 3

STANLEY REWARD TIN PROSPECT

E.L. 53/70, WESTERN TASMANIA

1. INTRODUCTION

In 1983 a drilling programme by Gencor obtained an interesting intersection of tin-bearing ironstone in borehole GSR 10, reported in Bulletin 134, Addendum 1. In Addendum 2 follow-up work was reported and a drilling programme recommended. This addendum (No.3) describes the 1984 drilling programme and discusses these results and the geology of the prospect with regard to potential for skarn-type tin mineralisation.

2. 1984 PROGRAMME

2.1 Work Completed

Data contained on CSR cross-sections 3800N to 6500N were compiled at 1:5000 scale and are attached as Plans 1 to 4, showing geology, magnetics and gradient array I.P., chargeability and resistivity. In addition composite plans of CSR bedrock geochemistry for the same area for Sn, Cu, Pb and Zn are attached as Plans 5-8.

A four hole diamond drilling programme was undertaken between February 9th and May 16th, 1984. Gencor staff were based at CSR's field office in Zeehan. The use of these comfortable facilities is acknowledged with thanks.

Boreholes GSR 14 to 16 were collared between 100 and 300 metres south of GSR 10, in which stanniferous ironstone was intersected in 1983. Borehole GSR 17 was collared near the western margin of the joint venture area and overlapped CSR's borehole SRD 9. The locations of all boreholes are shown on all the attached Plans. The aggregate length of drilling in the 1984 programme was 689.3 metres.

2.2 Expenditure

Expenditure on the Stanley Reward Prospect from 1 January, 1984, to 31 May, 1984, totalled $93,606. A breakdown of costs is set out in Appendix 1 together with Gencor's expenditure on the prospect since commencement of the joint venture. Expenditure incurred for actual drilling in 1984 was $34,929 ($74,424 to date) and that incurred for other costs was $58,677 ($120,338 to date).

3. DIAMOND DRILLING

3.1 General Account

Boreholes GSR 14 to 17 were drilled with larger core sizes than used for normal company exploration in order to maximise core recovery. Collar specifications, core sizes and approximate core recovery are presented in Table 1. Diamond drill logs which show recovery in areas of core loss are attached in Appendix 2. Time taken by the contractor to complete this programme was longer than expected and while poor ground conditions for drilling were a contributing factor it is considered that the low number of man-hours per shift at the controls of the drill and average number of shifts per day achieved were the main reasons for low contractor productivity.

3.2 Magnetic Modelling

Text figures 1 to 4 are cross-sections showing boreholes GSR 10 and 14 to 17. Cross-sections of holes 10, 14, 15 and 16 have overlays showing magnetic models used to plan the holes. In Bulletin 134 Addendum 2 a re-interpretation of magnetic data was made after boreholes GSR 10 to 13 had been completed and susceptibilities of rocks intersected in these holes measured.

While preparing the magnetic model for Line 6000 N for planning hole GSR 14 a further modification of the magnetic model for Line 6100N (containing GSR 10) was made. In order to achieve a good model/field data fit on Line 6000N (Figure 1 and overlay) it was necessary to use a magnetised body having negative remanence in a position equivalent to the GSR 10 ironstone. Using a similar configuration Line 6100N was re-modelled and is shown as an overlay to Figure 2.

This procedure was considered valid since measured magnetic properties for GSR 10 ironstone (see Table 2) support the interpretation of the ironstone as having a variable and remanent magnetic character whilst the pelitic hornfels/contact skarn is the cause of the main magnetic anomaly. The models fit the field data well.

Line 5800N was modelled using a configuration of magnetic bodies and susceptibilities similar to Lines 6000N and 6100N, and is shown as an overlay to Figure 3.

Boreholes GSR 14 and 15 were planned on the basis of these magnetic models to intersect the equant, remanently magnetised body west of the strongly magnetic west dipping contact skarn zone since correlation with Line 6100N suggested that this was the down plunge continuation of the ironstone intersected in GSR 10. The results of the 1984 drilling and these magnetic models are discussed later.

3.3 Line 6000N, Borehole GSR 14

Borehole GSR 14 was planned as a follow-up hole for the ironstone intersection in GSR 10. Since the magnetic model indicated a west-dipping target and interpretation of GSR 10 geology was for an east-dipping stratigraphic sequence it was decided to drill GSR 14 vertically, and toward the remanently magnetised body in the magnetic model (see Figure 1 and overlay).

TABLE 1

BOREHOLE STATISTICS

HOLE NO.	COLLAR	AZIMUTH	INCLINATION	LENGTH metres	CORE SIZES	CORE RECOVERY (where < 100%)	DAYS	SHIFTS	METRES/SHIFT
GSR 14	6000 N	N.A.	Vertical	199.6	HQ3: 11.5-126.0	24.3- 35.3 : 40%	28	23	8.7
	5181.5W				NQ : 126.0-EOH	35.3- 75.0 : 80%			
						96.0-118.2 : 45%			
GSR 15	5800N	225°M	73°	251.5	HQ3: 24.0- 67.0	24.0- 60.7 : 50%			
	5101.5W				NQ : 67.0-150.6	60.7- 82.5 : 17%	21	26	9.3
					BQ : 150.6-EOH	82.5-109.5 : 1%			
						109.5-174.7 : 56%			
GSR 16	5800 N	225° M	65°	98.7	HQ3: 55.0-EOH	55.0- 80.8 : 65%	19	20	4.9
	5102 W					80.8- 98.7 : 44%			
GSR 17	4291 N	203° M	50°	139.5	HQ3: 3.0- 78.8	3.0- 40.0 : 41%			
	4613 W				NQ : 78.8-EOH	40.0- 72.7 : 31%	26	22	6.3
						72.7- 77.2 : 70%			

TABLE 2

MAGNETIC PROPERTIES OF SOME CORE FROM GSR 10
(measured by Sydney University)

SAMPLE INFORMATION

ROCK TYPE	DEPTH (m)	SAMPLE NO.	VOL.SUSCEPT. $(\text{cgs}^k \times 10^{-6})$	RAW NRM VECTOR $\lvert\mathfrak{F}\rvert$ Magnitude (microgauss)	DIP*	$\lvert\mathfrak{F}\rvert$ INDUCTION=kF assume F=0.5G (microgauss)	KOENIGSBERGER RATIO Qn $\lvert\mathfrak{F}\rvert_{NRM}/\lvert\mathfrak{F}\rvert_{IND}$	COMMENTS
Ironstone	101.5	21213	6,200	8,000	-73°	100	3	dominant NRM
"	110.1	21212	8,200	500,000	-20°	100	122	"
"	114.0	21214	1,650	4,000	-59°	825	5	"
Pelitic Hornfels/ Contact Skarn	138.5	21217	>100,000	525,000	+20°	50,000	10	"
" "	143.0	21218	230	7,800	-78°	115	68	"
" "	145.0	21215	17,200	3,500	-77°	8,600	0.4	"
" "	147.5	21216	21,500	80	-71°	10,750	0.007	

* Negative dip means <u>upward</u> inclination
Small volume corrections applied for split core, results rounded off.

A thick, metamorphosed dolomitic limestone sequence was cored between 11.5 and 187 metres. A summary log is given below (see Appendix 2 for detailed log).

0-11.5 m: Unconsolidated gravels (approximately four metres) underlain by clay, penetrated by tricone roller.

11.5-34 m: a zone of calc-silicate skarn with cavities up to 0.5 metres was intersected. Bands of chert and occasional breccia zones containing altered shale and chert fragments occur. This interval is interpreted to be a karst zone.

34-67.7 m: White marble, probably de-dolomitised limestone. Cavities and soft green (olivine-chlorite rich) alteration zones from 0.3 - 2 metres width occur at regular intervals.

67.7-100.7 m: Altered and brecciated dolomitic limestone with narrow zones of chert-like calc-silicate and frequent soft green clay zones (talc-serpentine rich in places). Irregular narrow veins of pale green forsteritic olivine (?), darker talc-chlorite - (?) and calc-silicate occur in the brecciated dolomite.

100.7-118.2 m: Calc-silicate skarn with some carbonate zones. Much of interval is fine grained, siliceous and may represent a variety of lithologies from shale, quartzite and chert to quartz porphyry or calc-silicate replacement.

118.2-126.4 m: Interval containing upper Mg-silicate-magnetite sulphide skarn and quartz-porphyry or aplite sills. Average assay 505 ppm Sn from 120.6-126.4 m.

126.4-169.6 m: White and light grey dolomitic limestone. Medium grained recrystallised limestone with irregular veins, patches and spots of light green olivine ? and dark green calc-silicates.

169.6-187.0 m: Lower Mg-silicate-magnetite-sulphide skarn. Average assay 70 ppm Sn from 109.6-176.0 m and 380 ppm Sn from 176.0-187.0 m.

187.0 - 199.6 m: Meredith Granite, porphyritic marginal phase to 191.9. Grey-green colour, equigranular aggregates of bronze coloured biotite and feldspar up to 1.5 cm are dominant characteristics.

The Upper and Lower Mg-silicate-rich skarn zones are unusual assemblages and are intimately related to quartz porphyry sills. Relevant sections of the GSR 14 graphic log are presented in Figure 6 (full log in Appendix 2) together with assay results. Petrographic descriptions are attached in Appendix 3. These magetite-sulphide bearing skarn zones have a complex Mg-silicate assemblage dominated by dark grey to black fine-grained olivine and/or chondrodite ($Mg(OHF)_2 . 2Mg_2SiO_4$) and phlogopite. Olivine is commonly altered to serpentine, talc or serpentiferous clays. Tochilinite (FeS.MgOH) is present in some zones but the low Ni and Cr assays preclude an ultrabasic igneous source for the Mg-rich assemblage and this mineral. Sulphide minerals, in decreasing abundance are: pyrrhotite, pyrite, chalcopyrite and minor arsenopyrite.

Core dips in GSR 14 are typically 50-60°, but they represent a metamorphic foliation which may not be parallel to bedding. GSR 10 is projected on to the GSR 14 cross-section in Figure 5, assuming a strike of 130°M (parallel to the Success Creek Group/Oonah Formation contact). In Figure 5(a) a 50° core dip allows interpretation of an east dipping sequence. A 50° west dip is not possible owing to lack of lithological correlation between boreholes, although Figure 5(b) illustrates that an 80° west dip is possible. Shallow easterly dips are also possible if:

- the core dips not indicative of bedding
- zone above 35 m in GSR 14 correlates with GSR 10 quartzite-calcareous siltstone zone
- the granite dyke and ironstone skarn in GSR 10 are developed for only 100-140 m west of Meredith Granite.

A further problem is that since the strike of the Success Creek Group is assumed, the position of GSR 10's projection on the GSR 14 cross-section may be incorrect in Figure 5. In Figure 7 (see later) GSR 10 was projected along the granite contact in the boreholes (156°M) assuming that the dip of this contact was parallel to the dip of the magnetic models. In this case the GSR 10 collar plots west of GSR 14, but the same dip alternatives that are illustrated in Figure 5 are possible.

Regionally, a steep east dip is evident for the Success Creek Group near Stanley River. It is possible that intrusion of the granite may have flattened this dip in the northern part of the Stanley Reward prospect.

The interpretation of an east dip is favoured but is not conclusively established.

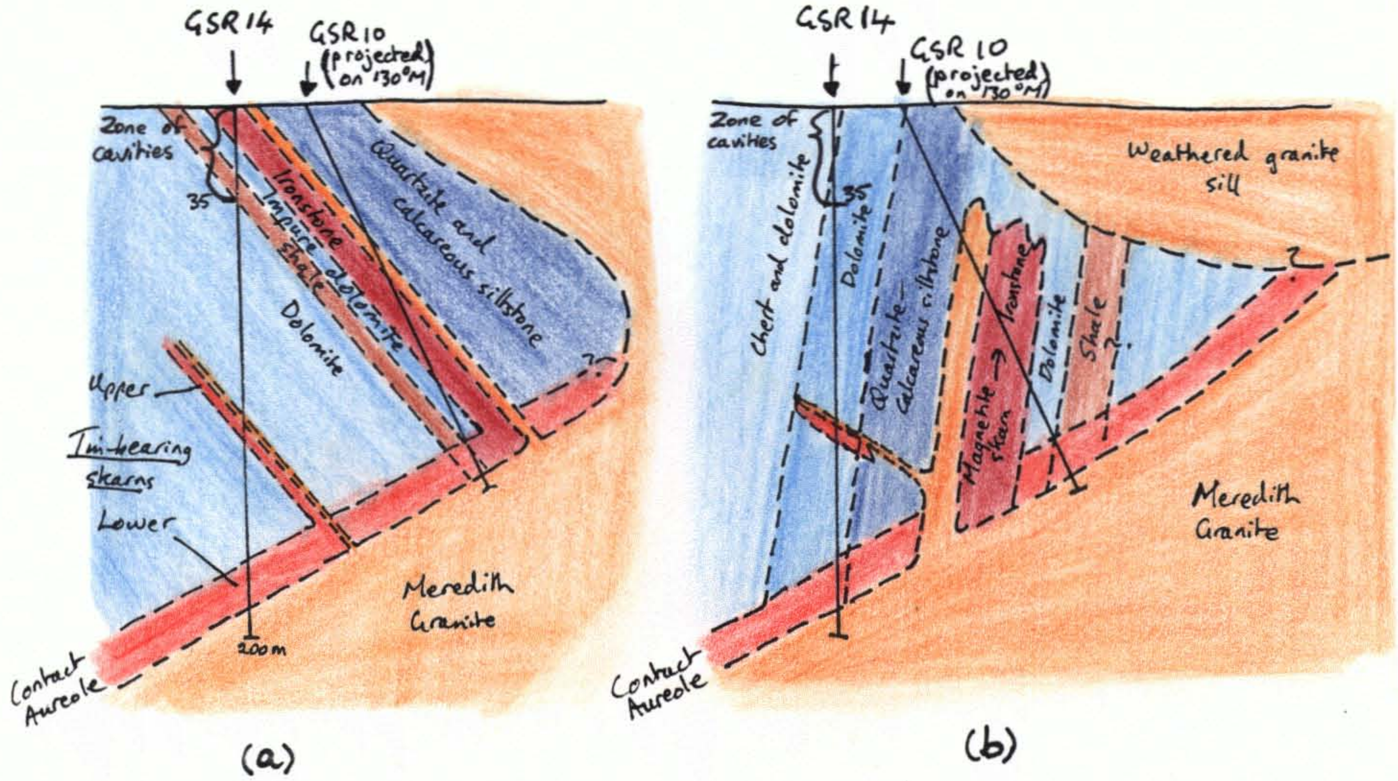


FIGURE 5

Dip Alternatives, GSR 10 and 14 Area

3.4 Line 5800N, Boreholes GSR 15 and 16

Borehole GSR 15 was originally planned to test the southward extension of the GSR 10 ironstone, and was planned as a vertical hole. After completion of GSR 14, in which an easterly dipping sequence was interpreted, the collar of GSR 15 was moved to the east and drilled westwards at an inclination of 73° in order to intersect a wider stratigraphic interval, including the horizon thought to contain the GSR 10 ironstone (which was considered at that time to sub-outcrop immediately east of the GSR 14 collar). The main target of GSR 15 was the equant remanently magnetised body in the magnetic model for this Line (see Figure 3 and overlay).

In the top 110 metres of GSR 15 granite and quartzite fragments were recovered but the core recovery was poor, particularly in the lower part of this interval where it is considered that karst infill material was intersected. A summary log is given below (see Appendix 2 for detailed log).

0-24.0 m	Unconsolidated gravels (3-4 metres) underlain by weathered granite; penetrated by tricone roller.
24.0-33.0 m	Weathered granite.
33.0-37.6 m	Silty argillite and quartzite.
37.6-40.5 m	Porphyritic granite, pink colour.
40.5-46.5 m	Karst infill (?); granite or arkose layers and quartzite fragments.
46.5-82.5 m	Karst infill (?); quartzite fragments and soft orange-brown clay pug, decreasing recovery downward.
82.5-109.5 m	Zone of core loss, minor quartzite fragments recovered but may be cave-in. Several dolomite/calc-silicate fragments present from 91.5 m.
109.5-115.5 m	Quartzite and minor carbonate fragments recovered.
115.5-132.4m	Calc-silicate skarn, veined and banded, mainly siliceous.
132.4-204.1m	Dolomitic limestone, white and light grey carbonate with some zones of fine dark grey spots. Banded chert occurs between 147.5 and 150.6 m.
204.1-223.2m	Calc-silicate skarn; mixed silica-rich lithologies and veined carbonate.
223.2-227.0m	Mg-silicate-magnetite and quartz-porphyry; contact skarn.
227.0-229.2m	Calc-silicate skarn.
229.2-251.5m	Granite, with layered quartz-rich xenolith from 237.5-240.4 m.

The narrow Mg-silicate-magnetite skarn at 223.2 m is similar in appearance to the GSR 14 Mg-silicate-rich skarns; but has less sulphide. Assays for this interval are similar to the overlying calc-silicates and the highest tin assay was 84 ppm (see Special Report in Appendix 2). The spotted carbonate zones assayed were unmineralised: highest tin assay 18 ppm (see Special Reports, Appendix 2).

Borehole GSR 16 was drilled from the same collar location as GSR 15 at a more shallow inclination in order to test the zone of core loss in GSR 15 between 82.5-109.5 metres, since this interval was inferred to be the stratigraphic interval containing the GSR 10 ironstone. The contractor drilled to 55 m free of charge since operator error was largely responsible for the core loss. A summary log is given below.

0 - 55.0	Tricone roller, no core.
55.0 - 80.8	Karst infill (?) zone; quartzite fragments and soft brown-orange clay recovered.
80.8 - 89.3	Calc-silicate skarn and cavities, ferruginous chert (siliceous ironstone) fragments recovered, may be foreign infill.
89.3 - 98.7	Dolomitic limestone and calc-silicate skarn, vughs and cavities present. Some dolomitic (solution ?) breccia, chert fragment in one zone.

Several crystals of scheelite occur at 91.5 m; however the surrounding lithology in GSR 16 and corresponding interval in GSR 15 do not contain tungsten. (See special reports in Appendix 2.)

3.5 Borehole GSR 17, near Lines 4200N and 4300N

Borehole GSR 17 was planned to intersect the inferred position of the Red Rock Member or Chert Marker which occurs at the top of the Success Creek Group and separates it from the overlying Crimson Creek Formation. This zone corresponds to the No.1 carbonate in the Renison Bell mine area whereas the known outcropping carbonate at the Stanley Reward prospect is tentatively correlated with the No.2 or No. 3 carbonate units of the Renison Bell area. Borehole SRD 9, drilled by CSR, was collared west of an I.P. anomaly corresponding with weak copper, lead and zinc geochemical anomalism in this region (see resistivity low and chargeability high on plans 3 and 4 respectively at 4250N/4700W). GSR 17 was collared with a similar azimuth to SDR 9 but at a higher stratigraphic position in order to test these geophysical and geochemical anomalies as well as the Red Rock Member stratigraphic zone.

GSR 17 intersected Crimson Creek Formation argillaceous sediments to 72.7 m. Below this depth Success Creek Group dolomite, laminated pyritic siltstone, chert and dolomite breccia occur. Core dips in the argillaceous rocks are 20-25°, which indicates a 60-65° dip for these rocks (see Figure 4). The laminated siltstone and chert have core dips of 30-35°, indicating a 70-75° dip. These different dips could suggest that there is an angular unconformity between the Success Creek Group and the Crimson Creek Formation. A summary log is given below (see Appendix 2 for full log).

0 - 28.0 m	Siltstone and shale altered to clays, hornfelsed.
28.0-37.0 m	Sandstone/greywacke with thin siltstone interbeds.
37.0-49.3 m	Siltstone and shale; chocolate brown and graphitic units present.
49.3-55.0 m	Felsic dyke, schistose altered feldspar with biotite clots.
55.0-72.7 m	Siltstone and shale.
72.7-73.1 m	Dolomite
73.1-77.2 m	Laminated pyritic siltstone and chert (Red Rock Member)
77.2-132.5 m	Dolomite and dolomite breccia, commonly mid-dark grey colour.
132.5-139.50m	Dolomite (white marble).

Strong shearing and fracturing is evident in the laminated pyritic siltstone and underlying dolomite breccia units, particularly at the base of the hole. In order to correlate GSR 17 geology with nearby SRD 9 (projected 35 m NW on to GSR 17 cross-section on Figure 4), it is necessary to infer a normal fault between the two boreholes (see Figure 4). This fault is shown on Plan 1 as having a strike of approximately 030°M. Several faults of similar orientation are known to offset the Red Rock Member SW of E.L.53/70. The pyritic siltstone, chert and dolomite intersected in GSR 17 do not contain significant metal values; the highest tin assay was 34 ppm, the highest copper assay 290 ppm.

4. DISCUSSION AND INTERPRETATION OF RESULTS

The 1984 drilling programme established that the strong magnetic anomaly between 5800N and 6400N arises from a skarn developed in the contact aureole of the Meredith Granite (see Plan 2, or preferably the plan in Addendum 2, but note that on this plan the data for line 6400N are plotted 50 m west of true position).

The contact aureole skarn has different mineralogy along the granite contact when different lithologies in the assumed east-dipping stratigraphic succession are intersected. In GSR 14 (Lower magnetite sulphide skarn) the country rock is a thick dolomitic limestone so a magnesium-rich calc-silicate skarn assemblage is developed. In GSR 10 impure dolomite with interbedded shale, siltstone and quartzite was intersected, and the contact skarn is a meta-pelite. Soft shale interbeds may have been developed in the upper part of GSR 14 but not recovered, for example in the zones of core loss 99.2-100.7 m or 103.7-105.2 m. Figure 7 is a composite cross-section showing these features and an interpretation of the geology in this area. The GSR 10 ironstone is shown as a 20 m thick body which may be genetically related to the inferred granite sill; however, this ironstone may be limited in lateral extent to approximately the +63000nT area on Plan 2. The southern outcrop of Livingstone Creek Gossan may be continuous with the GSR 10 ironstone, but the northern outcrop (which GSR drilling established as having no depth continuation) is offset and may be a roof pendant.

The tin content of these ironstone/gossans has probably increased indirectly by supergene processes. It is envisaged that tin originally present in the silicate phases such as ilvaite (as at nearby Mt.Lindsay skarn, Kwak, 1983) could be liberated as fine grained cassiterite during oxidation of the skarn and subsequently mechanically concentrated. This interpretation requires the cassiterite present in the ironstone to occur in secondary silicates formed during weathering (rather than relict skarn minerals). Bulletin 2503 (Appendix 4) supports this, but may not be conclusive. In GSR 10 the zone of 75% core loss in the 40 m ironstone-bearing interval may be soft clays (skarn derived ?) deficient in iron and tin rather than ironstone. Alternatively the skarn may undergo a volume loss on oxidation.

Figure 7 illustrates that only a relatively small wedge of Success Creek Group carbonate occurs in the northern part of the Stanley Reward prospect. The western margin of the wedge is a sub-vertical angular unconformity or fault and the west dipping granite contact truncates any major depth potential for the carbonate units. Conceivably there is sufficient room for an economic sized skarn to be developed if favourable structurally controlled (?) permeability exists. However, in view of results to date, any such body would have only a subtle magnetic expression as the known width and susceptibility of the contact aureole skarn qualitatively accounts for the magnetic anomaly.

The presence of deep cavities in the calcareous stratigraphic units is now established. In GSR 10 the calcareous rocks are invariably vuggy and probable solution breccia occurs. Similar rocks were recovered in GSR 16 from 80.8-98.7 (EOH) and in GSR 15 between 94.5-122 m (but low recovery in this hole).

The nature of the zones overlying carbonate units which contain these cavities is less clear. In GSR 16 and GSR 13 (26.5 m) it is apparent that karst-infilling has occurred. In GSR-15 where recovered material is dominantly quartzite fragments with some soft clay pug, and in GSR 10 where quartzite and calcareous siltstone were recovered, the lithologies are consistent over comparatively long intervals of the holes although it should be noted that core recoveries were low. The interpretation favoured at present for the northern area of the prospect is that the upper part of the carbonate unit contains impure dolomite with interbedded quartzite and shale units. Formation of karst topography in this zone resulted in the collapse of thinner arenaceous and argillaceous interbeds and in-filling of cavities in carbonate, with only minor foreign clastic material. Some of the granitic zones in the upper part of GSR 15, particularly below 40.5 m may contain foreign arkosic in-fill derived from the Meredith Granite. It is possible, but unlikely, that all granitic material in GSR 15 is an arkose and the quartzite and clay pug is also Quaternary in-fill, including the inferred (weathered) granite sill. This hypothesis was proposed to account for the somewhat lateritic character of the Livingstone Creek Gossan and GSR 10 ironstone (Tertiary laterites ?) and would require advanced development of karst topography with extensive surface openings. The lack of variability in lithology in cored in-fill zones argues against widespread surface openings, but the laterite hypothesis should not be completely discounted.

In the southern part of the prospect GSR 17 was found to be collared stratigraphically lower than intended owing to the inferred fault between SRD 9 and GSR 17. However, GSR 17 tested the geophysical anomalies (assuming easterly dips) and the Red Rock Member stratigraphic interval. The magnetic profile along the line of GSR 17 could suggest that the upper chert marker is present at, or immediately east of, GSR 17 collar (see Figure 4). Alternatively the laminated pyritic siltstone and chert between 73.1 and 77.2 m may represent the whole of the Red Rock Member rather than just the lower chert marker. In either case the stratigraphic target (i.e. the possibility of No.1 carbonate equivalent unit occurring between chert markers) has been tested, although the low recovery (approx. 35%) and presence of karst topography to the north (drilled by Gencor) and south (in road cutting outside E.L.53/70) allows the possibility that if the upper chert marker occurs near the GSR 17 collar then the dolomite equivalent to No.1 Carbonate at Renison Bell may be developed.

5. REGIONAL TRAVERSES

Two reconnaissance ground magnetic traverses were carried out to field-check anomalies obtained during previous programmes. The locations of the traverses, numbered 1 and 2, are shown on Plan 1. Annotated profiles are presented in Figures 8 and 9. The results are described below:

Traverse 1

The objective of this traverse was to test a well-defined airborne magnetic anomaly obtained by CSR's helicopter-borne survey in 1975. The anomaly was thought to have a source in the Oonah Formation, west of the Stanley Reward grid. The possibility of a pyrrhotite-bearing carbonate-replacement tin deposit (akin to Mt. Bischoff or Queen Hill) in the upper shelf-facies of the Oonah Formation was considered, particularly as two of CSR's priority 1 airborne electromagnetic anomalies occur on the flanks of the magnetic high (see Figure 1).

No evidence of mineralisation was observed on the traverse, nor were magnetic source rocks positively identified. However a narrow, wholly weathered dolerite dyke was found to correspond to one of the anomaly peaks (see Figure 7). In the absence of carbonate rocks and evidence of skarn development at surface, it is therefore thought that the magnetic anomaly is most likely to be caused by basic intrusives.

Figure 8 also shows that CSR's airborne E.M. anomalies Nos. 49 and 60 correspond to outcropping graphitic shales, which are assumed to have caused the anomalies.

Traverse 2

This traverse was surveyed for the purpose of obtaining a ground magnetic profile over the line of diamond hole GSR 17 (see Figure 8). The line was extended to the north-east to cover a possible ironstone-related ground anomaly obtained by CSR's magnetic survey in the vicinity of 4400 N, 4200 W.

The anomaly peak just north-east of the SPD 9 drill collar is thought to reflect the magnetite-bearing shale intersected in hole GSR 17 at 96 metres depth. There is a further peak near the GSR 17 collar (although the reading at this point was missed due to the presence of the rig). The source of this peak is not known, but it could indicate the presence of magnetite-bearing chert stratigraphically above the collar position.

Further to the north-east dolerite float was observed on the hill slopes. It is considered likely that the magnetic anomalies in this region are caused by sub-outcropping dolerite dykes and not related to ironstone skarns.

6. CONCLUSIONS

It is concluded that:

1. The dominant source of the magnetic anomaly between the Livingstone Creek and Stanley Reward Gossans is a west-dipping, weakly and erratically mineralised skarn developed in the contact aureole of the Meredith Granite. The source of the magnetic anomaly is therefore of little importance as an exploration target.

2. The GSR 10 ironstone and Upper magnetite-sulphide skarn in GSR 14 are probably stratabound replacement zones caused by sill- or dyke-like offshoots from the Meredith Granite.

3. Tin mineralisation in skarns intersected during the 1984 drilling is of no economic interest:

GSR 14 Upper skarn (120.6-126.4m) av.505 ppm Sn

Lower skarn (169.6-187.0m) av.70 ppm Sn above 176.0 m
and 380 ppm Sn below 176.0 m

GSR 15 (223.2-227.0 m) av. 47 ppm Sn.

Tin probably occurs as stanniferous ilvaite or other tin silicate minerals.

4. The tin-bearing ironstones at Stanley Reward, Livingstone Creek and in GSR 10 have little economic potential because:

   a) there is only limited scope for tonnage development in the wedge bounded by the surface, the granite contact and the Oonah unconformity, and this is further restricted by the positions of barren holes GSR 14, 15, and 16;

   b) the grade and inferred metallurgy of the known occurrences are unfavourable, and there is neither theoretical basis nor practical evidence to suggest that either aspect will improve within the prospect area.

5. Deep karst topography was developed in a thick dolomite-rich stratigraphic unit in the northern part of the Stanley Reward prospect and contains dominantly intrastratal in-fill.

6. In the southern part of the prospect there is insufficient encouragement for further drilling.

B.G. GIBSON

Reference:

Kwak, T.A.P.; 1983, The Geology and Geochemistry of the zoned Sn-W-F-Be Skarns at Mt. Lindsay, Tasmania, Australia; Econ.Geol. v.78 no.7 pp. 1440-1465.

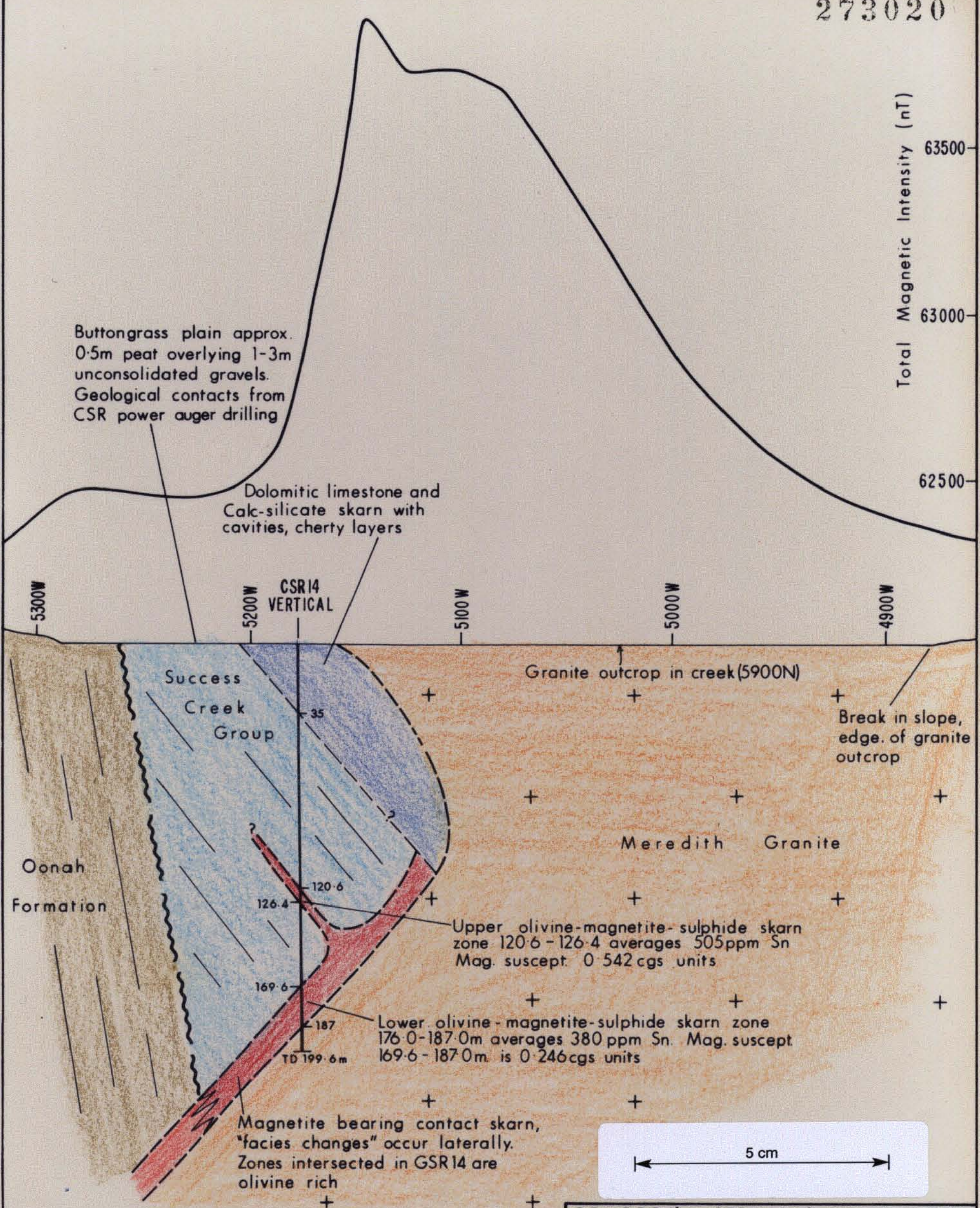
273019

NOTE: Susceptibility is in cgs units

MAGNETIC MODEL

018

273020



NOTE: Interpretation based on drillhole and surface data.
See Appendix 2 for drill log.

SCALE 1: 2500

0 50 100 m

GENCOR (AUSTRALIA) PTY LIMITED

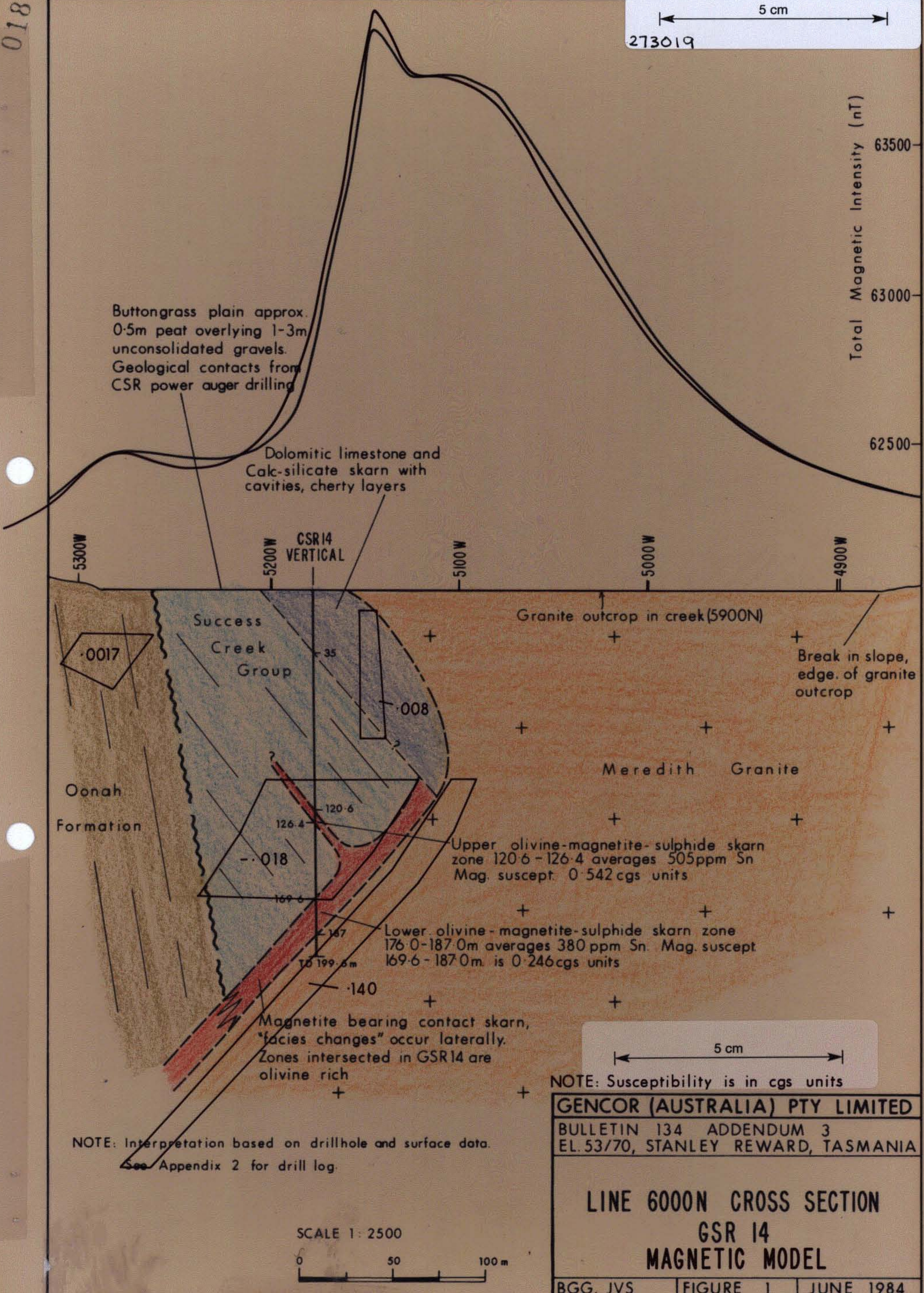
BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

LINE 6000N CROSS SECTION
GSR 14

BGG, JVS	FIGURE 1	JUNE 1984

018

273019



NOTE: Susceptibility is in cgs units

NOTE: Interpretation based on drillhole and surface data. See Appendix 2 for drill log.

