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SPARGO'S REWARD GOLD MINE

by

C.J. Sullivan

CJS/GB

97W/5.

14th February, 1947.

MEMORANDUM FOR:-

THE CHIEF GEOLOGIST.

SPARGO'S REWARD GOLD MINE.
(28 miles south of Coolgardie, Western Australia).

Introduction:
The following report is based on an examination of the mine made by the writer accompanied by R.A. Hobson of the G.S.W.A. and on information gained from the Western Australian Geological Survey, from Gold-Fields Australian Development N.L. (which company once held an option on the property) and from K.J. Finucane, consulting geologist. The writer examined the mine during the period 3rd to 9th February, 1947.

Past Production:
The present company commenced production in 1938 and from then until 1942 milled 92,897 tons of ore for a recovery of 23,683.97 fine ozs. of gold, an average of 5.1 dwt. Residues are reported to have varied from 0.42 to 0.75 dwt. so that the average head value of the ore would be between 5.5 and 5.8 dwt.

The Mines Department records a total production from the deposit of 105,397.5 tons for a return of 26,318.11 fine ozs., a recovery value of 5.0 dwt. per ton.

Geology:
A series of tightly folded sediments strike nearly north-south and the axes of the folds dip easterly. The rocks consist of two very distinctive groups, the western group being predominantly fine-grained quartz mica schists and the eastern group being predominantly quartzites. The contact between the two groups is very sharp and may be faulted or sheared. The ore follows two particular beds of quartzite which have been folded into a tight fold which closes in vertical section. The ore pitches northward with the fold. The payable ore appears to be confined to the bottom half of the structure i.e. the payable ore cuts out on a change of pitch. This is also shown on the 70 ft. level plan where the pitch appears to change to the south of the open cut.

Ore Reserves:
A channel carrying a considerable quantity of water has been struck between the 300 and 400 ft. levels and it may or may not be possible to extract this ore. The late Manager estimated that there were 12,600 tons of positive ore averaging 5.7 dwts. and 8,300 tons of probable ore averaging 6.0 dwts. above the No.4 level. The figures are being checked by sampling and it is believed that they will be considerably reduced, particularly if it were decided not to take any more ore between Nos.3 and 4 levels so as not to break into the water channel which is now sealed off. Above No.3 level, there may be only about 1,600 tons of ore, said to average 6.0 dwt.

Future Prospects:

The bottom level of the mine (400 ft.) has not been completely sampled, but the accompanying plan shows the grade reported from each advance by the late Manager and compiled from these reports by L.J. Finucane. Parts of this level have been check sampled by R.A. Hobson, but the results are not yet available. However, the values shown look very reasonable and indicate that the north drive averaged 4.2 dwt. over a width of 4.6 ft. and a length of 230 ft. while the south drive averaged 4.1 dwt. over a width of 5 feet for a length of 55 ft. The development ore from the level totalled 736 tons and averaged 4.65 dwt. while stoping above the back yielded 2,499 tons and averaging 6.71 dwt. The higher grade of the stoped ore is probably largely due to the fact that one of the richest shoots was mined. Thus, the 400 ft. level (mainly on the Eastern Lode) very probably averages between 4.0 and 4.25 dwt. and the strike length of the ore has shortened from about 350 ft. at the 300 ft. level to 310 ft. at the 400 ft. level. The shortening may be due to a steepening of the pitch.

It will be seen from the accompanying crosscections that the East Lode did not reach the surface and hence it may be suggested that the present weakening of this lode at No.4 level is a similar phenomena and that ore of the grade of that occurring at No.2 and No.3 levels may again be found below No.4 level. From the plans and sections however, it will be noted that ore occurs mainly in the north-pitching folds and the cutting out of the east lode has a structural explanation. No.4 level however, seems to be in structurably favourable ground so that the weakening in grade is somewhat disturbing. However, there is no definite knowledge that the oreshoot is cutting out.

Conclusions and Recommendations:

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The following conclusions/recommendations have been agreed on between myself and Mr. R.A. Hobson of the W.A. Geological Survey.

1. The present ore prospects do not warrant the sinking of the shaft another 150' and the development of another level as had been proposed.

2. The following progressive testing programme is suggested:-

(a) 200 ft. Level. Horizontal drilling as shown on plan to test for extension of No.1 West Lode and the presence of No.2 West Lode. Drilling to extend to quartz-mica schist contact. Probable footage, approximately 200 ft.

(b) 300 ft. Level. Drill 3 horizontal holes westward for same purpose as above. Nos. 4 and 5 should be extended to quartz-mica schist. Drill No.7 hole for 60 ft. to eastward for possible repetition of ore bearing beds. Total footage, approximately 300 ft.

