GEOLOGICAL SURVEY

THE INVESTIGATION OF THE BENDIGO COPPER AND MOLYBDENUM PROSPECT - REPORT NO. 4 - DIAMOND DRILLING

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South Australia —

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY
EXPLORATION SERVICES DIVISION

THE INVESTIGATION OF THE BENDIGO COPPER AND MOLYBDENUM PROSPECT - REPORT NO. 4 - DIAMOND DRILLING

by

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Rept.Bk.No.73/63
G.S. No. 5069
D.M. No. 1243/2/70

1st March, 1973

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LIST OF PLANS

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Rept.Bk.No.73/63
G.S. No. 5069
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ABSTRACT

Two 300m deep vertical diamond drill holes tested an induced polarization anomaly. The holes intersected weakly sericitized granodiorite carrying minor sulphide mineralisation, mainly pyrite, in narrow quartz veins. The average metal contents of core from BD3 are copper 460ppm, molybdenum 86ppm and for BD7 copper 220ppm and molybdenum 17ppm.

INTRODUCTION

This report presents results of the two deepest diamond drill holes in the Bendigo Prospect. BD3 in area C was drilled to 75m as a rotary percussion hole in November 1970, then diamond drilled to 157m in February 1971. To test an induced polarization anomaly at depth, BD3 was deepened to 307m in November 1971.

BD7 was diamond drilled to 305m in the period December 1971 - February 1972 to test the southern margin of the induced polarization anomaly in area C.

PREVIOUS INVESTIGATIONS

Minor occurrences of copper and molybdenum were initially noted in quartz veins cutting granodiorite 3km southeast of Bendigo H.S. Soil and rock chip sampling, geological mapping and induced polarization surveys outlined three target areas, A,B, and C. The location of the three areas is shown on Fig. 2.

A rotary percussion drilling programme tested the target zones to a maximum depth of 75 m and encouraging results were obtained. The best intersection was 3100ppm copper (0.31%) over 11m in BH6. To test the mineralisation at greater depth, and to obtain information on the type and occurrence of copper minerals, six rotary percussion holes were deepened by diamond drilling to a maximum depth of 160m. The significant copper mineralization intersection in the rotary-percussion holes did not continue in depth. The copper content decreased to 500ppm at 150m. Sulphides mainly pyrite, occur in narrow quartz veins cutting sericitized granodiorite. The copper mineralisation in the interval 65-75m is thought to be due to secondary enrichment.

Induced polarization traverses showed a large intense anomaly over a strike length of 1600m in area C. This was interpreted as being caused by a granite body containing significant amounts of sulphide mineralisation. The two deep diamond drill holes discussed in this report tested the induced polarization anomaly.

Details of the geology, surface sampling and all previous drilling are given in Langsford 1971, 1972a, b. Geophysical surveys are reported by Nelson, 1970, 1972 and Pilkington, 1971a,b.

RESULTS OF DIAMOND DRILLING

The location of all holes drilled are shown on Fig.2. Geological logs and geochemical results of BD3 and BD7 are in the appendix.

BD3

BD3 (Coordinates 56600E, 54400N, in feet) near the centre of the induced polarisation anomaly in area C, was deepened from 157m to 307m. The aim of the hole was to test the hypothesis that the anomaly was caused by a disseminated sulphide body below 150m.

The hole penetrated grey to pink medium-grained granodiorite. Weak to moderate hydrothermal alteration of felspars to sericite and of biotite to chlorite is common. Pyrite, with very minor chalcopyrite, averages less than 0.5%, mainly in quartz veins a few millimetres wide. Maximum copper content is 1200ppm in the interval 259-262, and the maximum molybdenum content is 250ppm between 296 and 299m. Average metal contents for the entire hole are 460ppm copper and 86ppm molybdenum.

BD7

BD7 (Coordinates 53500E, 52500N, in feet) was drilled on the southern margin of the induced polarization anomaly to a depth of 305m. The hole tested for the possible occurrence of a copper rich sulphide zone marginal to a pyritic zone (This hypothesis used a model "porphyry copper" type mineralisation).

The hole penetrated grey to pink medium-grained granodiorite with weak sericitic alteration of felspars. Sulphide mineralisation is slightly less abundant than in BD3; the sulphides occur in narrow quartz veins. Maximum copper content is 610ppm in the interval of 134-137m, maximum molybdenum content is 90ppm from 238-241m. Average copper and molybdenum contents are 220ppm and 17ppm respectively.

GEOPHYSICAL INVESTIGATION AND INTERPRETATION

Before the deep drilling of BD3 and BD7, the induced polarization anomaly in area C was thought to be due to a body containing significant amounts of sulphide mineralisation. BD3 in the centre of this anomaly, and BD7 on the southern margin, averaged less than 0.5% of total sulphide.

It was then proposed that the anomalies were due to a number of thin sulphide rich bands, parallel and closely spaced; such bodies could have been easily missed by two drill holes. To test this hypothesis, two induced polarization lines were run normal to strike of the anomaly.

This later work suggested that the anomaly could be caused by a steeply dipping, high resistance zone about 150 m wide containing only minor amounts of sulphide. A detailed discussion of this hypothesis and a review of previous induced polarization surveys is given by Nelson 1972.

CONCLUSIONS

Diamond drilling to a depth of 300m intersected less than 0.5% sulphides, mainly pyrite in narrow quartz veins cutting sericitized granodiorite. The induced polarization anomaly in area C is now thought to be caused by a narrow zone of high resistance material rather than a sulphide concentration.

RECOMMENDATIONS

No further investigation of the Bendigo prospect appears warranted.

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GEOCHEMICAL EXPLORATION SECTION

1st March, 1973

REFERENCES

Langsford, N.R., 1971. The investigation of the Bendigo copper and molybdenum prospect Report No. 1 Dept. of Mines unpublished report. R.B. 71/129.

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Nelson, R.G., 1970. Report No. 1 on the progress of the geophysical survey of the Bendigo prospect. Franklyn 1 m sheet. Dept. of Mines unpublished report. R.B. 70/162.

Nelson, R.G., 1972. The Bendigo aeromagnetic anomaly - vertical electrical soundings made near Kia-Ora and South Dam. Dept. of Mines unpublished report. R.B. 72/106.

