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AUSTRALIAN CONSOLIDATED INDUSTRIES LIMITED

MINERAL RESOURCES DIVISION

TASMANIAN EXPLORATION EL.16/68

REPORT ON DDH.19, MURRAY'S REWARD PROSPECT

SUMMARY

DDH 19 at Murray's Reward Prospect was successfully completed at a depth of 79.25 metres.

Two discrete zones of chalcopyritic mineralization were intersected:

(a) 25.90 to 32.00 metres; percussion sample assay values indicate a mineralized zone containing an average of 4400 ppm Cu between 25.9 and 32.0 metres, the bulk of the copper occurring in the interval 25.90 to 27.43 metres, this interval assaying 10 475 ppm Cu.

The true thickness of this zone is difficult to determine but is probably not greater than 2 metres.

(b) 60.66 to 73.50 metres; This is a zone of anomalous copper concentration averaging about 4 850 ppm Cu over an estimated true thickness of about 6.5 metres. The bulk of the copper occurs in a 1.78 metre interval of chloritic sediment and quartz assaying 1.73% Cu between 68.37 and 70.15 metres.

The remainder of this mineralized zone consists dominantly of chloritic slate in which minor amounts of chalcopyrite are associated with quartz veins and segregations.

Core recovery in the broad zone of anomalous copper values and in the thin higher grade interval averages 75 and 48% respectively, and the reported assay values are therefore only approximations to the true grade of the mineralized intersections.

The mineralized zone occurs between a hanging wall of chloritic and carbonaceous slaty sediments and a chloritic slate footwall and dips slightly west of vertical.

Drilling costs for DDH 19 totalled about $1,898 at an average cost of $24 per metre. The drilling rate averaged 14.4 metres per shift.

DDH.19, MURRAY'S REWARD PROSPECT

Grid reference	434550N, 319928E
Elevation	201.5 metres
Angle	65°
Bearing	N 70° E true
Date drilled	5/1/72 to 7/1/72 and 20/1/72 to 21/1/72
Drilling rate	14.4 metres per shift
Air drilling	0 to 33.53 metres.
Diamond drilling	33.53 to 79.25 metres.

1. OPERATIONAL DETAILS

1.1. Drilling Details

DDH 19, the first drillhole of the 1972 drilling

programme, was commenced on January 5, 1972 and HW casing was seated at 1.5 metres. Air drilling advanced satisfactorily to 33.53 metres at which depth the hole was cased with NW casing, and continued with NQWL diamond coring equipment with triple tube core barrel.

Drilling was prematurely terminated at a depth of 67.67 metres on January 7. The hole was then re-entered on January 20, and continued for a further 11.58 metres, being finally completed at a depth of 79.25 metres on January 21, 1972.

1.2. Drilling conditions

Drill runs and core recovery are tabulated in Appendix A.

Core recovery between 33.53 and 67.67 metres was almost invariably 100% but between 67.67 and 73.45 metres, the interval including much of the main mineralized zone, core recovery averaged only 60%. This low recovery makes difficult the realistic estimation of thickness and grade of the mineralized zone. It is believed that the low core recovery may have been in part caused by the fact that the hole had been open and filled with water for a fortnight before being re-entered and completed.

1.3. Drillhole deviation

The results of the drillhole inclination surveys were as follows:-

Collar	65°	
30 metres	62.5°	acid-tube
60 metres	60.5°	acid-tube
70 metres	60°	at N 75° E magnetic - Tropari

Note that together with a gradual shallowing or flattening, the hole deviated about 17° towards the south.

2. GEOLOGY

The complete drill log is presented in Appendix B and may be briefly summarised as follows:-

0 to 33.53 metres AIR DRILLING

Carbonaceous shale and siltstone containing sporadic chalcopyrite in quartz veins within the interval 25.9 to 32.0 metres.

DIAMOND DRILLING

33.53 to 36.42 metres

Grey slaty carbonaceous shale containing a few irregular quartz veins, vein-like segregations and rare quartz-pyrite blebs. Rare thin pyrite and quartz-pyrite veinlets.

