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AUSTRALIAN CONSOLIDATED INDUSTRIES LTD.

MINERAL RESOURCES DIVISION

TASMANIAN EXPLORATION E.L. 16/68 BALFOU... 27th April, 1972.

REPORT ON D.D.H.13, MURRAYS REWARD PROSP...

SUMMARY

D.D.H. 13 at Murray's Reward Prospect was completed at a depth of 101.04 metres.

A thick zone of anomalous copper mineralization, containing three discrete sub-zones of chalcopyrite quartz, was intersected between 43.58 and 83.52 metres. This interval contained an average of 3420 ppm Cu over an estimated true thickness of 22.5 metres.

The three mineralized sub-zones were:-

(a) 43.58 to 46.02 metres: White quartz, containing abundant pyrite and chalcopyrite, bounded by sediments with minor chalcopyritic quartz veins. Average 14800 ppm Cu; range 2100 to 62000 ppm Cu.

(b) 53.95 to 56.69 metres: Chalcopyritic quartz veins and segregations in chloritic and carbonaceous slate. Average 4560 ppm Cu; range 3200 to 8100 ppm Cu.

(c) 71.94 to 83.52 metres: Disseminated pyrite and chalcopyrite in quartz and minor chalcopyritic quartz veins in chloritic and carbonaceous slate and phyllite. This mineralized sub-zone, the most significant of the three, has an estimated true thickness of 6.9 metres and dips about 85° towards the west. Average 7200 ppm Cu; range 2650 to 12750 ppm Cu.

The three mineralized sub-zones are separated by intervals of carbonaceous and chloritic slates and sediments containing only rare traces of chalcopyrite occurring in quartz veins.

The overall mineralized zone including the three mineralized sub-zones, lies between a hanging wall of carbonaceous slates and sediments, and a footwall of chloritic slate.

The drilling costs of D.D.H.13 totalled $2206 at an average cost of $21.80 per metre.

D.D.H.13 - MURRAYS REWARD PROSPECT

Grid Reference	434 730N 319 840E
Elevation	1205.8 metres
Angle	65°
Bearing	N 70° E - true
Date Drilled	27.11.71 to 30.11.71
Drilling rate	20.2 metres per shift

1. OPERATIONAL DETAILS:

1.1 Drilling Details

D.D.H.13 at Murray's Reward Prospect and the first drill-hole of the 1971-72 field season, was commenced on November 27, 1972.

HW casing was seated at 3.05 metres and the hole progressed to 41.75 metres with the airmast attachment of the Longyear 38 drilling rig. Samples of the air drill cuttings were collected over intervals of 1.52 metres between 3.05 and 41.75 metres.

NW casing was seated at 41.75 metres and the drillhole was continued with NQWL diamond coring equipment. Progress was rapid and the hole was completed at a depth of 101.04 metres on November 30, 1971.

1.2 Drilling Conditions

Drill runs and core recovery are tabulated in Appendix A.

No problems were encountered during the air drilling and the drillhole advanced to 41.75 metres in only two shifts.

Diamond drilling commenced at 41.75 metres and advanced rapidly (drill runs averaging 1.65 metres) to a depth of about 81 metres with almost complete core recovery. Below about 81 metres however, drill runs were much reduced (average about 0.8 metres) by the habit of the slates to part readily along cleavage planes and block the inner tube.

The quartz in the main mineralised sub-zone proved difficult to penetrate in parts and minor core losses occurred.

Overall core recovery averaged about 93 per cent.

1.3 Drilling deviation

Drillhole deviation surveys were carried out with the following results:-

Collar	65°	
30.45 metres	65°	- acid tube
61.0 "	61°	- acid tube
91.4 "	57°	- acid tube

The deviation averaged slightly less than 3° per 30 metres.

2. GEOLOGY

The complete drillog is presented in Appendix B and may be summarised as follows:

PERCUSSION DRILLING

0 to 24.4 Metres

Carbonaceous slate and ~~slate~~ shale with minor quartz and pyrite.

24.4 to 41.75 Metres

Carbonaceous and graphitic slate with sporadic quartz veins and disseminated pyrite.