Pilkington, G., 1971. Report No. 2 on the progress of the geophysical survey of the Bendigo homestead area Franklyn 1 mile sheet. Dept. of Mines unpublished report. R.B. 71/97.

Pilkington, G., 1971. Report No. 3 of the Geophysical survey of the Bendigo homestead area, Franklyn 1 mile sheet. Dept. of Mines unpublished report. R.B. 71/196.

APPENDIX

BD 3 (Diamond drill hole).

(This hole was commenced as BH 12 and rotary percussion drilled from 0-252 feet).

Hole No.BH12

GEOCHEMICAL EXPLORATION SECTION
LOG OF WAGON DRILL HOLE NO. BH12

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Project: BENDIGO

D.M. 1243/70

Sec. Hd. Co. Kimberley Serial No. 920/70
Collar Coords. 56600N 54400N R.L. Grid No.
Angle vert. Bearing Depth 252ft. Plan Ref. 71-278
Date Bore Commenced 17/11/70 Completed 19/11/70 Driller: R. Johnson
Bore Logged by: N.Langsford On 23/11/70 Hirer: SADM

OBJECT: Test I.P. anomaly

RESULTS: Penetrated 120ft. averaging 1080 ppm Cu (132-252ft.)

LOG Comprises Geological Log
A.A.S. analysis

FROM	TO(ft.)	DESCRIPTION SUMMARY LOG
0	6	Surface soil and calcrete.
6	102	Highly to completely weathered medium-grained granite, with minor biotite.
102	108	Highly weathered medium-grained biotite granite, limonite stained in part.
108	114	Limonite stained weathered granite, with abundant sericite.
114	126	Pink to dark red fine-grained siliceous rock with quartz-limonite vein fragments.
126	138	Pink medium-grained altered granite with chlorite and sericite.
138	156	Pink to dark red fine-grained siliceous rock, with quartz-limonite vein fragments.
156	168	Sericite bearing pink biotite granite, with quartz-limonite-pyrite veins.
168	210	Pink yellow altered biotite, biotite granite with chlorite. Quartz-limonite-pyrite veins.
210	252	Grey to pale pink medium-grained altered biotite granite with chlorite and sericite, pyrite up to 5%. Quartz vein fragments.

Hole No.BD3

GEOCHEMICAL EXPLORATION SECTION
LOG OF DIAMOND DRILL HOLE NO. BD3

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Project: BENDIGO

D.M. 1243/1/70

Co. KIMBERLEY
Collar Coords 56600E 54400N R.L.
Angle vert Bearing Depth 516 ft.
Date Hole Commenced 13/2/71 Completed 23/2/71
Logged by N. Langsford On Mar-May 71
X. Sibenaler

Serial No.670/71
Grid No.
Plan Ref. 71-300Gb
Driller K. Karlma
Hirer D of M

OBJECT: To test extension of copper mineralisation intersected in B.H.12. and to obtain core samples for petrographic investigation.

RESULTS: Intersected pyritic sericitized granodiorite.

LOG Comprises Geological Log
Split core assays

FROM	TO(ft.)	DESCRIPTION - SUMMARY LOG OF BD3
252	286	Pale grey to pink altered biotite granodiorite. Plagioclase and microcline partly sericitized, biotite partly altered to chlorite; minor epidote. Quartz-pyrite-chalcocite veins ½ in. wide spaced 0.5 to 2ft .
286	288	Fine-grained pale pink to pale green altered granodiorite; up to 10% pale green epidote. Plagioclase partly sericitized.
288.5	328	Pale grey to pale green partly altered biotite granodiorite. Quartz-pyrite-chalcocite veins spaced 0.5-2ft.
328	516	Altered biotite granodiorite with sulphide bearing veins. Host rock-pale red-brown granodiorite, plagioclase partly sericitized, biotite partly chloritized. Minor epidote. Quartz-pyrite - chalcocite-magnetite veins spaced 0.5 to 2ft. 1/8in-½ in. wide. Veins have zoned alteration envelopes - pink zone nearest to vein, contains 30-50% secondary albite with a little sericite and carbonate. Outer zone, pale green, is strongly sericitized plagioclase with minor chlorite (derived from biotite).

FROM	TO	DESCRIPTION - SUMMARY LOG OF BD3
		Over much of this interval the outer alteration envelopes of adjacent veins overlap; forming dominantly a pale green quartz - sericite rock.

Hole No. BD3

GEOCHEMICAL EXPLORATION SECTION
LOG OF DIAMOND DRILL HOLE NO. BD3

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Project: BENDIGO

D.M. 1243/71

Sec.
Collar Coords. 56600E 54400N
Angle vert.
Date Bore Commenced 11 Nov.71
Bore Logged by: N. Langsford

Co. KIMBERLY
R.L.
Depth 307M(1007ft)
Completed 29 Nov 71
On Dec.71 - Jan 72

Serial No. 620/72
Grid No.
Plan Ref. 71-834 Gb
Driller: K, Karlma
Hirer: Dept. of Mines

OBJECT: To test Induced Polarization anomaly for sulphide mineralization

RESULTS: Intersected sericitized granodiorite with minor pyrite.

LOG Comprises Geological Log
Split core analyses
Logs of estimated sulphide content and relative alteration intensity

FROM	TO(ft)	DESCRIPTION SUMMARY LOG
BD3drilled to 516ft. 13-12 Feb.1971.		
516	539.5	Medium-grained grey biotite granodiorite. Minor green sericite alteration. ¼in-½in. wide quartz-pyrite veins spaced 2-3ft.
539	544	Medium-grained grey biotite granodiorite.
544	545	Highly altered granodiorite; white quartz-sericite rock containing 5-10% pyrite.
545	551	As for 539-544ft.
551	552	" " 544-545ft.
552	559	" " 539-544ft.
559	560	" " 544-545ft.
560	567	Grey biotite granodiorite. ¼in-½in. wide quartz-pyrite-minor chalcopyrite - rare molybdenite veins with inner pink and outer green alteration envelopes, spaced about 1ft.
567	583	Grey biotite granodiorite, minor green sericite alteration. ½in. wide quartz-pyrite vein at 570ft; a few quartz-pyrite veins less than ¼in. wide.