36.42 to 47.24 metres

Slaty carbonaceous siltstone, slightly chloritic, and with common chlorite porphyroblasts in parts.

Few thin cavernous pyritic quartz veins. Rare quartz-pyrite blebs.

47.24 to 49.17 metres

Grey-green chloritic and carbonaceous slaty siltstone containing sporadic euhedral pyrite and a few vein-like segregations of quartz-pyrite. Chlorite porphyroblasts common in parts.

49.17 to 50.43 metres

Chloritic phyllite and slate containing common chlorite porphyroblasts. Few pyritic quartz blebs and segregations.

50.43 to 51.24 metres

Slaty sediments containing common chloritic porphyroblasts.

51.24 to 52.73 metres

Chloritic slate and slaty shale.

52.73 to 54.86 metres

Hard, recrystallized and slightly silicified slaty sediments.

54.86 to 60.66 metres

Carbonaceous slaty siltstone.

MINERALIZED ZONE 60.66 to 73.50 metres

(a) 60.66 to 63.55 metres

Bleached chloritic phyllite and slate, talcose in parts. Rare chalcopyrite occurs in irregular pyritic-quartz blebs and vein-like segregations.

(b) 63.55 to 65.68 metres

White to grey, cavernous and fragmentary pyritic and chalcopyritic carbonate-quartz.

(c) 65.68 to 68.37 metres

Pale green talcose chloritic slate containing a few pyritic and slightly chalcopyritic quartz veins and segregations and a 13cm band of quartz-carbonate.

(d) 68.37 to 70.15 metres

Dark green (chlorite and chloritic sediments) and white quartz containing common pyrite and chalcopyrite. The chalcopyrite is associated with the quartz which occurs as veins and vein-like segregations.

(e) 70.15 to 71.48 metres

Slightly talcose chloritic slate and phyllite containing a few slightly chalcopyritic and pyritic vein-like quartz segregations.

(f) 71.48 to 73.50 metres

Fragmentary chloritic slate. White quartz fragments containing minor chalcopyrite are common but appear to be caved material.

This mineralized zone between 60.66 and 73.50 metres dips steeply (~85°) west and has an estimated true thickness of about 6.5 metres.

73.50 to 79.25 metres

Chloritic slate.

3. SAMPLES AND ASSAYS

Two types of samples were collected from the products of DDH 19.

(i) Percussion samples

Percussion samples were collected over intervals of 1.52 metres between 1.52 and 32.00 metres. The assay results were:

INTERSECTION (METRES)	SAMPLE NO. BAL	ASSAY VALUE ppm Cu
1.52 to 3.05	1580	34
3.05 " 4.57	1581	41
4.57 " 6.10	1582	75
6.10 " 7.62	1583	74
7.62 " 9.14	1584	58
9.14 " 10.66	1585	86
10.66 " 12.19	1586	88
12.19 " 13.71	1587	79
13.71 " 15.24	1588	122
15.24 " 16.76	1589	126
16.76 " 18.29	1590	90
18.29 " 19.81	1591	201
19.81 " 21.34	1592	146
21.34 " 22.86	1593	66
22.86 " 24.38	1594	99
24.38 " 25.90	1595	368
25.90 " 27.43	1596	10475
27.43 " 28.95	1597	3050
28.95 " 30.48	1598	3000
30.48 " 32.00	1599	1050

The assay values reveal the presence of a mineralized zone occurring within the interval 25.9 to 32.0 metres. The true thickness of this mineralized zone is difficult to determine from the assay values alone as samples BAL 1597 to 1599 may be contaminated by chalcopyrite from the interval 25.90 to 27.43 metres (sample BAL 1596) which probably represents the complete mineralized zone although decreasing amounts of chalcopyrite may occur between 27.43 and 32.00 metres.

The remainder of the percussion sample assay values indicate background copper values only although trace amounts of chalcopyrite may occur in the intervals 13.71 to 16.76 and 18.29 to 21.34 metres.