DIAMOND DRILLING

41.75 to 43.58 Metres

Carbonaceous and graphitic slate. Complexly deformed in parts. Few cavernous and pyritic quartz veins.

43.58 to 44.04 Metres

Grey silicified sediments, minor quartzite and white quartz with thin phyllitic partings. Minor pyrite and chalcopyrite in quartz.

44.04 to 44.55 Metres

White slightly cavernous, quartz containing abundant pyrite and chalcopyrite.

44.55 to 51.97 Metres

Grey carbonaceous slate containing many thin, slightly chalcopyritic quartz veins.

51.97 to 55.93 Metres

Carbonaceous and chloritic slate with a few bands of chloritic phyllite. Minor chalcopyrite associated with quartz veins and segregations.

55.93 to 56.69 Metres

Chloritic phyllite containing many, slightly chalcopyritic quartz, quartz-carbonate and carbonate veins.

56.69 to 65.76 Metres

Chloritic and carbonaceous slate containing a few pyritic quartz veins and irregular carbonate and quartz-carbonate veins.

65.76 to 66.60 Metres

Chloritic quartzose zone consisting of cavernous quartz, chloritic phyllite and a few thin dolomite veins. Rare disseminated chalcopyrite.

66.60 to 68.89 Metres

Chloritic phyllite.

68.89 to 72.85 Metres

Similar to the interval 65.76 to 66.60 metres.

72.85 to 75.51 Metres

Similar to the interval 66.60 to 68.89 metres, contains few pyritic and chalcopyritic quartz veins.

75.51 to 83.52 Metres

Mineralized Quartz Zone

Slightly cavernous dolomite quartz containing minor disseminated chalcopyrite.

83.52 to 101.04 Metres

Chloritic slate.

3. SAMPLES AND ASSAY RESULTS

Two types of samples were collected from the products of D.D.H.13 and, in addition, a suite of rock specimens were collected for petrological and mineralogical examination. The samples were:

(a) Percussion samples: cuttings from the airdrill were collected over intervals of 1.52 metres. Samples of the cuttings from between 25.90 and 41.75 metres were assayed with the following results

Intersection Metres	Sample No. BAL	Assay Value ppm Cu.
25.90 to 27.43	1397	768
27.43 " 28.95	1398	293
28.95 " 30.48	1399	146
30.48 " 32.00	1400	113
32.00 " 33.53	1401	13[illegible]
33.53 " 35.05	1402	241
35.05 " 36.58	1403	195
36.58 " 38.10	1404	135
38.10 " 39.62	1405	452
39.62 " 41.15	1406	318
41.15 " 41.75	1407	210

The percussion sample assay values average 274 ppm Cu with a range from 113 to 768 ppm Cu. With the probable exception of samples BAL 1397 and 1405, all assay values are of background value.

(b) Core samples: twentyfour core samples were collected from the interval 41.75 to 87.55 metres. The samples were assayed for copper only with the proviso that fire assays for gold and silver be carried out on those samples yielding assay values of about 10000 ppm Cu. The assay results were:

Intersection Metres	Interval Metres	Sample No. BAL	Assay Value ppm Cu
41.75 to 42.36	0.51	1425	51
42.36 " 43.58	1.22	1426	195
43.58 " 44.04	0.46	1427	3300
44.04 " 44.55	0.51	1428	62000
44.55 " 46.02	1.47	1429	2100
46.02 " 47.85	1.83	1430	54
47.85 " 50.29	2.44	1431	49
50.29 " 51.97	1.68	1432	66
51.97 " 53.95	1.98	1433	197
53.95 " 55.93	1.98	1434	3200
55.93 " 56.69	0.76	1435	8100
56.69 " 59.59	2.90	1436	56
59.59 " 61.26	1.67	1437	122
61.26 " 63.40	2.14	1438	18
63.40 " 65.76	2.36	1439	33
65.76 " 66.60	0.84	1440	420
66.60 " 68.89	2.29	1441	422
68.89 " 71.94	3.05	1442	685
71.94 " 72.85	0.91	1443	4550
72.85 " 75.51	2.66	1444	2650
75.51 " 78.08	2.57	1445	12750
78.08 " 80.62	2.54	1446	5900
80.62 " 83.52	2.90	1447	8400
83.52 " 87.55	4.03	1448	117

Examination of the assay values confirms the presence of three mineralized sub-zones separated by two barren zones of slate and siltstone. The three mineralized sub-zones are:

(a) 43.58 to 46.02 metres; Average 14800 ppm Cu
White, cavernous quartz between 44.04 and 44.55 metres contains abundant pyrite and chalcopyrite (c2000 ppm Cu). On either side of the quartz, minor amounts of chalcopyrite occurs in quartz veins within slate and silicified sediments.