FROM	TO(ft)	DESCRIPTION SUMMARY LOG of BD3
583	629.5	Brown to dark grey slightly sericitized biotite granodiorite ¼in-½in. wide quartz-pyrite-minor chalcopyrite veins at 605.1ft, 604.7ft. 609ft. 612ft. 617ft.
629.5	644	Medium-grained grey biotite granodiorite, minor green sericite alteration. ¼in. wide quartz-pyrite veins with narrow irregular pink and green alteration envelopes spaced about 2ft.
644	647.5	Grey to pale pink medium biotite granodiorite. Minor green sericite alteration. Pink albite-rich alteration zone with disseminated pyrite 646-647.5ft.
649	651.5	Pale pink to grey biotite granodiorite. Minor molybdenite in quartz-pyrite vein at 651.5ft.
651.5	653.9	Strongly sericitized granodiorite, pale green. Minor disseminated pyrite.
633.9	655	Grey medium-grained biotite granodiorite.
655	666	Pale green to pale pink sericitized granodiorite. Minor disseminated pyrite. Quartz-pyrite-minor chalcopyrite veins ¼in-½in. wide at 655.5ft 658ft. 663ft.
666	676	Pink to grey medium-grained biotite granodiorite, green sericite alteration in part. Minor disseminated pyrite. ¼in. wide quartz-pyrite veins at 668ft. 671ft. 669ft. quartz-pyrite-hematite vein at 667ft.
667	678	Grey medium-grained biotite granodiorite.
678	700	Grey medium-grained biotite granodiorite, green sericite alteration in part. Few thin (¼in) quartz-pyrite veins with thin pink alteration envelopes spaced 2-3ft.
700	707	Pale green strongly sericitized granodiorite. Quartz-pyrite-minor chalcopyrite veins with pink and green alteration envelopes spaced 1-2ft.

FROM	TO(ft.)	DESCRIPTION SUMMARY LOG OF BD3
707	742	Grey to pink medium-grained biotite granodiorite. Minor disseminated pyrite. Quartz-pyrite-hematite veins ¼in. wide spaced 2-3ft.
742	753	Very broken green sericitized granodiorite.
753	813	Pink slightly sericitized granodiorite, some pale green strongly serititized zones with disseminated pyrite. Thin irregular quartz-pyrite veins with pink and green alteration envelopes spaced 3ft.
813	822	Medium-grained strongly sericitized granodiorite, dominantly pale green. Minor fine-grained disseminated pyrite. ½in. wide quartz-pyrite veins at 815ft. 819ft. 822ft.
822	834	Medium-grained moderately sericitized granodiorite, pink and green. Minor disseminated pyrite, quartz-pyrite vein with minor molbydenite at 833ft.
834	840	White to pale pink strongly sericitized granodiorite. ½in. wide quartz-pyrite-chalcopyrite vein at 836ft. 839-840ft, soft white clay.
840	846	Pink slightly altered biotite granodiorite (844-844.5 - strong pink albite alteration with molybdenite.
846	851	Medium-grained grey biotite granodiorite. 2in. wide quartz-pyrite vein at 847ft; 2 in. quartz-calcite-pyrite-sericite vein at 848ft.
851	865	Pink medium-grained slightly altered biotite granodiorite. ¼in.wide quartz-pyrite vein with pink (inner) and green alteration haloes at 854ft. 855.5ft; with chalcopyrite 860ft. 863ft.
865	876.5	Pink medium-grained biotite granodiorite, partly altered to green sericite.
876.5	889	Medium-grained pink biotite granodiorite. ½in. wide quartz-pyrite vein with pink and green alteration haloes at 886ft.
889	894	Grey biotite granodiorite. 891-892ft. intense-white sericite alteration with 10% pyrite.

FROM	TO(ft.)	DESCRIPTION SUMMARY LOG OF BD3
894	903	Pink slightly altered biotite granodiorite (897-898ft; white sericite zone, 900-901ft. pink and green alteration zone.)
903	906	Intense sericite alteration, soft; minor pink alteration with hematite, pyrite.
906	910	Core broken, green sericite and pink albite alteration.
910	913	½in-¼. wide quartz-pyrite-minor chalcopyrite veins spaced 0.5ft. pink (inner) and green alteration envelopes.
913	940	Pink medium-grained biotite granodiorite, minor green sericite alteration. ¼in. wide quartz-pyrite-sericite veins spaced about 3ft. with thin pink (inner) and green alteration haloes.
940	950	Strongly broken biotite granodiorite, green sericite alteration, minor fine-grained pyrite.
950	953.5	As above, quartz-pyrite-chalcopyrite vein 1 in. wide at 953ft.
953.5	966	Pale grey to pink medium-grained biotite granodiorite, minor green sericite alteration. Minor disseminated pyrite. ½in. wide quartz-pyrite vein at 955ft. 959ft.
966	975	Pale pink slightly sericitized biotite granodiorite, minor disseminated pyrite.
975	987	Grey granodiorite. Biotite appears to be altered to chlorite. Minor disseminated pyrite. Quartz-pyrite-minor molybdenite veins ½inch-¼inch wide spaced 2-3ft.
987	999	As above, colour dominantly pink.
999	1007	Medium-grained pink granodiorite, biotite altered to chlorite?; minor disseminated pyrite. Quartz-pyrite veins ¼in wide spaced 2ft. Intense chlorite? alteration 1003-1007ft.