(ii) Core samples

Nineteen core samples collected between 33.53 and 75.51 metres yielded the following assay values:

INTERSECTION (METRES)	INTERVAL (METRES)	SAMPLE NO. BAL	ASSAY VALUE ppm Cu
33.53 to 36.42	2.89	1624	12
36.42 " 39.62	3.20	1625	14
39.62 " 43.13	3.51	1626	33
43.13 " 47.24	4.11	1627	25
47.24 " 49.17	1.93	1628	64
49.17 " 50.43	1.26	1629	20
50.43 " 51.24	0.81	1630	15
51.24 " 52.73	1.49	1631	17
52.73 " 54.86	2.13	1632	26
54.86 " 57.60	2.74	1633	12
57.60 " 60.66	3.06	1634	13
60.66 " 63.55	2.89	1635	1538
63.55 " 65.68	2.13	1636	7625
65.68 " 67.67	1.99	1637	365
67.67 " 68.37	0.70	1691	1975
68.37 " 70.15	1.78	1692	1.73%
70.15 " 71.48	1.33	1693	2085
71.48 " 73.50	2.02	1694	3050
73.50 " 75.51	2.01	1695	21

The core sample assay values confirm the presence of a broad zone of anomalous copper mineralization (4850 ppm Cu) occurring between 60.66 and 73.50 metres. Within this zone is a 1.78 metre interval (68.37 to 70.15 metres) of chalcopyritic quartz and chloritic material assaying 1.73% Cu.

Chalcopyrite is apparently the only copper sulphide present and invariably occurs within, or intimately associated with, quartz.

4. SUMMARY

DDH 19 at Murray's Reward Prospect proved a southern continuation of the mineralized zone intersected by DDH 13 some 60 metres northwest of DDH 19.

Because of the unsatisfactory core recovery, care must be exercised in the interpretation of the thickness and grade of the mineralized zone intersected by DDH 19.

M.H. McINTYRE

FEBRUARY, 1972.

DDH. 19 MURRAYS REWARD PROSPECT

DRILL LOG

GRID REFERENCE	434550N 319930E
ELEVATION	201.5 metres
ANGLE	65°
BEARING	N 70° E
DATE DRILLED	5.1.72 to 7.1.72.
DRILLING RATE	16.92 metres per shift

INTERSECTION (METRES)	DESCRIPTION
0 to 33.53	Air Drilling Carbonaceous and graphitic slate containing traces of chalcopyrite below about 27.5 metres.
33.53 to approx. 36.42	Diamond Drilling Medium grey carbonaceous slaty shale (siltstone and fine sandstone) containing a few pale grey (fine sandstone) and dark grey (finer grained and more carbonaceous) bands. Generally coarsely laminated. Few irregular and discontinuous pyritic quartz veins (≤ 5 mm), vein-like segregations and rare quartz-pyrite blebs. Rare thin (generally ≤1 mm) pyrite and quartz-pyrite veinlets. Rare thin (< 1 mm) tightly ptygmatic quartzose veinlets. Rare dragfolds including: (i) at 33.7 metres (ii) at 33.9 metres with axial plane dipping 20° to 25° and sediments dipping 15°. Bedding dips; 5° at 33.7; 15° to 20° at 34.4; 10° at 36.2m.
36.42 to approx. 47.24	Pale to medium grey fine grained slaty sediments with slight greenish (chloritic) tinge in parts. The dominant lithology consists of slightly carbonaceous siltstone but with few coarser (fine sandstone) and paler quartzose laminas and bands. Laminated in parts but generally fine to medium bedded. Chlorite porphyroblasts are common in parts and acicular lensoid porphyroblasts are preferentially aligned parallel to the bedding in parts. Few thin (generally ≤5 mm) cavernous and pyritic quartz veins containing rare traces of a black-grey, metallic and very slightly iridescent mineral (chalcocite?) Rare quartz-pyrite blebs or segregations. Rare discordant quartzose and quartz-chlorite ptygmatic veinlets or segregations. Rare disseminated euhedral pyrite.