GENCOR (AUSTRALIA) PTY LIMITED

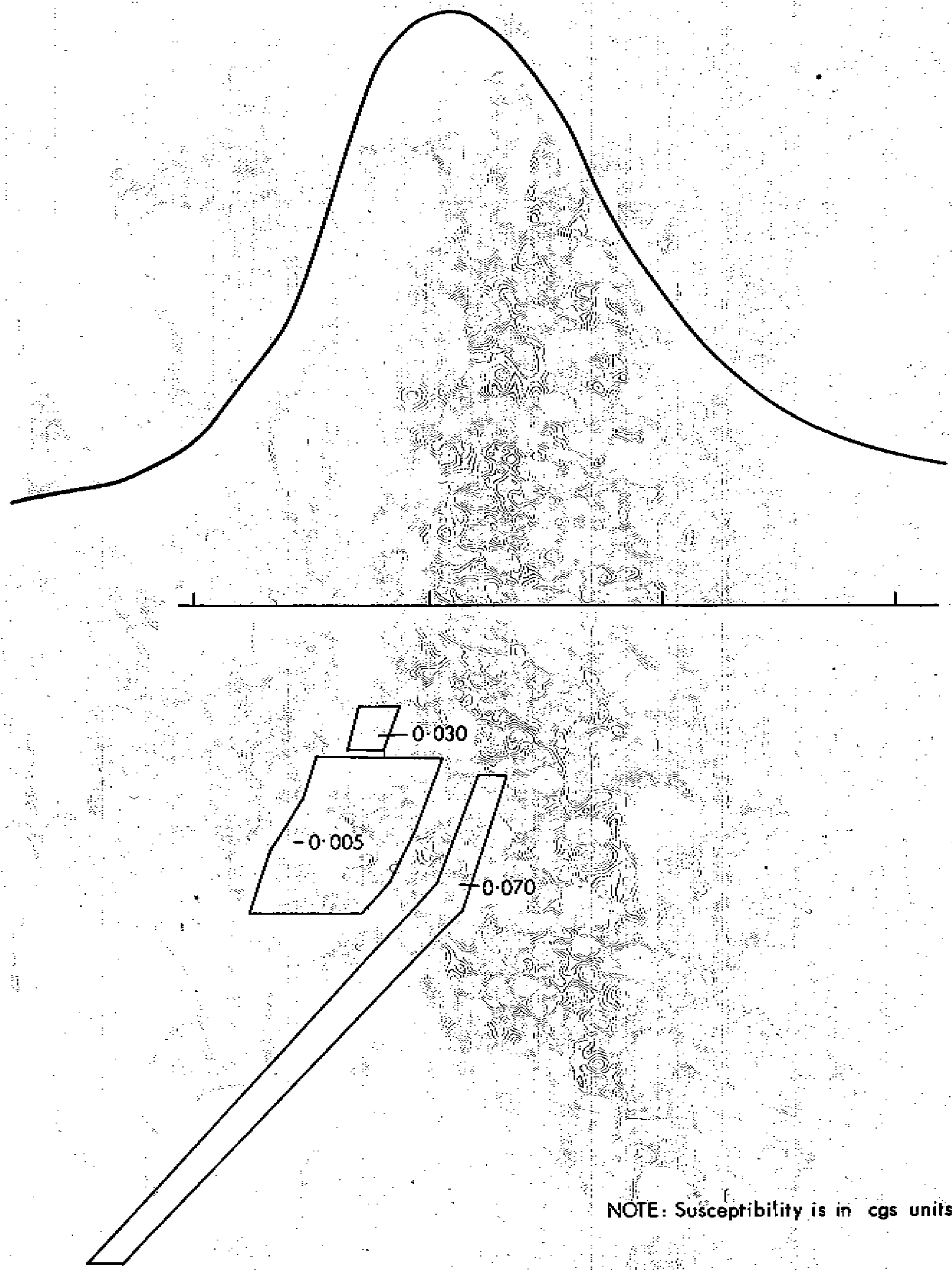
BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

LINE 6000N CROSS SECTION
GSR 14
MAGNETIC MODEL

BGG, JVS | FIGURE 1 | JUNE 1984

5 cm

273021

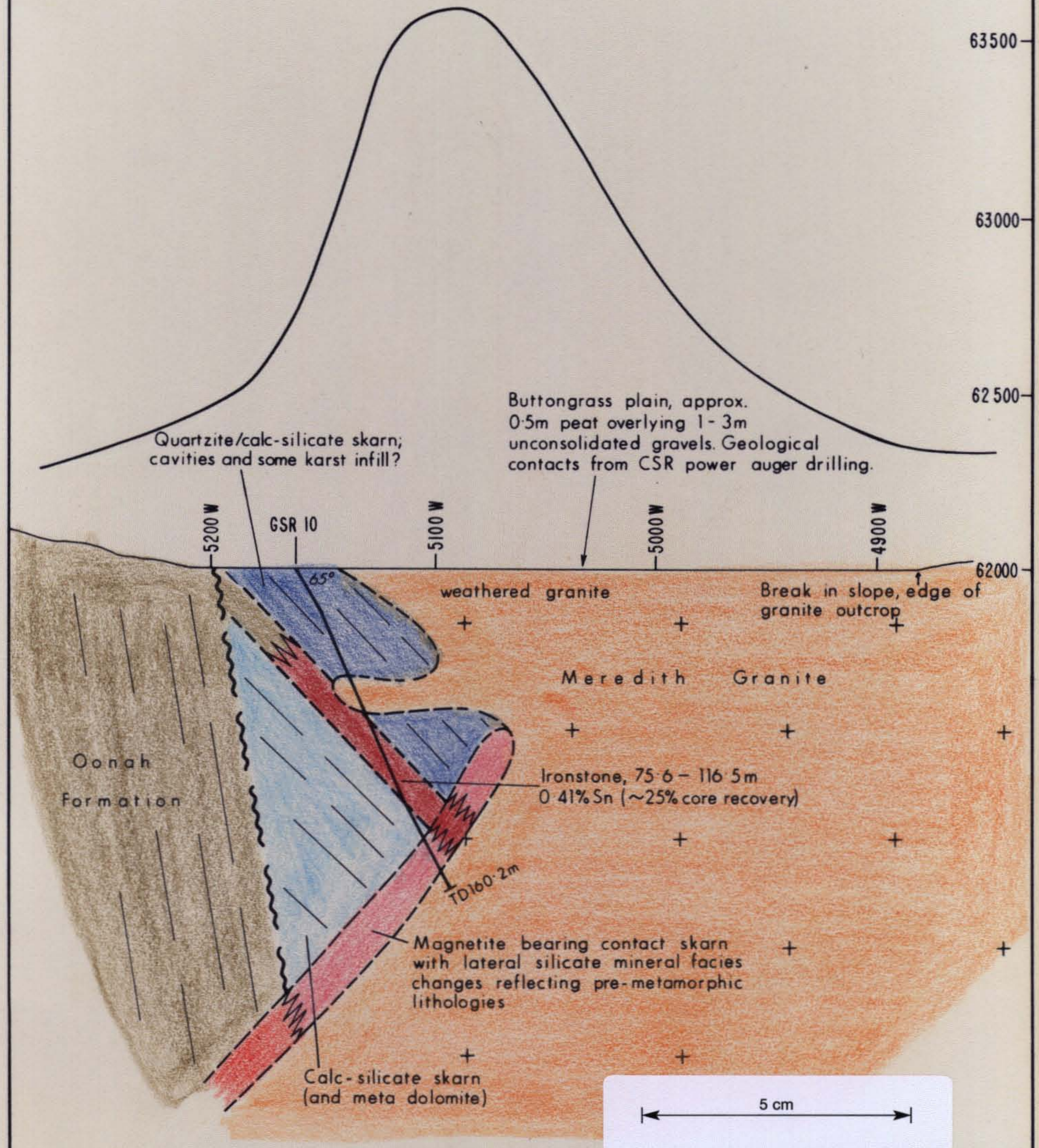


NOTE: Susceptibility is in cgs units

MAGNETIC MODEL

019

273022



NOTE: Interpretation based on drillhole and surface data.
See Appendix 2 for drill log

SCALE 1 : 2500
0 50 100m

GENCOR (AUSTRALIA) PTY LIMITED

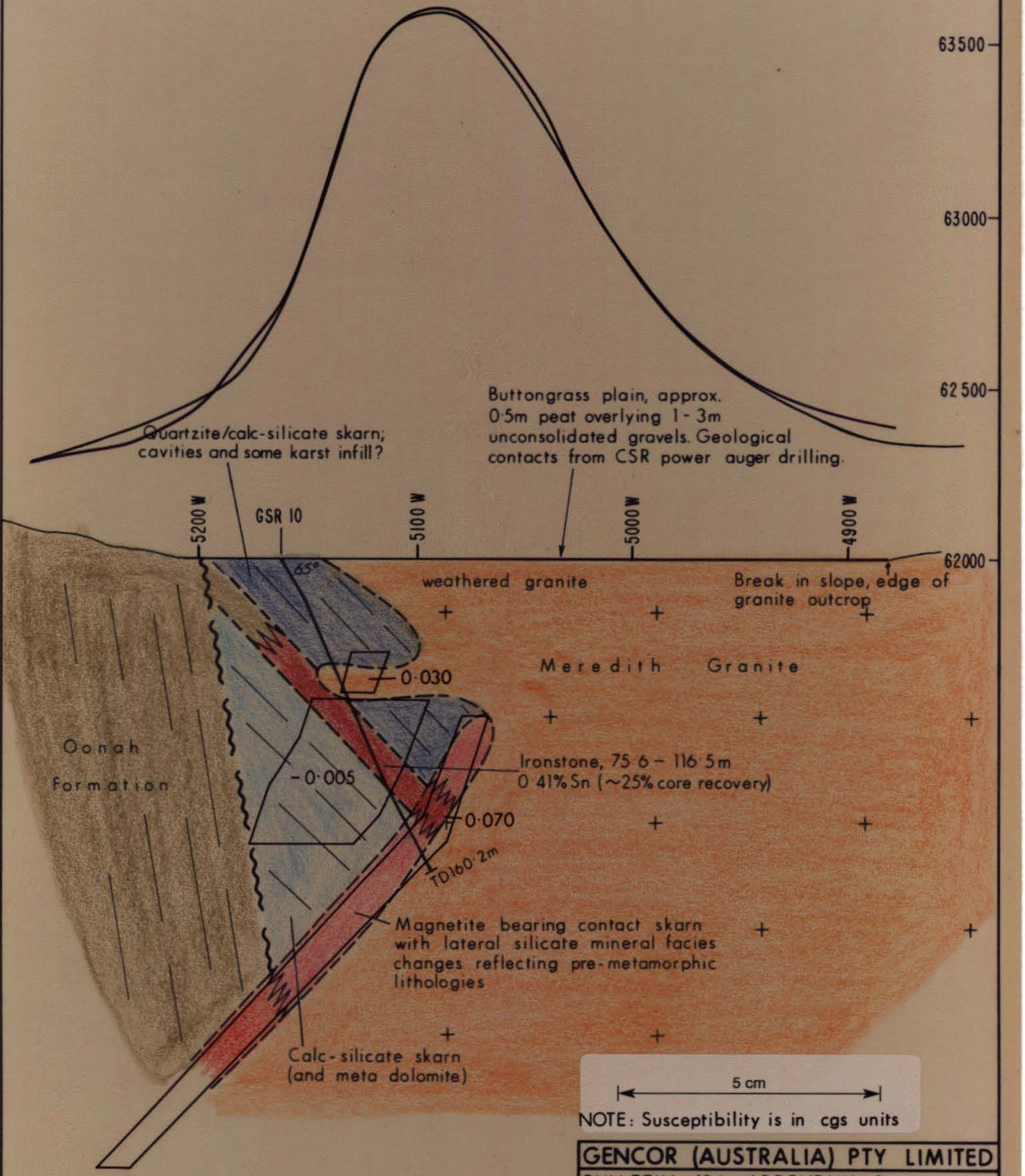
BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

LINE 6100 N CROSS SECTION
GSR. 10

BGG, JVS | FIGURE 2 | JUNE 1984

019

273021



NOTE: Susceptibility is in cgs units

NOTE: Interpretation based on drillhole and surface data.
See Appendix 2 for drill log

SCALE 1 : 2500
0 50 100 m

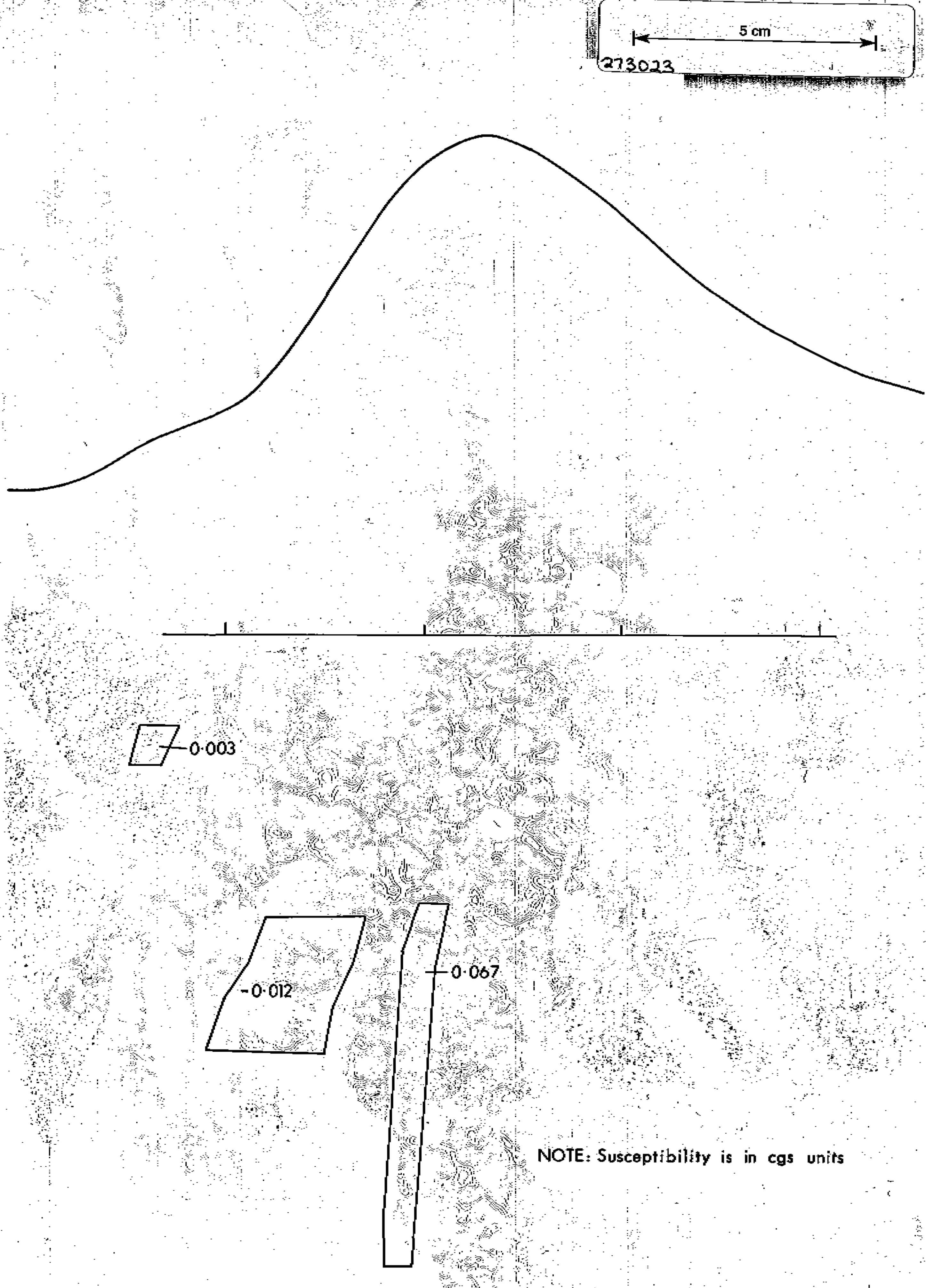
GENCOR (AUSTRALIA) PTY LIMITED

BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

LINE 6100 N CROSS SECTION
GSR. 10
MAGNETIC MODEL

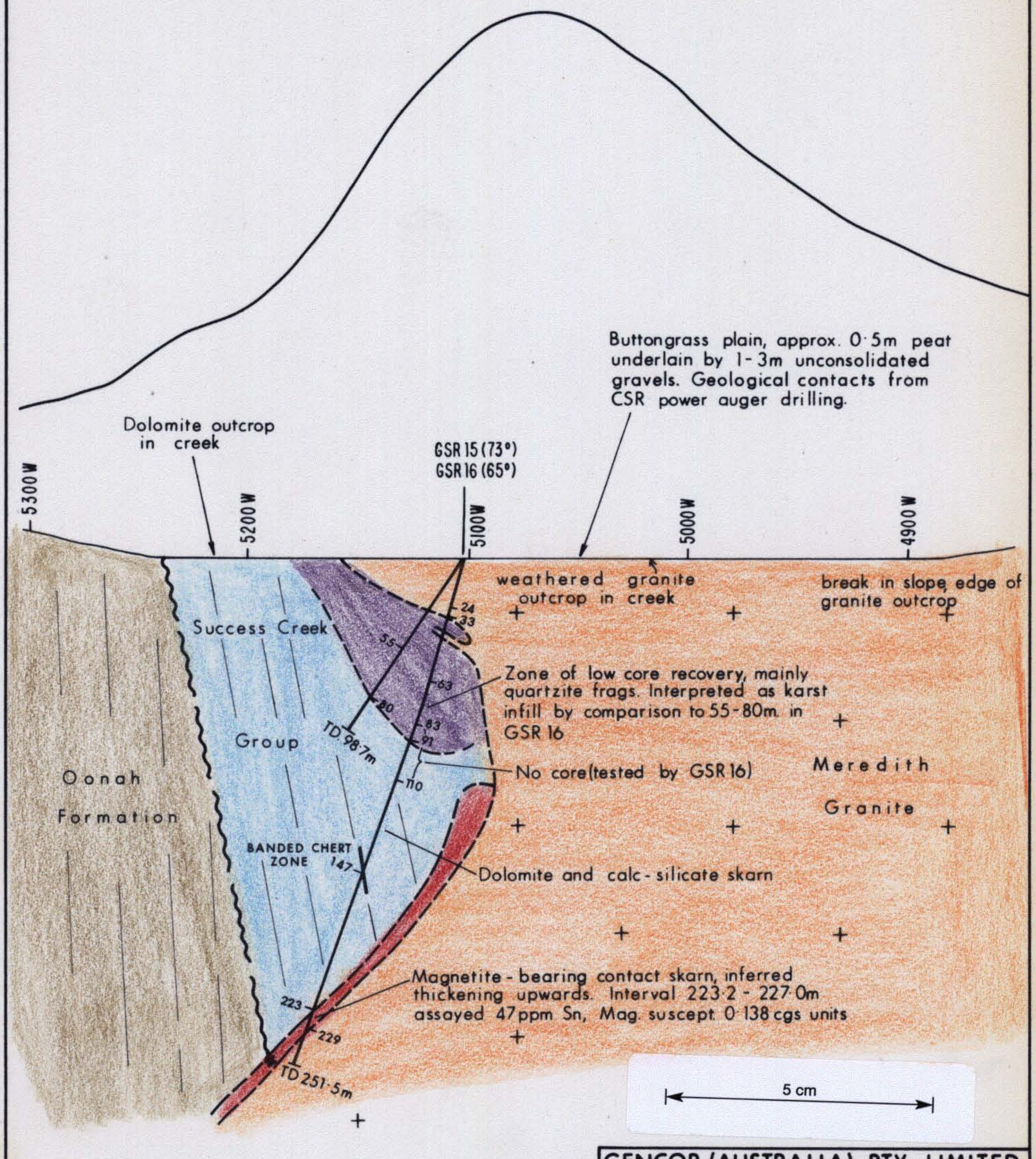
BGG, JVS	FIGURE 2	JUNE 1984

273023



NOTE: Susceptibility is in cgs units

MAGNETIC MODEL



NOTE : Interpretation based on drillhole and surface data. See Appendix 2 for drill log.

SCALE 1 : 2500

0 50 100 m

GENCOR (AUSTRALIA) PTY LIMITED

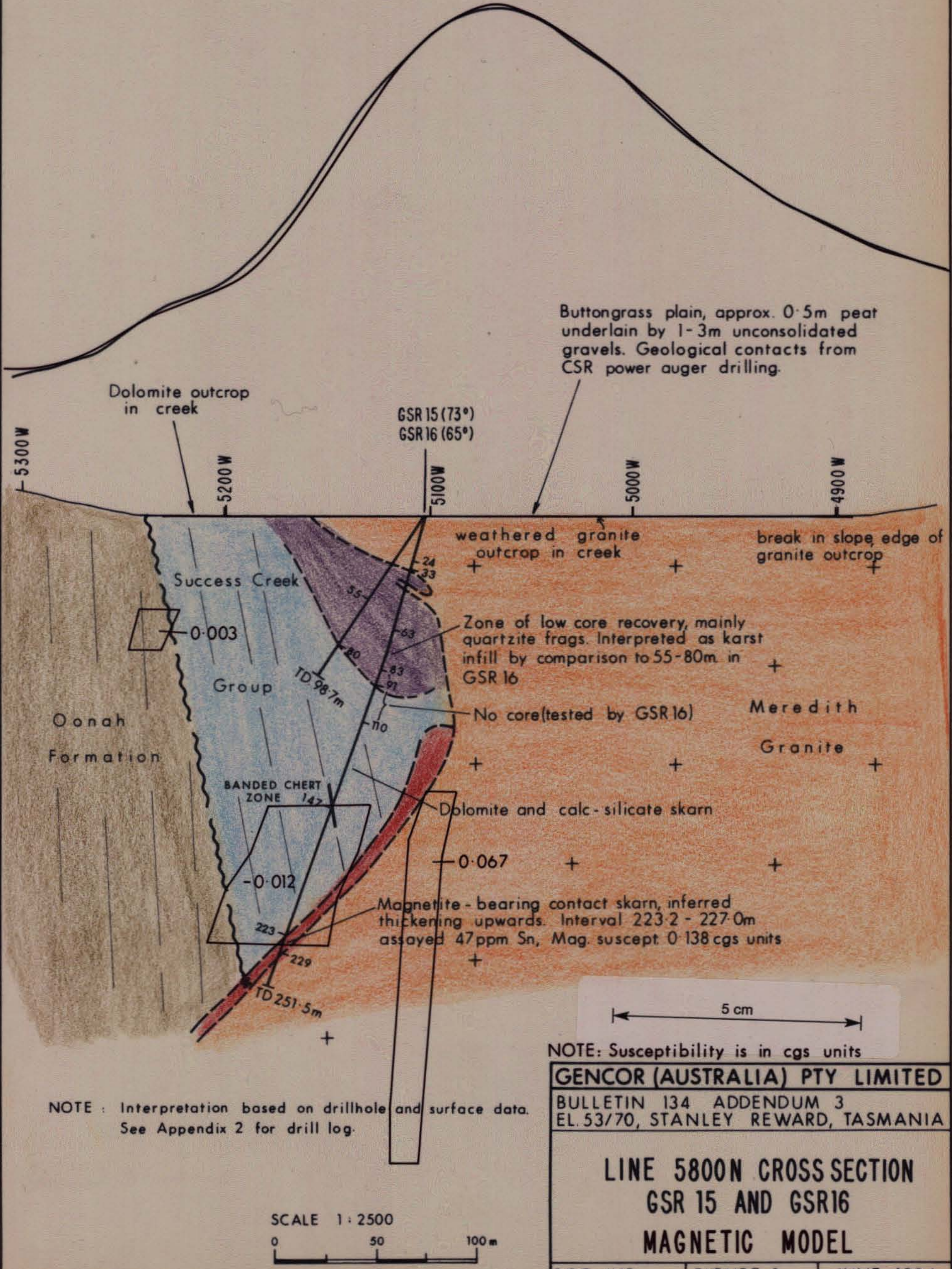
BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

LINE 5800N CROSS SECTION
GSR 15 AND GSR16

BGG, JVS	FIGURE 3	JUNE 1984

020

273023



NOTE: Susceptibility is in cgs units

NOTE : Interpretation based on drillhole and surface data.
See Appendix 2 for drill log.

GENCOR (AUSTRALIA) PTY LIMITED

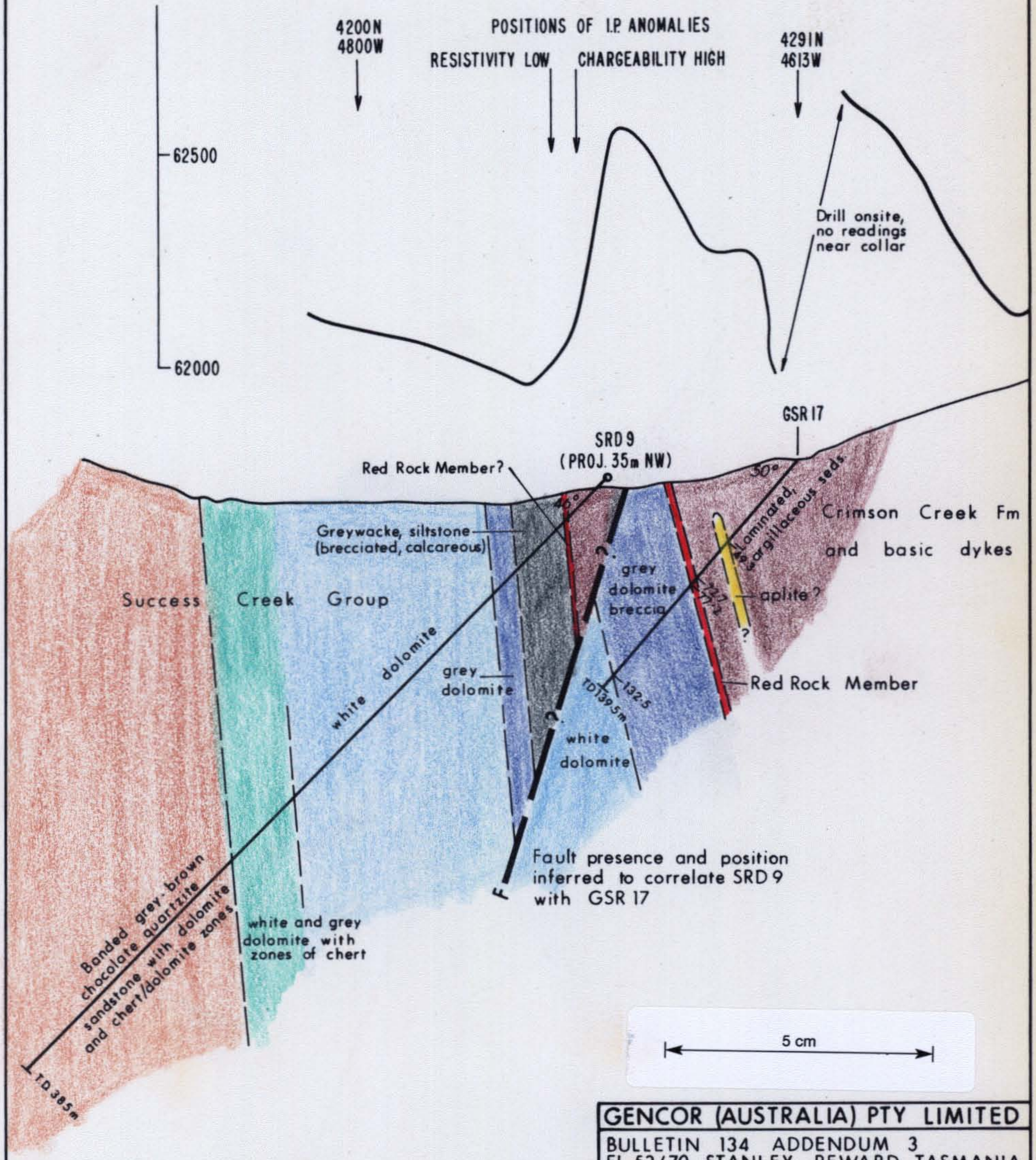
BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

LINE 5800N CROSS SECTION
GSR 15 AND GSR16
MAGNETIC MODEL

BGG, JVS	FIGURE 3	JUNE 1984

021

273025



NOTE: Interpretation based on drillhole and surface data.
See appendix 2 for drill log.

SCALE 1 : 2500

0 50 100m

GENCOR (AUSTRALIA) PTY LIMITED

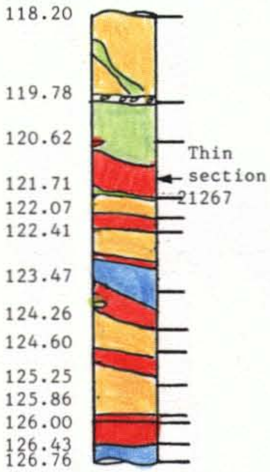
BULLETIN 134 ADDENDUM 3
EL.53/70, STANLEY REWARD, TASMANIA

CROSS SECTION (203°)
INTERSECTS 4200N & 4300N
GSR 17

BGG, JVS	FIGURE 4	JUNE 1984

022

UPPER OLIVINE-MAGNETITE-SULPHIDE SKARN (GSR 14)



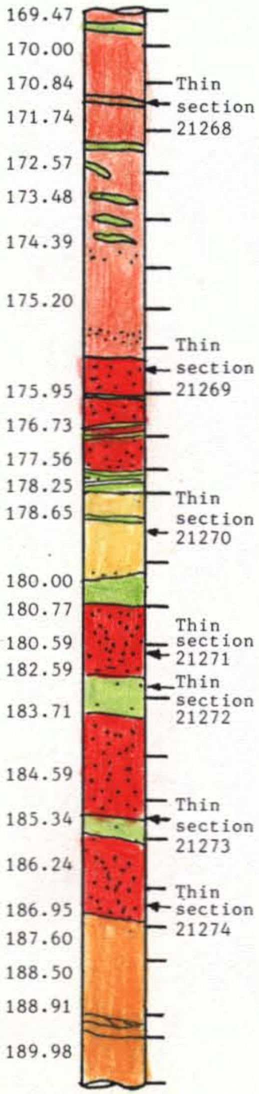
Sample No.	Sn	W	Mo	Cu	Pb	Zn	Ag	Cr	Ni
		All assays in ppm							
21230	20	15	<4	5	8	52	<1	<10	<5
21231	46	20	"	1850	20	390	"	"	10
21232	16	20	"	22	5	42	"	"	<5
21233	2180	<10	"	2320	<5	510	"	"	20
21234	110	15	"	180	12	140	"	"	16
21235	385	25	"	1300	38	370	"	10	16
21236	14	<10	"	38	12	60	"	<10	<5
21237	930	25	"	290	5	185	"	"	10
21238	20	10	"	14	15	50	"	"	<5
21239	350	25	"	900	<5	290	"	"	6
21240	2460	35	"	160	"	340	"	10	10
21241	165	10	"	4	"	185	"	<10	16

KEY

🟦	Dolomitic Limestone
🟩	Calc-silicate skarn
🟥	Olivine-pyrrhotite skarn
🟥	Olivine-Mg silicate-magnetite-sulphide skarn
🟨	Quartz-porphyry
🟧	Granite

Note: Petrographic descriptions are attached in Appendix 3.
Borehole logs and special reports are attached in Appendix 2.

LOWER OLIVINE-MAGNETITE-SULPHIDE SKARN (GSR 14)



Sample	Sn	W	Mo	Cu	Pb	Zn	Ag	Cr	Ni
21242	22	15	<4	150	<5	1800	<1	10	6
21243	64	15	"	850	6	1400	"	"	16
21244	<4	15	"	600	6	790	"	"	10
21245	105	20	"	610	<5	710	"	"	16
21246	68	10	"	150	"	960	"	"	6
21247	105	<10	"	650	6	1200	"	"	10
21248	125	20	"	130	<5	510	"	"	5
21249	60	25	"	970	"	880	"	"	6
21250	10	10	16	1500	"	270	"	"	10
21251	50	<10	<4	1700	"	730	"	"	10
21252	190	30	"	730	"	630	"	"	10
21253	74	15	"	450	6	260	"	"	10
21254	<4	10	"	8	6	34	"	"	6
21255	145	20	11	24	10	190	"	"	6
21256	405	20	6	2700	<5	130	"	"	20
21257	345	10	4	2600	26	230	"	10	16
21258	530	20	4	850	5	180	"	<10	<5
21259	890	10	<4	3200	6	160	"	"	6
21260	52	<10	6	550	6	120	"	"	<5
21261	810	10	<4	1900	6	190	"	"	"
21262	1460	30	4	350	6	220	"	10	6
21263	20	15	<4	22	10	26	"	<10	<5
21264	12	10	"	6	6	22	"	"	"
21265	110	15	"	56	16	48	"	"	"
21266	14	30	4	8	6	80	"	"	"

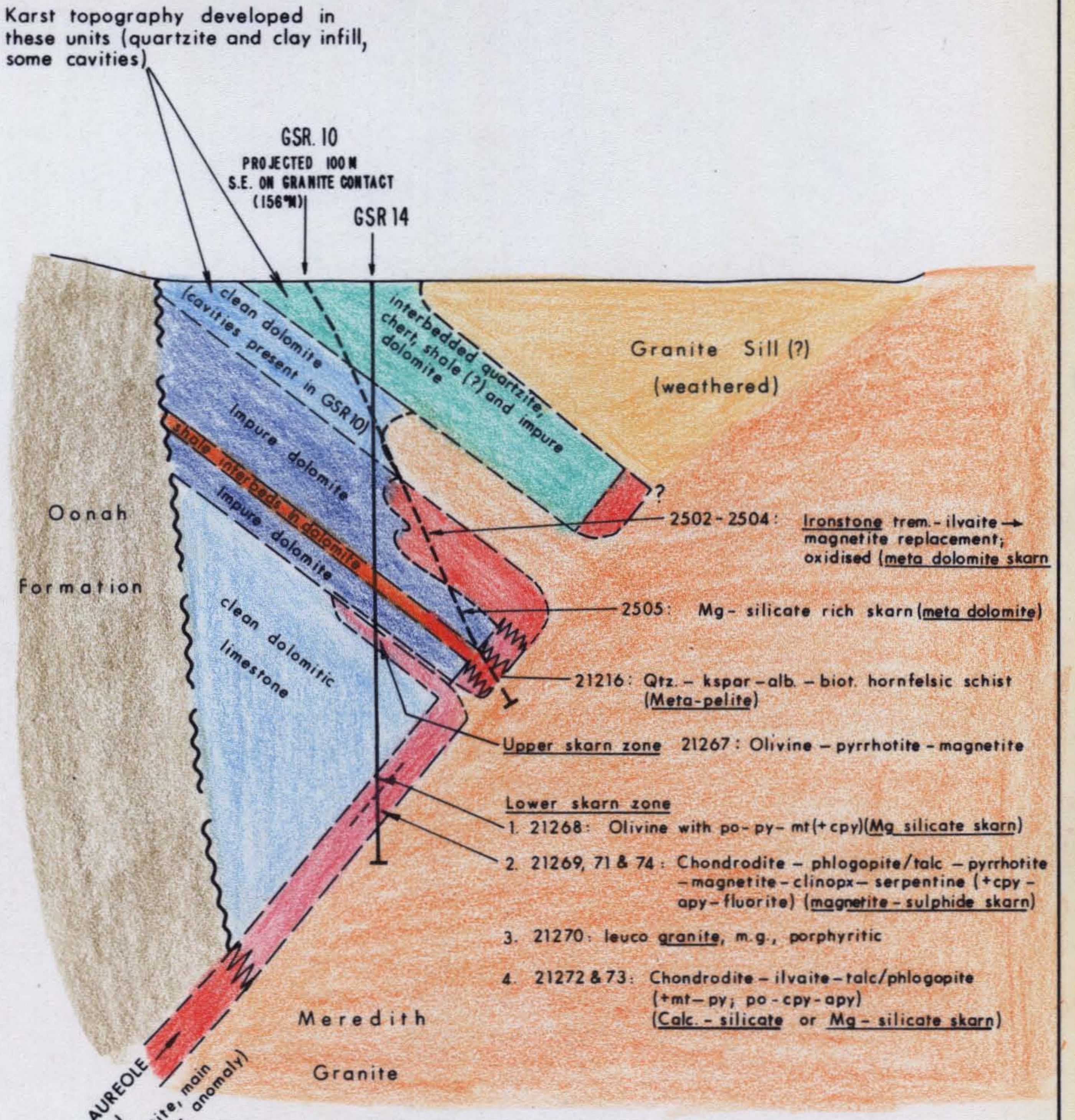
FIGURE 6

BOREHOLE GSR14, MAGNETITE-SULPHIDE SKARNS

273026

023

273027



NOTE: Refer to Appendix 3 for full petrological descriptions.