(c) 400 ft. Level. Drill horizontal holes Nos. 8, 9, 10 and 12. These have the same purpose as those on the 300 ft. level, and would total approximately 300 ft.

The total footage of lateral drilling recommended is 800 ft. and should cost approximately £400 (Finucane estimated horizontal drilling cost @ 8/6 per ft.)

If this drilling does not intersect payable values, consideration should be given to the abandonment of the testing programme at this stage, particularly if the sampling carried out by R.A. Hobson does not give favourable results.

If the results are encouraging, continue crosscut at 1165 S, No.4. level for 38 westward and a cut drilling chamber (if necessary). A 10 ft. rise should be adequate if short rods are used. From this station, drill No.11 horizontal hole to quartz-mica schist contact (approx. 30 ft.), then drill No.13 inclined hole followed by No.14. These two holes should intersect the overlap triangle contained between the minimum pitch of the southern end of the oreshoot and maximum pitch of the northern end of the oreshoot. These two holes would involve a maximum of 400 ft. of drilling @ 20/- per foot. If they do not intersect ore and the lateral drilling has not been rather encouraging, the drilling could be stopped at this stage.

The total cost to this stage would be:-

Lateral drilling.	800 ft. @ 10/- per ft.	£400
Inclined drilling.	400 ft. @ 20/- " "	£400
Crosscutting.	38 ft. @ £7 per ft.	£266
Rising 10 ft.	@ £8 per ft.	£80
		£1,146

The rising may not be necessary.

If the above results are favourable, continue crosscut at 1305 S, No.4 level, for 40 ft. eastward. Rise, if necessary and drill Nos. 15 and 16 holes. This work would cost approximately £750, so that the total cost of the suggested programme would be approximately £1,900.

It should be noted that the two crosscuts to obtain drilling stations, would themselves test possibly ore bearing beds.

The inclined drill holes would interest the expected downward extension of the oreshoots at approximately the 500 horizon, at 75 ft. intervals along the strike.

Mr.R.A. Hobson is preparing plans and sections showing the bearing, inclination and distance of the proposed holes.

The drilling requires geological supervision.

Attached is a copy of the report and plans by K.J.Finucane.

C.J. Sullivan,
Geologist.

Ore
Biotite Quartzite
Quartz Mica Schist
Marker beds in Biotite Quartzite
No 10 WINZE & RISE
Syncl Axis
Pitch change
No 2 WINZE
No 1 WINZE
No 2 SHAFT
Inaccessible
No 2 West Lode
Open Cut Outline
South end of open cut 1938
No 1 SHAFT
5325
5324
5363
5362
600W
700W
800W
1000S
1100S
1200S
1300S
1400S
1500S
1600S
1700S
1800S
1900S
SPARGO'S REWARD GOLD MINE
70 FT LEVEL
1 in = 20 ft
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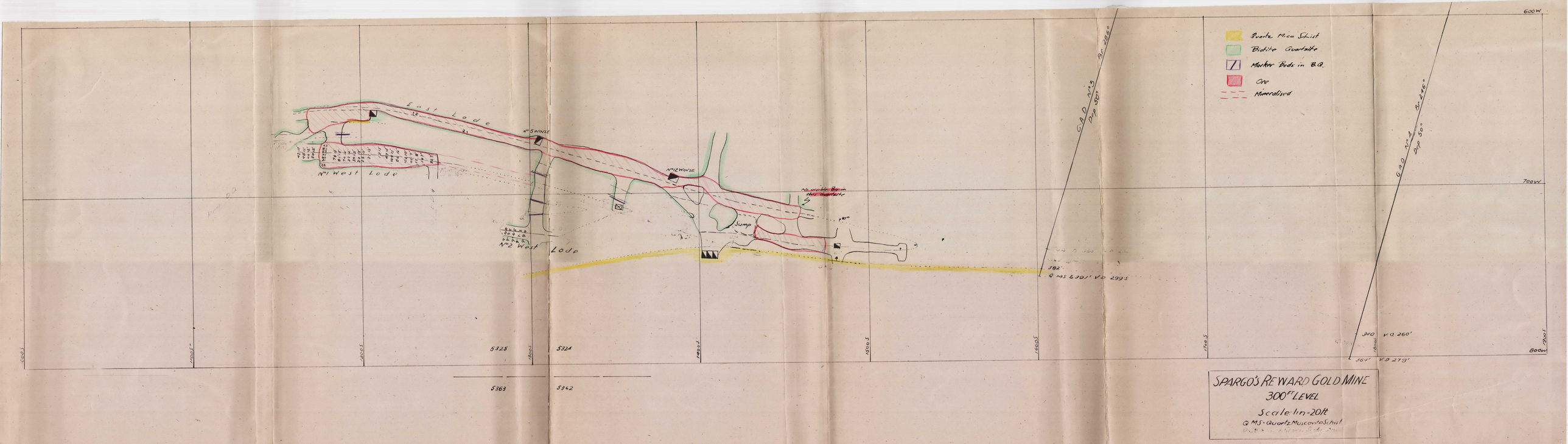
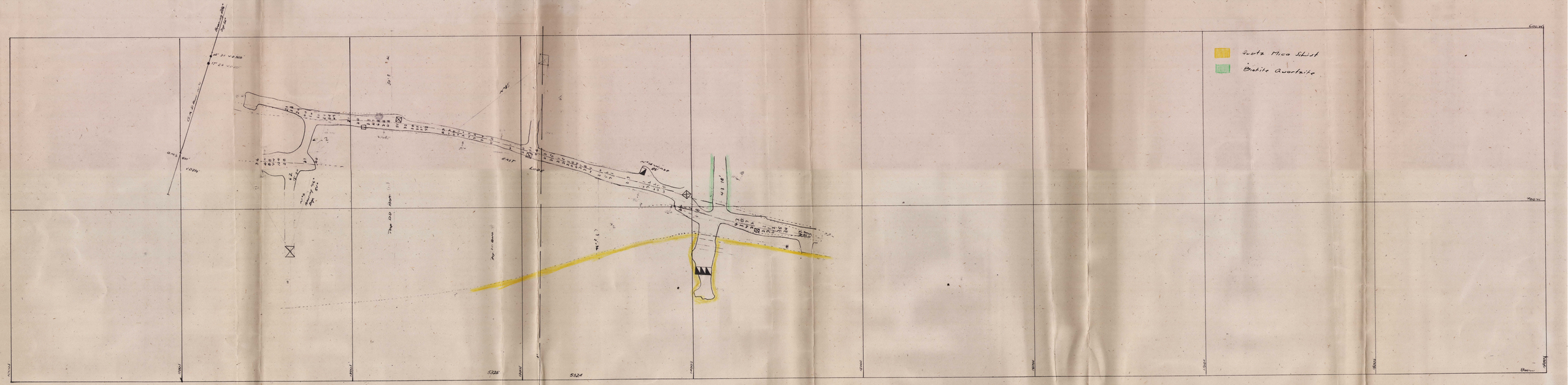