(b) 53.95 to 56.69 metres; Average 4560 ppm Cu
Chloritic phyllite containing chalcopyritic quartz veins and segregations.

(c) 71.94 to 83.52 metres; Average 7200 ppm Cu
Chloritic and quartzose phyllite with minor chalcopyrite (average 3140 ppm Cu) between 71.94 and 75.51 metres.

Massive quartz with minor disseminated pyrite and chalcopyrite (average 9000 ppm Cu) between 75.51 and 83.52 metres.

Fire assays for gold and silver yielded the following results:

Sample No. BAL	Assay Value dwt/ton	
	Au	Ag
1428	<0.5	0.1
1445	<0.5	0.42
1447	<0.5	3.02

Insignificant traces of gold, and apparently insignificant, but variable, traces of silver were detected.

The copper mineralization intersected by D.D.H.13 occurs solely as chalcopyrite which is invariably associated with quartz.

A suite of sixteen rock specimens were collected from the core of D.D.H.13. The microscopic examination of both thin and polished sections from these specimens forms the basis of a report by Mr. A.J. O'Toole, entitled "The geology and ore genesis of the Mount Balfour copper prospect, Tasmania."

The specimens were collected from the following locations within the drill core:

Specimen No.	Depth (Metres)	Specimen No.	Depth (Metres)
MR 61	42.37	MR 69	79.90
62	44.34	70	77.42
63	48.47	71	77.95
64	55.47	72	79.71
65	60.35	73	81.84
66	66.14	74	80.10
67	68.73	75	88.23
68	72.65	76	89.92

4. DRILLING COSTS

Drilling costs directly attributable to D.D.H.13, totalled $2205.54 at an average cost of $21.80 per metre. The costs included:

Air drilling	$ 456.12
Diamond drilling	1650.12
Supplying casing	44.80
Surveys	32.00
Sundry	12.50
Total	$ 2205.54

5. CONCLUSION

D.D.H.13 at Murray's Reward Prospect proved the existence of a thick zone of anomalous copper mineralization averaging 3420 ppm Cu over an estimated true thickness of 22.5 metres.

The bulk of the mineralization, however, is contained within three mineralized quartzose sub-zones which are separated by barren slates and sediments.

The most significant sub-zone occurs between 71.94 and 83.52 metres, this interval containing an average of 7200 ppm Cu over an estimated true thickness of 6.9 metres. The mineralized zone dips 85° towards the west.

APPENDIX A

DDH. 13 DRILL RUNS AND CORE RECOVERY

INTERSECTION (METRES)			CORE RECOVERY METRES	CORE RECOVERY METRES
41.75	to	43.58	1.83	100
43.58	"	46.02	2.44	100
46.02	"	47.85	1.83	100
47.85	"	50.29	2.44	100
50.29	"	52.12	1.83	100
52.12	"	54.56	2.44	100
54.56	"	56.39	1.83	100
56.39	"	57.14	0.75	100
57.14	"	57.91	0.75	100
57.91	"	58.52	0.61	100
58.52	"	60.35	1.83	100
60.35	"	60.96	0.61	100
60.96	"	62.79	1.83	100
62.79	"	64.31	1.52	100
64.31	"	66.14	1.83	100
66.14	"	67.36	1.22	100
67.36	"	68.88	1.52	100
68.88	"	71.93	1.22	40
71.93	"	72.84	0.91	100
72.84	"	74.06	1.22	100
74.06	"	75.12	1.06	100
75.12	"	76.79	1.67	100
76.79	"	78.31	1.52	100
78.31	"	81.36	3.05	100
81.36	"	83.49	1.52	71
83.49	"	84.43	0.15	17
84.43	"	85.04	0.61	100
85.04	"	85.65	0.30	50
85.65	"	86.26	0.30	50
86.26	"	87.56	0.99	76
87.56	"	87.86	0.30	100
87.86	"	88.09	0.23	100
88.09	"	88.70	0.61	100
88.70	"	89.16	0.15	33
89.16	"	89.77	0.61	100
89.77	"	90.53	0.76	100
90.53	"	91.14	0.61	100
91.14	"	92.05	0.91	100
92.05	"	93.42	1.37	100
93.42	"	94.18	0.76	100
94.18	"	95.09	0.91	100
95.09	"	96.00	0.91	100
96.00	"	96.76	0.76	100
96.76	"	97.54	0.76	100
97.54	"	98.45	0.91	100
98.45	"	99.51	1.06	100
99.51	"	100.57	1.06	100
100.57	"	101.04	0.46	100