INTERSECTION (METRES)	DESCRIPTION
	Thin (≤ 10 cm) band of medium green slightly pitted chloritic tuffaceous (?) material occurs at about 38.7 metres.
	Rare microfaulting, the fault planes commonly defined by thin quartz veinlets.
	Thin talcose band at about 40.7 metres.
	Dragfold at 37.4 metres with axial plane dipping about 45°.
	Bedding dips; 10° at 37.4; 10° to 15° at 37.8m; 20° at 38.8m, 20° to 25° at 40.0m, 25° at 41.0m, 15° to 20° at 41.8, 20° to 25° at 43.0, 20° at 43.9m, 20° to 25° at 44.7m, 30° to 35° at 45.6m, 20° to 25° at 46.6m.
47. to 49.17	Pale to medium grey-green slightly chloritic and carbonaceous slaty siltstone, brecciated in parts, and containing sporadic disseminated euhedral pyrite and blebs and vein-like segregations (commonly discontinuous) of pyrite-quartz.
	The original bedding is poorly preserved, a cleavage being the dominant S plane. Few microfaults (cleavage plane slip).
	At about 48.95 metres is a pale green, pyritic, slightly phyllitic and silicified band (10cm) containing a few slightly cavernous quartz pyrite segregations.
	Prominent slickenside at top of unit adjacent to a pyrite -quartz band (≤ 10cm) which is associated with an irregular band of closely spaced pyrite blebs and euhedra arranged in irregular and disrupted trains.
	At about 48.9 metres is a large (≤ 6mm) euhedral pyrite crystal with quartz pressure shadows parallel to cleavage.
	Chlorite porphyroblasts (≤ 1mm) common in parts.

Bedding	Cleavage	Depth
30°	35°	47.5m
20°	50°	48.0m
0 to 10°	25°	48.2m

49.17 to approx. 50.43	Pale to dark green, very fragmental chloritic and phyllitic slate containing common chloritic porphyroblasts which in parts of the unit are large (≤ 3mm) and elongated parallel to cleavage.
	Few pyritic quartz blebs and segregations.
	A thin (≤ 3cm) band of slightly cavernous and pyritic quartz at about 49.7 metres contains irregular bands and "veinlets" (≤ 2mm) of chloritic phyllitic material.

INTERSECTION (METRES)	37 111 DESCRIPTION
50.43 to approx. 51.24	Pale green and grey slaty sediments containing common chloritic porphyroblasts (generally ≤ 1mm) which are commonly slightly elongate and preferentially aligned parallel to cleavage. Slightly to moderately recrystallized and hard over the top 30 cm. S_o and S_1 generally poorly defined.
51.24 to approx. 52.73	The top $\frac{1}{3}$ consists of medium grey-green chloritic slaty shale, laminated in parts and with sporadic euhedral pyrite occurring in rare pale quartzose basal laminas and beds. The basal $\frac{2}{3}$ consists of pale to medium green phyllitic, chloritic and pyritic slate, very fragmental over the basal 60cm. The pyrite occurs as disseminated euhedra but most commonly occurs within or is associated with irregular, discontinuous and cavernous quartz blebs, veins and segregations which are commonly conformable with bedding. Slightly talcose in parts. Bedding dips; 20^o to 25^o at 51.6m, 20^o at 52.1m.
52.73 to approx. 54.86	Hard, recrystallized and slightly silicified mottled dark grey-green (chloritic porphyroblasts?) and pale grey slaty sediments similar to those in the interval 50.43 to 51.24 metres. Minor bands of soft very pale green and medium green chloritic and slightly talcose phyllitic slate. Chlorite and chloritic porphyroblasts are common and are relatively large (≤3mm) in the harder silicified and recrystallized material. The unit contains minor disseminated pyrite and a few thin (3mm) discontinuous quartz-pyrite veins and segregations. Few slightly pyritic joint planes. Rare slickensided fault planes. Bedding dips; 20^o at 53.5m, sigmoidal bedding planes dip 45^o to 54.6m.
54.86 to approx. 60.66	Pale to medium grey with slight greenish tinge, carbonaceous slaty siltstone. Finely laminated in parts, but generally coarsely laminated to finely bedded and with few bands of apparently massive siltstone. Slightly porous in parts. Rare thin (≤ 2mm) quartzose lamina containing minor (≤ 20 percent) carbonate at about 57.5 metres. Minor microfaults in parts. Rare quartz-pyrite blebs and irregular and discontinuous quartz-pyrite veinlets and vein-like segregations.