GENCOR (AUSTRALIA) PTY LIMITED

BULLETIN 134 ADDENDUM 3
EL. 53/70, STANLEY REWARD, TASMANIA

INTERPRETIVE CROSS SECTION
LINE 6000 N
GSR 14 WITH PROJECTION OF GSR 10

5 cm

SCALE 1 : 2000

0 100 m

BGG	FIGURE 7	JUNE 1984

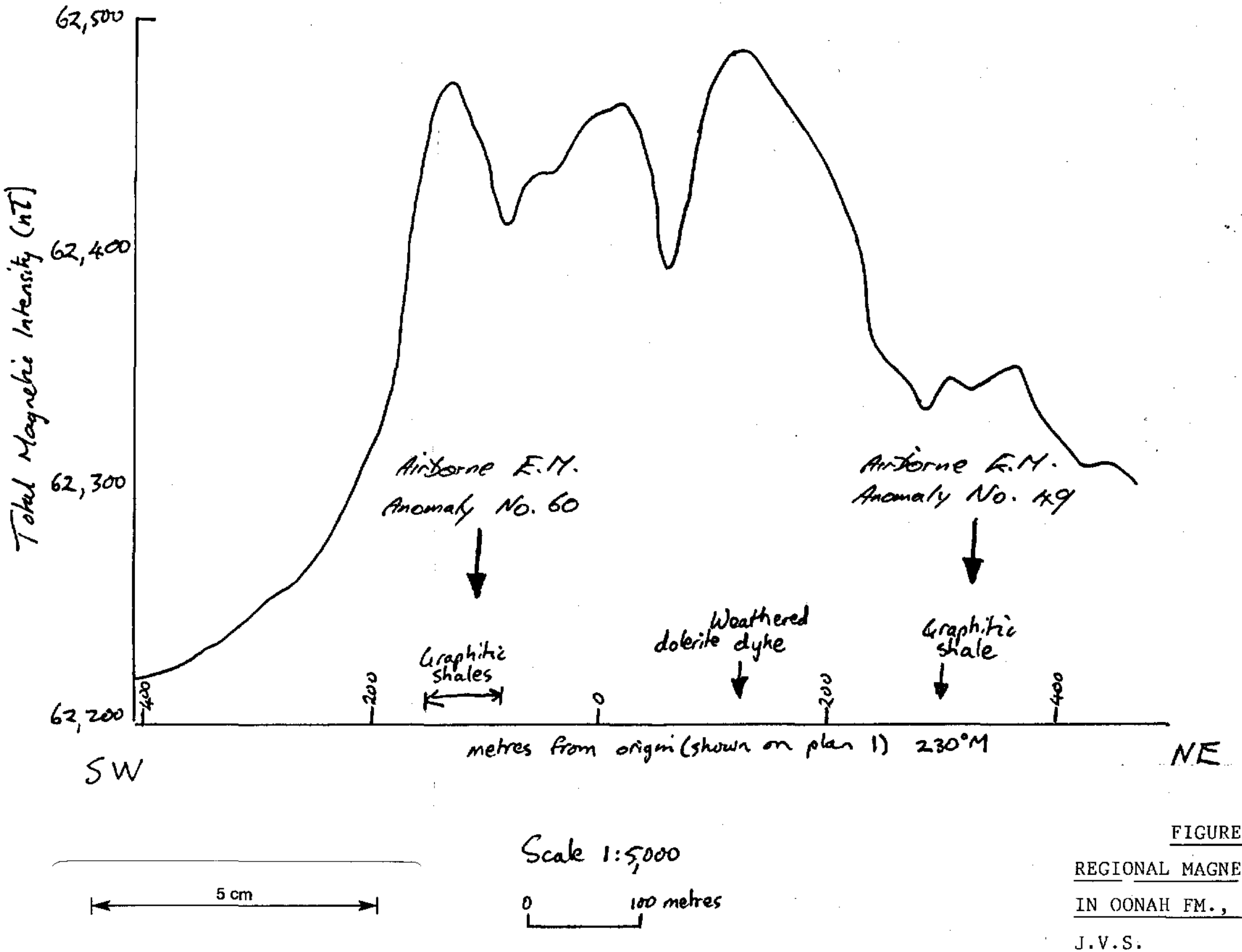


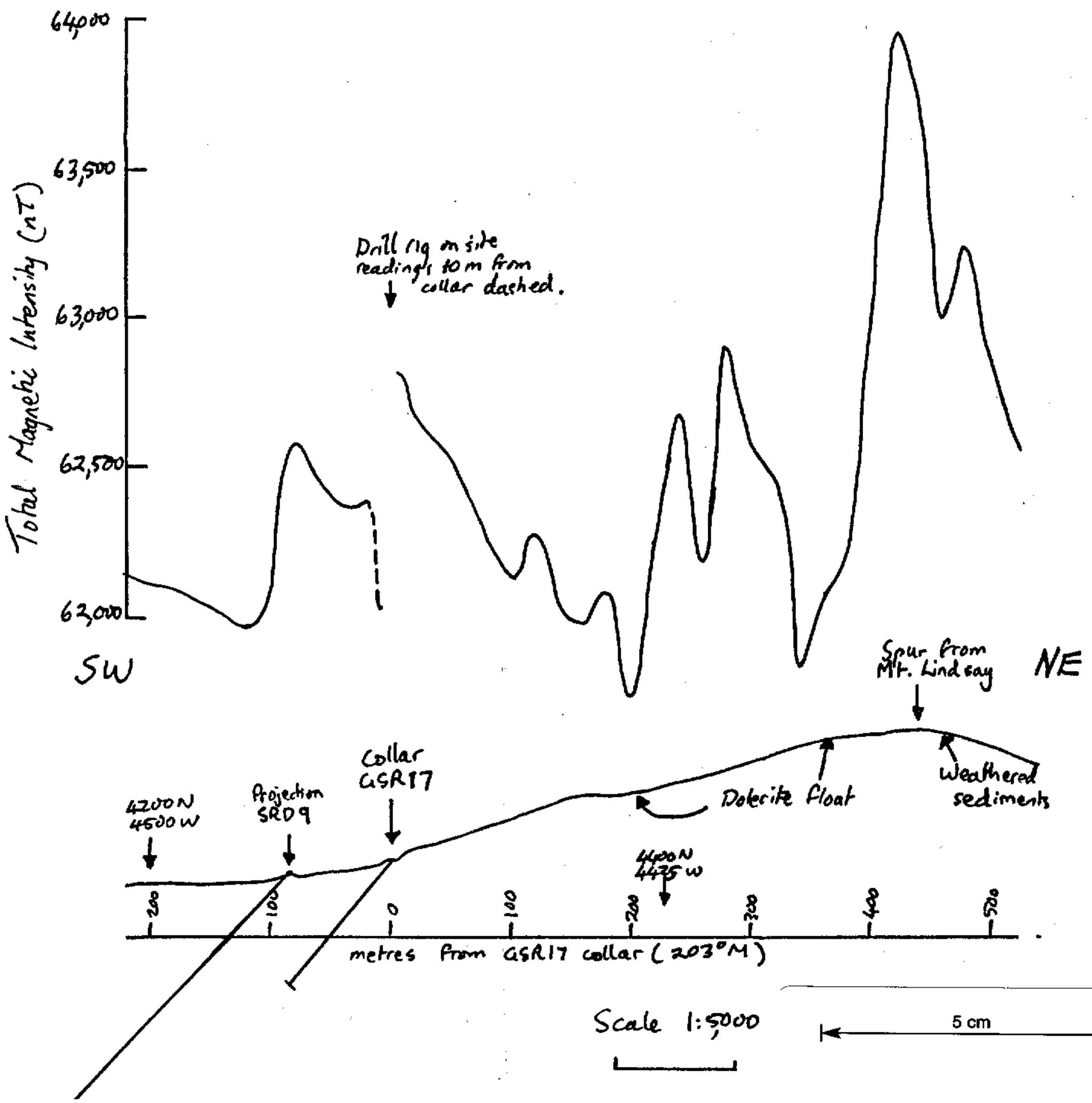
FIGURE 8

REGIONAL MAGNETIC TRAVERSE NO. 1

IN OONAH FM., 230°M

J.V.S. June, 1984

025



273029

FIGURE 9

REGIONAL MAGNETIC TRAVERSE No.2 ALONG GSR 17 DRILL LINE (203°M)

B.G.G. June, 1984

026

273030

APPENDIX ONE

APPENDIX 1

EXPENDITURE - 1984

Costs incurred for the Stanley Reward Prospect for the period 1 January to 31 May, 1984, are itemised below together with total expenditure since project inception.

	1 January - 31 May 1984	Total to 31 May, 1984
FEES		
Geologists	31,995	68,940
DISBURSEMENTS		
Travelling	2,832	4,027
Food & Accommodation	2,082	5,098
Drilling Costs	34,929	74,424
Wages	5,591	9,343
Motor Vehicle Expenses	3,615	5,506
Field Expenses	1,400	2,596
Telecoms, Printing & Stationery Freight & Postage, Maps, Films, Drafting	1,534	4,109
Lease/Licence Fees	-	1,550
Sample Treatment Fees	1,312	6,758
Hire of Equipment	6,683	7,350
Repairs & Maintenance	203	380
Sundry Costs	1,430	4,681
TOTAL	93,606	194,762

APPENDIX TWO

APPENDIX 2

DIAMOND DRILL LOGS

The following logs and special reports for the 1984 drilling programme are attached.

GSR 14: main log (0 - 199.6 m)
: special reports: Upper magnetite sulphide skarn (119.78 - 126.76 m)
: Lower magnetite-sulphide skarn and granite (169.47 - 189.98 m)

GSR 15: main log (0 - 251.5 m)
: special reports: Calc-silicate skarn below karst in-fill (112.50 - 145.50 m)
: Spotted dolomite zone (174.55 - 180.94 m)
: Skarn at granite contact (197.50 - 226.97 m)

GSR 16: main log (0 - 98.7 m)
: special report: Calc-silicate (ironstone ?) zone (77.80 - 98.7 m)

GSR 17: main log (0 - 139.5 m)
: special report: Pyritic chert and dolomite (72.7 - 98.96 m)

Only Sn, W, Mo and Cu assay results are shown on the special reports. For other assays (Pb, Zn, Ag, Ni, Cr) refer to copies of Amdel Assay Result sheets, attached in this appendix after the drill logs and special reports.

030

273034

DIAMOND DRILL HOLE GSR 14

031

273035

DIAMOND DRILL HOLE GSR 14

PROPERTY: Stanley River

COLLAR CO-ORDINATES: 6000N 5181.5W

COLLAR AZIMUTH: -

HOLE INCLINATION: -90°

DRILLING CONTRACTORS: Associated Diamond Drillers

DATE COMMENCED: 13th February, 1984

DATE COMPLETED: 8th March, 1984

LENGTH OF HOLE: 199.60 metres.

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER EL 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

DEPTH METRES	cms	Geol. Section 500 mm Per Div	GEOLOGICAL DESCRIPTION SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT		CORE DIP
0	00		No core. Tricone roller	OVERBURDEN AND WEATHERED SEDIMENTS Note: Average magnetic susceptibility outside special report sections is approximately 0.0008 S.I. units	
11	50		HQ 3 Core 20% recovery to 12.70M	LIMESTONE KARST ZONE Brecciated and altered sediments with chert bands and minor carbonate layers. Fragments commonly 0.5-2.5cm, some up to 10 cm. Several vuggy zones and patches, some with limonite staining. Sulphides present at 14.60. Fragments of gossan-like material at other depths are probably leached impure carbonate rocks - grains of carbonate leached impure with network of siliceous-argillaceous cement remaining.	
12	86		Chert band		55°
13	30		Grey limestone, brecciated. From 13 - 15.4m core dips are very steep Wavy foliation		60°
14	60		5mm mylonitised sulphides		65° to 90
15	00		Chert band Limestone		
16	20		Green altered brecciated calcareous sediments		
16	91		Veining steep core dips. Angular fragments to 2.5cm.		
17	84		Altered calcareous sediments and limestone. Broken core Broken core.		
19	10		10cm chert in breccia		
19	90				
20	60		Broken core. Zone of steep core dips (foliation), sub parallel to long core axis.		
24	35		Broken core vuggy fragments recovered, carbonate veins and layers. 45% core recovery.		

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033

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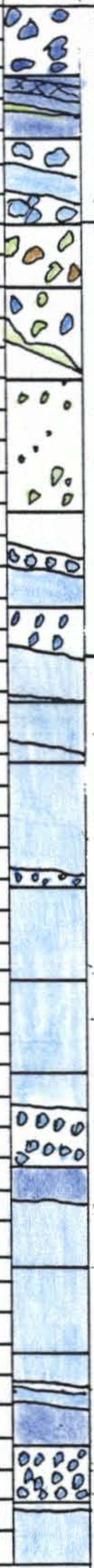
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER EL 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical



DEPTH		Geol. Section 500 mm Per Div	GEOLOGICAL DESCRIPTION		CORE DIP
METRES	cms		SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT		
			45% core recovery	DOLOMITIC LIMESTONE — KARST ZONE Altered and frequently sheared calcareous sediments, minor siliceous (chert?) zones. Some vuggy limonite stained areas, leached impure dolomite sediment cement networks remaining.	
26	20		90% recovery to 27.20m		
26	60		7cm chert, 3cm deep green silicate		55°
27	20		Limestone, minor silicate bands. 40% recovery		
28	50		Chert and shale fragments 15% core recovery	ZONE OF CAVITIES AND SHEARING Dolomitic Limestone, partly brecciated and altered with vuggy zones with chloritic alteration. 50cm cavity at 33.20, other minor cavities.	
29	50				
30	00		50% core recovery. Limestone and chert fragments. 3cm chert in brecciated calc-silicate rock.		
31	05		Chert fragments 2% core recovery Calc-silicate breccia fragments		75°
33	20		0.5m cavity, circulation lost		
34	00		60% core recovery excluding cavity.		
34	70		Limestone, impure at base		
35	25		20% core recovery Marble	WHITE DOLOMITIC LIMESTONE White recrystallised dolomitic limestone (pure marble) with minor calc-silicate spots. Zones of shearing parallel to bedding have chlorite coatings on calcite grains and some chlorite veins.	
36	05		15cm cavity, sheared marble, chloritic.		
36	20				
36	78		7cm vein with narrow veins of dark chlorite and disseminated sulphide in medium grained carbonate more coarse than adjacent marble.		45°
37	20				
38	86		Cavity with minor sheared limestone coated with chlorite.		
39	20		5% recovery Foliation of minor pale green mineral & dark chlorite, core dip 70%		
40	70				70°
42	20		50% core recovery		
42	65		Cavity with vuggy calc-silicate & minor disseminated cassiterite? in some fragments		
43	70				
44	20		Altered zone with calc-silicates irregulary veined through marble		
45	20		Marble		
46	70				
47	15		Cavity & chloritic altered marble.		
47	25		25cm impure limestone		
47	50		40cm green clay, chloritic altered limestone		
48	20		Minor limestone fragments		
49	10		Limestone veined & vuggy		
49	21		60% core recovery 47.25-49.21 Marble		

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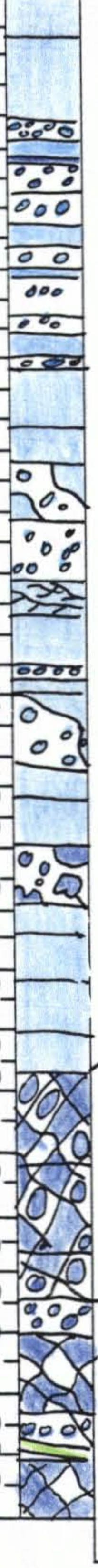
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 3

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER E.L. 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical



GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

DEPTH METRES	DEPTH cms	Geol. Section 500 mm Per Div			CORE DIP
50	70		Marble	WHITE DOLOMITIC LIMESTONE Pure white limestone (marble) with patches of chlorite occurring and mottled pale green silicates. Zones of shearing parallel to bedding represented by green pug-chlorite and chlorite coated grains.	
52	10		Shear zone, chlorite coated carbonate 50% recovery.		50°
52	40				
52	75		Pale green altered carbonate, chlorite veins.		55°
53	30		Pale green chloritic rocks, altered sheared carbonate.		
			Grinding. Tube did not seat. 60% recovery.		
55	60				55°
56	00		10cm core lost.		
56	20				
57	20				60°
57	68		40% recovery, shear zone green chloritic, altered carbonate.		
58	70		Shearing core dips very steep.		
			15% core recovery. Altered chloritic carbonate.		
59	65		Grey limestone sheared and partly altered at top.		
60	20		Network of fine alteration veins (dark chlorite)		
61	06		Shear zone 20% recovery. Soft chlorite pug and minor chlorite carbonate fragments.		
61	26				
61	48				
61	75		White limestone.		
62	62		Steep fracture.		
63	20		Grinding 15% recovery. Cavity, chloritic shear zone, ground lst. Fragments		
63	90		White. Mottled pale green and pinkish Grey, dark chl. spots (2mm) and veins.		
64	90		Shear zone, 40% recovery. Green alteration.		
65	45		Partly altered lst. numerous chl. veins and minor acicular crystals of both light & dark green silicate.		
66	20		Patches of dark chlorite.		
67	10				
67	70		Brecciated and altered carbonate Broken core to 76m. 50% recovery to 70.70	SHEARED & ALTERED CARBONATE Sheared & veined chloritic limestone partches of chloritic alteration. Brecciation of carbonate frequent. Much of zone consists of fragments of limestone and green pug. Minor chert and quartzite (or sheared chert?) layers	
69	20				
70	70				
71	40		80% recovery.		
72	00		50% recovery.		
			90% recovery.		
73	30		20% recovery.		
73	70		15cm quartzite, 8cm chert.		
74	10		Break.		
			80% recovery.		

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 4

BOREHOLE No. GSR 14 LOCATION STANLEY REWARD EL 53/70 TASMANIA

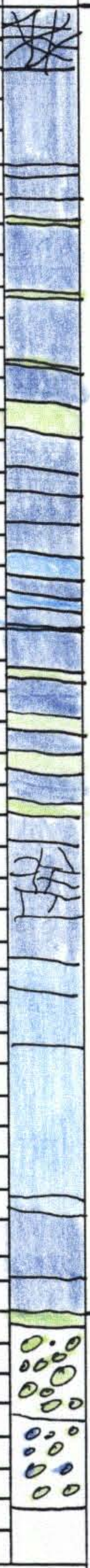
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div



DEPTH METRES	DEPTH cms	GEOLOGICAL DESCRIPTION
75	20	Brecciated & altered lst. Broken core from 67.70° to 76.00°
76	00	Lst coarsely veined & altered pale green. Whole core.
77	50	2cm chert.
77	60	4cm chert, broken core,
78	40	10cm vein actinolite (fibrous) & carbonate rods.
79	55	10cm chert, 1cm chlorite alterate above.
80	75	10cm chert, chl. alteration top & bottom
81	40	25cm chert, talc-magnesite above, & 15 cm brecciated at base.
82	45	4cm chert, brecciated & veined.
82	75	5cm chert, 3cm lens below.
83	75	10cm alteration. Carbonate layer 30cm then 2cm dark chlorite.
84	40	20cm dark grey dolomite sheared
84	90	8cm grey carbonate Zone of talc-clay alteration, V. soft soapy green colour
85	55	15cm broken chert.
86	30	Sheared & altered carbonate. Chert fractured.
86	98	Talc chlorite zone.
87	20	Chert fractured
87	70	Dark green talc-chlorite rich alteration vein (20cm)
88	40	5cm chert. Broken core. Strongly altered calceous rock.
		Altered carbonate, brecciated.
90	25	Brecciated light grey carbonate.
90	75	Brecciated light grey carbonate.
91	70	Vuggy carbonate.
94	08	Talc-magnesite vein in fractures. 6cm talc-chlorite.
94	35	Veined and altered carbonate.
95	45	Broken core to 96.00
96	00	Quartzite or quartz porphyry? (20cm). Altered chlorite veined carbonate. 35% recovery.
97	70	20% recovery. Carbonate, soft grey calc-silicates with 1mm flakes of blue-green mica.
99	20	No core to 100.7

SHEARED & ALTERED CARBONATE

Sheared & veined dolomite & calcareous sediments? with many chert layers. Some quartzite layers, possibly sheared chert. Some may be quartz porphyry (see 120-126m) Much of unit is brecciated, core consists of fragments & short pieces of whole core in green pug. Sequence regarded as calc-silicate skarn, with zones of unaltered primary lithologies. Zone of intense fracturing above more pervasively altered rocks.

CALC-SILICATE SKARN

Similar to zone above, but more pervasive alteration of primary lithologies. Much of top of zone is soft rock (clay?) in which core recovery was poor only fragments of harder layers & some pug recovered.

CORE DIP

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 5

BOREHOLE No. GSR 14 LOCATION STANLEY REWARD EL 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

Geol. Section 5.00 mm Per Div

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION
		No Core
100	70	Break.
		White siliceous fragments 15% recovery.
102	20	Break.
		35% recovery. Chloritic rock plus siliceous fragments.
103	70	Break. No core.
105	20	Break. Siliceous, broken core & fragments. 40% core recovery.
106	60	Break. Siliceous fragments. 70% core recovery.
107	10	30% recovery.
107	75	Siliceous fragments. 5cm lens dark chlorite with fine
108	16	disseminated mt.
108	27	12cm sheared chert.
108	60	Quartz porphyry? with fine tourmaline?
109	12	25% recovery.
109	70	Altered with carbonate Broken core, siliceous fragments.
110	55	30% recovery. Carbonate, altered & calc-silicates.
112	00	
112	40	Broken core strongly veined with blue-green mica and quartz. Calc-silicated & quartz steep mica veins. Broken core. Quartz vein
114	00	50% recovery.
114	80	Break. Siliceous fragments, some altered carbonate 50% recovery.
116	20	Break. Altered carbonate & siliceous fragments. 50% recovery.
117	00	Break. Dark green vuggy chlorite-actinilite rock.
117	50	Siliecous fragments. 50% recovery.
118	20	Quartz porphyry? very siliceous minor fine mafics.
118	53	Steep vein of carbonate, altered, vuggy. Siliceous fragments.
119	70	Brecciated calc silicate skarn
119	81	START OF SPECIAL REPORT
120	67	Lens of magnetite skarn.
120	74	Pyrite pyrrhotite to 121.2 Thin section 21267
121	36	
121	71	Silicates underlain by quartz porphyry
122	06	
122	43	Quartz porphyry with 3cm calc-silicate at top.
123	02	Sheared magnetite sulphide (6cm)
123	69	Carbonate disseminated magnetite.
124	26	Magnetite sulphide with lens of calc-silicates.
124	65	Quartz porphyry Magnetic-sulphide skarn.

CALC-SILICATE SKARN

Pervasively altered calcareous sedimentary sequence probably containing dolomitic limestone, shale, chert & quartzite. Some siliceous material resembles quartz-porphyry (see 120-126), other appears to be sheared chert. Areas of poor core recovery - green chloritic pug recovered are inferred to be argillaceous zones, which contained more siliceous bands (fragments recovered).

MAGNETITE-SULPHIDE SKARN

Magnetite & disseminated sulphide in f.g. dark grey olivine, sugary texture, several quartz-porphyry or leuco-granite dykes, separated from magnetite skarn by 1-3cm calc-silicate veins. Porphyry & calc-silicates contain small clots of sulphide.

CORE DIP

LOGGED BY B.G. GIBSON DATE 3 MARCH 1984

037

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 6

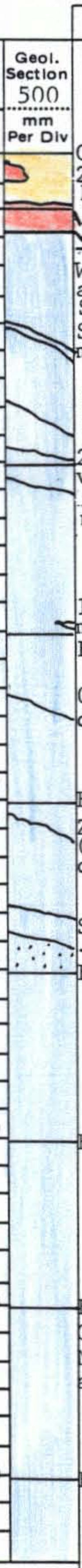
BOREHOLE No. GSR 14 LOCATION STANLEY RIVER EL 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT



DEPTH METRES	DEPTH cms			CORE DIP
125	03	Quartz-porphyry	MAGNETITE-SULPHIDE SKARN AND QUARTZ POPHYRY. END SPECIAL REPORT 126.75	
125	88	22cm lens of magnetite-sulphideskarn		
126	00	Magnetite sulphide skarn, partly limonitised.		
126	41	NQ core. Grinding, minor.		45°
		White carbonate with 9cm disseminated fine magnetite at top. Scattered pale green veins.	DOLOMITIC LIMESTONE White marble with irregular veins and patches of pale green calc-silicates. Minor dark veins of calc-silicates with disseminated fine magnetite. Medium grained recrystallised. No obvious bedding Veins have steep core dips but variable planar attitude, although 50° core dip is prevalent in lower part of unit.	
128	04	Steep veins (13cm) with disseminated magnetite.		
129	75	1cm vein calc-silicate and disseminated magnetite extend 40cm along core.		
130	25	25cm zone with network of alteration veins.		
130	60			
130	84	5mm vein of calc-silicates with minor mt.		
133	44	1cm lens quartz and fine dissem. mt.		
133	60	Break		
134	74	0.5cm calc-silicate vein steep core dip. minor dissem. magnetite		
136	60	Break		
136	85	Zone of light green calc-silicates (Diopside - epidote?). Talc-chlorite veining at 138.05m.		
138	36			
138	85	Salt and pepper textured carbonate -black spots		
139	60	Break		
				50°
142	60	Break		
145	60	Break		
		Grey white dolomitic limestone. No green veins such as occurs above.	DOLOMITIC LIMESTONE Grey-white dolomitic limestone with scattered zones of dark grey-black fine disseminated ferromagnesian minerals. Core dip of weak foliation 50°	
148	60	Break.		50°

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 7

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER EL 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div

DEPTH METRES	cms			CORE DIP
150	00		DOLOMITIC LIMESTONE Grey-white dolomitic limestone with scattered zones of dark grey black fine disseminated ferromagnesian minerals. Core dip of weak foliation 50°	
152	00	2cm fine disseminated ferrogmags underlain by 9cm. of irregular calc-silicate veining.		
152	80	10cm zone with disseminated ferromags and minor fine clots of sulphide.		
155	00			
155	83	12cm recrystallised dolomite with grey ferromagnesian minerals.		
159	35	7cm dolomitic shale with very fine disseminated sulphides.		70°
159	60			60°
159	85	17cm dolomitic shale as above		65°
160	40	Broken core. Minor dark grey dolomitic shale altered carbonate fragments, brecciated and veined with chlorite.		
160	56	Grey-green calc-silicate vein with very fine disseminated sulphides.		
160	74	Grey dolomitic limestone, recrystallised in part with patches of fine disseminated ferromagnesian mins.		
163	60	From 160.80 to 164.02 calc-silicate veins have very steep core dips.		
164	02	Break. Network veined and altered dolomite	ALTERED DOLOMITIC LIMESTONE "Crackle zone"? consisting of pale or dark green calc-silicate veins in dolomite. Minor very fine sulphide white calcite veins.	
166	60	Break		
167	40	Recrystallised pale green veins of calc-silicates and disseminated spots of ferromagnesian minerals.	DOLOMITIC LIMESTONE Grey-white dolomitic limestone, recrystallised with pale green veins and fine spots of ferromagnesium minerals.	
168	60			
169	47	START OF SPECIAL REPORT - 169.47m.		
169	57			
169	63	Calc silicate	OLIVINE RICH SKARN Dark grey to black Olivine rich rock variably mineralised with disseminated sulphides - largely pyrite. Moderately magnetic, abundant magnetite in basal 2 metres of unit. Irregular calc-silicate veins and masses.	45°
170	00			
170	55	Disseminated pyrite. 170.39-171.95		
171	24	Calc-silicate, Thin section 21268		
		Calc silicate		
		Irregular calc silicates, 172.44-173.79		
		Disseminated pyrite, 174.00-174.16		
175	00			Sulphides at 60°

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 8

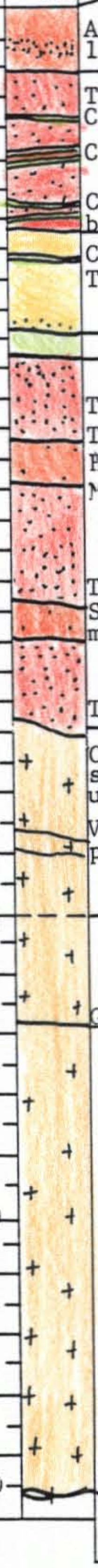
BOREHOLE No. GSR 14 LOCATION STANLEY RIVER EL 53/70 TASMANIA

COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT



DEPTH METRES	cms	
175	00	Abundant disseminated pyrite, 175.57-175.78
176	04	
176	37	Thin section 21269 Calc silicate
177	40	
177	56	Calc silicates
178	28	Calc silicates. Minor sulphide in basal 35cm of unit.
178	63	Calc silicate inclusion
179	48	Thin section 21270
180	00	
180	35	
180	76	
181	80	Thin section 21271
182	32	Thin section 21272 Humite-phlogopite-ilvaite skarn Minor sulphides
184	75	Thin section 21273
185	00	Skarn-silicate assemblage with minor sulphides
186	57	Thin section 21274
186	87	Contact at 55° parallel to sulphide silicate layering in averaging units.
188	58	Vein of chlorite-fluorite-chalcopyrite-arsenopyrite at 188.69.
188	82	
189	98	
190	00	-END OF SPECIAL REPORT.
191	87	Gradational contact.
195	00	
199	60	

END OF HOLE

OLIVINE-RICH SKARN

Dark grey to black olivine-rich rock variably mineralised with disseminated sulphides - largely pyrite. Moderately magnetic in basal 2 metres of unit.
Irregular calc-silicate veins and masses.

MAGNETITE-SULPHIDE SKARN

Fine grained grey to black olivine rich rock with abundant magnetite and sulphide throughout. Sulphides comprise pyrite and a steel grey sulphide like arsenopyrite, commonly 10%-50% of rock on total. Minor calc-silicate.

QUARTZ-PORPHYRY

Medium grained mottled grey-green quartz porphyry. Granitic texture near top - altered with disseminated sulphide near base.

CALC SILICATE SKARN

Probable diopside-garnet assemblage.

SULPHIDE-MAGNETITE SKARN

Banded skarn zone - banded Mg rich skarn zone. Humite phlogopite-clinopyrexene ilvaite. Abundant sulphide; 50% near top (mainly pyrrhotite), reducing to 5°-10° near base where magnetite abundant.

MEREDITH GRANITE ALTERED PORPHYRITIC MARGINAL PHASE

Coarse-grained porphyritic granite, green-grey, with partly re-sorted feldspar phenocrysts to 1.5cm. Matrix is clouded with areas of chloritic alteration.

MEREDITH GRANITE

Porphyritic biotite granite. Feldspar phenocrysts to 1.5 cm, still partly resorbed in a cloudy matrix. Less chloritic alteration but sericitic alteration of feldspars evident. Equigranular biotite aggregates commonly 3-4mm diameter with bronze sheen.

CORE DIP

Sul-
phide
@ 40°

60°-9

Sulph
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layer
ing A
50°

Conta
at 55

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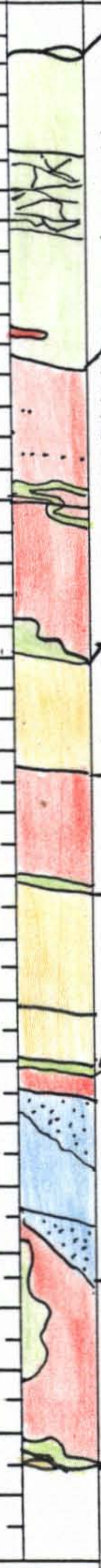
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1
BOREHOLE No. GSR 14 LOCATION STANLEY RIVER E.L. 53/70 TASMANIA
COLLAR CO-ORDS 6000N 5181.5W
COLLAR ELEV. DIRECTION INCLINATION 90°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP, STANLEY REWARD PROSPECT
SPECIAL REPORT, UPPER MAGNETITE SULPHIDE SKARN



DEPTH METRES	DEPTH cms	GEOLOGICAL DESCRIPTION	CORE DIP
119	78	Brecciated calc-silicate rock.	
120	08	Partly limmitised for 5cm above fracture. Broken core. Fragments & chips lost.	
120	33	Carbonate with chlorite-achnolite veins.	
120	67	Calc-silicate skarn, magnetite lens.	
120	74	Massive magnetite sulphide skarn	30°
120	91	Pyrite main sulphide, lesser pyrrhotite.	
121	05	Minor chalcopyrite.	
121	14	Pyrrhotite pyrite	
121	20	Calc-silicates, Fine magnetite rhombohedral patterned.	
121	23	Break.	
121	36	Thin section.	
121	71	Calc-silicate veins. Medium grained quartz-porphyry.	65°
122	06		20°
122	43		30°
122	82	Break.	
122	99	Calc-silicate vein	35°
123	02		
123	08		
123	32	Carbonate with disseminated magnetite. White carbonate.	70°
123	49	Carbonate with disseminated magnetite, sheared lower contact	50°
123	69	Magnetite-sulphide skarn. Lens of calc-silicates on left side of core.	75°
124	02		
124	22	Calc-silicate vein, underlain by quartz-porphyry.	
124	26		
			60°

CALC-SILICATE SKARN

Brecciated carbonate altered and veined with chlorite-actinolite.

MAGNETITE-SULPHIDE SKARN

Magnetite and carbonate grains 0.5-1mm in size. Sugary texture. Disseminated sulphides and poikolitic blebs. Sulphide range from 5-20% of rock.

QUARTZ PORPHYRY?

Metasomatically altered mottled medium grained siliceous rock. Probably quartz porphyry but could be quartzite. Minor sulphides.

MAGNETITE-SULPHIDE SKARN

Similar to zone above, but sheared and partly limonitised.

QUARTZ-PORPHYRY

Mottled green-grey siliceous rock, pale green ferromagnesian minerals, scattered sulphides similar to zone above, slightly coarser grained.

CARBONATE WITH MAGNETITE

White carbonate containing disseminated magnetite zones at top and bottom, also 6cm magnetite-sulphide-calc-silicate.

MAGNETITE-SULPHIDE SKARN

Irregular vein of skarn, sheared particularly along top contact which is discordant to disseminated magnetite in carbonate unit above.