END OF HOLE

PROJECT: BENDIGO
HOLE NO. BH12

Depth (ft.)	S.A.D.M. Cu (ppm)	AMDEL (ppm) Cu	Pb	Mo
0- 12	200	190	35	35
12- 18	190	190	20	75
18- 24	200	210	100	85
24- 30	90	100	40	25
30- 36	160	170	75	40
36- 42	110	120	90	120
42- 48	160	170	60	180
48- 54	170	190	45	70
54- 60	200	200	25	30
60- 66	275	290	10	40
66- 72	1260	1400	20	120
72- 78	515	510	15	30
78- 84	600	600	15	35
84- 90	515	510	10	95
90- 96	515	490	5	40
96-102	515	450	10	35
102-108	315	310	20	60
108-114	300	320	20	140
114-120	190	200	15	110
120-126	740	800	20	180
126-132	220	250	15	80
132-138	935	860	15	470
138-144	1600	1700	15	240
144-150	1440	1600	95	140
150-156	1000	1100	20	60
156-162	1320	1300	15	130
162-168	935	890	20	730
168-174	1160	1200	15	75
174-180	1060	1100	10	50
180-186	400	390	15	170
186-192	620	890	15	1100
192-198	1260	1200	10	60
198-204	530	570	10	120
204-210	1640	1900	25	100
210-216	2640	1900	15	55
216-222	1400	1500	15	60
222-228	1400	1500	20	70
228-234	640	760	15	40
234-240	320	320	15	10
240-246	1060	1100	25	220
246-252	220	240	15	30
Averages	707.8(0-252ft.)	724.2		135.5

S.A.D.M. = South Australian Department of Mines analysis

BENDIGO PROJECT

A.A.S. Analysis of Split Diamond Drill core. Hole No. BD3.

Depth (ft.)	Split Core (Amdel)		
	Cu	Mo	Pb
252-262	860	12	10
262-270	330	5	5
270-280	830	20	10
280-290	210	15	10
290-300	420	40	5
300-310	180	15	5
310-320	320	25	10
320-330	100	15	10
330-340	540	60	10
340-350	140	35	10
350-360	160	75	10
360-370	70	30	5
370-380	470	110	5
380-390	630	30	10
390-400	220	85	10
400-410	560	110	5
410-420	330	80	10
420-430	95	45	10
430-440	150	25	5
440-450	460	55	10
450-460	860	250	5
460-470	460	18	10
470-480	1100	70	15
480-490	910	100	10
490-500	190	55	5
500-510	180	30	5
510-516	240	12	65
516-520	140	25	
520-530	50	6	
530-540	100	10	
540-550	190	20	
550-560	300	35	

BD3 (continued)

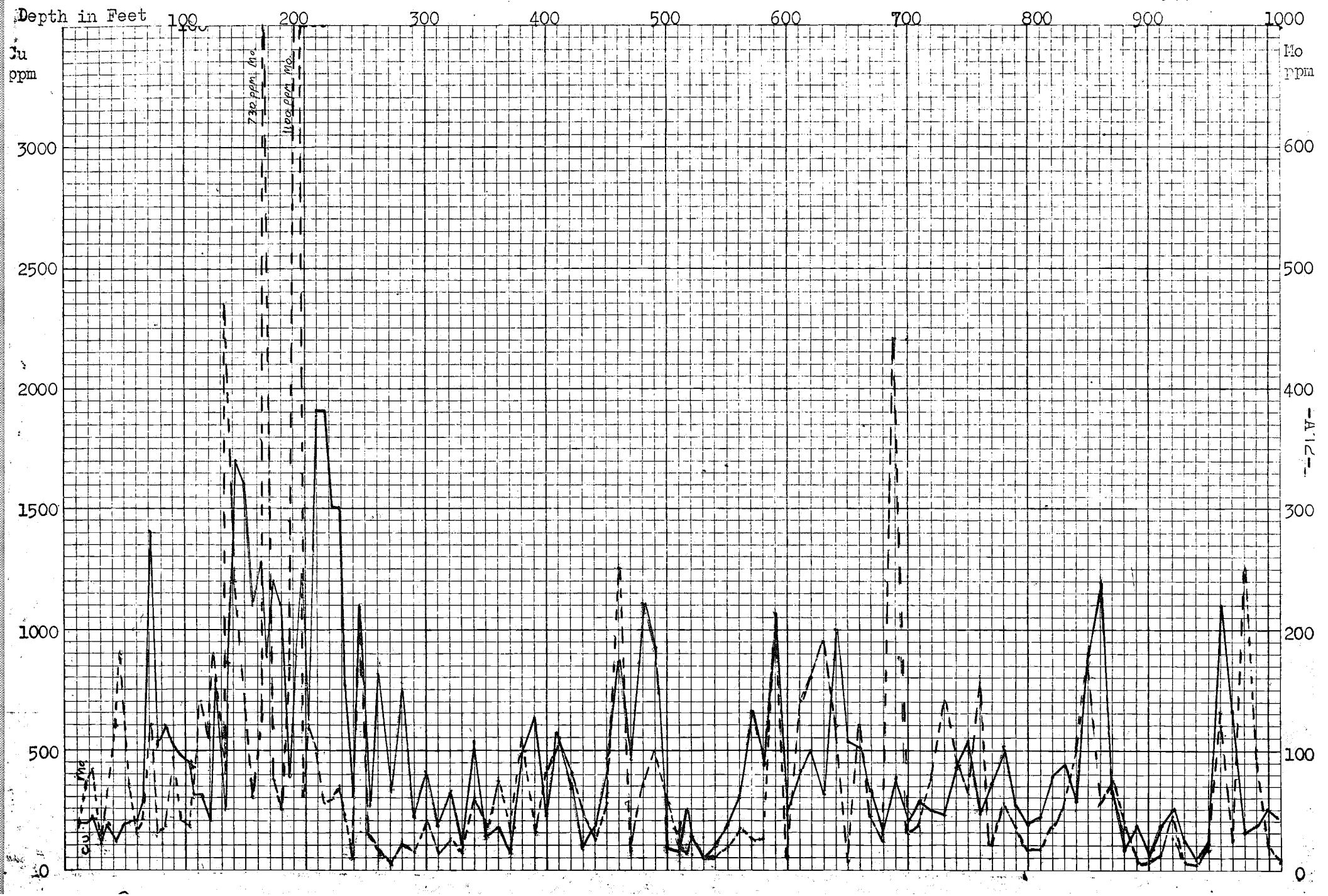
Depth (ft.)	Split Core (Amdel)		
	Cu	Mo	Pb
560-570	650	25	
570-580	440	25	
580-590	1060	210	
590-600	220	10	
600-610	410	140	
610-620	500	160	
620-630	320	190	
630-640	1000	120	
640-650	530	8	
650-660	510	120	
660-670	330	45	
670-680	150	25	
680-690	390	440	
690-700	200	30	
700-710	270	35	
710-720	250	80	
720-730	230	140	
730-740	430	90	
740-750	540	65	
750-760	230	160	
760-770	360	22	
770-780	510	55	
780-790	260	35	
790-800	190	18	
800-810	220	18	
810-820	390	35	
820-830	440	50	
830-840	280	100	
840-850	850	170	
850-860	1200	55	
860-870	310	75	
870-880	90	35	
880-890	170	7	
890-900	55	7	
900-910	180	12	