SPARGO'S REWARD GOLD MINE

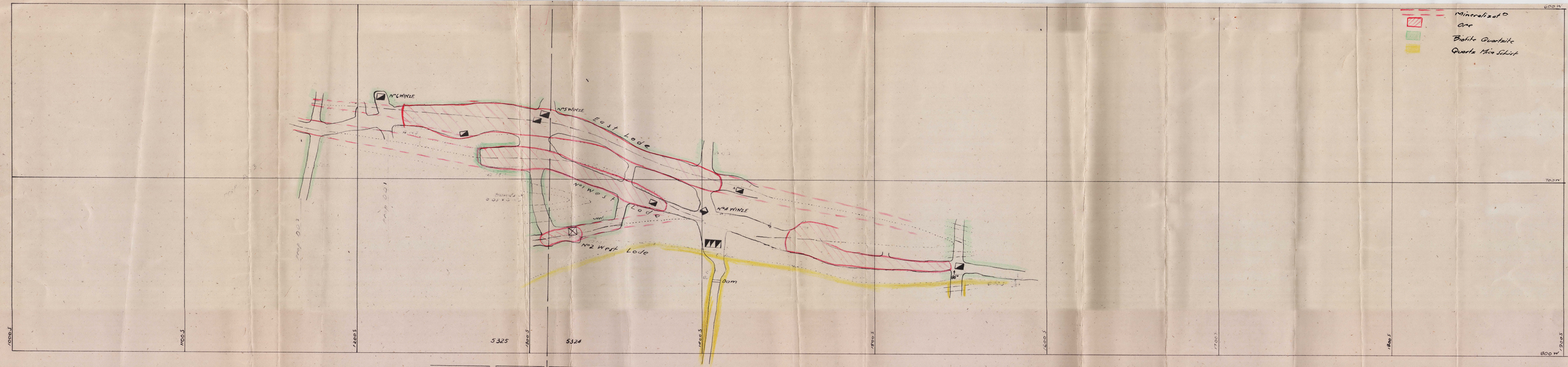
300ft LEVEL

Scale 1in = 20ft

Q.M.S. = Quartz Muscovite Schist



SPARGO'S REWARD GOLDMINE
400ft LEVEL
Scale 1in-20ft
QMS = Quartz Muscovite Schist



SPARGO'S REWARD GOLD MINE

200FT LEVEL

Scale 1in=20ft

QMS: Quartz Muscovite Schist

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