APPENDIX B

DDH. 13 MURPAYS REWARD PROSPECT

DRILL LOG

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GRID REFERENCE	434729N 319844E
ELEVATION	205.8m
ANGLE	65°
BEARING	N 70° E (true)
DATE DRILLED	27.11.71 to 30.11.71
DRILLING RATE	20.2 metres per shift

INTERSECTION (METRES)	DESCRIPTION
0 to 41.75	Air Drilling Grey to black carbonaceous and graphitic slate with minor pyritic quartz veins.
41.75 to 42.36	Diamond Drilling Medium grey, dark grey and black, deformed carbonaceous and graphitic slate containing several thick (≤3cm) cavernous (after carbonate?) and slightly pyritic quartz veins and a few minor (≤5mm) pyritic and slightly chloritic quartz veins. Rare pyritic quartz blebs and lenses (≤2cm). Graded bedding (younging east?) locally preserved. Cleavage is prominent and a few microfaults occur. Coarsely banded (≤3cm.) in parts but generally coarsely laminated (≤3mm). Bedding dips 45° Cleavage dips 30°
42.36 to 43.58	Similar to the interval 41.75 to 42.36 metres but generally medium grey (carbonaceous rather than graphitic), harder and with sedimentary structures poorly preserved. Few thin (≤1 cm.) pyritic quartz veins parallel to cleavage. Well developed dragfolds in parts. Appears to become slightly chloritic and phyllitic towards base.
43.58 to 44.04	Pale grey silicified sediments and quartzite. Quartz occurs in veins and veinlets (generally ≤1cm) which are irregular in parts; and as irregular masses or segregations (≤3cm) which contain common thin (≤1mm) irregular fractures lined with green chloritic(?) material. The quartz veins contain minor pyrite and minor chalcopyrite occurs in the quartz veins; as thin (≤2mm) discontinuous bands parallel to 5 planes (bedding or cleavage); and as small (≤2mm) blebs. Total copper ≤0.5 percent Cu.

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INTERSECTION (METRES)	DESCRIPTION
44.04 to 44.55	MINERALIZED QUARTZ ZONE White quartz cavernous in parts, containing abundant pyrite and chalcopyrite occurring as disseminated irregular blebs and irregular and discontinuous bands which appear to be sub-parallel to bedding (cleavage?) in adjacent rocks. Total sulphides estimated 20 percent. Total copper estimated 5 to 7 percent.
44.55 to 51.97	Medium to dark grey carbonaceous slate containing many thin ($\leq$ 2cm.) irregular quartz veins most of which are pyritic and slightly chloritic and a few of which contain irregular chalcopyrite blebs. Sedimentary structures, including graded bedding (younging east?) and erosional scours are locally well preserved but the sequence contains common microfaults and a well developed cleavage. Bedding dips 15° Cleavage dips 40° } at 49.1 metres Total copper estimated $\leq$0.1 percent Cu.
51.97 to 55.93	Pale grey and medium grey slightly carbonaceous and chloritic slate with few thin bands of fine grained silver grey and grey-green chloritic phyllite. Few thin ($\leq$ 3 mm) irregular and discontinuous veins and bands of chalcopyrite, often parallel to cleavage, associated with thin quartz veins and blebs. Few small ($\leq$ 5mm) irregular chalcopyrite blebs. The chalcopyrite is most common below about 54.3 metres. A prominent band (25mm) of cavernous quartz-pyrite-chalcopyrite occurs at about 55.78 metres. Common thin pyritic veins Prominent cleavage but original bedding locally well preserved. Total copper estimated $\leq$0.5 percent Cu. Bedding dips 20° at 52.7 metres. Bedding dips 20° Cleavage dips 30° } at 54.2 metres
55.93 to 56.69	Pale grey, silver grey and pale green finely foliated chlorite phyllite containing numerous irregular quartz, carbonate and quartz-carbonate veins which are pyritic and slightly chalcopyritic. Total copper estimated $\leq$0.5 percent Cu.