BD3 (continued)

Depth (ft.)	Split Core (Amdel)		
	Cu	Mo	Pb
910-920	250	45	
920-930	120	7	
930-940	45	5	
940-950	120	22	
950-960	1100	130	
960-970	660	22	
970-980	150	250	
980-990	170	95	
990-1000	250	20	
1000-1007	220	7	
Averages 252'-1007'	377	64	

BENDIGO PROJECT HOLE NO. BH12 + BD3 SERIAL NO. 920/70 + 670/71 + 620/72

COORDS 560 00E 544 00N



BD7

(Diamond drill hole)

Hole No. BD7

GEOCHEMICAL EXPLORATION SECTION
LOG OF DIAMOND DRILL HOLE NO. BD7

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Project: BENDIGO

D.M. 1243/2/70

Sec.
Collar Coords. 53500E 52500N
Angle vert.
Date Bore Commenced 1 Dec 71
Bore Logged by: N. Langsford

Co. KIMBERLY
R.L.
Depth 1002 ft. (305 m)
Completed 2 Feb. 72
On Jan-Feb 72

Serial No. 620/72
Grid No.
Plan Ref. 71-834
Driller: K. Karlma
Hirer: S.A. Dept. Mines

OBJECT: To test for copper sulphide mineralization.

RESULTS: Intersected sericitized granodiorite with sparse pyrite mineralization.

LOG Comprises Geological Log
Split core and sludge analyses

FROM	TO (ft.)	DESCRIPTION SUMMARY LOG
0	196	Highly to completely weathered biotite granodiorite, commonly stained by limonite and manganese oxide.
196	202	Moderately weathered medium-grained biotite granodiorite, open joints limonite stained. Few quartz-pyrite veins less than ¼ inch wide.
202	219.5	Fresh medium-grained grey biotite granodiorite with pink-orange phenocrysts. Green sericite-rich alteration zones with disseminated pyrite 205-206 ft., 206.5-207 ft., 210-211 ft., 215-215.5 ft.
219.5	235.5	Coarse-grained pink to grey biotite granodiorite with orange felspar phenocrysts. Green sericite-rich alteration zones with pyrite. 223-235.5 ft., 225-225.5 ft., 227.3-228 ft., 231-231.5 ft., 234-235.5 ft.
235.5	241	Grey biotite granodiorite.
241	246	Green sericite-rich alteration zone with minor disseminated pyrite.
246	250	Grey biotite granodiorite.

FROM	TO (ft.)	DESCRIPTION SUMMARY LOG OF BD7
250	252	Weathered (or altered)? granodiorite. (Felspars altered to clays, limonite staining).
252	259	Green and white fine-grained sericite-rich alteration zone.
259	289	Grey to pink medium-grained biotite granodiorite with pink-orange felspar. Sericite alteration and disseminated pyrite. Thin green sericite alteration zones around irregular quartz-pyrite veins less than ¼ inch wide.
289	294	Grey medium-grained biotite granodiorite.
294	297	As for 250-252 ft.
297	356	As for 259-289 ft.
356	362	Weathered granodiorite with limonite staining. Leached quartz veins.
362	385	Grey medium-grained biotite granodiorite, minor green sericite alteration. Pink-orange felspar phenocrysts. Quartz-pyrite veins ¼ inch wide with pink and green alteration envelopes at 368 ft., 371.5 ft., 376 ft., 376.5 ft., 377.5 ft., 381.8 ft.
385	387	White and green fine-grained sericite alteration zone with 10% pyrite.
387	401	Medium-grained grey biotite grandiorite; minor green sericite-rich alteration zones and disseminated pyrite.
401	403	Grey biotite granodiorite.
403	409	As for 250-252 ft.
409	410	As for 358-387 ft.
410	432	As for 387-401 ft., with white and pale green sericite alteration zones with pyrite 412-413 ft., 417.5-418.5 ft., 425-426 ft., quartz-pyrite veins ½ inch wide at 422 ft. and 428 ft.
432	435	As for 385-387 ft.

FROM	TO (ft.)	DESCRIPTION SUMMARY LOG OF BD7
435	481.5	As for 387-401 ft. 1 in. wide quartz-chalcopyrite veins at 440 ft., 459.5 ft. Thin green sericite-rich alteration zone at 445 ft., 451 ft., 454 ft. Pale green to white sericite rich alteration zones with disseminated pyrite 461-462 ft., 473.5-474.5 ft. Quartz pyrite vein with thin pink alteration haloes at 459 ft., 468.5 ft., 670.9 ft.
481.5	516	Grey biotite granodiorite. Pink and green sericite-rich alteration zones with disseminated pyrite and some coarse-grained sulphide veins 1-2 in. wide spaced 1-2 ft. 2 in. wide white alteration zones at 496.5 ft., 500 ft.
516	530	Grey medium-grained biotite granodiorite; minor green sericite alteration. Minor disseminated pyrite and chalcopyrite.
530	535	As for 481.5-516 ft. White sericite-rich alteration zone, 530.6 ft. - 531.3 ft., 533.5 ft. - 535 ft.
535	576	As for 516-530 ft.
576	589	Pale pink to grey altered porphyry dyke. (No core recovered between 577.8 ft. and 583.5 ft.).
589	592	Strongly sericitized granodiorite. Coarse-grained pyrite vein at 591 ft.
592	628	Medium-grained pink to grey biotite granodiorite. Minor disseminated sulphide; pink to orange felspar in part. Pale green to white and pink altered zones 622-624 ft., 617-617.5 ft., 614.5-616 ft., 611-612 ft., 605-606 ft., 598-599 ft.
628	635	Pale green sericitized granodiorite; minor disseminated pyrite. Few quartz-pyrite veins less than ¼ inch wide.
635	655	Pale grey to pink medium-grained biotite granodiorite; green sericite alteration zones about 2 in. wide spaced 1-1.5 ft. Few thin quartz-pyrite veins.
655	663	As for 628-635 ft.
663	692	As for 655-635 ft.
692	694	As for 628-635 ft.