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GRS 14 LOCATION STANLEY RIVER TASMANIA

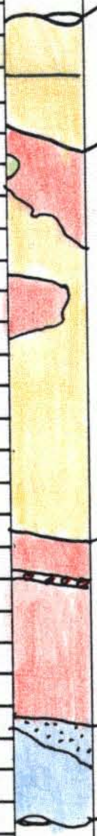
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION 90°

GEOLOGICAL DESCRIPTION

Geol. Section 100 mm Per Div

SUCCESS CREEK GROUP, STANLEY REWARD PROSPECT
SPECIAL REPORT, UPPER MAGNETITE SULPHIDE SKARN



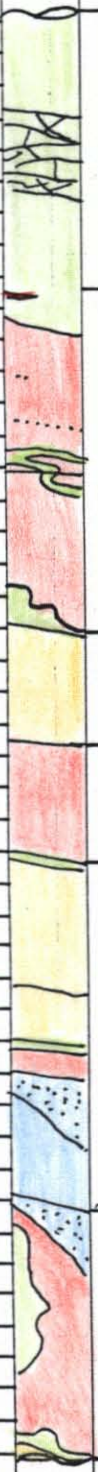
DEPTH METRES	cms			CORE DIP
124	26	Quartz-porphyry, medium grained.	QUARTZ-PORPHYRY Medium to coarse grained mottled green and grey siliceous rock.	
124	43	Break.		
124	65	Lens of calc-silicate.	MAGNETITE SKARN Sulphides present on top 7-8cm then skarn is semi-massive magnetite with minor carbonate.	50°
124	96	Quartz porphyry.		60°
125	06	Lens of magnetite-sulphide skarn.	QUARTZ PORPHYRY Coarse grained quartz-porphyry, minor sulphide blebs and small patches of altered ferromagnesian minerals. Lens of skarn contained in zone, part is sulphide-magnetite and part is massive magnetite.	
125	25			
125	88			
125	98	Break. Case off HQ3 core.	MAGNETITE-CALC SILICATE SKARN Sheared magnetite(-sulphide) skarn partly limonitized with calc-silicate matrix and veins.	
126	00	Grinding start of NQ core.		
126	43			45°
126	58	White dolomitic limestone.	DOLOMITIC LIMESTONE White marble with disseminated fine magnetite at top.	
126	75			

LOGGED BY R.G. Gibson DATE 5 March 1984

BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

SPECIAL REPORT - UPPER MAGNETITE SULPHIDE SKARN. DETAILS OF SAMPLING

AVE CORE DIP 49°

DEPTH		Geol. Section 100		THICKNESS — cms			REMARKS	ASSAYS			
METRES	cms	mm Per Line	Sample No.	Recov.	Repres	True		Sn	W	Mo	Cu
119	78		21230	89	94	58	CALC-SILICATE Incomplete	20	15	< 4	5
120	62		21231	111	111	73	OLIVINE-MAGNETITE-SULPHIDE SKARN One break Three fractures Minor chips lost Virtually complete	46	20	< 4	1850
121	71		21232	36	36	24	QUARTZ PORPHYRY Three fractures Chips lost Incomplete	16	20	< 4	22
122	07		21233	34	34	22	OLIVINE-MAG.-SULPH Two fractures Complete	2180	< 10	< 4	2320
122	41		21234	106	106	70	QUARTZ PORPHYRY & DOLOMITE One break Nine fractures Chips lost Incomplete	110	15	< 4	180
123	47		21235	79	79	52	OLIVINE-MAG. SULPH SKARN Four fractures. Complete.	385	25	< 4	1300
124	26										

SAMPLED BY B.G. GIBSON DATE 5TH MARCH, 1984.

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BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

DETAILS OF SAMPLING: SPECIAL REPORT - UPPER MAGNETITE SULPHIDE SKARN.

DEPTH		Geol. Section 100 mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
METRES	cms			Recov.	Repres	True	AVE CORE DIP 49^0	Sn	W	Mo	Cu
124	26										
			21236	34	34	22	QUARTZ PORPHYRY One break Three fractures. Minor chips lost. Virtually complete.	14	<10	<4	38
124	60										
			21237	65	65	43	OLIVINE-MAGNETITE-SULPHIDE SKARN Three fractures. Complete.	930	25	<4	290
125	25										
			21238	61	61	40	QUARTZ PORPHYRY One break. Seven fractures. Chips lost, Incomplete.	20	10	<4	14
125	86										
			21239	14	14	9	OLIVINE-MAG.-SULPH. One break Chips lost. Incomp.	350	25	<4	900
126	00										
			21240	43	43	28	Grinding Four fractures Chips lost Incomplete	2460	35	<4	160
126	43										
			21241	33	33	22	DOLOMITE Two fractures. Fragments lost Incomplete.	165	10	<4	4
126	76										

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COMPANY GENMIN EXPLORATION PTY LIMITED PAGE 1

BOREHOLE No. GSR 14 LOCATION STANLEY REWARD EL 53/70 TASMANIA

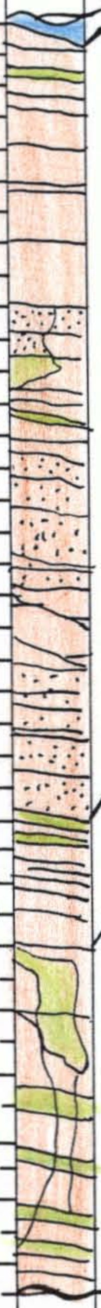
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT: SPECIAL REPORT
LOWER MAGNETITE - SULPHIDE SKARN.

Geol. Section 100 mm Per Div



START SPECIAL REPORT

DEPTH METRES	cms			CORE DIP
169	00			
169	47		DOLOMITIC LIMESTONE As for 167.40-169.57m interval in main log.	70°
169	63	Moderately magnetic (0.016cgs units of susceptibility	Mg-SILICATE SKARN, SULPHIDE-BEARING Dark grey to black moderately magnetic olivine and Mg-silicates as above, but containing disseminated sulphide, largely pyrite throughout. Minor calc-silicate veins and masses to 3cm.	45°
169	71	Calc silicate vein (3cm) 5 fractures to 170.04m.		
170	04	Sulphide bearing zone, py dominant		
170	20	5mm vein calc-silicate. Minor apy		
170	39	Pyritic zone (13cm) Minor mt. Traces apy, cpy.		
170	55	Irregular calc-silicate. 5 fractures to 170.53m.		
170	76	2cm calc-silicate vein		
170	84	Pyritic zone		
171	02	10 fractures to 171.85m.		
171	24	Thin section 21268		
		Fractures	Mg-SILICATE SKARN Olivine and Mg-silicate skarn as above but only very minor pyrite and more abundant calc-silicate veins to 5cm.	
		Zone of 4 fractures		
		Fracture		
171	95	Fracture 2cm calc-silicate/ quartz vein.		
172	06	5 fractures to 172.29m.		
172	44	Fracture. Irregular carbonate lens	CALC-SILICATE AND Mg-SILICATE SKARNS Irregular veins and aggregates of calc-silicates in f.g. black olivine rich matrix. Very minor sulphide.	
172	60	Fracture. Calc-silicate to 172.60 Fractured and broken core to 173.34. Break		
		Broken core, diagrammatic representation of calc-silicate zones.		
173	34	4 fractures to 173.48m.		
173	48			

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER E.L. 53/70 TASMANIA

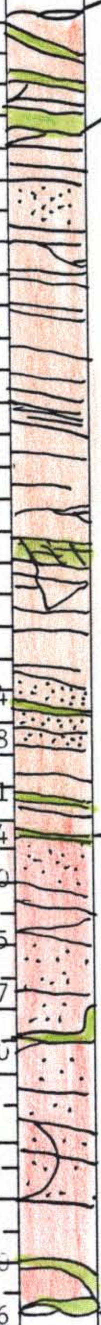
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT: SPECIAL REPORT
LOWER MAGNETITE - SULPHIDE SKARN.

Geol. Section 100 mm Per Div



DEPTH METRES	DEPTH cms	Description	CORE DIP
173	00		
173	48	Fractures	
173	57	3cm calc-silicates. Some po with py. Lens of calc-silicates (3cm)	
173	68	Fractures to 173.95m.	
173	87	Fracture 4cm, irregular calc-silicate	
174	00	Slightly coarse grained.	Sulphide @ 60°
174	20	Dots of magnetite (0.03cgs units of susceptibility) and pyrite. 5 fractures to 174.54	
		Fracture	
174	62	Fracture	
		Zone of 7 fractures, Chips lost	
174	86	3 fractures to 175.02m.	
175	11	Fractures	
		Calc-silicates to 175.19. 9 fractures to 175.34	
175	41	3 fractures to 175.57m	
175	57	Break. Disseminated sulphide zone	
175	64	3cm calc-silicate	Sulphide @ 40°
175	78	5cm zone with vaguely layered sulphides.	
175	91	Fracture 5cm.	
		3cm calc-silicate wedge.	
176	04	Fracture	
176	20	15cm chloritic alteration, minor sulphides only	Sulphide 40°
		Fractures	
176	35	Minor sulphide only	
		Thin section 21269	
176	57	Fracture	
		Calc silicate vein	
176	70	5 fractures to 177.40m.	Sulphide 60°-90°
		Fracture	
		Fracture	
		Fracture	
		Fracture	
177	40	Fracture-calc-silicate vein	
		Calc-silicate	
177	56		

CALC-SILICATE SKARN AND Mg SILICATE SKARN

Irregular veins and aggregates of calc-silicates in fg. black olivin and Mg-silicate skarn. Very minor sulphide (mainly pyrite)

Mg-SILICATE SKARN

Mg-silicate rich skarn with abundant magnetite as disseminations and aggregates. Disseminated sulphide (py?) throughout, abundant from 174.00 - 174.16 and 175.57 - 175.78. Minor calc-silicate alteration.

MAGNETITE-SULPHIDE SKARN

Five dark-grey to black olivine and Mg-silicate skarn with abundant magnetite and sulphide throughout. Core dips undeterminate, but may be steep.

Sulphides comprise pyrite and a steel grey sulphide resembling arsenopyrite. Constitute 10%-50% of rock in aggregate.

Minor calc silicate.

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COMPANY [illegible] PAGE

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER E.L. 53/70 TASMANIA

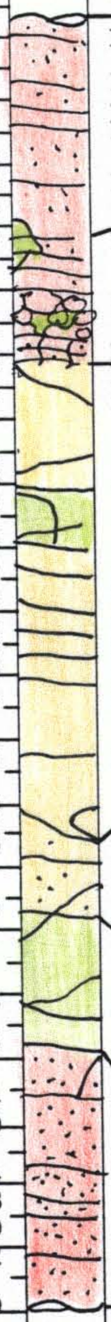
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT: SPECIAL REPORT
LOWER MAGNETITE - SULPHIDE SKARN.

Geol. Section 100 mm Per Div



DEPTH METRES	cms		GEOLOGICAL DESCRIPTION	CORE DIP
177	00			
177	56		MAGNETITE SULPHIDE SKARN Fine dark-grey to black dolomitic shale with abundant magnetite and sulphide throughcut. Core dips indeterminate, but may be steep. Sulphides comprise pyrite and a steel grey sulphide resembling arsenopyrite. Constitute 10%-50% of rock in aggregate. Minor calc silicates.	
177	59	Fracture		
177	76	Fracture		
177	81	Fracture		
177	87	Fracture		Sulph-ides
178	00			60° -
178	05	Fracture		Vert.
178	19			
178	28	Fractures	MAGNETITE-SULPHIDE SKARN Magnetite-sulphide skarn as above, less sulphide, more irregular calc-silicate. Broken core.	
178	41	Broken core		
178	54			
178	63	Fractures Fractures		Contac with porphr
178	74	Fractures	QUARTZ-PORPHYRY Medium-grained mottled grey-green quartz-porphyry. Granitic texture near top silicified and altered near base.	5°
178	91	Fracture		
179	00	Calc-silicate inclusion		
179	02			
179	18			
179	26	Fracture		
179	38	Fracture		
179	45	Fracture		
179	48	Thin section 21270		
179	53	Fracture		
179	61	Fracture		
179	85	Fracture		
180	00			Contac with
180	02		PORPHYRY-ALTERATION SELVAGE Altered quartz porphyry (?) with disseminated sulphide-arsenopyrite (or stannite?)	porphr
180	09	Fracture		65°
180	35	Fractures		
180	62	Fractures	CALC-SILICATE SKARN Calc-silicate skarn zone-possibly diopside-garnet assemblage, zoned.	
180	76	Fracture		
180	91	Fracture		Sulph. layer-ing
181	00		SULPHIDE-MAGNETITE SKARN Skarn zone containing approximately 50% sulphide, mainly pyrrhotite with subordinate chalcopyrite. Silicate assemblage is diopside quartz. Crudely developed but well-defined sulphide layering.	
181	14	Fracture		55°
181	23	Fracture		
181	30			45°
181	42	Fracture		
181	59			

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273051

BOREHOLE No. GSR 14 LOCATION STANELY RIVER EL. 53/70 TASMANIA

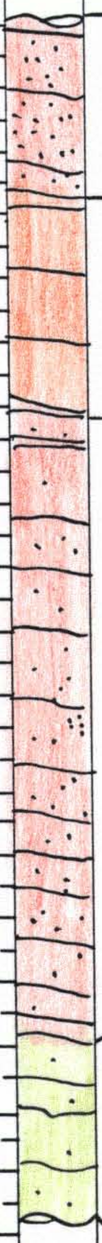
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT: SPECIAL REPORT LOWER MAGNETITE - SULPHIDE SKARN.

Geol. Section 100 mm Per Div



DEPTH METRES	DEPTH cms			CORE DIP
181	00			
181	59		**SULPHIDE-MAGNETITE SKARN** Skarn zone containing approximately 50% sulphide, mainly pyrrhotite with subordinate chalcopyrite. Silicate assemblage is diopside-quartz. Crudely developed but well defined sulphide layering.	Sulph. layering 55°
181	60	Fracture		
181	80	Fracture Thin section 21271		
182	00			
182	04	Fracture		
182	12		**Mg-SILICATE SKARN** Dark grey Mg silicate skarn with bladed ilvaite, and minor sulphide.	Sulph layering 40°
182	15	Fracture Thin section 21272		
182	37	Fracture		
182	57	Fracture		
182	78			Silicate la ering 25°
182	81	Fracture	**Mg-SILICATE-SULPHIDE SKARN** Sulphide bearing skarn; olivine-humite-clinopyroxene phlogopite-vesuvianite assemblage, with crudely banded pyrrhotite and minor chalcopyrite. Sulphide content commonly 10%-50%.	
182	88	Two fractures		
183	00	Light brown silicate-vesuvianite?		
183	14	Fracture		
183	30	Fracture		
183	49	Fracture		Sil-sulph layering 55°
183	72	Fracture Chalcopyrite		
183	91	Fracture		
184	00			
184	07			
184	18	Fracture		
184	30	Fracture Fracture		
184	46	Fracture		
184	60	Fracture		
184	69	Fracture		
184	77	Light brown silicate-garnet? Thin section 21273	**CALC-SILICATE SKARN** Chondrodite -phlogopite-dinopyroxene assemblage with minor pyrrhotite, pyrite, chalcopyrite and specks of white steel grey sulphide. Crudely layered.	Sil layering 50°
184	90			
184	98	Fracture		
185	00	Fracture		
185	18	Fracture		
185	34	Fracture		

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273052

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 5

BOREHOLE No. GSR 14 LOCATION STANLEY RIVER EL 53/70 TASMANIA

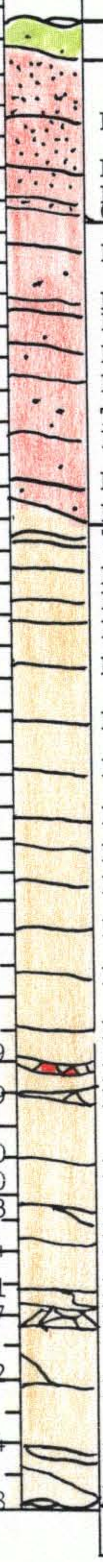
COLLAR CO-ORDS 6000N 5181.5W

COLLAR ELEV. DIRECTION INCLINATION Vertical

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT: SPECIAL REPORT
LOWER MAGNETITE - SULPHIDE SKARN.

Geol. Section 100 mm Per Div



DEPTH METRES	cms		
185	00		
185	34		
185	42		
185	63	Fracture	
185	80	Fracture	
185	89	Fracture	
185	92	Gradational Contact	
186	04	Fracture	
186	21	Fracture	
186	24	Fracture	
186	35	Fracture	
186	45	Fracture	
186	63	Thin section 21274 Fracture	
186	79	Fracture	
186	87	Fracture	
186	95	Two fractures	
187	00		
187	06	Fracture	
187	15	Fracture	
187	22	Fracture	
187	37	Fracture	
187	53	Fracture	
187	69	Fracture	
187	83	Fracture	
187	91	Fracture	
188	00		
188	03	Fracture	
188	18	Fracture	
188	33	Fracture	
188	49	Fracture	
188	59	Fracture Brokencore -	chalcopyrite arsenopyrite&fluorite
188	69	Broken core	on break
188	90	Fracture	
189	00		
189	03	Fractures	
189	14	Fracture	
189	31	Fracture	
189	37	Fractures Broken core	
189	62	Fractures	
189	84	Fractures	
189	98	Fracture	

	CORE DIP
CALC-SILICATE SKARN Probable assemblage quartz-diopside-actinolite (?) garnet, with minor pyrrhotite, pyrite, chalcopyrite and specks of white-steel grey sulphide. Crudely layered.	Sulph & Sil - 45° well defin
SULPHIDE MAGNETITE SKARN Skarn assemblage containing about 35% sulphide becoming less towards base of unit. Pyrrhotite predominant; lesser py & cpy. Minor magnetite increasing toward base of unit. Medium grained well defined layering.	Silicate & sulph - 45°
MAGNETITE-(SULPHIDE) SKARN Dark grey-black, medium grained magnetite-rich skarn zone. Minor sulphides commonly 5%, mainly pyrite with lesser chalcopyrite and white to steel grey sulphide Note that contact with porphyritic granite margin is parallel to sulphide and silicate layering developed in this and the overlying units.	Porphyry conta 55° parallel to su layering.
PORPHYRITIC GRANITE Coarse grained porphyritic granite, green-grey, with partly re-sorbed feldspar phenocrysts to 1.5cm. Feldspar size decreases down-hole. Matrix is cloudy with poorly defined ferromags. Green mottles probably represent areas of chloritic alteration. White to grey sulphide on break at 188.69 - arsenopyrite?	

END SPECIAL REPORT

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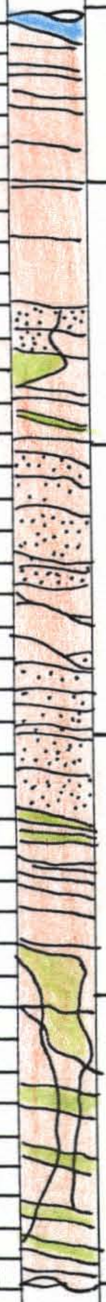
273053

BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

SPECIAL REPORT, LOWER MAGNETITE SULPHIDE SKARN DETAILS OF SAMPLING



DEPTH		Geol. Section 100 mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
METRES	cms			Recov.	Repres	True	AVE CORE DIP 54°	Sn	W	Mo	Cu
169	47		21242	53	53	31.2	OLIVINE-CALC SILICATE SULPHIDE SKARN. One break Three fractures. Chips lost. Incomp.	22	15	<4	150
170	00		21243	84	84		Three fractures Minor chips lost Virtually complete	64	15	<4	850
170	84		21244	90	90	52.9	Six fractures Chips lost Incomplete	<4	15	<4	600
171	74		21245	83	83	48.8	Thirteen fractures Chips lost Incomplete	105	20	<4	610
172	57		21246	91	91	53.5	One break. Broken core. More than thirty fractures Incomplete	68	10	<4	150
173	48										

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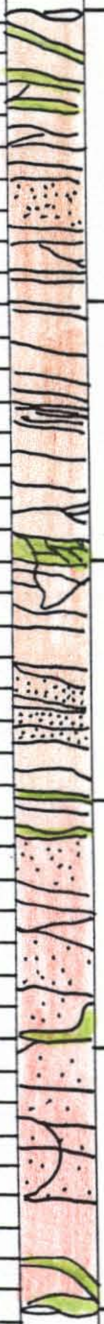
273054

BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

DETAILS OF SAMPLING: SPECIAL REPORT, LOWER MAGNETITE SULPHIDE SKARN

Geol. Section 100 mm Per Line

AVE CORE DIP 54°



DEPTH METRES	cms	Sample No.	THICKNESS — cms Recov.	Repres	True	REMARKS	ASSAYS Sn	W	Mo	Cu
173	48									
		21247	91	91	53.5	OLIVINE -CALC-SILICATE-SULPHIDE SKARN Ten fractures Chips lost Incomplete	105	<10	<4	650
174	39									
		21248	81	81	47.6	Sixteen fractures Chips lost Incomplete	125	20	<4	130
175	20									
		21249	75	75	44.1	One break Nine fractures Chips lost Incomplete	60	25	<4	970
175	95									
		21250	78	78	45.8	OLIVINE-MAGNETITE-SULPHIDE SKARN Six fractures Minor chips lost Virtually complete.	10	10	16	1500
176	73									
		21251	83	83	48.8	Seven fractures Chips lost Incomplete	50	<10	<4	1700
177	56									

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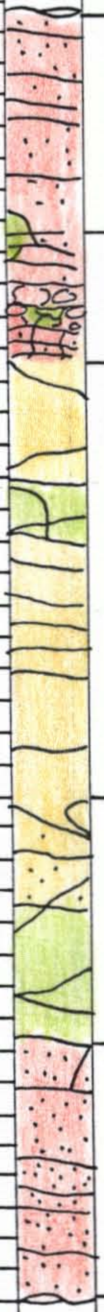
BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

SPECIAL REPORT, LOWER MAGNETITE SULPHIDE SKARN DETAILS OF SAMPLING

AVE CORE DIP 54^{0}

DEPTH		Geol. Section 100									
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
				Recov.	Repres	True		Sn	W	Mo	Cu
177	56						OLIVINE-MAG.-SULPH.				
			21252	69	69	40.6	Seven fractures Chips lost Incomplete	190	30	< 4	730
178	25		21253	40	40	23.5	Twelve fractures Chips lost Incomplete	74	15	< 4	450
178	65						QUARTZ-PORPHYRY & CALC-SILICATE				
			21254	135	135	79.4	Thirteen fractures Virtually complete.	< 4	10	< 4	8
180	00		21255	77	77	45.3	Six fractures Minor chips lost Virtually complete	145	20	<4	24
180	77						OLIVINE-MAG.-SULPH.				
			21256	82	82	48.2	One break Five fractures Complete.	405	20	6	2700
181	59										

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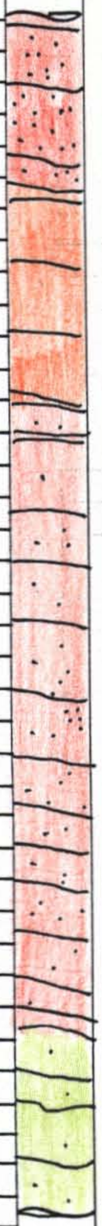
273056

BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

DETAILS OF SAMPLING SPECIAL REPORT, LOWER MAGNETITE SULPHIDE SKARN



DEPTH		Geol. Section 100	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
METRES	cms	mm Per Line		Recov.	Repres	True	AVE CORE DIP 54°	Sn	W	Mo	Cu
181	59										
			21257	100	100	588	OLIVINE-MAG.-SULPH. & CALC-SILICATE Three fractures Complete	345	10	4	2600
182	59										
			21258	112	112	65.8	Four fractures chips lost Incomplete	530	20	4	850
183	71										
			21259	88	88	51.7	One break Three fractures Minor chips lost Virtually complete	890	10	< 4	3200
184	59										
			21260	75	75	44.1	Two fractures Complete	52	< 10	6	550
184	34										

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273057

BOREHOLE No. GSR 14 COMPANY GENMIN EXPLORATION PTY. LIMITED

DETAILS OF SAMPLING: SPECIAL REPORT, LOWER MAGNETITE SULPHIDE SKARN

Geol. Section 100 mm Per Line

AVE CORE DIP 54°

DEPTH			THICKNESS — cms			REMARKS	ASSAYS			
METRES	cms	Sample No.	Recov.	Repres	True		Sn	W	Mo	Cu
185	34					OLIVINE -MAG.-SULPH. CALC-SILICATE				
		21261	90	90	52.9	Five fractures Fragments lost Incomplete	810	10	< 4	1900
186	24									
		21262	71	71	41.7	Four fractures Minor grinding Incomplete	1460	30	4	350
186	95					PORPHRITIC GRANITE				
		21263	65	65	38.2	Three fractures Chips lost Incomplete	20	15	< 4	22
187	60									
		21264	90	90	52.9	One break Three fractures Chips lost Incomplete	12	10	< 4	6
188	50									
		21265	41	41	24.1	Five fractures Chips lost Incomplete	110	15	< 4	56
188	91									
		21266	107	107	62.9	Ten fractures Chips lost Incomplete	14	30	4	8
189	98									

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DIAMOND DRILL HOLE GSR 15

055.

273059

DIAMOND DRILL HOLE GSR 15

PROPERTY: Stanley River

COLLAR CO-ORDINATES: 5800 N 5101.5 W

COLLAR AZIMUTH: 225°M

HOLE INCLINATION: -73°

DRILLING CONTRACTOR: Associated Diamond Drillers.

DATE COMMENCED: 12th March, 1984

DATE COMPLETED: 2nd April, 1984

LENGTH OF HOLE: 251.5 metres

HOLE SURVEY DATA:

NUMBER OF SURVEYS: 2

SURVEYS:

1. At 150 metres
   Azimuth: Not measured
   Inclination: -71°

2. At 172 metres
   Azimuth: 214°
   Inclination: -71°

056

273060

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225^{0}M (Grid West) INCLINATION -73^{0}

DEPTH METRES	DEPTH cms	Geol. Section 500 mm Per Div	GEOLOGICAL DESCRIPTION SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT		CORE DIP
0	00		No core. Tricone roller/casing advance 11.10m. HW casing	OVERBURDEN & WEATHERED GRANITE	
			Commenced drilling with HQ coring bit		
5	00				
10	00				
15	00				
20	00			GRANITE Wholly weathered light grey-green granite. Cored as soft clay with medium-coarse grained quartz phenocrysts.	
24	00				
25	00				

LOGGED BY J.V. SMART DATE 14TH MARCH, 1984

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273061

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225° (Gird West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP -
STANLEY REWARD PROSPECT

DEPTH | Geol. Section 500 mm Per Div | CORE DIP

METRES	cms
25	00
26	00
30	00
33	00
33	59
34	00
34	88
35	00
35	80
37	50
37	55
39	00
40	00
40	50
41	05
41	15
42	00
42	87
43	50
43	70
45	00
45	30
46	20
46	42
46	50
48	00
49	50
50	00

43cm core. 22% recovery.
Break.

96cm core.
24% recovery.

Break.

110 cm core.
37% recovery.

Break.
Gritty quartz in brown clay matrix, sub angular to rounded quartz which is more abundant than above. Unsorted.
Break. 100% recovery 33.0-34.0.
6cm granite vein.
No fractures - 100% recovery.
Granite vein 34.88-35.06.
Sandy layer - reddish coated quartz.
Break.
32cm broken core.
21% recovery,

Break.
79cm core. 54% recovery.
Yellow-grey.
Break.
86cm core, 57% recovery,
Pink, porphyritic.
Break
Break.
71% recovery.
100% recovery.
siltstone fragments.
95% recovery.
Quartzite fragments.
Break.
Quartzite fragments.
40% recovery.
Quartzite fragments.
Quartzite fragments & silty layer.
3cm tourmaline vein.
Siltstone & quartzite.
Broken core. 50% recovery.

Broken core, 13% recovery.

Break.
Broken core, 20% recovery.

GRANITE

Wholly weathered granite light grey-green, cored as soft clay with medium to coarse grained quartz pheinocrysts.

GRANITE

Wholly weathered as above, but more competent core. Pervasive chloritic alteration evident as greenish blotches in clay. Appears to be more clay-rich & altered in basal 70cm.

SILTY ARGILLITE

Wholly weathered mid-grey green & fawn mid-brown silty argillite. Some coarser sandy layers. Bedding or metamorphic layering evident.

QUARTZITE

Angular fragments of greenish-grey & reddish quartzite, well banded in part-bedding, planes clearly recognisable, 2mm partings.

GRANITE - KARST INFILL (?)

Wholly weathered yellow-grey granite to 39.0m. Thence coarse porphyritic pink granite to 40.5m.

SILTSTONE & QUARTZITE
KARST INFILL (?)

Broken fragments of siltstone & quartzite in clay matrix - weathered granite vein.

GRANITE - KARST INFILL(?)

Wholly weathered yellow-grey equigranular & pink porophyritic granite.

QUARTZITE - KARST INFILL (?)

Broken fragments of vughy quartzite with minor tourmaline veining.

GRANITE & SEDIMENTS -
KARST INFILL (?)

Wholly weathered & pink granite containing quartzite & siltstone fragments throughout 3cm tourmaline vein at 46.20m.

QUARTZITE - KARST INFILL (?)

Massive compact light-mid grey quartzite with minor interbedded siltstone. Granitic veining in upper 60cm. Broken core.

LOGGED BY J.V. SMART DATE 15TH MARCH, 1984

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 3

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION
50	00	
51	00	Break Quartzite fragment in clay matrix Break Loose quartzite fragments- 12% recovery.
52	50	Break Granite vein - tourmaline-bearing
54	00	Sandy layer quartzite & quartz fragments
54	21	Quartz fragments in clay matrix. Broken quartzite core 57% recovery. Break
55	50	Loose fragments of quartzite over 50cm broken quartzite core 37% recovery
56	50	Break 19cm stick of quartzite
57	20	15cm granite vein in broken quartzite
57	50	Break and siltstone. 38% recovery.
58	00	75% recovery. Break 30% recovery.
59	00	Break. Ground core, some caved material. 45% recovery.
60	70	Break 20% recovery. Broken and ground core.
62	50	Break 15% recovery. Broken core. 15cm fine granite vein.
64	20	Break 30% recovery Badly broken and ground core.
66	00	Break
67	00	Break. NQ core HQ cased but subsequently reamed down to 72.00m 15% recovery, quartzite fragments
70	50	Break 8% recovery. Badly broken core, quartzite fragments Bedding in one fragment, 55° core dip.
74	00	Break.

QUARTZITE - KARST INFILL (?)

Massive, compact light mid grey quartzite with minor interbedded siltstone. Granitic veining in upper 60cm. Broken core.

QUARTZITE AND (?) SILTSTONE - KARST INFILL

Broken quartzite fragments in clay matrix, probably wholly weathered siltstone. Granite vein 20cm thick at 54.0m tourmaline bearing.

QUARTZITE - KARST INFILL

Massive compact mid grey quartzite, strongly fractured with iron oxide and minor vughy quartz on fracture planes. 15cm granite vein at 57.20. Definite lithological layering in 19cm stick at 56.50m. Dip 80°

QUARTZITE - KARST INFILL

Quartzite as above with minor orange - brown clay pug. Core ground and badly broken, minor whole core and many fragments quartzite recovered.

QUARTZITE - KARST INFILL?

Quartzite as above plus zones & layers of quartzite with minor mafic mineral content. Mafics have red or brown veins (limonite & goethite) Non-magnetic.

CORE DIP

Parting (?)at 30°

Orthogonal foliation 65°

Beddin 80°

Beddi 55°

LOGGED BY J.V. SMART & B.G. GIBSON DATE 16TH MARCH, 1984

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273063

COMPANY GENSIN EXPLORATION PTY. LIMITED PAGE 4

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT

QUARTZITE & KARST INFILL?

Quartzite as above plus zones & layers of quartzite with minor mafic mineral content. Mafic have red or brown veins (limonite & geothite). Non-magnetic.

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION	CORE DIP
		5% recovery Quartzite, 15cm	
76	50	Break 10% recovery grinding Mainly quartzite fragments, minor clay pug.	
79	50	Break 40% recovery, diagrammatic in log Khaki brown pug with quartzite fragments up to 1cm (in cm zone), then quartzite core Bedding 50° core dip, in quartzite. Bedding 60° core dip in quartzite, 5cm pug between pieces of quartzite, contains angular fragments up to 0.5cm.	50° 60°
82	52	Break 1% recovery, 2 quartzite fragments.	
85	50	Break 3% recovery. 13cm quartzite Quartzite fragment Quartz veined, brecciated quartzite?	
91	50	Break No core.	
94	50	Break 1% core recovery to 109.5	

Note

There was virtually no core recovery between 82.52m & 110m. Much of this interval is thought to contain clayey karst infill.

See hole GSR 16 for re-drilled section.

BRECCIATED DOLOMITE (?)
SILTSTONE

Only three large (3-4cm) & two small fragments recovered in 15cm zone to 109.5. Fragments are vuggy brecciated dolomite. One fragment has siliceous & mafic material also. Sludge was orange brown in colour at top. Driller reported cavities, very soft drilling conditions.

LOGGED BY B.G. GIBSON DATE 21ST MARCH, 1984

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273064

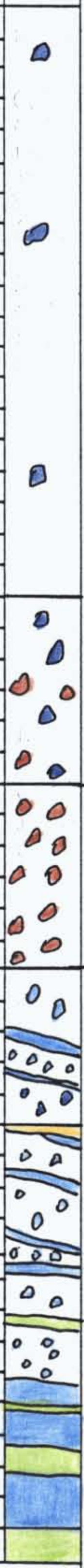
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV.

DIRECTION 225°M (grid West) INCLINATION -73°



DEPTH METRES	cms	GEOLOGICAL DESCRIPTION	CORE DIP
		1% core recovery to 109.50	
		Dolomite, vuggy	
		Dolomite & siliceous & mafic material	
109	50	Break 5% recovery Vuggy dolomite, minor quartzite with brown matrix (non magnetic) Some fragments contain brecciated quartzite.	
112	50	Break 15% recovery Quartz veined quartzite.	
115	50	Break 10% recovery Talc-chlorite veined dolomite (10cm)	
118	00	Break. 20% recovery 16cm quartz vein. 8cm talc-chlorite, vuggy 10cm talc-chlorite, quartz	
121	20	10cm quartz fragments 60cm core lost	
122	15	Carbonate rich zone.	
122	50	Siliceous layer (20cm)	
123	18	Carbonate rich.	40°
123	65	Siliceous zone, minor areas of green mica	45°
		Carbonate rich zone	50°
124	50	Break Siliceous fragments	55°

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT

BRECCIATED DOLOMITE (?)
SILTSTONE

Only three large (3-4cm) & two small fragments recovered in 15cm zone to 109.5. Fragments are vuggy brecciated dolomite. One fragment has siliceous & mafic material also. Sludge was orange brown in colour at top. Driller reported cavities, very soft drilling conditions.

BRECCIATED QUARTZITE

Brecciated & quartz veined quartzite. Quartzite is a brown colour, brown clay matrix.

CALC-SILICATE SKARN

Sheared & altered vuggy carbonate, quartz veined, brecciated with irregular veins.

LOGGED BY B.G. GIBSON DATE 22ND MARCH, 1984.

Constable 37733

061

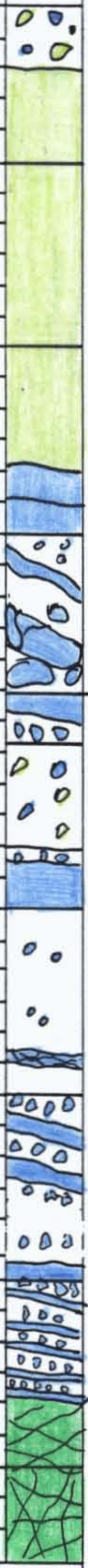
273065

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 6
BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70
COLLAR CO-ORDS 5800 N 5101.5 W
COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div



DEPTH METRES	cms	
		40% recovery to 126.00 Broken core, calc-silicates.
126	00	Banded calc-silicate skarn zone. Layers irregular core dip range 50°-80° but 50° dominant.
127	50	Break
130	50	Break
132	40	White carbonate
132	90	Carbonate with mafic & siliceous component. Core dip 45°, bedding.
133	50	Break 20% recovery Network dark fine veins, some steep fractures & veins.
136	10	Break 60% recovery
136	80	White carbonate, oxidised mafic vein. Break Minor calc-silicate fragments to 138.50
138	50	White carbonate, broken & ground at top.
139	50	Break Minor vuggy carbonate 30% recovery to 142.50
141	80	Broken core, white carbonate. Vuggy at top.
142	50	Break 50% recovery. Vuggy coarse grained carbonate Friable, minor green mica.
		Break
145	50	60% recovery. Darker band of dolomite, core dip 70°.
147	45	10cm pale green altered carbonate Banded chert. Broken core.
148	50	Break. Broken core, diagrammatic in graphic log. 75% recovery.