INTERSECTION (METRES)	DESCRIPTION
64.69 to 65.76	Medium grey-green, chloritic and carbonaceous (?) slate containing a few irregular carbonate and quartz-carbonate veins ($\lesssim$ 3mm) and a few, more regular, pyritic quartz veins. Original bedding generally poorly preserved. Few dark green chloritic (?) porphyroblasts ($\lesssim$ 1mm). Few quartz-pyrite blebs or segregations ($\lesssim$ 2cm). Soft chloritic phyllite band at about 60.05 metres. Bedding dips 45° but variable Cleavage dips 30°.
65.76 to 66.60	Quartzose chloritic sequence consisting of white, heavily cavernous, slightly pyritic and very irregular quartz, pale and dark green chloritic phyllite and sporadic irregular, thin ($\lesssim$ 3mm) pale brown carbonate veins. Rare chalcopyrite blebs.
66.60 to 68.89	Very pale green, fine grained and finely foliated chloritic phyllite containing a few very deformed and irregular slightly pyritic quartz veins ($\lesssim$ 5mm).
68.89 to 72.85	Similar to the interval 65.76 to 66.60 metres although the basal 0.9 metres is more quartzose and contains minor disseminated chalcopyrite. Total copper $\lesssim$0.5 percent Cu.
72.85 to 75.51	Similar to the interval 66.60 to 68.89 metres but contains a few chloritic and pyritic quartz veins with rare chalcopyrite. Total copper $\lesssim$0.5 percent Cu.
75.51 to 83.52	MINERALIZED QUARTZ ZONE Massive, white, grey and grey-green quartz containing abundant, extremely irregular and discontinuous chloritic "stringers" filling fractures. The quartz is moderately cavernous after sulphides and carbonate and contains minor amounts of soft pale brown weathered carbonate at top of unit. A few thin ($\lesssim$ 5cm) bands of green chloritic phyllite occur in parts. The quartz contains minor disseminated pyrite and chalcopyrite, total sulphides 5 to 8 percent; total copper $\lesssim$1.5 percent Cu.

INTERSECTION (METRES)	DESCRIPTION
37.0 to 83.52	The chalcopyrite occurs as disseminated blebs (generally ≤1cm) and in extremely irregular and discontinuous veins which have a similar shape to the chlorite filled fractures. The chalcopyrite is commonly associated with pyrite and with the slightly to moderately cavernous areas and appears to be subhedral in parts. This mineralized quartz zone may be divided into three subdivisions on the basis of mineralogy and petrology. (i) 75.51 to 78.08 metres; white and grey-green quartz containing several thin bands of chloritic phyllite and minor amounts of brown weathered carbonate and sporadic chalcopyrite. (ii) 78.08 to 80.62 metres;-white and grey-white quartz containing numerous extremely irregular fractures lines with chloritic material. Sporadic chalcopyrite. (iii) 80.62 to 83.52 metres; similar to the interval 75.51 to 78.08 metres with abundant irregular deformed chloritic bands. Contains large (about 3 x 4 cm) irregular mass of chalcopyrite at base of the unit. The pyrite and chalcopyrite are generally intimately associated.
83.52 to 101.04	Green chloritic slate, with well developed crinkle lineation. Rare thin carbonate veins (≤5mm). Few thin (≤ 1 cm.) pyritic quartz veins. Rare disseminated euhedral pyrite. Very rare traces (<<0.1 percent Cu.) of chalcopyrite associated with thin (≤ 1 cm.) quartz veins.

DDH. 13 COMPLETED AT A DEPTH OF 101.04M.