FROM	TO (ft.)	DESCRIPTION SUMMARY LOG OF BD7
694	702	Porphyry, altered in part to fine-grained to pink albite? rock with disseminated pyrite.
702	718	Grey medium-grained sub-porphyritic biotite granodiorite. Pale green sericite alteration zone with disseminated pyrite 707-709 ft.
718	735	Grey medium-grained biotite granodiorite, pink felspar phenocrysts. Quartz-pyrite veins ¼ to ½ inch wide at 729 ft., 727 ft., Green sericite alteration zones with disseminated pyrite 721-722 ft., 723-724 ft. 725-726 ft.
735	737	Pale pink saccaroidal albite-rich alteration zone with minor green sericite and disseminated pyrite.
737	747	Grey medium-grained biotite granodiorite.
747	750	As for 737-735 ft.
750	788	Grey to pink medium-grained biotite granodiorite, orange to pink felspar phenocrysts. Minor green sericite alteration with disseminated pyrite. Quartz-pyrite veins less than ¼ inch wide at 765 ft., 771 ft. Green sericite alteration zones with disseminated pyrite. 757-759 ft., 762-763 ft., 777-778 ft.
788	810	Grey to pink medium-grained biotite granodiorite; orange to pink felspar phenocrysts. Sub-porphyritic in part. Pale green sericite alteration zones with disseminated pyrite 789-790 ft., 798-800 ft., 802-803 ft., 806-807.5 ft. ½ inch wide quartz-pyrite vein at 799 ft.
810	819	Pink medium-grained biotite granodiorite, sub-porphyritic in part. Minor green sericite alteration with disseminated pyrite.
819	839	Grey medium-grained biotite granodiorite; green sericite alteration zones 819-820 ft., 824-825 ft., 826-827 ft.
839	850	As for 810-819 ft.
850	866	Grey medium-grained biotite granodiorite. Green sericite alteration zone 853-854 ft. ½ inch wide quartz-pyrite vein at 863 ft.

FROM	TO (ft.)	DESCRIPTION SUMMARY LOG OF BD7
866	872	Medium-grained pink biotite granodiorite. Quartz-pyrite veins ¼-½ inch wide with pink and green alteration envelopes at 871 ft., 872 ft. Irregular pink alteration zone with fluorite and pyrite at 867 ft.
872	883	Grey medium-grained biotite granodiorite.
883	892	Medium-grained grey to pink biotite granodiorite. Near vertical irregular shear with chlorite, ¼ inch wide 889-891 ft. Pink albite-rich alteration zone with hematite and disseminated pyrite 891-892 ft. Pale green sericite alteration zone 886-887 ft.
892	908	As for 872-883 ft.
908	914	Pink medium-grained biotite granodiorite; pale green sericite alteration zone with minor disseminated pyrite, 910-912 ft.
914	943	Grey medium-grained biotite granodiorite, pink to orange felspar phenocrysts. Green sericite alteration zone with minor disseminated pyrite 916-917 ft., 932-933 ft.
943	958	Pink medium-grained biotite granodiorite. Green sericite alteration zone with minor pyrite 946-947.5 ft.
958	975	Grey medium-grained biotite granodiorite; minor green sericite alteration. 3 inch wide chlorite-rich zone at 927.3 ft. Quartz-calcite-pyrite vein 1 inch wide at 967 ft. Green Sericite alteration zone 948-949 ft., 956-957 ft. Few quartz-pyrite veins less than ¼ inch wide spaced 2-3 ft.
975	1002	Pink to grey medium-grained biotite granodiorite. Green sericite alteration zones with disseminated pyrite 975-976 ft., 984-985.5 ft., 990-991 ft., 996-997 ft.

END OF HOLE

BENDIGO PROJECT

A.A.S. Analysis

HOLE NO. BD_7

Interval (ft)		Sludge (AMDEL analysis) Cu	Mo	Split Core (AMDEL analysis) Cu	Mo
0- 10		90	5		
10- 20		110	3		
20- 30		110	3		
30- 40		160	3		
40- 50		300	3		
50- 60		260	15		
60- 70		300	35		
70- 80		200	25		
80- 90		220	7		
90-100		340	7		
100-110		230	7		
110-120		310	7		
120-130		170	7		
130-140		210	3		
140-150		190	3		
150-160		180	3		
160-170		150	3		
170-180		190	3		
180-190		200	3		
190-200		240	3		
200-210		410	3		
210-220		470	12		
220-230		330	10		
230-240		230	10		
240-250		250	15		
250-260		270	10		
260-270		230	60		
270-280		250	30		
280-290		270	25		
290-300		250	20		
300-310		300	20		
310-320		320	10		
320-330		240	25		
330-340		270	20		
340-350		250	15		
350-360		190	15		
360-370		190	10		
370-380		210	10		
380-390		290	12		
390-400	water return lost	260	10		
	Averages	241	12		
400-410				110	5
410-420				110	3
420-430				110	7
430-440				270	5
440-450				230	35