CALC-SILICATE SKARN

Fine grained irregularly veined, banded calc-silicates. Mainly light coloured siliceous, some spotted calcareous zones and minor mafic banded intervals. Patches of green mica (vermiculite?)

DOLOMITE

White dolomite with vuggy zones and cavities. Minor mafic veining & siliceous areas. Dolomitic coarse grained, recrystallised.

BANDED CHERT

White-pale grey chert, bands 1-5mm, steep core dip.

CORE DIP
55°
50°
50°
45°
70°
70°
75°
70°
85°
70°

LOGGED BY B.G. GIBSON DATE 25TH MARCH, 1984
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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 7
BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70
COLLAR CO-ORDS 5800 N 5101.5 W
COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION	CORE DIP
150	60	Banded chert, 10% recovery BQ core. Break Grinding. Alteration zone, light green mica & carbonate.	
151	50	Very soft, green pug to 152.00 Break	
152	00	Break No core. Cavity in part other zone is soft, washed away.	
153	50	White carbonate. Deep fracture, fragments green, alteration zone lost.	
155	20	15cm brown-green carbonate.	
155	50	White carbonate Break 70% recovery.	
157	20	Vuggy altered carbonate, Broken core, shown diagrammatically in log.	
158	50	Break 70% recovery.	
161	50	Break 55% recovery.	
164	50	Break 50% recovery	30'
		Possible bedding white/grey carbonate, core dip 30°.	
167	50	Break 50% recovery	
170	50	Break 40% recovery	
		Bedding? core dip 45°	45
173	50	Break 70% recovery	
174	70		

DOLOMITE
White & grey dolomite with vughs & deep fractures have coating of talc-chlorite altered carbonate. Little green altered material recovered magnetic susceptibility between 150-174m is 0.0003 cgs units.

SPOTTED DOLOMITE SKARN
White carbonate with up to 40% brown & black spots (0.5-3mm) of calc-silicates and or ferromagnesium minerals.
Magnetic susceptibility 174-179m is 0.0158cgs units

LOGGED BY B.G. GIBSON DATE 27TH MARCH, 1984

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 8

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT

DEPTH METRES	DEPTH cms	Geol. Section 500 mm Per Div	GEOLOGICAL DESCRIPTION		CORE DIP
				SPOTTED DOLOMITE White carbonate with up to 40% brown & black calc-silicates and/or ferro-magnesian minerals spotted throughout. Grain size varies from 0.5-3mm. Magnetic susceptibility 174-179m is 0.0158cgs units.	
178	80		Grey green carbonate with fractures & clots green silicate		
179	50		Break	DOLOMITE Partly altered white dolomite to 180.4 then shear zone to 180.9. Below that there is clean white-grey dolomite, medium to coarse grained. Minor irregular pale green calc-silicate veins and lenses. Magnetic susceptibility < 0.0001 cgs units in interval 179-197.5m.	
180	40		Shear zone. Brecciated calc-silicates in grey-green and black talc-chlorite matrix.		
180	94				
182	50		Break		
185	50		Break		
188	50		Break		
189	90		10cm alteration in shear zone, f.g. mid grey rocks. Underlain by 20cm pinkier carbonate.		
191	30		Break		
194	50				
197	50		Spotted dolomite, fine black calc-silicates.	Magnetic susceptibility 197-50 to 199m is 0.0158cgs units.	
198	27		10cm core lost at fracture		
199	00		White carbonate, minor pale green cals-silicate.		40°

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 9

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div

DEPTH METRES	cms		CORE DIP
201	80	Fine disseminated black ferromags.	
203	75	Strongly veined zone.	
204	10		
		Siliceous vein, steep core dip. Calc silicate skarn, irregular patches of green mica.	
206	50	Break. Broken core to 209m, 20cm core lost.	
208	10		
208	57	Grey silica vein, minor sulphides	
208	65	Carbonate skarn. Minor disseminated magnetite & sulphides to 210.	50°
209	60	Grey dolomite.	70°
210	50	Carbonate. Fine disseminated ferromags. Calc-silicate skarn, Prehnite(?) /void fillings	55°
211	90	Siliceous zone (30cm)	
214	05	10cm lens ferromags spotted carbonate.	
217	10	Irregular vein with pale green mica. Pale green f.g. siliceous layer. Carbonate veined with calc-silicates	
218	00		
218	20	f.g. pale green siliceous zone.	
218	88		
219	30		
219	60	3cm vein with disseminated cassiterite? and minor chalcopyrite. Very steep core dip.	
220	30		
221	50	Siliceous zone.	
221	95		
223	17		50
224	60	Acidic dyke, green-white.	

DOLOMITE

Partly altered white dolomite to 180.4 then shear zone to 180.9. Below that there is clean white-grey dolomite, medium to coarse grained. Minor irregular pale green calc-silicate veins and lenses.

Magnetic susceptibility between 199-208.1m is 0.0025 cgs units.

CALC-SILICATE SKARN

Mixed carbonate and siliceous skarn irregularly veined with calc-silicates. Minor vermicwhite occurs.

Magnetic susceptibility 0.0315 cgs units between 208.1 211.8.

Magnetic susceptibility from 211.8 to 223.2m is 0.0006cgs units.

DARK GREY SKARN

Dark green-black f.g. rock, probably similar to GSR 14 lower sulphite zone, in which dolomite has been replaced by olivine that was subsequently serpentinised & altered to serpentiferous clays. Ca has either been lost from the rock or present as ilvaite. Susceptibility from 223.2 to 227m is 0.1376 cgs units.

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 10

BOREHOLE No. GSR 15 LOCATION Stanley River, E.L. 53/70

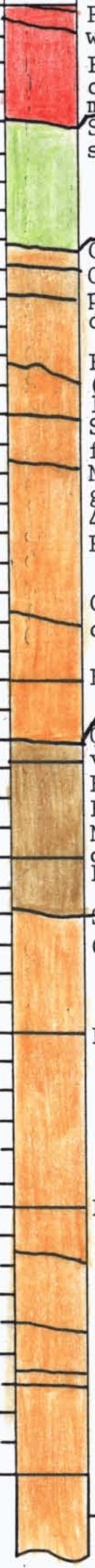
COLLAR CO-ORDS 5800 N 5101.5 W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

Geol. Section 500 mm Per Div



DEPTH METRES	DEPTH cms	GEOLOGICAL DESCRIPTION		CORE DIP
225	04	Pale green calc-silicate skarn with fine disseminated sulphides.	DARK GREY SKARN Dark green-black f.g. rock probably similar to GSR 14 lower sulphite zone, in which dolomite has been replaced by olivine that was subsequently serpentinsed & altered to serpentiferous clays. Ca has either been lost from the rock or present as ilvaite. Subsceptibility from 223.2 to 227m is 0.1376 cgs units.	70°
225	22	Fine grained dark grey hornfelsed carbonate. Patches of coarse magnetite. Traces sulphide.		
226	99	Siliceous, veined with pale green soft calc-silicate.	CALC-SILICATE Siliceous rock with veins of calc-silicate.	
229	15	Grinding. Fine grained chilled granite	GRANITE Marginal phase of granite fine grained becoming more coarse & porphyritic downwards. Magnetic susceptibility from 227 to 251.5 is 0.0001 cgs units.	
229	40	Quartz veined with dolomite & pyrrhotite-pyrite, traces chalcopyrite		
229	90	chilled granite, very fine grained.		
231	15	Fine grained granite, scattered biotite (bronze lustre) 1-2mm & minor pyrite		
232	00	Sheared & recrystallised granite, green feldspars.		
232	75	Medium grained granite porphyritic with green & white feldspar & lesser quartz 4-6mm. Bronze biotite 1-5mm clots. Pyrite common on fractures.		
235	30	Gradational contact, granite more coarse grained.		
236	50	Break		
237	50	Quartzite, possibly a xenolith block,	META-SEDIMENTARY XENOLITH? Quartzite, core bedding planes visible.	
237	82	veined by fine grained granite in places		
237	40	Break Grinding Bedding in quartzite, core dip 35° Medium grained, recrystallised feldspathic quartzite?		35°
239	50	Break		
240	40	Sharp contact Coarse grained granite, grey	GRANITE Porphyritic grey granite Quartz (4-8m) more abundant then feldspar (6-15mm) Bronze biotite clots up to 5mm.	55°
242	50	Break		
245	50	Break		
246	25	Fine grained biotite poor zone.		
247	50	Granite		
248	30	Fine grained granite		
248	50	Granite		
251	50	END OF HOLE		

LOGGED BY B.G. GIBSON DATE 31ST MARCH, 1984.

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COMPANY GENMIN EXPLORATION PTY. LTD. PAGE 1

BOREHOLE No. GSR 15 LOCATION STANLEY RIVER, TASMANIA

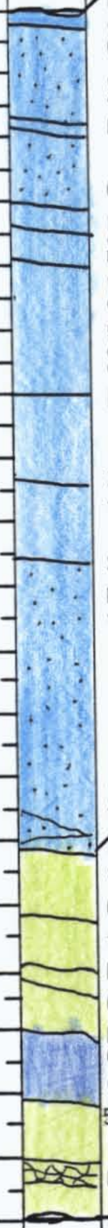
COLLAR CO-ORDS 5800N 5101.5W

COLLAR ELEV. DIRECTION 225°M INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
SPECIAL REPORT, SKARN AT GRANITE CONTACT

Geol. Section 250 mm Per Div



DEPTH METRES	cms	GEOLOGICAL DESCRIPTION	CORE DIP
197	50	Break.	
197	60	White carbonate. Carbonate skarn with f.g.dark grey and pale brown calc-silicate spots (25% of rock). Some carbonate (+ pale green calc silicate) veins and patches.	
198	35	Fractures. Alteration zone, 10 cm core lost.	
		Carbonate, minor fig.dissem. pale brown vesuvianite?	
199	00		45°
199	20	Patches of f.g.spotted carbonate and pale green calc-silicates, irregular in shape in carbonate matrix.	
199	45	White carbonate with 3-5 mm foliation in layers of pale brownish white carbonate	45°
199	88	White and grey carbonate with irregular patches of pale green calc-silicate and lesser spotted carbonates. Sheared in part.	
200	50	Break.	
201	18	2 cm vein pale bluish altered carbonate, fluorite-bearing.	
201	78	Spotted carbonate, fine grained dark grey and pale brown spots 25% in calcite carbonate. Numerous veins and patches of pale green calc silicates.	
203	82	Irregular 1 cm brown calc-silicate (vesuvianite?) forms Z-shaped vein.	
204	10	Pale green fine grained altered calc-silicate, siliceous.	
204	64	Calc-silicate, patches of quartz and pale green f. g. skarn	
204	91	Fine grained pale green calc-silicate skarn.	
205	17	Calc-silicate skarn as above with quartz patches.	
205	50	Fractures. Chips lost. Carbonate rich skarn, veined with pale and dark green and red-brown calc-silicates.	
206	07	5-8 mm brownish vesuvianite(?)	
206	50	Broken core. Chips lost.	
206	89		

DOLOMITE

White carbonate and narrow zones of carbonate spotted with ?ferromagnesium mineral or dark grey calc-silicates. Minor olivine veins and lenses (pale translucent green).

CALC-SILICATE SKARN

Mixed carbonate and siliceous skarn, with irregular veins and patches of olivine, serpentine and reddish calc-silicates (vesuvianite ?)

LOGGED BY B. GIBSON DATE 6 April, 1984

Constable 37733

COMPANY GENMIN EXPLORATION PTY. LTD. PAGE 2
BOREHOLE No. GSR 15 LOCATION STANLEY RIVER, TASMANIA
COLLAR CO-ORDS 5800N 5101.5W
COLLAR ELEV. DIRECTION 225°M INCLINATION 73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP
SPECIAL REPORT, SKARN AT GRANITE CONTACT

Geol. Section 250 mm Per Div

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION		CORE DIP
206	89	Pale green altered calc-silicate skarn with wide veins of ?vermiculite (-Fluorite) sub-parallel to long core axis.	CALC-SILICATE SKARN Mixed carbonate and siliceous skarn with irregular veins and patches of olivine, serpentine and reddish, black and brown calc-silicates.	
208	08	Carbonate rich skarn,veined with calc-silicates		
208	30	Dark green vein with disseminated pyrite (1 cm) underlain by pyritic carbonate skarn, 5 cm carbonate at base.		65°
208	47			
208	90	Grey carbonate with fine dark grey spots of ferromagnesian minerals. Patch of oxidised ilmenite(?) at 208.72. Minor pyrite throughout.		
209	20			
209	60	Sheared carbonate as above, dark grey veins pyrite more abundant. Steep core dip for veining. Break Less altered carbonate rich skarn with minor irregular steep veins of dark green, pale and yellow green calc-silicates. Patches of fine grained ferromagnesian minerals in carbonate.		
210	52			
210	73	White carbonate, minor hemolite Grey carbonate with minor veins of yellow and red brown calc-silicates. Contains fine disseminated ferromagnesian minerals and magnetite.		
211	75	Steep vein of carbonate with dark green veins.		
211	80	Steep 5 mm prehnite vein with pale green hematite		
211	90	Break. altered skarn below		
212	17	Siliceous skarn, network pale green veins. Veined carbonate rich skarn, pale and dark green and reddish-brown veins, minor patches of ? vermiculite.		
212	56	Pale green actinolite altered skarn with veins of ? vermiculite. Broken core to 213.76, 30% core recovery.		
213	76	Carbonate-rich skarn, veined with pale and dark green calc-silicates, brecciated in some areas. 8 cm medium grained ferromag.minerals at 214.08, core dip 30°		30°
215	50	Break		
216	42	Sheared and tremolite altered (pale green) skarn with steep veins and patches rich in ?vermiculite.		
217	10			

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COMPANY GENMIN EXPLORATION PTY. LTD. PAGE 3

BOREHOLE No. GSR 15 LOCATION STANLEY RIVER, TASMANIA

COLLAR CO-ORDS 5800N 5010.5W

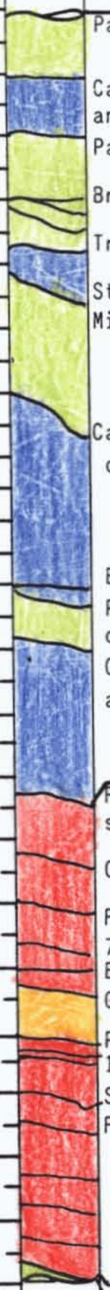
COLLAR ELEV. DIRECTION 225°M INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP

SPECIAL REPORT, SKARN AT GRANITE CONTACT

Geol. Section 250 mm Per Div



DEPTH METRES	DEPTH cms	GEOLOGICAL DESCRIPTION		CORE DIP
217	10	Pale green, tremoline altered calc-silicate skarn	CALC-SILICATE SKARN Mixed carbonate and narrow zones of carbonate spotted with ?ferromagnesium mineral or dark grey calc-silicates. Minor olivine veins and lenses (pale translucent green).	
217	53	Carbonate rick, veined with pale and dark green and yellow calc-silicates		
218	00	Pale green altered skarn, patches of ? vermiculite		
218	50	Break F.g. dark grey alteration		
218	88	Tremolite-actinolite altered carbonate		
219	30	Steep vein of pink-brown calc-silicate skarn. Minor very fine chalcopyrite and pyrrhotite		80°
220	30	Carbonate-rich calc-silicate, irregular veins of light and dark green calc-silicates		
221	50	Break. Dark green alteration veins		
221	65	Pale pinkish brown calc-silicate vein contains carbonate fragments with dark grey reaction rims		
221	95	Carbonate with irregular pale and dark green veins and fine dark grey ferromagnesium mineral spots.		
223	15	F.g. dark grey ferromagnesium rich calc-silicate skarn	OLIVINE-MAGNETITE SKARN Fine grained dark grey olivine-magnetite (-sulphide) skarn with some calc-silicate patches. Magnetite-bearing areas are commonly more coarse grained.	
223	65	Coarser, minor cpy at top		
224	06	Fig. skarn with irregular patches calc-silicates		
224	33	7 cm core lost		
224	50	Break		
224	67	Grey-green porphyritic granite sill		
225	03	Pyritic dark grey skarn		
225	13	10 cm lighter coloured zone		
225	56	Semi-massive magnetite, altered skarn zone		
225	77	Fig. skarn, magnetic veinlets		
226	19			
226	39	Broken core, chips lost to 226.85 m		
226	68	3 cm tremolite-actinolite (vermiculite?) alteration		
226	97	Siliceous calc-silicate skarn	CALC-SILICATE SKARN Siliceous rock with veins of calc silicate for 218 cm above granite contact	

LOGGED BY B.G. GIBSON DATE 6th April, 1984

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BOREHOLE No. GSR 15 COMPANY GENMIN EXPLORATION PTY. LIMITED

SUCCESS CREEK GROUP
STANLEY REWARD PROSPECT
DETAILS OF SAMPLING

Geol. Section 250 mm Per Line

AVE CORE DIP 53°

DEPTH METRES	DEPTH cms	Sample No.	THICKNESS — cms Recov.	THICKNESS — cms Repres	THICKNESS — cms True	REMARKS	ASSAYS Sn	ASSAYS W	ASSAYS Mo	ASSAYS Cu
197	50									
		21280	150	150	90	DOLOMITE One break. Fractures. Core lost. Incomplete.	16	<10	<4	2
199	00									
		21281	115	115	69	Virtually complete.	<4	<10	<4	2
200	15									
		21282	85	85	51	One break. Virtually complete	8	<10	6	<2
201	00									
		21283	81	81	49	Complete.	10	<10	<4	16
201	81									
		21284	124	124	74	Complete.	10	<10	<4	2
203	05									
		21285	102	102	61	Complete.	<4	10	<4	16
204	07									
		21286	118	118	71	CALC-SILICATE SKARN Complete.	10	<10	<4	<2
205	25									
		21287	99	99	59	Fractures - chips lost. Incomplete.	12	10	<4	2
206	24									
		21288	65	65	39	Fractures, broken core. Incomplete.	22	15	<4	<2
206	89									

SAMPLED BY B.G. GIBSON DATE 6TH APRIL, 1984
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273074

COMPANY ... EXPLORATION PTY. LIMITED

DEPTH		Geol. Section 250	SUCCESS CREEK GROUP, STAN:EY REWARD PROSPECT	DETAILS OF SAMPLING						
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS		
				Recov.	Repres	True	AVE CORE DIP 53°	Sn	W	Mo	Cu
206	89										
			21289	111	111	67	CALC-SILICATES Complete.	20	< 10	6	< 2
208	00										
			21290	86	86	52	Complete.	24	15	6	76
208	86										
			21291	120	120	72	One break. Complete.	12	10	< 4	36
210	06										
			21292	92	92	55	Complete.	22	10	< 4	2
210	98										
			21293	82	82	49	Complete.	14	10	< 4	< 2
211	80										
			21294	72	72	43	One break. Complete.	14	10	< 4	< 2
212	52										
			21295	48	48	29	Broken core. Incomplete.	26	15	4	2
214	00										
			21296	80	80	48	Virtually complete.	< 4	10	< 4	< 2
214	80										
			21297	70	70	42	One break . Complete.	4	10	4	< 2
215	50										
			21298	87	87	52	Complete.	16	20	< 4	2
216	37										
			21299	73	73	44	Complete.	36	10	< 4	2
217	10										

SAMPLED BY B.G. GIBSON DATE 6TH APRIL, 1984

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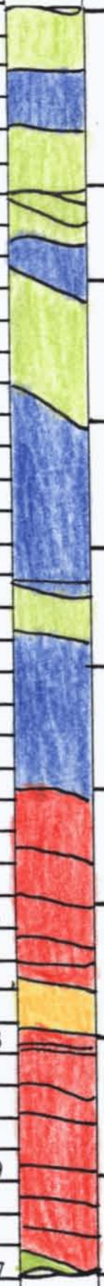
BOREHOLE No. GSR 15 COMPANY GENMIN EXPLORATION PTY. LIMITED

SUCCESS CREEK GROUP
STANLEY RIVER PROSPECT
DETAILS OF SAMPLING

DEPTH		Geol. Section 250		THICKNESS — cms			REMARKS	ASSAYS			
METRES	cms	mm Per Line	Sample No.	Recov.	Repres	True	AVE CORE DIP 53°	Sn	W	Mo	Cu
217	10		21300	134	134	80	CALC-SILICATE SKARN Complete.	30	15	<4	<2
218	44		21301	70	70	42	Broken core Chips lost Incomplete	6	<10	<4	<2
219	14		21279	116	116	70	Complete.	34	40	<4	130
220	30		21302	96	96	58	Complete.	10	<10	<4	2
221	26		21303	86	96	52	One break Chips & fragments lost. Incomplete	28	10	<4	<2
222	22		21304	93	93	56	Chips lost Incomplete	6	15	<4	<2
223	15		21275	91	91	55	OLIVINE-MAGNETITE SKARN Minor chips lost. Virtually complete.	36	20	<4	20
224	06		21276	107	107	64	One break Chips lost Incomplete	46	15	<4	390
225	13		21277	106	106	64	Chips lost Incomplete	84	<10	<4	48
226	19		21278	78	78	47	Chips & fragments lost. Incomplete.	10	10	<4	2
226	97										

SAMPLED BY B.G. GIBSON DATE 6TH APRIL, 1984

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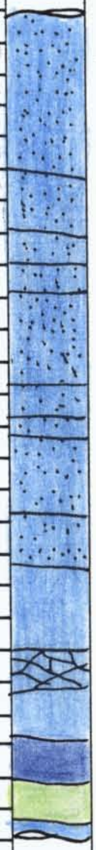
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1
BOREHOLE No. GSR 15 LOCATION STANLEY RIVER, TASMANIA
COLLAR CO-ORDS 5800N 5101.5W
COLLAR ELEV. DIRECTION 225° INCLINATION 73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT

SPECIAL REPORT, SPOTTED DOLOMITE ZONE.

Geol. Section 250 mm Per Div



DEPTH METRES	cms	GEOLOGICAL DESCRIPTION
174	55	Spotted carbonate skarn (green orange-brown, dark grey spots)
175	75	Transitional zone to mainly dark grey spotted skarn.
176	25	Medium grained dark grey.
176	50	Break. Spots.
176	70	Finer grained spots, less abundant than above.
177	40	5cm zone with fine vermiculite White carbonate
177	68	Medium coarse grained spoted carbonate skarn.
177	80	
178	40	Transitional zone to more pure carbonate.
178	85	Carbonate white-grey with disseminated f.g. green mineral
179	50	Broken core, chips lost to 179.85.
180	20	Brecciated carbonate skarn.
180	50	White magnetite veins, broken core.
180	87	Calc-silicate skarn.
180	94	White carbonate.

SPOTTED DOLOMITE

White carbonate with fine-medium grained calc-silicate and/or ferromagnesium minerals spotted throughout and constituting up to 40% of rock.

CORE DIP

Possibl
Beddi
@ 173
45°

65°

LOGGED BY B.G. GIBSON DATE 18th APRIL, 1984
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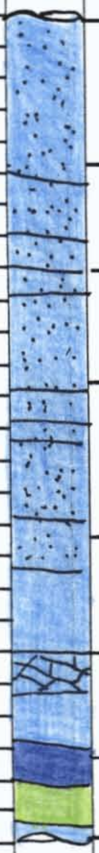
BOREHOLE No. GSR 15 COMPANY GENMIN EXPLORATION PTY. LIMITED



DEPTH		Geol. Section 250	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
				Recov.	Repres	True	AVE CORE DIP 53°	Sn	W	Mo	Cu
174	55		21305	106	106	81	SPOTTED DOLOMITE Complete	14	25	<4	<2
175	61		21306	90	90	69	Complete	16	10	4	2
176	51		21307	85	85	65	Complete	18	15	<4	<2
177	36		21308	127	127	97	Complete	8	10	<4	<2
178	63		21309	87	87	67	Complete	8	15	<4	<2
179	50		21310	77	77	59	Virtually complete	<4	10	4	<2
180	27		21311	67	67	51	Complete	<4	10	<4	2
180	94										

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1

BOREHOLE No. GSR 15 LOCATION STANLEY RIVER, E.L. 53/70, TASMANIA

COLLAR CO-ORDS 5800N 5101.5W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

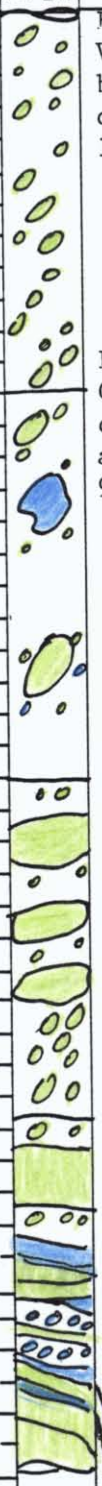
273078

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP, STANLEY REWARD PROSPECT

SPECIAL REPORT, CALC-SILICATE SKARN BELOW KARST INFILL ZONE

Geol. Section 250 mm Per Div



DEPTH METRES	cms			CORE DIP
112	50	Break. Vuggy carbonate & siliceous solution breccia fragments, brown (weathered) colour. 13% recovery.	CALC-SILICATE SKARN Mainly carbonate with veins and spots of calc-silicate and ferromagnesium minerals. Siliceous zones & patches Vughs & cavities present & adversely affected amount of measured core recovered. Fluorescent carbonate (short wave UV fluorescent) occurs disseminated in veins & patches throughout much of the special report zone.	
115	50	Break. Green solution breccia, green matrix calc-silicates & serpentine? with angular carbonate fragments. 9% recovery.		
118	50	Break. Veins of green serpentine-chlorite rich alteration. 18% recovery.		
121	20	Break. Fractured & broken core. 60% recovery, veins & patches of brown, grey & green silicates, 20cm zone with fluorescent carbonate veins (f.g.)		
122	52	Fracture. Vuggy zone, cavities, irregular veins & patches of vermiculite. 70% recovery.		
123	12			
123	31	Core dip between siliceous band & skarn 55° parallel to metamorphic foliation.		
123	89	Vein with fine fluorescent carbonate 2 x 0.5mm fluorescent carbonate veins.		55°

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DIAMOND DRILL HOLE GSR 16

076

273080

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GSR 15 LOCATION STANLFY RIVER, E.L. 53/70, TASMANIA

COLLAR CO-ORDS 5800N 5101.5W

COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP, STANLEY RIVER PROSPECT
SPECIAL REPORT, CALC-SILICATE SKARN BELOW KARST INFILL ZONE

Geol. Section 250 mm Per Div

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION	CORE DIP
123	89	Calc-silicate skarn, carbonate veined brown dark green silicates.	
124	50	Break. Grinding. 45% recovery to 126.05. Siliceous f.g. creamy calc-silicate skarn.	
126	05	Semi-regularly veined carbonate rich. skarn, veins 0.5-3cm typically but up to 10cm, core dips 45-80°.	
127	05	Zone of fine fluorescent carbonate veins and patches, core dips steep (70°).	
127	30		
127	50		
128	83		
129	10	Fracture. Vuggy zone.	
129	70	Fracture. Chips lost.	
130	16	8cm vein of recrystallysed skarn with vermiculite rims around veins.	
130	50	Break. Several thin vermiculite bearing veins, irregular but typical core dip 70°.	
132	03	5cm brown calc-silicate vein.	
132	23	5cm vein top half vermiculite lower half brown calc-silicates. Yellowish fine veins in white carbonate skarn.	
132	77	Veins, geen, light and dark brown & black silicate, foliated, core dip 35-55°.	
133	50	Steep fractures, chips lost. Break. Steep fractures, fragments lost, 55% recovered.	
134	80	Fracture.	

CALC-SILICATE SKARN

Mainly carbonate with veins and spots of calc-silicate & ferromagnesium minerals. Siliceous zones & patches. Vughs & cavities present & adversely affected amount of measured core recovered. Fluorescent carbonate (short wave UV fluorescent) occurs disseminated in veins & patches throughout much of the special report zone.

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 3
BOREHOLE No. GSR 15 LOCATION STANLEY RIVER, E.L., 53/70 TASMANIA
COLLAR CO-ORDS 5800 N 5101.5 W
COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION -73°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP, STANLEY RIVER PROSPECT
SPECIAL REPORT, CALC-SILICATE SKARN BELOW KARST INFILL ZONE

DEPTH METRES	DEPTH cms	Geol. Section 250 mm Per Div	GEOLOGICAL DESCRIPTION		CORE DIP
134	80		40cm core, fine yellowish veins. Fine calc-silicate spots & veins & vermiculite.	CARBONATE White carbonate with one yellowish veins, calc-silicate spots & veins & minor irregularly distributed throughout.	
136	10		Break. Broken core. 50% recovery. Fine & partly dendritic black silicates.		
136	80		Break. 75% recovery. Fragments of white carbonate. Fine yellowish veins.		
139	50		Break. Vuggy carbonate fragments with green (vermiculite & calc-silicates) veins. Sugary textured carbonate (42cm) Steep open veins at top.		
142	50		Break. Sugary textured cuhite carbonate, greenish in patches. Short (10-15cm) sticks of core with vuggy, open veins at either end shown diagrammatically in log.		
145	50		Break.		

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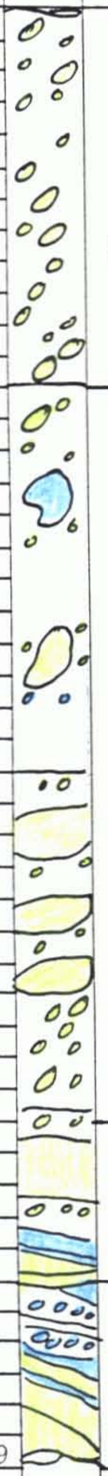
BOREHOLE No. GSR 15 COMPANY GENMIN EXPLORATION PTY. LIMITED



DEPTH		Geol. Section 250 mm Per Line	SUCCESS CREEK GROUP CALC-SILICATE SKARN	DETAILS OF SAMPLING							
METRES	cms		Sample No.	THICKNESS — cms Recov.	Repres	True	REMARKS	ASSAYS			
							AVE CORE DIP 55°	Sn	W	Mo	Cu
112	50						CALC-SILICATE SKARN Two breaks, broken core. Incomplete.				
			21324	40	300	23		< 4	<10	< 4	8
115	50										
							Two breaks. Broken core. Incomplete.				
			21325	80	580	46		< 4	<10	< 4	4
121	50						One break. Broken core Incomplete.				
			21326	82	130	47		6	<10	<4	8
122	50										
							Broken core. Incomplete.				
			21327	100	139	57		< 4	< 10	< 4	6
123	89										

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273083

BOREHOLE No. GSR 15 COMPANY GENMIN EXPLORATION PTY. LIMITED

DEPTH		Geol. Section 250	SUCCESS CREEK GROUP CALC-SILICATE SKARN	DETAILS OF SAMPLING							
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms Recov.	Repres	True	REMARKS	ASSAYS Sn	W	Mo	Cu
							AVE CORE DIP 55°				
123	89		21328	50	61	28	CALC-SILICATE SKARN Broken core. Incomplete.	6	<10	<4	4
124	50		21329	65	155	37	Ground & broken core. Incomplete.	16	<10	<4	2
126	05		21330	63	65	36	Complete.	6	<10	<4	2
126	70		21331	80	80	46	Complete.	26	<10	<4	2
127	50		21332	130	133	74	Complete.	18	<10	<4	2
128	83		21333	70	87	40	Broken core in part. Incomplete.	12	<10	<4	2
129	70		21334	80	80	46	Virtually complete.	26	<10	<4	46
130	50		21335	119	119	68	One break. Complete.	24	<10	<4	2
131	69		21336	92	92	52	Complete.	14	<10	<4	<2
132	61		21337	89	89	51	One break. Incomplete.	6	<10	<4	2
133	50		21338	76	130	43	Broken & fractured core. Incomplete.	6	<10	<4	2
134	80										

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273084

BOREHOLE No. GSR 15 COMPANY GENMIN EXPLORATION PTY. LIMITED

SUCCESS CREEK GROUP
CALC-SILICATE SKARN

DETAILS OF SAMPLING

AVE CORE DIP 55°

DEPTH METRES	DEPTH cms	Geol. Section 250 mm Per Line	Sample No.	THICKNESS — cms Recov.	THICKNESS — cms Repres	THICKNESS — cms True	REMARKS	ASSAYS Sn	ASSAYS W	ASSAYS Mo	ASSAYS Cu
134	80		21339	88	130	50	CARBONATE Broken core. Incomplete	4	<10	4	2
136	10		21340	32	70	18	Broken core. Incomplete.	28	15	<4	2
136	80		21341	100	270	57	Broken core. Incomplete.	4	<10	<4	30
139	50		21342	64	300	36	Broken core. Incomplete.	10	<10	<4	<2
142	50		21343	126	300	72	Broken core. Incomplete.	<4	<10	<4	<2
145	50										

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081.

273085

DIAMOND DRILL HOLE GSR 16

DIAMOND DRILL HOLE GSR 16

PROPERTY : Stanley River

COLLAR CO-ORDINATES : 5800N 5102W

COLLAR AZIMUTH : 225°M

HOLE INCLINATION : -65°

DRILLING CONTRACTOR : Associated Diamond Drillers

DATE COMMENCED : 2nd April, 1984

DATE COMPLETED : 17th April, 1984

LENGTH OF HOLE : 98.70 metres

HOLE SURVEY DATA :

NUMBER OF SURVEYS : One

SURVEYS : 1. At 93 metres

Azimuth : ?

Inclination : ?

083

273087

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1
BOREHOLE No. GSR 16 LOCATION Stanley Reward, Tasmania
COLLAR CO-ORDS 5800N 5102W
COLLAR ELEV.
DIRECTION 225°M (Grid West) INCLINATION 65°

Geol. Section
500 mm Per Div

DEPTH METRES	DEPTH cms	GEOLOGICAL DESCRIPTION SUCCESS CREEK GROUP		CORE DIP
		Note: GSR 16 collared at same site as GSR 15 in order to repeat drilling of possible ironstone correlating to GSR 10 intersection. In GSR 15 (collared @ 73°) the zone 80 - 110m had only 1% core recovery. 0 - 55m, HW casing, tricone roller advancer. Refer to GSR 15.		
55	00	HQ3 core 35% core recovery	Quartzite & Siltstone Medium grained quartzite, grey-green in colour, some reddish zones. Matrix limonitic. Fractured and brecciated	
56	80	Break 85% recovery to 59.80m. Brown-black weathered olivine rich (?) skarn zone.	Karst Zone Infill Material Brown pug with both rounded and angular fragments of a wide size range. Some boulder and cobble infill cored (61.60-65.60m) and zones of coarse quartz gritty infill. Soft clay pug is limonitic brown-orange in colour.	
57	20	Approx 10cm gritty karsk infill		
57	25	12cm quartzite with limonite matrix.		
57	56	15cm greenish grey siltstone.		Bedding 50°
58	25	Greenish siltstone brown pug with quartzite fragments		50°
59	50	Karst infill material, qtz rich.		
59	80	Break		
60	05	Black & dark brown weathered olivine (?) skarn zone.		
60	50			
61	60	20cm green clinopyrorene skarn ?, boulder infill (?)		
62	80	Break 90% recovery to 65.50 Abundant siltstone and ferrugenous sandstone fragment, typically 1-5cm in size & water worn but some angular fragments present.		
65	60	13cm light green clinopyrocene rich lithology, boulder infill		Bedding?
65	80	Break. 80% recovery to 68.80m		
66	66	Laminated fig sandstone, bedding prominent but may be cobble infill.		30°
66	97			
68	80	Break, Fragment of black shale (5x2x2cm) 70% recovery.		45°
69	32	Quartzite band or cobble, top contact core dip 45°		
69	56			
71	60	Break, Quartzite, boulder or layer? 45% recovery.		
71	75			
74	80	10cm white quartzite Break.		