INTERSECTION (METRES)	DESCRIPTION 37 112
	A dragfold at 57.2 metres is defined by a thin ($\leq$3mm) cavernous pyritic quartz vein; The axial plane dips about 25°, parallel to bedding. Bedding dips; 25° at 55.4m, 25° - 30° at 56.0m, 30° - 35° at 56.5m, 20° - 25° at 57.3m, 30° at 58.5m, 25° - 30° at 59.4m, 25° at 59.9m.
60.66 to approx. 63.55	White and very pale grey bleached phyllitic and chloritic slate with a greenish and grey-white mottled appearance towards base due to presence of irregular blebs and bands of chloritic phyllite. Irregular pyritic-quartzose blebs and irregular vein-like segregations also occur towards the base and contain rare irregular chalcopyrite blebs. Total copper estimated 0.1 percent Cu. Talcose in parts, particularly in the palest and most bleached units. Few thin ($\leq$2mm) pyritic quartz "veins" conformable with bedding. One vein at about 61.2 metres is slightly cavernous and is 15mm thick. Bedding dips; 30° to 35° at 60.7 metres, 30° - 35° at 61.5m, 40° at 62.8m.
63.55 to approx. 65.68	MINERALIZED QUARTZ ZONE White to grey, cavernous and fragmentary pyritic and chalcopyritic carbonate-quartz. Contains $\leq$5 percent fine grained buff carbonate residue but most of the carbonate appears to have been removed by leaching. Chalcopyrite occurs as small very irregular blebs, commonly associated with pyrite. Total copper estimated at 0.5 to 0.75 percent Cu. A thin band ($\leq$5cm) of very fragmentary pyritic chloritic slate occurs towards top of unit.
65.68 to approx. 68.37	Pale green talcose chloritic slate containing a few pyritic and chloritic quartz veins, segregations and bands ($\leq$8cm.) a few of which contain traces of white chalcopyrite. A 13cm. band of slightly cavernous and slightly pyritic and chloritic quartz-dolomite occurs between 67.97 and 68.10 metres. The dolomite occurring as irregular blebs and as thin ($\leq$2mm.) parallel discontinuous "veinlets". A few thin irregular ($\leq$5mm.) pyritic and slightly chalcopyritic quartzose veinlike segregations occur parallel to cleavage (dipping 30°) at base of unit. A few pyritic and chalcopyritic quartz fragments at about 67.7 metres probably represent caved material - beware contamination.

INTERSECTION (METRES)	DESCRIPTION 37 113
68.37 to approx. 70.15	MINERALIZED QUARTZ ZONE Mottled dark green (chlorite) and white quartz containing common pyrite and chalcopyrite. The quartz occurs as veins ($\leq$ 2cm.) and as veinlike segregations. The chalcopyrite is invariably associated with the quartz veins. Pyrite occurs as coarse ($\leq$ 8mm.) disseminated euhedra and in disrupted bands parallel to quartz veins.
70.15 to approx. 71.48	Pale to dark green slightly talcose chloritic slate and phyllite containing traces of chalcopyrite which is associated with pyritic quartz veinlike segregations and with a 1.5cm. pyrite band at about 70.65 metres.
71.[illegible] to approx. 73.50	Medium green and dark green chloritic slate, commomly fragmentary. Minor chalcopyrite blebs are associated with quartz-chlorite segregations in chloritic slate. Few thin ($\leq$ 1mm.) pyritic quartz veins. A few slightly chalcopyritic quartz fragments probably represent caved material - beware contamination. Minor disseminated euhedral pyrite. Bedding dips 40°.
73.50 to 79.25	Medium green fissile chloritic slate. DDH.19 COMPLETED AT 79.25 METRES.