No core analysed

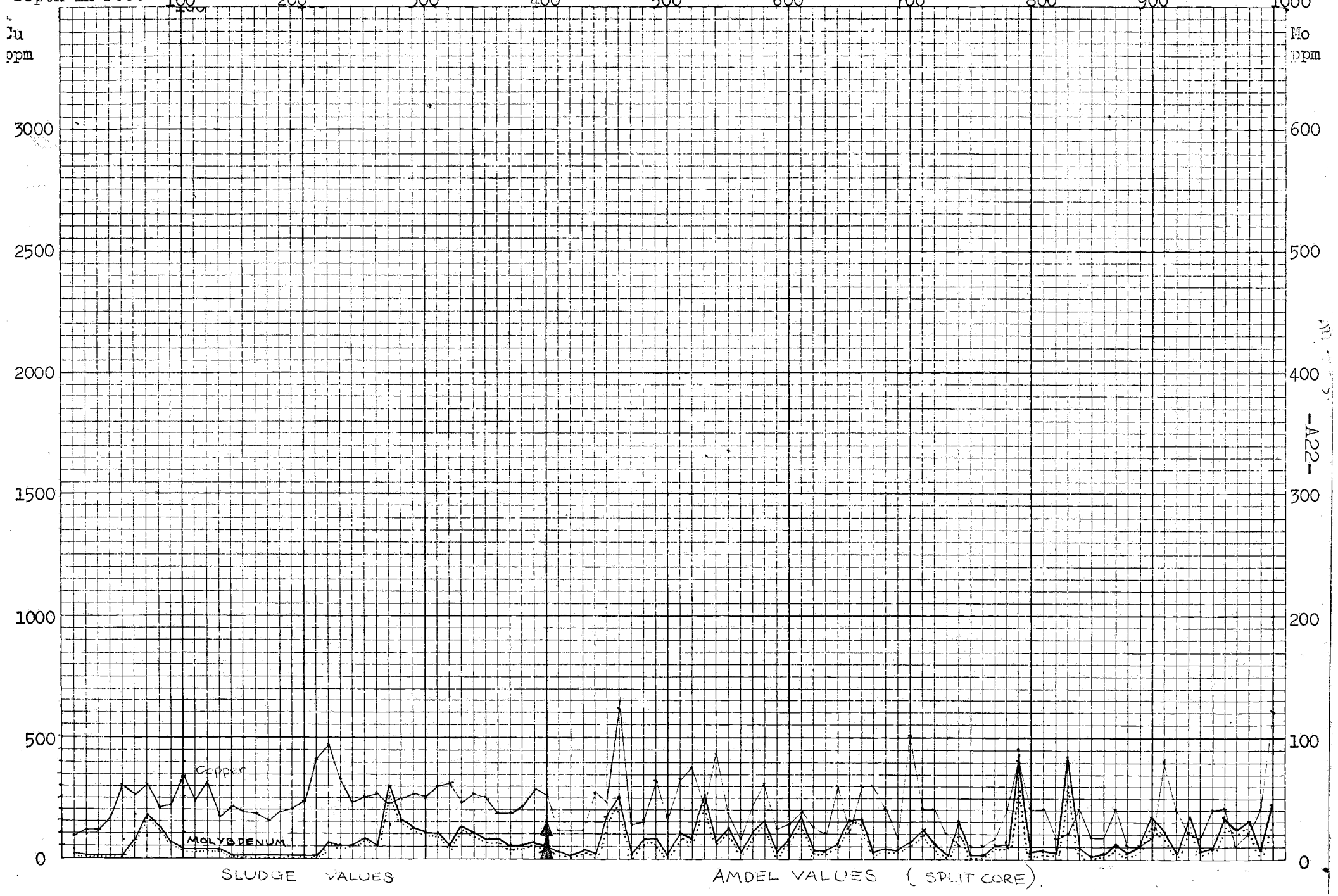
BD7 continued

Interval (ft)	Split core. (AMDEL analysis) ppm Cu	Mo
450-460	610	50
460-470	140	3
470-480	150	15
480-490	320	15
490-500	160	3
500-510	330	20
510-520	370	15
520-530	210	50
530-540	430	12
540-550	180	25
550-560	70	7
560-570	220	20
570-580	300	30
580-590	120	7
590-600	140	15
600-610	190	35
610-620	130	7
620-630	100	7
630-640	300	12
640-650	100	30
650-660	300	30
660-670	300	3
670-680	200	9
680-690	80	8
690-700	500	12
700-710	200	22
710-720	200	12
720-730	100	3
730-740	50	30
740-750	50	3
750-760	50	3
760-770	80	12
770-780	200	10
780-790	400	90
790-800	200	5
800-810	200	7
810-820	80	5
820-830	100	85
830-840	200	9
840-850	80	3
850-860	80	5
860-870	200	12
870-880	50	6
880-890	50	10
890-900	80	35
900-910	400	22
910-920	200	6

Interval (ft.)	Split core.(AMDEL analysis) Cu ppm	Mo ppm
920-930	100	35
930-940	80	7
940-950	200	9
950-960	200	35
960-970	50	25
970-980	100	30
980-990	200	8
990-1002	600	45
Averages 400'-1002'	193ppm	18ppm