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273088

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GSR 16 LOCATION Stanley Reward, Tasmania

COLLAR CO-ORDS 5800N 5102W

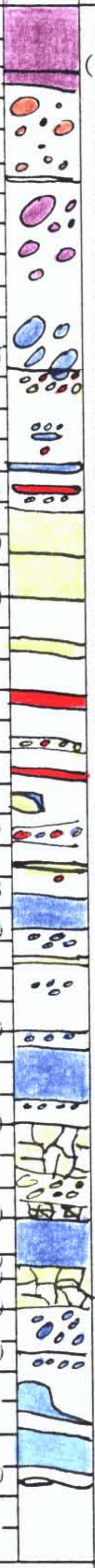
COLLAR ELEV. DIRECTION 225°M (Grid West) INCLINATION 65°

GEOLOGICAL DESCRIPTION

DEPTH — Geol. Section 500 mm Per Div — CORE DIP

SUCCESS CREEK GROUP

METRES	cms
76	06
76	25
77	80
80	80
83	06
83	80
84	50
88	36
89	28
89	80
91	50
93	00
94	50
95	20
95	50
96	00
96	70
98	70



Bedding green chloritic layer (3cm)
15% recovery between 76.25 and 77.80.
Quartzite fragments
Break. Grinding. Ground layered sandstone.
13% recovery to 80.80cm.
Top 25cm m.g. serpentine and dark grey-grey (?)olivine rich
Some limonitic material in matrix.
Lower 15cm recovered is vuggy carbonate skarn.
Break.
25% recovery to 83.06m.
Siliceous skarn, minor ironstone fragments.
8cm white carbonate.
Ironstone fragment, 5cm ground core
9cm carbonate.
10cm siliceous ironstone.
Siliceous skarn mottled white-grey.
Break
40% recovery from 84.50-88.20m. diagrammatically log.
35cm siliceous skarn, brownish at top and lower.
8cm siliceous ironstone.
28cm siliceous ironstone (3 bits)
12cm siliceous skarn, minor ironstone
Siliceous ironstone (12cm, 2 pieces)
40cm white-grey siliceous skarn.
20cm of siliceous ironstone & calc-silicate fragments
Break. HQ core
10cm siliceous skarn.
Ironstone fragment (5cm)
Calc-silicate skarn.
Break
23cm pale green solution breccia
Break
80cm calc-silicate breccia, subangular fragments.
Break. 75% recovery
Siliceous skarn, veined
Break
Carbonate rich skarn patches, green silicate.
Siliceous skarn.
70% recovery in broken zone.
Break
Fragments of calc-silicate solution breccia, plus 1 piece of chert.
50% recovery
Break
30cm sugary textured carbonate with open vein of calc-silicate.
Carbonate, sugary textured.
End of Hole

Karst Zone Infill

Brown pug with both rounded and angular fragments of a wide size range. Some boulder and cobble infill cored (61.60-65.60 m) and zones of coarse quartz gritty infill. Soft clay pug is limonitic brown-orange in colour.

Ironstone Bearing Calc-Silicate Skarn

Zone of calc-silicate rocks, mainly siliceous but some carbonate-rich portions. Cavities and areas of solution breccia present. A siliceous ironstone lithology is present in the upper half of the zone and is often recovered as ground core (may be hematitic chert from infill in karst zone).

CORE DIP
45°
30

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1
BOREHOLE No. GSR 16 LOCATION STANLEY RIVER TASMANIA
COLLAR CO-ORDS 5800N 5102W
COLLAR ELEV. DIRECTION 225°M INCLINATION 65°

GEOLOGICAL DESCRIPTION

Geol. Section 250 mm Per Div

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT
SPECIAL REPORT, CALC-SILICATE (IRONSTONE?) ZONE

DEPTH METRES	cms	GEOLOGICAL DESCRIPTION	CORE DIP
77	80	Med-grained brown rock soft, light. Possibly olivine zone completely altered to clays.	
78	05	No core to 80.55	
80	55	Calcsilicate skarn with ironstone veins (15cm equivalent)	
80	80	Break	
		25% recovery to 83.06	
		Siliceous skarn, minor ironstone, broken core.	
		8cm white carbonate	
		Siliceous ironstone sphere, 5cm diameter fragment pyrite coatings of some (fracture) surfaces.	
		9cm carbonate with brownish patches	
		10cm siliceous ironstone fine veins of limonite and quartz	
83	06	Siliceous, pyrite on fractures	
83	44	White-grey mottled siliceous, irregular calcite veins and minor f.g. apy.	15
		1cm vein or layer of pyrite, darker coloured siliceous skarn	
84	50	From 84.50-88.30 only 150cm recovered. Log shows diagrammitic lithologic distribution.	
		35cm brownish siliceous skarn, lower 8cm siliceous ironstone	30°
		3 pieces of siliceous ironstone total 28cm contain angular fragments of siliceous material incl. some quartzite.	
		12cm siliceous skarn of minor ironstone fragments.	
		Siliceous ironstone, 2 pieces total 12cm.	
		40cm white-grey siliceous skarn, steep vein of pale green calc-silicates.	
		Fragments equivalent to 20cm. Siliceous ironstone (brown), veined calc-silicates.	
88	30	Break.	

IRONSTONE BEARING CALC-SILICATE SKARN

Zone of calc-silicate rocks, mainly siliceous but some carbonate-rich portions. Cavities and areas of solution breccia present. A siliceous ironstone lithology is present in the upper half of the zone and is often recovered as ground core. This unit may be hematitic chert from Karst infilling or alternatively a silicified gossan.

LOGGED BY B.G. Gibson DATE 19 April 1984

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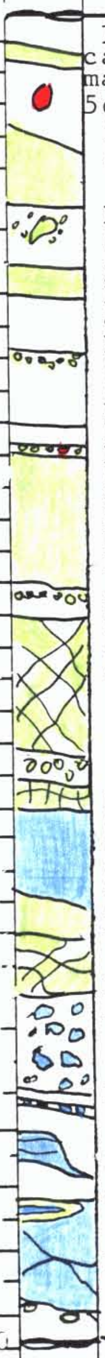
273090

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2
BOREHOLE No. GSR 16 LOCATION STANLEY RIVER TASMANIA
COLLAR CO-ORDS 5800N 5102W
COLLAR ELEV. DIRECTION 225°M INCLINATION 65°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP - STANLEY REWARD PROSPECT
SPECIAL REPORT- CALC-SILICATE (IRONSTONE?) ZONE



DEPTH METRES	cms	Geol. Section 250 mm Per Div	GEOLOGICAL DESCRIPTION	CORE DIP
88	30		10cm siliceous skarn white patch when carved vein of dark green-grey siliceous material	
89	28		5cm siliceous ironstone fragments Irregularly veins green-grey-white calc-silicate skarn.	
89	90		Fragment of pale green calc-silicates (6x4x3cm) Zone of pale green breccia (23cm) Dominantly calc-silicates but sub-angular fragments of chert and quartzite present. Cacl-silicate fragments equivalent 10cm core. Several coarse scheelite crystals present in patch 1.5x0.8cm.	
91	50		Break Fragments of calc-silicate breccia + one fragment siliceous ironstone (10cm equiv). 80cm calc-silicate breccia subangular fragment (0.5-10cm) mainly calc-silicate but some chert and siliceous ironstone. Basal 8cm sheared.	
93	00		Break, Fractured and broken core, diagramatically shown. 75% recovery. Siliceous skarn with veins of dark grey-green calc-silicates.	
94	50		Break. Carbonate rich skarn. Patches and irregular veins of light and dark green calc-silicates (olivine + serpentine?)	
95	20		Siliceous skarn zone contact gradational over several cm.	
95	50		Broken core, 70% recovery.	
96	00		Break. Broken core. 50% recovery. Fragments are calc-silicate solution breccia minor foreign fragments (one piece of chert). Break 10cm solution breccia as above. 30cm sugary textured carbonate with open veins of calc-silicates Carbonate sugary textured (80cm) calc-silicate veins. Fractured steep open veins. Minor chips lost. Steep vein 2 calc silicate fragments.	
98	70		END OF HOLE	

CALC-SILICATE SKARN

Calc-silicate skarn with alternating siliceous and carbonate rich zones, both light grey-white in colour. Cavities and solution breccia zones present. Veining by light and dark green (olivine, serpentine talc) silicates in some areas.

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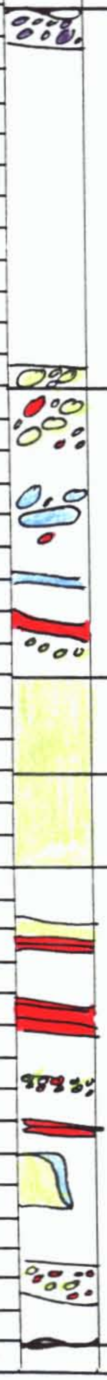

DEPTH		Geol. Section 250 mm Per Line	DETAILS OF SAMPLING								
METRES	cms		Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
				Recov.	Repres	True	AVE CORE DIP 23°	Sn	W	Mo	Cu
77	80						CALC-SILICATE SKARN Core loss Incomplete				
			21312	40	300	37		38	35	< 4	56
80	80						Core loss Incomplete				
			21313	60	226	55		4	<10	<4	10
83	06										
			21314	74	74	68	Complete	< 4	<10	4	2
83	80										
			21315	70	70	64	Complete	< 4	<10	< 4	12
84	50										
							Core loss Incomplete				
			21316	150	380	138		< 4	<10	< 4	30
88	30										

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BOREHOLE No. GSR 16 COMPANY GENMIN EXPLORATION PTY. LTD.

DETAILS OF SAMPLING

Geol. Section 250 mm Per Line

AVE CORE DIP 23°

DEPTH METRES	DEPTH cms	Sample No.	THICKNESS — cms Recov.	THICKNESS — cms Repres	THICKNESS — cms True	REMARKS	ASSAYS Sn	ASSAYS W	ASSAYS Mo	ASSAYS Cu
88	30					CALC-SILICATE SKARN				
		21317	65	150	50	Core lost Incomplete	4	< 10	< 4	4
89	80									
		21318	35	170	32	Complete	10	2620	4	14
91	50									
		21319	90	150	83	Core loss Incomplete	6	10	<4	6
93	00									
		21320	110	150	101	Core Loss Incomplete	< 4	< 10	< 4	2
94	50									
		21321	135	150	124	Core Loss Incomplete	6	< 10	<4	2
96	00									
		21322	35	70	32	Core Loss Incomplete	8	< 10	< 4	< 2
96	70									
		21323	120	200	110	Core loss Incomplete	< 4	< 10	< 4	2
98	70									

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273093

DIAMOND DRILL HOLE GSR 17

DIAMOND DRILL HOLE GSR 17

PROPERTY:	Stanley River
COLLAR CO-ORDINATES:	4291 N 4613 W
COLLAR AZIMUTH:	203°M
HOLE INCLINATION:	-50°
DRILLING CONTRACTORS:	Associated Diamond Drillers
DATE COMMENCED:	19th April, 1984
DATE COMPLETED:	14th May, 1984
LENGTH OF HOLE:	139.5 metres.

HOLE SURVEY DATA

NUMBER OF SURVEYS: 2

SURVEYS:

1. At 70 metres
   Azimuth: 174°
   Inclination: 51°

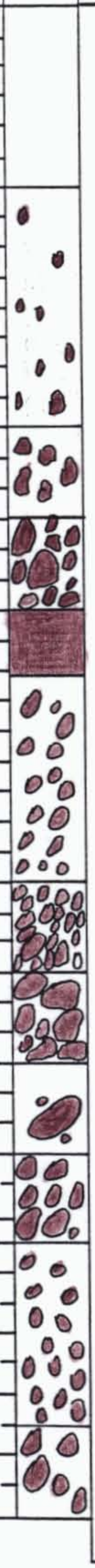
2. At 139 metres
   Azimuth: 195°
   Inclination: 52.5°

COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1

BOREHOLE No. GSR 17 LOCATION Stanley River, Tasmania

COLLAR CO-ORDS 4291 N 4613 W

COLLAR ELEV. DIRECTION 203° M INCLINATION -50°



DEPTH		Geol. Section 500 mm Per Div	GEOLOGICAL DESCRIPTION		CORE DIP
METRES	cms		CRIMSON CREEK FORMATION		
			Open hole drilling. Brown clayey sludge.		
3	00		HQ3 Core. 80 cm argillite fragments recovered, khaki colour. (20% recovery)	WEATHERED ARGILLACEOUS SEDIMENTS Siltstone, mudstone and shale altered to khaki, green, grey-green and cream-white, clays - hornfelsed, with fine grained black spots occurring in siltstones.	
7	00		Break. 50% recovery, Broken core. Shale and siltstones, sheared; khaki, grey-green and reddish zones.		
8	50		Break 70% recovery.		
10	00		Brown. Grey-green and khaki siltstones.		
11	10		Broken core. 30% recovery. Pyrite cube casts at ∼13.5 m.		
14	50		Break. Broken core, 85% recovery. Grey-green argillite to 23.50m.		
16	00		Break.		
17	50		Break. 8% core recovery.		
19	00		Break. 55% recovery, broken core.		
20	50		Break. 25% recovery.		
23	50		Break. 45% recovery, Grey argillite, red fractures and irregular veins, white clay. Planar veins (1-2mm)		

LOGGED BY B.G. GIBSON DATE 28TH APRIL, 1984

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2

BOREHOLE No. GSR 17 LOCATION Stanley River, Tasmania

COLLAR CO-ORDS 4291 N 4613 W

COLLAR ELEV.

DIRECTION 203°M INCLINATION -50°

GEOLOGICAL DESCRIPTION

DEPTH METRES	cms	CRIMSON CREEK FORMATION
		25% recovery, grey argillite, red and white clay veins. Borken core.
26	50	Break. 35% recovery. Khaki brown clayey argillite, minor white clay veins.
28	00	Break.
		Greenish grey soft clayey sandstone, ground short sticks of core, 8% recovery.
34	00	Break. 25% recovery.
35	30	Break.
35	85	Grey Sandstone, fine grained hornfelsed (0.5mm) dark spots.
37	00	Break. Brown & Cream coloured argillaceous rocks Chocolate brown mudstone
38	30	Laminated cream & rusty brown hornfelsed shales. Break . 8% recovery Grey siltstones, hornfelsed
40	00	Break 55% recovery
41	50	Break 50% recovery.
43	00	Break. 45% recovery.
46	00	Break 35% recovery 10cm hornfelsed siltstone Greenish grey argillite.
49	30	

WEATHERED AGRILLACEOUS SEDIMENTS

Siltstone,mudstone and shale altered to khaki, green, grey-green and cream-white, clays - hornfelsed, with fine grained black spots pouring in siltstones.

SANDSTONE/GREY WACKE

Medium grained mid to dark grey-green arenite with interrelated silty units for 5 cm.

CORE DIP: Bedding 40°

SILTSTONE AND SHALE

Finely laminated silt stone and shale; pale yellow, brown and deep purple colour. Chocolate shale unit 37.31-37.62. Broken core in basal 1.7 m.

CORE DIP: Bedding 20-25°

GRAPHITE SILTSTONE

Wholly weathered mid grey graphitic siltstone.

SILTY CLAYSTONE

Wholly weathered slightly silty claystone, fawn colour.

DYKE ROCK(?)

Schistose, chloritised igneous rock; origin obscure but may be albite dyke. Altered feldspar with biotite clots common.

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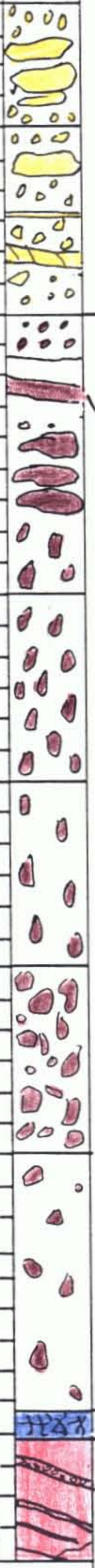
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 3
BOREHOLE No. GSR 17 LOCATION Stanley River, Tasmania
COLLAR CO-ORDS 4291 N 4613 W
COLLAR ELEV. DIRECTION 203°M INCLINATION -50°

DEPTH: METRES | cms — Geol. Section 500 mm Per Div — GEOLOGICAL DESCRIPTION — CORE DIP



CRIMSON CREEK FORMATION – SUCCESS CREEK GROUP

50% recovery.
Cream greenish brown clays.
8 cm green white micaceous zone.

52 00
Break.
50% recovery.
Greenish grey micaceous zone with veins of white cream clay up to 1.5 cm in width.
8 cm of pink white chert.
20 cm of dark brownish grey micaceous zone. Slickensides at 20° to core axis.

DYKE ROCK ?

Schistose, chloritised igneous rock; origin obscure but may be albite dyke. Altered feldspar with biotite clots common.

55 00
Break
25% recovery
5 cm of breccia. Angular and rounded fragments of siltstone.
20 cm of light brown, tan claystone.

Dark brownish grey hornfelsed siltstone.

59 50
Break
15% recovery.

Orange brown hornfelsed siltstone

62 50
Break.
7% recovery.

Dark grey graphitic? shale

65 50
Break.
30% recovery.

68 50
Break.
8% recovery.
Broken white/cream hornfelsed siltstone.

Base of Oxidation,
START SPECIAL REPORT 72.70m.

72 70
100% recovery.

73 12
20cm wide microbrecciated zone, foliation parallels bedding.
Hematitic chert bands to 10cm
Pyrite layers to 5mm
Colloform pyrite; cross cutting pyrite vein.

74 72

74 98

SILTSTONE

Siltstone fawn and compact but broken in part, elsewhere wholly weathered to clay. Dark grey graphitic (?) shale from 62.50-65.50 m

DOLOMITE

Fractured & altered dolomite;mid grey fragments in a network of fracture

PYRITIC LAMINATED SILTSTONE AND CHERT

Bedding 30°

Finely laminated,cream, fawn & light to mid grey chert & cherty argillite Layering commonly 2-5mm with pyrite bands to 5mm common. Some cross-cutting pyrite stringers. Micro brecciation & soft sediment deformation common. Pyrite more abundant towards base of unit; up to 10%.

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 4

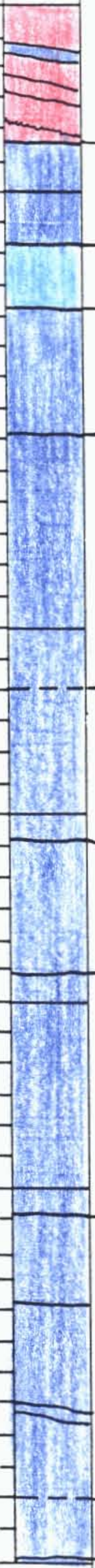
BOREHOLE No. GSR 17 LOCATION Stanley River, Tasmania

COLLAR CO-ORDS 4291 N 4613 W

COLLAR ELEV. DIRECTION 203^{0}M INCLINATION -50^{0}

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP



DEPTH METRES	cms	
75	62	87% recovery. 25cm of dolomite breccia.
76	15	Strongly pyritic
76	45	Strongly pyritic
77	18	micro brecciated zones to 5cm
78	00	
78	30	Break. 6cm fragment of hematitic chert.
78	80	Break. Change to NQ core.
79	80	
81	95	
82	00	Break. 100% recovery.
85	00	Break. 100% recovery.
86	00	END SPECIAL REPORT - 86.00
88	00	Break.
88	40	100% recovery.
90	56	Break.
91	00	100% recovery.
94	00	Break. 100% recovery.
94	40	
95	88	
		13cm khaki green hornfelsed sediment. Magnetite rich.
97	58	15cm magnetite rich zone.
99	00	End Sampling
99	90	

CORE DIP

PYRITIC LAMINATED SILTSTONE & CHERT

Finely laminated, cream, fawn & light to mid grey chert & cherty argillite. Layering commonly 2-5mm with pyrite bands to 5mm common. Some cross-cutting pyrite stringers. Micro brecciation & soft sediment deformation common. Pyrite more abundant towards base of unit; up to 10%

DOLOMITE BRECCIA

Angular to subrounded fragments to 13cm of light grey to mid green dolomite in a chloritic dolomite matrix. Approx. 20% pyrite in lower 40cm.

DOLOMITE

Off white to pale grey, massive dolomite with approx. 5% pyrite as colloform masses or veins which develop along fractures.

DOLOMITE

Mid to dark grey dolomite with only minor pyrite. Mottled appearance towards base.

DOLOMITE BRECCIA

Cream to mid grey mottled, veined & brecciated dolomite. Minor pyrite in upper part as angular masses, colloform aggregates & stringers, making up 2-3% of core. Alteration (chlorite-biotite?) occurs as spots to 2mm & as irregular masses.

DOLOMITE

Dark grey dolomite with small dark green serpentine? zones. Fractures generally dip at 70-80^{0} & contain ferromags & magnetite. Moderately magnetic.

DOLOMITE BRECCIA

Light grey to dark grey, mottled dolomite breccia. Contains small patches of green & blue serpentine or chlorite? & minor disseminated pyrite.

DOLOMITE

Dark grey massive dolomite with minor dark green serpentine zones & minor fracturing. Weakly magnetic.

ALTERED DOLOMITE BRECCIA

Fragments of altered dolomite to 5cm in a chloritic matrix. Magnetite abundant throughout especially from 95.88-96.45m & at 98m.

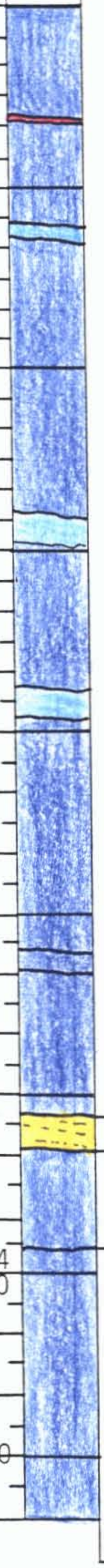
LOGGED BY M. HUNTER DATE 7TH MAY, 1984

COMPANY GENMIN ECPLORATION PTY. LIMITED PAGE 5
BOREHOLE No. GSR 17 LOCATION Stanley River, Tasmania
COLLAR CO-ORDS 4291 N 4613 W
COLLAR ELEV. DIRECTION 203°M INCLINATION -50°

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP

DEPTH METRES	cms	Geol. Section 500 mm Per Div		CORE DIP
99	90			
100	00		Break. 100% recovery.	
101	85		10cm of brownish pink hematitic zone.	
103	00		Break. 100% recovery.	
103	57		27cm of white dolomitic limestone with minor green serpentine? patches.	
106	00		Break. 100% recovery.	
108	35		55cm of white/light grey dolomotic limestone.	
109	00		Break. 100% recovery.	
111	25		50cm of cream/light grey dolomite. Dark green serpentine? patches.	
112	00		Break. 100% recovery	
115	00		Break 100% recovery.	
115	57		36cm of mid grey dolomite. Minor green serpentine? patches.	
118	00			
118	35		Break.	
118	92		100% recovery.	
120	54			
121	00		Break. 100% recovery.	
124	00		Break. 100% recovery.	



DOLOMITE BRECCIA

White to mid grey angular to subrounded dolomite fragments to 5cm in a green & pinky brown, serpentine, chloritic & hematitic matrix. Fractures are commonly filled with serpentine & chlorite? & talc. microfaults common.

APLITE?

Cream, pink aplite with weak banding. Muscovite common with veins of serpentine, chlorite, talc & carbonates.

DOLOMITE BRECCIA

Mid grey dolomite breccia with white dolomotic limestone fragments to 5cm.

DOLOMITE

Mid to dark grey mottled dolomite. Minor white dolomite limestone zones & green & black patches of talc, serpentine & magnetite. Very minor disseminated pyrrhotite.

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 6

BOREHOLE No. GSR 17 LOCATION Stanley River, Tasmania

COLLAR CO-ORDS 4291 N 4613 W

COLLAR ELEV. DIRECTION 203°M INCLINATION -50^0

GEOLOGICAL DESCRIPTION

SUCCESS CREEK GROUP

DEPTH METRES	cms	Geol. Section 500 mm Per Div		CORE DIP
127	00		Break 100%	
			Broken core. Core becomes more broken towards end of hole.	
130	00		Break. 100% recovery.	
132	50		Gradational contact from dolomite to marble.	
133	00		Break. 7% recovery.	
			Very broken core.	
136	00		Break. 100% recovery.	
137	50		Very broken core Approx. boundary.	
139	00		Broken core.	
139	50			
			EOH	

DOLOMITE

Mid to dark grey mottled dolomite. Minor white dolomite limestone zones & green & black patches of talc, serpentine & magnetite. Very minor disseminated pyrrhotite.

WHITE MARBLE

Massive white marble & minor dark (ferromag) patches.

WHITE MARBLE & GREY DOLOMITE

Alternating white marble & mid-grey dolomite. Minor specks and smears of pyrite on fractures.

BRECCIA

Brecciated white marble with fragments of grey dolomite to 5cm. Very minor pyrite on fractures. Probable fault zone

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 1

BOREHOLE No. GSR 17 LOCATION STANLEY RIVER TASMANIA

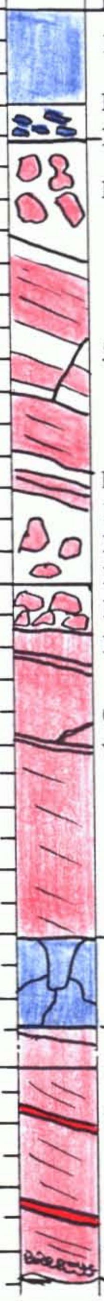
COLLAR CO-ORDS 4291N 4613W

COLLAR ELEV. DIRECTION 203°M INCLINATION -50°

GEOLOGICAL DESCRIPTION

CRIMSON CREEK - SUCCESS CREEK GROUP - STANLEY
REWARD E.L. 55/70 N.W. TASMANIA.

SPECIAL REPORT - PYRITIC CHERT AND DOLOMITE



DEPTH METRES	DEPTH cms	Geol. Section 100 mm Per Div	GEOLOGICAL DESCRIPTION		CORE DIP
72	00				
72	70		Base of Oxidation	START OF SPECIAL REPORT	
			100% recovery	DOLOMITE Fractured and altered dolomite; mid-grey fragments in network of fractures	
73	00		Break		
73	12		Broken core	CHERT AND SHALE Finely banded, cream, fawn and light to mid grey chert and clay argillite. Layering commonly 2-5mm, with pyrite bands to 5mm common. Some colloform textures, particularly in pyrite. Some cross-cutting pyrite stringers. Approximately 5% pyrite.	
			Broken core		
			57% recovery		Bedding Ave 35°
74	00				
			Hematitic chert layers to 10mm		
			Broken core		
74	50		Break		
			Broken core		
74	72		Pyrite layers to 5mm		
74	98		Colloform pyrite;x-cutting py		
75	00		veins 100% recovery		
75	62			DOLOMITE BRECCIA Silicified dolomite fragments to 8cm in chloritised dolomitic matrix.	
75	87		1cm py layer; strongly pyritic zone		
76	00		Break	SULPHIDIC CHERT AND SHALE Finely banded, mid to dark grey pyritic chert and cherty argillite. More pyritic than 73.12 - 75.62 unit above. Microbrecciation and soft sediment deformation common. Approximately 10% pyrite.	
76	15		Strongly pyritic		
76	45		Strongly pyritic		
76	54		Microbreccia		
76	66				

LOGGED BY J.V. SMART DATE 13.5.84

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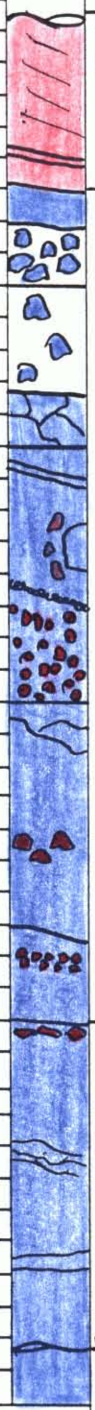
COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 2
BOREHOLE No. GSR 17 LOCATION STANLEY RIVER TASMANIA
COLLAR CO-ORDS 4291N 4613W
COLLAR ELEV. DIRECTION 203°M INCLINATION -50°

CRIMSON CREEK - SUCCESS CREEK GROUP - STANLEY
REWARD E.L. 55/70 N.W. TASMANIA

Geol. Section 100 mm Per Div



DEPTH METRES	cms	GEOLOGICAL DESCRIPTION		CORE DIP
76	66	87% recovery - Broken core from 77.31 to 77.50.	**SULPHIDIC CHERT AND SHALE** Finely banded, mid to dark grey pyritic chert & cherty argillite. More pyritic than 73.12 - 75.62 unit above. Microbrecciation & soft sediment deformation common. Approximately 10% pyrite.	Ave Core Dip 28°
77	00			
77	09	Strongly pyritic		
77	18		**DOLOMITE BRECCIA** Dolomite fragments, to 13cm, but commonly 4mm - 1cm, in chloritic dolomitic matrix. Carbonate veining common. Approximately 20% pyrite in lower 40cm.	
77	31	Core loss zone		
77	50	Break		
		Core loss zone 40% recovery		Layering 20°
77	83			
78	00	Break Change to NQ core. Banded, colloform textured dolomite. Massive dolomite.		
78	28	Dolomite fragments surrounded by hematitic chert fragments		
78	41	Dolomite fragments and pyrite to 20% in chloritised (?) dolomatic matrix. Crudely layered.		
78	80	Break	**DOLOMITE** Off-white to pale grey, massive with approximately 5% pyrite as colloform masses or veins which developed along fractures.	
78	85	Pyrite stringers		
79	00			
79	22	Pyrite-colloform		
79	51	1cm pyrite vein		
79	60	Colloform pyrite		
79	80	Colloform pyrite	**DOLOMITE** Mid-grey massive dolomite, weakly oolitic in basal 30-40 cm. Weakly pyritic, calcite-veined.	
80	00			
80	20	Pyrite in whisps and stringers		
80	57	Pink calcite vein.		
80	83			

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COMPANY GENMIN EXPLORATION PTY. LIMITED PAGE 3

BOREHOLE No. GSR 17 LOCATION STANLEY RIVER, TASMANIA

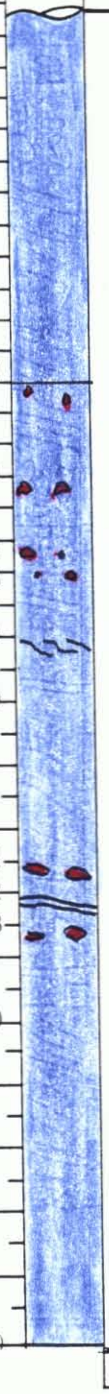
COLLAR CO-ORDS 4291 N 4613 W

COLLAR ELEV. DIRECTION 203° INCLINATION -50°

GEOLOGICAL DESCRIPTION

CRIMSON CREEK - SUCCESS CREEK GROUP - STANLEY REWARD E.L. 55/70 N.W. TASMANIA.

DEPTH METRES	DEPTH cms	Geol. Section 100 mm Per Div	GEOLOGICAL DESCRIPTION	CORE DIP
80	83		98% recovery.	
82	00		Break	
			Pyrite blebs	
82	37		Pyrite	
82	54		Colloform pyrite	
82	60		Irregular pyrite	
82	82		Pyrite stringers	
83	00			
83	52		100% recovery	
83	62		Pyrite on fractures	
83	73		Pyrite on fractures	
84	00			
85	00		Break	



BRECCIATED DOLOMITE

Cream, off-white and light to mid-grey mottled, veined and brecciated dolomite. Minor pyrite mineralisation throughout, as angular masses, colloform aggregates, and ships and stringers. 2-3% of core. Alteration (chlorite-biotite?) as spots to 2mm, aggregates and trains of spots, and irregular masses. Unit is strongly fractured and brecciated throughout.