END OF HOLE

BENDIGO PROJECT HOLE NO. BD7 SERIAL NO. 620/72 COORDS 535OOE 52?OON



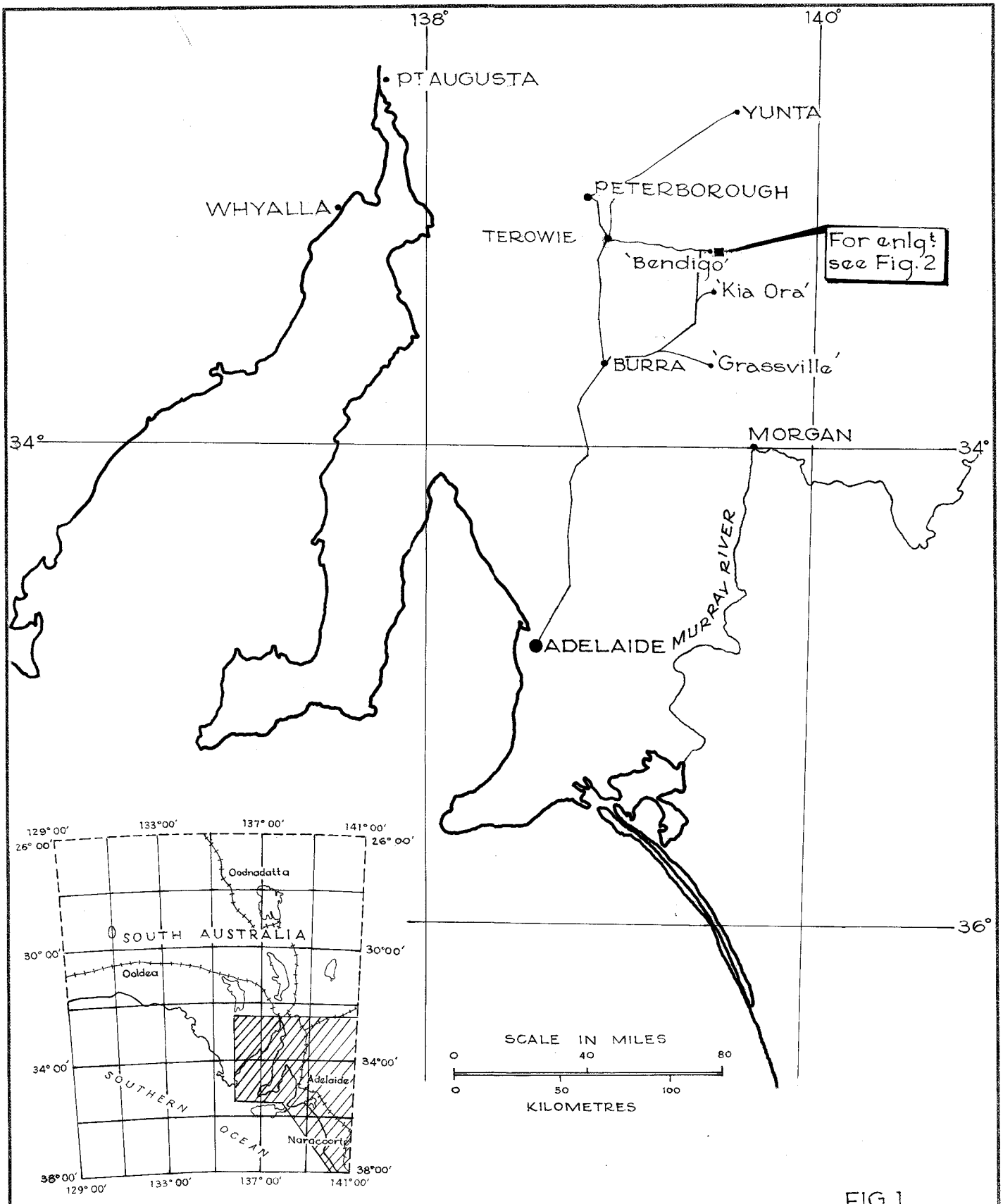


FIG. 1

	DEPARTMENT OF MINES — SOUTH AUSTRALIA	Scale: 1:2500,000
Compiled: I. F.	LOCALITY PLAN	Date 2nd March '73
Drn. G.M | Ckd.	BENDIGO PROSPECT	Drg. No. S 10194 Gb

300—6,72 C5552

57500N

555N

535N

515N

495N

47500N
475000E

495E

515E

535E

555E

57500E

Bendigo H.S. 0.4 km

BG19 BG16 BG17 BG21 BG15 BG14 BG13 BG22 BG12 BG11 BG10 BG25 BG24 BG23 BG33 BG32 BG26 BG1 BG2 BG18

BM64 BM65 BM38 (BG9) BM43 BM37 BM44 BM14 BM13 BM12 BM11 BD3 (BH12) BM10 BM9 BM50 BM45 BM46 BM47 BM48 BM49

BD5 (BG5)

BM63 BM62 (BG8) BM61 BM60 BM59 (BG7) BD7 BM58 BM57 BM35 BM38 BM34 BM39 BM33 BM40 BM41 BM42

BM15 BM16 BM17 BM56 BM18 BM19 BM55 BM20 BM21 BM54 BM22 BM51 BM52 BM53

BM68 BM67 BM66 BM28 BM29 BM27 BM30 BM26 BM31 BM25 BM32

BM7 (BG6) BM6 (BG20) BM5 BM4 BM3 BM2 BM1 BM8 BM23 BM24

BD6 (BG4) BD4 (BG3) BD2 (BH8) BD1 (BH6)

BH10 BH2 BH1 BH3 BH4 BH7 BH5a BH19 BH17 BH16 BH13 BH11

BG26

Granite shallow underlying at depth Adelaidean

INFERRED GRANITE BOUNDARY

INFERRED GRANITE BOUNDARY

Approximate boundary Area C

Approximate boundary Area B

Approximate boundary Area A

Soil + Bedrock Auger Sampling

Deep Sampling Diamond Drilling

N

SCALE IN FEET
400 0 400 800 1200 1600 2000

SCALE IN METRES
200 0 200 400 600

LEGEND

- Adelaidean siltstones; laminated dark grey to green. Hornfelsed near granite sediment contact. Metamorphic spotting common, schistose in part.
- Granite, granodiorite and adamellite. Medium grained, grey and pink. 5-10% biotite.
- Sericitized granite, granodiorite and adamellite. Biotite and plagioclase replaced by muscovite. Commonly limonitic.
- Greisen coarse-grained quartz-muscovite rock, pale green. Commonly limonitic; occurs mainly as envelopes around quartz veins.
- Fine-grained quartz-muscovite rock, green to brown. Commonly limonitic.
- Pyritic micro-granodiorite, contains 1-5% pyrite. Biotite replaced by muscovite.
- Dyke: porphyritic in part, dominantly andesites.
- Quartz vein; commonly exibits well defined layering. Abundant limonite, minor sulphides and secondary copper minerals.
- Bleaching and silicification of sediments. Brecciated hornfelsed sediment
- Geological boundary
- Limit of outcrop
- 70 Strike and dip of bedding
- xx Cu Mineral occurrence.
- BM12 BG25 Rotary Drillhole; BM12 BG18 Rotary Percussion Drillhole; BD6 Diamond Drillhole
- Boundary of granite occurrence. GRANITE
- I.P. traverse.
- I.P. anomaly (definite) — 400ft. spacing
- I.P. anomaly (inferred) — 400ft. spacing
- I.P. anomaly (definite) — 200ft. spacing
- I.P. anomaly (inferred) — 200ft. spacing

FIG.2

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BENDIGO PROJECT
GEOLOGY, DRILLHOLE LOCATIONS AND I.P. ANOMALIES

GEOCHEMICAL EXPLORATION SECTION	GEOCHEMIST	Drn. I.F.	SCALE: 1 : 4,800 (ORIG)
		Tcd. A.R.	73-104 Gb
		Ckd.	
Director of Mines	S.E.N. GEOLOGIST	Exd.	DATE: 19-2-73