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273104

BOREHOLE No. GSR 17 COMPANY GENMIN EXPLORATION PTY. LIMITED

DEPTH		Geol. Section	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
				Recov.	Repres	True					
							AVE CORE DIP 28°	Sn	W	Mo	Cu
72	00										
72	70										
			21344	30	30	26.5	DOLOMITE Virtually Complete Chips missing.	< 4	10	< 4	8
73	12										
			21345	150	150	132	CHERT & SHALE Broken core. Virtually complete.	< 4	< 10	4	86
74	50										
			21346	67	67	59.2	Incomplete	< 4	< 10	4	70
75	17										
			21347	72	72	63.4	CHERT SHALE & DOLOMITE BRECCIA Virtually complete Chips missing	< 4	< 10	< 4	60
75	89										
			21348	42	42	37.0	SULPHIDIC CHERT & SHALE Virtually complete Chips missing	< 4	< 10	4	100
76	31										
			21349	35	35	30.8	Virtually complete Chips missing.	6	< 10	< 4	90
76	66										

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273105

BOREHOLE No. GSR 17 COMPANY GENMIN EXPLORATION PTY. LIMITED

DEPTH		Geol. Section	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms Recov.	Repres	True	REMARKS	ASSAYS Sn	W	Mo	Cu
							AVE CORE DIP 28°				
76	66										
			21350	38	38	33.4	SULPHIDIC CHERT & SHALE Virtually complete Chips missing	6	<10	<4	56
77	04										
			21373	40	46	35.2	DOLOMITE BRECCIA Core loss Incomplete	<4	<10	4	34
77	50										
			21351	100	130	88	Core loss Incomplete	10	10	<4	210
78	80										
			21352	94	94	82.7	DOLOMITE Complete	34	15	<4	280
79	74										
			21353	109	109	95.9	Complete	16	10	<4	110
80	83										

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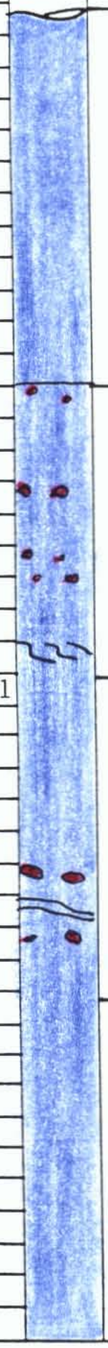
BOREHOLE No. GSR 17 COMPANY GENMIN EXPLORATION PTY. LIMITED



DEPTH		Geol. Section 100	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
				Recov.	Repres	True	AVE CORE DIP 28°	Sn	W	Mo	Cu
80	83						BRECCIATED DOLOMITE Complete				
			21354	117	117	103		22	10	4	24
82	00						Complete				
			21355	91	91	80.1		32	<10	<4	290
82	91						Complete				
			21356	102	102	89.8		<4	<10	<4	18
83	93						Complete				
			21354	107	107	94.2		24	<10	<4	250
85	00										

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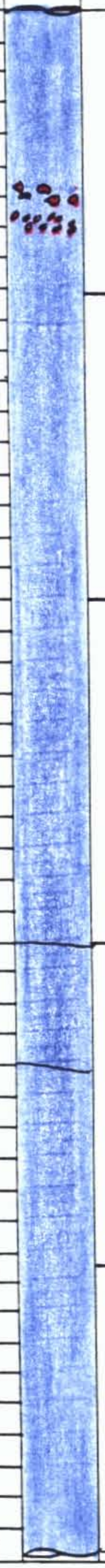
273107

BOREHOLE No. GSR 17 COMPANY GENMIN EXPLORATION PTY. LIMITED

DEPTH		Geol. Section 100	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms			REMARKS	ASSAYS			
				Recov.	Repres	True	AVE CORE DIP 28°	Sn	W	Mo	Cu
Note: Refer to main log for geology.											
85	00						**DOLOMITE BRECCIA** Complete.				
			21358	92	92	81		8	<10	<4	12
85	92						Complete				
			21359	98	98	86.2		<4	<10	<4	<2
86	90						Complete				
			21360	110	110	96.8		<4	<10	4	10
88	00						**DOLOMITE BRECCIA** Complete				
			21361	105	105	92.4		<4	<10	<4	6
89	05						**DOLOMITE** Complete				
			21362	92	92	81		<4	<10	<4	4
89	97										

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BOREHOLE No. GSR 17 COMPANY GENMIN EXPLORATION PTY. LIMITED

DEPTH		Geol. Section 100	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms Recov.	Repres	True	REMARKS	ASSAYS Sn	W	Mo	Cu
Note: Refer to main log for geology							AVE CORE DIP 28°				
89	97										
			21363	103	103	90.6	DOLOMITE BRECCIA Complete	<4	<10	<4	4
91	00										
			21364	95	95	83.6	Complete	<4	10	<4	<2
91	95										
			21365	100	100	88	Complete	4	<10	<4	6
92	95										
			21366	105	105	92.4	Complete	8	<10	4	8
94	02										
			21367	96	96	84.5	DOLOMITE BRECCIA & DOLOMITE Complete	<4	<10	4	8
94	96										

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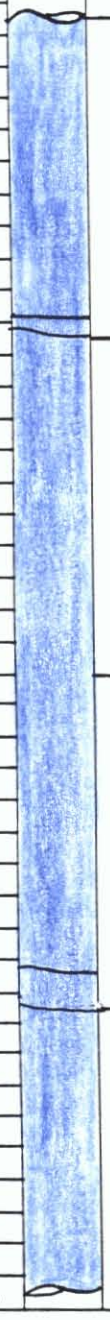
BOREHOLE No. GSR 17 COMPANY GENMIN EXPLORATION PTY. LIMITED



DEPTH		Geol. Section 100	DETAILS OF SAMPLING								
METRES	cms	mm Per Line	Sample No.	THICKNESS — cms Recov.	Repres	True	REMARKS	ASSAYS Sn	W	Mo	Cu
Note: Refer to main log for geology.							AVE CORE DIP 28°				
94	96						DOLOMITE Complete				
			21368	99	99	87.1		<4	<10	<4	2
95	95						ALTERED DOLOMITE BRECCIA Complete				
			21369	105	105	92.4		4	<10	<4	56
97	00						Virtually complete Chips Missing				
			21370	106	106	93.3		4	10	<4	16
98	06						Virtually Complete Chips Missing				
			21371	90	90	79.2		< 4	< 10	<4	8
98	96										

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ASSAYS

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**The Australian
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Laboratories**

amdel

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Please address all
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P.O. Box 114 Eastwood
SA 5063
In reply quote:

NATA CERTIFICATE

3/717/0 - AC 3553/84

16th March 1984

*Mr B. Gibson
Gencor (Australia) Pty. Ltd.,
55 Macquarie Street
SYDNEY N.S.W. 2000*

REPORT AC 3553/84

YOUR REFERENCE:	*Application received 14.3.84* *B. Gibson*
IDENTIFICATION:	*As listed*
DATE RECEIVED:	*14th March 1984*

*D. Patterson
Chief Chemist
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D. Patterson

*for Brian S. Hickman
Managing Director*

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Telephone (03) 645 3093
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Analysis code C1/C2 Report AC 3553/84 Page 1

NATA Certificate Results in ppm

Sample	Cu	Pb	Zn	Ag
21242	150	<5	1800	<1
21243	850	6	1400	<1
21244	600	6	790	<1
21245	610	<5	710	<1
21246	150	<5	960	<1
21247	650	6	1200	<1
21248	130	<5	510	<1
21249	970	<5	880	<1
21250	1500	<5	270	<1
21251	1700	<5	730	<1
21252	730	<5	630	<1
21253	450	6	260	<1
21254	8	6	34	<1
21255	24	10	190	<1
21256	2700	<5	130	<1
21257	2600	26	230	<1
21258	850	<5	180	<1
21259	3200	6	160	<1
21260	550	6	120	<1
21261	1900	6	190	<1
21262	350	6	220	<1
21263	22	10	26	<1
21264	6	6	22	<1
21265	56	16	48	<1
21266	8	6	80	<1
Detn limit	(2)	(5)	(2)	(1)

Analysis code B3 Report AC 3553/84

NATA Certificate Results in ppm

Sample	Sn	W	Mo
21242	22	15	<4
21243	64	15	<4
21244	<4	15	<4
21245	105	20	<4
21246	68	10	<4
21247	105	<10	<4
21248	125	20	<4
21249	60	25	<4
21250	10	10	16
21251	50	<10	<4
21252	190	30	<4
21253	74	15	<4
21254	<4	10	<4
21255	145	20	<4
21256	405	20	6
21257	345	10	4
21258	530	20	4
21259	890	10	<4
21260	52	<10	6
21261	810	10	<4
21262	1460	30	4
21263	20	15	<4
21264	12	10	<4
21265	110	15	<4
21266	14	30	4
Detn limit	(4)	(10)	(4)

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In reply quote:

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NATA CERTIFICATE

3/717/0 - AC 3448/84

16th March 1984

Mr B. Gibson
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55 Macquarie Street
SYDNEY N.S.W. 2000

REPORT AC 3448/84

YOUR REFERENCE:	*Application received 6.3.84* *B. Gibson*
IDENTIFICATION:	*As listed*
DATE RECEIVED:	*7th March 1984*

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THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

FORM 38

REPORT AC 3448/84

ANALYSIS ppm

Sample No	Cu	Pb	Zn	Ag
21230	5	8	52	<1
21231	1850	20	390	<1
21232	22	5	42	<1
21233	2320	<5	510	<1
21234	180	12	140	<1
21235	1300	38	370	<1
21236	38	12	60	<1
21237	290	5	185	<1
21238	14	15	50	<1
21239	900	<5	290	<1
21240	160	<5	340	<1
21241	4	<5	85	<1

METHOD: C1/C2

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Analysis code B3 Report AC 3448/84 Page 1

NATA Certificate Results in ppm

Sample	Sn	W	Mo
21230	20	15	<4
21231	46	20	<4
21232	16	20	<4
21233	2180	<10	<4
21234	110	15	<4
21235	385	25	<4
21236	14	<10	<4
21237	930	25	<4
21238	20	10	<4
21239	350	25	<4
21240	2460	35	<4
21241	165	10	<4
Detn limit	(4)	(10)	(4)

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273117

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3/717/0 - AC 4069/84

19th April 1984

NATA CERTIFICATE

Mr B. Gibson
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55 Macquarie Street
SYDNEY N.S.W. 2000

REPORT AC 4069/84

YOUR REFERENCE:	Phone application of 17.4.84 B. Gibson
IDENTIFICATION:	As listed
DATE RECEIVED:	17th April 1984

D. Patterson
Chief Chemist
Analytical Chemistry Division

D. Patterson

for Brian S. Hickman
Managing Director

cc The Manager
Gencor (Aust.) Pty. Ltd.,
10 Belstead Street
ZEEHAN TAS. 7469

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Analysis code C1 Report AC 4069/84 Page 1

NATA Certificate Results in ppm

Sample	Ni	Cr
21230	<5	<10
21231	10	<10
21232	<5	<10
21233	20	<10
21234	16	<10
21235	16	10
21236	<5	<10
21237	10	<10
21238	<5	<10
21239	6	<10
21240	10	10
21241	16	<10
21242	6	<10
21243	16	<10
21244	10	<10
21245	16	<10
21246	6	<10
21247	10	<10
21248	<5	<10
21249	6	<10
21250	10	<10
21251	10	<10
21252	10	<10
21253	10	<10
21254	6	<10
21255	6	<10
21256	20	<10
21257	16	10
21258	<5	<10
21259	6	<10
21260	<5	<10
21261	<5	<10
21262	6	10
21263	<5	<10
21264	<5	<10
21265	<5	<10
21266	<5	<10
Detn limit	(5)	(10)

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NATA CERTIFICATE

3/717/0 - AC 3923/84

3rd May 1984

The Manager
Gencor Australia
10 Belstead Street
ZEEHAN TAS. 7469

REPORT AC 3923/84

YOUR REFERENCE:	Telex of 9.4.84
IDENTIFICATION:	As listed
DATE RECIEVED:	9th April 1984

D. Patterson

D. Patterson
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Analytical Chemistry Division

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Analysis code C1/C2 Report AC 3923/84 Page 1
B1/1,2

NATA Certificate Results in ppm

Sample	Cu	Pb	Zn	Ag	Sn	W	Mo
21275	20	20	610	<1	36	20	<4
21276	390	10	1200	<1	46	15	<4
21277	48	<5	520	<1	84	<10	<4
21278	2	<5	1200	<1	10	10	<4
21279	130	350	450	<1	34	40	<4
21280	2	10	120	<1	16	<10	<4
21281	2	6	44	<1	<4	<10	<4
21282	<2	<5	86	<1	8	<10	6
21283	16	<5	90	<1	10	<10	<4
21284	2	6	76	<1	10	<10	<4
21285	16	6	46	<1	<4	10	<4
21286	<2	<5	28	<1	10	<10	<4
21287	2	<5	70	<1	12	10	<4
21288	<2	<5	90	<1	22	15	<4
21289	<2	6	130	<1	20	<10	6
21290	76	10	200	<1	24	15	6
21291	36	10	140	<1	12	10	<4
21292	2	6	120	<1	22	10	<4
21293	<2	<5	220	<1	14	10	<4
21294	2	<5	50	<1	12	<10	<4
21295	2	<5	56	<1	26	15	4
21296	<2	<5	66	<1	<4	10	<4
21297	<2	6	86	<1	4	10	4
21298	2	6	110	<1	16	20	<4
21299	2	<5	66	<1	36	<10	<4
21300	<2	6	56	<1	30	15	<4
21301	<2	6	90	<1	6	<10	<4
21302	2	16	80	<1	10	<10	<4
21303	<2	6	110	<1	28	10	<4
21304	<2	<5	50	<1	6	15	<4
21305	<2	<5	120	<1	14	25	<4
21306	2	<5	140	<1	16	10	4
21307	<2	6	76	<1	18	15	<4
21308	<2	<5	110	<1	8	10	<4
21309	<2	6	44	<1	8	15	<4
21310	<2	<5	16	<1	<4	10	4
21311	2	6	70	<1	<4	10	<4
Detn limit	(2)	(5)	(2)	(1)	(4)	(10)	(4)

273121

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In reply quote:

NATA CERTIFICATE

3/717/0 - AC 4138/84

16th May 1984

MAY 1984

Chief Geologist
Gencor (Aust.) Pty. Ltd.,
55 Maquarie Street
SYDNEY N.S.W. 2000

REPORT AC 4138/84

YOUR REFERENCE: *Submission form 204*

IDENTIFICATION: *As listed*

DATE RECEIVED: *26th April 1984*

NOTE: *Sample 21323 is received but not listed.*

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D. Patterson
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Analysis code B1 | Report AC 4138/84 | Page 1

NATA Certificate | Order No. 0204 | Results in ppm

Sample	Sn	W	Mo
21312	38	35	<4
21313	4	<10	<4
21314	<4	<10	4
21315	<4	<10	<4
21316	<4	<10	<4
21317	4	<10	<4
21318	10	2620	4
21319	6	10	<4
21320	<4	<10	<4
21321	6	<10	<4
21322	8	<10	<4
21323	<4	<10	<4
Detn limit	(4)	(10)	(4)

Analysis code C1,C2 Report AC 4138/84 Page 2

NATA Certificate Order No. 0204 Results in ppm

Sample	Cu	Pb	Zn	Ag	Ni	Cr
21312	56	66	960	<1	170	10
21313	10	76	200	<1	76	<10
21314	2	16	36	<1	6	<10
21315	12	36	40	<1	6	<10
21316	30	26	140	<1	20	10
21317	4	10	110	<1	16	<10
21318	14	20	210	<1	10	<10
21319	6	20	190	<1	10	10
21320	2	16	100	<1	6	10
21321	2	6	48	<1	6	<10
21322	<2	10	76	<1	10	<10
21323	2	16	66	<1	6	10
Detn limit	(2)	(5)	(2)	(1)	(5)	(10)

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273124

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NATA CERTIFICATE

3/717/0 - AC 4165/84

1984

16th May 1984

Chief Geologist
Gencor (Aust) Pty. Ltd.,
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SYDNEY N.S.W. 2000

REPORT AC 4165/84

YOUR REFERENCE:	Submission form 205
IDENTIFICATION:	As listed
DATE RECEIVED:	30th April 1984

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Analysis code B1 Report AC 4165/84 Page 1

NATA Certificate Order No. 0205 Results in ppm

Sample	Sn	W	Mo
21324	<4	<10	<4
21325	<4	<10	<4
21326	6	<10	<4
21327	<4	<10	<4
21328	6	<10	<4
21329	16	<10	<4
21330	6	<10	<4
21331	26	<10	<4
21332	18	<10	<4
21333	12	<10	<4
21334	26	<10	<4
21335	24	<10	<4
21336	14	<10	4
21337	6	<10	<4
21338	6	<10	<4
21339	4	<10	<4
21340	28	15	4
21341	4	<10	<4
21342	10	<10	<4
21343	<4	<10	<4
Detn limit	(4)	(10)	(4)

Analysis code C1,C2 Report AC 4165/84 Page 2

NATA Certificate Order No. 0205 Results in ppm

Sample	Cu	Ni	Cr	Pb	Zn	Ag
21324	8	16	<10	20	120	<1
21325	4	10	<10	20	66	<1
21326	8	6	<10	6	110	<1
21327	6	6	<10	6	66	<1
21328	4	6	<10	10	60	<1
21329	2	6	<10	6	42	<1
21330	2	6	<10	6	36	<1
21331	2	6	10	6	50	<1
21332	2	6	10	6	66	<1
21333	2	<5	<10	6	42	<1
21334	46	<5	<10	26	42	<1
21335	2	<5	<10	6	42	<1
21336	<2	6	<10	6	44	<1
21337	2	<5	<10	6	44	<1
21338	2	10	<10	10	80	<1
21339	2	6	<10	10	34	<1
21340	2	6	10	10	44	<1
21341	30	6	<10	10	16	<1
21342	<2	10	<10	10	16	<1
21343	<2	6	<10	6	12	<1
Detn limit	(2)	(5)	(10)	(5)	(2)	(1)

123 1

BGG 273127

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NATA CERTIFICATE

3/717/0 - AC 4523/84

6th June 1984

Chief Geologist
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SYDNEY N.S.W. 2000

REPORT AC 4523/84

YOUR REFERENCE: Submission form 0206

IDENTIFICATION: As listed

DATE RECEIVED: 24th May 1984

D. Patterson
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273128

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Analysis code B1,C1/C2 Report AC 4523/84 Page 1

NATA Certificate Order No. 0206 Results in ppm

Sample	Sn	W	Mo	Cu	Pb	Zn	Ag	Ni
21344	<4	10	<4	8	40	12	<1	10
21345	<4	<10	4	86	70	56	<1	150
21346	<4	<10	4	70	50	110	<1	90
21347	<4	<10	<4	60	40	36	<1	56
21348	<4	<10	4	100	26	30	<1	140
21349	6	<10	<4	90	120	44	<1	160
21350	6	<10	<4	56	60	32	<1	96
21373	<4	<10	4	34	10	60	<1	26
21351	10	10	<4	210	10	56	<1	26
21352	34	15	<4	280	20	66	<1	36
21353	16	10	<4	110	10	86	<1	30
21354	22	10	4	24	10	50	<1	20
21355	32	<10	<4	290	26	90	<1	20
21356	<4	<10	<4	18	10	30	<1	10
21357	24	<10	<4	250	30	80	<1	10
21358	8	<10	<4	12	6	32	<1	16
21359	<4	<10	<4	<2	10	16	<1	10
21360	<4	<10	4	10	10	30	<1	10
21361	<4	<10	<4	6	10	24	<1	10
21362	<4	<10	<4	4	6	26	<1	10
21363	<4	<10	<4	4	10	24	<1	10
21364	<4	10	<4	<2	6	26	<1	16
21365	<4	<10	<4	6	16	32	<1	10
21366	8	<10	4	8	10	32	<1	10
21367	<4	<10	4	8	10	30	<1	10
21368	<4	<10	<4	2	16	24	<1	6
21369	4	<10	<4	56	10	30	<1	10
1370	4	10	<4	16	6	26	<1	70
21371	<4	<10	<4	8	6	28	<1	16
Detn limit	(4)	(10)	(4)	(2)	(5)	(2)	(1)	(5)

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Analysis code C3/3 Report AC 4523/84

NATA Certificate Order No. 0206 Results in ppm

Sample	Au
21345	<0.01
21346	<0.01
21347	<0.01
21348	<0.01
21349	<0.01
21350	<0.01
21373	<0.01
21351	<0.01
21353	<0.01
21355	<0.01
21357	<0.01
21359	<0.01
21361	<0.01
21363	<0.01
21365	<0.01
21367	<0.01
21369	<0.01
21371	<0.01
Detn limit	(0.01)

APPENDIX THREE

APPENDIX 3

PETROLOGICAL REPORTS

A suite of skarn samples from GSR 14 were sent to Pontifex & Associates for description. Subsequently samples from GSR 10 (previously described by Minpet Services and attached as Appendix 3 in Addendum 1) were also sent to Pontifex & Associates for description. Samples submitted and depths are given below:

FROM GSR 14

Depth (m)	Sample No.	Field Description
121.36	21267	Upper magnetite-sulphide skarn
171.24	21268	Mg-silicate skarn
176.37	21269	Magnetite-sulphide skarn
179.48	21270	Quartz porphyry
181.80	21271	Magnetite-sulphide skarn
182.32	21272	Mg-silicate skarn
184.75	21273	Calc-silicate skarn
186.57	21274	Magnetite-sulphide skarn

FROM GSR 10

Depth (m)	Sample No. or UCT No.	Field Description
89.95	2502/2189	Ironstone
102.20	2503/2191	"
103.17	2504/2192	"
119.57	2505/2194	Calc-silicate skarn
147.50	21216	Pelitic hornfels.

Pontifex & Associates Pty. Ltd.

TEL. 332 6744
A.H. 31 3816

26 KENSINGTON ROAD, ROSE PARK
SOUTH AUSTRALIA

P.O. BOX 91, NORWOOD
SOUTH AUSTRALIA 5067

MINERALOGICAL REPORT NO. 4271

6th April, 1984

TO:

Mr. John Smart,
Gencor (Aust.) Pty. Ltd.,
55 Macquarie Street,
SYDNEY, N.S.W. 2000

COPY TO:

Mr. Brian Gibson,
Gencor (Aust.) Pty. Ltd.,
10 Belstead Street,
ZEEHAN, Tasmania 7469

YOUR REFERENCE:	Sample Submission form 0201
MATERIAL:	Drill Core
IDENTIFICATION:	21267 to 21274
WORK REQUESTED:	Thin/polished section preparation, description, with comments as requested
SAMPLES & SECTIONS:	Returned to Zeehan address with copy of this report

PONTIFEX & ASSOCIATES PTY. LTD.

COMMENTS

The petrological/mineragraphic examination confirms that this suite of samples represents a contact-metamorphic ("skarn") assemblage, almost certainly developed within an Mg-rich dolomite.

The non-opaque mineral assemblage consists almost entirely of Mg-rich silicate phases, some altered and/or retrogressed, with relatively very sparse Ca-(±Mg)-bearing minerals, to suggest that original essential Ca from the dolomite has been largely removed. These minerals are listed in approximate decreasing order of abundance -

1) humite-group mineral, almost certainly chondrodite - $Mg(OHF)_2.2Mg(SiO_4)$
2) very pale green to colourless phlogopite (or talc?)
3) olivine, commonly altered to serpentine and/or serpentiferous clays
4) clinopyroxene
5) tremolite
6) ?fluorite
7) apatite (trace)

As explained in individual descriptions, it is difficult in some cases to positively identify, or indeed distinguish between, the humite-group mineral, pyroxene and olivine; talc and phlogopite.

Opaque minerals are variably represented in different samples, forming from 10% to 75% of the whole rock. In decreasing order of abundance these are :-

/2

pyrrhotite (commonly altered to pyrite)

magnetite (pseudomorphing bladed hematite in 21274
typical in contact metamorphic zones)

chalcopyrite	accessory
"primary" pyrite	accessory
arsenopyrite	minor-accessory

Ilvaite - $CaFe_3(OH)SiO_4)_2$ dominates sample 21272, and is diagnostic of contact-metamorphosed, limestone/dolomite rocks, accompanied by magnetite.

This assemblage indicates a contact metamorphosed conceivably sulphide-bearing, dolomitic facies, including metasomatic introduction of fluorine. Most aggregates show evidence of stress and/or shear.

Detailed examination in transmitted and reflected light failed to reveal any tin minerals.

Sample 21270 is a leucocratic felspar-rich "granitoid", carrying accessory biotite; conceivably this represents the intrusive which caused the contact metamorphism.

*****

<u>21267</u> : massive, granular olivine rock;
GSR14 microfractured and partly serpentinised,
121.36m enclosing irregular patches of pyrrhotite and
lesser magnetite, also finer magnetite ± tochilinite
along serpentinised intergranular areas and fractures

About 65% of this rock consists of a more or less granuloblastic aggregate of olivine crystals, average size about 1 mm. This is cut by abundant, very closely spaced, parallel, fine fractures apparently as two sets intersecting at a low angle. The olivine is serpentinised along these fractures and along intergranular contacts, often together with fine magnetite and rarer tochilinite.

About 30% of the rock consists of highly irregular patches of pyrrhotite continuous for distances up to 15 mm, but on a much finer scale the margins of these patches are intergranular to, and form an integral part of the olivine aggregate. Smaller (0.1 to 0.8 mm) irregular grains of pyrrhotite are also scattered.

This pyrrhotite is stressed and rarely contains trace, extremely fine pyrite. Minor subhedral crystals of magnetite (5 – 7%), 0.1 to 0.5 mm in size, are scattered, locally as inclusions in pyrrhotite. Accessory green (Fe,Mg and possibly Cr-rich) secondary phase presumably after olivine, also occurs mainly as inclusions in pyrrhotite. Envelopes of extremely fine flaky, apparent tochilinite occur around some pyrrhotite grains. (Tochilinite is a nickeliferous, interlayered FeS:MgOH mineral.)

21268 : LSR14 171·24 m	massive, fine granular olivine aggregate, completely serpentinised; incorporating irregularly granular pyrrhotite-pyrite, lesser magnetite, trace chalcopyrite and tochilinite

At least 75% of this sample consists of a very fine (0.1 mm), massive, polygonal-granular aggregate of olivine, which is completely altered to serpentine and serpentiferous-clays.

Opaque phases are scattered throughout, mostly as highly irregular, skeletal patches, more or less intergranular to the serpentinised olivine. The dominant, and relatively coarser opaque minerals consist of pyrrhotite (20%), generally incorporating subhedral crystals of primary pyrite, also partly altered along crystallographic planes to secondary pyrite/marcasite. Minor patches of limonite occur in some.

Magnetite (5%) occurs as irregular, fine porous and corroded-looking, partial envelopes around some pyrrhotite, also as discontinuous networks along intergranular contacts within the olivine aggregate. Trace discrete grains of chalcopyrite (0.03 mm size) are scattered. Trace extremely fine-flaky, brown, strongly pleochroic, tochilinite, also occurs along intergranular contacts within the olivine aggregate. Minor stringers of altered pyrrhotite also cut through the rock.

<u>21269</u> :

GSR 14
176.37

vaguely layered, fine granular aggregate
of chondrodite, probable phlogopite,
and altered pyrrhotite, lesser serpentine;
accessory chalcopyrite;
fine foliae of magnetite along closely spaced
shears; trace arsenopyrite

This rock consists of a vaguely layered, very fine granular (0.3 mm size) and weakly schistose aggregate of Mg-rich silicate phases, and sulphides.

The silicate phases which variably dominate individual, poorly defined layers, are :-

1) pale to mid-yellowish and quite strongly pleochroic humite-group mineral, probably chondrodite - $Mg(OHF)_2.2Mg_2(SiO_4)$, forming about 30% of the rock

2) pale greenish to colourless mica, locally pale brownish and pleochroic, almost certainly iron-poor phlogopite (but possibly talc), about 30% of the rock

3) serpentine probably after chondrodite, possibly after olivine (10%).

Fine to quite coarse amoeboidal to skeletal, intergranular grains of pyrrhotite (30%) occur throughout, although mainly in phlogopite-rich layers.. This pyrrhotite is virtually completely altered to secondary, melnicovite pyrite. Accessory very small grains of chalcopyrite occur locally.

Very thin foliae of magnetite, intimately associated with minor altered iron-sulphide, and rarer tochilinite, are variably continuous along intergranular contacts and closely spaced fine shears.

Rare, very small, single grains of arsenopyrite are present.

<u>21270</u> : leucocratic, incipiently porphyritic,
GSR14 medium grained granite;
179.48 accessory biotite, perthitic and antiperthitic felspar;
stressed with rare recrystallisation

This leucocratic rock has a medium grained (3 mm size) hypidiomorphic crystalline texture of subhedral to euhedral felspar, and subordinate, relatively allotriomorphic quartz. Minor microcrystalline quartz ± lesser albite is intergranular to make the texture incipiently porphyritic.

The felspar is mainly orthoclase, commonly with abundant exsolved albite, i.e. essentially perthite; but minor albite with exsolved K-spar (antiperthite) is also present.

The primary aggregate is stressed, resulting in some intergranular recrystallisation and veining, mainly of the quartz. Accessory discrete flakes of biotite ± sphene are scattered through intergranular areas.

21271 : vaguely layered, very fine grained,
tectonised and recrystallised aggregate
of chondrodite, "phlogopite", lesser ?clinopyroxene;
abundant pyrrhotite, minor chalcopyrite,
trace arsenopyrite

GSR 14
181-80

About half of this rock consists of Mg-silicate phases which occur as a very fine grained, texturally rather complex aggregate, apparently due to stress and with originally coarser crystals, largely recrystallised to the very fine aggregates. The other half consists of opaque phases, as highly irregular grains intricately intergrown throughout the silicate aggregate, also in loose aggregates within vague tectonised lenses, cut by or bounded by wavy shears.

? granite

The silicate minerals are similar to those in 21270 and consist of a subequal abundance of chondrodite (characteristically pale yellowish and pleochroic) and pale greenish Mg-mica, probably phlogopite; with minor apparent clinopyroxene, although this is extremely difficult to distinguish from the chondrodite. The chondrodite in this sample is commonly multiply twinned, although the twinning is deformed.

The opaque phases consist mostly of fresh pyrrhotite, with minor widespread chalcopyrite. The chalcopyrite is locally equally as coarse as the pyrrhotite, and forms an estimated 5% of the rock.

Trace, small single grains of arsenopyrite are present.

21272 : massive granular aggregate of ?humite-group mineral, with minor phlogopite or talc, incorporating abundant fine prismatic to fibrous, black-opaque ?ilvaite

ASR 14
182.32

About half of this rock consists of a massive, fine granoblastic aggregate of an "olivine or pyroxene-looking" mineral. The nature and wide extent of multiple twinning, and lack of a genuine cleavage and association with minor colourless phlogopite or talc, in the context of this suite, also the biaxial positive sign with a very large 2V, indicates a probable humite-group mineral. It lacks the distinctive yellowish colour of the chondrodite seen in several samples above, however.

The other half of the rock consists of clusters of black-opaque, fibrous to fine lamellar-form crystals. The optical properties of this mineral, notably the very distinctive pleochroism and anisotropism, considered in the light of the host rock mineralogy, indicates that this opaque phase is probably ilvaite – $CaFe_3(OH)(SiO_4)_2$. Minor stringers of magnetite and trace extremely fine grains of pyrite are intergrown within this ilvaite.

This is a relatively uncommon mineral; if the specific identity is particularly critical then examination by an electron probe or SEM is recommended.

21273 : massive aggregate of chondrodite, clinopyroxene, talco or phlogopite; carrying minor pyrrhotite, rarer chalcopyrite and arsenopyrite

GSR14
144.75

This rock is dominated by three different Mg-rich contact-metamorphic minerals, forming an irregular, variably very fine (?recrystallised) to very coarse granular aggregate. These phases are:-

1) very pale yellowish-brown, twinned humite-group mineral, almost certainly chondrodite
2) very pale green talc or phlogopite, variably as coarse flakes, and in massive extremely fine, decussate aggregates
3) colourless clinopyroxene (with some evidence of cleavage which is absent from "pyroxene-looking" minerals in other samples.

Minor opaque grains (7 - 10% of the whole rock) are locally intergrown within this aggregate. These are identified in reflected light as pyrrhotite with minor associated chalcopyrite. Rare crystals of arsenopyrite occur independently and are rarely composite with pyrrhotite.

<u>21274</u> :

QSR 14
186-57

massive aggregate of magnetite
pseudomorphs after hematite;
?fluorite pseudomorphs after tremolite;
phlogopite or talc;
serpentine clays probably after olivine;
accessory apatite

About 70% of this rock consists of a loose aggregate of randomly interlocking fine blades of magnetite, and composite clusters of these. This magnetite appears to be pseudomorphs after former bladed hematite, i.e. the musketovite variety, common in contact metamorphic aureoles.

Random interstitial areas within the magnetite aggregate are occupied mostly by pale khaki, chloritic and serpentiferous clays, ?after olivine. Minor coarse random flakes of colourless to pale green talc or phlogopite, also clusters of fibrous tremolite, are fairly widespread. The tremolite is replaced by an isotropic phase of low relief, almost certainly fluorite. Accessory small crystals of apatite are scattered.

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273143

Pontifex & Associates Pty. Ltd.

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MINERALOGICAL REPORT NO. 4294

17th May, 1984

TO:

Mr. Brian Gibson
Gencor (Aust.) Pty. Ltd.,
55 Macquarie St.,
SYDNEY NSW 2000

YOUR REFERENCE: Your letter dated 7th May 1984

MATERIAL: and IDENTIFICATION: Drill core sample 21216
Thin and polished sections 2502, 2503, 2504, 2505.

WORK REQUESTED: Describe 21216
Compare 21216 with previous samples described.
Comment on genesis of 2503 to 2505

SAMPLES & SECTIONS: Returned to you with this report.

PONTIFEX & ASSOCIATES PTY. LTD

21216 : very fine (quartz), K-spar, albite, biotite hornfelsic
schist; different concentrations of different
felspars define a vague layering;
probable meta (?silty) impure pelitic sediment

This is a homogeneous dark grey, very fine crystalline core sample, locally with a vague thin layering at about 60% to the core axis.

Petrographically about 35% of the rock is seen to consist of strongly pleochroic, pale to dark brownish green flakes of biotite, about 0.1 mm size, mostly similarly oriented to produce a weak schistosity. Some coarser biotite flakes are at random to the schistosity, with a tendency to form a hornfelsic fabric.

This biotite has a vaguely layered distribution through a metamorphically microcrystalline aggregate of untwinned albite minor quartz and trace K-spar in one layer 30 mm thick, and of untwinned albite, K-spar and lesser quartz in another layer also about 30 mm thick. The relative abundance of K-spar is highlighted onthe stained offcut.

Several metamorphic veinlets of albite ± minor biotite, quartz are vaguely conformable to the layering. The quartz is crowded with extremely fine rutile. Rare stringers of carbonate + probable zeolite occur locally

Minor very small clusters of coarse schistose biotite and rutilated quartz occur locally.

The rock is interpreted as a metasediment probably a (?silty) meta pelite.

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Comparisons between 21216 and previous olivine-bearing rocks, previously described, Pontifex Report No. 4271, and with samples 2502, 03, 04, 05.

There is no petrographic reason to relate the sample 21216 to any of the skarn rocks 21267 to 21274 previously described. Those previous rocks are interpreted to represent contact metamorphosed, Mg-rich carbonate facies. Conceivably 21216, as a meta pelitic sediment, may occur in an original sedimentary sequence which contained that dolomite.

The ferruginous rocks 2502, 03, 04 and the fine compact Mg-rich skarn rock 2505, have no characteristics in common with this sample 21216. (The ferruginous rocks 2502, 03 are skarns of mostly coarse tremolite which has been replaced by magnetite, then oxidised. Accessory cassiterite occurs in 2502).

THIN AND POLISHED SECTIONS 2502 TO 2505

These sections were not asked to be described. However, to comment on their genesis, (which was requested), the following brief descriptions/interpretations of the composition of each, based on observations in this and polished section are necessary.

2502

Mostly hematite/limonite réplica after a coarse, randomly interlocking fibrolamellar-form mineral, which in the context of the previous suite of samples was probably tremolite or actinolite or the ilvaite previously recorded in sample 21272. Detailed examination in reflected light indicates that the hematite is pseudomorphous after magnetite, thus the magnetite must have initially replaced the amphibole.

Accessory crystals of ?cassiterite, maximum size 0.6 mm, are present but largely concealed by extensive limonite. Accessory limonite replicas after granular/euhedral magnetite (7%), up to 0.8 mm are also randomly scattered.

Matrix of "limonitic-clays"is of uncertain origin, probably after serpentine or related Fe-Mg-rich micas.

Likely paragenesis

Probable skarn dominated by coarse tremolite or ilvaite (meta-dolomite), replaced by magnetite, then leached and extensively oxidised to hematite-limonite.

250~~1~~3

At least 75% of this rock consists of long (15 mm) slender prisms, and aggregates of prisms, randomly and loosely interlocked. These have the textural form or original amphibole (?actinolite or tremolite), or of possible ilvaite as previously reported in sample 21272. However most of them now consist of magnetitepseudomorphs, partly oxidised to hematite along relict cleavages of the amphibole, and along the magnetite crystal directions. Commonly oxidation has advanced to limonite replicas.

Irregular areas of colloform limonite and manganese-oxides of exotic-migratory origin occur locally.

Likely paragenesis

Essentially the same as 2501, probably a skarn dominated by coarse tremolite or possible ilvaite, replaced by magnetite, then extensive oxidation to various secondary iron oxides. (No evidence of cassiterite).

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2504

About 70% of this rock consists of an extensively ferruginised matrix of silicate minerals, most of which have a fine micaceous, and weakly schistose habit, conceivably serpentiferous. Rarer, much coarser, micaceous and prismatic silicate crystals are also altered to limonitic clays. These crystals are inherently microfractured, they appear to have included at least some original amphibole.

The remaining 30% of the rock consists of subhedral crystals of magnetite, average size about 0.5 mm, and completely oxidised to hematite (martite)pseudomorphs. These are vaguely layered, also occur in loose clusters. Quartz is absent.

Likely paragenesis

Very iron-rich carbonate (??or ultramafic facies), contact metamorphosed, altered, then completely oxidised.

2505

The compact, very fine grained, dark green area seen in the polished and corresponding thin section provided, is seen petrographically to consist predominantly of an "olivine-pyroxene-looking"mineral as previously recorded in the description of 21272. This mineral is too fine (0.01 mm) and lacks distinctive optical properties, to allow a positive identification: its character, and the pale green colour in most of it indicates probable diopside, however the association with minor apparent talc, colourless magnesium-rich chlorite, and/or phlogopite, suggests at least some possible humite-group mineral, as in previous samples described in report 4271.

Veins of khaki-stained serpentine, and/or phlogopite cut this extremely fine granular aggregate of Mg-rich minerals.

A pale-grey-white band 5 mm wide curved around the above rock consists of a loose aggregate of an extremely fine granular to vaguely fibrous, colourless but clouded mineral, with a high RI and essentially isotropic, within a matrix of serpentine ± talc. The identity of this high RI mineral is difficult to resolve, largely due to its fine size and clouded nature, but it may be leucoxene, ?spinel. The area of rock on the other side of the white band, in the thin section consists of massive, microcrystalline "serpentine".

Likely paragenesis

This rock compares with the magnesium-silicate-rich skarn facies the same as most samples of 21267 to 21274 previously described in report no. 4271. Thus it is interpreted as a contact-metamorphosed, and altered Mg-rich carbonate facies.

APPENDIX FOUR

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APPENDIX 4

GOLD URANIUM AND PLATINUM DIVISION
GENCOR GEOLOGY DEPARTMENT - SPRINGS

C.H.M. - 27.9.1983.

BULLETIN NO. 2503.

UNION CORPORATION (AUSTRALIA) PTY. LIMITED

REPORT ON THE MINERALOGICAL INVESTIGATION OF TIN-BEARING SAMPLES FROM THE STANLEY REWARD TIN PROSPECT, TASMANIA.

1. ATTACHED

Attached is a copy of an article 'Geochemical Exploration For Tin - Recent Research Results' by P.J. Eadington.

2. INTRODUCTION

The Mineralogical Section (Springs) recently offered to assist Union Corporation (Australia) Pty. Limited to have electron-microprobe studies carried out on Sn-bearing drillhole samples of the Stanley Reward Prospect. The project was initiated by Mr. J.V. Smart (Chief Geologist, Union Corporation, Australia) who despatched the samples to us after consultation with the Australian Mineral Development Laboratories (Amdel). This laboratory was approached originally to do the investigation, but quoted an unacceptably high cost per sample.

The objective of the investigation was to determine the mode of occurrence of Sn in the ironstone samples, or how it occurred in the precursor rocks. It was reported that no cassiterite had been recognised, but some 'boxworks' (thought to be after pyrite) were found. This observation raised the possibility that stannite might have been the source of the Sn. The original rock (pre-weathering/ferruginisation) was described as probably an 'actinolite-diopside-garnet' skarn.

3. SAMPLES

Table 1 details the information on the samples received. Core recovery was extremely poor and the depths from which the samples were collected are only estimates.

TABLE 1: SCHEDULE OF CORE SAMPLES FROM BOREHOLE GSR 10 FOR ELECTRON-MICROPROBE STUDY.

SAMPLE NO.	REPRESENTING INTERVAL, m	RECOVERY, %	DESCRIPTION	ASSAYS, % Sn *		SAMPLING	POLISHED SECTION NO.
				A	B		
2266	75,6 - 83,5	13	Earthy limonite after carbonate skarn	0,68	0,44	Broken core; 6 random fragments	1
2268	86,5 - 92,5	11	Ferruginised and weathered calc-silicate hornfels	0,28	0,23	Sampled at: 89,0 m 89,5 m 90,0 m	 2 3 4
2270	98,5 - 101,2	13	Massive ironstone	0,51	0,37	Quarter core from only solid section	5a to 5e
2273	103,3 - 110,5	24	Massive ironstone	0,39	0,25	Sampled at: 107,0 m 110,0 m	 6 7a, 7b
2274	110,5 - 116,5	28	Massive ironstone	0,40	0,24	Sampled at: 113,0 m 114,5 m 116,5 m	 8a to 8c 9a, 9b 10a, 10b

* Determined by:
A. X-ray fluorescence
B. Ammonium iodide sublimation

4. EXPERIMENTAL METHODS

Nineteen representative polished sections were prepared for the mineralogical investigation (see last column - Table 1). These sections were examined microscopically and all potential Sn-bearing phases, as well as selected fields on each section, were marked with a diamond scribe. The electron microprobe at the Rand Afrikaans University was used to analyse these minerals, and to scan the selected fields for tin. The sections were then re-examined by reflected-light microscopy. Photomicrographs were taken during the investigation.

Ten core samples (one from each depth, corresponding to the polished section numbers as given in Table 1) were pulverised for X-ray diffractometry in order to identify or confirm the main mineral phases present. All remaining core and material was retained for reference purposes.

In addition to the above procedures, a heavy medium separation of heavy minerals was attempted on sample 2266. Two grain-size fractions (i.e. larger and smaller than 500 μm) were treated using tetrabromoethane (TBE: relative density at 20 C, 2,96 to 2,97) as the liquid medium. Two polished grain mountings of each of the sink fractions were prepared and examined in the same way as the solid core sections.

5. RESULTS

Mineralogically, the samples are chiefly composed of martite (hematite and magnetite), goethite (with varying Al content), and ferruginised Al-rich silicates (also giving the goethite diffraction pattern). This was found during the microscopic examination and confirmed by X-ray diffraction. Traces of Fe-rich SiO_2 (possibly ferruginised quartz veins) were encountered, while pseudomorphs after pyroxene, garnet and amphibole are common in some samples.

No cassiterite was found during the initial microscopic investigation, but the presence thereof was revealed during the subsequent scanning of the samples with the electron microprobe. A photomicrograph showing the occurrence of cassiterite in goethite/Fe-Al-silicate is shown in Figure 1. Figure 2 is a secondary-electron image of the same collection of grains, and Figures 3 to 6 show the elemental distributions of Sn, Fe, Al, and Si, respectively, for the field. An average of 12 quantitative analyses on cassiterite grains is given in Table 2.

TABLE 2: MICROPROBE ANALYSIS OF CASSITERITE

OXIDE	MASS %	STANDARD DEVIATION
SnO_2	88,3	4,66
Fe_2O_3	11,6	4,14
Al_2O_3	0,3	0,22
TOTAL	100,2	0,78

Because of the type of main constituents present in the drillhole samples, all material subjected to heavy-medium separation with TBE, collected as sink fractions. Any possible cassiterite could thus not be separated from the magnetite, hematite and goethite.

6. DISCUSSION

As was mentioned in section 5, no cassiterite was observed during the initial microscopic investigation, but once they were identified with the aid of the electron microprobe, it was possible to subsequently recognise the cassiterite grains under the microscope. Reasons for not recognising any cassiterite at first are that the individual grains are extremely fine (2 to 6 µm on average, and maximum size about 10 µm, except for occasional groups of acicular crystals up to 30 µm), and that they have an appearance similar to that of the background goethite/ ferruginised silicate, although the cassiterite grains are somewhat darker (Fig. 1). Darker cassiterites normally have higher Fe- and W-contents compared to that of pure SnO_2 (Uytenbogaardt and Burke, 1971, p.208) but only small amounts of Fe plus a trace of Al (and no W) was found in the cassiterite grains during the current study (Table 2). It is possible that some of the Fe and Al in the microprobe analyses were contributed by the underlying host material as the cassiterite grains in Figures 4 and 5 appear relatively free of these elements.

Skarns of the rock type investigated here form by the contact-metamorphic addition of SiO_2 and Fe to carbonate rocks resulting in the formation of calc-silicates, quartz veins, and iron oxides and/or sulphides. Iron is 'often accommodated in silicates such as andradite garnet and hedenbergite pyroxene, but its main mass is in the form of magnetite. Hematite, pyrite, arsenopyrite, and pyrrhotite are lesser, though sometimes important, iron minerals'(Stanton, 1972, p.619).

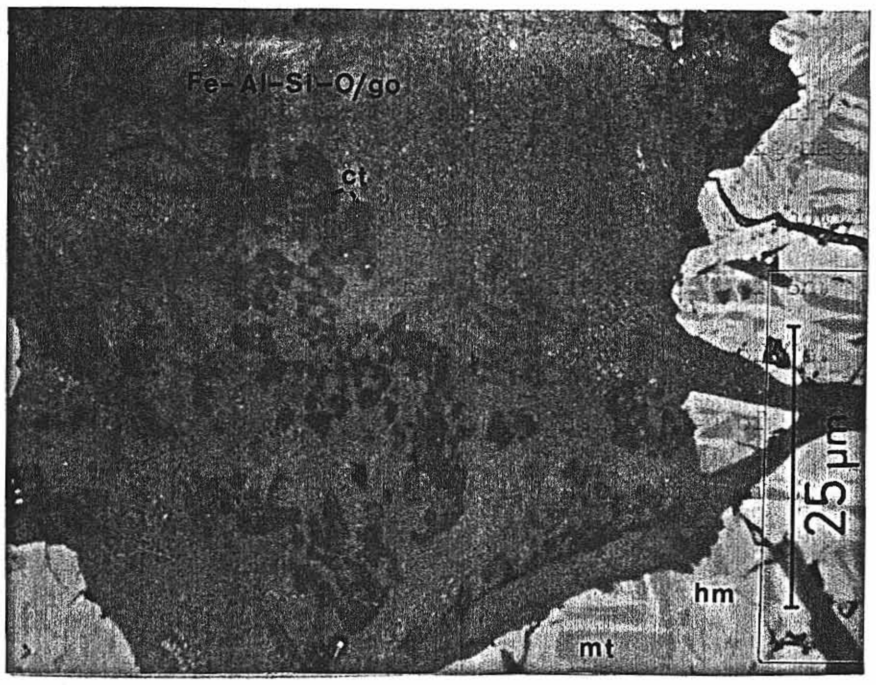

Fig. 1

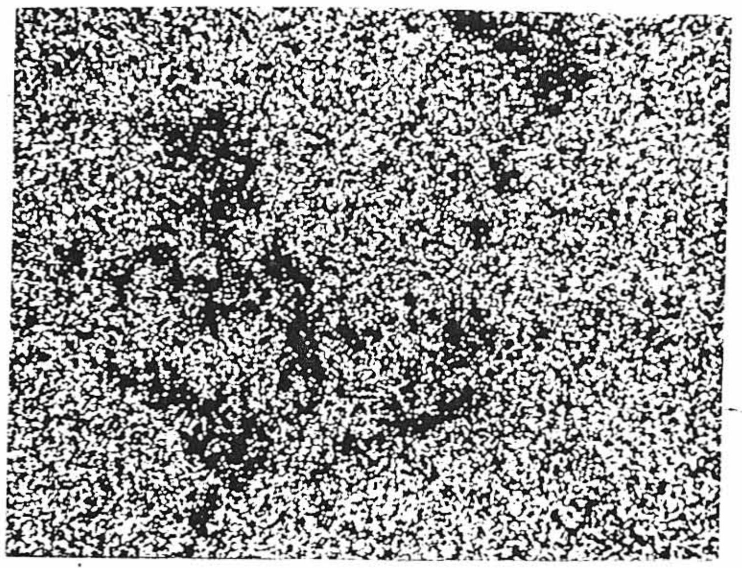

Fig. 4

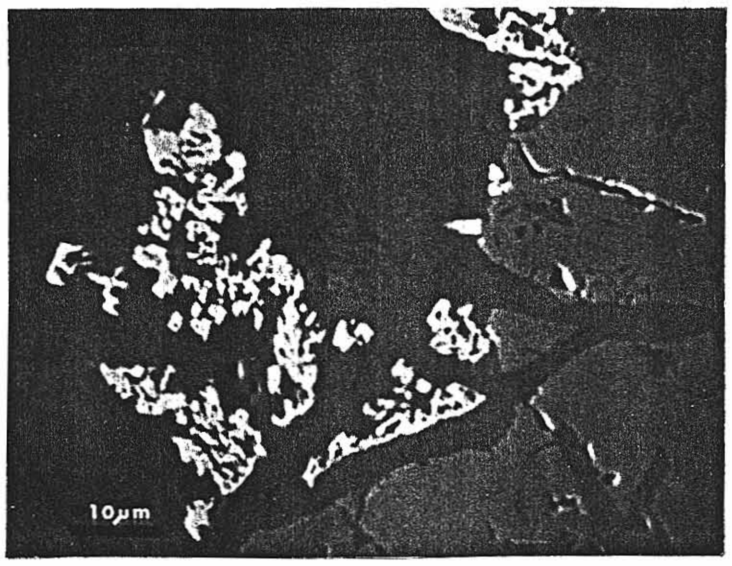

Fig. 2

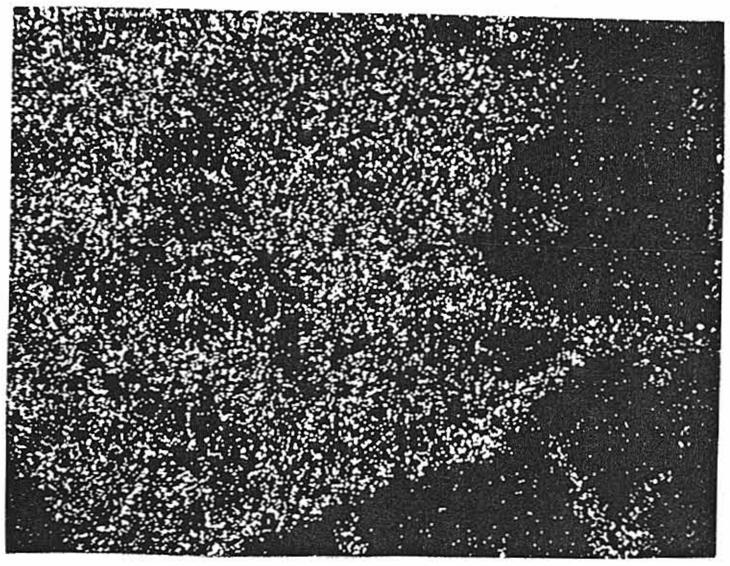

Fig. 5

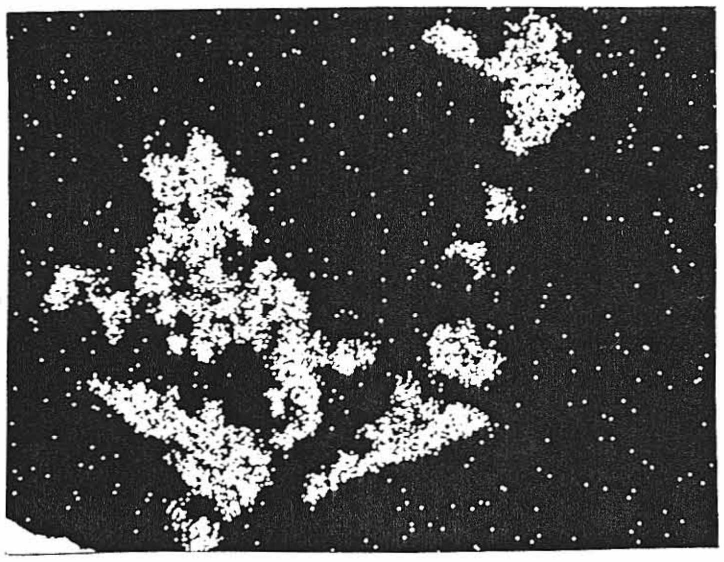

Fig. 3

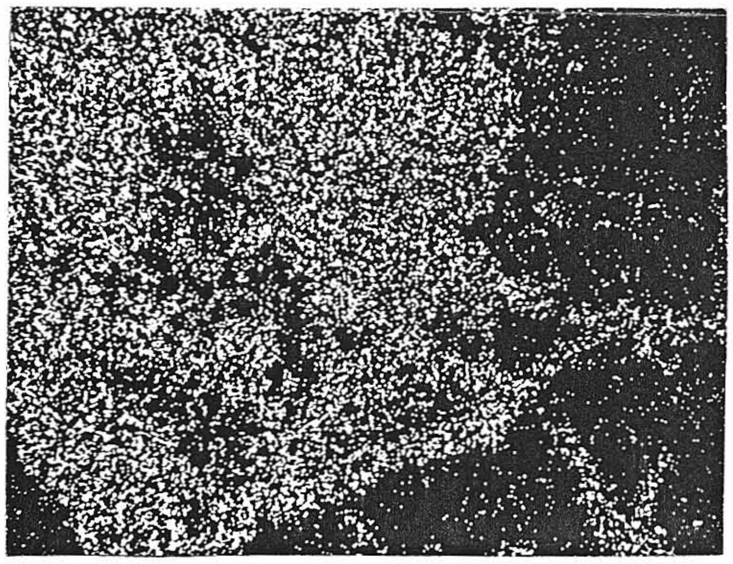

Fig. 6

Figure 1. Photomicrograph of cassiterite (ct) occurring in ferruginised silicate/goethite (go). Hematite (hm) is replacing magnetite (mt) by martitisation.

Figure 2. Secondary-electron image showing the distribution of cassiterite (same field as Fig. 1).

Figure 3. Elemental distribution of Sn.

Figure 4. Elemental distribution of Fe.

Figure 5. Elemental distribution of Al.

5 cm

Figure 6. Elemental distribution of Si.

It is not known whether the precursor rock contained sulphides (although it possibly could have), as possible sulphides would have been oxidised during weathering of the original rock. Boxworks or pseudomorphs after pyrite may well be present, but the majority of textures of this kind are those derived from pyroxene cross-sections (typical 90° cleavage) and amphibole (length- and cross-sections of actinolite). The original rock might have been an actinolite-hedenbergite (rather than diopside) - andradite skarn, but during oxidation the magnetite underwent partial martitisation (alteration to hematite), and the bulk of the matrix was changed to goethite. Minor cassiterite (probably originally present, but resistant to weathering) was retained as fine grains in residual clusters or aggregates.

Eadington (1983, p.15) reports that 'tin in skarns is largely lattice bound in calc-silicate minerals ..... and any minor cassiterite that may occur is fine grained. Often skarn Sn mineralisation contains 0.1% to 1% tin in a body of 10 million - 90 million tonnes ....'. He further states that 'certain mineral assemblages are unlikely to contain cassiterite Sn mineralization in economic grades,' and points out that 'rocks dominated by magnetite, andradite or grossular garnet, and diopside-hedenbergite crystallize at too high a temperature for Sn to be concentrated as cassiterite'. A copy of mentioned citation is attached as an appendix for reference, as the current study seemingly presents a similar case.

7. CONCLUSIONS

It is concluded that:-

(a) The tin occurs as clusters of individual grains of cassiterite up to 30 µm with an average of about 5 µm.

(b) They occur in host material that has been hardened by weathering/ferruginisation.

(c) Good recovery of Sn is unlikely as liberation of the clusters (with reference to favourable breaking directions) would be difficult.

8. RECOMMENDATION

As the conclusions above are based on observations in one borehole core only, the lateral variation in the nature of Sn-mineralisation is unknown. It is recommended that other drillhole cores are also examined, paying special attention to the size of cassiterite grains and their modes of occurrence, and degree of weathering of the host rock.

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C. H. McLAREN

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S2.3 GEOCHEMICAL EXPLORATION FOR TIN - RECENT RESEARCH RESULTS

P.J. Eadington

S2.3.1 INTRODUCTION

Cassiterite, because of its resistance to weathering, is a classic mineral for detecting and tracing mechanical dispersion trains in drainage systems by stream sediment and soil sampling, Taylor (1979), Levinson (1974, 1980). However, as the most obvious stream sediment and soil anomalies are detected, the search for more subtle indicators of cassiterite mineralization can introduce difficulties that are only now becoming apparent. This paper evaluates mineralogical and geochemical research in the Division of Mineralogy that has a bearing on Sn specialization of granites, Sn skarns and carbonate replacement deposits. Analytical methods for the determination of Sn are also evaluated.

S2.3.2 THE MINERALOGY OF TIN IN GRANITES AND TIN SPECIALISATION

The search for new Sn provinces or districts has led to a re-examination of possible Sn specialization in granitic rocks and whether specialization is a pre-requisite to mineralization. Levinson (1980) and Juniper and Kleeman (1979) note several regional studies indicating that Sn-mineralized granites have higher Sn concentrations (20-35 ppm) than barren granites (less than 10 ppm). However, more detailed studies in the New England area of NSW (Flinter, 1982a) and in North Queensland (Sheraton and Black, 1973) show that the distinction is more subtle. Although some samples of Sn-mineralized granites have high Sn concentrations, the variance (or standard deviation) is increased and there is considerable overlap with the range of Sn concentrations observed in unmineralized granites (Table 1). The difference in the means for mineralized and unmineralized granites is often less than the precision inherent in sampling and chemical analysis (Sheraton and Black, 1973). Thus, while high Sn concentrations (for example, 2x the average background concentration) are an indication of a Sn-mineralized granite, low values are inconclusive. The problem of variance arises from the occurrence of Sn in leucocratic granitic rocks as an accessory mineral such as cassiterite. A single grain of cassiterite 1 mm in diameter in a 1 kg sample of granite represents a whole-rock tin content of 3.6 ppm. A sub-sample of 100 g taken for pulping would yield an apparent tin content of 36 ppm if the cassiterite grain was included in the sub-sample, and zero if it was excluded.

The distribution of cassiterite in granites commonly has directional properties and this needs to be taken into account in sampling. In leucocratic granitic rocks cassiterite usually occurs in fissures and joints (Flinter, 1982b), many of which are hairline cracks not readily apparent in the field. Channel samples oriented normal to the macroscopic joint direction are preferable to samples of equant dimensions.

In mesocratic granitic rocks cassiterite occurs with quartz, fluorite, and topaz in small pods (microdomains) that are distributed randomly through the rock (Flinter, 1982b). In such cases, a sample of regular shape and ample size is required if both cassiterite-bearing macrodomains and barren granite are to receive due weighting. Chip samples are too small to indicate the Sn concentration in the bulk rock since they are

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Table 1. Whole-rock Sn assays (Sn_R), cassiterite contents, and known mineralization for granitic rocks in the New England Fold Belt, N.S.W.

Granite Type	Pluton	Range of(6) Contents (ppm) Sn_R	Trace Cassiterite	Tin Deposits
Aluminous Mesoadamellites (S-type)	Tobermory	<1 - 2	0/4(4)	None known
	Copeton	<1 - 2	0/6	None known
Calcic Mesoadamellites(1) (I-type) Hornblende-bearing	Wards Mistake	<1 - 6	7/50	Yes
	Carrai Granodiorite	<1 - 10	3/27	Yes
	Botumburra Range	<1 - 6	0/15	None known
	Rockisle	<1	0/5	None known
	Mt. Dural	<1 - 4	4/19	Yes
	Tingha	<1 - 20		
		5 - 28(5)	13/39	Yes
	Bendemeer	4	0/1	None known
	Moonki	3 - 6	0/3	None known
	Walcha Road	2 - 4	0/4	None known
Calcic Leucoadamellites(2) (I-type and A-type) Mostly biotite-bearing	Oban River	1 - 3	1/3	Yes
	Daisy Plains	<1	0/3	Yes
	Petroi	<1	0/2	None known
	Gilgai-Howell(3)	1 - 10		
		8 - 30(5)	1/8	Yes
	Round Mountain	<1 - 6	0/2	Yes
	Bolivia Range	4	0/1	Yes
	Mt. Jonblee	3	0/1	Yes
	Petries Sugarloaf	1	0/1	None known
	Stanthorpe	3 - 4	0/3	None known
	Ruby Creek(3)	4 - 15(5)		
		6	0/3	Yes
	Mole Granite(3)	2 - 6		
		21- 47(5)	1/4	Yes

(1) Except for Carrai Granodiorite
(2) Except for Mole Granite
(3) A-type granites (Kleeman, 1982)
(4) 3/27 means three out of 27 (1kg) samples contained cassiterite in heavy concentrates.
(5) Neutron activation analysis (Juniper & Kleeman, 1979).
(6) Tin determined by optical emission spectrography using Tennant's buffer.

unduly influenced by the inclusion or absence of cassiterite-bearing microdomains. Bulking chip samples across an outcrop may help to overcome this problem.

The variance in Sn concentrations of samples of mesocratic granitic rocks (5-25% ferromagnesian minerals) is lowered by the occurrence of lattice-bound Sn in hornblende (to 80 ppm) and biotite (to 250 ppm). Ferromagnesian minerals may contain nearly fifty percent of the Sn in the whole rock (Hesp, 1971) and are uniformly distributed.

Petrological categorization of granitic rocks as a basis for establishing Sn specialization has had mixed success. In New England, Sn mineralization occurs with varying intensity in a range of granite types Flinter (1982a), (Table 1). This does not reconcile with established concepts such as the uniquely specialized Sn granite of Rattigan (1964) — a high silica biotite-bearing leucogranite with a high whole-rock Sn concentration — and A-type granite of Loiselle & Wones (1979), or the two-fold classification into potentially Sn-mineralized S-type granites and unmineralized I-type granites (White et al., 1977). In New England, S-type granites have lower Sn contents than I-type granites (Table 1) suggesting that in this instance pre-enrichment of Sn in the crust, for example as palaeoplacers, has not been a factor in producing Sn-mineralized granites.

Gradational petrological indicators, such as the colour index, differentiation index, K/Rb ratio, and Li and F contents, appear to be better discriminants of potential Sn-mineralized granites (Levinson 1974, 1980) than clear-cut categories, but this may be because a more flexible interpretation of these data is possible.

The essential requirements for potential Sn-mineralized granites may be deduced from the hydrothermal geochemistry of Sn (Eadington, 1982). Given that Sn originates from granite magmas (Taylor, 1979), the granites will have a low water content and high halogen to water ratio. These magmas will rise to a high level in the crust promoting unmixing of a halide-rich aqueous phase. (Halide-rich brines readily dissolve cassiterite and unmixing promotes scavenging of Sn from the granite magma.) They will be leucocratic since ferromagnesian minerals that crystallize early can remove Sn from the melt. They will belong to an ilmenite-series rather than a magnetite-series granite (Ishihara, 1977), since ilmenite-series granites crystallize at a low oxygen fugacity which is required for the concentration of cassiterite by circulating hydrothermal solutions. At high oxygen fugacities (such as in magnetite-series granites) cassiterite will remain dispersed. High oxygen fugacities also increase the Fe^{3+}/Fe^{2+} ratio of ferromagnesian minerals which enhances the tendency for the occurrence of lattice bound Sn (Hesp, 1971; Eadington and Kinealy, in prep.). This 'description' includes A-type granites and Rattigan's (1964) 'tin granite' but also other granites outside these categories.

S2.3.3 SKARNS AND CARBONATE REPLACEMENT DEPOSITS

One aim of geochemical exploration by chemical analysis is to detect anomalies that would not be found by traditional prospectors, for instance, where the grain size of cassiterite is very fine. Anomalies derived from skarn Sn mineralization are of this type. Tin in skarns is largely lattice bound in calc-silicate minerals, such as andradite and hornblende, and any minor cassiterite that may occur is fine grained. Often skarn Sn mineralization contains 0.1% to 1% tin in a body of 10 million - 90 million tonnes, so the geochemical anomaly may be substantial even though panning may not produce an obvious cassiterite concentrate.

It can be shown from hydrothermal geochemistry that certain mineral assemblages are unlikely to contain cassiterite Sn mineralization in economic grades (Fig. 1). Rocks dominated by magnetite, andradite or grossular garnet, and diopside-hedenbergite crystallize at too high a temperature for Sn to be concentrated as cassiterite. On the other hand carbonate replacement ores are important sources of cassiterite, but these are usually formed at low temperatures and contain cassiterite with pyrrhotite or pyrite (Fig. 1) and gangue that includes carbonate minerals. Carbonate minerals react to form calc-silicate minerals at about 400-450 °C which is an important marker in Sn exploration (Fig. 1). Oxide (non-prospective) and sulphide (prospective) skarns will have different magnetic and electrical properties and give rise to ground water of different pH and chemical composition.

The importance of pyrrhotite-cassiterite carbonate replacment ores requires that carbonate rocks be explored for Sn. However, questions such as cassiterite content and recovery should be considered at an early stage of exploration by using mineralogical studies and discriminatory chemical analyses.

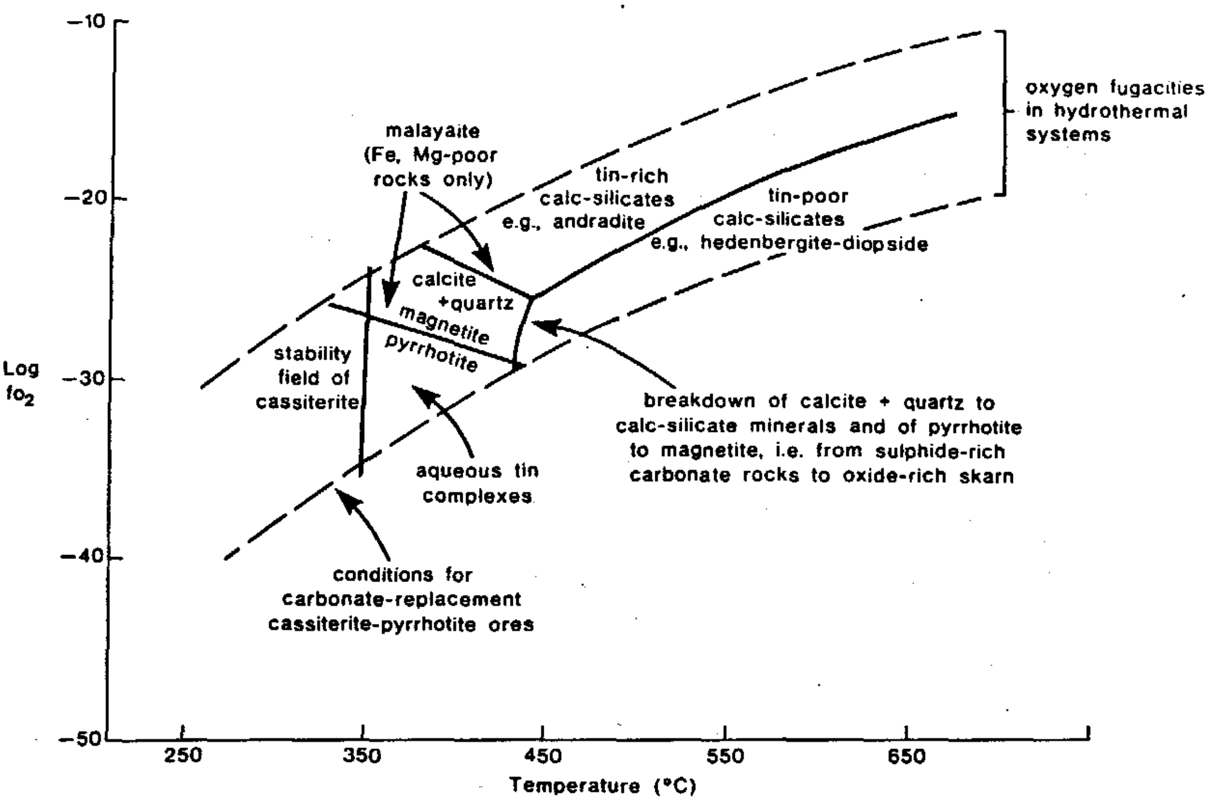

Figure 1. Selected mineralogical phase boundaries relevant to stanniferous skarns. The cassiterite and magnetite-pyrrhotite stability fields are for pH 7 to 9 and total sulphur concentration of 0.1 (applicable to calcite-pyrrhotite-magnetite-bearing rocks). At the oxygen fugacities that pertain in hydrothermal systems, bracketed here by the haematite/magnetite (upper) and iron/wüstite (lower) buffers, iron sulphide-rich carbonate rocks react to magnetite-rich calc-silicate rocks by a series of reactions near 400 C.

S2.3.4 CHEMICAL ANALYTICAL METHODS FOR TIN

Tin has oxidic, lithophile, and chalcophile affinities. In mesocratic granitic rocks and skarns it frequently occurs in a variety of minerals, rock-forming and accessary minerals and as cassiterite. It is useful, therefore, to have techniques of chemical analysis for determining the mineralogical residence of Sn. However, the presence of cassiterite and lattice-bound Sn together presents many problems in chemical analysis. Cassiterite does not dissolve in the usual mineral acids or common laboratory fluxes that are used to dissolve silicate minerals (Hall, 1980). NH_4I volatilization was developed as a rapid method to analyse for cassiterite but it doesn't dissolve silicate minerals. It has been supplanted in exploration by XRF analysis and is now generally reserved for estimating the cassiterite (+ stannite) content of rocks once anomalies have been detected. Although the NH_4I fusion does not dissolve silicate minerals, it can extract Sn from them (Fig. 2) possibly due to solid state reactions involving, for example, magnetite (Eadington & Kinealy, in prep.). The extraction is temperature dependent and the optimal temperature for NH_4I volatilisation of 500°C should not be exceeded by more than 50 to 100°C if the cassiterite content of skarn rocks is being determined. Extraction of Sn from rock-forming minerals is not a problem for cassiterite in granites or siltstones and the importance of

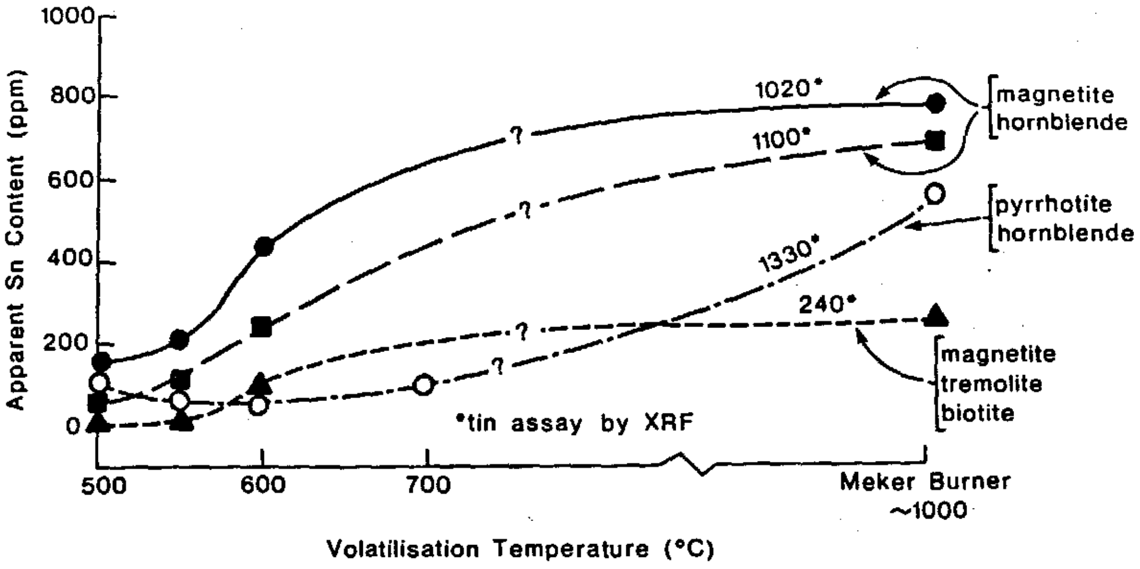

Figure 2. Increasing yield of NH_4I volatilized tin from skarn rocks as a function of temperature. (*, Sn assay by XRF).

temperature, when analysing skarn rocks, may be overlooked in some laboratories.

In XRF analysis the pressed powder technique using standards with a matrix similar to the samples is suitable for granites or siliceous sediments. However, in magnetite skarns, ironstones over Sn mineralization in tropical regions, or rocks with high sulphide mineral contents, this method cannot compensate for the large variations in mass absorption coefficient due to changing iron content. The method will result in errors that may be as high as 100%. This could be sufficient to create false anomalies or obscure real anomalies. For samples such as these, determination of the mass absorption coefficient, either by direct measurement or by computation from the major element composition, is required on each sample. Sometimes Sn is determined on fused discs to avoid matrix corrections (and for simultaneous determination of the major elements). Care is required since, as indicated above, the flux may not completely dissolve cassiterite.

In AAS analysis detection limits remain a problem. The hydride method and selection of certain spectral lines improves sensitivity but severe matrix interference is introduced that may eliminate any advantage.

In short, many problems remain in the chemical analysis of Sn in geological materials. Some problems have not been overcome or even fully evaluated. Certain analytical procedures for Sn may not be of sufficient quality to justify advanced techniques of data analysis.

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REFERENCE

DEVONIAN	Meredith Granite	Dgs	Sill (?)
		Dg	Adamellite pluton
EECAMBRIAN	Crimson Creek Fm	Ecc	Greywacke, turbidite mudstone
			marker horizon (Red Rock Mbr)
	Success Creek Grp		Carbonate
		Esu	Undifferentiated siltstone, shale, chert
	Angular unconformity		
PROTEROZOIC	Oonah Formation	Ꝑu	Quartz sandstone, siltstone, chert

⬭	Alluvial tin workings
⊥70°	Strike and dip of bedding
⁄⁄⁄	Strike trend
·2091	Rock sample location
2·37%	Tin (Sn) assay
═══	Vehicular track
┅┅┅	Walking track

G N
M N
45°
AMG REFERENCE POINTS ADDED
5 cm
0 50 100 200m
SCALE 1:5000

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84-2290
Pieman.

GEOLOGY

160

Compilation of CSR and Gencor
mapping and interpretation

BGG | PLAN 1 | JUNE 1984

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TOTAL MAGNETIC INTENSITY

COMPILATION BASED ON 161
C.S.R. TRAVERSES

84-2290

BGG	PLAN 2	JUNE 1984

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I.P. RESISTIVITY 162
COMPILATION OF C.S.R.
GRADIENT ARRAY DATA
84-2290

BGG	PLAN 3	JUNE 1984

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I.P. CHARGEABILITY
COMPILATION OF C.S.R.
GRADIENT ARRAY DATA

163

84-2290

BGG	PLAN 4	JUNE 1984

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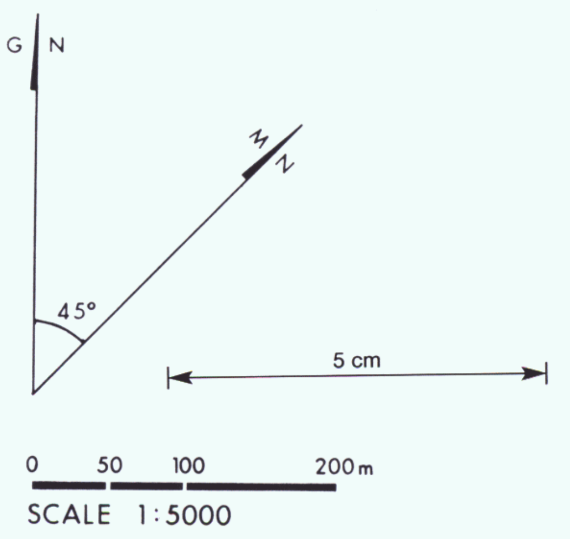

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TIN GEOCHEMISTRY

164

Compilation of C. S. R. Auger
Bedrock Data

84-2290

BGG	PLAN 5	JUNE 1984

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COPPER GEOCHEMISTRY

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Bedrock Data

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LEAD GEOCHEMISTRY

166

Compilation of C.S.R. Auger
Bedrock Data

84-2290

BGG	PLAN 7	JUNE 1984

273171

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E.L. 53/70 - STANLEY REWARD
PROSPECT, WESTERN TASMANIA

ZINC GEOCHEMISTRY

Compilation of C.S.R. Auger
Bedrock Data

167

84-2290

BGG	PLAN 8	JUNE 1984